

Faculty Based
Govt. Bank
Written
Solution

Create By
JM Abdullah

Join us

Bank Recruitment Exam
Boost





Job Information For All Students (BCS & Bank)

Entry
শুভাশ্রম

Learn
জানর্জন

Goal
উদ্দেশ্য

Success
সাকফলা

We always with you...

AUST Written Questions

InDEx

1. Sonali Bank (Assistant Engineer IT)-2016 (Math)
2. PKB SEO- 2018 (Math)
3. Basic Bank (Assistant Manager)-2018 (Math)
4. Karmasangsthan Bank DEO-2018 (Math)
5. Janata bank EO (civil)-2017 (Math)
6. Bangladesh Krishi Bank DEO-2018 (Math)
7. Sonali Bank Officer Cash -2018 (Full)
8. Combined 3 Bank Senior Officer -2018 (Full)
9. Combined 8 bank Senior Officer -2018 (Math)
10. Combined 2 Bank Officer -2018 (Math)
11. Combined 3 Bank Office Cash -2018 (Math)
12. Sonali Bank Officer FF Quota-2019 (Math)
13. Sonali Bank Senior Officer FF Quota-2019 (Math)
14. Combined 5 Bank Officer Cash -2019 (Full)
15. Combined 8 Bank Senior Officer(Canceled) -2019 (Full)
16. Combined 8 Bank Senior Officer -2019 (Full)
17. Janata Bank Senior Officer - 2018 (Full)
18. Combined 4 Bank Officer - 2019 (Full)
19. Probashi Kallayan Bank EO Cash - 2019 (Math)
20. Probashi Kallayan Bank EO - 2019 (Math)
21. Probashi Kallayan Bank Assistant Programmer - 2019 (Math)
22. Rupali Bank Senior Officer - (2016)/2019

সংগ্রহেঃ মোঃ রায়হান আহমেদ

[Job Information For All Students \(Bcs & Bank\)](#)

Sonali Bank (Assistant Engineer IT)-2016

1. A, B and C enter into partnership with investment in the ratio 5:7:8. If at the end of the year A's share of profit is 42360, how much is the total profit?

Solution:

Let,
A's investment is $5x$ tk
B investment is $7x$ tk
C investment is $8x$ tk
Total investment = $5x + 7x + 8x = 20x$ tk
So,
 $5x = 42360$
Or, $x = 8472$
Now, total Profit = $20 \times 8472 = 169440$ tk
Answer: 169440 tk

2. Two-third of the faculty members of a department are female. Twelve of the male teachers are unmarried, while 60% of them are married. The total number of faculty members in the department is:

Solution:

Let, total members are x
then female members are $2x/3$
So, male members are $x - 2x/3 = x/3$
ATQ,
12 teachers are unmarried
Or, $(100-60)\% = 40\% = 12$
So, $100\% = 12 \times 100/40 = 30$
Again,
 $x/3 = 30$
Or, $x = 90$
Now, total faculty members are 90
Answer: 90

3. A trader marked the price of the T.V. 30% above the cost price of the T.V. and gave the purchaser 10% discount on the marked price, thereby gaining Rs. 340. Find the cost price of the TV?

Solution:

Let,
cost price of tv is x tk
Then, the market price = $x + x \times 30/100 = 13x/10$ tk
At 10% discount on market price,
Selling price = $13x/10 - 13x \times 10/10 \times 100 = 117x/100$ tk
Profit = $117x/100 - x = 17x/100$ tk
ATQ,

$$17x/100 = 340$$

$$\text{Or, } x = 340 \times 100/17$$

$$\text{Or, } x = 2000$$

So, the cost price of the TV is 2000 tk

Answer: 2000 tk

4. A circular wheel 28 inches in diameter rotates (moves) the same number of inches per second as a circular wheel 35 inches in diameter. If the smaller wheel makes x revolutions per second, how many revolutions per minute does the larger wheel make in terms of x ?

Solution:

As we know,
1 revolution of circle = Circumference of that circle
Again,
Circumference of circle = $2\pi r$
Given that,
Diameter = 28 inches
So, radius, $r = 28/2 = 14$ inches
Now, circumference = 28π inches
Hence,
 x revolutions per sec = $28\pi x$ inches
Then in 60 sec $28\pi x \times 60$ inches
ATQ,
 $28\pi x \times 60 = 35\pi n$
 $\Rightarrow n = 48x$
Thus the required no of revolutions is $48x$
Answer: $48x$

PKB SEO- 2018

1. In a flight of 600 km, an aircraft was slowed down due to bad weather. Its average speed for the trip was reduced by 200 km/hr and the time of flight increased by 30 minutes. The duration of the flight is:

Solution:

Let,
The duration of the flight be x hrs
Original distance be 600 km
According to the question,
Original speed - Reduced speed = 200
 $600/x - 600/(x + 1/2) = 200$
Or, $600/x - 1200/(2x + 1) = 200$
Or, $3/x - \{6/(2x + 1)\} = 1$
Or, $(6x + 3 - 6x) / \{x(2x + 1)\} = 1$
Or, $2x^2 + 3x - 2x - 3 = 0$

$$\text{Or, } x(2x+3)-1(2x-3)=0$$

$$\text{Or, } (2x+3)(x-1)=0$$

Now,

$$X-1=0$$

$$\text{Or, } X=1$$

And

$$2x+3=0$$

$$\text{Or, } X=-\frac{3}{2}$$

[neglecting the negative value]

Answer: 1 hour

2. A alone can reap a certain field in 15 days and B in 12 days. If A begins alone and after a certain interval B joins him, the field is reaped in 7.5 days. How long did A and B work together.

Solution:

Let,

'x' be the number of days that A and B worked together

And

Total work be 1 portion

A's 1 day's work = $\frac{1}{15}$

B'S 1 day's work = $\frac{1}{12}$

According to the question,

$$(7.5 - x)/1 + x(\frac{1}{15} + \frac{1}{12}) = 1$$

$$\text{Or, } (7.5 - x)/1 + 9x/60 = 1$$

$$\text{Or, } (30 - 4x + 9x)/60 = 1$$

$$\text{Or, } 30 + 5x = 60$$

$$\text{Or, } x = 6$$

Hence, A & B work together 6 days

Answer: 6 days

3. a, b, c, d, e are 5 consecutive numbers in increasing order, deleting one of them from the set decreased the sum of the remaining numbers by 20% of the sum of 5.

Which one of the number is deleted from the set?

Solution:

Since a, b, c, d, e are increasing order consecutive number,

$$b = a + 1,$$

$$c = a + 2,$$

$$d = a + 3,$$

$$e = a + 4$$

$$\text{The sum of five numbers} = a + a + 1 + a + 2 + a + 3 + a + 4 = 5a + 10$$

We are given that the sum decreased by 20% when one number was deleted

$$\text{New sum} = (5a + 10) - 20\% \text{ of } (5a + 10) = 4a + 8$$

$$\text{Then, } 4a + 8 = 5a + 10 - \text{Dropped number}$$

$$\text{Dropped number} = a + 2 = c$$

4. A tank can be filled by a tap in 20 minutes and by another tap in 60 minutes. Both the taps are kept open for 10 minutes and then the first tap is shut off. After this, the tank will be completely filled in what time?

Solution:

Work done by both in 1 minute

$$= (\frac{1}{20} + \frac{1}{60}) = \frac{4}{60} = \frac{1}{15}$$

Work done by both in 10 minute

$$= 10/15 = 2/3 \text{ portion}$$

Remaining part

$$= (1 - 2/3)$$

$$= 1/3 \text{ portion}$$

Now, $\frac{1}{60}$ part is filled in 1 minute

So, $\frac{1}{3}$ part will be filled in 20 minute

Answer: 20 m in

5. Two persons are running in 3.6km/h and 7.2 km/h speed. A train passes them in 9 & 9.5 seconds. What is the length of the train and speed of the train?

Solution:

Let,

The speed of the train = x kmh

Know that,

Distance = speed \times time

ATQ,

$$(x - 3.6) \times 9 = (x - 7.2) \times 9.5$$

$$\text{Or, } 9x - 32.4 = 9.5x - 68.4$$

$$\text{Or, } 0.5x = 36$$

$$\text{Or, } x = 72 \text{ kmh}$$

Here, speed of the train = 72 kmh

So, distance covered = $\{(72 - 3.6) \times 9 \times (\frac{5}{18})\} = 171$ meter

Basic Bank (Assistant Manager)-2018

1. If a person invest Tk. 4000 at x% and Tk. 5000 at y%, he will get total Tk. 320 as interest. On the other hand if he invests Tk. 5000 at x% and Tk. 4000 at y%, he will get total Tk. 310 as interest. Find the value of x and y.

Solution:

ATQ,

$$\{4000x/100\} + \{5000y/100\} = 320$$

$$\text{Or, } 4x + 5y = 32 \text{ -----(i)}$$

Again,

$$\{5000x/100\} + \{4000y/100\} = 310$$

$$\text{Or, } 5x + 4y = 31 \text{ -----(ii)}$$

From (i) \times 5 - (ii) \times 4,

$$20x + 25y = 160$$

$$20x + 16y = 124$$

$$\text{Or, } 9y = 36$$

$$\text{Or, } y = 4$$

From equation (I)

$$4x + 5y = 32$$

$$x = (32 - 5 \cdot 4) / 4 = 3$$

2. Working together pipe P, Q and T can fill a tank in 5 hours. Working together P and Q can fill it in 7 hours. Find in how many hours T can fill it?

Solution:

Part filled by P, Q and T in 1 hour = $1/5$

Part filled by P and Q in 1 hour = $1/7$

Part filled by T in 1 hour = $1/5 - 1/7 = 2/35$

$2/35$ part is filled by T in 1 hour

So, Whole part is filled by T in $35/2 = 17.2$ hrs

3. A box contains 5 green, 4 yellow and 3 white balls. Three balls are drawn at random. What is the probability that they are not of same colour?

Solution:

Total balls = $5 + 4 + 3 = 12$

No of ways of drawing 3 marbles out of 12 = ${}^{12}C_3 = 220$

event of getting 3 marbles of same color = ${}^5C_3 + {}^4C_3 + {}^3C_3 = 10 + 4 + 1 = 15$

probability of getting 3 marbles of same color = $15/220 = 3/44$

the probability that not getting marbles of same colour

= $(1 - 3/44) = 41/44$

4. There was a shipment of cars. Out of which half was black in colour. Remaining cars were equally blue, white and red. 70% of black cars, 80% of blue cars, 30% of white cars, 40% of red cars were sold. What percentage of total cars were sold?

Solution:

Let,

The total car was x

So,

Black was = $x/2$

Remaining cars = $(x - x/2) = x/2$

ATQ,

Other cars are equal colours

So,

Blue, White, and Red are

$x/6, x/6, x/6$ respectively

Sold cars:

Black cars = $x/2$ of 70% = $7x/20$

Blue cars = $x/6$ of 80% = $2x/15$

White cars = $x/6$ of 30% = $x/20$

Red cars = $x/6$ of 40% = $x/15$

Total sold

$$= (7x/20) + (2x/15) + (x/20) + (x/15)$$

$$= 180x/300$$

Required percentage

$$= (180x \times 100) / (300x)$$

$$= 60\%$$

5. A train passes a man in 3 second, and another train from opposite direction pass the man 4 second, both train same length. How long time need to pass the train each other?

Solution:

Let,

Both train length be x

So,

Total length of two train = $(x + x) = 2x$

Speed Of First train = $x/3$

Speed Of second train = $x/4$

We know that,

Time = Distance/speed

$$\text{Or, } T = 2x / (x/3 + x/4)$$

$$\text{Or, } T = 2x \cdot 12 / 7x$$

$$\text{Or, } T = 24/7$$

Hence, 3.43 second need to pass each other

6. A man works for certain hours. If his hourly payment increase by 20%, what percent of working hours he may reduce so that total income remain unchanged?

Solution:

Suppose,

hourly payment = 100tk

After increased 20% then new payment

$$= (100 + 20) = 120tk$$

So,

TK 20 reduced from tk 120

$$\text{Tk } 100 \text{ :::::::::::::::::::: } = \{ 20 \cdot 100 / 120 \}$$

$$= \{ 100/6 \}$$

$$= 16.67\%$$

7. There were some books of novel and non-fiction. Board discuss 3 times for any novel and 5 times for any non-fiction. During a year they discuss total 52 times. If there were 12 books, how many of them were novel?

Solution:

Let,
 Novel books be x
 Non Fiction books be(12-x)
 According to the question,
 $3x+5(12-x)=52$
 Or, $3x+60-5x=52$
 Or $-2x=-8$
 Or, $x=4$.
 So, Nobel books were 4

Karmasangsthan Bank DEO-2018

01. একটি বই ৬৫ টাকায় বিক্রি করলে বিক্রয় ৩০% লাভ করে। ১০% লাভে বিক্রি করতে চাইলে নতুন বিক্রয়মূল্য কত হবে?

Solution:

৩০% লাভে, বিক্রয়মূল্য (১০০ + ৩০) বা ১৩০ টাকা হলে ক্রয়মূল্য = ১০০ টাকা
 বিক্রয়মূল্য ৬৫ টাকা হলে ক্রয়মূল্য = $\frac{১০০ \times ৬৫}{১৩০} = ৫০$ টাকা
 টাকা
 ১০% লাভে, ক্রয়মূল্য ১০০ টাকা হলে বিক্রয়মূল্য = (১০০ + ১০) বা, ১১০ টাকা
 ক্রয়মূল্য ৫০ টাকা হলে বিক্রয়মূল্য = $\frac{১১০ \times ৫০}{১০০} = ৫৫$ টাকা (ans)

02. পিতা ও পুত্রের বয়সের সমষ্টি ৫০ বছর। যখন পুত্রের বয়স পিতার বর্তমান বয়সের সমান হবে তখন তাদের বয়সের সমষ্টি হবে ১০২ বছর। পিতা ও পুত্রের বর্তমান বয়স কত?

Solution:

ধরি, পিতার বয়স x বছর।
 পুত্রের বয়স = (৫০ - x) বছর
 পিতা, পুত্র অপেক্ষা বড় = x - (৫০ - x) বছর
 = (২-৫০) বছর
 যখন পুত্রের বয়স পিতার বর্তমান বয়সের সমান হবে তখন পুত্রের বয়স = x বছর
 এবং তখন পিতার বয়স হবে = x + ২x - ৫০ = ৩x - ৫০
 প্রসঙ্গত, x + ৩x - ৫০ = ১০২
 $x + ৩x = ১০২ + ৫০$
 $৪x = ১৫২$
 $x = ৩৮$
 পিতার বর্তমান বয়স = ৩৮ বছর

এবং পুত্রের বর্তমান বয়স = (৫০ - x) বছর।

$$= (৫০ - ৩৮) বছর$$

$$= ১২ বছর$$

ans. পিতার বর্তমান বয়স ৩৮ বছর এবং পুত্রের বর্তমান বয়স ১২ বছর।

03. ৩০০ টাকার ৪ বছরের সরল মুনাফা ও ৪০০ টাকার ৫ বছরের সরল মুনাফা একত্রে ১৪৮ টাকা হলে, শতকরামুনাফার হার কত?

Solution:

৩০০ টাকার ৪ বছরের সুদ = (৩০০ x ৪) বা ১,২০০ টাকার ১ বছরের সুদ
 ৪০০ টাকার ৫ বছরের সুদ = (৪০০ x ৫) বা ২,০০০ টাকার ১ বছরের সুদ
 $১২০০ + ২০০০ = ৩২০০$ টাকার ১ বছরের সুদ = ১৪৮ টাকা
 ১ টাকার বছরের সুদ = $১৪৮/৩২০০$ টাকা
 ১০০ টাকার ১ বছরের সুদ = $(১৪৮ \times ১০০)/৩২০০$
 = ৪.৬২৫ টাকা (Ans)

04. যন্ত্রাংশে ৪০%, দালানে ২৫%, কাঁচামালে ১৫% এবং আসবাবপত্রে ৫% টাকা খরচ করার পর হাসানের হাতে ১,৩০৫ টাকা থাকে। তার কাছে কত টাকা ছিল?

Solution:

যন্ত্রাংশে ৪০%, দালানে ২৫%, কাঁচামালে ১৫% এবং আসবাবপত্রে ৫% টাকা খরচ করার পর হাসানের হাতে আর থাকে = ১০০% - (৪০ + ২৫ + ১৫ + ৫)% = ১৫%
 প্রসঙ্গত, ১৫% এ অর্থের পরিমাণ = ১,৩০৫ টাকা।
 ১০০% এ অর্থের পরিমাণ = $(১৩০৫ \times ১০০)/১৫ = ৮,৭০০$ টাকা (ans)

Janata bank EO (civil)-2017

1. A number when divided successively by 4 and 5 leaves remainders 1 and 4 respectively. When it is successively divided by 5 and 4, what will be the respective remainders?

Solution:

write the numbers as follows:

divisors: 4 5

remainders: 1 4

leave the right-most top number 5

multiply 4 and 4, then add 1 which is down below the divisor 4; you get 17

add this 17 to the product of 4, 5, (divisors) and k a constant

$20k+17$ (this is the number we want)

when $k=1$, the number is 37

when 37 is divided by 5, remainder is 2

when 7 is divided by 4, remainder is 3

2. A contractor undertakes to do a piece of work in 40 days. He engages 100 men at the beginning and 100 more after 35 days and completes the work in stipulated time. If he had not engaged the additional men, how many days behind schedule would it be finished?

Solution:

$(100 * 35) + (200 * 5)$ men can finish the work in 1 day

Therefore,

4500 men can finish the work in 1 day

100 men can finish it in $4500/100 = 45$ days.

This is 5 days behind Schedule

3. In a certain office, $1/3$ of the workers are women, 12 of the women are married and $1/3$ of the married women have children. If $1/4$ of the men are married and $2/3$ of the married men have children, what part of workers is without children?

Solution:

Assume total number of workers be x

Number of women = $x/3$ and

number of men = $2x/3$

Women married = $1/2 * x/3 = x/6$

Women having children = $1/3 * x/6 = x/18$

Married Men = $3/4 * 2x/3 = x/2$

Men having Children = $2/3 * x/2 = x/3$

Workers with children = $x/3 + x/18 = 7x/18$

Hence,

workers without children = $x - 7x/18 = 11x/18$

4. The average weight of three men A, B and C is 84 kg.

Another man D joins the group and the average now becomes 80 kg. If another man E, whose weight is 3 kg more than that of D, replaces A, then the average weight of B, C D and E becomes 79 kg. What is the weight of A?

Solution:

The average weight of A, B and C = 84kg

The total weight of A, B and C = $84 * 3 = 252$ kg.

The average weight of A, B, C and D = 80 kg

The total weight of A, B, C and D = $80 * 4 = 320$ kg

The weight of D = $320 - 252 = 68$ kg

The weight of E = $68 + 3 = 71$ kg

The average weight of B, C, D and E = 79 kg

The total weight of B, C, D and E = $79 * 4 = 316$ kg

The total weight of A, B, C and D - the total weight of B, C, D and E = $320 - 316 = 4$ kg

A-E=4

A = 4+E

A = 4 + 71

A = 75 kg

Bangladesh Krishi Bank DEO 2018

01. শতকরা বার্ষিক ৭ টাকা মুনাফায় ৬৫০ টাকার ৬ বছরের মুনাফা কত ?

Solution - 1:

৭% মুনাফায়

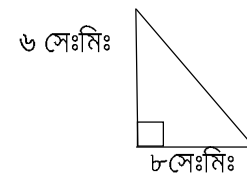
১০০ টাকার ১ বছরের মুনাফা = ৭ টাকা

১ টাকার ১ বছরের মুনাফা = $\frac{৭}{১০০}$ টাকা

৬৫০ টাকার ১ বছরের মুনাফা = $\frac{৭ \times ৬৫০}{১০০}$ টাকা

৬৫০ টাকার ৬ বছরের মুনাফা = $\frac{৭ \times ৬৫০ \times ৬}{১০০} = ২৭৩$ টাকা (ans)

02. একটি সমকোণী ত্রিভুজের সমকোণ সংলগ্ন ত্রিভুজক্ষেত্রের দৈর্ঘ্য ৬ সেঃ মিঃ এবং ৮ সেঃ মিঃ হলে এর ক্ষেত্রফল নির্ণয় করুন।



Solution:

আমরা জানি, সমকোণী ত্রিভুজের ক্ষেত্রফল = $\frac{১}{২}(\text{ভূমি} \times \text{উচ্চতা})$
বর্গঃ সেঃমিঃ

$$= \frac{১}{২}(৮ \times ৬) = ২৪$$

বর্গ সেঃমিঃ (ans)

এখানে, ভূমি = ৮ সেমি উচ্চতা = ৬ সেমি

ত্রিভুজের ক্ষেত্রফল = ২৪ বর্গ সেঃমিঃ (ans)

Sonali Bank Officer Cash 2018

01. A, B and C are partners. 'A' whose money has been in the business for 4 months claims $1/8$ of the profits; 'B' whose money has been in the business for 6 months claims $1/3$ of the profits. If 'C' had Tk.1560 in the business for 8 months, how much money did A and B contribute to the business? (15)

Solution:

A's share of profit = $1/8$

B's share of profit = $1/3$

So, C's share of profit = $1 - (1/8 + 1/3) = 13/24$

Ratio of profit of A, B and C = $1/8 : 1/3 : 13/24 = 3 : 8 : 13$

Let, A contributes Tk. x for 4 months and B contribute Tk. y for 6 months.

Ratio of investments of A, B and C = $4x : 6y : (1560 \times 8) = 4x : 6y : 12480$

Now,

$$4x : 12480 = 3 : 13$$

$$\text{Or, } 4x/12480 = 3/13$$

$$\text{Or, } 52x = 12480 \times 3$$

$$\text{Or, } x = (12480 \times 3) / 52$$

$$\text{Or, } x = 720$$

Again,

$$6y : 12480 = 8 : 13$$

$$\text{Or, } 6y/12480 = 8/13$$

$$\text{Or, } 78y = 12480 \times 8$$

$$\text{Or, } y = (12480 \times 8) / 78$$

$$\text{Or, } y = 1280$$

So, contribution of A and B is Tk. 720 and Tk. 1280 respectively.

Ans: Tk. 720 and Tk. 1280

02. Machine A, working alone at its constant rate, produces x pounds of peanut butter in 12 minutes. Machine B, working alone at its constant rate, produces x pounds of peanut butter in 18 minutes. How many minutes will it take machines A and B, working simultaneously at their respective constant rates, to produce x pounds of peanut butter? (15)

Solution:

$$\text{Machine A and B produce in 1 minute} = (x/12 + x/18) = 5x/36$$

$5x/36$ pounds is produced by both machines in 1 minute

Or, 1 pounds is produced by both machines in $36/5x$ minute

$$\text{Or, } x \text{ pounds is produced by both machines in } (36/5x \times x) = 7.2 \text{ minute}$$

Ans: 7.2 minutes

03. Two trains running at the rate of 75 km and 60 km an hour respectively on parallel rails in opposite directions, are observed to pass each other in 8 seconds and when they are running in the same direction at the same rates as before, a person sitting in the faster train observes that he passes the other in $31 \frac{1}{2}$ seconds. Find the lengths of the trains. (15)

Solution:

Moving in opposite direction:

$$\text{Relative speed of two trains} = (75 + 60) \text{ km/hr} = 135$$

$$\text{km/hr} = (135 \times 5/18) \text{ m/s} = 75/2 \text{ m/s}$$

$$\text{Length of the both trains} = (75/2 \times 8) \text{ meters} = 300 \text{ meters}$$

When moving in the same direction,

$$\text{Relative speed of two trains} = (75 - 60) \text{ km/hr} = 15 \text{ km/hr} = (15 \times 5/18) \text{ m/s} = 25/6 \text{ m/s}$$

$$\text{So, Length of the slower train} = (25/6 \times 31.5) \text{ meters} = 131.25 \text{ meters}$$

$$\text{Thus, length of the faster train} = 300 - 131.25 = 168.75 \text{ meters}$$

Ans: 131.25 meters and 168.75 meters.

04. A gardener plants two rectangular gardens in separate regions on his property. The first garden has an area of 600 square feet and a length of 40 feet. If the second garden has a width twice that of the first garden, but only half of the area, what is the ratio of the perimeter of the first garden to that of the second garden? (15)

Solution:

$$\text{Width of the first garden} = 600/40 = 15 \text{ feet.}$$

ATQ,

$$\text{width of the second garden} = 15 \times 2 = 30 \text{ feet}$$

$$\text{and, area of the second garden} = \frac{1}{2} \times 600 = 300 \text{ sq. feet}$$

$$\text{So, length of the second garden} = 300/30 = 10 \text{ feet}$$

Now, Perimeter of the first garden : Perimeter of the second garden

$$= 2(40+15) : 2(10+30)$$

$$= 110 : 80$$

$$= 11 : 8$$

05. In a certain class, $1/5$ of the boys are shorter than the shortest girls in the class and $1/3$ of the girls are taller than the tallest boy in the class. If there are 16 students in the class and no two people have the same height, what percent of the students are taller than the shortest girl and shorter than the tallest boy? (15)

Solution:

$$\text{Total students} = 16$$

$1/5$ implies that no. of boys must be a multiple of 5

And

$1/3$ implies that the no. of girls must be a multiple of 3.

So, Boys = 10 and Girls = 6 which satisfy the no. of total students $(10 + 6) = 16$

$$\text{Shorter boys} = (1/5 \times 10) = 2 \text{ and shortest girl} = 1$$

$$\text{Taller girls} = (1/3 \times 6) = 2 \text{ and tallest boy} = 1$$

$$\text{Taller than shortest girls and shorter than tallest boy} = (16 - 2 - 2 - 1 - 1) = 10$$

$$\text{So, Required percentage} = (10/16 \times 100) = 62.5\%$$

Ans: 62.5%

06. Translation: English to Bangla (15)

Sonali Bank Officer Cash Written Exam 2018 : Translation	
Bangladesh is now apparently in the grip of all sorts of pollution like air pollution and water pollution.	স্পষ্টতই বাংলাদেশ এখন সব ধরনের দূষণ, বিশেষ করে বায়ু এবং পানি দূষণের কজায় রয়েছে।
The dwellers of the urban areas are the worst sufferers of such pollution.	শহুরে অধিবাসীরাই এই দূষণের সবচেয়ে বড় শিকার।
The indiscriminate industrialization process in Bangladesh over the past decades has created significant environmental problems.	গত কয়েক দশকে বাংলাদেশে নিরবিচ্ছিন্ন শিল্পায়ন প্রক্রিয়া গুরুত্বপূর্ণ পরিবেশগত সমস্যার সৃষ্টি করেছে।
We will now know about some of the common types of environmental pollutions.	আমরা পরিবেশগত দূষণের সাধারণ কিছু ধরণ সম্পর্কে এখন জানতে পারব।
Air pollution comes from a wide variety of sources.	বায়ুদূষণের উৎস নানাবিধ।
In Bangladesh poisonous exhaust from industrial plants, brick kilns, old or poorly serviced vehicles and dust from roads and construction sites are some of the major sources of air pollution.	আমাদের দেশে শিল্প প্লট, ইট ভাটা, পুরাতন বা অপেক্ষাকৃত নাজুক যানবাহন এবং সড়ক ও নির্মাণস্থল থেকে বিষাক্ত ধূলাবালিও বায়ু দূষণের প্রধান কারণ।
We can reduce this type of pollution by making less use of motor vehicles and avoiding the use of vehicles older than 20 years.	আমরা মোটর গাড়ির ব্যবহার কম করে এবং ২০ বছরের চেয়ে পুরাতন যানবাহন ব্যবহার না করে এই ধরনের দূষণ কমাতে পারি।

07. Translation: Bangla to English (15)

Sonali Bank Officer Cash Written Exam 2018 : Translation	
জনসংখ্যা সমস্যা আমাদের দেশের একটি বড় সমস্যা।	Population problem is a giant problem in our country.
আমাদের জনসংখ্যা বেড়েই চলেছে।	It is growing day by day.
দেশের লোকের স্বাস্থ্য তেমন ভালো নয়।	The health of the people is not so good.

তাদের অনেকেই অপুষ্টিতে ভুগছে।	Many of them are suffering from malnutrition.
যে পরিমাণ খাদ্য তাদের জন্য প্রয়োজন তা তারা পায় না।	They do not get as much food as they need.
আমরা পর্যাপ্ত পরিমাণে খাদ্য উৎপাদন করতে পারি না।	It is because we cannot produce sufficient food.
অধিক খাদ্য উৎপাদন করে খাদ্য চাহিদা পূরণ করা সম্ভব।	It is possible to meet demand of food by producing more.
সেজন্য আমাদের প্রচুর পরিশ্রম করতে হবে।	That's why we have to work a lot.
আমাদের খাদ্য সমস্যা সমাধানের জন্য বৈজ্ঞানিক পদ্ধতিতে চাষ করতে হবে।	We shall have to cultivate in scientific ways to solve our food problem.

08. English Comprehension (15)

Read the following passage and answer the questions:
Marina Hills High School is fighting pollution in an unusual way. It's planting trees! In an effort to fight pollution and help the environment, the Marina Hills Ecology Club offers free trees to institutions willing to plant them on their grounds. Among those that took advantage of the offer was Marina Hills High School. After consulting with his teachers on where to plant the trees, Principal Max Webb contacted the Ecology Club. But when the seedlings arrived, Webb had an idea. Instead of planting the young trees in front of the school, he thought it would be better to put them behind the school, where the sun gets very hot in the afternoon. "It gets so hot inside the building that the students start to sweat during their afternoon classes," said Webb. "Now the shade from our trees will bring them some relief." "There was no argument from the teachers," he added. "When I proposed the idea, everyone said, "Now why didn't I think of that!" The relief won't come until the trees grow taller, but the school will not have to wait long because it requested two species of trees that grow quickly. "Time is key and we wanted our trees to get big fast," said Webb. "We were given a wide choice, from shrubs to fruit trees. We requested eucalyptus and willow trees." Webb said he is also looking forward to finally seeing some wildlife in the school yard at Marina Hills High School. "If all you have is a grass lawn with no trees, you can't expect the local birds to come and visit," said Webb. "They have no place to make their nests. Now that will change, and we'll be able to see

birds from our classroom windows.” (a) What would be the most appropriate headline for this article?

(b) What did the Ecology Club do for Marina Hills High School?

(c) What problem does Principal Webb talk about?

(d) What can be inferred from the article about eucalyptus and willow trees?

(e) What does Principal Webb imply about the local birds?

09. Business Letter writing in English (15)

Write an application to the Honorable Minister for Finance highlighting the importance of reduction of taxes on imported industrial raw materials.

10. Business Letter writing in Bangla (15)

আপনার এলাকায় পাবলিক লাইব্রেরি স্থাপনের প্রয়োজনের কথা জানিয়ে সংস্কৃতি মন্ত্রণালয়ের সচিবের কাছে একটি আবেদন লিখুন।

11. Focus Writing in English (20)

Write an essay on “Modern Technology and Globalization”

12. Focus Writing in Bangla (30)

“বৈশ্বিক উন্নতি বৃদ্ধি এবং বাংলাদেশে এর প্রভাব সম্পর্কে বাংলায় একটি রচনা লিখুন।

Combined 3 bank senior officer 2018

01. A train 300m long along overtook a man walking along the line in the same direction at a speed of 4 km/h and passed him in 30 sec. The train reached the station in 15 minutes after it had passed the man. In what time did the man reach the station?

Solution:

Let,

The speed of the train be x km/hr

Since the direction is same,

The relative speed

$$= (x - 4) \text{ km/hr}$$

$$= (x - 4) \frac{1000}{3600} \text{ m/sec}$$

$$= \left(\frac{5}{18}\right) \times (x - 4)$$

ATQ,

$$300 / \left\{ \left(\frac{5}{18}\right) \times (x - 4) \right\} = 30$$

$$\text{Or, } (300 \times 18) / 5(x - 4) = 30$$

$$\text{Or, } 150(x - 4) = 300 \times 18$$

$$\text{Or, } x - 4 = 300 \times 18 / 150$$

$$\text{Or, } x - 4 = 36$$

$$\text{Or, } x = 40$$

So, the speed of the train is $x = 40$ km/hr

After passing the man, the train travels for 15 minutes.

So, distance covered by the train = $40 \times 15/60$ km = 10 km.

Now, the man needs time = $10 \text{ km} / 4 \text{ km/hr} = 2 \frac{1}{2}$ hr to reach the station.

02. Two boats on opposite banks of a river start moving towards each other. They first pass each other 1400 meter from one bank. They each continue to the opposite bank, immediately to around and start back to the other bank. When they pass each other a second time, they are 600 meters from the other bank. We assume that each boat travels at a constant speed all along the journey. Find the width of the river?

Solution:

Let,

width of the river be x meter.

At 1st passing,

Boat 1 moves 1400 meter

So, Boat 2 moves = $x - 1400$ meter

At 2nd passing,

Boat 1 moves = $(x - 1400 + 600)$ meter = $x - 800$ meter

Boat 2 moves = $1400 + (x - 600)$ meter = $x + 800$ meter

Now,

$$1400 / (x - 1400) = (x - 800) / (x + 800)$$

$$\text{Or, } x^2 - 800x - 1400x + 800 \times 1400 = 1400x + 800 \times 1400$$

$$\text{Or, } x^2 - 3600x = 0$$

$$\text{Or, } x(x - 3600) = 0$$

$$x = 0 \text{ (Not Acceptable)}$$

$$x - 3600 = 0$$

$$\text{or, } x = 3600$$

03. In a mixture of milk and water, their ratio is 4:5 in the first container. And the same mixture has ratio 5:1 in the second container. In what ratio should the mixture be extracted from such container and poured into the third container, so that the ration of milk and water comes to 5:4 in the third container.

Solution:

Let 1st container contains X liters mixture of milk and water.

Milk in 1st container = $4/9x$

Water in 1st container = $5/9x$

Let 2nd container contains Y liters mixture of milk and water

Milk in 2nd container = $5/6y$

Water in 2nd container = $1/6y$

Let the two mixture combine such that the milk to water ratio is 5:4

So,

$$(4x/9 + 5y/6) / (5x/9 + y/6) = 5/4$$

$$\text{or, } (8x + 15y)/(10x + 3y) = 5/4$$

$$\text{Or, } 50x + 15y = 32x + 60y$$

$$\text{Or, } 18x = 45y$$

$$\text{Or, } x/y = 45/18$$

$$\text{Or, } x/y = 5/2$$

Hence mixture from first container and second container should be mixed in the ratio 5/2 for milk and water to be in ratio 5:4.

04. A can do a piece of work in 120 days and B can do it in 150 days. They work together for 20 days. Then B leaves and A continues the work alone. 12 days after that C joins A and the work is completed in 48 days more. In how many days can do it if he works alone?

Solution:

$$\text{A's 1 day's work} = 1/120$$

$$\text{B's 1 day's work} = 1/150$$

$$\text{(A+B)'s 1 day's work} = (1/120 + 1/150) = 9/600 = 3/200$$

$$\text{(A+B)'s 20 day's work} = (3/200) \times 20 = 3/10$$

$$\text{A's 12 day's work} = (1/120) \times 12 = 1/10$$

$$\text{Remaining work} = 1 - (3/10 + 1/10) = 3/5$$

$$\text{(A+C)'s 48 day's work} = 3/5$$

$$\text{(A+C)'s 1 day's work} = (3/5) \times (1/48) = 3/240$$

$$\text{C's 1 day's work} = (3/240 - 1/120) = 1/240$$

So, C does the work in 240 days.

05. The number of girls in a school is 160 more than 1/3 of the total enrollment of the school. The number of boys is 280 more than 1/7 of the total enrollment in the school. How many pupils in the school are girls and boys?

Solution:

Let,

the total enrollment of students be T,

number of girls G and the boys B.

ATQ,

$$G = 160 + T/3$$

$$B = 280 + T/7$$

$$T = G + B = 160 + T/3 + 280 + T/7,$$

$$\text{Or, } 21T = 3360 + 7T + 5880 + 3T$$

$$\text{Or, } 11T = 3360 + 5880 = 9240$$

$$\text{Or, } T = 9240/11 = 840$$

$$\text{So } G = 160 + 840/3 = 440 \text{ and}$$

$$B = 280 + 840/7 = 400$$

06. A manufacturing company uses two machines A and B with different production capacities. When working alone, machine A can produce a production lot in 5 hours and

machine B can produce the same lot in x hours. When the two machines operate simultaneously to produce the same production lot, it takes them 2 hours to complete the job. How many hours will the machine B take to produce the production lot alone?

Solution:

$$\text{A's 1 hour work} = 1/5$$

$$\text{B's 1 hour work} = 1/x$$

$$\text{So, (A+B)'s 1 hour work} = (1/5 + 1/x)$$

As (A+B) take 2 hours to complete the job, they take 1 hour to do 1/2 of the job.

So,

$$1/5 + 1/x = 1/2$$

$$\text{Or, } 1/x = 1/2 - 1/5$$

$$\text{Or, } 1/x = 3/10$$

$$\text{Or, } x = 10/3 = 3.33 \text{ hrs}$$

07. Translation: English to Bangla

combined 3 bank senior officer written: Translation	
Chikungunya is an infection by the chikungunya Virus.	চিকুনগুনিয়া ভাইরাসের দ্বারা চিকুনগুনিয়া রোগের সংক্রমণ হয়।
Symptoms include fever and joint pain.	এর উপসর্গগুলোর মধ্যে লিভার এবং গাঁটে গাঁটে ব্যথা অন্তর্ভুক্ত।
These typically occur two to twelve days after exposure.	সংক্রমণের সাধারণত দুই থেকে বারো দিনের মধ্যে এটা প্রকাশ পায়।
Other symptoms may include headache, muscle pain, joint swelling, and rash.	অন্যান্য উপসর্গগুলির মধ্যে রয়েছে মাথাব্যথা, পেশী ব্যথা, ফুলে উঠা এবং ফুসকুড়ি।
Most people are better within a week, however, Occasionally the joint pain may last for months.	বেশিরভাগ মানুষ এক সপ্তাহের মধ্যেই আরোগ্য লাভ করে, তবে, মাঝে মাঝে গাঁটের ব্যথা কয়েক মাস ধরে থাকতে পারে।
The risk of death is around 1 to 1000.	এ রোগে মৃত্যুর ঝুঁকি ১ থেকে ১০০০ এর কাছাকাছি।
The virus is spread between people by two types of mosquitoes: Aedes albopictus and aedes aegypti.	চিকুনগুনিয়ার ভাইরাস দুই ধরনের মশা দ্বারা মানুষের মাঝে ছড়িয়ে পড়ে: একটা হচ্ছে এডিস আলবপিক্টাস এবং অন্যটি এডিস ইজিপ্টি।

They mainly bite during the day.	এই মশাগুলো সাধারণত দিনে কামড়ায়।
The virus may circulate within a number of animals including birds and rodents.	পাখি এবং সূচালো দাঁতবিশিষ্ট প্রাণীর মধ্যেও এ ভাইরাস ছড়িয়ে পড়তে পারে।
Diagnosis is by either testing the blood for the virus's RNA or antibodies to the virus.	রক্তে ভাইরাসটির RNA বা অ্যান্টিবডিগুলি পরীক্ষার মাধ্যমে এই রোগ নির্ণয় করা হয়।
The best means of prevention is overall mosquito control and the avoidance of bites in areas where the disease is common.	চিকুনগুলিনীয়া রোগ প্রতিরোধের সর্বোত্তম উপায় হচ্ছে সামগ্রিকভাবে মশার বংশবিস্তার এবং যে সকল এলাকায় রোগটির প্রাবল্য তা নিয়ন্ত্রণ করা।
This may be partly achieved by decreasing mosquitoes' access to water and with the use of insect repellent and mosquito nets.	নিয়ন্ত্রণ কার্য কিছুটা সম্ভব মশাদের জলাবদ্ধ জায়গায় অবস্থানে বাধাদান এবং সেইসাথে কীটপতঙ্গের প্রতিরোধক ও মশারি ব্যবহারের মাধ্যমে।
There is no vaccine and no specific treatment as of 2016.	২০১৬ সাল পর্যন্ত এ রোগের কোন টিকা নেই এবং কোনও নির্দিষ্ট চিকিৎসা ছিল না।
Recommendations include rest, fluids and medications to help with fever and joint pain.	রোগ নিরাময়ের সুপারিশ হিসেবে জ্বর এবং ব্যথা কমানোর জন্য পর্যাপ্ত বিশ্রাম, তরল গ্রহণ ও ওষুধ সেবন করা যায়।

08. Translation: Bangla to English

combined 3 bank senior officer written: Translation	
বাংলাদেশের তথ্যপ্রযুক্তি খাতে অন্যতম প্রতিশ্রুতিশীল ও সুসংগঠিত প্রতিষ্ঠান হচ্ছে বাংলাদেশ অ্যাসোসিয়েশন অব সফটওয়্যার অ্যান্ড ইনফরমেশন সার্ভিসেস (বেসিস)।	Bangladesh Association of Software and Information Services (BASIS) is one of the most committed and well-organized organizations in the IT sector of Bangladesh
দিন দিন আমাদের দেশের ইন্টারনেট ব্যবহারকারী বেড়েই চলেছে।	Day by day, the number of internet users of our country are growing.
এই ইন্টারনেট সবাই যাতে ইতিবাচক হিসেবে ব্যবহার করে, সে ক্ষেত্রে বেসিস অসামান্য ভূমিকা পালন করতে পারে।	Basis can play an outstanding role in the case for the people to use internet positively.

সম্প্রতি দেশের মুঠোফোন অপারেটরগুলো ফোরজির লাইসেন্স পেয়েছে।	Recently, the mobile phone operators of the country have got the license of 4G.
এটা আমাদের দেশের তথ্যপ্রযুক্তির জন্য একটি বড় মাইলফলক হিসেবে বিবেচিত হয়েছে।	It has been considered as a major milestone for the information technology of our country.
কারণ, ইন্টারনেটের ধীরগতি এটা ব্যবহার করতে অনেক সমস্যার সৃষ্টি করত।	Because the slowness of the speed of internet, it used to create many problems in using.
দেশের সর্বত্র সবার মধ্যে তথ্যপ্রযুক্তির আলো ছড়িয়ে দিতে একটি সুসংগঠিত সংগঠন হিসেবে বেসিসকে আরও বলিষ্ঠ ভূমিকা রাখতে হবে।	BASIS, as a well-organized organization, will have to play a robust role to spread the light of information technology across the country.

09. Letter writing in English:

Write an application in response to the following advertisement: Apply for the post of Secretary in a business industry.

10. Letter Writing in Bangla:

সড়ক দুর্ঘটনা রোধের ব্যাপারে আপনার পরামর্শ সংবাদপত্রে প্রকাশের জন্য একটি দৈনিক পত্রিকার সম্পাদকের নিকট পত্র লিখুন।

11. Focus writing in English

Write an essay on "The Role of Commercial Bank in Developing Small and Medium Scale Industries in Bangladesh".

12. Focus writing in Bangla:

রেনিট্যাঙ্ক ও আমাদের সামাজিক জীবন সম্পর্কে একটি প্রবন্ধ রচনা করুন।

13. English Comprehension

Read the following passage and answer the questions below:

Water pollution refers to any change in natural water that may impair further use of water, caused by the introduction of organic or inorganic substances or by a change in the temperature of water. Waste water emanate from the following sources: Municipal waste water, Industrial waste water, Agricultural runoff, Storm water and urban runoff. During recent years, chemical pollution of water bodies has increased many fold and people who are responsible for human health have become increasingly concerned about water pollution. Eutrophication is the enrichment of water

by nutrients from natural or man-made sources, or all the nutrients, nitrogen and phosphorus are most often considered as key nutrients responsible for promotion of growth of algae and other plants resulting in anoxic condition.

Pesticides used in agriculture reach natural or man-made water bodies and cause disruption to one or more physiological functions of aquatic organisms by interfering with the production of necessary biochemical e.g., D.D.T. which consists of aromatic ring, mimic the effects of estrogen in aquatic animals such as fish, where the reproduction is disturbed. As such non-biodegradable pesticides accumulate in the body of aquatic organisms through the process of bio magnification. Along with agricultural runoff many toxic chemicals reach water bodies through industrial effluents.

The structure of a molecule is the key to its biodegradability. In general polymers with mixed backbone linkage (carbon-oxygen or carbon-nitrogen) show greater susceptibility to hydrolysis. than carbon-carbon backbone polymers. Polymers with aromatic components or branched region tend to be more resistant to attack by microorganisms than straight chain aliphatic compounds. Most common system practiced for control of water pollution is the use of waste water treatment plants, based on the physical, chemical and biological treatment steps generally known as preliminary, primary, secondary and tertiary treatments. It must be remembered that the steps of treatment and type of treatment will depend upon the constituents and their concentrations in the effluent and final usage of water.

- Why did the quality of water deteriorated due to human activities?
- Why the protection of human health has become a problem?
- Justify the statement "Pesticides are useful and at the same time harmful to the ecosystem".
- What determines biodegradability of a chemical?
- How polluted water is treated for safe disposal.

Combined 8 Bank SO 2018

1. Two rabbits start running towards each other, one from A to B and another from B to A. They cross each other after one hour and the first rabbit reaches B, 5/6 hour before the second rabbit reaches A. If the distance between A and B is 50 km. what is the speed of the slower rabbit?

Answer: 20 km/hr

Solution:

Let second rabbit takes x hr with speed s_2

First rabbit takes $x - 5/6$ hr with speed s_1

Total distance = 50km

$$S_1 = 50 / (x - (5/6))$$

$$S_2 = 50 / x$$

As they cross each other in 1hr...

Total speed = $s_1 + s_2$

Now, $T = D / S$

$$50 / (s_1 + s_2) = 1$$

$$x = 5/2, 1/3$$

Put $x = 5/2$ in $s_2 \rightarrow 20$ km/hr

Shortcut:

Let, speed of faster & slower rabbit be x & y respectively

$$\text{Atq, } x + y = 50$$

$$\text{And, } 50/y - 50/x = 5/6$$

From the above equations, **$y = 20$ km/h (ans)**

2. Pipe A can fill a Tank in 18 Hours, Pipe B can empty a Tank in 12 Hours, Pipe C can fill Tank in 6 Hours. The Tank is already filled up to 1/6 of its capacity. Now Pipe A is opened in the First Hour alone, Pipe B is opened in the Second Hour alone and Pipe C is opened in the Third Hour alone. This cycle is repeated until the Tank gets filled. Then in How many Hours does the rest of Tank gets filled?

Solution:

In First Hour Tank filled = $1/6 + 1/18$

Second Hour = $1/6 + 1/18 - 1/12$

Third Hour = $1/6 + 1/18 - 1/12 + 1/6 = 11/36$ is filled
25/36 is left

From then 3 hours work = $1/18 - 1/12 + 1/6 = 5/36$

$$5 * 3 \text{ Hours} = 5 * 5/36 = 25/36$$

$$\text{Total} = 5 * 3 + 3 = 18 \text{ Hours}$$

Shortcut:

$$\text{Remaining part} = 1 - 1/6 = 5/6$$

$$\text{In 3hrs 3pipes can fill} = 1/18 - 1/12 + 1/6 = 5/36$$

So,

$$\text{To fill } 5/6 \text{ part, it requires} = 3 * 36 / 5 * 5/6 = 18 \text{ hrs (ans)}$$

Ans: 18 Hours

3. A Jar contains 'x' liters of Milk, a seller withdraws 25 liter of it and sells it at tk. 20 per liter. He then replaces it with water. He repeated the process total three times. Every time while selling he reduces selling price by tk. 2. After this process Milk left in the mixture is only 108 liters so he decided to sell the entire Mixture at tk. 15 per liter. Then

how much profit did he earned if bought Milk at tk. 20 per liter?

Ans: 70 Tk. profit

Shortcut:

Seller sells Milk at Tk. 20,18 and 16 respectively for three times

$$= 25 * (20+18+16) = 1350$$

$$108 = x(1-25/100) \quad 3$$

$$x = 256 \text{ liter}$$

$$\text{He sold entire 256 at Tk.15} = 256 * 15 = 3840$$

$$\text{Cost price} = 256 * 20 = 5120$$

$$\text{profit} = 3840 - 5120 = 70 \text{ Tk. (ans)}$$

Ans: 70 Tk. Profit

4. A container contains milk and water in the ratio of 3:1.

How much mixture should be taken out and replaced with milk so that the container contains milk and water in the ratio of 15:4. What portion of original mixture had been replaced by milk.

Solution:

Let total original quantity = x litres, Let y litres replaced.

After y litres of mixture drawn out,

$$\text{Milk} = [3/(3+1)] * x - [3/(3+1)] * y$$

$$\text{Water} = [1/(3+1)] * x - [1/(3+1)] * y$$

Now y litres of milk poured in can. Milk becomes $(3/4) * x -$

$$(3/4) * y + y = (3/4) * x + (1/4) * y$$

$$\text{Now } [(3/4) * x + (1/4) * y] / [(1/4) * x - (1/4) * y] = 15/4$$

$$\text{Solve, } y = (3/19) * x$$

So 3/19 of original mixture removed.

Ans: 3/19 portion had been replaced by milk

5. A man rows to a place 40 km distant and back in a total of 18 hours. He finds that he can row 5 km with the stream in the same time as 4 km against the stream. What is the speed of boat in still water?

Solution:

Suppose he moves 5km downstream in x hours

Then, downstream speed a = 5/x km/hr

Speed upstream speed b = 4/x km/hr

$$40 / (5/x) + 40 / (4/x) = 18$$

$$8x + 10x = 18$$

$$x = 1$$

a = 5 km/hr, b = 4 km/hr

speed of boat = $\frac{1}{2} (5 + 4) = 9/2 \text{ km/hr} = 4.5 \text{ Km/hr}$

Shortcut:

Speed in downstream=5/t

Speed in upstream=4/t

$$\text{ATQ, } 40/(5/t) + 40/(4/t) = 18$$

$$\Rightarrow t=1$$

So,

Speed in downstream=5

Speed in upstream=4

Now speed of boat in steel water = $(5+4)/2 = 4.5 \text{ km/hr}$

(ans)

Ans: Speed of the boat in still water 4.5 km/hr

6. Probability Solution A Bag contains some White and Black Balls. The probability of picking two white balls one after other without replacement from that bag is 14/33. Then what will be the probability of picking two Black balls from that Bag if bag can hold maximum 15 balls only?

Solution:

$$Wc2 / (B+W)c2 = 14/33$$

$$W(W-1) / (W+B) * (B+W-1) = 14/33$$

Now expressing 14/33 in the above format by multiplying 4 in numerator and denominator

$$W(W-1) / (W+B) * (B+W-1) = 8 * 7 / 12 * 11 \text{ (note = balls } < 15)$$

$$W = 8$$

$$W+B = 12 \quad B = 4$$

$$\text{Probability} = 4c2 / 12c2 = 1/11$$

Shortcut:

$$4/33 = (8/12) * (7/11)$$

So we can write,

Total ball=12

White ball=8

Black ball=12-8=4

So, Required probability = $4c2 / 12c2 = 1/11$ (ans)

Ans: 1/11

Combined 2 Banks Officer(General) 2018

1. 1 machine X can print one lakh books in 8 hours, machine Y can print the same number of books in 10 hours while machine Z can print them in 12 hours. All the machines are started at 9 A.M. while machine X is closed at 11 A.M. and the remaining two machines complete work.

Approximately at what time will the work?

Solution:

$$(X + Y + Z)'s \text{ 1 hour's work} = \left(\frac{1}{8} + \frac{1}{10} + \frac{1}{12} \right) = \frac{37}{120}$$

$$\text{Work done by X, Y and Z in 2 hours} = \left(\frac{37}{120} \times 2 \right) = \frac{37}{60}$$

$$\text{Remaining work} = \left(1 - \frac{37}{60} \right) = \frac{23}{60}$$

$$(Y + Z)'s \text{ 1 hour's work} = \left(\frac{1}{10} + \frac{1}{12} \right) = \frac{11}{60}$$

Now, $\frac{11}{60}$ work is done by Y and Z in 1 hour.

$$\text{So, } \frac{23}{60} \text{ work will be done by Y and Z in } \left(\frac{60 \times 23}{11 \times 60} \right) = \frac{23}{11} \text{ hours} \approx 2 \text{ hours.}$$

So, the work will be finished approximately 2 hours after 11 A.M., i.e., around 1 P.M.

2. Three pipes A, B and C can fill a tank in 6 hours. After working at it together for 2 hours, C is closed and A and B can fill the remaining part in 7 hours. How many hours will take C alone to fill the tank ?

Solution:

Combined rate of work

$$1/a + 1/b + 1/c = 1/6$$

$$\text{Work done by 3 in 2 hrs} = 2 \times 1/6 = 1/3$$

Work left to be done

$$1 - 1/3 = 2/3.$$

This work is done by a&b in 7 hrs.

Thus Rate of work is

$$\text{Work/time} = 2/3 / 7 = 2/21$$

Therefore $1/c = 1/6 - 2/21$.

Solving the equation $c = 14$ hr

3. A man went downstream for 28 km in a motor boat and immediately returned. It took the man twice as long to make the return trip. If the speed of the river flow were twice as high, the trip downstream and back would take 672 minutes. Find the speed of the boat in still water and the speed of the river flow.

Solution:

Let the speed of the boat = p kmph

Let the speed of the river flow = q kmph

From the given data,

$$2 \times \left\{ \frac{28}{(p + q)} \right\} = \frac{28}{(p - q)}$$

$$\Rightarrow 56p - 56q - 28p - 28q = 0$$

$$\Rightarrow 28p = 84q$$

$$\Rightarrow p = 3q.$$

Now, given that if

$$\frac{28}{(3q + 2q)} + \frac{28}{(3q - 2q)} = 672/60$$

$$\Rightarrow \frac{28}{5q} + \frac{28}{q} = 672/60$$

$$\Rightarrow q = 3 \text{ kmph}$$

$$\Rightarrow p = 3q = 9 \text{ kmph}$$

Hence, the speed of the boat = p kmph = 9 kmph and the speed of the river flow = q kmph = 3 kmph.

4. Rahim has 30 marbles, 18 red & 12 blue marbles. Karim has 20 marbles. The ratio of red & blue marbles is equal to Rahim marbles. How many more blue marbles Rahim has?

Solution:

Let blue marbles for Karim be x

The, red marbles for Karim will be $20 - x$

Rahim has 30 marbles, 18 of which are red and 12 of which are blue.

$$\text{Thus, red/blue} = 18/12 = 3/2$$

We use the same ratio for Karim.

$$\text{Red/blue} = 3/2 = (20-x)/x$$

$$3 \times x = 2 \times (20 - x)$$

$$3x = 40 - 2x$$

$$5x = 40$$

$$x = 40/5 = 8$$

Rahim has 12 blue marbles. So, he has $12 - 8 = 4$ more blue marbles than Karim.

5. A train travelling at 20 m/s completely crosses another train having 192 meters length travelling in same direction at 15 m/s in 1.5 minutes. In what time will they cross each other travelling in opposite direction and length of the faster train is?

Solution:

Let the length of faster train be x metres.

Then, distance covered = $x + 192$ metres.

In same direction Relative speed = $(20 - 15)$ m/s

$$\text{Now, } (x+192)/90 = 5$$

$$\Rightarrow x = 450 - 192$$

$$\Rightarrow x = 258 \text{ metres}$$

In opposite direction Relative speed = $(20+15) = 35$ m/s

Distance has to be covered = $192 + 258 = 450$ metres

So the needed time = $450/35 = 12.86$ sec

Combined 3 Bank Officer (Cash) 2018

01. A motorist and cyclist starts from A to B at the same time where $AB = 18$ km. The speed of motorist is 15kmph more than the cyclist. After covering half the distance the motorist rests for 30mins and there after his speed reduces by 20%. If the motorist reaches destination B 15min earlier than that of the cyclist. Then find the speed of the cyclist.

Solution:

Let, speed of cyclist = x km

So, speed of motorist = $x + 15$ km

ATQ,

$$9/(x+15) + 1/2 + 9/\{0.8(x+15)\} = 18/x - 1/4$$

$$\Rightarrow 9/(x+15) + 45/4(x+15) - 18/x = -1/4 - 1/2$$

$$\Rightarrow (12x+60)/x(x+15) = 1$$

$$x = 12 \text{ km/hr}$$

02. A boat goes 30km upstream and 44km downstream in 10 hours. In 13 hours, it can go 40km upstream and 55km downstream. Determine the speed of boat in still water and stream.

Solution:

$$30/x - y + 44/x + y = 10 \text{---}1$$

$$40/x - y + 55/x + y = 13 \text{---}2$$

From 1 and 2

$$x = 11$$

$$y = 8$$

Alternative Solution:

Let speed upstream be x km/hr and speed downstream be y km/hr.

$$\text{1st condition, } 30/x + 44/y = 10 \text{.....(i)}$$

$$\text{2nd condition } 40/x + 55/y = 13 \text{.....(ii)}$$

(i) * 4 - (ii) * 3 we get,

$$y = 11$$

putting the value of y in (i) we get,

$$x = 5$$

so speed in still water = $11 + 5/2 = 8$ km/hr

03. A and B can do a piece of work in 30 days, while B and C can do the same work 24 days, and A and C can do it in 20 days. They work together for 10 days before B and C leave. How many days more will A take to finish the work?

Solution:

$$2(A+B+C) = 1/30 + 1/24 + 1/20 = 1/8$$

$$\text{So, } (A+B+C) = 1/16$$

$$\text{Work efficiency of A} = 1/16 - 1/24 = 1/48$$

ATQ,

$$10/16 + x/48 = 1$$

$$x = 18$$

So answer is 18 days

04. A solution of honey and water is 28 litres, with honey and water in ratio 4:3. To this a 21 litre honey-water solution is added that has honey to water ratio as 2:1. Again a 51 litre honey-water solution that has honey to water ratio as 9:8 is added to this. After this 10 litre of the solution is replaced with pure honey. What is ratio of water to honey in the final mixture?

Solution:

$$\text{1st connotation, honey} = 28 * 4/7 = 16L$$

$$\text{Water} = 12L$$

$$\text{2nd connotation, Honey} = 21 * 2/3 = 14L$$

$$\text{Water} = 7L$$

$$\text{3rd connotation, honey} = 51 * 8/17 = 27L$$

$$\text{Water} = 24L$$

$$\text{New solution} = 16 + 14 + 27 : 12 : 7 : 24 = 57 : 33$$

$$\text{After replacement} = (33 - 33 * 10/90) / 90 // \{ (57 - 57 * 10/90 + 10) \} = 387/613$$

05. A tank is filled by three pipes with uniform flow. The first two pipes operating simultaneously fill the tank in the same time during which the tank is filled by third pipe alone. The second pipe fills the tank 5 hours faster than the first pipe and 4 hours slower than the third pipe. The time is required by the first pipe is?

Solution:

Let, First tank needs = x hour

Second tank needs = y hours

Third tank needs = z hours

$$\text{Atq 1, } x + y = z$$

$$\text{Atq 2, } y = x - 5$$

$$y = z + 4$$

$$x - 5 = z + 4$$

$$\Rightarrow x - z = 9$$

$$\Rightarrow x = 9 + z$$

Now

$$1/(9+z) + 1/(z+4) = 1/z$$

$$\Rightarrow z = 6.$$

$$\Rightarrow z = 6.$$

Required, $x = 9 + z = 9 + 6 = 15$ hours (answer)

Sonali Bank Officer FF Quota-2019

1. A product is made with three components A, B, C and the ratio of the prices are 4:3:2. After 1 year price of A increased by 10%, B increased by 8% & C decreased by 5%.

What is the percentage of total increase?

Solution:

Let,

A, B & C = $4x, 3x, 2x$ respectively.

$$\text{New increase} = 4x \times 110/100 + 3x \times 108/100 + 2x \times 95/100$$

$$= 4.4x + 3.24x + 1.9x$$

$$= 9.54x$$

$$\text{Increased} = 9.54x - (4x + 3x + 2x) = 0.54x$$

$$\text{Increase \%} = (0.54x \times 100) / 9x = 6\%$$

2. A and B started a business with initial investments in the respective ratio of 18:7. After four months from the start of the business, A invested Rs.2000 more and B invested Rs.7000 more. At the end of one year, if the profit was distributed among them in the ratio of 2:1 respectively. What was the total initial investment with which A and B started the business?

Solution:

Let,

The initial investment of A = $18x$

And

Initial investment of B = $7x$

According to question,

$$\{18x \times 4 + (18x + 2000) \times 8\} / \{7x \times 4 + (7x + 7000) \times 8\} = 2/1$$

$$\text{Or, } 9x + 18x + 2000 = 7x + 14x + 14000$$

$$6x = 12000$$

$$x = 2000$$

So, Total initial investments of A and B

$$= 18x + 7x = 25x = 25 \times 2000$$

$$= 50000$$

3. A river is flowing at a speed of 5 km/h in a particular direction. A man, who can swim at a speed of 20 km/h in still water, starts swimming along the direction of flow of the river from points A and reaches another point B which is at a distance of 30 km from the starting point A. On reaching point B, the man turns back and starts swimming against the direction of flow of the river and stops after reaching point A. The total time taken by the man to complete his journey is?

Solution:

Given,

Speed of the stream = 5 km/h

and

speed of the man in still water = 20 km/h

Speed of the man in downstream = $20 + 5 = 25$ km/h

and

Speed of the man in upstream = $20 - 5 = 15$ km/h

Therefore, Total time taken to complete the journey

$$= 30/25 + 30/15$$

$$= 30 \{ (3+5)/75 \}$$

$$= (30 \times 8)/75$$

$$= 3 \text{ h } 12 \text{ min}$$

4. The cost of manufacturing a popular model car is made up of three items: cost of raw material, labour and overheads- in a year the cost of three items were in the ratio of 4:3:2. Next year the cost of the raw material rose

by 10% ,labour cost increased by 8% but overhead reduced by 5%. Then % increase in the price of the car ?

Solution:

Let,

the cost of material, labour and overhead = $4x, 3x, 2x$ respectively.

$$\text{New increase} = 4x \times 110/100 + 3x \times 108/100 + 2x \times 95/100$$

$$= 4.4x + 3.24x + 1.9x$$

$$= 9.54x$$

$$\text{Increased} = 9.54x - (4x + 3x + 2x) = 0.54x$$

$$\text{Increase \%} = (0.54x \times 100) / 9x = 6\%$$

5. The distance between two stations 'X and Y' is 450 km. A train L Starts at 6:00 pm from X and moves towards Y at an average speed of 60 km/h. Another train M starts from Y at 5 : 20 pm and moves towards X at an average speed of 80 km/h. How far from x will the two trains meet and at what time?

Solution:

Let,

Two trains meet at a km from X.

$$\{ \text{Time taken by M to cover } (450 - a) \text{ km} \} - \{ \text{Time taken by L to cover } a \text{ km} \} = 40/60$$

$$\text{Or, } (450 - a)/80 - a/60 = 40/60$$

$$\text{Or, } (450 - a)/80 = 40/60 + a/60$$

$$\text{Or, } (450 - a)/8 - (a + 40)/6 = 0$$

$$\text{Or, } 3(450 - a) - 4(a + 40) = 0$$

$$\text{Or, } 7a = 1190$$

$$\text{Or, } a = 170$$

Time taken by L to cover 170 km = $170/60$ hr = 2 hr 50 min

So, the two trains will meet at 6:00pm + 2 hr 50 min = 8:50 pm

6. Amit deposited some money in a bank, which pays 15% interest per annum compounded yearly. If the bank provides simple interest instead of compound interest, he receives Rs. 2400 after 2 years. Find the total Amount that he received after 2 years.

Solution:

Simple interest = pnr

$$\text{Or, } 2400 = p \times 2 \times 15/100$$

$$\text{Or, } p = 8000$$

Now,

Compound interest,

$$A = p(1 + r/100)^n$$

$$\text{Or, } A = 8000(1 + 15/100)^2$$

Or, $A = 8000 (115/100)^2$

Or, $A = 10580$

7. 12 men can complete a piece of work in 36 days. 18 women can complete the same piece of work in 60 days. 8 men and 20 women work together for 20 days. If only women were to complete the remaining piece of work in 4 days, how many women would be required?

Solution:

12 men can complete the work in 36 days.

So, 12×36 men can complete the work in 1 day

Again,

18 women can complete the work in 60 days

So, 18×60 women can complete the work in 1 day

12×36 men = 18×60 women

So, 2 men = 5 women

Now, 8 men + 20 women = $(4 \times 5 + 20)$ women = 40 women

So, 18 women complete the work in 60 days

So, 40 women's 20 days work,

= $(40 \times 20) / (18 \times 60)$

= $20/27$

So, remaining work

= $1 - 20/27$

= $7/27$

So, 18×60 women do 1 work in 1 day

So, 1 woman does = $1 / (18 \times 60)$ work in 1 day

So, 1 woman does in 4 days = $4 / (18 \times 15)$ work

So, $1 / (18 \times 15)$ work is done in 4 days by 1 woman

So, $7/27$ work is done in 4 days by = $(18 \times 15 \times 7) / 27 = 70$

women

Sonali Bank Senior Officer FF Quota-2019

01. A jar contains 81 liter pure milk. 1/3 of the milk is replaced with water again 1/3 of the resulting mixture is replaced with water. Find out the ratio of milk and water?

Solution:

The total quantity of milk is 81 lit.

1) 27 lit pure milk is taken out and 27 lit water is added.

Now we have a mixture of milk and water that contains 54 lit milk and 27 lit water. (milk:water = $54:27 = 2:1$ means In 3 lit mixture there is 2 lit milk and 1 lit water)

2) Our 81 (or 3) lit mixture contains 27 (or 1) lit water and 54 (or 2) lit milk.

so again 27 lit mixture is taken out, contains 9 lit water and 18 lit milk.

so milk = 54 lit - 18 lit = 36 L

and water = 27 lit - 9 lit = 18 L

so now milk = 36 lit and water = 18 lit after removal of 27 lit from $(54+27)$ mixture.

now we are adding 27 lit water,

It becomes 45 lit water and 36 lit milk

ratio of milk to water becomes $36:45$ or $4:5$

02. The purchase price of a watch and wall clock is Tk. 390. If the watch is sold at 10% profit and the wall clock at 15% profit, total profit earned is Tk. 51.50. Find the purchase price difference between the wall clock and the watch.

Solution:

Let cost price of watch be x and cost price of clock be $(390-x)$

profit = 51.50

ATQ,

$10x/100 + 15(390-x)/100 = 51.50$

$10x + 15(390-x) = 5150$

$10x + 5850 - 15x = 5150$

$5x = 700$

$x = 140$

Cost price of the watch = $x = 140$

Cost price of the clock = $390-x = 250$

Difference between the original prices of the wall clock and the watch = $250 - 140 = \text{Tk.}110$

03. A machine is made of two components- A and B. Of component A 7 is defective out of 100 and of B 9 is defective out of 100. The probability that the assembled part will not be defective is ?

Solution:

Probability of Defective Part A = $7/100$

Probability of non defective of a = $1 - 7/100 = 93/100$

Probability of Defective Part B = $9/100$

Probability of non defective part b = $1 - 9/100 = 91/100$

Assembly will not be defective if both part are non defective = $(93/100) * (91/100)$

= $8463/10000$

= 0.8463

Combined 5 Bank Officer Cash -2019

1. 60 men could complete a piece of work in 250 days. They worked together for 200 days. After that the work had to be stopped for 10 day due to bad weather. How many

more men should be engaged to complete the work in time?

Solution:

60 men work for 200 days.

They stops for 10 day due to bad weather.

So the work is to complete in

$(250-200-10)=40$ days in order to complete in schedule time i.e 250 days.

Let 'n' number of more man is required

$(60\text{men}\times 200\text{days}) + (60+n)\text{men}\times 40\text{days} = 60\text{men}\times 250\text{days}$

Or, $12000 + (60+n)\text{men}\times 40\text{days} = 15000$

Or, $(60+n)40=3000$

Or, $60+n=75$

Or, $n=15$

2. The ratio of the numbers of boys and girls in a school was 5: 3. Some new boys and girls were admitted to the school, in the ratio 5:7. At this, the total number of students in the school became 1200, and the ratio of boys to girls changed to 7:5. What was the number of students in the school before new admissions?

Solution:

Let,

Number of boys before new admission = $5x$

Number of girls before new admission = $3x$

So, total number of students = $5x + 3x = 8x$

Some new boys and girls were admitted to the school, in the ratio 5:7.

So, Number of new boys = $5y$ and Number of girls boys = $7y$

So, total number of new students = $5y + 7y = 12y$

ATQ,

$8x + 12y = 1200$

Or, $2x + 3y = 300$ --(1)

Again,

$(5x+5y) / (3x + 7y) = 7/5$

Or, $25x + 25y = 21x + 49y$

Or, $4x - 24y = 0$

Or, $4x = 24y$

Or, $x = 6y$

From (1),

$2x + 3y = 300$

Or, $2\times 6y + 3y = 300$

Or, $15y = 300$

Or, $y = 20$

So, $x = 20\times 6 = 120$

Now, total number of students were $8x = 8\times 120 = 960$

3. An article manufactured by a company consists of two parts A and B. In the process of manufacture of part A, 9 out of 100 are likely to be defective. Similarly, 5 out of 100 are likely to be defective in the process of manufacture of part B. What will be the probability that the assembled part will not be defective?

Solution:

Probability that the article will be defective

$= 9/100 \times 95/100 + 91/100 \times 5/100 + 9/100 \times 5/100$

$= 171/2000 + 91/2000 + 9/2000$

$= 271/2000$

Therefore, Probability that the article will be non-defective

$= 1 - 271/2000$

$= 1729/2000$

$= 0.86$

4. Three runners A, B and C run a race, with runner A finishing 12 m ahead of runner B and 18 m ahead of runner C, in another race of same type runner B finished 8 m ahead of runner C. Each runner travels the entire distance at a constant speed. Find the length of the race.

Solution:

Let,

A finishes x m which is the required distance.

ATQ,

B finishes in $(x-12)$ m

C finishes in $(x-14)$ m

Again,

If B finishes in x m, then C finishes in $(x-8)$ m

So,

$A/B = x/(x-12); A/C = x/(x-18)$

So, $B/C = (x-12)/(x-18)$ --(1)

$B/C = x/(x-8)$ -----(2)

From (1) & (2),

$(x-12)/(x-18) = x/(x-8)$

Or, $x^2 - 18x = x^2 - 20x + 96$

Or, $2x = 96$

Or, $x = 48$

length of the race is 48 m.

5. 'A' began a small business with a certain amount of money. After four months from the start of the business. 'B' joined the business with an amount which was Tk 6000 less than 'A's initial investment. 'C' joined the business after seven months from the start of business with an amount which was Tk.2000 less than A's initial investment. At the end of the year total investment repented was Tk. 142000.

What will be A's share in the profit, if B received Tk.8000 as profit share?

Solution:

Let,

Initial investment of A be tk. x

Total investment at the end of year

$$= 12x + 8(x - 6000) + 5(x - 2000)$$

$$= 12x + 8x + 5x - 48000 - 10000$$

$$= (25x - 58000) \text{ tk}$$

ATQ,

$$25x - 58000 = 142000$$

$$\text{Or, } 25x = 142000 + 58000$$

$$\text{Or, } 25x = 200000$$

$$\text{Or, } x = 8000$$

Ratio of profit sharing for A, B and C

$$= (12 \times 8000) : (8 \times 2000) : (5 \times 6000)$$

$$= 96000 : 16000 : 30000$$

$$= 48 : 8 : 15$$

$$\text{B's share} = 8000 \text{ tk}$$

$$\text{A's share} = 8000 \times (48/8) = 48000 \text{ tk.}$$

Translation: English to Bangla

Natural disasters as we all know are the consequences of events triggered by natural hazards that overwhelm local response capacity and seriously affect the social and economic development of a region. There is basically no human control over the natural disaster. We cannot stop these natural disasters but what is in our hands is to be prepared for these. Also, there are a lot of ways through which we can minimize the damage caused due to these natural disasters. Traditionally, natural disasters have been seen as situations that create challenges and problems mainly of a humanitarian nature. There is no way to prevent or avert these natural disasters, though scientists do claim to have found the ways to predict these natural disasters at most of the times they have failed to predict natural disasters causing some serious destruction.

Translation: Bangla to English

আমাদের দেশে দারিদ্র একটি বড় সমস্যা। কিন্তু এই শোচনীয় অবস্থা যে প্রধানত আমাদের নিজেদের দ্বারাই সৃষ্ট, তা আমরা প্রায়ই বুঝতেই পারি না। অনেকেই কঠিন পরিশ্রম এবং লাভজনক ব্যবসার দ্বারা নিজেদের অবস্থার উন্নতি সাধন করতে চেষ্টা করে না। তাছাড়া নিজেদের দুর্বস্থার জন্য তারা কেবল হা-হতাশ করে এবং ভাগ্যকে অভিসম্পাত করে। এই জড়তা ও শ্রমবিনুখতা বেড়ে ফেলতে হবে। মানুষ নিজেই নিজের ভাগ্য নির্মাতা'-এই মহান বাক্য স্মরণে রেখে দৃঢ়

পদক্ষেপে জীবনপথে অগ্রসর হলে দারিদ্র ও দুঃখ দূর হবে এবং সুখ ও শান্তি আমাদের চিরসঙ্গী হবে।

Business Letter writing in Bangla

শিল্প কারখানার বর্জ্য আপনার এলাকার জলাশয় নষ্ট করছে জানিয়ে পত্রিকায় প্রকাশের জন্য একটি আবেদন পত্র লিখুন।[20]

Read the following passage and answer the questions below:[20]

Plastics form an important part of synthetics - plastics are also polymers. Since most plastics can be easily molded into any shape after heating, they are used for making a variety of objects of different shapes and sizes. Plastics are poor conductors of heat which makes them suitable for making handles of cooking vessels, for use in refrigerators, and for making containers in microwave ovens.

Plastics are also poor conductors of electricity and that is why they are used as covering materials in electrical appliances, cords and wiring. Plastics are insoluble in water and, therefore, used for making bottles, buckets and other containers. Most plastics are inflammable. However, they do not corrode or rust and so mostly used in homes and laboratories.

Despite many different uses of plastics, there are environmental and health hazards associated with their disposal. This is because plastics are non-biodegradable. Accumulation of plastics is considered a serious problem because most of the methods used to dispose them result in some type of damage to the environment. Though somewhere between 500 million to one trillion plastic bags are consumed worldwide each year, most plastic wastes end up littering roadside and form ugly dumps that harbor many disease causing organisms. Plastics dumped in water bodies pose a threat to aquatic life; plastics that get buried prevent rain water from seeping into the ground. This affects the growth of plants. When plastics are burnt, they produce toxic gases and smoke.

- How do the plastics affect the growth of the plants?
- What are the hazards associated with the disposal of plastics?
- What is produced when plastics are burnt?
- What does the word synthetic denote
- What do you learn after reading the passage?

Focus Writing in English [20]

Write an essay on "Biological Diversity"

Focus Writing in Bangla [30]

"বিশ্বায়ন বা গ্লোবলাইজেশন" সম্পর্কে একটি প্রবন্ধ রচনা করুন।

Combined 8 Bank SO (Canceled) -2019

1. Focus Writing in English [20]

Write an essay on "Positive and negative effects of WhatsApp."

2. Focus Writing in Bangla [30]

“ইন্টারনেট: বিশ্বের সেতুবন্ধন” সম্পর্কে একটি প্রবন্ধ রচনা করুন।

3. Business Letter writing in Bangla [20]

নিত্য প্রয়োজনীয় দ্রব্যের মূল্য বৃদ্ধি রোধের জন্য সংশ্লিষ্ট কর্তৃপক্ষের দৃষ্টি আকর্ষণ করে পত্রিকায় প্রকাশের জন্য একটি আবেদন পত্র লিখুন।

4. Read the following passage and answer the questions below: [20]

It started 20 years ago. One day, Jane Smith, a busy mom and a loving wife, went shopping for new clothes. After a few hours of searching, she came home exhausted and disappointed. In the mid-80s, few manufacturers made clothes for women over thirty "Thousands of women in England have the same problem, and I will help them," thought Mrs. Smith. With very little money, no connections in the fashion world and a husband who thought that her idea was crazy, the ambitious woman decided to start up her own business.

Jane designed her first collection of twenty clothing items, bought suitable material and sewing machines, and hired experienced tailors. The Smiths' balcony turned into a workshop. When the collection was ready Jane offered it to a famous chain of stores.

To her surprise, they bought the whole collection at once. When they asked her about the name of her company, Jane looked at her husband, smiled and said: "Crazy Mom". The collection was sold in a very short time - women liked Jane's models. In a month the manager of the chain ordered more clothes from "Crazy Mom" and Jane had to hire more people and find a bigger place for the workshop. The next step was opening her own shop at the central train station in Manchester.

Now "Crazy Mom" has 50 boutiques all over the world. Mr. Smith left his job as an engineer and became head of the company. Their four children also work in the company and, according to Jane, this is what makes the business so successful.

(a) What difficulties did Jane face when starting up her business?

- (b) What did Mrs. Smith do in order to start her business?
(c) Why did Jane decide to call her collection "Crazy Mom"?
(d) What did Jane do when the manager ordered more clothes?
(e) What fact proves that "Crazy Mom" is a successful company?

5. Three partners shared the profit in the ratio 5:7:8. They had partnered for 14 months, 8 months and 7 months respectively. What was the ratio of their investments? [14]

Solution:

Let their investments be x for 14 months, y for 8 months and z for 7 months respectively.

$$\text{Then, } 14x : 8y : 7z = 5 : 7 : 8.$$

$$\text{Now, } 14x/8y = 5/7$$

$$\Rightarrow 98x = 40y$$

$$\Rightarrow y = 49x/20$$

And,

$$14x/7z = 5/8$$

$$\Rightarrow 112x = 35z$$

$$\Rightarrow z = 112x/35$$

$$\Rightarrow z = 16x/5$$

$$\text{So } x : y : z = x : 49x/20 : 16x/5 \text{ ---- (Multiple by 20)}$$

$$\Rightarrow x : y : z = 20 : 49 : 64.$$

6. Two pipes A and B can fill a tank in 20 hours and 30 hours respectively. Both the pipes are opened to fill the tank but when the tank is 1/3 full, a leak develops in the tank through which 1/3 water supplied by both the pipes goes out. How much time will the tank take to be full?[14]

Solution:

Efficiency of first pipe = $100/20 = 5\%$ per hour.

Efficiency of second Pipe = $100/30 = 3.33\%$ per hour.

Efficiency of both pipe together = $5 + 3.33 = 8.33\%$ per hour.

1/3 i.e. 33.33% tank be filled by these two pipes in = $33.33/8.33 = 4$ hours.

Now, tank is empty and it need to be filled from zero.

So Time taken to Fill the empty tank = $100/8.33 = 12$ hours.

So, Total time taken to filled the tank = $4 + 12 = 16$ hours.

7. A finance company declares that, at a certain compound interest rate, a sum of money deposited by anyone will become 8 times in 3 years. If the same amount is deposited at the same compound rate of interest, then in how many years will it become 16 times? [14]

Solution:

Let,

Principal = P

Rate of interest = R

Time = n = ?

ATQ,

$$P(1 + R/100)^3 = 8P$$

$$\text{Or, } (1 + R/100)^3 = 8$$

$$\text{Or, } 1 + R/100 = 2$$

$$\text{Or, } R/100 = 1$$

Again,

ATQ,

$$P(1 + R/100)^n = 16P$$

$$\text{Or, } (1 + 1)^n = 16$$

$$\text{Or, } 2^n = 2^4$$

$$\text{Or, } n = 4$$

8. An engineer undertake a project to build a road 15 km long in 300 days and employs 45 men for the purpose.

After 100 days, he finds 2.5 km of the road has been completed. Find the number of extra men he must employ to finish the work in time. [14]

Solution:

Let x be the total men required to finish the task in next 200 days

2.5 km done hence remaining is 12.5 km

Also, work has to be completed in next 200 days (300 - 100 = 200)

We know that, proportion of men to distance is direct proportion

and, proportion of men to days is inverse proportion

$$\text{Hence, } X/45 = (12.5 * 100) / (2.5 * 200)$$

$$\text{thus, } X = 112.5 \text{ that is approximately } 113$$

$$\text{Thus, more men needed to finish the task} = 113 - 45 = 68$$

9. A bucket contains a mixture of two liquids A and B in the proportion 7:5. If 9 liters of mixture is replaced by 9 liters of liquid B, then the ratio of the two liquids becomes 7:9. How much of the liquid A was there in the bucket? [14]

Solution:

Suppose the can initially contains 7x and 5x of mixtures A and B respectively.

$$\begin{aligned} \text{Quantity of A in mixture left} &= (7x - 7/12 * 9 \text{ litres}) \\ &= (7x - 21/4) \text{ litres.} \end{aligned}$$

$$\begin{aligned} \text{Quantity of B in mixture left} &= (5x - 5/12 * 9) \text{ litres} \\ &= (5x - 15/4) \text{ litres.} \end{aligned}$$

$$\text{Since } (7x - 21/4) / (5x - 15/4) + 9 = 7/9$$

$$= 28x - 21 / 20x + 21 = 7 / 9$$

$$\Rightarrow 252x - 189 = 140x + 147$$

$$\Rightarrow 112x = 336$$

$$\Rightarrow x = 3$$

So, can contained 21 litres of A.

10. Combined 8 Bank Senior Officer Written Translation: Bangla to English [20]

আধুনিক সময়ে বিজ্ঞাপন একটি বিশেষ ধরনের কাজে পরিনত হয়েছে। আজকের ব্যবসা-প্রধান বিশ্বে, যোগান চাহিদার চেয়ে অনেক বেশি। বর্তমানে নিজেদের নির্দিষ্ট পণ্যটিকে কেনায় ভোক্তাকে প্ররোচিত করার জন্য একই পণ্যের বিভিন্ন উৎপাদনকারী প্রতিষ্ঠানের মাঝে ব্যাপক প্রতিযোগিতা লক্ষ্য করা যায়। ভোক্তাকে সবসময় তাদের পণ্যের নাম ও গুণগত মান স্মরণ করিয়ে দিতে হয়। তারা বিজ্ঞাপনের মাধ্যমে এ কাজটি করে থাকে। উৎপাদনকারী পত্রিকায় বিজ্ঞাপন প্রদান ও পোষ্টারের মাধ্যমে প্রচারকার্য চালিয়ে থাকে। প্রক্রিয়াজাতকারীরা বিজ্ঞাপন বাবদ প্রচুর অর্থ ব্যয় করে থাকেন। আমরা একটি নির্দিষ্ট পণ্য ক্রয় করে থাকি, কারণ আমরা মনে করি সেটি সেরা।

11. Combined 8 Bank Senior Officer Written Translation: English to Bangla [20]

The society has been dramatically changed with the evolution of technology. Before the advent of modern day technology, life was burdensome and everyday chores consumed too much of our time. Immense opportunities are being provided by technologies which play an important role in human life. The access to education, medicine, industry, transportation etc. has been simplified due to modern day technology. Due to the convenience and efficiency provided by technology, our lives have improved significantly. There used to be a time when executing a simple task like doing laundry would take most of the day. Thanks to modern technology, a lot of burden has been lifted up from our shoulders and we have more time and energy to do what we want to.

Combined 8 Bank Senior officer - 2019

01. A rectangular plot has a concrete path running in the middle of the plot parallel to the breadth of the plot. The rest of the plot is used as a lawn, which has an area of 240m². If the width of the path is 3m and the length of the plot is greater than its breadth by 2m, what is the area of the rectangular plot? [14]

Solution:

Let, the width of plot = x metre

So, Length = (x + 2) metre

Area of concrete path = 3x sq. metre

ATQ,

$$x(x + 2) - 3x = 240$$

$$\text{Or, } x + 2 + 2x - 3x = 240$$

$$\text{Or, } x + 2 - x - 240 = 0$$

$$\text{Or, } x + 2 - 16x + 15x - 240 = 0$$

$$\text{Or, } x(x - 16) + 15(x - 16) = 0$$

$$\text{Or, } (x - 16)(x + 15) = 0$$

$$\text{Or, } x = 16 \text{ because } x \neq -15$$

$$\text{So, Length} = 16 + 2 = 18 \text{ metre}$$

$$\text{So, Area of the plot} = (18 \times 16) \text{ sq. metre} = 288 \text{ sq. metre.}$$

02. A pipe can fill a tank in 0.9 hours and another pipe can empty in 0.7 hours. If tank is completely filled and both pipes are opened simultaneously then 450 liters of water is removed from the tank in 2.5 hours. What is the capacity of the tank? [14]

Solution:

Let,

The capacity of the tank be x litre

A can fill in 1 hour = $x/0.9$ litre

So, A can fill in 2.5 hour = $2.5x/0.9$ litre

Again,

B can empty in 1 hour = $x/0.7$ litre

So, B can empty in 2.5 hour = $2.5x/0.7$ litre

ATQ,

$$(2.5x/0.7) - (2.5x/0.9) = 450$$

$$\text{Or, } x/7 - x/9 = 450/25$$

$$\text{Or, } 2x/63 = 18$$

$$\text{Or, } x = (18 \times 63)/2 = 567$$

So, the capacity of the tank = 567 litre

03. A sum of Tk.3240 was fixed to complete a work. 54 workers completed the work in 8 days and the sum was divided equally among the workers. If the work was to be completed in 3 days then how much less money each worker would receive compared to when the work was completed in 8 days? [14]

Solution:

To finish the work in 8 days needed 54 workers

To finish the work in 1 day needed (54×8) workers

To finish the work in 3 days needed $(54 \times 8)/3$ workers = 144 workers

Now, in case of 8 days,

Each worker gets = $3240/54$ tk. = 60 tk.

In case of 3 days,

Each worker gets = $3240/144$ tk. = 22.5 tk.

So, less money each worker would receive = $(60 - 22.5)$ tk. = 37.5 tk.

04. Two trains running at the rate of 75 km and 60 km an hour respectively on parallel rails in opposite directions are observed to pass each other in 8 seconds and when they are running in the same direction at the same rates as before, a person sitting in the faster train observes that he passes the other in $31 \frac{1}{2}$ seconds. Find the lengths of the trains. [14]

Solution:

Moving in opposite direction:

$$\text{Relative speed of two trains} = (75 + 60) \text{ km/hr} = 135$$

$$\text{km/hr} = (135 \times 5/18) \text{ m/s} = 75/2 \text{ m/s}$$

$$\text{Length of the both trains} = (75/2 \times 8) \text{ meters} = 300 \text{ meters}$$

When moving in the same direction,

$$\text{Relative speed of two trains} = (75 - 60) \text{ km/hr} = 15 \text{ km/hr}$$

$$= (15 \times 5/18) \text{ m/s} = 25/6 \text{ m/s}$$

$$\text{So, Length of the slower train} = (25/6 \times 31.5) \text{ meters} = 131.25 \text{ meters}$$

$$\text{Thus, length of the faster train} = 300 - 131.25 = 168.75 \text{ meters}$$

Ans: 131.25 meters and 168.75 meters.

05. A, B and C can do a piece of work in 12, 18 and 24 days respectively. They all begin together. A work continuously till it is finished, B leaves the work 2 days before its completion and C leaves the work 4 days before its completion. In what approximate time is the work finished? [14]

Solution:

Let, the work needs x days to be finished.

So,

A works x days.

B works $(x-2)$ days.

C works $(x-4)$ days.

Now,

$$\text{A works in } x \text{ days} = x/12 \text{ part}$$

$$\text{B works in } (x-2) \text{ days} = (x-2)/18 \text{ part}$$

$$\text{C works in } (x-4) \text{ days} = (x-4)/24 \text{ part}$$

ATQ,

$$x/12 + (x-2)/18 + (x-4)/24 = 1$$

$$\text{Or, } (6x + 4x - 8 + 3x - 12)/72 = 1$$

$$\text{Or, } (13x - 20)/72 = 1$$

$$\text{Or, } 13x = 72 + 20$$

$$\text{Or, } 13x = 92$$

$$\text{Or, } x = 92/13 = 7 \frac{1}{13} = 8 \text{ (Approx)}$$

So, the work finished approximately in 8 days.

06. Read the following passage and answer the questions below: [20]

Management is a set of processes that can keep a complicated system of people and technology running smoothly. The most central characteristics of management include scheduling, accounting, organizing, staffing, controlling, and problem-solving. Leadership is a set of process that generates organizations in the first place or acclimatizes them to expressively changing situations. Leadership outlines what the impending should look like, brings into line people with that vision, and inspires them to make it happen despite the obstacles. This distinction is absolutely crucial for our purposes here: Successful transformation is 70 to 90 per cent leadership and only 10 to 30 per cent management. Yet for historic motives, numerous organizations today don't have much headship. And almost everyone thinks about the problems here as one of managing change. For most of this century, as we created thousands and thousands of large organizations for the first time in human history, we didn't have enough good managers to keep all those bureaucracies functioning. Thus many companies and academies developed management programs, and hundreds and thousands of people were stimulated to learn managing on the job. And they did. But people little about leadership. To some degree, management was emphasized because it's easier to teach than leadership. But even more so, supervision was the chief item on the twentieth-century outline because that's what was needed. For every entrepreneur or business builder who was a leader, we needed hundreds of managers to run their ever growing enterprises. Regrettably, for us today, this importance on management has often been longstanding in corporate cultures that dishearten workers from learning how to lead. Ironically, past success is usually the key ingredient in producing this outcome. The condition, as I have perceived it on many cases, goes like this: victory creates some degree of market supremacy, which in turn produces much progress. After a while keeping the ever larger organizations under control becomes the primary challenge. So, attention turns inward, and managerial competencies are nurtured. With a robust importance on supervision but not on headship, administration and an inward focus take over. But with continued success, the result mostly of market dominance, the problem often goes unaddressed and an unhealthy arrogance begins to evolve. All of these features then make any renovation struggle much more problematic. Arrogant

managers can over evaluate their current performance and competitive position, listen poorly, and learn slowly. Inwardly focused employees can have difficulty seeing the very forces that present threats and opportunities. Bureaucratic cultures a smother those who want to respond to shifting conditions. And the lack of leadership leaves no fore inside these organizations to break out of the morass.

- (a) Why, according to the author, is a distinction between management and leadership crucial?
- (b) Why did companies and universities develop programs to prepare managers in such a large number? Explain.
- (c) How has the author defined management? Explain.
- (d) Why does the attention of large organizations turn inward?
- (e) Why people were taught little about leadership in management programs? Explain.

07. Translation English to Bangla [20]:

Patriotism is a quality that inspires a man to do everything just and fair for well-being and betterment of the country. It is the quality that impels a man to sacrifice his own interest, comfort, pleasure and even his life. Patriotic zeal makes a man dutiful. He cannot sit idle. He is energetic and enthusiastic to work for the country. He obeys the laws, pays taxes and thinks for the betterment of the country. Patriotism is a quality that teaches a man fellow-feeling, fraternity, love and sympathy for the countrymen. A patriotic man gets pleasure in removing the suffering and sorrow of his fellowmen. He devotes his time and energy to develop the country, its culture and civilization, its economic and political systems. On the contrary, a man devoid of patriotic zeal engages all his time in achieving his mean end.

08. Translation Bangla to English [20]:

মানবাধিকার হচ্ছে সেসব অধিকার যা জাতীয়তা, লিঙ্গ, বর্ণ, ধর্ম, ভাষা অথবা অন্য যে কোন অবস্থান নির্বিশেষে মানুষের নিকট অন্তর্নিহিত। বস্তুতঃ মানবাধিকার বলতে কিছু নৈতিক রীতিনীতি বা নিয়ম যা মানব আচরণের নির্দিষ্ট কিছু মানদণ্ডকে বােঝায়। আন্তর্জাতিক আইনে মানবাধিকারকে আইনগত অধিকার হিসেবে রক্ষা করা হয়। এই পৃথিবীতে প্রতিটি মানুষের অন্ন, বস্ত্র, বাসস্থান, শিক্ষা এবং স্বাস্থ্যসেবা পাওয়ার অধিকার রয়েছে। এই অধিকারগুলোকে মৌলিক মানবাধিকার হিসেবে গন্য করা হয়। আমাদের দেশের বহু মানুষ মৌলিক মানবাধিকারসমূহ থেকে বঞ্চিত। আমাদের দরিদ্র শিশুরা খাদ্য, স্বাস্থ্যসেবা ও শিক্ষা থেকে বঞ্চিত। অনেক পথশিশু রয়েছে যারা আশ্রয়হীন। এইসব ছােটছােটে

বাচ্চাদেরকে বেঁচে থাকার জন্য অর্থ উপার্জন করতে হয়। এ ধরনের পরিস্থিতি শিশুশ্রম বৃদ্ধি করে।

09. Business Letter writing in Bangla [20]

আপনার গ্রামে আপনি একটি আধুনিক তাঁতশিল্প স্থাপনে আগ্রহী। ঐ গ্রামে তাঁতশিল্প স্থাপনের উপযুক্ত কারন উল্লেখ করে সরকারি অনুমোদন লাভের জন্য শিল্প সচিবের কাছে একটি আবেদন লিখুন।

10. Focus Writing in English [20]

Write an essay on "Modern Technology and Globalization".

11. Focus Writing in Bangla [30]

“তথ্যপ্রযুক্তি ও বাংলাদেশের ব্যাংকিং ব্যবস্থা সম্পর্কে একটি প্রবন্ধ রচনা করুন।

Janata Bank Senior Officer 2018

01. পদ্মা সেতু প্রকল্পের বাস্তবায়ন বাংলাদেশের আর্থ-সামাজিক উন্নয়নে কি ধরনের ভূমিকা রাখবে বলে তুমি মনে কর? [30]

02. What are the current challenges of the banking sector in Bangladesh? Give your recommendations how to reduce non-performing loans. [20]

03. Translation Bangla to English [20]:

বৃক্ষ শুধু প্রকৃতির সৌন্দর্য নয়, তা মানুষের জীবনের অপরিহার্য অংশ। জন্ম থেকে মৃত্যু পর্যন্ত মানুষের জীবনে বৃক্ষের ভূমিকা এত অপরিহার্য যে বৃক্ষহীন পৃথিবীতে প্রাণের অস্তিত্বই কল্পনা করা যায় না। দেশের অর্থনীতিতে যেমন বনাঞ্চলের ভূমিকা আছে, তেমনি আবহাওয়া ও জলবায়ুসহ প্রাকৃতিক পরিবেশের ভারসাম্য রক্ষায় বনজ সম্পদের ভূমিকা অত্যন্ত গুরুত্বপূর্ণ। তাই পরিবেশগত ভারসাম্যের জন্য চাই বৃক্ষরোপণ। প্রাকৃতিক বিপর্যয়ের কবল থেকে দেশকে রক্ষা করতে জনগনকে সচেতন ও সম্পৃক্ত করে দেশে ব্যাপক বৃক্ষরোপণের প্রয়োজন হয়ে পড়েছে। ভূ-বিজ্ঞানীদের মতে অনাবৃষ্টির কারণে দেশের ভূ-গর্ভস্থ পানির স্তর দিনের পর দিন দ্রুত নিচে নেমে যাচ্ছে। এ বিপর্যয় ও পর্যাণ্ড বনভূমি না থাকারই ফলাফল। সাধারণ জনগনকে যদি বিপন্ন পরিবেশের ভয়াবহতা সম্পর্কে অবহিত করা এবং বৃক্ষরোপণে উদ্বুদ্ধ করা যায় তাহলে অনেকেই বনায়নের কাজে এগিয়ে আসবেন।

04. Translation English to Bangla [20]:

Shortcomings in financial system regulation and supervision regimes are now under intense scrutiny everywhere, following the global financial turmoil that exacted heavy tolls in wealth destruction and recession, with particular severity in the mature advanced economics. Ironically, it was the placid stability of the preceding several years that lulled institutions, markets and regulators into complacency and inaction about the mounting global imbalances and the

inordinate risk build-ups in the financial system eventually precipitating institutional failures, market freeze-ups and severe credit crunch. The gross disregard of basic cautions in risk-taking in large globally active financial institutions was prompted by quest of quick private gains for small inner circles in top managements and boards, imperiling longer term viability of the institutions and hurting interests of general shareholders and of broader citizenry as stakeholders in the financial system.

05. You are planning to set up a food processing industry in Rangamati area. Write a letter to the local manager of a bank highlighting the feasibility of the project and requesting him to finance it. [20]

06. Comprehension [20]

Work expands so as to fill the time available for its completion. The general recognition of this fact is shown in the proverbial phrase; it is the busiest man who has time to spare. Thus, an elderly lady at leisure can spend the entire day writing a postcard to her niece. An hour will be spent in finding the postcard, another hunting for spectacles, half an hour to search for the address, an hour and a quarter in composition and twenty minutes in deciding whether or not to take an umbrella when going to the pillar box in the street. The total effort that would occupy a busy man for three minutes. all told, may in this fashion leave another person completely exhausted after a day of doubt, anxiety and toil.

- What happens when the time to be spent on some work increases?
- Explain the sentence: Work expands so as to fill the time available for its completion
- Who is the person likely to take more time to do a work?
- What is the total time spent by the elderly lady in writing a postcard?
- What does the expression 'pillar box' stand for?

07.a) Mr. Karim gave 40% of the money he had, to his wife. He also gave 20% of the remaining amount to each of his three sons. Half of the amount now left was spent on miscellaneous items and the remaining amount of Tk 12,000/- was deposited in the bank. How much money did Mr. Karim have initially? [25]

Solution:

Let,

Initial amount = x tk

Given to wife = 40% of $x = (40/100) \times x = 2x/5$

Remaining amount = $(x - 2x/5) = 3x/5$

His 3 sons get 20% of the remaining amount,
 $= 3 \times (20\% \text{ of } 3x/5)$
 $= 3 \times (20/100 \times 3x/5)$
 $= 9x/25$

Remaining amount = $(3x/5 - 9x/25) = 6x/25$

After spending on miscellaneous items, remaining amount
 $= (1/2 \times 6x/25) = 3x/25$

ATQ,

$3x/25 = 12000$

Or, $x = (12000 \times 25)/3$

Or, $x = 100000$

07.b) A dealer buys dry fruit at the rate of Tk 100/-, Tk 80/- and Tk 60/- per kg. He bought them in the ratio 12:15:20 by weight. He in total gets 20% profit by selling the first two and at last he finds he has no gain no loss in selling the whole quantity which he had. What was the percentage of loss he suffered for the third quantity? [25]

Solution:

Let,

Quantity of fruit = 12x, 15x and 20x

Total cost

$= (100 \times 12x + 80 \times 15x + 60 \times 20x)$ tk

$= (1200x + 1200x + 1200x)$ tk

$= 3600x$ tk

At 20% profit on 1st two quantity,

Selling price = $(120/100) \times (1200x + 1200x) =$

$(120/100) \times 2400x = 2880x$ tk

Selling price of 3rd quantity = $(3600x - 2880x) = 720x$ tk

Loss incurred = $1200x - 720x = 480x$ tk

Percentage of loss he suffered for the third quantity

$= (480x/1200x) \times 100 = 40\%$

07.c) In a business A invests Tk 600/- more than B. The capital of B remained invested for 7 1/2 months, while the capital of A remained invested for 2 more months. If the total profit be Tk 620/- and B gets Tk 140/- less than what A gets, then what will be the amount of A's capital? [20]

Solution:

Let,

A invests = x tk.

So, B invests = $(x - 600)$ tk

A's total investment = $x \times 9(1/2) = 19x/2$

B's total investment = $(x - 600) \times 7(1/2) = 15/2(x - 600)$

Ratio of investment = $19x/2 : 15/2(x - 600) = 19x : (15x - 9000)$

Total investment = $19x + (15x - 9000) = 34x - 9000$

ATQ,

$620 \times \{19x/(34x - 9000)\} - 620 \times \{(15x - 9000)/(34x - 9000)\} = 140$

Or, $620 \{19x/(34x - 9000) - (15x - 9000)/(34x - 9000)\} = 140$

Or, $31 \{ (19x - 15x + 9000)/(34x - 9000) \} = 7$

Or, $(4x + 9000)/(34x - 9000) = 7/31$

Or, $238x - 63000 = 124x + 279000$

Or, $114x = 342000$

Or, $x = 3000$

Combined 4 Bank Officer - 2019

1. 6 men can complete a piece of work in 12 days. 8 women can complete the same piece of work in 18 days whereas 18 children can complete the piece of work in 10 days. 4 men, 12 women and 20 children work together for 2 days. If only men were to complete the remaining work in 1 day, how many men would be required totally? [14]

Solution:

1 man will complete the work in = $6 \times 12 = 72$ days

1 woman will complete the work in = $8 \times 18 = 144$ days

1 child will complete the work in = $18 \times 10 = 180$ days

4 men + 12 women + 20 children's 2 days' work

$= 2 (4/72 + 12/144 + 20/180)$

$= 2 (1/18 + 1/12 + 1/9)$

$= 2(2+3+4)/36 = 12$

\therefore Remaining work = 12

\therefore Required number of men

$= 72 \times 1/2 = 36$

Ans: 36

2. First bag contains 4 red and 3 black balls. Second bag contains 2 red and 4 black balls. One bag is selected at random. From the selected bag, one ball is drawn. Find the probability that the ball drawn is red. [14]

Solution:

Probability that the first bag is chosen and a red ball is drawn = $1/2 \times 4/(4+3) = 2/7$

Probability that the second bag is chosen and a red ball is drawn = $1/2 \times 2/(2+4) = 1/6$

Required probability = $2/7 + 1/6 = (12+7)/42 = 19/42$.

Ans: 19/42

3. A cow was standing on a bridge, 5m away from the middle of the bridge. A train was coming towards the bridge from the ends nearest to the cow. Seeing this, cow

ran towards the train and managed to escape when the train was 2m away from the bridge. If it had run in the opposite direction, it would hit by the train 2m before the end of the bridge. What is the length of the bridge in meters assuming the speed of the train is 4 times that of the cow? [14]

Solution:

Let,

The distance of the cow from the nearest end of the bridge is = x meters.

So, one half of the length of the bridge is = $x+5$ meters

So, the length of the bridge is = $2(x+5) = 2x+10$ meters.

So, the distance of the cow from the far end of the bridge is = $2x+10 - x = x+10$ meters.

Suppose,

the cow covered the x meters distance in y seconds.

So, the train covered in y seconds = $4x$ meters.

So, when the cow first saw the train, the train was $4x+2$ meters away from the bridge.

According to the question,

By the time the cow covered the distance of $(x+10 - 2) = x+8$ meters, the train covered a distance of $(4x+2 + 2x+10-2) = 6x+10$ meters.

[here, $x+10$ is the distance of the cow from the far end. when it was hit by the train, it could cover $x+10 - 2$ meters. $4x+2$ is the distance covered by the train to reach at the near end of the bridge and $2x+10-2$ is the distance covered by the train from the near end of the bridge to hit the cow]

So,

$$4(x+8) = 6x+10$$

$$4x+32 = 6x+10$$

$$2x = 22$$

$$x = 11$$

So, the length of the bridge = $2x+10 = 2 \times 11 + 10 = 32$ meters.

Ans: 32

4. A man went downstream for 28 km in a motor boat and immediately returned. It took the man twice as long to make the return trip. If the speed of the river flow were twice as high, the trip downstream and back would take 672 minutes. Find the speed of the boat in still water and the speed of the river flow. [14]

Solution:

Suppose, the speed of the boat in still water is x kmph and the speed of the river flow is y kmph.

According to the question,

$$28/(x-y) = 2 \times 28/(x+y)$$

$$2x-2y = x+y$$

$$x = 3y.$$

Again,

$$28/(x+2y) + 28/(x-2y) = 672/60$$

$$1/(3y+2y) + 1/(3y-2y) = 2/5$$

$$1/5y + 1/y = 2/5$$

$$(1+5)/5y = 2/5$$

$$y = 3$$

$$x = 3 \times 3 = 9$$

Ans: 9 km/h 3 km/h

5. A, B and C started a business by investing TK24000, TK32000 and TK18000 respectively. A and B are active partners and get 15% and 12% of total profit and remaining profit is to be distributed among them in the ratio of their investment. If C got total TK65700 as profit, what was the total amount of profit? [14]

Solution:

Remaining profit = $(100 - 15 - 12)\%$ or 73% of total profit.

Ratio of remaining profit share,

$$A : B : C = 24000 : 32000 : 18000 = 12 : 16 : 9$$

$$C's \text{ profit share} = (73\% \text{ of total profit}) \times 9/(12+16+9) = (657/37)\% \text{ of total profit.}$$

According to the question,

$$(657/37)\% \text{ of total profit} = 65700 \text{ TK}$$

$$1\% \text{ of total profit} = 65700 \times 37/657 = 3700 \text{ TK}$$

$$100\% \text{ of total profit} = 3700 \times 100 = 370000 \text{ TK}$$

Ans: 370000 Tk.

Read the following passage and answer the questions below: [20]

Mother Teresa passed away on 5 December 1997. People all over the world mourned her passing because she was such an enormous inspiration. Even after her death, there are people everywhere continuing the work that Mother Teresa had started years ago. Mother Teresa was born in Albania in 1910. Her real name was Agnes. From a young age, her parents taught her and her siblings the importance of being charitable. Her mother taught her by example, often welcoming the poor or sick into their home, or going out to help them. Mother Teresa was also taught the importance of religion. As a child, she enjoyed going to church, even joining the choir and learning how to play a musical instrument called the mandolin.

When Mother Teresa was twelve years old, she had the desire to dedicate her life to serve God. However, being so young, she was not yet sure of what to do. After all, most children of her age were only concerned with their school work and their friends. Thus, Mother Teresa did not act at once. Instead, she waited until she was eighteen years old to decide that she wanted to be a missionary in India. Before going to India, however, she had to undergo training first-learning about being a nun and learning to speak English. Even after reaching India in 1929, Mother Teresa continued her training. By then, she had taken on the name of Teresa

In India, Mother Teresa had the first glimpse of the poverty of the people around her. She started off as a teacher and the young children loved her for her kindness and patience. She even took care of those who were sick. Soon, Mother Teresa felt that she had to do more. What she really wanted to do was to care for the poorest of the poor people who were... by society. She understood that to help them, she had to experience their life. She was willing to sacrifice all that she had to live among them. She ate only rice because that was all the poor could afford. She even went for medical training so that she would know how to help the sick.

All her life, Mother Teresa helped these people out of love and compassion for them. People like Mother Teresa are few and far between.

- (a) What do you understand by people 'mourned her passing'? Why are people still continuing Mother Teresa's work after her death?
- (b) In what way did Mother Teresa's mother teach her by example?
- (c) Referring to paragraph 3, give evidence that Mother Teresa did not know English initially. Give two qualities of Mother Teresa that made her well-loved.
- (d) What motivated Mother Teresa to help those who were extremely poor?
- (e) What did the writer mean when he wrote that people like Mother Teresa are "few and far between" (last paragraph)?

07. Translation: Bangla to English [20]

নারী-পুরুষের সম-অংশদ্বারিত্বের ভিত্তিতে বাংলাদেশের সার্বিক উন্নয়কে ত্বরান্বিত করা যেতে পারে। সৃষ্টির দিক দিয়ে, শিক্ষার দিক দিয়ে উভয়ের মাঝে কোন পার্থক্য বা বৈষম্য নেই। সর্বক্ষেত্রে নারী

আজ ঈর্ষণীয় সাফল্যের স্বাক্ষর রাখতে সক্ষম হয়েছে। কাজেই সামাজিক, অর্থনৈতিক, রাজনৈতিক ও প্রশাসনিক উন্নয়নে নারী সহায়ক ভূমিকা রাখতে পারে। নারী আজ তার মেধা ও কর্মদক্ষতার বলে উন্নত, উন্নয়নশীল এবং অনুন্নত দেশের বিভিন্ন শীর্ষস্থানীয় পদে অধিষ্ঠিত। তাই সার্বিক উন্নয়নের মূল শ্রোতথারায় নারীরা সম্পূর্ণতা একান্তই বাঞ্ছনীয়। শিক্ষা, স্বাস্থ্য, প্রশিক্ষণ, কারিগরি শিক্ষা, সম্পদ ও বাজার ব্যবস্থাপনায় নারীর পূর্ণ ও সমান সুযোগ নিশ্চিত করতে পারলে উন্নয়ন কর্মকাণ্ডের গতিশীলতা বৃদ্ধি পাবে। অবশ্য বাংলাদেশ সরকার সার্বিক উন্নয়ন কর্মকাণ্ডে নারীর সম্পূর্ণতা নিশ্চিতকরণের লক্ষ্যে সিদ্ধান্ত গ্রহণ করেছে।

08. Translation: English to Bangla [20]

Tsunamis are not as common as other weather related disasters, but they can cause significant damage. The word tsunami comes from Japanese word meaning "long Harbor wave." Today, scientists use the term to define seismic sea waves generated by undersea earthquakes or undersea landslides and volcanic eruptions. Most tsunamis occur along the Ring of Fire, a wave of volcanic and earthquake activity that encircles the Pacific Ocean. The Hawaiian Islands and Alaska areas are common for this type of disaster. Tsunami waves have long lengths and travel very fast in deep water. Upon reaching the shore, the speed of the wave decreases but the height increase dramatically causing massive damage to coastlines. The Tsunami Warning System has helped in warning people of these disasters, but more research and technology is needed to improve the predictions of this natural disaster.

09. Business Letter Writing in Bangla [20]

যোগাযোগ মন্ত্রনালয়ের বরাবরে সড়ক দুর্ঘটনার কারণ সম্পর্কে একটি প্রতিবেদন প্রস্তুত করুন।

10. Focus Writing in English [20]

Write an essay on "The Impact of Media and Technology on Families."

11. Focus Writing in Bangla [30]

"বাংলাদেশের ভূমিকম্প: বিপর্যয় ও ব্যবস্থাপনা" সম্পর্কে একটি প্রবন্ধ রচনা করুন।

Probashi Kallayan Bank EO Cash - 2019

01. A and B can do a piece of work in 30 days while B and C can do the same work in 24 days and C and A in 20 days. they all work together for 10 days when B and C leave. how many days more will A take to finish the work?

Solution:

$2(A+B+C)$'s 1 day's work = $1/30+1/24+1/20=15/120 = 1/8$
 Therefore, $(A + B + C)$'s 1 day's work = $1/(2 \times 8) = 1/16$
 Work done by A, B, C in 10 days = $10/16 = 5/8$
 Remaining work = $1 - 5/8 = 3/8$
 A's 1 day's work = $1/16 - 1/24 = 1/48$
 Now, $1/48$ work is done by A in 1 day.
 So, $3/8$ work will be done by A in $(48 \times 3/8) = 18$ days

02. A boat running upstream takes 8 hours 48 minutes to cover a certain distance, while it takes 4 hours to cover the same distance running downstream. What is the ratio between the speed of the boat and speed of the water current respectively?

Solution:

Let the speed of the boat upstream be p kmph and that of downstream be q kmph
 Time for upstream = 8 hrs 48 min = $44/5$ hrs
 Time for downstream = 4 hrs
 Distance in both the cases is same.
 $p \times 44/5 = q \times 4$
 $44p/5 = 4q$
 $q = 11p/5$
 Now, the required ratio of Speed of boat : Speed of water current
 = $(q+p)/2 : (q-p)/2$
 = $(11p/5 + p)/2 : (11p/5 - p)/2$
 = $8 : 3$

03. A finance company declares that, at a certain compound interest rate, a sum of money deposited by anyone will become 8 times in 3 years. If the same amount is deposited at the same compound rate of interest, then in how many years will it become 16 times?

Solution:

Let,
 Principal = P
 Rate of interest = R
 Time = $n = ?$
 ATQ,
 $P(1 + R/100)^3 = 8P$
 Or, $(1 + R/100)^3 = 8$
 Or, $1 + R/100 = 2$
 Or, $R/100 = 1$
 Again,
 ATQ,
 $P(1 + R/100)^n = 16P$

Or, $(1 + 1)^n = 16$
 Or, $2^n = 2^4$
 Or, $n = 4$

04. A container contains 40 litres of milk. From this container 4 litres of milk was taken out and replaced by water. This process was repeated further two times. How much milk is now contained by the container?

Solution:

Amount of milk left after 3 operations = $[40 (1 - 4/40)^3]$ litres
 = $40 \times 9/10 \times 9/10 \times 9/10 = 29.16$ litres.

05. If $x^3 + 3/x = 4(a^3 + b^3)$; $3x + 1/x^3 = 4(a^3 - b^3)$ then Value of $a^2 - b^2 = ?$

Solution:

$x^3 + 3/x = 4(a^3 + b^3)$ (1)
 $3x + 1/x^3 = 4(a^3 - b^3)$ (2)
 Now (1) + (2)
 $x^3 + 3/x + 3x + 1/x^3 = 4a^3 + 4b^3 + 4a^3 - 4b^3$
 $x^3 + 1/x^3 + 3(x + 1/x) = 8a^3$
 $x^3 + 1/x^3 + 3 \cdot x \cdot 1/x(x + 1/x) = (2a)^3$
 $(x + 1/x)^3 = (2a)^3$
 $x + 1/x = 2a$ (3)
 similarly (1) - (2)
 $x - 1/x = 2b$ (4)
 Now (3) + (4)
 $X = (a + b)$
 And (3) - (4)
 $1/x = (a - b)$
 So, $a^2 - b^2 = (a+b)(a-b) = x \cdot 1/x = 1$

06. If age of P and R are added to twice the age of Q, the total becomes 59. If the ages of Q and R are added to thrice the age of P, the total become 68. And if the age of P is added to thrice the age of Q and thrice age of R, the total becomes 108, what is the age of P?

Solution:

$P + R + 2Q = 59$ (i)
 $Q + R + 3P = 68$ (ii)
 $P + 3Q + 3R = 108$ (iii)
 Now (ii) $\times 3$ - (iii)
 $3Q + 3R + 9P - P - 3Q - 3R = 204 - 108$
 $8P = 96$
 $P = 12$

07. In a particular school, out of total 640 boys that include all the age-groups, 60% of the boys below 18 were enrolled. Out of them, 50% attended the school irregularly. If 120 boys among them were regular, how many boys were there in the school who are above 18?

Solution:

Number of boys below 18 = x

So above = $640 - x$

50% of 60% of $x = 120$

$50/100 \times 60/100 \times x = 120$

$x = 400$

The number of boys above 18 = $640 - 200 = 240$

08. Focus Writing English: Computer.

09. Focus Writing Bangla: Digital Bangladesh.

10. Application: Forecasting the position of Executive Officer in PKB to HRM of PKB.

Probashi Kallayan Bank EO - 2019

01. A train overtakes two persons walking along a railway track. The first one walks at 4.5 km/hr. The other one walks at 5.4 km/hr. The train needs 8.4 and 8.5 seconds respectively to overtake them. What is the speed of the train if both the persons are walking in the same direction as the train?

Solution:

4.5 km/hr = $4.5 \times 5/18$ m/sec = 1.25 m/sec

5.4 km/hr = $5.4 \times 5/18$ m/sec = 1.5 m/sec

Relative speed of the train to the first person = $x - 1.25$

Relative speed of the train to the second person = $x - 1.5$

Now, $(x - 1.25) \times 8.4 = (x - 1.5) \times 8.5$

$8.4x - 10.5 = 8.5x - 12.75$

$0.1x = 2.25$

$x = 22.5$

Speed of the train = $22.5 \times (5/18) = 81$ km/hr

02. A tank is filled by three pipes with uniform flow. The first two pipes operating simultaneously fill the tank in the same time during which the tank is filled by the third pipe alone. The second pipe fills the tank 5 hours faster than the first pipe and 4 hours slower than the third pipe. The time required by the first pipe is:

Solution:

Suppose, first pipe alone takes x hours to fill the tank . Then, second and third pipes will take $(x - 5)$ and $(x - 9)$ minutes respectively to fill the tank

$1/x + 1/(x-5) = 1/(x-9)$

$(x - 5 + x)/x(x-5) = 1/(x-9)$

$(2x - 5)(x - 9) = x(x - 5)$

$x^2 - 18x + 45 = 0$

$(x - 15)(x - 3) = 0$

$x = 15$ [$x=3$ not acceptable]

03. A container contains a mixture of two liquids A and B in the ratio 7: 5. When 9 litres of mixture are drawn off and the container is filled with B, the ratio of A and B becomes 7: 9. How many litres of liquid A was contained in the container initially?

Solution:

Suppose the can initially contains $7x$ and $5x$ litres of mixtures A and B respectively.

When 9 litres of mixture are drawn off, quantity of A in mixture left:

$7x - (7/12) \times 9 = 7x - 21/4$ litres

Similarly quantity of B in mixture left:

$5x - (5/12) \times 9 = 5x - 15/4$ litres

Therefore ratio becomes:

$7x - 21/4 = 5x - 15/4 \Rightarrow 2x = 3 \Rightarrow x = 1.5$

So the can contained:

$7 \times 1.5 = 10.5$ litres of A initially.

04. A bag contains 5 red and 3 green balls. Another bag contains 4 red and 6 green balls. If one ball is drawn from each bag. Find the probability that one ball is red and one is green.

Solution:

We have,

Bag 1:

Red ball = 5

Green Ball = 3

Bag 2:

Red ball = 4

Green Ball = 6

Now, according to the question we will have to cases.

1. Probability of getting Red from Bag 1 and Green from Bag 2 = $(5/8) \times (6/10) = 30/80$.

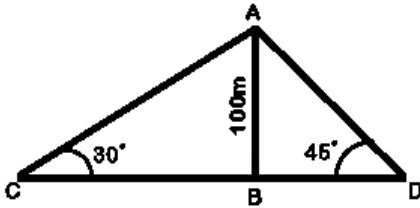
2. Probability of getting Green from Bag 1 and Red from bag 2 = $(3/8) \times (4/10) = 12/80$.

Therefore, Probability of getting Red and Green,
 $= (30/80) + (12/80) = 42/80 = 21/40$.

5. Two ships are sailing in the sea on the two sides of a lighthouse. The angle of elevation of the top of the lighthouse is observed from the ships are 30 degree and 45 degree respectively. If the lighthouse is 100 m high, the distance between the two ships is:

Ans: 273 M

Solution:



Explanation:

Let AB be the lighthouse and C and D be the positions of the ships.

Then, AB = 100m, $\angle ACB = 30^\circ$ and $\angle ADB = 45^\circ$

$$AB/AC = \tan 30^\circ = 1/\sqrt{3}$$

$$AC = AB \times \sqrt{3} = 100\sqrt{3} \text{ m}$$

$$AB/AD = \tan 45^\circ = 1$$

$$AD = AB = 100 \text{ m}$$

$$\therefore CD = (AC+AD) = (100\sqrt{3} + 100)$$

$$= 100(\sqrt{3} + 1) = 100(1.73+1) = 100 \times 2.73 = 273 \text{ m}$$

06. $X = (\sqrt{5}+1)/(\sqrt{5}-1)$ and $Y = (\sqrt{5}-1)/(\sqrt{5}+1)$ then find the value of $(x^2+xy+y^2)/(x^2-xy+y^2)$

Solution:

$$X+Y = (\sqrt{5}+1)/(\sqrt{5}-1) + (\sqrt{5}-1)/(\sqrt{5}+1) = 3$$

$$X^2+XY+Y^2$$

$$= X^2+2XY+Y^2-XY$$

$$= (X+Y)^2-XY$$

$$= 3^2-1$$

$$= 8$$

$$X^2-XY+Y^2$$

$$= X^2+2XY+Y^2-3XY$$

$$= (X+Y)^2-3XY$$

$$= 3^2-3 \times 1$$

$$= 6$$

$$(X^2+XY+Y^2)/(X^2-XY+Y^2)$$

$$= 8/6$$

$$= 4/3$$

07. $ab+bc+ca=0$ হলে $1/(a^2-bc)+1/(b^2-ac)+1/(c^2-ab)$

Solution:

$$ab+bc+ca=0$$

$$ab+bc = -ca$$

$$\text{Or } ab+ca = -bc$$

$$\text{Or } bc+ca = -ab$$

Now

$$1/(a^2-bc) + 1/(b^2-ca) + 1/(c^2-ab)$$

$$= 1/(a^2+ab+ca) + 1/(b^2+ab+bc) + 1/(c^2+bc+ca)$$

$$= 1/(a+b+c) * (1/a + 1/b + 1/c)$$

$$= 1/(a+b+c) * (bc + ca + ab)/abc$$

$$= (ab+bc+ca)/(a+b+c) abc$$

$$= (a+b+c) abc/(a+b+c) abc$$

$$= 0$$

08. Translation Bangla to English:

regarding Noble work and Noble men (B to E)

09. Translation English to Bangla:

regarding noise pollution and various sources of noise pollution (E to B)

10. Passage:

regarding wind and difference between local and global winds (English)

11. Focus writing English: Impact of television on social value

12. Focus writing Bangla: ইন্টারনেট: বিশ্বের সেতুবন্ধন

13. Application: এলাকায় ব্রিজের জন্য সংশ্লিষ্ট কর্তৃপক্ষের বরবার আবেদনপত্র।

Probashi kallayan Bank Assistant Programmer - 2019

Two pipes A and B can fill a tank in 20 hours and 30 hours respectively. Both the pipes are opened to fill the tank but when the tank is 1/3 full, a leak develops in the tank through which 1/3 water supplied by both the pipes goes out. How much time will the tank take to be full?[14]

Solution:

Efficiency of first pipe = $100/20 = 5\%$ per hour.

Efficiency of second Pipe = $100/30 = 3.33\%$ per hour.

Efficiency of both pipe together = $5 + 3.33 = 8.33\%$ per hour.

$\frac{1}{3}$ i.e. 33.33% tank be filled by these two pipes in =
 $33.33/8.33 = 4$ hours.

Now, tank is empty and it need to be filled from zero.
So Time taken to Fill the empty tank = $100/8.33 = 12$
hours.

So, Total time taken to filled the tank = $4 + 12 = 16$ hours.

02. In an examination 34% of the students failed in Mathematics and 42% failed in English. If 20% of the students failed in both the subjects, then the percentage of students who passed in both the subjects was

Solution:

Students failed in only maths = $34 - 20 = 14\%$
Students failed in only english = $42 - 20 = 22\%$
Total students failed = $14 + 22 + 20 = 56\%$
Total passed = $100 - 56 = 44\%$

Rupali Bank Senior Officer - (2016)/2019

01. On a river , Q is the mid - point between two points P and R on the same bank of the river. A boat can go from P to Q and back in 12 hours, and from P to R in 16 hours 40 minutes. How long would it take to go from R to P?

Solution:

P to R=16 h 40 min
 $\frac{1}{2}(P \text{ to } R) = P \text{ to } Q = 8\text{h } 20 \text{ min}$
So, P to Q + Q to P = 12h
P to Q=8h 20 min
Then Q to P=3h 40m
 $2(Q \text{ to } P) = R \text{ to } P = (3\text{h } 40\text{min}) * 2 = 7\text{h } 20\text{min}$

02. If $x + \frac{2}{x} = 1$, then evaluate the value of $\frac{(x^2+x+2)}{x^2(1-x)}$.

Solution:

Given that
 $x + \frac{2}{x} = 1$
Or, $(x^2+2)/x=1$
Or, $x^2+2=x$
Again, $x^2-x=-2$
NOW,
 $\frac{X^2+x+2/x^2(1-x)}{= (x+x)/x^2-x^3}$
 $= \frac{2x}{-x(x^2-x)}$
 $= \frac{2x}{-x*-2}$
 $= 1$

03. A & B together can do a piece of work in 30 days. A having worked for 16 days, B finishes the remaining work alone in 44 days. In how many days shall B finish the whole work alone?

Solution:

Let, efficiency of A and B is =x and y respectively
ATQ,
 $30(x+y) = 16x + 44y$
 $X=y$
So, $x:y=1:1$
Now, efficiency $1+1=2$ equal to 30 days
Efficiency 1 equal to $30*2=60$

04. A train 108 m long moving at a speed of 50 km/hr crosses a train 112 m long coming from opposite direction in 6 seconds. The speed of the second train is

Solution:

ATQ,
 $(108+112)/(50+x) * 5/18 = 6$
 $X=82 \text{ Km/h}$

05. In a three digit number unit digit is double of tenth digit and 1.5 times of hundred digit. Sum of three digit is 13. Find the number

Solution:

Ratio of
Unit digit : tenth digit = $2:1=6:3$
Unit digit : 100th digit = $1.5:1=6:4$
So, ratio of unit: tenth:100th digit = $6:3:4$
Their sum is $6+3+4=13$
So the number is = 436

06. A box contains 3 blue marbles, 4 red, 6 green marbles and 2 yellow marbles. If two marbles are drawn at random, what is the probability that at least one is green?

Solution:

$= \frac{{}^6C_1 * {}^9C_1}{{}^{15}C_2} + \frac{{}^6C_2}{{}^{15}C_2}$
 $= \frac{(6 * 9 * 2)}{(15 * 14)} + \frac{(6 * 5)}{(15 * 14)} = \frac{36}{70} + \frac{1}{7}$
 $= \frac{46}{70} = \frac{23}{35}$

07. A mixture contain two liquid in the ratio of 2:3. And another mixture contain the same two liquid in the ratio of 5:4. Find the ratio in which the contents of both the vessels must be mixed to get a new mixture containing two liquid in the ratio equally?

Solution:

Let, x litres is to be drawn from first.

And y litres From second.

ATQ,

$$2x/5+5y/9=3x/5+4y/9$$

$$x:y=5:9$$

08. Focus Writing in English

Role of Banks in Solving Unemployment

09. Focus Writing in Bangla

কারিগরি শিক্ষা ও বেকার সমস্যা

10. Business Letter writing in Bangla

আপনার এলাকার যোগাযোগ ব্যবস্থা উন্নয়নের জন্য সংশ্লিষ্ট কর্তৃপক্ষের দৃষ্টি আকর্ষণ করে পত্রিকায় প্রকাশের জন্য একটি আবেদন পত্র লিখুন।

এরকম আরো ফাইল পেতে আমাদের সাথেই থাকুন।

[Job Information For All Students \(Bcs & Bank\)](#)

Job Information For All Students (Bcs & Bank)



Job Information For All Students (BCS & Bank)

Entry

ভূভাগবন

Learn

ভানর্জন

Goal

উদ্দেশ্য

Success

সাকল্য

We always with you...

ARTS Faculty Written Questions

InDEx

1. Combined 5 Banks Officer - 2018 (Full)
2. Bangladesh Bank Officer General - 2018 (Full)
3. Rupali Bank Officer Cash - 2018 (Full)
4. Agrani Bank Limited Auditor - 2017 (Full)
5. BDBL Senior Officer - 2017 (Full)
6. BKB Officer Cash - 2017 (Full)
7. Agrani Bank Officer Cash - 2017 (Full)
8. BHBFC Senior Officer -2017 (Full)
9. Bangladesh Bank Assistant Director - 2018 (Full)
10. Sonali Bank Senior Officer - 2018 (Full)
11. Sonali Bank & Janata Bank SO (IT/ICT) -2018 (Math)
12. Rupali Bank Officer - (2016)/2019 (Full)

সংগ্রহে: মোঃ রায়হান আহমেদ

[Job Information For All Students \(Bcs & Bank\)](#)

Combined 5 Banks Officer - 2018

Answer all the questions in Sequential Order.

01. Read the following passage and answer the questions below: [25]

In some parts of Bangladesh, farmers are using their submerged lands for crop production by adopting scientific methods which are similar to hydroponic agriculture practices whereby plants can be grown on the water in a bio-land or floating bed of water hyacinth, algae or other plant residues. Floating gardens (locally known as Dhop) are age old practice of crop cultivation in the Southern floodplains of Bangladesh. The unique hydroponics production system was developed in the hands of the locals by using their traditional knowledge for agricultural practice and livelihood. Bio diverse vegetables and spices crops are grown sustainably over the years on floating substrata made mainly of water hyacinth and other minor aquatic weeds on flooded water. The land with the water is used for production of fish in the open water and crops on the floating beds. Thus, ensures a sustainable utilization of agro-biodiversity, natural resources and multiple use of the land. Floating agriculture practices have minimal infrastructure and costs can also be kept low because raw materials for the construction of Floating beds are readily available from local waterways. This gives the opportunity to many people living in this area to cultivate using this technique. The advantages of floating garden agricultural heritage system are manifold. The floating beds are made of free, locally abundant materials, especially water hyacinth. This is considered to be one of the most dangerous invasive species due to its high reproduction speed but in this particular farming system, this notorious weed converted to most useful resources. Since crops could absorb prime nutrients such as nitrogen, potassium and phosphorus from the floating beds and below water, there is almost no need for fertilizer input. After collecting water hyacinth bamboo is laid on a dense layer of water hyacinth to enable people to stand on it, and then more water hyacinth is piled on top to make it compact. The eventual thickness depends on the duration of water losing for it must be able to float during that time. To accelerate the process, the previous year's decomposed bed of raft can be used. Because it allows better control over this plant, some researchers have noted the greater productivity of floating bed practices compared with traditional and based agriculture.

- Describe how the Dhop is considered a type of hydroponic agriculture practice.
- What are the economic benefits of floating bed agriculture?
- Why is water hyacinth called 'notorious weed'?
- How does agro-biodiversity maintain through Dhop?
- How does the idea 'woe turns into wealthy resemble with this paragraph?

02. Write an essay in Bangla on: পরিকল্পিত পরিবার, সুরক্ষিত মানবাধিকার। [30]

03. মনে করুন আপনি একটি তফসিলি ব্যাংকে অফিসার পদে কর্মরত। বাংলাদেশ সরকারের বর্তমান মুদ্রানীতির পরিপ্রেক্ষিতে কর্তৃপক্ষের আদেশক্রমে আপনার ব্যাংকের করণীয় নির্ধারণ করে বিভিন্ন শাখা-প্রধানদের নিকট প্রেরণের জন্য একটি পত্রের খসড়া প্রস্তুত করুন।

04. Translate into Bangla: [30]

The idea of a crime against humanity and of war crimes in general can be understood in relation to the natural law and natural rights theories.	মানবিকতা এবং সাধারণভাবে যুদ্ধাপরাধের বিরুদ্ধে অপরাধের ধারণা প্রাকৃতিক আইন ও প্রাকৃতিক অধিকার সম্পর্কিত তত্ত্বের সাপেক্ষে বোঝা যায়।
Certain actions violate the natural value and dignity of persons, and all human beings should know this based upon a common moral sense, no matter what orders they receive.	কিছু পদক্ষেপ মানুষের স্বাভাবিক মূল্যবোধ এবং মর্যাদাকে লঙ্ঘন করে, এবং সমস্ত মানুষের এটি জানা উচিত যে, এটা একটা সাধারণ নৈতিকতার উপর ভিত্তি করে গড়ে ওঠে। এক্ষেত্রে তারা কোন আদেশপ্রাপ্ত হয়েছে কিনা তা কোন বিষয় হয়ে দাঁড়ায় না।

The important point here is that soldiers cannot be excused for criminal behaviour by claiming that they are merely following orders.	এখানে গুরুত্বপূর্ণ বিষয় হল এটা যে সৈন্যরা অপরাধী আচরণের জন্য ক্ষমা পেতে পারে না এটা বলে যে, তারা কেবল আদেশ পালন করছে।
Principle of the Nuremberg Trials stipulates. "The fact that a person acted pursuant to order of his government or of a superior does not relieve him from responsibility under International law, provided a moral choice was in fact possible to him.	নুরেমবার্গ ট্রায়ালের মূলনীতি এটা যে, "বিষয়টা হচ্ছে কোন ব্যক্তি তার সরকার বা কোন উচ্চপদস্থ ব্যক্তির আদেশ পালন করলেও আন্তর্জাতিক আইনের আওতার বাইরে সে নয়। উল্লেখ থাকে যে, প্রকৃতপক্ষে তার নৈতিক পছন্দ করা সম্ভব ছিল।
Moreover, Principle III of the tribunal stipulated that any superior authority and leaders were not excused from persecution.	অধিকন্তু, ট্রাইব্যুনালের নীতি III এটা বলে যে, কোনও উচ্চতর কর্তৃপক্ষ এবং নেতাদের বিচার থেকে নিষ্কৃতি দেয়া হয়নি।
The Nuremberg Trials are viewed as an important step in the development of war crimes tribunals and international law.	এক্ষেত্রে, যুদ্ধাপরাধ ট্রাইব্যুনাল এবং আন্তর্জাতিক আইন উন্নয়নে নুরেমবার্গ ট্রায়ালগুলি একটি গুরুত্বপূর্ণ পদক্ষেপ হিসেবে বিবেচিত হয়।
Since Nuremberg, the International community has worked to create a more impartial system for dealing with war crime and crimes against humanity, including the development of an International criminal court in The Hague.	নুরেমবার্গ বিচার থেকেই, আন্তর্জাতিক সম্প্রদায় যুদ্ধাপরাধ ও মানবতাবিরোধী অপরাধ মোকাবেলা করার জন্য একটি আরো নিরপেক্ষ ব্যবস্থা তৈরির কাজ করে চলেছে, যার মধ্যে অন্তর্ভুক্ত রয়েছে হেগে আন্তর্জাতিক অপরাধ আদালতের উন্নয়ন।

05. Translate into English: [15]

নজরুলের বিদ্রোহী-চেতনা রূপ লাভ করেছিল পরাধীনতার বিষয়টিকে কেন্দ্র করে।	Nazrul's rebel-consciousness found its root in the subject matter of subordination.
নজরুলের চিন্তাধারা তাঁর বিদ্রোহী সত্ত্বার সমষ্টিগত পরিচয় - রাজনৈতিক পরাধীনতা, সাম্প্রদায়িকতা, নারীর অবদমন ও সাংস্কৃতিক আধিপত্যের বিরুদ্ধে।	His thoughts are the collective identity of his rebel entity - political subordination, communalism, women's humiliation and cultural domination.
জীবনের পুরোটা সময় তিনি প্রায় চরম দারিদ্রের মধ্যে কাটিয়েছেন।	He spent most of his life in extreme poverty.
দারিদ্রকে তিনি নিজের হাতের রেখার মত চিনতেন।	He knew poverty as the lines of his own hand.
সেজন্য তাঁর সমস্ত বিদ্রোহী চেতনার উৎস্বরূপ দারিদ্রকে চিহ্নিত করা যায়।	That is why poverty is identified as the source of all his rebellious spirit.
নজরুলের এই ব্যক্তিস্বাতন্ত্র্য পশ্চিমা পুঁজিবাদী সমাজের ব্যক্তিস্বাতন্ত্র্য থেকে ভিন্ন।	This individuality of him is different from the individualism of the western capitalist society.
এই ভিন্নতা কবির বিদ্রোহী সত্ত্বার পরিচয় হলেও সামাজিক ব্যবস্থায় এর অবস্থান কবির রচনায় ব্যতিক্রমী মাত্রায় প্রতিফলিত হয়েছে।	Although this variation identifies the rebellious entity of the poet, its position in the social system has been reflected in a different dimension in his writings.
নজরুলের মধ্যে বিদ্রোহ আছে, বিপ্লবী চেতনা আছে, এবং এই কারণে ব্যক্তিস্বাতন্ত্র্যের দিক থেকে তিনি বরাবর আপোষহীন।	There is revolt in Nazrul, there is revolutionary spirit in him, and for this reason, he has always been uncompromising from the viewpoint of individualism.
আর তাঁর অনুসরণে সমাজের দৃঢ়চেতা মানুষগুলো আপন আপন বৈশিষ্ট্য নিয়ে উজ্জ্বল হয়ে উঠলে সমাজের সর্বোচ্চ উন্নতি হতে বাধ্য।	And following the guidance of him, if the people in the society become brighter with their own characteristics, it is bound to be the highest improvement in society.

06. Solve the following mathematical problems:

(A) A car owner buys petrol at Tk.75, tk. 80 and tk. 85 per liter for three successive years. What approximately is the average cost per liter of petrol if he spends Tk. 40000 each year in this concern?

Solution:

Among the three successive years,

1st year, he buys = $40000/75 = 533.33$ litres of petrol

2nd year, he buys = $40000/80 = 500$ litres of petrol

3rd year, he buys = $40000/85 = 470.58$ litres of petrol

He buys total = $(533.33+500+470.58) = 1503.91$ litres of petrol

Total cost = $(40000 \times 3) = 120000$ tk.

So, average cost of per litre of petrol = $(120000/1503.91) = 79.79$ tk. = 80 tk (Approx)

(B) P is a working and Q is an investing partner. P puts in Tk. 340000 and Q puts Tk. 650000. P receives 20% of the profits for managerial works. The rest is distributed in proportion to their capitals. Out of a total profit of Tk. 99000, how much does P get?

Solution:

For managerial works, P gets from profit = 20% of 99000 = 19800 tk.

Profit remains = $(99000 - 19800) = 79200$ tk.

ATQ,

P:Q = 340000: 650000 = 34:65

Sum of ratio = $(34+65) = 99$

From remaining profit P gets = $34/99$ of 79200 = 27200 tk

So, P gets total = $(19800 + 27200) = 47000$ tk.

(C) A lawn is in the form of a rectangle having its sides in the ratio 2:3. The area of the lawn is 1/6 hectares. Find the length and breadth of the lawn.

Solution:

Let,

Length = 3x meter

And breadth = 2x meter

Given,

Area = 1/6 hectares

= $(10000/6)$ meter²

= $5000/3$ meter²

ATQ,

$3x \times 2x = 5000/3$

Or, $6x^2 = 5000/3$

Or, $x^2 = 5000/18$

Or, $x^2 = 2500/9$

Or, $x = \pm\sqrt{(2500/9)}$

Or, $x = \pm 50/3$

Or, $x = 50/3$ (negative is not acceptable)

So, length = $3x = 3 \times (50/3)$ meter = 50 meter

breadth = $2x = 2 \times (50/3)$ meter = $100/3$ meter = 33.33 meter

(D) Consider an example from a maintenance shop. The inter-arrival times of tools at that shop are exponential with an average time of 10 minutes. The length of the service time is assumed to be exponentially distributed, with mean 6 minutes. Estimate the fraction of the day that an operator will be idle.

e) Simplify: $(x-1)/(x^2 - x - 20) + (4 - x)/(x^2 - 4x - 5)$

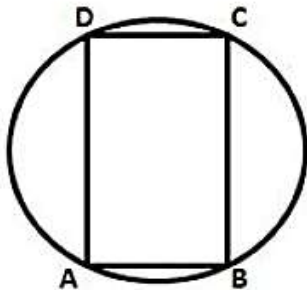
Solution:

Given,

$$\begin{aligned} & (x-1)/(x^2 - x - 20) + (4 - x)/(x^2 - 4x - 5) \\ &= (x-1)/(x^2 - 5x + 4x - 20) + (4 - x)/(x^2 - 5x + x - 5) \\ &= (x-1)/\{(x(x - 5) + 4(x - 5))\} + (4 - x)/\{(x(x - 5) + 1(x - 5))\} \\ &= (x-1)/(x - 5)(x + 4) + (4 - x)/(x - 5)(x + 1) \\ &= 1/(x - 5)\{(x-1)/(x + 4) - (x - 4)/(x + 1)\} \\ &= 1/(x - 5)\{(x^2 - 1 - x^2 + 16)/(x + 4)(x + 1)\} \\ &= 1/(x - 5)\{15/(x + 4)(x + 1)\} \\ &= 15/(x - 5)(x + 4)(x + 1) \end{aligned}$$

(F) Prove that a parallelogram inscribed in a circle must be a rectangle.

Solution:



(i) Let ABCD be a parallelogram, inscribe in a circle,

$$\text{Now, } \angle BAD = \angle BCD$$

(Opposite angles of a parallelogram are equal)

$$\text{And } \angle BAD = \angle BCD = 180^\circ$$

(pair of opposite angles in a cyclic quadrilateral are supplementary)

$$\therefore \angle BAD = \angle BCD = \frac{180^\circ}{2} = 90^\circ$$

the other two angles are 90° and opposite pair of sides are equal.

\therefore ABCD is a rectangle.

(G) The angle of elevation of a hot air balloon, climbing vertically from 25 degrees to 60 degrees at 10:00 am and at 10:02 am respectively. The point of observation of the angle of elevation is situated 300 meters away from the take-off point. What is the upward speed (m/sec), assumed constant for the balloon?

Solution:

At 10:00 am, height of the balloon is,

$$\tan 25^\circ = \text{height}_1/300$$

$$\text{or, height}_1 = 300 \tan 25^\circ = 139.89 \text{ meter}$$

Again,

At 10:02 am, height of the balloon is,

$$\tan 60^\circ = \text{height}_2/300$$

$$\text{or, height}_2 = 300 \tan 60^\circ = 519.62 \text{ meter}$$

Difference of height = (height₂ - height₁)
 = (519.62 - 139.89) meter
 = 379.73 meter
 Time difference = (10:02 - 10:00) am = 2 minute
 So, upward speed (m/sec) of ballon = height/time
 = 379.73/120 (2 minute = 120 sec)
 = 3.16 m/sec (Approx)

Bangladesh Bank Officer General - 2018

Answer all the questions in Sequential Order.

01. Write an essay in Bangla on “বঙ্গবন্ধু স্যাটেলাইট-১ : নতুন সাফল্যে জ্যোতির্ময় বাংলাদেশ”। [30]

02. বাংলাদেশ ব্যাংকের একজন কর্মকর্তা হিসেবে আপনার উর্ধতন কর্তৃপক্ষের নির্দেশক্রমে ‘এজেন্ট ব্যাংকিং বিষয়ে একটি প্রতিবেদন প্রস্তুত করুন [15]

03. Translate into Bangla: [20]

Justice is the first virtue of social institutions, as truth is of systems of thought.	সত্য যেমন চিন্তা-ভাবনার গুণ তেমনি প্রতিষ্ঠানগুলির প্রথম গুণ হচ্ছে ন্যায়বিচার।
A theory however elegant and economical must be rejected or revised if it is untrue: likewise laws and Institutions no matter how efficient and well arranged must be reformed or abolished if they are unjust.	তাই একটি তত্ত্ব যদি অসত্য হয় তাহলে তা যতই সুষ্ঠু এবং লাভজনক হোক না কেন, তা অবশ্যই বা সংশোধন বা বাতিল করা উচিত। একইভাবে আইন এবং প্রথাসমূহ যতই কার্যকরী এবং সুষ্ঠুভাবে বিন্যস্ত হোক না কেন, তা সংস্কার বা বিলুপ্ত করা আবশ্যিক।
Each person possesses an inviolability founded on Justice that even the welfare of society as a whole cannot override.	ন্যায়বিচারের প্রতি প্রত্যেক ব্যক্তিরই এমন অধিকার রয়েছে যা সমগ্র সমাজের কল্যাণও অগ্রাহ্য করতে পারে না।
For this reason justice denies that the loss of freedom for some is made right by a greater good shared by others.	এই কারণেই ন্যায়বিচার অন্য অনেকের ভালোর জন্য কিছু মানুষের স্বাধীনতা হ্রাস করাকে অস্বীকার করে।
It does not allow that the sacrifices imposed on a few are outweighed by the larger sum of advantages enjoyed by many.	এটি এমন কিছু অনুমোদন দেয় না যা অনেকের দ্বারা ভোগ করা অনেক সুবিধা কিছু মানুষের উপর চাপিয়ে দেওয়া আত্মত্যাগের অধিক হয়।
Therefore, in a just society the liberties of equal citizenship are taken as settled; the rights secured by Justice are not subject to political bargaining or to the calculus of social interests.	অতএব, একটি ন্যায়নিষ্ঠ সমাজে নাগরিকত্বের সমান স্বাধীনতার ব্যবস্থা করা হয়; অধিকারগুলি সুরক্ষিত করা হয় ন্যায়বিচার দ্বারা, যা রাজনৈতিক উদ্দেশ্য বা সামাজিক স্বার্থের অনুসারী নয়।
The only thing that permits us to acquiesce in an erroneous theory is the lack of a better one; analogously, an injustice is tolerable only when it is necessary to avoid an even greater injustice.	একটামাত্র বিষয় যা আমাদের ভুল তত্ত্বের সাথে পরিচয় করিয়ে দেয় তা হচ্ছে একটি ভাল তত্ত্বের অভাব; অনুরূপভাবে, একটি অবিচার তখনই সহনশীল হয় যখন একটি বৃহত্তর অবিচার এড়ানোর প্রয়োজন বোধ করা হয়।

Being first virtuous of human activities, truth and justice are uncompromising.

মানুষের কার্যকলাপের প্রথম গুণ হিসেবে সত্য ও ন্যায়বিচার আপোসবিরোধী।

04. Write an essay in English on “A Quest for Peace in the Middle East: Recent Perspectives. [30]

05. Read the following passage and answer the questions below: [20]

After the striking political theater that unfolded recently at the forbidding border between North and South Korea, it seems almost mean-spirited to cast aspersions on Kim Jong-un’s motives or to be apprehensive about talks Mr. Kim is expected to have in a few weeks with President Trump. These contacts, after all, stand in stark contrast to the scary talk of nuclear exchanges of only a few months ago, and meeting face-to-face seems better than saber rattling. Mr. Kim’s meeting with the dovish South Korean President, Moon Jae-in, was heady stuff, minutely choreographed to stir the hopes and longings of a nation bitterly divided for seventy years. Every scene was suffused with symbolism: the joint steps across the concrete slab that marks the border, which no member of the Kim dynasty had ever breached before the banter and the hand-holding the soil heaped on a tree planted when the Korean War ended in an armistice in 1953; the honor guard in 19th-century imperial robes. The “Panmunjom Declaration” signed by the two leaders was similarly upbeat, promising to rid the Korean peninsula of nuclear weapons and to finally negotiate a peace treaty.

- Which issues made everybody worried about the future of power play continued in Korean peninsula?
- What does the phrase “saber rattling stand for?”
- Find out and account for the symbols available in the passage.
- What benefit may the world get from the “Panmunjom Declaration”?
- Write a suitable title for this passage.

06. Translate into English: [20]

সমাজ সাধারণভাবে মানুষকে সৃষ্টি করে, মানুষ আবার নিজেকে গড়ে তোলে শিক্ষাদীক্ষা ও সৌন্দর্য সাধনার সহায়তায়।	Society generates people in general, people then develop themselves with the help of accomplishments of education and beauty.
এই যে নিজেকে বিশেষভাবে গড়ে তোলা, এরই নাম কালচার।	This special way of building oneself- is culture.
তাই কালচার্ড মানুষ স্বতন্ত্র, আলাদা মানুষ।	So the cultured people are distinct and different.
নিজের চিন্তা, নিজের ভাবনা, নিজের কল্পনার বিকাশ না হলে কালচার্ড হওয়া যায় না।	It is not possible to be cultured if one does not develop his own thoughts, own concept and own imagination.
চিন্তা ও বিশ্বাসের ব্যাপারে সমতা স্থাপন করে মানুষের স্বাভাবিক লুপ্ত করতে চায় বলে সামাজিক বিধি-বিধান অনেক সময়ে কালচারের পরিপন্থী।	By establishing equality in thought and belief, social rules and regulations are often against culture as it wants to subdue people’s identity.
নিজেকে বাঁচাও, নিজেকে মহান করো, সুন্দর করো, বিচিত্র করো এ-ই কালচারের আদেশ।	Save yourself, make yourself great, make it beautiful, diversify it- these are the order of culture.
কালচার ব্যক্তিত্বাত্মিক এ কথা বললে এ বুঝায় না যে, কালচার্ড মানুষ সমাজের ধার ধারে না, সে দলছাড়া, গোত্রছাড়া জীব।	Speaking of the persona of culture, does not mean that the cultured people do not care for the society, they are out of groups, creatures out of the tribe.
তা নয়, সমাজের ধার সে খুবই ধারে।	Not exactly that, he does care for the society.
নইলে প্রাণ পাবে কোথেক?	Otherwise, where will he get life?

সুতরাং নিজের স্বার্থের দিকে নজর রেখেই কালচার্ড মানুষ সমাজের কথা ভাবে, এমন কি দরকার হলে সমাজের জন্য প্রাণ পর্যন্ত দিতে প্রস্তুত থাকে।	So, keeping an eye on own interests, cultured people think of the society, even if necessary, are prepared to die for the society.
সংস্কৃতিবান মানুষ ব্যক্তিতাত্ত্বিক এই অর্থে যে, সমাজ বা অর্থনীতির কথা ভেবে সে নিজের সৌন্দর্যকে ক্ষমা করে না।	Cultured people are in the sense individualistic that thinking of society or economy, they do not forgive their beauty.

07. Answer the following questions: [15]

a) Elaborate the following ideas: [5]

- I. Green Diplomacy
- II. Buy One Get One Free
- III. Cyber Security

b) Write briefly on the pros and cons of MCQ-based examination system. [5]

c) Give a short account of the recent political development of Malaysia. [5]

d) Figure out the consequence of Ethnic Cleansing' in Myanmar and its aftermath. [5]

08. Solve the following mathematical problems: $5 \times 10 = 50$

(A) A piece of stone fell from a balloon when it was flying in the upward direction with a velocity 20 m/sec. What height of the balloon when the stone hit the ground in 10 seconds?

Solution:

Given,

velocity of ballon = 20 m/sec

Time, $t = 10$ sec

We know that, a piece of stone fell from a ballon when it was flying in the upward direction, then

$$\begin{aligned}
 h_1 &= ut + (1/2)gt^2 \\
 &= - (20 \times 10) + (1/2) \times 9.8 \times 10^2 \\
 &= -200 + 490 \\
 &= 290 \text{ m}
 \end{aligned}$$

When the stone fell, the ballon didn't stop but will fly more during 10 sec.

$$h_2 = ut = 20 \times 10 = 200 \text{ m}$$

So, after 10 sec when the stone touched the ground, height of the ballon will be,

$$\begin{aligned}
 h &= h_1 + h_2 \\
 &= 290 + 200 \\
 &= 490 \text{ m}
 \end{aligned}$$

Solved By: Ajar Ali, Admin, BCS Spotlight fb group

(B) Find the maximum value of $z = 6x + 2y$, subject to the conditions $x \geq 0$, $y \geq 0$, $x + y = 5$, $x \leq 2$, $y \leq 4$

Solution:

Here, $x + y = 5$(i)

Conditions given $x \leq 2$, $y \leq 4$ and $x \geq 0$, $y \geq 0$

So, $0 \leq x \leq 2$ and $0 \leq y \leq 4$

If the highest value of $x = 2$, then

$$2 + y = 5 \text{ [from eq. (i)]}$$

$$\text{Or, } y = 3$$

$$\text{So, } x = 2 \text{ and } y = 3$$

If the highest value of $y = 4$, then

$$x + 4 = 5 \text{ [from eq. (i)]}$$

$$\text{Or, } x = 1$$

$$\text{So, } x = 1 \text{ and } y = 4$$

$$\text{Now, for } (x, y) = (2, 3), z = 6 \times 2 + 2 \times 3 = 18$$

$$\text{Again, for } (x, y) = (1, 4), z = 6 \times 1 + 2 \times 4 = 14$$

So, the maximum value of z is 18.

Solved By: Ajar Ali, Admin, BCS Spotlight fb group

(C) The sum of the digits of a two-digit number is subtracted from the number. How many such two-digit numbers can be formed so that the digit in the unit place of the resulting number is 6?

Solution:

Let,

y is in unit place and x is in the tenth place

$$\text{the number be } = 10x + y$$

$$\text{so the sum of the digits will be } x + y$$

if the sum of the digits subtracted from the number than the result will be

$$10x + y - (x + y) = 9x$$

so the resulting number will always be the multiple of 9

so, to have 6 in unit place the value of x must be 4.

$$\text{The resulting number will be } 9 \times 4 = 36$$

So all the two digit number which has 4 in tenth place, will be the number.

So total such number will be 10 (40,41,42,43,44,45,46,47,48,49)

Solved By: Ajar Ali, Admin, BCS Spotlight fb group

(D) How many ways are there to divide 50 people into 3 groups so that each group contains members equal to a prime number?

Solution:

Here are the prime numbers less than 50: 2,3,5,7,11,13,17,19,23,29,31,37,41,43,47

We need one even prime and two odd primes.

As summation of two odd numbers is an even number, we need an even prime number to make the sum an even number. .

2 is the only such prime number.

Now, we need other two numbers whose sum will be = $(50-2) = 48$.

The result is as follows:

$$5+43 = 48$$

$$7+41=48$$

$$11+37=48$$

$$17+31=48$$

$$19+29=48$$

So, the groups can be formed in 5 ways i.e. (2,5,43), (2,7,41), (2,11,37), (2,17,31), (2,19,29)

(E) A semicircular sheet of metal of diameter 28 cm is bent into an open conical cup. Find the depth and capacity of cup.

Solution:

Given,

diameter = 28 cm

So, Radius, $r = 28/2 = 14$ cm

Circumference of semicircle = $\pi r = 14\pi$

Now the semi-circular sheet is bent into an open conical cup.

So, slant height of conical cup = radius of semi circular sheet = 14cm

Circumference of the base of the conical cup = Circumference of the semi circular sheet

So, $2\pi R = 14\pi$

$R = 7$ cm

Depth of conical cup = height of cone

$= \sqrt{(14^2 - 7^2)} = \sqrt{(196-49)} = \sqrt{147} = 7\sqrt{3}$

Capacity of conical cup

$= (1/3) \pi R^2 h$

$= (1/3) \times (22/7) \times 7^2 \times 7\sqrt{3}$

$= 622.37 \text{ cm}^3$

Rupali Bank Officer Cash - 2018

Answer the following questions. Answers must be given in Chronological Order.

01. Write an essay in Bangla on “বাংলাদেশের ক্রীড়াঙ্গন : সাফল্য ও সম্ভাবনা”। [20]

02. Write an essay in English on “Economy of Bangladesh : It simply keeps Growing”. [20]

03. Write a english letter of credit (LC) to pay a fixed amount of money to a designated beneficiary. [15]

04. ধরুন আপনি একজন ব্যাংক কর্মকর্তা। আপনার শাখা প্রধানের নির্দেশক্রমে গ্রাহক অধিকার সংরক্ষণে বাংলা ভাষায় ব্যাংকিং-এর সুবিধাসমূহ তুলে ধরে উর্ধ্বতন কর্তৃপক্ষের নিকট এ বিষয়ে উদ্যোগ গ্রহণের জন্য বাংলায় একটি আবেদনপত্র রচনা করুন। [15]

05. Read the following passage and answer the questions below: [20]

Agent banking is the most useful channel when it comes to providing financial services to the extreme poor. Development entities such as non-government organizations and micro-finance institutions (MFIs) are working to link clients with agent banking to provide better financial services. The MFIs can work as agencies of banks in localities for greater financial inclusion. Collateral is the major challenge faced when the rural poor try to get loans, so agents of banks, MFIs In this case, can act as Guarantors inside localities, helping to provide loans at low interest Market systems can play a crucial role to address development challenges, Bangladesh Bank data shows that the number of agent banking accounts more than doubled to 12.14 lakh in 2017 from that a year earlier. Bangladesh Bank issued an agent banking guideline in 2013 and licensees started full fledged operations in 2016

- Give a suitable title for the passage.
- What type of role can NGOs play to enhance ‘Agent Banking’?
- How do the poor people get the best support from different MFIs?
- What does the word ‘collateral’ mean in the passage?
- Figure out the achievement of this sector till the year 2017.

06. Translation into Bangla: [10]

(A)

Sher-e-Bangla AK Fazlul Huq is a legendary figure in Bengal and All-India politics and in the history of movements for social change. Like many other leaders in public life, Fazlul Huq had his lamentations over some of his past actions and decisions. But to delve into those is hardly possible in a short piece like this one. Fazlul Huq lived a life of dignity and honour. Of course, there were occasions when circumstances around him were not all that pleasant. At times he had to confront resentful critics often misunderstanding his intent and purpose. Fazlul Huq was considered by P.C. Ray, the great scientist as a symbol of Hindu Muslim unity on which the future existence of the Bengali nation is depended. P.C. Ray, Fazlul Huq's one time teacher, said he did not understand the Indian nationalism of the Congress. He knew only Bengali nationalism. And he believed that only Fazlul Huq could establish this nationalism.

Ans:

শেরেবাংলা একে ফজলুল হক বঙ্গ ও সমগ্র ভারতের রাজনীতি এবং সামাজিক পরিবর্তনের আন্দোলনের ইতিহাসের কিংবদন্তী ব্যক্তিত্ব। পাবলিক এলডিউর অন্য অনেক নেতার মতো ফজলুল হক তার অতীতের কিছু কর্ম ও সিদ্ধান্তের বিষয়ে শোক প্রকাশ করেছিলেন, তবে এর মতো সংক্ষিপ্ত অশেষণে এটুকু জানা খুব কমই সম্ভব। ফজলুল হক মর্যাদা ও সম্মানের জীবনযাপন করেছিলেন। অবশ্যই, এমন সময় ছিল যখন তার চারপাশের পরিস্থিতিগুলি এত সুন্দর ছিল না। অনেক সময় তাকে বিরক্তিপূর্ণ সমালোচকদের মুখোমুখি হতে হয় প্রায়শই তার উদ্দেশ্য এবং উদ্দেশ্য সম্পর্কে ভুল বোঝাবুঝি। ফজলুল হককে পি.সি. রায় বলা হত, মহান বিজ্ঞানী রায় ছিলেন হিন্দু মুসলিম ঐক্যের প্রতীক যার উপর বাঙালি জাতির ভবিষ্যতের অস্তিত্ব নির্ভরশীল। ফজলুল হকের এক সময়ের শিক্ষক পি.সি. রায় বলেছেন, তিনি কংগ্রেসের ভারতীয় জাতীয়তাবাদ বুঝতে পারেননি। তিনি কেবল বাঙালি জাতীয়তাবাদ জানতেন। এবং তিনি বিশ্বাস করেছিলেন যে কেবল ফজলুল হকই এই জাতীয়তাবাদ প্রতিষ্ঠা করতে পারেন।

(B) Translate the following detached sentences into Bangla: 5 × 1 = 05

a. The industrial park will take 5 years to become fully operational.

শিল্প পার্কটি পুরোপুরি চালু হতে 5 বছর সময় লাগবে।

b. Shakib has also done well with every team he played.

সাকিবও ভালো করেছেন যেসব দলের সাথে খেলেছেন।

c. The nutritional benefits of lentil are unchallenged.

মসুরের পুষ্টির উপকারগুলি অতুলনীয়।

d. I said happily, "I am taking the bus to Rangpur".

আমি আনন্দের সাথে বললাম, "আমি বাসটি রংপুরে নিয়ে যাচ্ছি"।

e. China is investing billions of dollars building ports, power stations and roads in Bangladesh.

চীন বিলিয়ন বিলিয়ন ডলার বাংলাদেশের বন্দর, বিদ্যুৎ কেন্দ্র এবং রাস্তাঘাট তৈরীতে বিনিয়োগ করছে।

07. Translate into English: [10]

(A)

বাংলা পঞ্জিকার প্রথম মাস বৈশাখ। 'পহেলা বৈশাখ' থেকে সূচিত হয় 'শুভ নববর্ষ'। আবহমান কাল ধরেই এ দিনটিকেই বাংলাদেশের মানুষ খুব উৎসবমুখর পরিবেশে পালন করে আসছে। জাতি ধর্ম বর্ণ নির্বিশেষে সকল শ্রেণি পেশার মানুষের অংশগ্রহণে নববর্ষ উদযাপিত হয়। বাঙালি মেয়েরা ঐতিহ্যবাহী পোশাক শাড়ি, ছেলেরা পাজামা-পাঞ্জাবি পরিধানের মধ্য দিয়ে দিনটি পালন করে। শিশু-কিশোররাও নানা অনুষ্ঠানে অংশগ্রহণ করে। প্রতিটি পরিবারই তাদের সামর্থ্য অনুযায়ী নতুন বছরের প্রথম দিনে ভালো খাবার খায় এবং নিজেদের সংস্কৃতি ও কৃষ্টিকে সমুন্নত রাখার চেষ্টা করে।

Ans:

The first month of the Bengali calendar is Baishakh. The first day of 'Baishakh' indicates 'Happy New Year'. The people of Bangladesh have been celebrating this day in a very festive environment for the past few days. New Year is celebrated with the participation of people of all walks of life, irrespective of caste and creed. Bengali girls wear traditional dress sarees, boys wear pajamas and Punjabis through the day. Children and teenagers also participate in various events. Each family eats good food on the first day of the new year as they can afford and strives to uplift their culture and culture.

(B) Translate the following detached sentences into English: 5×1= 05

a. দেশের উন্নয়নের প্রতিটি ক্ষেত্রে নারীরা তাদের দক্ষতা ও যোগ্যতার স্বাক্ষর রাখছে।

In every area of development of the country, women are signing their skills and abilities.

b. বুড়িগঙ্গা নদী দূষণমুক্ত করতে কর্তৃপক্ষ নতুন প্রকল্প হাতে নিয়েছে।

Authorities have taken a new project to remove the Buriganga River from pollution.

c. জলবায়ু পরিবর্তনের কারণে বিশ্বে বজ্রপাতের পরিমাণ বেড়েছে।

Due to climate change, thunderstorms have increased in the world.

d. প্রতিবছর নানা আয়োজনে ষড়ঋতুকে বরণ করে বাঙালি।

Every year, Bengali arranges various kinds of ceremonies to celebrate six season.

e. আইস্টাইনের পর স্টিফেন হকিংকে শ্রেষ্ঠতম পদার্থবিদ বলে গণ্য করা হয়।

Stephen Hawking is considered the greatest physicist since Einstein.

08. Solve the following mathematical problems: 7 x 10 = 70

(A) A family has 480 kg of rice for X number of weeks. If they need to use the same amount for 4 more weeks, they need to cut down their weekly assumption of rice by 4 kg. what is the value of X?

Solution:

ATQ,

$$x(x+4) = 480$$

$$x^2 + 4x - 480 = 0$$

$$(x-20)(x+24) = 0$$

$$x = -24 \text{ or } 20$$

ans : 20 weeks

(B) If $\cos(A+B) = 1/\sqrt{2}$ and $\cos(A-B) = \sqrt{3}/2$, then what is the value of A & B.

[$0^\circ < A+B \leq 90^\circ$ And $A > B$]

Solution:

As it given, we get-

$$\cos 45 = 1/\sqrt{2} = \cos(A+B)$$

$$\text{So, } A+B = 45$$

$$A = 45 - B \text{ ---(1)}$$

Again,

$$\cos 30 = \sqrt{3}/2 = \cos(A-B)$$

$$A-B = 30$$

$$45-B - B = 30$$

$$B = 15/2$$

$$\text{So, } A = 45 - 15/2 = 75/2$$

Ans : $75/2$ & $15/2$

(C) A shopkeeper sells two shirt at the same price. He makes one on 10% profit and 10% loss on another. What is the total gain or loss percent?

Solution:

Let, he sells each shirt at 990 tk

$$\text{total SP} = 990 \times 2 = 1980 \text{ tk}$$

$$\text{First CP} = 990/90\% = 1100$$

$$\text{Second SP} = 990/110\% = 900$$

$$\text{Total CP} = 1100+900 = 2000 \text{ tk}$$

CP > SP

Loss amount = 2000-1980 = 20 tk

So, Loss Percent = $(20/2000) * 100$

= 1

Ans : 1% Loss

(D) If $a = xy^{p-1}$, $b = xy^{q-1}$, $c = xy^{r-1}$ and $p+q+r=3$, then compute $a^{q-r} \cdot b^{r-p} \cdot c^{p-q}$

Solution:

$$\begin{aligned} \text{L.H.S.} &= a^{q-r} \cdot b^{r-p} \cdot c^{p-q} \\ &= (xy^{p-1})^{(q-r)} \cdot (xy^{q-1})^{(r-p)} \cdot (xy^{r-1})^{(p-q)} \\ &= x^{(q-r)} \cdot y^{(p-1)(q-r)} \cdot x^{(r-p)} \cdot y^{(q-1)(r-p)} \cdot x^{(p-q)} \cdot y^{(r-1)(p-q)} \\ &= x^{(q-r)+(r-p)+(p-q)} \cdot y^{(p-1)(q-r)+(q-1)(r-p)+(r-1)(p-q)} \\ &= x^{(q-r+r-p+p-q)} \cdot y^{(pq-pr-q+r+qr-r-pq+p+pr-p-qr+q)} \\ &= x^0 y^0 \\ &= 1 \cdot 1 \\ &= 1 \end{aligned}$$

(E) Price of 3 tables and 5 Chairs is 2000 tk. And price of 5 Tables and 7 Chairs is 3200 tk. Find the price of 1 Table and 1 chair?

Soution:

Table = T & Chair = C

$$3T + 5C = 2000$$

$$21T + 35C = 14000$$

$$35C = 14000 - 21T \quad (1)$$

Again,

$$5T + 7C = 3200$$

$$25T + 35C = 16000$$

$$25T + 14000 - 21T = 16000$$

$$T = 2000/4 = 500 \text{ TK}$$

So,

$$3 * 500 + 5C = 2000$$

$$C = 500/5 = 100 \text{ TK}$$

Price of 1 table & 1 Chair = 500+100 = 600 tk

Ans : 600 tk.

(F) Solve: $1/2x + 6/y = 3$, $5/x + 3/y = 11$

Solution:

Given That,

$$1/2x + 6/y = 3$$

$$12x + y = 6xy$$

$$y = 6xy - 12x$$

$$5y = 30xy - 60x \quad (1)$$

Again, given that-

$$5/x + 3/y = 11$$

$$3x + 5y = 11xy$$

$$3x + 30xy - 60x = 11xy$$

$$57x = 19xy$$

$$y = 3$$

So,

$$3 = 6 * x * 3 - 12x$$

$$18x - 12x = 3$$

$$x = 3/6 = 1/2$$

$$\text{Ans} :: (x,y) = (1/2, 3)$$

(G) In a survey at an airport, 55 travelers said that last year they had been to India, 53 said they had been to Nepal, 79 said they had been to Bhutan. 18 had been to India & Nepal, 17 had been to India & Bhutan, 25 had been to Nepal & Bhutan, 10 had been to all three countries. How many travelers took part in the survey?

Solution:

Let, Total = T

We know,

$$\text{All} = A+B+C + (\text{All common}) - (\text{Two common})$$

ATQ,

$$T = 55+53+79 + 10 - (18 +17 +25)$$

$$= 197 - 60$$

$$= 137$$

Ans :: 137 Travelers

Agrani Bank Limited Auditor - 2017

Answer the following questions. Answers must be given in Chronological Order.

01. Write an essay in Bangla on “মানবিক কূটনীতিতে বাংলাদেশের সাফল্য”। [20]

02. Write an essay in English on “Youth quake”. [20]

03. Translate into Bangla: [10]

The modern as opposed to the medieval outlook began in Italy with the movement called the Renaissance.	মধ্যযুগীয় দৃষ্টিভঙ্গির বিরোধিতা করে আধুনিক চিন্তাধারা রেনেসাঁ নামে ইতালিতে শুরু হয়েছিল।
At first, only a few individuals, notably Petrarch, had this outlook, but during the Fifteenth century, it spread to the great majority of cultivated Italians, both lay and clerical.	প্রথমদিকে, কেবলমাত্র কয়েকজন ব্যক্তি, বিশেষ করে পেট্রার্কের এই দৃষ্টিভঙ্গি ছিল, কিন্তু পঞ্চদশ শতাব্দীতে এটি ব্যাপক সংখ্যক নব্য ইতালীয়দের বিশেষ করে নিম্ন ও কেরানিগোছের লোকদের কাছে ছড়িয়ে পড়ে।
This was, of course, a step towards emancipation, since the ancients disagreed with each other, and individual judgment was required to decide which of them to follow.	এটা অবশ্যই ছিল স্বাধীনতার দিকে একটি পদক্ষেপসম। যেহেতু প্রাচীনদের একে অন্যের মতের অনুসারী ছিল না তাই কোন পথ অনুসরণ করতে হবে তা নির্ধারণের জন্য পৃথক বিচারের প্রয়োজন ছিল।

04. Translate into English 5×2 = 10

I) এক সময়ের খরস্রোতা নদীটি এখন দূষণে মৃতপ্রায়।

The river which was full of current a time is deadly in pollution now.

II) সম্প্রতি জাপানের উন্মুক্ত স্থানে বঙ্গবন্ধুর প্রতিকৃতি স্থাপনের সিদ্ধান্ত গৃহীত হয়েছে।

Recently, the decision to set up the portrait of Bangabandhu in Japan's open space has been taken.

iii) একাত্তরের মুক্তিযোদ্ধারা দেশ ও জাতির গৌরব।

The freedom fighters of 1971 are the pride of the country and nation.

iv) খ্যাতি এবং অখ্যাতি একজন সক্রিয় মানুষের জীবনে হাত ধরে চলে।

Fame and inferiority goes hand in hand in an active person's life.

v) শীতে গ্রাম-বাংলার চিরায়ত দৃশ্য খেজুর গাছে ঝোলানো কলসি।

In winter, the traditional rural view is the pot hanging from date-trees.

05. Topical questions: 9 x 10 = 90

- An old machine is sold for TK 50,000, its cost being TK 90,000 and accumulated depreciation TK 20,000. Give the journal entry for the sale.
- Briefly explain two limitations of an income statement.
- Cost of goods sold is TK 16,000, profit margin on sales is 20%, then determine sales revenue.
- Inventory TK 30,000, accounts receivable TK 45,000, cash TK 15,000, accounts payable TK 25,000, tax payable TK 18,000. Determine current ratio.
- The business of the government is not to do business. Do you agree? Why?
- Public Accounts Committee is a very important Parliamentary Standing Committee. Discuss the functions of this committee.
- What is auditors' independence? Explain.
- What are the various types of an audit report? Give one example for each type.
- Give the names of five IAS and/or IFRS.

06. Solve the following mathematical problems: [50]

(A) Simplify: $(5x+2)/(x^2-x-20) + (2x-1)/(x^2-4x-5)$

Solution:

$$\begin{aligned} & x^2-x-20 \\ & = x^2 - 5x + 4x - 20 \\ & = x(x - 5) + 4(x - 5) \\ & = (x - 5)(x + 4) \\ & x^2-4x-5 \\ & = x^2-5x+x-5 \\ & = x(x - 5) + 1(x - 5) \\ & = (x - 5)(x + 1) \end{aligned}$$

অংকটায় সমস্যা আছে।

(B) In a survey at an airport, 55 travelers said that last year they had been to Spain, 53 to France and 79 to Germany, 18 had been to Spain and France, 17 to Spain and Germany and 25 to France and Germany, while 10 had to all three countries. How many travelers took part in the survey?

Solution:

Let,

Number of people traveled to Spain = n(S)

Number of people traveled to France = n(F)

Number of people traveled to Germany = n(G)

ATQ,

$$n(S) = 55$$

$$n(F) = 53$$

$$n(G) = 79$$

$$n(S \cap F \cap G) = 10$$

$$n(S \cap F) = 18$$

$$n(F \cap G) = 25$$

$$n(G \cap S) = 17$$

Now,

$$\begin{aligned}n(S \cup F \cup G) &= n(S) + n(F) + n(G) + n(S \cap F \cap G) - n(S \cap F) - n(F \cap G) - n(G \cap S) \\&= 55 + 53 + 79 + 10 - 18 - 17 - 25 \\&= 197 - 60 \\&= 137\end{aligned}$$

(C) A shopkeeper sells two shirts at the same price. He makes 10% profit on one and loses 10% on the other. How much in percentage does he gain or lose?

Solution:

Let,

Selling price of two shirts = x tk

Total Selling price = x + x = 2x tk

At 10% profit, cost = $100x/110$

At 10% loss, cost = $100x/90$

Total cost = $100x/110 + 100x/90 = 200x/99$

Loss = $200x/99 - 2x = 2x/99$

Loss percentage,

$$\begin{aligned}&= \left\{ \frac{2x/99}{200x/99} \right\} \times 100 \\&= \frac{2x/99}{200x/99} \times 100 \\&= 1\%\end{aligned}$$

(D) The length of a tangent from a point A at distance 5 cm from the centre of the circle is 4 cm. Find the radius of the circle.

Solution:

AB is a tangent drawn on this circle from point A.

$\therefore OB \perp AB$

OA = 5cm and AB = 4 cm (Given)

In ΔABO ,

By Pythagoras theorem in ΔABO ,

$$OA^2 = AB^2 + BO^2$$

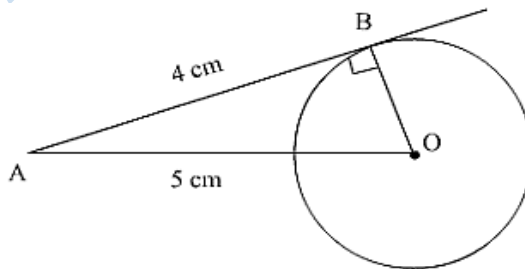
$$\Rightarrow 5^2 = 4^2 + BO^2$$

$$\Rightarrow BO^2 = 25 - 16$$

$$\Rightarrow BO^2 = 9$$

$$\Rightarrow BO = 3$$

\therefore The radius of the circle is 3 cm.



(E) Find the HCF of $x^3 - 16x$, $2x^3 + 9x^2 + 4x$, $2x^3 + x^2 - 28x$.

Solution:

First,

$$x^3 - 16x$$

$$= x(x^2 - 4^2)$$

$$= x(x + 4)(x - 4)$$

2nd,

$$2x^3 + 9x^2 + 4x$$

$$= x(2x^2 + 9x + 4)$$

$$= x(2x^2 + 8x + x + 4)$$

$$= x(x + 4)(2x + 1)$$

3rd,

$$2x^3 + x^2 - 28x$$

$$= x(2x^2 + x - 28)$$

$$= x(2x^2 + 8x - 7x - 28)$$

$$= x(x + 4)(2x - 7)$$

$$\text{Now HCF} = x(x + 4)$$

BDBL Senior Officer - 2017

Answer the following questions. Answers must be given in Chronological Order.

01. Read the following passage and answer the questions below. [20]

Life is worth living, but not any life. The value and significance of a life depends upon the goal towards which it moves. Only rational beings like us are capable of a critical choice and clear consciousness of that goal. Our superiority and excellence, if any, consists in the quality of the goal of our life and our capacity for voluntary striving towards that. What, then, is the real goal of our life? There does not seem to be a single simple goal for us to seek. Obviously our supreme goal or highest good (summum bonum) is rationality, but our total good is a complex whole made of both rational and non-rational factors. Rationality is the only independent (absolute) and intrinsic value which cannot be denied without self-multifarious activities. These activities have an immediate end, viz happiness. That is, our total good consists in being rational in our search for happiness. The happiness is the non-rational factor, since there is no logic either for or against it. We cannot logically argue why we shall be happy or why we shall be not.

- What decides the value and significance of life?
- Who are capable of a critical choice?
- What is the supreme goal of our life?
- What does our total good consist in?
- Why is happiness a non-rational factor?

02. Write an essay in Bangla on “বৈশ্বিক উস্কায়ন: সমস্যা ও প্রতিবিধান”। [30]

03. Translate into English: [10]

(A)

দেশের লোককে দোষ দিই নো।	I do not blame the people of the country.
সত্য কথাও খামকা শুনলে রাগ হতে পারে।	If you hear the truth for nothing, you can be angry.
. অন্যমনস্ক মানুষ যখন গর্তের মধ্যে পড়তে যাচ্ছে তখন তাকে টেনে ধরলে সে হঠাৎ মারতে আসে।	When any absent-minded person is going to fall into a hole and you grabbed him, he will come to kill you.
যেই, সময় পেলেই দেখতে পায় সামনে গর্ত আছে তখন রাগ কেটে যায়।	But when he found the hole in front of him, he cooled down.
আজ সময় এসেছে, গর্ত চোখে পড়েছে, আজ আর সাবধান করবার দরকারই নেই।	Time has come. The hole is seen. So there is no need to warn today.

(B) Translate the following detached sentences into English: 5×1= 05

i) বাংলাদেশের উন্নয়ন মূলত কৃষিকাজের ওপর নির্ভরশীল।

Development of Bangladesh is largely dependent on agriculture.

ii) শরৎকালে রাতে রূপালি চাঁদ দেখা যায়।

The silver moon is seen at night in the autumn.

iii) মনে হয় আজ আকাশ মেঘাচ্ছন্ন।

It seems that the sky is cloudy today.

iv) দেশপ্রেমিক নাগরিক বাংলাদেশের প্রধান সম্পদ।

Patriotic citizens are the principal asset of Bangladesh.

v) সে আমার কাছে এসেছিল বটে কিয় কিছু বলেনি।

He came to me but did not say anything.

04. Write an essay in English on "The next wave of social media" [20]

05. Translate into Bangla: [10]

(A)

I have a dream that one day every valley shall be exalted and every hill and mountain shall be made low, the rough places will be made plain, and the crooked places will be made straight, and the glory of the Lord shall be revealed and all flesh shall see it together.	আমার একটি স্বপ্ন আছে যে, একদিন প্রত্যেক উপত্যকাকে উঁচু করা হবে এবং প্রত্যেক পাহাড়-পর্বতমালাকে নীচু করা হবে, উঁচু-নিচু জায়গাগুলি সমান করা হবে, এবং বক্র স্থান সোজা করা হবে এবং প্রভুর মহিমা প্রকাশ পাবে এবং সমস্ত জীবজন্তু এটা একসঙ্গে প্রত্যক্ষ করবে।
This is our hope.	এটাই আমাদের আশা।
This is the faith that I go back to the South with.	এটাই সেই বিশ্বাস যার কারণে আমি দক্ষিণে ফিরে গিয়েছিলাম।
With this faith we will be able to hew out of the mountain of despair a stone of hope.	এই বিশ্বাস দিয়েই আমরা হতাশার পর্বত থেকে আশার একটি পাথরকে তুলে আনতে সক্ষম হব।

(B) Translate the following detached sentences into Bangla: 5×1= 05

i) Most of the people have no sense of time.

বেশিরভাগ লোকের সময়জ্ঞান নেই।

ii) It is not your cup of tea.

এটি আপনার চা নয়।

iii) The best revenge is massive success.

সেরা প্রতিশোধ ব্যাপক সাফল্য আনে।

iv) Many superstitions have been held by people for centuries.

শতাব্দীর পর শতাব্দী মানুষ বহু কুসংস্কারকে আগলে রেখেছে।

v) Chance favours only the prepared mind.

সম্ভাবনা শুধুমাত্র দৃঢ় মনকেই সমর্থন করে।

06. Write a business letter in Bangla by following the theme given below:

আপনি বিদেশে উচ্চশিক্ষা গ্রহণে আগ্রহী। এ সম্পর্কিত প্রয়োজনীয় তথ্য এবং ঋণলাভের যৌক্তিকতা তুলে ধরে আপনার অফিস প্রধানের নিকট আবেদনপত্র লিখুন। [15]

07. Write a business letter in English to an institution giving thanks for their quality service and environment-friendly products along with professional courtesies. [15]

08. Solve the following mathematical problems: $7x - 10 = 70$

(A) The profit of a company is given in Taka by $P = 3x^2 - 35x + 50$, where x is the amount in Taka spent on advertising. For what values of x does the company make a profit?

Solution:

For the company to make a profit, P must be > 0 . Therefore, we require the values of x where $3x^2 - 35x + 50 > 0$.

We know that the quadratic is positive and so has a range that extends from some P to positive infinity. What we need to find are the roots, the values of x where $P = 0$, which can be found using the quadratic formula:

$$\begin{aligned} X &= \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \\ &= \frac{35 \pm \sqrt{(-35)^2 - (4 \cdot 3 \cdot 50)}}{2 \cdot 3} \\ &= \frac{35 \pm \sqrt{625}}{6} \\ &= \frac{35 \pm 25}{6} \end{aligned}$$

$$X = \frac{35 + 25}{6}$$

$$\text{Or, } x = \frac{60}{6} = 10$$

Again,

$$X = \frac{35 - 25}{6} = \frac{10}{6} = 1.6$$

And so $P > 0$ when $x < 1.6$ and $x > 10$. However, because x represents money spent, it can only be positive.

Therefore, the company makes a profit when the amount spent on advertising is between 0 (inclusive) and 1.6 taka or more than 10 taka. In other words, if the company wants to make a profit, it shouldn't spend between 1.6 and 10 taka.

(B) An amount of Tk 7200 is spent to cover the floor of a room by carpet. An amount of Tk. 576 would be saved if the breadth were 3 metres less. What is the breadth of the room?

Solution:

let, length = x

breadth = y

cost per square meter = z

$$\text{ATQ, } xyz = 7200 \dots\dots(i)$$

3 m less new breadth = $(y - 3)$ m

$$\text{ATQ, } xz(y-3) = 7200 - 576 = 6624 \dots\dots(ii)$$

$$\text{or, } y = \frac{37.5(i)}{(ii)} = \frac{xyz}{xz(y-3)} = \frac{7200}{6624y} = 37.5$$

(C) Find the three-digit prime number whose sum of the digits is 11 and each digit representing a prime number. Justify your answer.

Solution:

Since the sum of the 3 digits is 11 and each digit represents a prime number, the numbers will be less than 11.

And the 3 digits may be 2, 2, 7 or 3, 3, 5

Because $2+2+7=11$ and $3+3+5=11$

Now using the digit 2, 2, 7 we have prime number 227. Because other two numbers

i.e. 722 and 272 are divisible by 2 and thus are not prime

Similarly 353 is prime number other two numbers 533 & 335 is not prime number

In case of 227, sum of the digits is $2+2+7 = 11$.

And 2, 2, 7 all the digits are prime.

Similarly, In case of 353, sum of the digits is $3+5+3 = 11$.

And 3, 5, 3 all the digits are prime.

Answer: 227 & 353

Solution by Yousuf Ali, DD, Bangladesh bank

(D) If $a/(q-r) = b/(r-p) = c/(p-q)$ then show that, $a+b+c = pa + qb + rc$.

Solution:

Let,

$$a/(q-r) = b/(r-p) = c/(p-q) = k$$

$$\text{So, } a = k(q-r);$$

$$b = k(r-p);$$

$$\text{and } c = k(p-q)$$

And,

$$\text{R.H.S.} = pa + qb + rc$$

$$= p \times k(q-r) + q \times k(r-p) + r \times k(p-q)$$

$$= kpq - kpr + kqr - kpq + kpr - kqr$$

$$= 0$$

$$\text{So, L.H.S.} = \text{R.H.S. (Showed)}$$

Now,

$$\text{L.H.S.} = a + b + c$$

$$= k(q-r) + k(r-p) + k(p-q)$$

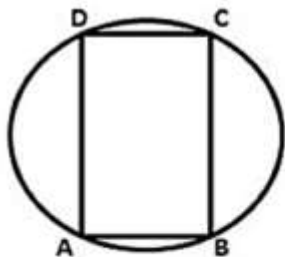
$$= k(q-r+r-p+p-q)$$

$$= k \times 0$$

$$= 0$$

(E) Prove that a cyclic parallelogram must be a rectangle.

Solution:



(i) Let ABCD be a parallelogram, inscribe in a circle,

$$\text{Now, } \angle BAD = \angle BCD$$

(Opposite angles of a parallelogram are equal)

$$\text{And } \angle BAD + \angle BCD = 180^\circ$$

(pair of opposite angles in a cyclic quadrilateral are supplementary)

$$\therefore \angle BAD = \angle BCD = \frac{180^\circ}{2} = 90^\circ$$

the other two angles are 90° and opposite pair of sides are equal.

\therefore ABCD is a rectangle.

(F) After traveling 108 km, a cyclist observed that he would have required 3 hours less if he could have travelled at a speed 3 km/hr more. At what speed did he travel?

Solution:

Let speed = x km/h

ATQ,

$$108/x = \{108/(x + 3)\} + 3$$

$$\text{or, } 108x + 324 = 117x + 3x^2$$

$$\text{or, } 3x^2 + 9x - 324 = 0$$

$$\text{or, } x^2 + 3x - 108 = 0$$

$$\text{or, } (x + 12)(x - 9) = 0$$

$$x = -12 \text{ which is not acceptable}$$

$$\text{so, } x = 9$$

(G) Solve: $x/2 + 6/y = 9$, $x/3 + 2/y = 4$

Solution:

$$x/2 + 6/y = 9$$

$$\text{or, } xy + 12 = 18y \text{ [multiplying by } 2y]$$

$$\text{or, } xy - 18y = -12$$

$$\text{or, } y = -\{12/(x - 18)\} \dots\dots\dots (i)$$

$$x/3 + 2/y = 4$$

$$\text{or, } x/3 + 2/[-\{12/(x - 18)\}] = 4 \text{ [from equation (i)]}$$

$$\text{or, } x/3 - (2x - 36)/12 = 4$$

$$\text{or, } 4x - 2x + 36 = 48$$

$$\text{or, } 2x = 12$$

$$\text{or, } x = 6$$

$$\text{from equation (i)}$$

$$y = -\{12/(6 - 18)\} = 1$$

$$\text{Answer: } (x, y) = (6, 1)$$

BKB Officer Cash - 2017

Answer the following questions. Answers must be given in Chronological Order.

01. Read the following passage and answer the questions below: [30]

Mankind needs today a new code of conduct, a sort of new morality if it can be called like that. Its fundamentals are perhaps as old as the human race but its details and setting seem to me to be new, because our environment is new. There is no escape from putting over and again the old wine into the new bottle. Possibly that is the most dependable law to discover and his history has taught him. Viewed from a correct perspective, a sense of unity and cohesion must be given top priority in the moral code of modern man and woman. We may call this politics; we may call this religion or a curious mixture of both or something else but we have to remember on this depends in a very real sense man's future. As such, the moral value of an action in the complex modern environment must invariably be judged by its capacity to contribute to human unity and understanding. 'An action is moral so far as it does this, immoral so far as it desists from it and exerts a separatist influence. In the durable interest of man, exclusivism and isolationism will have to be effaced from our moral vocabulary. Both science and religion go against it and in a happy marriage of them both assuredly lies man's future. To make life worth-living, we must make living itself possible and living is not possible in the modern scientific set-up without an adequate and abiding sense of unity.

- a) What must be given top priority in the new code of conduct?
- b) When is an action moral and immoral?
- c) What must we do to exclusionism and isolationism?
- d) How can be living possible in case of modern men and women?
- e) Give a suitable title of the passage.

02. Write an essay in Bangla on “রাষ্ট্র-নেতৃত্বে নারী: বাংলাদেশ ও বর্হিবিশ্ব”. [20]

03. Translate into Bangla: [15]

(A)

You need to be content with small steps.	প্রতিটি ছোট পদক্ষেপেই আপনাকে তুষ্ট থাকতে হবে।
That's all life is.	এটাই জীবন।
So, when you look back down it all adds up and you know you covered some distance.	তাই, যখনই আপনি পিছনে তাকান এই সমস্ত পদক্ষেপ যুক্ত হয় এবং আপনাকে নিশ্চয়তা দেয় যে, আপনি কিছু পথ অতিক্রম করে গেছেন।
It took me a long time to accept that, but it's true.	এটা গ্রহণ করার জন্য আমার দীর্ঘ সময় ব্যয় হয়েছে, কিন্তু এটি সত্য।
You need to have patience.	আপনার ধৈর্য থাকা প্রয়োজন।
The best kind of people is the ones in your life who help you see the sun where once you just saw clouds.	আপনার জীবনে তারাই সেরা মানুষ যারা আপনাকে সূর্যকে দেখতে সাহায্য করেছে যেখানে আপনি শুধুই মেঘ দেখেছেন।
You should value those people who believe in you and help you see your worth; so, you start to believe that you are valuable, as well.	এই সকল লোকদের আপনার মূল্যায়ন করা উচিত যারা আপনার প্রতি বিশ্বাস রেখেছিল এবং যারা আপনার নিজের সক্ষমতাকে আবিষ্কার করতে সাহায্য করেছিল। তাই, আপনি একথা বিশ্বাস করুন যে আপনিও মূল্যবান কেউ।

(B) Translate the following detached sentences into Bangla: 5×1= 05

i) It is high time to start a new day.

একটি নতুন দিন শুরু করার জন্য এটিই উপযুক্ত সময়।

ii) Our material well-being is not possible without a corresponding spiritual well-being.

আমাদের বস্তুগত কল্যাণ সংশ্লিষ্ট আধ্যাত্মিক উন্নয়ন ছাড়া সম্ভব নয়।

iii) There is nothing basically unworkable about the idea I believe.

প্রকৃতপক্ষে আমি যে ধারণায় বিশ্বাস করি তার মধ্যে অকার্যকর কিছুই নেই।

iv) Man, since his emergence from the stage of animality, has been fighting hard against enemies.

মানুষ, পশুর স্তর থেকে তার উদ্ভবের শুরু থেকেই শত্রুদের বিরুদ্ধে কঠোর সংগ্রাম করে আসছে।

v) We must be sympathetic and tolerant towards the living beings as far as possible.

সকল জীবের প্রতি আমাদের যতদূর সম্ভব, সহানুভূতিশীল এবং সহনশীল হওয়া উচিত।

04. Translate into English: [15]

(A)

বাংলাদেশের অর্থনীতিতে অভিবাসীগণ অন্যতম সহায়ক শক্তি।	In the economy of Bangladesh, the migrants are a helping power.
অভিবাসীদের প্রেরিত অর্থে বাংলাদেশের অর্থনৈতিক কর্মকাণ্ড সম্প্রসারিত হচ্ছে।	The economic activities of Bangladesh are expanding by the currency the migrants are sending.
বাংলাদেশের মাথাপিছু আয়-বৃদ্ধিসহ বৈদেশিক মুদ্রার রিজার্ভ সমৃদ্ধকরণে অভিবাসী কর্মীদের উল্লেখযোগ্য অবদান রয়েছে।	Migrant workers have significant contribution in enriching foreign exchange reserves with the per capita income.

অর্থনৈতিক অগ্রগতির এই পর্যায়ে জাতিসংঘ-ঘোষিত টেকসই উন্নয়ন লক্ষ্যমাত্রায় অভিবাসন বিষয়টি যথাযথ গুরুত্বের সঙ্গে স্থান পেয়েছে।

At this stage of economic progress, the immigration issue has been well-placed in the sustainable development goals declared by the United Nations.

(B) Translate the following detached sentences into English: $5 \times 1 = 05$

i) বাংলাদেশের মেয়েরা এবছর সাফ ফুটবলে চ্যাম্পিয়ন হয়েছে।

Girls of Bangladesh have become the champion in the SAF football this year.

ii) আমার মনে হয় লোকটি বিকারগ্রস্ত।

I think the man is out of mind.

iii) আমি জানি তাকে একদিন এজন্য চরম মূল্য দিতে হবে।

I know that he will have to pay extremely one day.

iv) তোমার সঙ্গে কথা বলে ভাল লাগল।

It is good to talk to you.

v) দুঃখিত, আমার কাছে ভাংতি নেই।

Sorry, I do not have any change.

05. Write a business letter in Bangla by following the theme given below:

আপনার প্রতিষ্ঠানের আনুষঙ্গিক খাত থেকে ক্রয়যোগ্য মালামালের একটি তালিকা তৈরি করে তা ক্রয়ের প্রয়োজনীয় ব্যবস্থা গ্রহণের জন্য কর্তৃপক্ষ সমীপে একটি পত্র লিখুন। [20]

06. Solve the following mathematical problems: $8 \times 10 = 80$

(A) The sum of three numbers in Arithmetic Progression is 30, and the sum of their squares is 318. Find the numbers.

Solution:

Let ,

The 2nd term is a

and common difference is d

So ,

1st term = a-d

2nd term = a

3rd term = a+d

Again ATQ,

$(10-d)^2 + 10^2 + (10+d)^2 = 318$

Or, $100 - 20d + d^2 + 100 + 100 + 20d + d^2 = 318$

Or, $2d^2 = 318 - 300$

Or, $2d^2 = 18$

Or, $d^2 = 9$

Or, $d = 3$

So,

1st term = $10 - d = 10 - 3 = 7$

2nd term = 10 and

3rd term = $10 + d = 10 + 3 = 13$

answer: 7, 10, 13

According to the question,

$a - d + a + a + d = 30$

Or, $3a = 30$

Or, $a = 10$

So,

2nd term is = 10

1st term = $10 - d$

and

3rd term = $10 + d$

(B) Among 50 people, 35 can speak English, 25 can speak both English and Bangla and each can speak at least in one of the two languages. How many of them can speak only Bangla?

Solution:

People speak English, $n(E) = 35$

People speak both English and Bangla, $n(E \cap B) = 25$

People speak Bangla = $n(B)$

We know,

$$n(E \cup B) = n(E) + n(B) - n(E \cap B)$$

$$\text{or, } 50 = 35 + n(B) - 25$$

$$\text{or, } n(B) = 75 - 35 = 40$$

$$\text{people speak only Bangla} = (40 - 25) = 15$$

(C) Length of each equal side of an isosceles triangles is 10 cm and the included angle between those two sides is 45° . Find the area of the triangle.

Solution:

We know,

the area of a triangle is one half the product of the sine of an angle and the two sides that form the angle.

$$\text{Area} = (1/2) bc \sin A \quad [\text{here, } b = c]$$

$$= (1/2) (10)(10) \sin 45^\circ$$

$$= 50 \times (1/\sqrt{2})$$

$$= 35.36 \text{cm}^2$$

(D) What should be the values of a and b for which $64x^3 - 9ax^2 + 108x - b$ will be a perfect cube?

Solution:

We know that,

$$(p-q)^3 = p^3 - 3p^2q + 3pq^2 - q^3$$

Given,

$$64x^3 - 9ax^2 + 108x - b$$

i.e

$$p^3 = 64x^3$$

$$p = 4x$$

$$3p^2q = 9ax^2 \text{ ---ii}$$

$$108x = 3pq^2 \text{ ---iii}$$

$$b = q^3 \text{ --- iv}$$

In equation (iii),

$$\text{we can write in form} = 3 \times 4x \times q^2 = 3pq^2$$

$$\text{therefore } q = 3$$

now from question (ii)

$$3p^2q = 9ax^2$$

$$3 \times (4x)^2 \times 3 = 9 \times a \times x^2$$

$$\text{i.e } a = 16$$

$$\text{and } b = q^3 = 27$$

(E) Price of 3 tables and 5 chairs is Tk. 2000. Again, price of 5 tables and 7 chairs is Tk. 3200. What is the price of 1 table and 1 chair?

Solution:

$$\text{price of } 3 \times 5 \text{ tables and } 5 \times 5 \text{ chairs is Tk. } 2000 \times 5 \text{ --- (i) } \times 5$$

$$\text{price of } 5 \times 3 \text{ tables and } 7 \times 3 \text{ chairs is Tk. } 3200 \times 3 \text{ --- (ii) } \times 3$$

$$(i) - (ii)$$

price of 4 chairs is Tk 400

price of 1 chairs is Tk = $400/4 = 100$ tk

price of 5 chairs is Tk = $100 \times 5 = 500$ tk

Given,

Price of 3 tables and 5 chairs is Tk. 2000

price of 5 chairs is Tk = 500 tk

So,

Price of 3 tables is Tk = 1500

Price of 1 table is Tk = $1500/3 = 500$ tk

price of 1 table and 1 chair = $500 + 100 = 600$ tk

(F) A committee is to consist of three members. If there are seven men and five women available to serve on the committee, how many different committees can be formed?

Solution:

The mention of "men" and "women" is superfluous if there is no restriction on the composition of the committee.

Total member is = $7 + 5 = 12$

Member in committee = 3

Thus, committees can be formed = $12! / [(12-3)! \times 3!] = 220$

(G) A and B started a business with capitals of Tk. 3000 and Tk. 4000 respectively. After 8 months, A invested Tk. 2500 more in the business and 7 months after this, total profit becomes Tk. 980. Find the share of profit for each.

Solution:

Total business duration = $(8+7)=15$ months.

So, A's time equivalent investment of 1 month

= $3000 \times 8 + (3000 + 2500) \times 7$

= $24000 + 38500$

= 62500 tk

And

B's investment = $4000 \times 15 = 60000$ tk

Now,

the investment ratio of A: B

= $62500 : 60000$

= $25 : 24$

Sum of the ratio = $25 + 24 = 49$

So,

A gets profit = $980 \times (25/49) = 500$ tk

and B gets profit = $980 \times (24/49) = 480$ tk

Answer: 500 tk and 480 tk

(H) Resolve into factors: $a^2 + 1/a^2 + 2-2a - 2/a$

Solution:

$a^2 + 1/a^2 + 2-2a - 2/a$

or, $(a^2 + 2 \times a \times 1/a + 1/a^2) - 2(a + 1/a)$

or, $(a + 1/a)^2 - 2(a + 1/a)$

or, $(a + 1/a) (a + 1/a - 2)$

Agrani Bank Officer Cash - 2017

Answer the following questions Answers must be given in Chronological Order.

01. Read the following passage and answer the questions below: [20]

All our languages are the result of art. Whether there is a natural language common to all mankind, has long been a matter of investigation. Without doubt there is such a language and it is the one that children utter before they know how to talk. This language is not articulate, but it is accentuated, sonorous, intelligible. The using of our own language has led us to neglect this, even so far as to forget it altogether. Let us study children, and we shall soon acquire it again from them. Nurses are our teachers in this language. They understand all their nursings say, they answer them, they hold really connected dialogues with them and although they pronounce words, these words are entirely useless, the child understands, not the meaning of the words but the accent which accompanies them. To the language of the voice is added the no less forcible language of gestures. This gesture is not that of children's feeble hands, it is that seen in their faces. It is astonishing to see how much expression these immature countenances already have from moment to moment, their features change with inconceivable quickness. On them you see the smile, the wish, the fear spring into life and pass away, like so many lightning flashes. Each time you seem to see a different countenance.

- When do children utter language?
- Who are our teachers in natural language?
- Where do we find the language of gesture?
- Give a suitable title of the passage

02. Write an essay in Bangla on স্বাধীনতার আসন্ন সুবর্ণ জয়ন্তী ও আমাদের প্রত্যাশা। [30]

03. Write an essay in English on "Leading a successful life" [20]

04. Translate into Bangla: [10]

(A)

The most difficult thing is the decision to act, the rest is merely tenacity.	সবচেয়ে কঠিন বিষয় হচ্ছে কাজ করার সিদ্ধান্ত, বাকিটা কেবল অধ্যবসায়।
The fears are paper tigers.	ভয় হচ্ছে মনো।
You can do anything you decide to do.	আপনি যা করতে মনস্থির করেছেন তা আপনি করতে পারেন।
You can act to change and control your life; and the procedure, the process is its own reward.	আপনি আপনার জীবন পরিবর্তন এবং নিয়ন্ত্রণ করতে পারেন; এবং সেই প্রক্রিয়াটাই হচ্ছে তার নিজস্ব পুরস্কার।
Do not dwell on the past; do not dream of the future, concentrate the mind on the present moment.	অতীতে বাস করো না; ভবিষ্যতের স্বপ্ন বিভোর হয়ো না, বরং বর্তমান সময়ের উপর মনোযোগ দাও।
Life is not about finding yourself; life is about creating yourself.	নিজেকে খুঁজে পাওয়াই সবকিছু নয়; বরং জীবন আছে নিজেকে গঠন করার মাঝেই।
Everybody should always remember that success is not final, failure is not fatal; It is the courage to continue that counts.	সবার মনে রাখা উচিত যে সাফল্যই সবকিছুর চূড়ান্ত নয়, ব্যর্থতা সব সময় মারাত্মক নয়; কোনকিছু শুরু করার সাহসিকতাই এখানে মূল্য।

(B) Translate the following detached sentences into Bangla: 5×1= 05

i) Not all those who wander are lost.

যারা ঘুরে বেড়ায় তাদের মধ্যে সবাই হারিয়ে যায় না।

ii) A brave man can be destroyed but not defeated.

একজন সাহসী ব্যক্তিকে ধ্বংস করা যায় কিন্তু পরাজিত করা যায় না।

iii) To love and to be loved is the only happiness in life.

ভালবাসা এবং ভালবাসা পাওয়াই জীবনের একমাত্র সুখ।

iv) Wise men speak because they have something to say; fools because they have to say something.

বুদ্ধিমান মানুষ কথা বলে কারণ তাদের কিছু বলার আছে ; বোকারা বলে কারণ তাদেরকে বলতে হয়।

v) Learning never exhausts the mind.

শিক্ষা মনকে কখনো ক্লান্ত করে না।

05. Translate into English: [10]

(A)

বর্তমান সময়ের জনপ্রিয় সামাজিক যোগাযোগ মাধ্যম ফেসবুক।	Facebook is one of the popular social networking media in the present time.
দিন দিন এর জনপ্রিয়তা বেড়েই চলেছে।	Its popularity is growing day by day.
স্মার্টফোনের সহজলভ্যতাই এর অন্যতম কারণ।	The availability of smartphone is one of the most common reasons.
আর এখন অনেকের কাছেই স্মার্টফোন মানেই ইন্টারনেট আর ফেসবুক।	And now to many of us, having a smartphone means the Internet and the Facebook.
মার্ক জুকারবার্গ ও তার তিন বন্ধু মিলে ২০০৪ সালে নির্মাণ করেছিলেন ফেসবুক।	Mark Zuckerberg and three of his friends programmed it in 2004.
প্রথমে তা কেবল হার্ভার্ড বিশ্ববিদ্যালয়ের শিক্ষার্থীদের মধ্যে সীমাবদ্ধ ছিল।	At first it was limited to the students at Harvard University.
কিন্তু পরে এর জনপ্রিয়তার কারণে এটি সকলের কাছে উন্মুক্ত করা হয়।	But later on, it is open to all because of its huge popularity.

(B) Translate the following detached sentences into English: 5×1= 05

i) তুমি কি বইটি পড়ে শেষ করেছ ?

Have you finished reading the book?

ii) সে এ কথায় রেগে উঠল।

He was enraged at this saying.

iii) লোকটি আসলেই খুব বিশ্বস্ত।

The man is really trustworthy.

iv) আমার বিশ্বাস সে এই পরিস্থিতি সামাল দিতে পারবে।

I believe he could be able to handle this situation.

v) আমি যদি একটি ভালো চাকরি পেতাম।

If I could get a good job.

06. Write a business letter in Bangla by following the theme given below: [15]

কর্পোরেট সোশাল রেসপনসিবিলিটি কার্যক্রমের আওতায় নতুন আর কি িকি খাত যুক্ত হতে পারে সেই বিষয়ে প্রস্তাব প্রণয়নের জন্য আপনাকে দায়িত্ব দেয়া হল। এ বিষয়ে একটি প্রস্তাব তৈরি করে উর্ধ্বতন কর্তৃপক্ষকে একটি প্রস্তাবনা-পত্র লিখুন।

07. Suppose you are working in a private bank. Write a business letter in English by announcing a new product recently added to the customer service of your bank. [15]

08. Solve the following mathematical problems. $7 \times 10 = 70$

(A) A novelist earned Tk. 100,000 from royalties on her book. She paid 20% income tax on the royalties. She invested Tk. 50,000 at one rate and the rest at a rate that was 1% lower, earning 6,100 taka annual interest on the two investments, What was the lower rate?

Solution:

The novelist has the money after paying income tax is

$$= 100000 - 100000 \times 20\%$$

$$= 100000 - 20000$$

$$= 80000$$

Let she invests 50000 tk at $r\%$ rate

So, she invests = $(80000 - 50000) = 30000$ tk at $(r - 1)\%$

ATQ,

$$(50000 \times 1 \times r\%) + \{30000 \times 1 \times (r - 1)\% \} = 6100$$

$$\text{or, } 500r + 300(r - 1) = 6100$$

$$\text{or, } 500r + 300r - 300 = 6100$$

$$\text{or, } 800r = 6400$$

$$\text{or, } r = 6400/800 = 8$$

$$\text{lower interest rate} = (8 - 1) = 7\%$$

(B) A working couple earned a total of Tk 43,520. The wife earned Tk. 640 per day, the husband earned Tk. 560 per day. If the total number of days worked by both was 72, formulate a system of equation and solve the system to find the number of days worked by each.

Solution:

Let,

wife worked = x days

Husband worked = $(72 - x)$ days

$$\text{ATQ, } 640x + 560(72 - x) = 43520$$

$$\text{or, } 640x + 40320 - 560x = 43520$$

$$\text{or, } 80x = 3200$$

$$\text{or, } x = 40$$

wife works 40 days

husband works = $72 - 40 = 32$ days

(C) A man's salary in 2015 was TK 20,000 per annum and it increased by 10% each year. Find how much he earned in the years 2015 to 2017 inclusive.

Solution:

Given that,

Each year his annual salary increased by 10%

So, In 2016 his salary was

$$= 20000 \times 110/100$$

$$= 22000 \text{ tk}$$

In 2017 his salary was ,

$$\begin{aligned}
&= 22000 \times 110/100 \\
&= 24200 \text{ tk} \\
\text{So total earned by him from 2015 to 2017 inclusive} \\
&= 20000 + 22000 + 24200 \\
&= 66200 \text{ tk}
\end{aligned}$$

(D) Prove that the sum of the odd numbers from 1 to 125 inclusive is equal to the sum of the odd numbers from 169 to 209 inclusive.

Solution:

Sum of the odd numbers from 1 to 125 inclusive is

$$1 + 3 + 5 + \dots + 125$$

Here,

$$a + (n - 1)d = 125$$

$$\text{or, } 1 + (n - 1) \times 2 = 125$$

$$\text{or, } 1 + 2n - 2 = 125$$

$$\text{or, } n = 126/2 = 63$$

Now,

$$63/2 \{2 \times 1 + (63 - 1)2\} = 3969$$

Sum of the odd numbers from 1 to 125 inclusive is

$$169 + 171 + 173 + \dots + 209$$

Here,

$$a + (n - 1)d = 209$$

$$\text{or, } 169 + (n - 1)2 = 209$$

$$\text{or, } 169 + 2n - 2 = 209$$

$$\text{or, } n = 42/2 = 21$$

Now,

$$21/2 \{2 \times 169 + (21 - 1)2\} = 3969$$

So, the sum of the odd numbers from 1 to 125 inclusive is equal to the sum of the odd numbers from 169 to 209 inclusive.

(E) If $a = xy^{p-1}$, $b = xy^{q-1}$, $c = xy^{r-1}$ and $p+q+r=3$, then prove that $a^{q-r} \cdot b^{r-p} \cdot c^{p-q} = 1$.

Solution:

$$\begin{aligned}
\text{L.H.S.} &= a^{q-r} \cdot b^{r-p} \cdot c^{p-q} \\
&= (xy^{p-1})^{(q-r)} \cdot (xy^{q-1})^{(r-p)} \cdot (xy^{r-1})^{(p-q)} \\
&= x^{(q-r)} \cdot y^{(p-1)(q-r)} \cdot x^{(r-p)} \cdot y^{(q-1)(r-p)} \cdot x^{(p-q)} \cdot y^{(r-1)(p-q)} \\
&= x^{(q-r) + (r-p) + (p-q)} \cdot y^{(p-1)(q-r) + (q-1)(r-p) + (r-1)(p-q)} \\
&= x^{(q-r+r-p+p-q)} \cdot y^{(pq-pr-q+r+qr-r-pq+p+pr-p-qr+q)} \\
&= x^0 y^0 \\
&= 1 \cdot 1 \\
&= 1
\end{aligned}$$

(F) Solve: $x/2 + y/3 = 1$, $x/3 + y/2 = 1$

Solution:

$$x/2+y/3=1 \text{---(I)}$$

$$x/3+y/2=1 \text{---(ii) From (I) } \times 3 - \text{ (ii) } \times 2 \Rightarrow x/2 - 2x/3 = 3 - 2$$

$$\text{or, } (9x-4x)/6=1$$

$$\text{or, } 5x=6$$

$$\text{or, } x=6/5 \text{ Now from equation (I),}$$

$$6/10+y/3=1$$

$$\text{or, } (18+10y)/30=1$$

$$\text{or, } 10y=12$$

$$\text{or, } y=6/5 \text{ so } (x,y)=(6/5,6/5)$$

BHBFC Senior Officer - 2017

Answer the following questions. Answers must be given in chronological order.

01. Read the following passage and answer the questions below:

Unemployment represents the waste of resources. The goods and services which the unemployed might have produced are lost forever. Producing more in the future cannot make up for the output which could have been produced if the unemployed had been working. Unemployment has serious effects. People who lose their jobs suffer a fall in their standard of living; and so do their dependents. Unemployment can have damaging effects on the morale of those out of work, who can be made to feel rejected and unwanted. There is also a loss of skill; workers who are unemployed for long period of time may find it difficult to retain their skills. One cost of unemployment takes the form of the taxation that is necessary to provide the money to pay social security benefits to those who are out of work. If the level of unemployment could be reduced, this money might be spent on schools, hospitals, roads and so on. Alternatively, taxation might be reduced.

- What is the main idea expressed in this passage? [3.5]
- Why is unemployment not desirable in a society? [3.5]
- What does the writer mean by 'loss of skill'? [3.5]
- What are the detrimental effects of unemployment on the morale of the unemployed? [3.5]
- How does unemployment affect taxation? [3.5]
- What will happen if the level of unemployment is reduced? [3.5]
- Use the suggestions of this passage to solve the unemployment problem of Bangladesh. [4.5]
- Propose a suitable title for this passage and justify your proposal. [4.5]

02. Write an essay on “রোহিঙ্গা সমস্যা এবং বৈশ্বিক প্রতিক্রিয়া” [20]

03. Write an essay on “Green economy: A solution for the future Dhaka”. [20]

04. Translate into Bangla: [15]

(A)

i. Present age is the age of democracy.

বর্তমান বয়স গণতন্ত্রের একটি বয়স।

ii. The victory of democracy has been extended all over the world.

বিশ্বব্যাপী গণতন্ত্রের বিজয় বাড়ানো হয়েছে।

iii. For this, public awareness of a country is needed to taste of democracy.

এই জন্য, গণতন্ত্রের ফল স্বাদ করার জন্য একটি দেশের জনসাধারণের সচেতনতা প্রয়োজন।

iv. However, no country without proper education can make democracy sustainable.

যাইহোক, কোনও দেশে সঠিক শিক্ষা ছাড়াই গণতন্ত্র টেকসই করতে পারে।

v. Only educated and conscious people are able to choose right representatives for them.

শুধুমাত্র শিক্ষিত এবং সচেতন ব্যক্তিরা তাদের জন্য সঠিক প্রতিনিধি নির্বাচন করতে সক্ষম।

(B) Translate the following detached sentences into Bangla: 5×2= 10

i. The winning of our cricket team has added a feather to our cap.

ক্রিকেট দলের বিজয় আমাদের গৌরবের মুকুটে একটি নতুন পালক যোগ করেছে।

ii. Currently the banking sector is going through some rough times.

বর্তমানে ব্যাংকিং সেক্টর প্রতিকূল সময়ের মধ্য দিয়ে যাচ্ছে।

iii. Many of the critics failed to evaluate the creative sublimity of a dark horse like him.

সমালোচকদের অনেকেই তার মত একজন অজ্ঞাত পরিচয় ব্যক্তির সৃষ্টিশীল উচ্চতা নির্ণয় করতে ব্যর্থ হয়েছে।

iv. Careful planning can result into wonders.

সতর্ক পরিকল্পনা বিশ্বয়ের সৃষ্টি করতে পারে।

v. Ethics is an entire body of principles which investigates values, norms and rules.

নীতিশাস্ত্র হচ্ছে মূলনীতির সমগ্র অংশ যা মূল্যবোধ, আদর্শ ও নিয়ম নিয়ে আলোচনা করে।

05. Translate into English: [15]

(A)

i. নীরব ভাষায় বৃক্ষ আমাদের সার্থকতার গান শোনায়।

In silent words, trees sing our success.

ii. অনুভূতির কান দিয়ে সে গান শুনতে হবে।

That song needs the ear of feeling to listen.

iii. তাহলে বুঝতে পারা যাবে জীবনের মানে বৃদ্ধি।

Then it will be understood that the meaning of life is to increase.

iv. তরুলতা ও জীবজন্তুর বৃদ্ধির উপর তাদের নিজেদের কোন হাত নেই, মানুষের বৃদ্ধির ওপরে তার নিজের হাত রয়েছে।

The plants and animals have nothing to do with their growth. But human being has to do with their growth.

v. আর এখানেই মানুষের মর্যাদা।

And here is the dignity of human being.

vi. মানুষের বৃদ্ধি কেবল দৈহিক নয়, আত্মিকও।

Human's growth is not only physical, but also spiritual.

(B) Translate the following detached sentences into English: 5×2= 10

i. প্রত্যাশা ও প্লাস্তির ব্যবধান মানুষকে হতাশ করে।

The gap between expectation and attainment disappoints people.

ii) সমাজের প্রান্তিক গোষ্ঠীর জন্য মুদ্রাস্ফীতি একটি অর্থনৈতিক বোঝা।

Inflation is an economic burden for the marginalized group of society.

iii) বাংলাদেশের অর্থনৈতিক বিকাশে সরকারি খাতের ভূমিকা অনেক দেশের জন্যই অনুসরণীয়।

The role of the public sector in economic development of Bangladesh is a model to follow for many countries.

iv) শিক্ষা মানুষের দৃষ্টিভঙ্গি পুনর্গঠন করে।

Education rebuilds human outlook.

v) পদ্মা সেতু নির্মাণ শেষ হলে তা বাংলাদেশে র অর্থনীতিতে যুগান্তকারী ভূমিকা রাখবে।

After the construction of the Padma Bridge will have a breakthrough in the economy of Bangladesh.

06. Write a business letter in Bangla by following the theme given below: [20]

হাউজিং খাতের ঋণকে আরও জনপ্রিয় করে তোলার জন্য আপনাকে দায়িত্ব দেওয়া হলো। রিহাব ও হাউজিং ফিন্যান্স কোম্পানিগুলোর সঙ্গে যোগাযোগে আপনি কী কী কৌশল অবলম্বন করবেন তা জানিয়ে উর্ধ্বতন কর্তৃপক্ষকে একটি পত্র লিখুন।

07. Solve the following mathematical problems: $6 \times 10 = 60$

(A) A boat running upstream takes 4 hours 43 minutes to cover a certain distance, while it takes 4 hours to cover the same distance running downstream. What is the ratio between the speed of the boat and the speed of the water current respectively?

Solution:

Let, speed of the boat = x , and
speed of the water = y

Upstream,

$$x - y = d / \{ (4 \times 60) + 43 \}$$

$$x - y = d / 283$$

$$d = 283(x - y)$$

downstream,

$$x + y = d / (4 \times 60)$$

$$d = 240(x + y)$$

So,

$$240(x + y) = 283(x - y)$$

$$240x + 240y = 283x - 283y$$

$$-43x = -523y$$

$$x/y = 523/43$$

$$x : y = 523 : 43$$

(B) 3 coins are tossed at random. Show the sample space and find the probability of getting:

i. One head two tails

ii. One tail

iii. One tail and two heads.

Solution:

Total Out come for 3 coins toss:

HHH, HHT, HTH, THH, HTT, THT, TTH, TTT

(i) Total out comes = 8

Possible outcome for one head two tails = 3

Probability = $3/8$

(ii) Total out comes = 8

Possible outcome for one tail = 3

Probability = $3/8$

(iii) Total out comes = 8

Possible outcome for one tail two heads = 3

Probability = $3/8$

(C) A, B and C can complete a work in 12, 15 and 25 days respectively. A and B started working together whereas C worked with them in every third day. Find the number of days required to complete the work.

Solution:

A's one days work = $1/12$

B's one days work = $1/15$

C's one days work = $1/25$

A and B's one days work = $1/12 + 1/15 = 9/60 = 3/20$

A and B's one days work with the help of C = $3/20 + 1/25 = 19/100$

Their 6 day's work = $2(3/20 + 3/20 + 19/100) = 2 \times (49/100) = 49/50$

Remaining work = $1 - 49/50 = 1/50$

A and B complete $3/20$ work in 1 day

A and B complete $1/50$ work in = $20/(3 \times 50) = 2/15$ days

Total day required = $6 + 2/15 = 92/15$ days

(D) The price of a shirt and a pant together is Tk 1300. If the price of the shirt increases by 5% and that of the pant by 10%. It costs Tk 1405 to buy those two things. Find the respective price of a shirt and a pant.

Solution:

Cost of shirt = x tk.

Cost of pant = $(1300 - x)$ tk.

ATQ,

$(x + x \times 5\%) + \{(1300 - x) + (1300 - x) \times 10\%$

or, $(x + x/20) + \{(1300 - x) + (1300 - x)/10\} = 1405$

or, $21x/20 + (14300 - 11x)/10 = 1405$

or, $21x + 28600 - 22x = 28100$

or, $-x = -500$

or, $x = 500$

The price of Shirt = 500 tk.

And the price of pant = $(1300 - 500) = 800$ tk.

(E) Twice the width of a rectangle is 10 meters more than its length. If the area of the region enclosed by the rectangle is 600 square meters, then find its perimeter.

Solution:

Let, width of the rectangle is = x meters

The length is = $(2x - 10)$ meters

ATQ,

$x(2x - 10) = 600$

or, $2x^2 - 10x - 600 = 0$

or, $x^2 - 5x - 300 = 0$

or, $x^2 - 20x + 15x - 300 = 0$

or, $x(x - 20) + 15(x - 20) = 0$

or, $(x + 15)(x - 20) = 0$

$x = -15$ or 20

length (-) is not acceptable

width = 20 m

length = $(2 \times 20 - 10) = 30$ m

perimeter = $2 \times (20 + 30) = 100$ m

(F) A customer bought 5 pencils and 6 erasers at Tk 80. Next week, the price of each pencil increases by 20%, but the price of erasers remains unchanged. Now, the customer buys 2 pencils and 3 erasers at Tk 39. Find the new price of each pencil.

Solution:

Let, price of each pencil = x tk and price of each eraser = y tk

Price of 5 pencils = 5x tk and price of 6 erasers = 6y tk

ATQ, $5x + 6y = 80$

or, $y = (80 - 5x) / 6$ (i)

Increased price of pencil = $x + x \times 20\% = 6x/5$

ATQ, $(2 \times 6x/5) + 3y = 39$

or, $(2 \times 6x/5) + 3(80 - 5x) / 6 = 39$

or, $(12x/5) + (80 - 5x) / 2 = 39$

or, $24x + 400 - 25x = 390$

or, $x = 10$

new price of pencil = $(6 \times 10) / 5 = 12$ tk.

Bangladesh Bank Assistant Director - 2018

Answer all the questions in Ascending Order.

01. Read the following passage and answer the questions below:

Recently the Bangladesh Jute Mills Corporation (BJMC) announced a project to develop industrial villages for diversifying jute products in major jute producing districts. The government is also reportedly taking up a balancing modernization rehabilitation and expansion (BMRE) projects for the state-owned jute mills at a cost of \$350 million. Jute, believed to be one of the key drivers of the economy has, no doubt, suffered much neglect over the decades due mainly to improper planning. In fact, high prospect of this fiber as the most environment-friendly and cheaply available one, could not be made good use of stray. Initiatives were there, but lack of concerted efforts and financing was the main impediment to materializing those as commercially viable. However, to benefit from the project in real sense of the terms is to prepare a detailed and comprehensive road map. And it is here that planning matters. Experts, including industry insiders, believe that one of the crucial areas where a big chunk of funds should do is research and development. In fact, the need emerged years ago following the commendable achievement of genome sequencing of jute plants by Bangladeshi scientists and researchers. It is commonly acknowledged that the only way the country's jute industry can shed much of its sluggishness is by producing more and more diversified products in keeping with consumers preferences at home and abroad. It is more about product development, Innovation and adaptation than just producing more traditional products or dishing out funds to energize state owned sick mills. In order for the desired diversification to take place, the government needs to work out a systematic plan which among other things should provide ample scope for research and development

- Why is jute considered as one of the key drivers of Bangladesh economy?
- Explain BMRE by following the information of the passage.
- What does the term 'stray initiatives' stand for?
- What should be the best value of fund allocated by the government in the jute sector?
- Give a suitable title for the passage.

02. Write an essay in Bangla on : ই-কমার্শের যুগে বাংলাদেশ।

03. Amplify the idea in English: "Imagination is more important than knowledge"

04. Translate into Bangla:

Since the Renaissance we came across persistent emphasis on the development of individuality as the inspiring Ideal of education. It has greatly encouraged intellectual freedom and creative joy as against authoritarianism and self-suppression

which is almost invariably associated with it. The consciousness of personal liberty is the clan of the present day civilization and modern man does not as a rule consider life worth living without it. If in the middle Ages. Individuality was very much suppressed, rather lost in the multitude under the burden of a mechanical adherence to certain routine formalities from the cradle to the grave. Prima facie at least, just the reverse seems to be happening at the moment. Except in some totalitarian regimes, our education experiments aim at the development of the distinctive individuality of the distinctive individuality of the taught as far as practicable in an artificially devised favourable environment.

Ans:

রেনেসাঁ যুগ থেকেই আমরা শিক্ষার অনুপ্রেরণীয় আদর্শ হিসাবে ব্যক্তিত্বের উন্নয়নের উপর ক্রমাগত জোর দিয়ে আসছি। এটি বুদ্ধিভিত্তিক স্বাধীনতা ও সৃজনশীলতার আনন্দকে উজ্জীবিত করেছিল সেই কর্তৃত্ববাদ এবং স্ব-পীড়নের বিপক্ষে যা তার সাথে ওতপ্রোতভাবে জড়িত ছিল। ব্যক্তিগত স্বাধীনতা-চেতনা হল বর্তমান সভ্যতার একটা অংশ এবং সভ্য মানুষ, এমনকি মধ্যযুগেও, নিয়ম হিসেবে, এটা ছাড়া জীবনধারণকে বিবেচনাই করতে পারে নাই। যদিও মধ্যযুগে ব্যক্তি-স্বতন্ত্র ছিল নিপীড়নের শিকার, বরং বলা ভাল, দোলনা থেকে কবর পর্যন্ত একটা নির্দিষ্ট আনুষ্ঠানিক রোজ-নামচার যান্ত্রিক আনুগত্যের চাপে পড়ে এই ব্যক্তি-স্বতন্ত্রবাদ হারিয়ে গিয়েছিল। প্রথম দর্শনে অন্তত, একথা মনে হচ্ছে যে, ঠিক এই মুহূর্তে বিপরীতটাই ঘটছে। কিছু সর্বগ্রাসী শাসনকাল ব্যতীত, আমাদের শিক্ষাগত পরীক্ষা-নিরীক্ষা স্বতন্ত্র ব্যক্তিত্বের উন্নয়নে লক্ষ্য রাখে যাতে কৃত্রিম উপায়ে গঠিত অনুকূল পরিবেশে যতদূর সম্ভব কার্যকর শিক্ষার প্রসার ঘটানো যায়।

05. Write an essay in English on : Single Digit Interest Rate in the banking sector: Problems and Prospects

06. Translate into English:

ব্যক্তি বা সমষ্টির উপযোগ নয়, আয় বা সম্পদ নয়, বরং নানা কাজে নানা হয়ে ওঠায় তার সক্ষমতার বিকাশই মানুষের আপেক্ষিক অধিকার নির্দেশ করে। মনোজগতের খবর নেয়ার এতে প্রয়োজন পড়ে না। তার বাস্তব ক্রিয়াকর্মে মূল্য মান সংযোজনের যোগ্যতার উপর তা নির্ভর করে। প্রত্যক্ষের পরিমাপে তাকে আনা যায়। সব মিলিয়ে সূচকের পরিমাপে কম-বেশিও তুলনা করা যায়। তবে সমাজের ন্যয় সবার বেলায় নিরপেক্ষ, এই শর্ত অচল হয়ে পড়ে। অক্ষমকে সক্ষম করে তোলা, অথবা তার সক্ষমতা বাড়ানো অধিকতর গুরুত্ব পায়। কারণ পরিণামে এতে গোটা সমাজেরই সক্ষমতার মান বাড়ে। মানুষের করা বা হওয়ার ক্ষেত্রে বৈচিত্র্য আসে। তা প্রসারিত হয়। মানুষের এই সমৃদ্ধতর ও ব্যাপকতর বিকাশই উন্নয়ন। এবং এই উন্নয়নই তার বস্তুজগতে মুক্তির উপায়। সক্ষমতাকে বস্তুগ্রাহ্য করতে প্রয়োজন গণমানুষের পুষ্টি ও সুস্বাস্থ্য। আরও প্রয়োজন জাত-ধর্ম-বর্ণ-নির্বিষে সমতা ও নিরাপত্তা, চাই ক্রিয়াকর্মে সচলতা ও মতপ্রকাশের অধিকার। দারিদ্র বা বঞ্চনা, সমাজে নারীর অধিকার হরণ, নিরক্ষরতা বা কুসংস্কারে আচ্ছন্নতা - এগুলো সবই সক্ষমতার পক্ষে অন্তরায়। মানুষের কল্যাণকে তারা বাধাগ্রস্থ করে। আরও বলবার, এসবই প্রত্যক্ষ জগতের বিষয় এবং এদের সংযুখ্য গণনায় আনা সম্ভব। কাউকে অখুশি করে বহুজনের উপকার সামাজিক ন্যায়বিচারের আওতার বাইরে থাকে না। ব্যক্তির সঙ্গে সমষ্টির আপেক্ষিক সক্ষমতা এবং সেইসাথে সমাজে ক্রিয়াকর্মে তাদের মূল্য-সংযোজনের সুযোগ সংখ্যাং ও গুণগত মানে বাড়লো, কি বাড়লো না - সেটাই মূল বিবেচনা।

Ans:

Not the utility of individual or collective, not income or asset, rather, the development of its ability to become different in various activities, refers to the relative rights of him. Then it is not necessary to have the news of psychoanalysis. It depends on the eligibility of attributing it to his practical activities. It can be brought to the measure of perception. In all, the comparison of indicators can be done. But neutrality for all in the society - this condition becomes stagnant. Enabling the disabled, or increasing its abilities, gets more importance. It is because the capability of the entire society increases. Variations come in the form of human beings and it expands. This prosperous and wider aspect of the people is called development. And this development is the way of his getting salvation in this material world. To materialize the capability, it needs nutrition and good health of the mass people. Again, it needs equality and security of the people irrespective of caste-religion-social strata, even right to freedom of expression. Poverty or deprivation, the exploitation of women in society, illiteracy or prejudice - all are against the capability. They hinder the welfare of the people. To say more, all these are the matters of real world and it is possible to count their numbers. By displeasing someone and benefiting many cannot be left outside the social justice. The relative capability of the population with the individual, as well as their value-added opportunities in society, and whether the numerical and qualitative value increases or not - that is the main consideration.

07. Think critically and explain briefly:

a. The population of Bangladesh is increasing day by day but the country does not have sufficient land for agricultural production. In spite of this, our peasants feed the nation adequately and supply extra yield for export. Explain this puzzle.

b. 50 daily workers can complete a dam project in 40 days. If 30 of them work daily and the rest work in every alternative day, how many more days will be required to complete the project?

c. 3 coins are tossed at random. Construct the sample space and find the probability of getting:

- (i) one head two tails
- (ii) One tail
- (iii) One tail and two heads

Solution:

Sample space = (HHH, HHT, HTH, HTT, THH, THT, TTH, TTT) = 8

Now,

(i) one head two tails = (HTT, THT, TTH) = 3

So, probability = $\frac{3}{8}$

(ii) One tail = (HHT, HTH, THH) = 3

So, probability = $\frac{3}{8}$

(iii) One tail and two heads = (HHT, HTH, THH) = 3

So, probability = $\frac{3}{8}$

08. Solve the following mathematical problems: $10 \times 4 = 40$

(A) A senior citizen invests Tk. 50 Lac In a fixed deposit scheme at 11.5% annual interest for six months. In every six months he withdraws Tk 2 Lac from his principal plus interest earned. What will be his principle amount to invest after two years?

Solution:

As he withdraws interest, interest amount has nothing to do with the calculation.

As he also withdraws tk 200000 from invested amount, in 2 years he withdraws total = $200000 \times 2 = 800000$ tk.

So, after 2 years he has capital to invest = $5000000 - 800000 = 4200000$ tk.

(B) A square is inscribed inside a circle. What is the area of the square if the radius of the circle is 10 cm.

Solution:

Diameter of the circle = diagonal of square = $2r = 2 \times 10 = 20$ cm

Let,

Side of the square = a

So, area = a^2

ATL,

Diagonal = $a\sqrt{2}$

Or, $20 = a\sqrt{2}$

Or, $2a^2 = 400$

Or, $a^2 = 200$

(C) Three numbers x , y and z are in A.P. and their sum is 30. Also, the sum of their squares is 308. Find the numbers.

Solution:

Let, difference = d

First number = x

Second number = $y = x+d$

Third number = $z = y+d = x+d+d = x+2d$

ATQ,

$$x+y+z=30$$

$$\text{Or, } x + x+d + x+2d=30$$

$$\text{Or, } 3x+3d=30$$

$$\text{Or, } x+d=10$$

$$\text{Or, } d = 10 - x$$

Again,

$$x^2+y^2+z^2=308$$

$$\text{Or, } x^2+(x+d)^2+(x+2d)^2=308$$

$$\text{Or, } x^2 + x^2 + 2dx + d^2 + x^2 + 4dx + 4d^2 = 308$$

$$\text{Or, } 3x^2 + 6dx + 5d^2 = 308$$

$$\text{Or, } 3x^2 + 6x(10-x) + 5(10-x)^2 = 308$$

$$\text{Or, } 3x^2 + 60x - 6x^2 + 5(100-20x + x^2) = 308$$

$$\text{Or, } 3x^2 + 60x - 6x^2 + 500 - 100x + 5x^2 = 308$$

$$\text{Or, } 2x^2 - 40x + 500 = 308$$

$$\text{Or, } x^2 - 20x + 250 = 154$$

$$\text{Or, } x^2 - 20x + 96 = 0$$

$$\text{Or, } (x-12)(x-8) = 0$$

$$x = 12, x = 8$$

$x=12$ not acceptable

$$\text{So, } x = 8$$

$$\text{So, } d = 10 - 8 = 2$$

$$\text{Now, } y = 8+2 = 10$$

$$z = 8+2 \times 2 = 12$$

$$\text{Ans: } x = 8, y = 10 \text{ \& } z = 12$$

(D) After traveling 108 km, a cyclist observed that he would have required 3 hours less if he could have travelled at a speed 3 km/hr more. At what speed did he travel?

Solution:

Let,

Original speed = x km/h

New speed = $(x+3)$ km/h

ATQ,

$$108/(x+3) + 3 = 108/x$$

$$\text{Or, } (3x+117)/(x+3) = 108/x$$

$$\text{Or, } 3x^2 + 117x = 108x + 324 = 0$$

$$\text{Or, } 3x^2 + 9x - 324 = 0$$

$$\text{Or, } x^2 + 3x - 108 = 0$$

$$\text{Or, } x^2 + 12x - 9x - 108 = 0$$

$$\text{Or, } x(x+12) - 9(x+12) = 0$$

$$\text{Or, } (x+12)(x-9) = 0$$

$$x + 12 = 0 \text{ Or, } x = -12 \text{ (Not Acceptable)}$$

$$\text{So, } x-9 = 0 \text{ Or, } x=9$$

$$\text{So, Original speed} = x = 9 \text{ km/h}$$

Sonali Bank Senior Officer - 2018

Answer all the questions in Ascending Order.

01. Write an essay in Bangla on: **জীবন ও স্বাস্থ্য-সুরক্ষায় নিরাপদ খাদ্য**। [25]

02. Write an essay in English on : **A Self-Reliant Economy: Concept and Reality** [25]

03. A bank is interested to open a new specialized branch for the welfare of the peasants. As an employee of the bank, write a letter to the higher authority of the Bangladesh Bank explaining its feasibility. [15]

04. **শেয়ারবাজার ও ব্যাংকিং ব্যবস্থার মধ্যে ভারসাম্যমূলক সম্পর্ক কাম্য** ” - এই শিরোনামে সংবাদপত্রে প্রকাশের জন্য একটি প্রতিবেদন প্রস্তুত করুন। [15]

05. **Read the following passage and answer the questions below:** [20]

Climate change may produce hundreds of millions of environmental refugees, which is an environmental justice concern. Those refugees may be displaced by rising tides, storm damage and changes in agricultural production. Residents of low-lying Islands and low flood-prone countries may be dislocated as sea levels rise and river floods become harder to control. Some skeptics dispute whether the changes are entirely man-made, but the vast majority of experts believe that one of the major causes of climate change is the burning of fossil fuels, which are the primary energy source for modern societies. The resulting gases - carbon dioxide, methane, fluorocarbons, and nitrous oxide, among others are released into the atmosphere. There, these gases combine with water vapor and prevent the sun's infrared rays from radiating back into space. The trapped solar radiation contributes to increased air temperature. In this way gases function much as do the glass panes of a greenhouse. Newly released gases will remain in the atmosphere for thirty to a hundred years; since greenhouse gas emissions continue to rise; their buildup in the atmosphere is expected to increase over time. Automobile exhaust, along with industrial power plants and agricultural operations, produce most of the gasses that lead to climate change. Deforestation also contributes to the warming because there are fewer trees and other plant life to absorb carbon dioxide before it reaches the atmosphere.

- Give a suitable title for the passage.
- Explain the term 'environmental refugee'.
- Why do many professionals disagree with some skeptics?
- What are the consequences of emitting detrimental rays?
- How does forestation contribute in decreasing the global warming?

06. **Translate into Bangla:** [15]

Extreme poverty, as defined by the World Bank, means not having enough income to meet the most basic human needs for adequate food, water, shelter, clothing, sanitation, health care or education.	বিশ্বব্যাংক দ্বারা নির্ধারিত চরম দারিদ্রতা মানে খাদ্য, পানি, আশ্রয়, বস্ত্র, স্যানিটেশন, স্বাস্থ্যসেবা বা শিক্ষা অর্থাৎ মানুষের সবচেয়ে মৌলিক প্রয়োজন মেটাতে পর্যাপ্ত আয় করা নয়।
In 2008, the Bank calculated that this requires a daily income that is the purchasing power equivalent of about USD 1.25 per day in the United States.	২০০৮ সালে, ব্যাংক হিসাব করে যে মার্কিন যুক্তরাষ্ট্রে দৈনিক প্রায় 1.25 মার্কিন ডলারের ক্রয় ক্ষমতার সমান দৈনিক আয় প্রয়োজন।
That is not the foreign exchange equivalent of USD 1.25, which might not be so bad, because as everyone who travels from a rich country to a poor one knows, the currencies of rich countries often have much greater purchasing power in poor countries.	এটি 1.25 মার্কিন ডলারের বৈদেশিক বিনিময় সমতুল্য নয়, যা এত খারাপ নাও হতে পারে, কারণ যে ব্যক্তি ধনী দেশ থেকে গরীব দেশে ভ্রমণ করে সে জানে যে, সমৃদ্ধ দেশগুলির মুদ্রার ক্রয় ক্ষমতা প্রায়ই দরিদ্র দেশে প্রচুর পরিমাণে থাকে।

The World Bank's definition takes that difference into account: the poor earn only as much as will buy, in their currency, the quantity of necessities that USD 1.25 will buy in the United States.	বিশ্বব্যাংক প্রদত্ত সংজ্ঞাটি এই পার্থক্যকে বিবেচনায় আনে: দরিদ্ররা যতটুকু কিনতে পারে ততটুকুর জন্য আয় করে যা 1.25 মার্কিন ডলারের ক্রয়ক্ষমতার সমান।
The Bank estimates that 1.4 billion people have less income than this.	ব্যাংকের হিসেব অনুযায়ী 1.4 বিলিয়ন লোক উল্লিখিত আয় থেকে কম আয় করে।

07. Translate into English: [15]

“আমার বাংলার সভ্যতা, আমার বাঙালি জাতি - এ নিয়ে হল, বাঙালি জাতীয়তাবাদ।	“The civilization of my Bengal, my Bengali nation - is the Bengali nationalism.
বাংলার কৃষ্টি, বাংলার ঐতিহ্য, বাংলার আকাশ-বাতাস, বাঙালির রক্ত দিয়ে গড়া বাংলার জাতীয়তাবাদ।	The culture, the heritage, the air, and the blood of Bengal are the ingredients of bengal nationalism.
আমি গণতন্ত্রে বিশ্বাসী, জনসাধারণের ভোটের অধিকারকে বিশ্বাস করি।	I believe in the democracy, the voting rights of the people.
আমরা বিশ্বাস করি সমাজতন্ত্রে, যেখানে শোষণহীন সমাজ থাকবে।	We believe in socialism, where there will be tyranny-less society.
শোষকশ্রেণী আর কোনদিন দেশের মানুষকে শোষণ করতে পারবে না, সেই জন্যই অর্থনীতি হবে সমাজতান্ত্রিক।	The ruling class will no longer be able to grind the people of the country, that's why the economy will be socialist.
আর হবে ধর্ম-নিরপেক্ষতা, ধর্ম-নিরপেক্ষতা মানে ধর্মহীনতা নয়।	And, there will be religious secularism, which does not mean non-religiousness.
হিন্দু তার ধর্ম পালন করবে, মুসলমান তার ধর্ম পালন করবে, খৃষ্টান-বৌদ্ধ যে যার ধর্ম পালন করবে।	Hindus will follow their religion, Muslims will do their own, Christian-Buddhists will go for their own religion.
কেউ কারাে ধর্মে হস্তক্ষেপ করতে পারবে না, বাংলার মানুষ এটা চায় না।	Nobody will be able to interfere in others religion, the people of Bengal do not want it.
রাজনৈতিক কারণে ধর্মকে ব্যবহার করা যাবে না।	Religion cannot be used for political purposes.
যদি কেউ ব্যবহার করে, তাহলে বাংলার মানুষ তাকে প্রত্যাঘাত করবে, এ বিশ্বাস আমি করি।	If anyone uses, the people of Bengal will counterblow him, I believe that.
এখানে ধর্মের নামে ব্যবসা চলবে না।”	There will be no business in the name of religion. “

08. Solve the following mathematical problems: 7 x 10 = 70

(A) A teacher has 3 hours to grade all the papers submitted by the 35 students in her class. She gets through the first 5 papers in 30 minutes. How much faster does she have to work to grade the remaining papers in the allotted time?

Solution:

Total time available: 180 minutes

Time to grade first 5 papers: 30 minutes

Rate: $R_1 = 5/30 = 1/6$ papers per minute

Time remaining to grade remaining papers:

$180 - 30 = 150$ minutes to grade $35 - 5 = 30$ papers

Required rate to finish on time:

$R_2 = 30/150 = 1/5$ papers per minute

How much bigger is R_2 than R_1 ?

$R_2/R_1 = (1/5) / (1/6) = 6/5 = 1.2$

$R_2 = 1.2 R_1 \Rightarrow R_2$ is 20% greater than R_1

(B) A two digit number is four times the sum of the two digits. If the digits are reversed, the number so obtained is 18 more than the original number. What is the original number?

Solution:

Let, one-digit number is y &

Ten-digit number is x

So, the number is $10x + y$

According to question,

$$10x + y = 4(x + y)$$

$$\text{Or, } 10x + y = 4x + 4y$$

$$\text{Or, } x = y/2$$

If the digits are reversed, the new number will be,

$$10y + x;$$

According to question,

$$10y + x = 10x + y + 18$$

$$\text{Or, } 9y = 9x + 18$$

$$\text{Or, } 9y = 9x/2 + 18$$

$$\text{Or, } 9y = 36$$

$$\text{Or, } y = 4$$

$$\text{Then, } x = y/2 = 4/2 = 2.$$

$$\text{So the number is } (10 \times 2) + 4 = 24$$

(C) Solve: $x^2 - yx = 7$, $y^2 + xy = 30$

Solution:

$$x^2 - yx = 7 \text{ ---(i)}$$

$$\text{Or, } xy = x^2 - 7$$

$$\text{Or, } y = (x^2 - 7)/x$$

$$\text{Or, } y = x - 7/x$$

$$y^2 + xy = 30 \text{ ---(ii)}$$

$$(i) + (ii)$$

$$x^2 - yx + y^2 + xy = 7 + 30$$

$$\text{Or, } x^2 + y^2 = 37$$

$$\text{Or, } x^2 + (x - 7/x)^2 = 37$$

$$\text{Or, } x^2 + x^2 - 2 \cdot x \cdot 7/x + (7/x)^2 = 37$$

$$\text{Or, } 2x^2 - 14 + 49/x^2 = 37$$

$$\text{Or, } (2x^4 + 49)/x^2 = 51$$

$$\text{Or, } 2x^4 + 49 = 51x^2$$

$$\text{Or, } 2x^4 - 51x^2 + 49 = 0$$

$$\text{Or, } 2x^4 - 49x^2 - 2x^2 + 49 = 0$$

$$\text{Or, } x^2(2x^2 - 49) - 1(2x^2 - 49) = 0$$

$$\text{Or, } (2x^2 - 49)(x^2 - 1) = 0$$

$$2x^2 - 49 = 0$$

$$\text{Or, } 2x^2 = 49$$

$$\text{Or, } x = 7/\sqrt{2}$$

Again,

$$x^2 - 1 = 0$$

$$\text{Or, } x = 1$$

Now,

$$\text{If } x = 7/\sqrt{2},$$

$$y = 7/\sqrt{2} - 7/(7/\sqrt{2})$$

$$\text{Or, } y = 7/\sqrt{2} - \sqrt{2}$$

$$\text{Or, } y = (7-2)/\sqrt{2} = 5/\sqrt{2}$$

$$\text{If } x = 1,$$

$$y = 1 - 7/1 = 1 - 7 = -6$$

$$(x, y) = (7/\sqrt{2}, 5/\sqrt{2}), (1, -6)$$

(D) Someone plans to invest x taka in the bond of 'M' Company, which pays 10% interest and y taka in 'N' Company bonds, which pay 9% interest. He will invest 9000 taka and require that he receives 850 taka as interest. How much should he invest in each company?

Solution:

Let, invest in M company is x Tk.

Then invest in N company is y = (9000 - x) Tk.

According to question,

$$I = I_1 + I_2$$

$$\text{Or, } 850 = (10 \times 100x)/100 + (9000 - x) \times 9/100$$

$$\text{Or, } 850 = 10x/100 + (8100 - 9x)/100$$

$$\text{Or, } 85000 = 10x + 81000 - 9x$$

$$\text{Or, } x = 4000$$

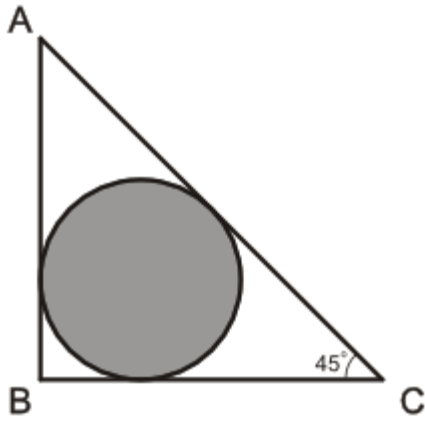
$$\text{Then, } y = 9000 - 4000 = 5000$$

(E) A committee of 5 persons is to be formed from 6 male and 5 female members. In how many ways this committee can be formed so that there is at least 1 male and 1 female member in the committee?

Solution:

6 Male	5 female			
1	4	${}^6C_1 \times {}^5C_4$	$= 6 \times 5$	$= 30$
2	3	${}^6C_2 \times {}^5C_3$	$= 15 \times 10$	$= 150$
3	2	${}^6C_3 \times {}^5C_2$	$= 20 \times 10$	$= 200$
4	1	${}^6C_4 \times {}^5C_1$	$= 15 \times 5$	$= 75$
			Total	= 455

(F) A circle is inscribed inside a right angled triangle with equal sides. What is the area of the circle if the length of one side of the right angled triangle is 4 cm?



Solution:

$$AC^2 = \sqrt{4^2 + 4^2} = \sqrt{32} = 4 \cdot 2$$

$$\text{Area} = \frac{1}{2} \times 4 \times 4 = 8$$

$$\text{Radius of circle} = \frac{(2 \times \text{Area})}{(\text{sum of the sides of the triangle})}$$

$$= \frac{2 \times 8}{(4\sqrt{2} + 4 + 4)}$$

$$= \frac{16}{(4\sqrt{2} + 8)}$$

$$= \frac{16}{(4\sqrt{2})(\sqrt{2} + 1)}$$

$$= \frac{2\sqrt{2}}{(\sqrt{2} + 1)}$$

$$= \frac{2\sqrt{2}(\sqrt{2} - 1)}{(\sqrt{2} + 1)(\sqrt{2} - 1)}$$

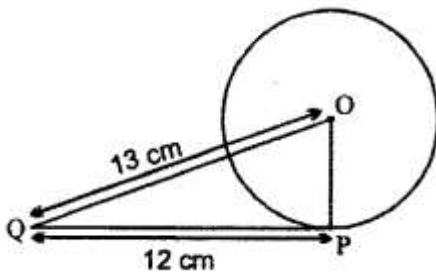
$$= 2\sqrt{2}(\sqrt{2} - 1)$$

$$\pi r^2 = \pi \{2\sqrt{2}(\sqrt{2} - 1)\}^2$$

$$= \pi 8(\sqrt{2} - 1)^2$$

$$= 8 \pi (\sqrt{2} - 1)^2$$

(G) The length of a tangent drawn from a point Q is 12 cm which is 13 cm away from the centre of the circle. Find the diameter of the circle.



Solution:

From the figure,

$$OP = \sqrt{(OQ^2 - QP^2)} = \sqrt{(13^2 - 12^2)} = \sqrt{(169 - 144)} = \sqrt{25} = 5$$

$$D = 2r = 2 \times 5 = 10$$

Sonali Bank & Janata Bank Senior Officer (IT/ICT) -2018

01. A bag contains 75 rods. 35 are blue and 25 of these blue rods are twisted at the bottom. The rest of them are red and 30 of the red ones are twisted. The rods that are not twisted are clear. What is the probability of drawing?

- A blue rod from the box
- A clear rod from the box
- A blue, twisted rod

d. A red, clear rod

e. A twisted rod

Solution:

Given that;

Total number of rod = 75

Blue rod = 35

Red rod = $75 - 35 = 40$

Twisted Blue rod = 25

Clear Blue rod = $35 - 25 = 10$

Twisted Red rod = 30

Clear Red rod = $40 - 30 = 10$

Now,

a) The probability of drawing a Blue rod from the box
= $35/75 = 7/15$ (ans)

b) The probability of drawing a Clear rod from the box
= $(10+10)/75 = 20/75 = 4/15$ (ans)

c) The probability of drawing a Blue, twisted rod from the box
= $25/75 = 1/3$ (ans)

d) The probability of drawing a Red, clear rod from the box
= $10/75 = 2/15$ (ans)

e) The probability of drawing a Twisted rod from the box
= $(25+30)/75 = 11/15$ (ans)

02. (A) The sum of a race time of two runners is 170 seconds. One of the runners took ten seconds less twice the other to complete the race. What is the race time of each runner?

Solution:

The sum of a race time of two runners is 170 seconds. One of the runners took ten seconds less twice the other to complete the race. What is the race time of each runner?

Solution:

Let,

one takes x sec &

other takes $2x - 10$ sec

ATQ,

$$x + 2x - 10 = 170$$

$$\Rightarrow 3x = 180$$

$$\text{So, } x = 60$$

$$\text{Another time is } = 2 * 60 - 10 = 120 - 10 = 110 \text{ sec (ans)}$$

(B) Sakib is twice as old as Fahim. Four year ago Sakib was six years younger than three times of the Fahim's age at that time. How old will they be in two years from now?

Solution:

Let,

Fahim's age be x years and

Sakib's age be $2x$ years

Now,

4 years ago Fahim's age $(x - 4)$ years

and Sakib's age $(2x - 4)$ years

ATQ;

$$2x-4 = 3(x-4)-6$$

$$\Rightarrow 2x-3x = -12-6+4$$

$$\Rightarrow -x = -14$$

$$\text{So, } x = 14$$

After 2 years their age will be $(14+2) = 16$ years

& $(2*14+2)=30$ years. (ans)

03. (A) Four students contributed in charity drive and average amount contributed by each student was BDT 20. If no student gave more than BDT25. What is the minimum amount that any student could have contributed?

Solution:

Total amount of charity = $4*20 = 80$ tk

Here, maximum 3 student can contribute = $3*25=75$ tk

So minimum amount a student can contribute = $80-75 = 5$ tk (ans)

(B) The sum of 15 consecutive integers is 88. What is the largest of this integer?

Solution:

ATQ,

$$x+x+1+x+2+\dots x+14 = 88$$

$$\text{or, } 15x+7*15 = 88$$

$$\text{or, } 15x = 88-105$$

$$\text{or, } x = -17/15$$

So, the largest number is

$$= x+14$$

$$= (-17/15)+14$$

$$= (-17+210)/15$$

$$= 193/15$$

But $193/15$ is not an integer so there is no actual answer for this question...

04. Solve the inequalities

(A) $x^2-12x+20 < 0$

Solution:

Consider inequality to equation :

$$x^2-12x+27 < 0$$

$$\Rightarrow x^2-9x-3x+27 < 0$$

$$\Rightarrow x(x-9)-3(x-9) < 0$$

$$\Rightarrow (x-9)(x-3) < 0$$

According to inequality,

$$x > 3 \text{ or } x < 9$$

Both are not satisfy the equation.

So, the inequality for satisfy the equation $3 < x < 9$ (ans)

(B) $x^2-13x+40 > 0$

Solution:

Consider inequality to equation,

$$x^2-13x+40 > 0$$

$$\Rightarrow x^2-8x-5x+40 > 0$$

$$\Rightarrow x(x-8) - 5(x-8) \geq 0$$

$$\Rightarrow (x-8)(x-5) \geq 0$$

According to inequality,

$$x \geq 8 \text{ or } x \geq 5$$

Here, $x \geq 5$ is not satisfy the equation (Let, if $x > 5$ like ---6, the result will be neg, then the equation will not be true)

So, only $x \geq 8$ can satisfy the demand

Let, if $x = 8$, the result will equal to 0

again, if $x > 8$, the result will remain positive.

So, the inequality is $x \geq 8$ (ans)

06. (A) A school has 40 rooms that can sit 600 people. Some rooms can sit 10 people and some can sit 20 people. What is the ratio of the number of 10-person room to the number of 20-person room?

Solution:

Given that;

Total number of rooms = 40

Total number of seats = 600

Suppose,

10 people can contain such rooms = x

So, 20 people can contain such rooms = $40 - x$

ATQ;

$$x * 10 + (40 - x) * 20 = 600$$

$$x = 20$$

Thus, Number of 10-person rooms = 20

& 20-Person rooms = $40 - 20 = 20$

Hence, Required ratio = $20:20 = 1:1$ (ans)

(B) Out of 85 football players, 42 have scored a goal and 54 have received a yellow card. If 5 players do not do either, what fraction of the players scored a goal and received a yellow card as well.

Solution:

Let,

Both = x

Only goal, $G = 42 - x$

Only Yellow, $Y = 54 - x$

Did not have goal or yellow card = 5

Total players who have goal or yellow card = $85 - 5 = 80$

According to Venn-Diagram,

We know;

$$\text{Total} = G + Y + x$$

$$\Rightarrow 80 = 42 - x + x + 54 - x$$

$$\Rightarrow x = 16$$

Now, Only goal = $42 - 16 = 26$

& Only yellow = $54 - 16 = 38$

Thus, Goal:Yellow = $26:38 = 13:19$ (ans)

Rupali Bank Officer -(2016)/2019

01. Write an essay in English on 'Green Environment for Sustainable Development'. 20

02. A Nobel Laureate Economist will be visiting your city next month. On behalf of the organizing committee of symposium on 'Rescuing People from Poverty', write a letter inviting him to attend as the Key Note Speaker: 20

03. Read the following passage and answer the questions below: 20

We can never get people to act morally by providing reasons of self-interest, because if they accept what we say and act on the reasons given, they will only be acting self-interestedly, not morally. By refuting the claim, it would be stated that the substance of the action, what is actually done, is more important than the motive. People might give money to help those in extreme poverty because their friends will think better of them if they do, or they might give the same amount because they think it is their duty. Those helped by the gift will benefit to the same extent either way. This is true but crude. It can be made more sophisticated if it is combined with an appropriate nature and function of ethics. Ethics is a social practice that has evolved among beings living in social groups, and it promotes ways of living that are in the interests of individuals living in groups. Ethical judgments can do this by praising and encouraging actions in accordance with these values.

- What the ethical argument is stated in this passage?
- Follow the idea stated above and formulate the definition of ethics in your own words.
- What does the term sophisticated stand for?
- What is the role of ethical judgments?
- Give a suitable title for the passage.

04. Write an essay in Bangla on "বাংলাদেশে একুশ শতকের ব্যাংকিং সেবা"। 30

05. Translate into English: 20

বাংলাদেশ অমিত সম্ভাবনার দেশ। গত বিশ বছরে বাংলাদেশের অর্থনীতির প্রবৃদ্ধির হার ৪.৫ শতাংশ থেকে বৃদ্ধি পেয়ে ৭.৮ শতাংশের অধিক হয়েছে। একই সময়ে জনসংখ্যা বৃদ্ধির হার ২.০ শতাংশ থেকে যে ১.২৫ শতাংশে দাঁড়িয়েছে। দুটো উপাদান বাংলাদেশের অর্থনীতির অতি দ্রুত প্রবৃদ্ধি ও ব্যাপক দারিদ্র হ্রাসের পেছনে প্রধান চালিকাশক্তির কাজ করেছে। একটি হল রপ্তানি আয়ের অব্যাহত প্রবৃদ্ধি। আরেকটি হল প্রবাসি বাংলাদেশিদের আয়ের ব্যাপক প্রবাহ। উল্লেখ্য বাংলাদেশ গত দশ বছরে ১০০ বিলিয়ন ডলারের বেশি রেমিটেন্স পেয়েছে। বিশ্বের নীতিনির্ধারকগণ বাংলাদেশকে তাই দ্রুততর অর্থনৈতিক প্রবৃদ্ধির দেশের সারিতে বিবেচনা করেন।

Ans:

Bangladesh is a country of unlimited possibilities. In the last twenty years, the economic growth of Bangladesh has grown from 4.5 percent to more than 7.8 percent. At the same time, the population growth rate decreased from 2.0 percent to 1.25 percent. Two factors have been the key driving force behind the rapid growth of the economy and the reduction of poverty. One is the continued growth of export earnings. Another is the huge flow of income from the expatriate Bangladeshis. Note that, Bangladesh has received more than \$100 billion remittance in the last ten years. So, the policy makers of the world consider Bangladesh as a country of rapid economic growth.

06. Translate into Bangla: 20

The cost of Dhaka's traffic congestion is estimated at \$3.8 billion a year, and that's just the delays and air pollution, not the less tangible losses in quality of life. Paradoxically, the poor infrastructure is one of the reasons why the city is growing so fast. Whenever a city dweller is asked how long it would take to get somewhere, S[he] generally gives two answers: Without traffic, may be fifteen minutes. But with traffic? Who knows?" in 2012, as a solution of this harsh uncertainty, the government

announced a \$2.75 billion plan to build a metro rail system and a \$45 million bus rapid transit line from the airport. For residents of Dhaka, it will come as a relief.

Ans:

প্রতি বছর ঢাকা শহরে যানজটের কারণে ক্ষতি ধরা হয়েছে ৩.৮ বিলিয়ন ডলার। এটা শুধু বিলম্ব এবং বায়ু দূষণজনিত ক্ষতি, জীবনমানের কোনও ক্ষয়ক্ষতি এখানে ধরা হয়নি। অদ্ভুত শোনা গেলেও সত্য যে, ভঙ্গুর অবকাঠামোই এই ব্যয় বৃদ্ধির অন্যতম কারণ। যখনই কোনও শহরবাসীকে জিজ্ঞাসা করা হয় যে, কোথাও যেতে আপনার কতটা সময় লাগতে পারে, তাহলে তিনি সাধারণত দুটি উত্তর দেন: যানজট না থাকলে, পনের মিনিট। তবে যানজট থাকলে, আল্লাহ জানে? ২০১২ সালে, এই বিরক্তিকর অনিশ্চয়তার সমাধান হিসেবে সরকার বিমানবন্দর থেকে যাতায়াতের জন্য ২.৭৫ বিলিয়ন ডলার ব্যয়ে মেট্রো রেল ব্যবস্থা এবং ৪৫ মিলিয়ন ডলার ব্যয়ে দ্রুত বাস যাতায়াতের লাইন তৈরির পরিকল্পনা ঘোষণা করে। ঢাকাবাসীদের জন্য এই ঘোষণা একটা স্বস্তির পরশ।

07. Solve the following mathematical problems: $7 \times 10 = 70$

(A) Hossain invested taka in a mutual fund which pays 10% interest and n take in a private company which pays 9 interest. He invested Tk. 18000 and required that he receives Tk 1700 as interest. How much did he invest in each company?

Solution:

At 9% interest investment in a private company = n tk.

At 10% interest investment in a mutual fund = $(18000-n)$ tk.

ATQ,

$$(18000-n) \times 10/100 + n \times 9/100 = 1700$$

$$\text{Or, } (180000-10n + 9n)/100 = 1700$$

$$\text{Or, } (180000-n)/100 = 1700$$

$$\text{Or, } 180000-n = 170000$$

$$\text{Or, } n = 10000$$

So, At 9% interest investment in a private company = 10000 tk. And

At 10% interest investment in a mutual fund = $(18000-10000) = 8000$ tk.

(B) 50 daily workers can complete a culvert in 40 days. If 30 of them work daily and the rest work in every alternative day, how many more days will be required to complete the project?

Solution:

$$\text{Total work} = 50 \times 40 = 2000$$

$$\text{In 40 days, daily workers complete: } 30 \times 40 = 1200$$

$$\text{Alternate workers complete: } 20 \times (40/2) = 400$$

Let,

They work for x days after 40 days.

Then, Alternate workers will work for $x/2$ days.

ATQ,

$$1200 + 400 + 30x + 20 \times (x/2) = 2000$$

$$\text{Or, } 1600 + 30x + 10x = 2000$$

$$\text{Or, } 40x = 400$$

$$\text{Or, } x = 400/40 = 10 \text{ days}$$

(C) A teacher has 6 hours to grade all the papers submitted by the 35 students in his class. He gets through the first 5 papers in 1 hour. How much faster should he work to grade the remaining papers in the allotted time?

Solution:

Working efficiency = 5 papers per hour

$$\text{Time left} = (6-1) = 5 \text{ hr}$$

$$\text{Question papers left} = 35-5 = 30$$

$$\text{so, new efficiency will be} = 30/5 = 6 \text{ papers/hr}$$

$$\text{so, he must work} = (6-5) \times 100/5 = 20\% \text{ faster}$$

(D) A two digit number is six times the sum of the two digits. If the digits are reversed, the number so obtained is 9 less than the original number. What is the original number?

Solution:

Let,

unit digit = y

tenth digit = x

so, the number = $10x + y$

at, 1st condition,

$$10x + y = 6(x + y) \dots\dots\dots(i)$$

when the digits are reversed, the number = $10y + x$

so, at 2nd condition,

$$(10x + y) - (10y + x) = 9 \dots\dots\dots(ii)$$

From eq (i)

$$x = 5y/4 \dots\dots\dots(iii)$$

From eq (ii)

$$x - y = 1$$

$$5y/4 - y = 1$$

$$y = 4$$

From eq (iii)

$$x = 5y/4$$

$$x = 5$$

So, the original number = $10 \times 5 + 4 = 54$

(E) Factorize: $x^3 - 21x + 20$

Solution:

$$x^3 - 21x + 20$$

Here, $(x-1)$ is a factor.

So,

$$x^3 - 21x + 20$$

$$= x^3 - x^2 + x^2 - x - 20x + 20$$

$$= x^2(x - 1) + x(x - 1) - 20(x - 1)$$

$$= (x - 1)(x^2 + x - 20)$$

$$= (x - 1)(x^2 + 5x - 4x - 20)$$

$$= (x - 1)\{x(x + 5) - 4(x + 5)\}$$

$$= (x - 1)(x + 5)(x - 4)$$

(F) A maximum sized rectangular playground is made within a circular space of radius $2\sqrt{41}$ meter. Calculate the area of the playground if its length and width are distributed in the proportion of 4:5.

Solution:

Here, radius = $2\sqrt{41}$

and let, length = $4x$ m, wide = $5x$ m

So, diameter = $2 \times (2\sqrt{41}) = 4\sqrt{41}$ m

ATQ,

$$(4x)^2 + (5x)^2 = (4\sqrt{41})^2$$

$$\text{Or, } 41 \times x^2 = 16 \times 41$$

$$\text{Or, } x^2 = 16$$

$$\text{Or, } x = 4$$

So, area = $(4 \times 4) \times (5 \times 4) = 320 \text{ m}^2$

(G) Two numbers x and y are in GP and their sum is 30. Also the sum of their square is 468. Find the numbers.

Solution:

Let, $X = a$

Common ratio = r

So, $Y = ar$

ATQ,

$X + Y = 30$

Or, $a + ar = 30$

Or, $ar = 30 - a$

Again ATQ,

$a^2 + (30 - a)^2 = 468$

Or, $a^2 + 900 - 60a + a^2 = 468$

Or, $a^2 - 12a - 18a + 216 = 0$

Or, $a(a-12) - 18(a-12) = 0$

Or, $(a-12)(a-18) = 0$

Or, $a = 12, 18$

So, $ar = 18, 12$

এরকম আরো ফাইল পেতে আমাদের সাথেই থাকুন।

[Job Information For All Students \(Bcs & Bank\)](#)

৭৫ টি ফোকাস পেতে Bank Recruitment Exam Boost গ্রুপে জয়েন করেন

Janata Bank Executive Officer 2017 (Social Science, DU)

1. পদ্মা সেতু বাস্তবায়নে বাংলাদেশের আর্থসামাজিক উন্নয়নে কি ধরনের ভূমিকা রাখবে বলে তুমি মনে কর।

2. What are the current challenge of the banking sector in Bangladesh? Give your specific recommendation how to reduce non-performing loans.

3. বাংলা থেকে ইংরেজি অনুবাদ-

বৃক্ষ শুধু নিসর্গ প্রকৃতির সৌন্দর্য নয়, তা মানুষের জীবনের অপরিহার্য অংশ। জন্ম থেকে মৃত্যু পর্যন্ত মানুষের জীবনে বৃক্ষের ভূমিকা এত অপরিহার্য যে বৃক্ষহীন পৃথিবীতে প্রাণের অস্তিত্বই কল্পনা করা যায় না। দেশের অর্থনীতিতে যেমন বনাঞ্চলে ভূমিকা আছে, তেমনি আবহাওয়া ও জলবায়ুসূমহ প্রাকৃতিক পরিবেশের ভারসাম্য রক্ষায় বনজ সম্পদের ভূমিকা অত্যন্ত গুরুত্বপূর্ণ। তাই পরিবেশগত ভারসাম্যের জন্য চাই বৃক্ষরোপণ। প্রাকৃতিক বিপর্যয়ের কবল থেকে দেশকে রক্ষা করতে জনগণকে সচেতন ও সম্পৃক্ত করে দেশে ব্যাপক বৃক্ষরোপণের প্রয়োজন হয়ে পড়েছে।

ভূ-বিজ্ঞানীদের মতে অনাবষ্টির কারণে দেশের ভূ - গর্ভস্থ পানির স্তর দিনের পর দিন দ্রুত নিচে নেমে যাচ্ছে। এ বিপর্যয়ও পর্যাপ্ত বনভূমি না থাকলে ক্ষতিকারক। সাধারণ জনগণকে যদি বিপন্ন পরিবেশের ভয়াবহতা সম্পর্কে অবহিত করা এবং বৃক্ষরোপণে উচ্ছুদ্ধ করা যায় তাহলে দুই নয়নের কাজে এগিয়ে আসবেন।

4. ইংরেজি থেকে বাংলা অনুবাদ-

Shortcomings in financial system regulation and supervision regimes are now under intense scrutiny everywhere, following the global financial turmoil that exacted heavy tolls in wealth destruction and recession, with particular severity in the mature advanced economies. Ironically, it was the placid stability of the preceding several years that lulled institutions, markets and regulators into complacency and inaction about the mounting global imbalances and the inordinate risk build-ups in the financial system eventually precipitating institutional failures, market freeze-ups and severe credit crunch. The gross disregard of basic cautions in risk-taking in large globally active financial institutions was prompted by quest of quick private gains for small inner circles in top managements and boards, imperiling longer term viability of the institutions and hurting interests of general shareholders and of broader citizenry as stakeholders in the financial system.

5. You are planning to set up a food processing industry in Rangamti area. Write a letter to the local manager of a bank highlighting the feasibility of the project and requesting him to finance it.

6. Comprehension-

Work expands so as to fill the time available for its completion. The general recognition of this fact is shown in the proverbial phrase, 'It is the busiest man who has time to spare.' Thus, an elderly lady at leisure can spend the entire day writing a postcard to her niece. An hour will be spent in finding the postcard, another hunting for spectacles, half an hour to search for the address, an hour and a quarter in composition and twenty minutes in deciding whether or not to take an umbrella when

৭৫ টি ফোকাস পেতে Bank Recruitment Exam Boost গ্রুপে জয়েন করেন

going to the pillar box in the street. The total effort that would occupy a busy man for three minutes, all told, may in this fashion leave another person completely exhausted after a day of doubt, anxiety and toil.

- What happens when the time to be spent on some work increases?
- Explain the sentence: 'Work expands so as to fill the time available for its completion'.
- Who is the person likely to take more time to do a work ?
- What is the total time spent by the elderly lady in writing a postcard?
- What does the expression 'pillar box' stand for ?

7. Mathematics-

- Mr. Karim gave 40% of the money he had, to his wife. He also gave 20% of the remaining amount to each of his three sons. Half of the amount now left was spent on miscellaneous items and the remaining amount of Tk 12,000/- was deposited in the bank. How much money did Mr. Karim have initially?
- A dealer buys dry fruit at the rate of Tk 100/-, Tk 80/- and Tk 60/- per kg. He bought them in the ratio 12:15:20 by weight. He in total gets 20% profit by selling the first two and at last he finds he has no gain no loss in selling the whole quantity which he had, What was the percentage loss he suffered for the third quantity?
- In a business A invests Tk 600/- more than B. The capital of B remained invested for 7 months, while the capital of A remained invested for 2 more months. If the total profit be Tk 620/- and B gets Tk 140/- less than what A gets, then what will be the amount of A's capital ?

Pubali Bank Senior Officer-2019 (Social Science,DU)

- মাদকমুক্ত বাংলাদেশ গড়তে আরো কি কি পদক্ষেপ নেওয়া প্রয়োজন বলে তুমি মনে কর? বর্তমান চলমান মাদকবিরোধী অভিজানের ব্যাপারে তুমি কতটা আশাবাদী।
- Identify the challenge for the development of women entrepreneurship in Bangladesh.
- ইংরেজীতে অনুবাদ কর -

বিদ্যা মঙ্গলের নিদান সে বিষয়ে সন্দেহ নাই। কিন্তু অল্প বিদ্যা মারাত্মক। সংসারে প্রত্যেক ব্যক্তিরই আপনার যথার্থ মূল্য বুঝিয়া চলা উচিত। যে ব্যক্তি যে বিষয়ে বিশেষরূপে দক্ষ নহে, তাহার পক্ষে সেই কার্যে হস্তক্ষেপ অবিধেয়। যে ব্যক্তি অর্ধশিক্ষিত, সুশিক্ষিতের ভান করা তাহার অনুচিত। কেননা ইহাতে সে যে কেবল আপনার ক্ষতি করে তাহা নহে; তাহার এইরূপ আচরণের দ্বারা সমাজেরও বিষম অনিষ্ট সাধিত হয়। হাতুড়িয়া বৈদ্যগণ প্রকৃত চিকিৎসক নহে, চিকিৎসাশাস্ত্রে তাহাদের অতি অল্প জ্ঞানই থাকে। কিন্তু তাহারা নিজেরাও বুঝে না বা বুঝিলেও অপরের নিকট

৭৫ টি ফোকাস পেতে Bank Recruitment Exam Boost গ্রুপে জয়েন করেন

স্বীকার করে না। সুতরাং তাহারা কোন সুচিকিৎসকের ভান করিয়া যদি সংকটাপন্ন রোগীর চিকিৎসার ভার গ্রহণ করে তবে ঐ রোগীর মৃত্যু অবশ্যম্ভাবী। তাহারা সমাজের অঙ্গ লোকদিগকে প্রতারিত করিয়া উহাদের ভীষণ ক্ষতিসাধন করে। তাহাদের এই কার্যের জন্য চিকিৎসাবিদ্যা দায়ী নহে, দায়ী তাহাদের চিকিৎসাবিদ্যার অল্প জ্ঞান।

4. ইংরেজি থেকে বাংলা অনুবাদ-

It is not clear that the current global regulatory reform initiatives will be enough to dissuade banks and financial institutions from risky speculative behavior that lead to recurrent instability. A fundamental reorientation of their corporate goals and objectives towards conducting business in socially responsible manner is perhaps needed for this. Only such a basic reorientation can perhaps draw them away lastingly from socially harmful unproductive speculative investments towards inclusive financing of productive, pursuits of all population segments in all economic sectors; harnessing and fostering creative energies of the entire working age population. Already growing in sidelines in many developing and developed economies, this socially responsible inclusive financing orientation has been chosen by Bangladesh Bank as the mainstream approach for the financial sector in Bangladesh. Initial results look promising.

5. In a group of 120 people, one-fifth are men, one-fourth are women and the rest are children. The average age of women is five-sixth of the average age of men. If average age of men is 60 years, what is the average age of the group?

6. A and B started a business by investing Tk 2400 and Tk 3600 respectively. At the end of 4th month from the start of the business, C joined with Tk X. After 8 months from the start of the business, B withdrew Tk 600. If C's share is Tk 8000 in the annual profit of Tk 22500, what was the amount the C invested in the business ?

**ফোকাস রাইটিং, লেটার রাইটিং, ট্রান্সলেশন,
বিভিন্ন বইয়ের আপডেট পিডিএফ পেতে
Bank Recruitment Exam Boost গ্রুপে
জয়েন করেন।**

JM Abdullah (Admin)