NICL AO Mock Test 2

Q 1. A tank has 2 pipes. One pipe can fill it with milk in 8 hours and the other pipe can empty it in 5 hours. In how many hours will the tank be emptied if both the pipes are opened together when ¾ of the tank is already full of milk?

1. 10
2. 25
3. 30
4. 45

Q 2. The ratio of boys to girls in the class is 6:4. The class has 30 more boys than girls. How many girls are there in the class?

1. 15
2. 60
3. 90
4. 10

Q 3. A vessel contains a mixture of 112 litres of alcohol and water in the proportion 5:2. How much water in litres must be added to make the ratio 8:5

1. 28
2. 20
3. 18
4. 30

Q 4. A pavement that is 7 m wide surrounds a circular lake whose circumference is 352 m. What will be the area of the pavement surrounding the lake?

1. 3218
2. 7654
3. 1245
4. 2618

Q 5. A hollow spherical shell is made of a metal of density 5.0 g/cm³. If its internal and external radii are 5 cm and 10 cm respectively, find the weight of the shell.

1. 20.5 Kg
2. 13.8 Kg
3. 17.67 Kg
4. 18.33 Kg

Q 6. There are 25 routes to go from Delhi to Lucknow and then there are 45 routes to go from Lucknow to Bhopal. How many ways are possible for going from Delhi to Bhopal via Lucknow?

1. 25×45
2. $25 + 45$
3. 25^{45}
4. 45^{25}

Q 7. The letters of the word AHMEDABAD are arranged among themselves. Find the probability of always having the word HME in the word.

1. $7! / 9!$
2. $7! \times (3! \times 2!) / 9!$
3. $9! / 7!$
4. $9! / (3! \times 2!)$

Q 8. Find the value of

$(87549 \times 87549 - 67549 \times 67549) / 20000$

1. 267897
2. 155098
3. 312897
4. 155675

Q 9. Find the missing value in series.

2, 8, 20, 40, 70, ?

1. 124
2. 112
3. 176
4. 180

Directions (10 - 14): Rearrange the given 5 sentences in a proper sequence so as to form a meaningful paragraph.

1. The main headwind, of course, is the uncertainty emanating from the highly contentious global trade environment.

2. This is particularly threatening for open economies like Germany and its neighbours, which are deeply integrated into its manufacturers' value chains.

3. Over the past couple of months, the German debate over fiscal and monetary policy has taken an interesting turn.

4. Old deeply ingrained economic dogmas, including that the public sector must strive to generate a fiscal surplus regardless of macroeconomic condition, are being reappraised, at least by some.

5. The economic situation is changing rapidly for the worse. The German economy - long the engine of Eurozone growth - is undeniably sputtering. Powerful underlying currents are contributing to the slowdown.

Q 10. Which of the following is the 2nd sentence?

1. 5
2. 2
3. 4
4. 1

Q 11. Which of the following is the 3rd sentence?

1. 2
2. 3
3. 4
4. 5

Q 12. Which of the following is the final sentence?

1. 2
2. 5
3. 1
4. 3

Q 13. Which of the following is the 1st sentence?

1. 1
2. 3
3. 4
4. 2

Q 14. Which of the following is the 4th sentence?

1. 1
2. 4
3. 3
4. 2

Directions (15-19): Fill in the blanks with the appropriate word

In Mohammed Hanif's novel Red Birds, an American pilot crashes his plane in the Arabian Desert and is ------ (15)----- among the locals in a nearby refugee camp. This little ---- (16) ------ just about summarizes the key message of Daron Acemoglu and James Robinson's new book, The Narrow corridor. Acemoglu and Robinsons ----- (17) ----- is that prospects for freedom and prosperity balance on a knife-edge between State oppression and the lawlessness and violence that society so inflicts on itself. Give the state too much of an upper hand over society, and you have despotism. Render the state weak vis-a-vis society and you get anarchy.

As the books title signals, there is only a "narrow corridor" between these two dystopias, a slender path that only a few countries, mostly in the industrialized West, have managed to find. Furthermore, getting on the path does not guarantee staying on it. Acemoglu and Robinson emphasise that unless civil society remains ----- (18) ----- and is able to mobilize against would-be autocrats, authoritarian ----(19)--- always remains a possibility.

Q 15.

1. Stranded
2. Uncanny
3. Abashed
4. Non-plussed

Q 16.

1. Veterinarian
2. Vignette
3. Variety

4. Verdict

Q 17.

1. Tenacious
2. Tantalizing
3. Thesis
4. Tender

Q 18.

1. Sedentary
2. Indolent
3. Sluggish
4. Vigilant

Q 19.

1. Headway
2. Flourish
3. Regress
4. Thrive

Q 20. In a certain code language, 'pen pencil' is written as '$&', 'eraser sharpener' is written as '@#' and 'pencil eraser' is written as '$@'. Then what is the code for 'pen'?

1. &
2. $
3. #
4. @

Q 21. In a certain code, '786' means 'study very hard', '958' means 'hard work pays' and '645' means 'study and work'. Which of the following is the code for 'very'?

1. 8
2. 6
3. 7
4. 9

Q 22. Rani told Mayank, "The girl I met yesterday at the beach was the youngest daughter of the brother-in-law of my friend's mother." How is the girl related to Rita's friend?

1. Aunt
2. Cousin
3. Sister
4. Co sister

Q 23. In a shop there were 4 dolls of different heights A, B, C, and D. D is neither as tall as A nor as short as C. B is shorter than D but taller than C. If Mat wants to purchase the tallest Doll, which one should he purchase?

1. A
2. D
3. C
4. B

Directions (24 - 25): Read the following information carefully and answer the the question given below it.

At the end of the cricket series, when 5 players were arranged in the ascending order of runs scored by them, D was fourth while A was first. When they were arranged in descending order of wickets taken by them, C replaces D, while D replaces E. B's position remains unchanged. C has scored more runs than B. E is having first rank in one ranking and fifth in another.

Q 24. Who has scored the highest runs in the series?

1. A
2. B
3. E
4. D

Q 25. Who has taken the lowest number of wickets?

1. D
2. E
3. B
4. A

Answer Keys

Q 1. 1	Q 2. 2	Q 3. 3	Q 4. 4	Q 5. 4
Q 6. 1	Q 7. 1	Q 8. 2	Q 9. 2	Q 10. 3
Q 11. 4	Q 12. 1	Q 13. 2	Q 14. 1	Q 15. 1
Q 16. 2	Q 17. 3	Q 18. 4	Q 19. 3	Q 20. 1
Q 21. 3	Q 22. 2	Q 23. 1	Q 24. 3	Q 25. 1

Solution 1:

Shortcut:

This problem is best solved by using fraction to percentage conversion method.

Hence it is vital to internalise the faction percentage conversion.

The tank can be filled with milk in 8 hours.

Hence the positive work done in 1 hour = ⅛ = 12.5%

The milk can be emptied in 5 hours.

Hence the negative work done in 1 hour = ⅕ = 20%

Hence when both the inlet and outlet pipes are open, the total work done is

20% - 12.5% = 7.5%

When the tank is ¾ full, it means 75% of the tank is full.

Hence the time taken to empty the tank

= 75 / 7.5

= 10 hours

Hence we can conclude that it takes 10 hours to empty 3/4th of the tank, when both inlet and outlet pipes are open.

Solution 2:

The ratio of boys is 6x

The ratio of girls is 4x.

Difference between 2 ratios

6x - 4x = 30

X = 15

Number of girls in the class = 4 * 15 = 60

Solution 3:

Quantity of alcohol is (5/7)* 112 = 80 litres

Quantity of water is (2/7)* 112 = 32 litres

If only water is added then the alcohol remains constant, hence

8x = 80

X = 10

Water in the new ratio is 5x = 5 * 10 = 50 litres

Therefore the quantity of water added = 50 - 32 = 18 litres.

Solution 4:

Circumference of the lake = 352 m

2 π r = 352

2 × 22/7 × r = 352

Hence radius = 56 cm.

Area of pavement only = (Area of the circular pavement + Area of the lake) - (Area of the inner

lake)

Radius of circular pavement + inner lake = 56 + 7 = 63 cm.

Therefore,

$\pi \times 63^2$ - $\pi \times 56^2$

= π (63^2 - 56^2)

We can simplify this using a ^{2} - b^2 = (a+b) (a-b)

= (63 + 56) (63 - 56) = 119 * 7 = 833
Hence,

$\pi \times 833$

= (22/7) $\times$ 833

= 2618 m^2 is the area of pavement.

Solution 5:

Volume of metal = 4/3 π R^3 - 4/3 π r^3

= 4/3 π (R^3 - r^3)

= 4/3 π (10^3 - 5^3)

= 3666.66 cm^3

Weight of the shell = Density $\times$ Volume

= 5 $\times$ 3666.66

= 18333 gm

= 18.33 Kg

Solution 6:

The solution can be arrived at by

25 ways × 45 ways = 1125 ways

One may wonder why we had not done 25 ways + 45 ways.

We use the addition sign when the routes taken are mutually exclusive.

But in the above question, the routes taken are mutually inclusive because there is a dependency of the 2nd route on the 1st route, as the question says Delhi to Bhopa via Lucknow.

Solution 7:

Total number of ways the word can be arranged is

There are 9 letters hence it can be arranged in 9! Ways.

But some of the letters are repeated

A is repeated 3 times

D is repeated 2 times

Hence the total number of ways the word AHMEDABAD can be arranged is

= 9! / (3! × 2!)

Number of ways the words can be formed such that HME is always together is

(HME)ADABAD

= 7! Ways

But A is repeated thrice and D is repeated twice, hence (HME)ADABAD can be arranged in

7! / (3! × 2!)

Hence the probability such that HME is always together

= (Number of words formed with HME together) / (Total number of words formed with the

letters)

= [7! / (3! $\times$ 2!)] / [9! / (3! $\times$ 2!)]

Hence the answer is

= 7! / 9!

Solution 8:

This can be written in the form $a^2 - b^2 = (a + b)(a - b)$

$(a^2 - b^2) / a - b = a + b$

The expression in the question is given in the above form, hence answer is

(a+b) = 87549 + 67549

= 155098

Solution 9:

2 + (2+4) = 8

8 + (3 + 9) = 20

20 + (4 +16) = 40

40 + (5 + 25) = 70

70 + (6 + 36) = 112

Solution 20:

pen pencil - $ &

pencil eraser - $ @

From the above, we can see that pencil is the common word and among codes, $ is the common code.

Hence Pencil stands for $ and the pen is coded as '&'.

Solution 21:

Study very hard - 786

Hard work pays - 958

In the above, 'hard' is the common word and '8' is the common digit.

Study and work - 645

Study very hard - 786

In the above, study is the common word and 6 is the common digit.

Hence 'study' means '6'

Therefore study very hard, since hard and study is already known, very is coded as 7.

Solution 22:

Brother in law has the youngest daughter.

But he is the brother in law of Rani's friend's mother. He is not the brother in law of Rani's friend.

Hence the girl on the beach is the cousin of Rani's friend.

Solution 23:

D is neither as tall as A means D is definitely not the tallest.

D is not as short as C means C is definitely not the tallest.

Hence from 1 sentence we can safely rule out that neither D nor C is the tallest.

B is shorter than D means neither B is the tallest.

Hence we have ruled that B, C , D are not the tallest.

Therefore A is the tallest Doll.

Solution 24:

From the below table we can find that E has scored the highest runs.

Position in terms of Runs scored (arranged in ascending order)

1	A
2	B
3	C
4	D
5	E

Solution 25:

From the below table we can find that D has taken the lowest number of tickets.

Position in terms of wickets taken (arranged in ascending order)

1	D
2	C
3	A
4	B
5	E