

DU JAT BMS BBA N BA Business Economics 02

Topic:- JAT02

1) Find the option that will replace ? ? ? ?

B A - - C - A D A B B A

- - 4 1 3 2 - - ? ? ? ?

P - P Q - R - Q - - - -

[Question ID = 4472]

1. 4, 3, 3, 4

[Option ID = 17885]

2. 2, 3, 3, 2

[Option ID = 17886]

3. 2, 4, 4, 2

[Option ID = 17887]

4. 3, 4, 4, 3

[Option ID = 17888]

2) Anita places her watch on her table such that the 9 P.M. hour hand points North-East.

Which direction will the minute hand point at 8:30 A.M. ?

[Question ID = 4473]

1. South-East

[Option ID = 17889]

2. South

[Option ID = 17890]

3. North

[Option ID = 17891]

4. North-West

[Option ID = 17892]

3) Read the following paragraph and answer the question:

In a college party, there were two students from the finance department and remaining from the management department. Every student shook hands twice with other students. Management students shook hands with each other 66 more times than with finance students.

How many management students were at the party?

[Question ID = 4474]

1. 9

[Option ID = 17893]

2. 10

[Option ID = 17894]

3. 11

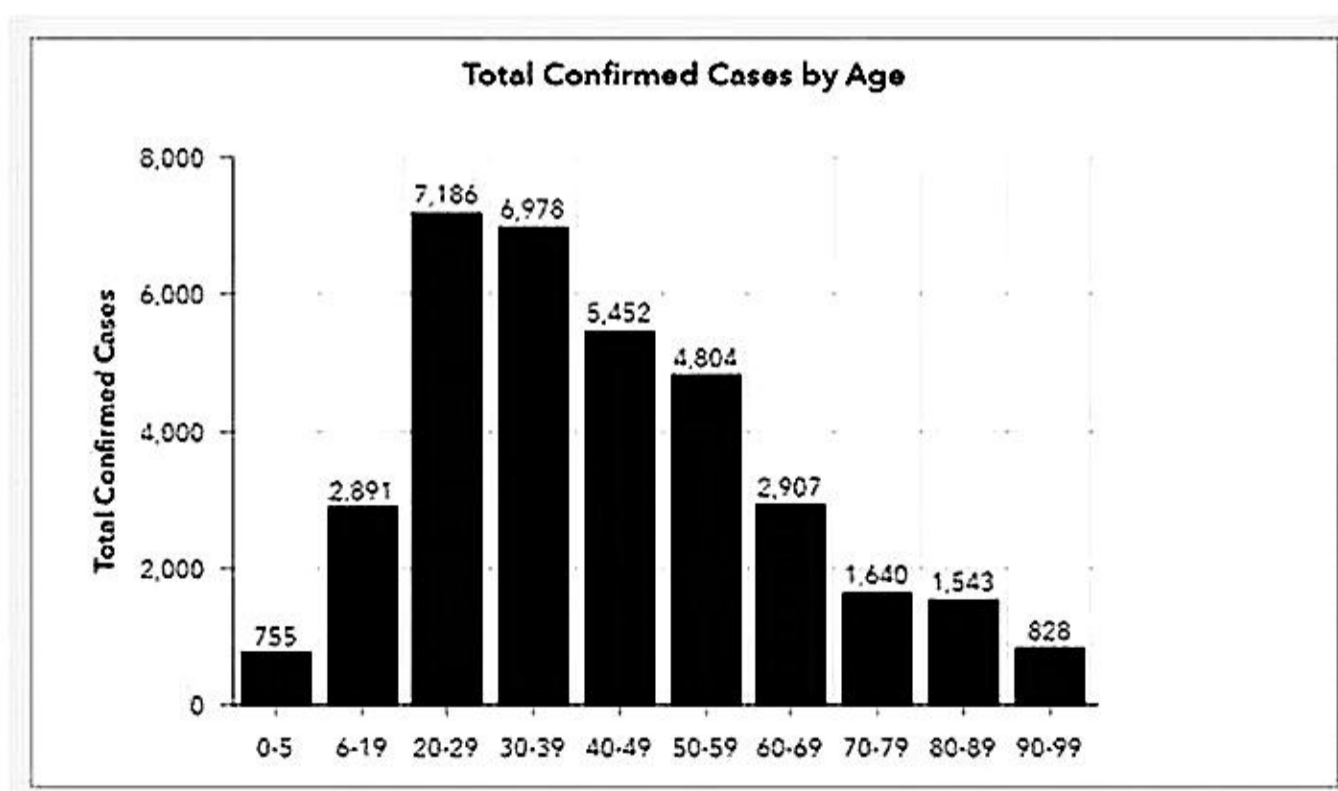
[Option ID = 17895]

4. 13

[Option ID = 17896]

4) Consider the following figure that gives the total confirmed cases of coronavirus disease (COVID-19) by age and answer the question

Age Distribution of COVID-19 Patients



What is the median age group of total confirmed cases of coronavirus disease (COVID-19)?

[Question ID = 4475]

1. 30-39

[Option ID = 17897]

2. 40-49

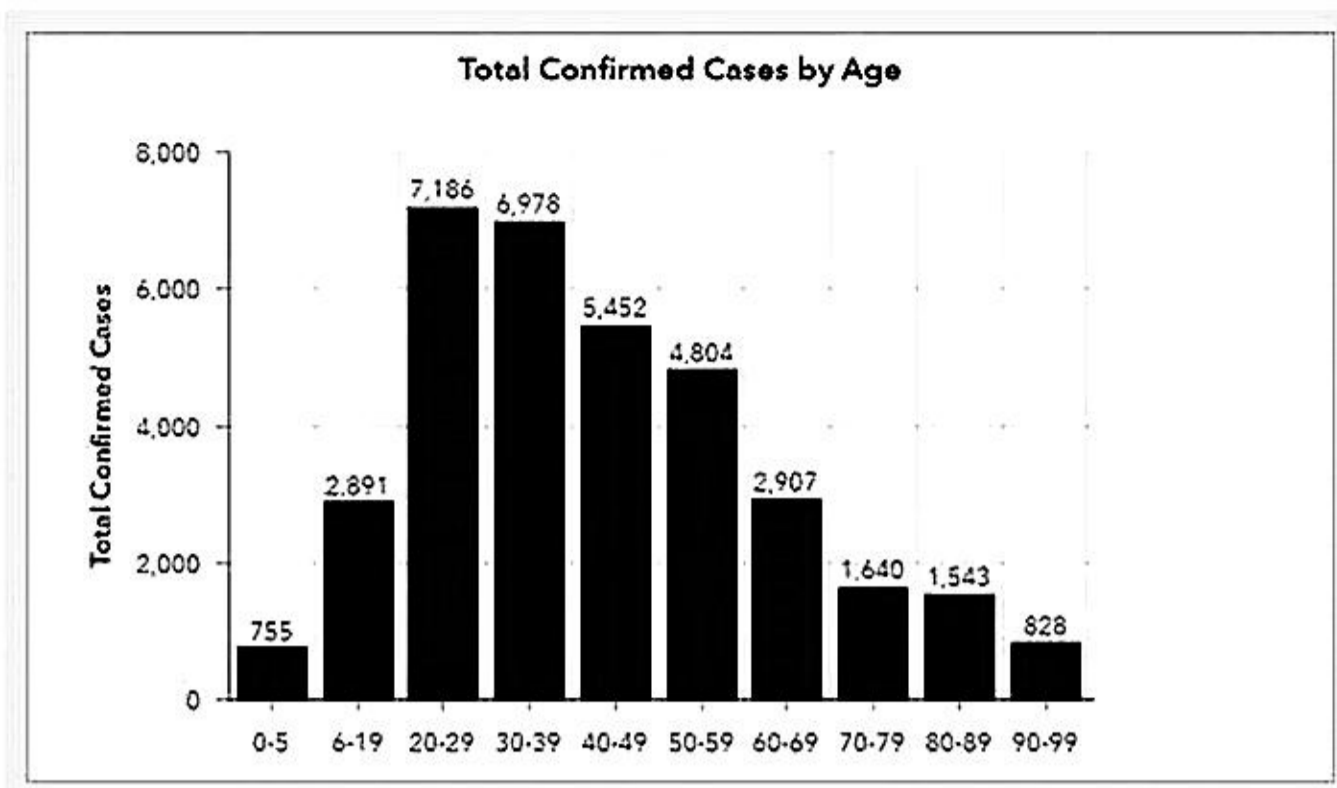
[Option ID = 17898]

3. 50-59

4. 60-69

[Option ID = 17900]

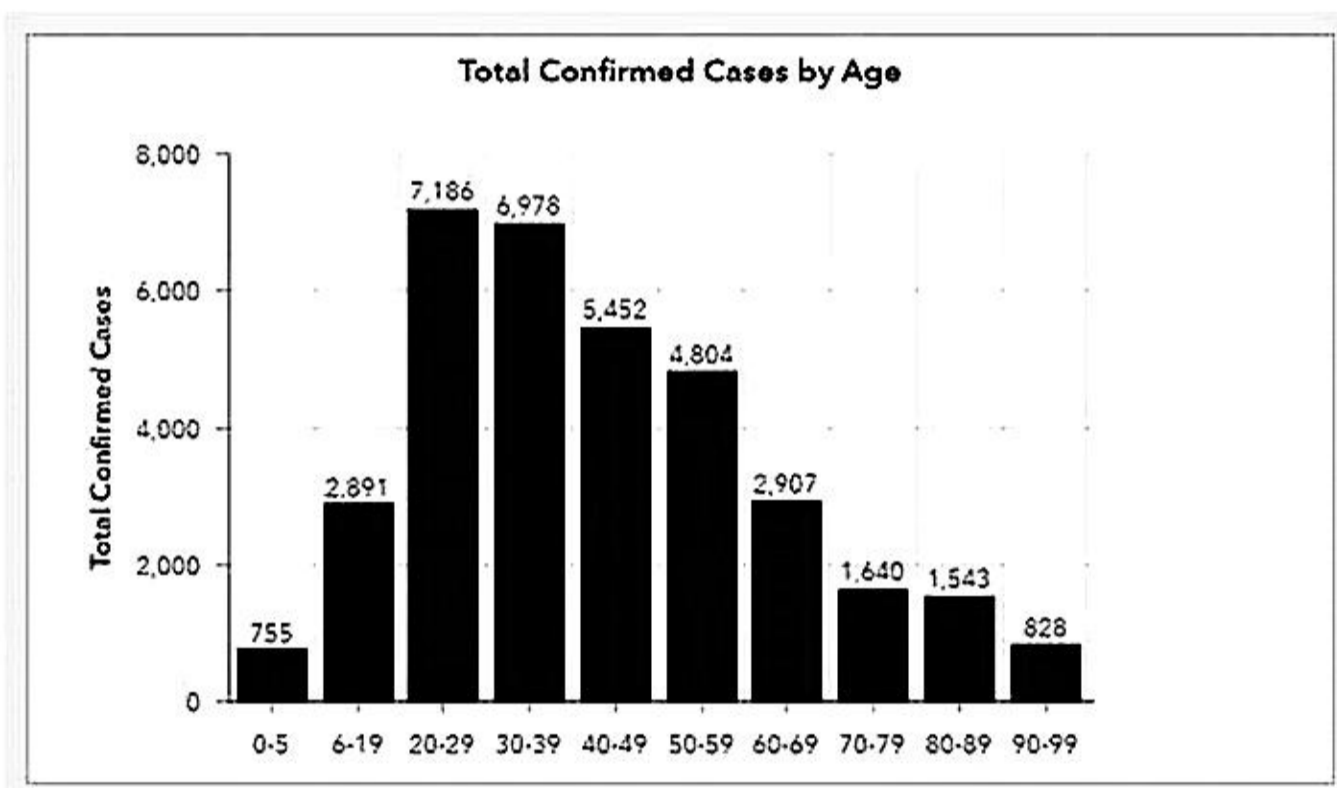
5) Consider the following figure that gives the total confirmed cases of coronavirus disease (COVID-19) by age and answer the question
Age Distribution of COVID-19 Patients



What is the percentage of the youngest age-group persons over those in the oldest age group? Pick the closest value. [Question ID = 4476]

- 1. 0.91 [Option ID = 17901]
- 2. 91.2 [Option ID = 17902]
- 3. 9.12 [Option ID = 17903]
- 4. 91.1 [Option ID = 17904]

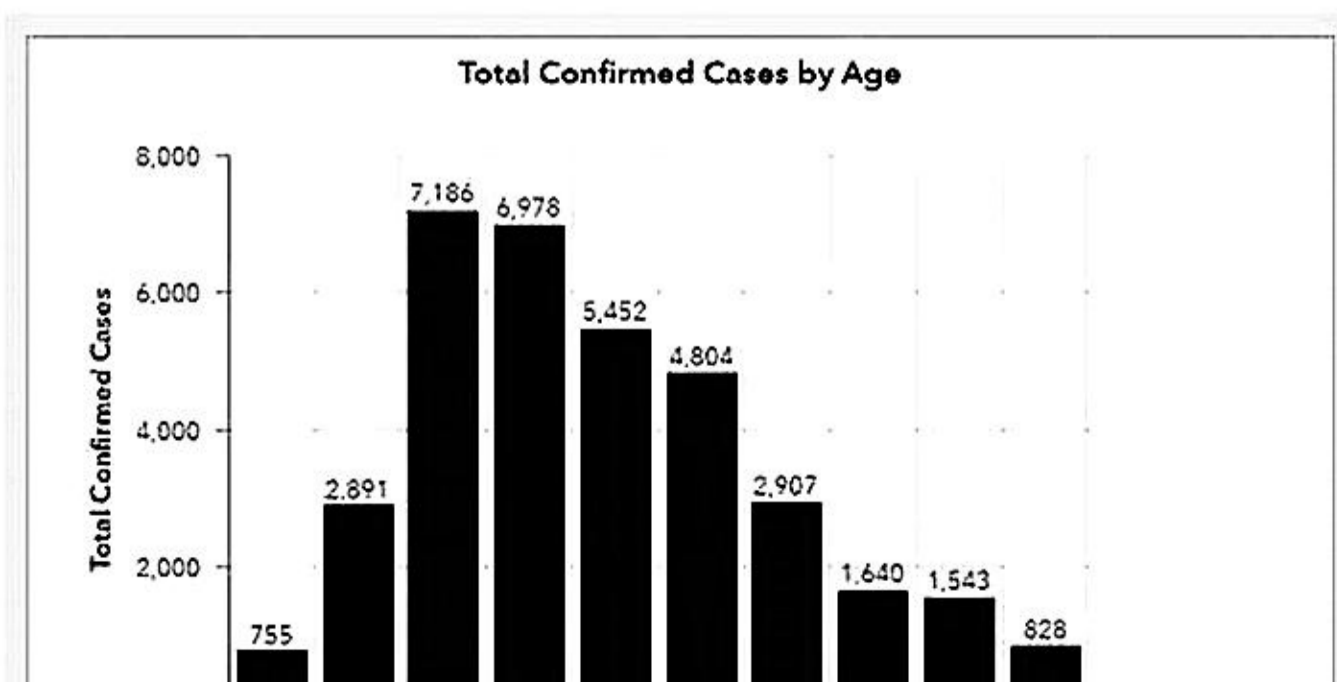
6) Consider the following figure that gives the total confirmed cases of coronavirus disease (COVID-19) by age and answer the question
Age Distribution of COVID-19 Patients



How many more persons are in the age-group 6-19 than in the age group 90-99? [Question ID = 4477]

- 1. 2,603 [Option ID = 17905]
- 2. 2,036 [Option ID = 17906]
- 3. 2,063 [Option ID = 17907]
- 4. 2,630 [Option ID = 17908]

7) Consider the following figure that gives the total confirmed cases of coronavirus disease (COVID-19) by age and answer the question
Age Distribution of COVID-19 Patients



How many patients are over 49 years of age?[Question ID = 4478]

1. 11,272 [Option ID = 17909]
2. 17,122 [Option ID = 17910]
3. 11,722 [Option ID = 17911]
4. 17,212 [Option ID = 17912]

8) Vipul was ranked 20th amongst all the candidates in an entrance exam. He scored 80 percentile.

How many candidates appeared in the exam?

[Question ID = 4479]

1. 85
[Option ID = 17913]
2. 90
[Option ID = 17914]
3. 95
[Option ID = 17915]
4. 100
[Option ID = 17916]

9) Read the following information and answer the question

Neena started cycling from her home to reach the COVID-19 vaccination camp. She rode along the following path:

1. She started from her home and rode straight for 25 K.M.
2. Turned right and rode for 20 K.M.
3. Turned left and rode for 25 K.M.
4. Turned right and rode for 30 K.M.
5. Turned left and rode for 30 K.M.
6. Turned right and rode for 10 K.M. and reached the vaccination camp.

If Neena started from her home in the South-East direction, in which direction from her home is the vaccination center located?

[Question ID = 4480]

1. South
[Option ID = 17917]
2. South-West
[Option ID = 17918]
3. West
[Option ID = 17919]
4. South-East
[Option ID = 17920]

10) In the following question, some statements are given followed by conclusions A, B, C, D. You have to take the given statements to be true even if they seem to be at variance from commonly known facts. Read the conclusions and then decide which of the given conclusions logically follow from the given statements.

Statements:

1. All the laptops are computers.
2. All the computers are desktops.

Conclusions:

- A. All the desktops are computers.
- B. All the computers are laptops.
- C. All the laptops are desktops.
- D. Some desktops are laptops.

[Question ID = 4481]

1. Only A and D
[Option ID = 17921]
2. Only B and D
[Option ID = 17922]
3. Only C and D
[Option ID = 17923]
4. Only A and C
[Option ID = 17924]

11) In the following question, some statements are given followed by conclusions A, B, C, D. You have to take the given statements to be true even if they seem to be at variance from commonly known facts. Read the conclusions and then decide which of the given conclusions logically follow from the given statements.

Statements:

- I. All carrots are vegetables.
- II. Some fruits are vegetables.

Conclusions:

- A. All carrots are fruits.
- B. All fruits are carrots.
- C. Some vegetables are fruits.
- D. All vegetables are carrots.

[Question ID = 4482]

1. Only D
[Option ID = 17925]
2. Only B
[Option ID = 17926]

- [Option ID = 17927]
4. Only A
[Option ID = 17928]

12) How many odd numbers are there in the given sequence that are immediately preceded by an even number and immediately followed by an odd number?
3 2 6 5 3 7 4 5 7 4 6 5 1 4 7 6 5 7 4 3 2 8 9 2 7 8

[Question ID = 4483]

1. 2
[Option ID = 17929]
2. 4
[Option ID = 17930]
3. 3
[Option ID = 17931]
4. 5
[Option ID = 17932]

13) Look at the series: 1,3,6,11,18, 29, ... What number should come next?[Question ID = 4484]

1. 42 [Option ID = 17933]
2. 41 [Option ID = 17934]
3. 45 [Option ID = 17935]
4. 43 [Option ID = 17936]

14) Deepu walks 25Km towards the South. She took a left turn and walked 15Km. Then she decided to take left and walked 15Km. Then, she walks 10Km towards the left. How far and in which direction is she with reference to her starting point?

[Question ID = 4485]

1. 10 Km West
[Option ID = 17937]
2. $5\sqrt{5}$ Km South East
[Option ID = 17938]
3. 5 Km North West
[Option ID = 17939]
4. $7\sqrt{2}$ Km North
[Option ID = 17940]

15) In the given question, two statements are followed by two conclusions numbered I and II. You have to take the given two statements to be true, even if they seem to be at variance from commonly known facts. Read the conclusions and then decide which of the given conclusions logically follows from the two given statements, disregarding commonly known facts.

Statement:

No Airplane is a Boat.

Some Boats are not Ships.

Conclusion:

I: Some Airplanes can be Ships.

II: All Airplanes can be Ships.

Choose one of the following:

[Question ID = 4486]

1. Only conclusion I follows
[Option ID = 17941]
2. Only conclusion II follows
[Option ID = 17942]
3. Both I and II follow
[Option ID = 17943]
4. Neither I nor II follows
[Option ID = 17944]

16) Statement: Based on the research findings, it has been reported that regular consumption of bananas helps in controlling blood pressure as it increases the level of potassium in the blood stream.

Which of the following contradicts the findings reported in the above statement?

[Question ID = 4487]

1. Increased level of potassium in blood stream enhances quality of health
[Option ID = 17945]
2. Many people who consume bananas regularly were found to be suffering from hypertension
[Option ID = 17946]
3. Consumption of bananas helps in storing anti-oxidant in the body
[Option ID = 17947]
4. Bananas are a good source of many vitamins
[Option ID = 17948]

17) In the following question, one of the terms in the number series is missing. Choose the correct alternative:

-1, 6, 25, ?, 123

[Question ID = 4488]

1. 62
[Option ID = 17949]
2. 64
[Option ID = 17950]
3. 101
[Option ID = 17951]
4. 100

18) In the following question, one of the terms in the number series is missing. Choose the correct alternative:

0, ?, 18, 48, 100

[Question ID = 4489]

1. 6

[Option ID = 17953]

2. 4

[Option ID = 17954]

3. 5

[Option ID = 17955]

4. 8

[Option ID = 17956]

19) A person travels 13 km in the north direction. He takes a right and travels 10 km. He again takes a right and travels 12 km. There he takes a left and travels 10 km. Finally, he takes a left and travels 20 km. Find his displacement.

[Question ID = 4490]

1. 25 km

[Option ID = 17957]

2. 34 km

[Option ID = 17958]

3. 29 km

[Option ID = 17959]

4. 30 km

[Option ID = 17960]

20) If the word "SPECIAL" is written as "HKVRZO". Then the word "WATER" will be written as?[Question ID = 4491]

1. CZHVI [Option ID = 17961]

2. DZGVJ [Option ID = 17962]

3. DZGVI [Option ID = 17963]

4. CZHVJ [Option ID = 17964]

21) In a row of 40 boys, Shaan was shifted to his left by 5 places such that his number from the left end of the row became 9.

What was the number of Shivam from the right end if Shaan was 3 places to the right of Shivam's original position?

[Question ID = 4492]

1. 22

[Option ID = 17965]

2. 23

[Option ID = 17966]

3. 25

[Option ID = 17967]

4. None of the options

[Option ID = 17968]

22) Read the following statement and answer the question

1. In a hotel, there are 6 rooms- R1, R2, R3, R4, R5 and R6. Among these R1 and R3 have the ability to accommodate 2 tourists each; the rest can only accommodate one tourist each.

2. Eight tourists T1, T2, T3, T4, T5, T6, T7 and T8 are to be kept in these rooms. T2, T5 and T8 are females while the rest are males. No two genders can be put together in the same room. No man is willing to stay in R3 or R6.

3. T1 wants to be alone but is not ready to stay in R2 and R4. T4 needs a partner but doesn't want to stay with T6 or T7. T8 is not willing to share her room with anyone.

Which tourist will stay in room R5?

[Question ID = 4493]

1. T6

[Option ID = 17969]

2. T7

[Option ID = 17970]

3. T1

[Option ID = 17971]

4. Data not sufficient

[Option ID = 17972]

23) Read the following statement and answer the question

1. In a hotel, there are 6 rooms- R1, R2, R3, R4, R5 and R6. Among these R1 and R3 have the ability to accommodate 2 tourists each; the rest can only accommodate one tourist each.

2. Eight tourists T1, T2, T3, T4, T5, T6, T7 and T8 are to be kept in these rooms. T2, T5 and T8 are females while the rest are males. No two genders can be put together in the same room. No man is willing to stay in R3 or R6.

3. T1 wants to be alone but is not ready to stay in R2 and R4. T4 needs a partner but doesn't want to stay with T6 or T7. T8 is not willing to share her room with anyone.

In which room will T6 stay?

[Question ID = 4494]

1. R2

[Option ID = 17973]

2. R4

[Option ID = 17974]

3. R1

[Option ID = 17975]

4. R2 or R4

24) Read the following passage and choose the correct response accordingly—

In a joint family, there are five cousins namely Sunita, Shrishti, Ashok, Bhawna and Tripti. Sunita's age is double that of Shrishti while Ashok is exactly half the age of Shristi. Sunita's age is half of that of Bhawna and Ashok is twice as old as Tripti.

Who among these cousins is the youngest?

[Question ID = 4495]

1. Shrishti
[Option ID = 17977]
2. Ashok
[Option ID = 17978]
3. Bhawna
[Option ID = 17979]
4. Tripti
[Option ID = 17980]

25) Read the following passage and choose the correct response accordingly—

In a joint family, there are five cousins namely Sunita, Shrishti, Ashok, Bhawna and Tripti. Sunita's age is double that of Shrishti while Ashok is exactly half the age of Shristi. Sunita's age is half of that of Bhawna and Ashok is twice as old as Tripti.

Who is the eldest among them?

[Question ID = 4496]

1. Bhawna
[Option ID = 17981]
2. Sunita
[Option ID = 17982]
3. Ashok
[Option ID = 17983]
4. Shrishti
[Option ID = 17984]

26) Read the following passage and choose the correct response accordingly—

In a joint family, there are five cousins namely Sunita, Shrishti, Ashok, Bhawna and Tripti. Sunita's age is double that of Shrishti while Ashok is exactly half the age of Shristi. Sunita's age is half of that of Bhawna and Ashok is twice as old as Tripti.

If Sunita is 16 years old, then how old is Ashok?

[Question ID = 4497]

1. 4 years
[Option ID = 17985]
2. 6 years
[Option ID = 17986]
3. 8 years
[Option ID = 17987]
4. 12 years
[Option ID = 17988]

27) One question given below is followed by three statements numbered I, II and III. It needs to be decided whether the information given in the statements is sufficient to answer the question.

Question: Five friends P, Q, R, S and T are sitting in a row. Find out the friend sitting in the middle.

Statements:

- I. Q is sitting between T and R
- II. Q is sitting on the right side of T
- III. S is sitting between P and T

Choose the correct option

[Question ID = 4498]

1. Only I and II
[Option ID = 17989]
2. Only II and III
[Option ID = 17990]
3. Only I and III
[Option ID = 17991]
4. All I, II and III
[Option ID = 17992]

28) A statement is given below which is followed by two conclusions I and II. You have to choose which of these conclusions follow logically from the given statement.

Statement: Walking in the morning is good for one's health.

Conclusions:

- I. All healthy people walk in the morning
- II. All people should walk in the morning and evening

Choose the correct option

[Question ID = 4499]

1. Only the conclusion I follows
[Option ID = 17993]
2. Only the conclusion II follows
[Option ID = 17994]
3. If neither conclusion I and nor conclusion II follows

4. If both conclusions I and II follow

[Option ID = 17996]

29) A statement is given below which is followed by two conclusions I and II. You have to choose which of these conclusions follow logically from the given statement.

Statement: Mahatma Gandhi, Sardar Patel, Maulana Azad and Jawaharlal Nehru were leading lights of the Congress when India became independent.

Conclusions:

I. Congress party was the most dominant Indian political group during those years but was unable to prevent partition of the country

II. Many revolutionaries sacrificed their lives for the sake of country's independence

Choose the correct option

[Question ID = 4500]

1. Only the conclusion I follows

[Option ID = 17997]

2. Only the conclusion II follows

[Option ID = 17998]

3. If neither conclusion I and nor conclusion II follows

[Option ID = 17999]

4. If both conclusions I and II follow

[Option ID = 18000]

30) A monkey tries to climb up a 44 metre rope vertically to reach the terrace. When it jumps, it climbs 5 metres in 2 seconds and slips 2 metres down in 3 seconds. Calculate the time it would take for the monkey to reach the terrace.

[Question ID = 4501]

1. 24 seconds

[Option ID = 18001]

2. 67 seconds

[Option ID = 18002]

3. 75 seconds

[Option ID = 18003]

4. 70 seconds

[Option ID = 18004]

31) Read the passage below and answer the question that follows.

Astronomers at the Palomar Observatory have discovered a distant supernova explosion, one THAT THEY BELIEVE IS a type previously unknown to science.

Choose the most appropriate for the underlined words :

[Question ID = 4502]

1. that they believe is

[Option ID = 18005]

2. that they believe it to be

[Option ID = 18006]

3. they believe that it is of

[Option ID = 18007]

4. they believe to be of

[Option ID = 18008]

32) Read the passage below and answer the question that follows.

Manufacturers are now required to make all cigarette lighters child resistant by equipping them with safety levers. But this change is unlikely to result in a significant reduction in the number of fires caused by children playing with lighters, because children given the opportunity can figure out how to work the safety levers and...

Which of the following, if true, most logically completes the argument?

[Question ID = 4503]

1. The addition of the safety levers has made lighters more expensive than they were before the requirement was instituted.

[Option ID = 18009]

2. Adults are more likely to leave child-resistant lighters than non-child-resistant lighters in places that are accessible to children.

[Option ID = 18010]

3. Many of the fires started by young children are quickly detected and extinguished by their parents.

[Option ID = 18011]

4. Unlike child-resistant lighters, lighters that are not child-resistant can be operated by children as young as two years old.

[Option ID = 18012]

33) Choose a synonym for the given word: FOMENT

[Question ID = 4504]

1. Argue

[Option ID = 18013]

2. Fierce

[Option ID = 18014]

3. Archaic

[Option ID = 18015]

4. Instigate

[Option ID = 18016]

34) Read the passage below and answer the question that follows.

Caffeine, the stimulant in coffee, has been called "the most widely used psychoactive substance on Earth." Snyder, Daly and Bruns have recently proposed that caffeine affects behaviour by countering the activity in the human brain of a naturally occurring chemical called adenosine. Adenosine normally depresses neuron firing in many areas of the brain. It apparently does this by inhibiting the release of neurotransmitters, chemicals that carry nerve impulses from one neuron to the next. Like many other agents that affect neuron firing, adenosine must first bind to specific receptors on neuronal membranes. There are at least two classes of these receptors, which have been designated A1 and A2. Snyder et al propose that caffeine, which is structurally similar to adenosine, is able to bind to both types

For many years, caffeine's effects have been attributed to its inhibition of the production of phosphodiesterase, an enzyme that breaks down the chemical called cyclic AMP. A number of neurotransmitters exert their effects by first increasing cyclic AMP concentrations in target neurons. Therefore, prolonged periods at the elevated concentrations, as might be brought about by a phosphodiesterase inhibitor, could lead to a greater amount of neuron firing and, consequently, to behavioural stimulation. But Snyder et al point out that the caffeine concentrations needed to inhibit the production of phosphodiesterase in the brain are much higher than those that produce stimulation. Moreover, other compounds that block phosphodiesterase's activity are not stimulants.

To buttress their case that caffeine acts instead by preventing adenosine binding, Snyder et al compared the stimulatory effects of a series of caffeine derivatives with their ability to dislodge adenosine from its receptors in the brains of mice. "In general," they reported, "the ability of the compounds to compete at the receptors correlates with their ability to stimulate locomotion in the mouse; i.e., the higher their capacity to bind at the receptors, the higher their ability to stimulate locomotion."

Theophylline, a close structural relative of caffeine and the major stimulant in tea, was one of the most effective compounds in both regards. There were some apparent exceptions to the general correlation observed between adenosine-receptor binding and stimulation. One of these was a compound called 3-isobutyl-1-methylxanthine (IBMX), which bound very well but actually depressed mouse locomotion. Snyder et al suggest that this is not a major stumbling block to their hypothesis. The problem is that the compound has mixed effects in the brain, a not unusual occurrence with psychoactive drugs. Even caffeine, which is generally known only for its stimulatory effects, displays this property, depressing mouse locomotion at very low concentrations and stimulating it at higher ones.

The primary purpose of the passage is to

[Question ID = 4505]

1. describe an alternative hypothesis and provide evidence and arguments that support it

[Option ID = 18017]

2. present two explanations of a phenomenon and reconcile the differences between them

[Option ID = 18018]

3. summarize two theories and suggest a third theory that overcomes the problems encountered in the first two

[Option ID = 18019]

4. challenge the validity of a theory by exposing the inconsistencies and contradictions in it

[Option ID = 18020]

35) Read the passage below and answer the question that follows.

Caffeine, the stimulant in coffee, has been called "the most widely used psychoactive substance on Earth." Snyder, Daly and Bruns have recently proposed that caffeine affects behaviour by countering the activity in the human brain of a naturally occurring chemical called adenosine. Adenosine normally depresses neuron firing in many areas of the brain. It apparently does this by inhibiting the release of neurotransmitters, chemicals that carry nerve impulses from one neuron to the next. Like many other agents that affect neuron firing, adenosine must first bind to specific receptors on neuronal membranes. There are at least two classes of these receptors, which have been designated A1 and A2. Snyder et al propose that caffeine, which is structurally similar to adenosine, is able to bind to both types of receptors, which prevents adenosine from attaching there and allows the neurons to fire more readily than they otherwise would.

For many years, caffeine's effects have been attributed to its inhibition of the production of phosphodiesterase, an enzyme that breaks down the chemical called cyclic AMP. A number of neurotransmitters exert their effects by first increasing cyclic AMP concentrations in target neurons. Therefore, prolonged periods at the elevated concentrations, as might be brought about by a phosphodiesterase inhibitor, could lead to a greater amount of neuron firing and, consequently, to behavioural stimulation. But Snyder et al point out that the caffeine concentrations needed to inhibit the production of phosphodiesterase in the brain are much higher than those that produce stimulation. Moreover, other compounds that block phosphodiesterase's activity are not stimulants.

To buttress their case that caffeine acts instead by preventing adenosine binding, Snyder et al compared the stimulatory effects of a series of caffeine derivatives with their ability to dislodge adenosine from its receptors in the brains of mice. "In general," they reported, "the ability of the compounds to compete at the receptors correlates with their ability to stimulate locomotion in the mouse; i.e., the higher their capacity to bind at the receptors, the higher their ability to stimulate locomotion."

Theophylline, a close structural relative of caffeine and the major stimulant in tea, was one of the most effective compounds in both regards. There were some apparent exceptions to the general correlation observed between adenosine-receptor binding and stimulation. One of these was a compound called 3-isobutyl-1-methylxanthine (IBMX), which bound very well but actually depressed mouse locomotion. Snyder et al suggest that this is not a major stumbling block to their hypothesis. The problem is that the compound has mixed effects in the brain, a not unusual occurrence with psychoactive drugs. Even caffeine, which is generally known only for its stimulatory effects, displays this property, depressing mouse locomotion at very low concentrations and stimulating it at higher ones.

According to Snyder et al, caffeine differs from adenosine in that caffeine

[Question ID = 4506]

1. stimulates behaviour in the mouse and in humans, whereas adenosine stimulates behaviour in humans only

[Option ID = 18021]

2. has mixed effects in the brain, whereas adenosine has only a stimulatory effect

[Option ID = 18022]

3. increases cyclic AMP concentrations in target neurons, whereas adenosine decreases such concentrations

[Option ID = 18023]

4. permits release of neurotransmitters when it is bound to adenosine receptors, whereas adenosine inhibits such release

[Option ID = 18024]

36) Read the passage below and answer the question that follows.

Caffeine, the stimulant in coffee, has been called "the most widely used psychoactive substance on Earth." Snyder, Daly and Bruns have recently proposed that caffeine affects behaviour by countering the activity in the human brain of a naturally occurring chemical called adenosine. Adenosine normally depresses neuron firing in many areas of the brain. It apparently does this by inhibiting the release of neurotransmitters, chemicals that carry nerve impulses from one neuron to the next. Like many other agents that affect neuron firing, adenosine must first bind to specific receptors on neuronal membranes. There are at least two classes of these receptors, which have been designated A1 and A2. Snyder et al propose that caffeine, which is structurally similar to adenosine, is able to bind to both types of receptors, which prevents adenosine from attaching there and allows the neurons to fire more readily than they otherwise would.

For many years, caffeine's effects have been attributed to its inhibition of the production of phosphodiesterase, an enzyme that breaks down the chemical called cyclic AMP. A number of neurotransmitters exert their effects by first increasing cyclic AMP concentrations in target neurons. Therefore, prolonged periods at the elevated concentrations, as might be brought about by a phosphodiesterase inhibitor, could lead to a greater amount of neuron firing and, consequently, to behavioural stimulation. But Snyder et al point out that the caffeine concentrations needed to inhibit the production of phosphodiesterase in the brain are much higher than those that produce stimulation. Moreover, other compounds that block phosphodiesterase's activity are not stimulants.

To buttress their case that caffeine acts instead by preventing adenosine binding, Snyder et al compared the stimulatory effects of a series of caffeine derivatives with their ability to dislodge adenosine from its receptors in the brains of mice. "In general," they reported, "the ability of the compounds to compete at the receptors correlates with their ability to stimulate locomotion in the mouse; i.e., the higher their capacity to bind at the receptors, the higher their ability to stimulate locomotion."

Theophylline, a close structural relative of caffeine and the major stimulant in tea, was one of the most effective compounds in both regards. There were some apparent exceptions to the general correlation observed between adenosine-receptor binding and stimulation. One of these was a compound called 3-isobutyl-1-methylxanthine (IBMX), which bound very well but actually depressed mouse locomotion. Snyder et al suggest that this is not a major stumbling block to their hypothesis. The problem is that the compound has mixed effects in the brain, a not unusual occurrence with psychoactive drugs. Even caffeine, which is generally known only for its stimulatory effects, displays this property, depressing mouse locomotion at very low concentrations and stimulating it at higher ones.

In response to experimental results concerning IBMX, Snyder et al contended that it is not uncommon for psychoactive drugs to have

1. mixed effects in the brain
[Option ID = 18025]
2. inhibitory effects on enzymes in the brain
[Option ID = 18026]
3. close structural relationships with caffeine
[Option ID = 18027]
4. the ability to dislodge caffeine from receptors in the brain
[Option ID = 18028]

37) Read the passage below and answer the question that follows.

Caffeine, the stimulant in coffee, has been called “the most widely used psychoactive substance on Earth .” Snyder, Daly and Bruns have recently proposed that caffeine affects behaviour by countering the activity in the human brain of a naturally occurring chemical called adenosine. Adenosine normally depresses neuron firing in many areas of the brain. It apparently does this by inhibiting the release of neurotransmitters, chemicals that carry nerve impulses from one neuron to the next. Like many other agents that affect neuron firing, adenosine must first bind to specific receptors on neuronal membranes. There are at least two classes of these receptors, which have been designated A1 and A2. Snyder et al propose that caffeine, which is structurally similar to adenosine, is able to bind to both types of receptors, which prevents adenosine from attaching there and allows the neurons to fire more readily than they otherwise would.

For many years, caffeine’s effects have been attributed to its inhibition of the production of phosphodiesterase, an enzyme that breaks down the chemical called cyclic AMP. A number of neurotransmitters exert their effects by first increasing cyclic AMP concentrations in target neurons. Therefore, prolonged periods at the elevated concentrations, as might be brought about by a phosphodiesterase inhibitor, could lead to a greater amount of neuron firing and, consequently, to behavioural stimulation. But Snyder et al point out that the caffeine concentrations needed to inhibit the production of phosphodiesterase in the brain are much higher than those that produce stimulation. Moreover, other compounds that block phosphodiesterase’s activity are not stimulants.

To buttress their case that caffeine acts instead by preventing adenosine binding, Snyder et al compared the stimulatory effects of a series of caffeine derivatives with their ability to dislodge adenosine from its receptors in the brains of mice. “In general,” they reported, “the ability of the compounds to compete at the receptors correlates with their ability to stimulate locomotion in the mouse; i.e., the higher their capacity to bind at the receptors, the higher their ability to stimulate locomotion.”

Theophylline, a close structural relative of caffeine and the major stimulant in tea, was one of the most effective compounds in both regards. There were some apparent exceptions to the general correlation observed between adenosine-receptor binding and stimulation. One of these was a compound called 3-isobutyl-1-methylxanthine (IBMX), which bound very well but actually depressed mouse locomotion. Snyder et al suggest that this is not a major stumbling block to their hypothesis. The problem is that the compound has mixed effects in the brain, a not unusual occurrence with psychoactive drugs. Even caffeine, which is generally known only for its stimulatory effects, displays this property, depressing mouse locomotion at very low concentrations and stimulating it at higher ones.

According to Snyder et al, all of the following compounds can bind to specific receptors in the brain EXCEPT

[Question ID = 4508]

1. IBMX
[Option ID = 18029]
2. phosphodiesterase
[Option ID = 18030]
3. adenosine
[Option ID = 18031]
4. theophylline
[Option ID = 18032]

38) Read the passage below and answer the question that follows.

Caffeine, the stimulant in coffee, has been called “the most widely used psychoactive substance on Earth .” Snyder, Daly and Bruns have recently proposed that caffeine affects behaviour by countering the activity in the human brain of a naturally occurring chemical called adenosine. Adenosine normally depresses neuron firing in many areas of the brain. It apparently does this by inhibiting the release of neurotransmitters, chemicals that carry nerve impulses from one neuron to the next. Like many other agents that affect neuron firing, adenosine must first bind to specific receptors on neuronal membranes. There are at least two classes of these receptors, which have been designated A1 and A2. Snyder et al propose that caffeine, which is structurally similar to adenosine, is able to bind to both types of receptors, which prevents adenosine from attaching there and allows the neurons to fire more readily than they otherwise would.

For many years, caffeine’s effects have been attributed to its inhibition of the production of phosphodiesterase, an enzyme that breaks down the chemical called cyclic AMP. A number of neurotransmitters exert their effects by first increasing cyclic AMP concentrations in target neurons. Therefore, prolonged periods at the elevated concentrations, as might be brought about by a phosphodiesterase inhibitor, could lead to a greater amount of neuron firing and, consequently, to behavioural stimulation. But Snyder et al point out that the caffeine concentrations needed to inhibit the production of phosphodiesterase in the brain are much higher than those that produce stimulation. Moreover, other compounds that block phosphodiesterase’s activity are not stimulants.

To buttress their case that caffeine acts instead by preventing adenosine binding, Snyder et al compared the stimulatory effects of a series of caffeine derivatives with their ability to dislodge adenosine from its receptors in the brains of mice. “In general,” they reported, “the ability of the compounds to compete at the receptors correlates with their ability to stimulate locomotion in the mouse; i.e., the higher their capacity to bind at the receptors, the higher their ability to stimulate locomotion.”

Theophylline, a close structural relative of caffeine and the major stimulant in tea, was one of the most effective compounds in both regards. There were some apparent exceptions to the general correlation observed between adenosine-receptor binding and stimulation. One of these was a compound called 3-isobutyl-1-methylxanthine (IBMX), which bound very well but actually depressed mouse locomotion. Snyder et al suggest that this is not a major stumbling block to their hypothesis. The problem is that the compound has mixed effects in the brain, a not unusual occurrence with psychoactive drugs. Even caffeine, which is generally known only for its stimulatory effects, displays this property, depressing mouse locomotion at very low concentrations and stimulating it at higher ones.

Snyder et al suggest that caffeine’s ability to bind to A1 and A2 receptors can be at least partially attributed to which of the following?

[Question ID = 4509]

1. The chemical relationship between caffeine and phosphodiesterase
[Option ID = 18033]
2. The structural relationship between caffeine and adenosine
[Option ID = 18034]
3. The structural similarity between caffeine and neurotransmitters
[Option ID = 18035]
4. The natural occurrence of caffeine and adenosine in the brain
[Option ID = 18036]

39) Given below are 4 sentences. Identify in which the use of the word “bow” is wrong or inappropriate and then select the option.

BOW

[Question ID = 4510]

1. All the people of the town bowed before the Saint.
[Option ID = 18037]
2. “That’s a nice bow you’re wearing,” said John.

3. The hunter climbed the bow of a nearby tree to take a good aim.

[Option ID = 18039]

4. When the ship hit the iceberg, the bow was the first part to break off.

[Option ID = 18040]

40) Four parts of the grammatically incorrect sentence are given as options below, find the part of the sentence which is grammatically incorrect?

[Question ID = 4511]

1. Rajiv's hard work

[Option ID = 18041]

2. bore fruit and

[Option ID = 18042]

3. all his bosses

[Option ID = 18043]

4. complimented him for his good work

[Option ID = 18044]

41) Scrutiny : Inspection :: Castigate : [Question ID = 4512]

1. Censure [Option ID = 18045]

2. Adrift [Option ID = 18046]

3. Level [Option ID = 18047]

4. Hubris [Option ID = 18048]

42) In which of the following sentences has the phrasal verb been incorrectly used? [Question ID = 4513]

1. I am filling in for my colleague on Friday [Option ID = 18049]

2. Please can you fill Rashmi in about what transpired in the meeting. [Option ID = 18050]

3. I need your help filling in the form. [Option ID = 18051]

4. Please remember to fill up the blanks. [Option ID = 18052]

43) Choose the word most similar in meaning to the word FIASCO. [Question ID = 4514]

1. Festival [Option ID = 18053]

2. Disaster [Option ID = 18054]

3. Happenstance [Option ID = 18055]

4. Ceremony [Option ID = 18056]

44) Choose the word most nearly opposite in meaning to the word ABOUND. [Question ID = 4515]

1. Rest [Option ID = 18057]

2. Discourage [Option ID = 18058]

3. Bless [Option ID = 18059]

4. Dwindle [Option ID = 18060]

45) Choose the correct alternative which can be substituted for the phrase:

"a life history of a person written by an author".

[Question ID = 4516]

1. Autobiography

[Option ID = 18061]

2. History

[Option ID = 18062]

3. Bibliography

[Option ID = 18063]

4. Biography

[Option ID = 18064]

46) In this question, there is exactly one correctly spelt word. Identify that word from the given options.

i. Variegate

ii. Varegate

iii. Varigate

iv. Variagate

[Question ID = 4517]

1. i.

[Option ID = 18065]

2. ii

[Option ID = 18066]

3. iii

[Option ID = 18067]

4. iv

[Option ID = 18068]

47) In this question, there is exactly one correctly spelt word. Identify that word from the given options.

i. Posesion

ii. Possession

iii. Posession

iv. Possesion

[Question ID = 4518]

1. i

[Option ID = 18069]

2. ii

[Option ID = 18070]

3. iii

[Option ID = 18071]

4. iv

48) In this question a part of the sentence that requires an improvement is underlined. Choose the best option.

Choose "No improvement" if no improvement is needed.

He both won a medal and a scholarship.

[Question ID = 4519]

1. He won a medal and a scholarship both.

[Option ID = 18073]

2. Both he won a medal and a scholarship.

[Option ID = 18074]

3. He won both a medal and a scholarship.

[Option ID = 18075]

4. No improvement

[Option ID = 18076]

49) Read the passage below and answer the question that follows.

Ever since Naomi Osaka won her first title in 2018 at Indian Wells - dubbed the fifth Grand Slam in tennis - and backed up that victory by defeating the legendary Serena Williams in the very next tournament in Miami, she has lived a life under the spotlight.

Anointed the next big thing in women's tennis, she duly won her first Major at the 2018 US Open by beating Serena in the final. Since then, she has won three more hard-court Majors, established herself as one of the world's best, and according to Forbes, is the best-paid female athlete ever, earning \$55 million from endorsements alone in the past 12 months. All through this success, her calm and poise have stood out and the head that wore the crown didn't seem to hang heavy. This was especially true during that US Open final, which will be equally remembered for Serena's running in with the chair umpire and the partisan crowd booing Osaka for denying Serena a record-equalling 24th singles Grand Slam.

Off court, Osaka's was a leading voice in the Black Lives Matter movement against police brutality. Born to a Japanese mother and a Haitian-American father, she has lived nearly all her life in the US. At the 2020 US Open that she won, she wore seven masks for seven matches, each highlighting the name of a victim of racial injustice.

Seen in this context, Osaka's decision ahead of the ongoing French Open to shun the obligatory press conference because she didn't want to "subject herself to people who doubt her" and her refusal to engage on the same with the authorities seemed surprising. For someone who had taken to the big stage like a duck to water and lit up the occasions she graced with refreshing candour, it seemed out of step.

Also, for the first time, Osaka detailed her struggles with depression and anxiety, setting the stage for reflection. The terms of the debate however, had been set by then.

Osaka is probably the first of global tennis superstars to have lived a life entirely under the influence of social media. The absolute control of the message it offers has often led to players shunning conventional media. But as Osaka found out, while one-way communication offers freedom, there is very little space for dialogue and certainly no immunity from the backlash a loosely worded or wrongly timed message can potentially generate.

Naomi Osaka won her first major tennis title in 2018 in

[Question ID = 4520]

1. Indian Wells

[Option ID = 18077]

2. Miami

[Option ID = 18078]

3. The US Open

[Option ID = 18079]

4. The French Open

[Option ID = 18080]

50) Read the passage below and answer the question that follows.

Ever since Naomi Osaka won her first title in 2018 at Indian Wells - dubbed the fifth Grand Slam in tennis - and backed up that victory by defeating the legendary Serena Williams in the very next tournament in Miami, she has lived a life under the spotlight.

Anointed the next big thing in women's tennis, she duly won her first Major at the 2018 US Open by beating Serena in the final. Since then, she has won three more hard-court Majors, established herself as one of the world's best, and according to Forbes, is the best-paid female athlete ever, earning \$55 million from endorsements alone in the past 12 months. All through this success, her calm and poise have stood out and the head that wore the crown didn't seem to hang heavy. This was especially true during that US Open final, which will be equally remembered for Serena's running in with the chair umpire and the partisan crowd booing Osaka for denying Serena a record-equalling 24th singles Grand Slam.

Off court, Osaka's was a leading voice in the Black Lives Matter movement against police brutality. Born to a Japanese mother and a Haitian-American father, she has lived nearly all her life in the US. At the 2020 US Open that she won, she wore seven masks for seven matches, each highlighting the name of a victim of racial injustice.

Seen in this context, Osaka's decision ahead of the ongoing French Open to shun the obligatory press conference because she didn't want to "subject herself to people who doubt her" and her refusal to engage on the same with the authorities seemed surprising. For someone who had taken to the big stage like a duck to water and lit up the occasions she graced with refreshing candour, it seemed out of step.

Also, for the first time, Osaka detailed her struggles with depression and anxiety, setting the stage for reflection. The terms of the debate however, had been set by then.

Osaka is probably the first of global tennis superstars to have lived a life entirely under the influence of social media. The absolute control of the message it offers has often led to players shunning conventional media. But as Osaka found out, while one-way communication offers freedom, there is very little space for dialogue and certainly no immunity from the backlash a loosely worded or wrongly timed message can potentially generate.

Besides tennis, Osaka is also known for her support of

[Question ID = 4521]

1. the fight against umpires

[Option ID = 18081]

2. the fight against the media

[Option ID = 18082]

3. the fight against Serena Williams

[Option ID = 18083]

4. the fight against racial injustice

[Option ID = 18084]

51) Read the passage below and answer the question that follows.

Ever since Naomi Osaka won her first title in 2018 at Indian Wells - dubbed the fifth Grand Slam in tennis - and backed up that victory by defeating the legendary

Anointed the next big thing in women's tennis, she duly won her first Major at the 2018 US Open by beating Serena in the final. Since then, she has won three more hard-court Majors, established herself as one of the world's best, and according to Forbes, is the best-paid female athlete ever, earning \$55 million from endorsements alone in the past 12 months. All through this success, her calm and poise have stood out and the head that wore the crown didn't seem to hang heavy. This was especially true during that US Open final, which will be equally remembered for Serena's running in with the chair umpire and the partisan crowd booing Osaka for denying Serena a record-equalling 24th singles Grand Slam.

Off court, Osaka's was a leading voice in the Black Lives Matter movement against police brutality. Born to a Japanese mother and a Haitian-American father, she has lived nearly all her life in the US. At the 2020 US Open that she won, she wore seven masks for seven matches, each highlighting the name of a victim of racial injustice.

Seen in this context, Osaka's decision ahead of the ongoing French Open to shun the obligatory press conference because she didn't want to "subject herself to people who doubt her" and her refusal to engage on the same with the authorities seemed surprising. For someone who had taken to the big stage like a duck to water and lit up the occasions she graced with refreshing candour, it seemed out of step.

Also, for the first time, Osaka detailed her struggles with depression and anxiety, setting the stage for reflection. The terms of the debate however, had been set by then.

Osaka is probably the first of global tennis superstars to have lived a life entirely under the influence of social media. The absolute control of the message it offers has often led to players shunning conventional media. But as Osaka found out, while one-way communication offers freedom, there is very little space for dialogue and certainly no immunity from the backlash a loosely worded or wrongly timed message can potentially generate.

Some of the issues that Osaka has admitted to struggling with are

[Question ID = 4522]

1. anxiety and anger
[Option ID = 18085]
2. depression and anxiety
[Option ID = 18086]
3. depression and injustice
[Option ID = 18087]
4. racial discrimination and threats
[Option ID = 18088]

52) Read the passage below and answer the question that follows.

Ever since Naomi Osaka won her first title in 2018 at Indian Wells - dubbed the fifth Grand Slam in tennis - and backed up that victory by defeating the legendary Serena Williams in the very next tournament in Miami, she has lived a life under the spotlight.

Anointed the next big thing in women's tennis, she duly won her first Major at the 2018 US Open by beating Serena in the final. Since then, she has won three more hard-court Majors, established herself as one of the world's best, and according to Forbes, is the best-paid female athlete ever, earning \$55 million from endorsements alone in the past 12 months. All through this success, her calm and poise have stood out and the head that wore the crown didn't seem to hang heavy. This was especially true during that US Open final, which will be equally remembered for Serena's running in with the chair umpire and the partisan crowd booing Osaka for denying Serena a record-equalling 24th singles Grand Slam.

Off court, Osaka's was a leading voice in the Black Lives Matter movement against police brutality. Born to a Japanese mother and a Haitian-American father, she has lived nearly all her life in the US. At the 2020 US Open that she won, she wore seven masks for seven matches, each highlighting the name of a victim of racial injustice.

Seen in this context, Osaka's decision ahead of the ongoing French Open to shun the obligatory press conference because she didn't want to "subject herself to people who doubt her" and her refusal to engage on the same with the authorities seemed surprising. For someone who had taken to the big stage like a duck to water and lit up the occasions she graced with refreshing candour, it seemed out of step.

Also, for the first time, Osaka detailed her struggles with depression and anxiety, setting the stage for reflection. The terms of the debate however, had been set by then.

Osaka is probably the first of global tennis superstars to have lived a life entirely under the influence of social media. The absolute control of the message it offers has often led to players shunning conventional media. But as Osaka found out, while one-way communication offers freedom, there is very little space for dialogue and certainly no immunity from the backlash a loosely worded or wrongly timed message can potentially generate.

Find a phrase in in the passage that means the same as 'have a natural talent for'

[Question ID = 4523]

1. the next big thing in women's tennis
[Option ID = 18089]
2. lit up the occasions she graced
[Option ID = 18090]
3. like a duck to water
[Option ID = 18091]
4. refreshing candour
[Option ID = 18092]

53) Read the passage below and answer the question that follows.

Ever since Naomi Osaka won her first title in 2018 at Indian Wells - dubbed the fifth Grand Slam in tennis - and backed up that victory by defeating the legendary Serena Williams in the very next tournament in Miami, she has lived a life under the spotlight.

Anointed the next big thing in women's tennis, she duly won her first Major at the 2018 US Open by beating Serena in the final. Since then, she has won three more hard-court Majors, established herself as one of the world's best, and according to Forbes, is the best-paid female athlete ever, earning \$55 million from endorsements alone in the past 12 months. All through this success, her calm and poise have stood out and the head that wore the crown didn't seem to hang heavy. This was especially true during that US Open final, which will be equally remembered for Serena's running in with the chair umpire and the partisan crowd booing Osaka for denying Serena a record-equalling 24th singles Grand Slam.

Off court, Osaka's was a leading voice in the Black Lives Matter movement against police brutality. Born to a Japanese mother and a Haitian-American father, she has lived nearly all her life in the US. At the 2020 US Open that she won, she wore seven masks for seven matches, each highlighting the name of a victim of racial injustice.

Seen in this context, Osaka's decision ahead of the ongoing French Open to shun the obligatory press conference because she didn't want to "subject herself to people who doubt her" and her refusal to engage on the same with the authorities seemed surprising. For someone who had taken to the big stage like a duck to water and lit up the occasions she graced with refreshing candour, it seemed out of step.

Also, for the first time, Osaka detailed her struggles with depression and anxiety, setting the stage for reflection. The terms of the debate however, had been set by then.

Osaka is probably the first of global tennis superstars to have lived a life entirely under the influence of social media. The absolute control of the message it offers has often led to players shunning conventional media. But as Osaka found out, while one-way communication offers freedom, there is very little space for dialogue and certainly no immunity from the backlash a loosely worded or wrongly timed message can potentially generate.

[Question ID = 4524]

1. because it is more fashionable

[Option ID = 18096]

2. because of the absolute control of the message that it offers

[Option ID = 18093]

3. because there is very little space for dialogue

[Option ID = 18094]

4. because it offers immunity

[Option ID = 18095]

54) Choose the word that is an antonym of 'orthodoxy'[Question ID = 4525]

1. religion [Option ID = 18097]

2. culture [Option ID = 18098]

3. heterodoxy [Option ID = 18099]

4. mythology [Option ID = 18100]

55) From among the four options given, choose the phrase that best explains the word 'Pandemic'[Question ID = 4526]

1. occurring in a particular city [Option ID = 18101]

2. occurring once in a century [Option ID = 18102]

3. occurring on a daily basis [Option ID = 18103]

4. occurring over a wide geographical area [Option ID = 18104]

56) OECD stands for:[Question ID = 4527]

1. The Organization of Economic Co-operation and Development [Option ID = 18105]

2. Organization for Export Creation and Development [Option ID = 18106]

3. Oil Exploration and Crude Derivative [Option ID = 18107]

4. Oil Exporting Countries for Development [Option ID = 18108]

57) MGNREGA is a scheme wherein:[Question ID = 4528]

1. People below the poverty line get free health treatment. [Option ID = 18109]

2. Cooking gas is supplied in Metro cities at subsidized rates to urban poor. [Option ID = 18110]

3. Girl child is given free education and certain amount is deposited in her account [Option ID = 18111]

4. Employment and livelihood is provided to rural labour [Option ID = 18112]

58) Antibody blood test is conducted to check[Question ID = 4529]

1. Any infection in the body [Option ID = 18113]

2. Covid-19 infection in the body [Option ID = 18114]

3. Any previous virus infection in the body [Option ID = 18115]

4. All of these choices [Option ID = 18116]

59) Who is the captain of the Indian National men's football team?[Question ID = 4530]

1. Bhaichung Bhutia [Option ID = 18117]

2. Gurpreet Singh Sandhu [Option ID = 18118]

3. Sunil Chhetri [Option ID = 18119]

4. Anirudh Thapa [Option ID = 18120]

60) Justice Arun Kumar Mishra is[Question ID = 4531]

1. the Ex Chief Justice of India [Option ID = 18121]

2. the Chief Justice designate of India [Option ID = 18122]

3. Chairperson of the National Human Rights Commission of India [Option ID = 18123]

4. a Nominated member of Rajya Sabha [Option ID = 18124]

61) IDBI Bank is[Question ID = 4532]

1. A subsidiary of RBI [Option ID = 18125]

2. A nationalized bank [Option ID = 18126]

3. A public sector bank [Option ID = 18127]

4. A private bank [Option ID = 18128]

62) Om Birla is:[Question ID = 4533]

1. Speaker of lok sabha [Option ID = 18129]

2. Chief Election Commissioner [Option ID = 18130]

3. Famous Indian Industrialist [Option ID = 18131]

4. India's envoy to Pakistan [Option ID = 18132]

63) Azim Premji is[Question ID = 4534]

1. The founder of Wipro [Option ID = 18133]

2. A famous Bollywood music director [Option ID = 18134]

3. An educationist [Option ID = 18135]

4. Indian envoy to the UNO [Option ID = 18136]

64) Tesla is:[Question ID = 4535]

1. an American electric vehicle producing company [Option ID = 18137]

2. a solar energy generation company [Option ID = 18138]

3. is a company founded by Elon Musk [Option ID = 18139]

4. all of these choices [Option ID = 18140]

65) What is the seating capacity of the Narendra Modi Cricket stadium at Motera?[Question ID = 4536]

1. 105000 [Option ID = 18141]

2. 132000 [Option ID = 18142]

3. 110000 [Option ID = 18143]

4. 150000 [Option ID = 18144]

66) There are three coins in a box. One is a two-headed coin, another is a fair coin, and the third is a biased coin that comes up heads 75 percent of the time. When one of the three coins is selected at random and flipped, it shows heads. What is the probability that it was the two-headed coin?[Question ID = 4537]

1. $\frac{1}{9}$

[Option ID = 18145]

2. $\frac{2}{9}$

[Option ID = 18146]

3. $\frac{1}{3}$

4. $\frac{4}{9}$

[Option ID = 18148]

67) If $x = a+b$, $y = a\alpha + b\beta$ and $z = a\beta + b\alpha$, where α and β are complex cube root of unity, then xyz is equal to

[Question ID = 4538]

1. $a^2 + b^2$

[Option ID = 18149]

2. $a^3 + b^3$

[Option ID = 18150]

3. $a^3 b^3$

[Option ID = 18151]

4. $a^3 - b^3$

[Option ID = 18152]

68) The solution of the differential equation $\frac{dy}{dx} = e^{x-y}(e^x - e^y)$ is

[Question ID = 4539]

1. $e^y = (e^x + 1) + c e^{-e^x}$

[Option ID = 18153]

2. $e^y = (e^x - 1) + c$

[Option ID = 18154]

3. $e^y = (e^x - 1) + c e^{-e^x}$

[Option ID = 18155]

4. None of the options

[Option ID = 18156]

69) The value of the integration $\int_0^4 |x-1| dx$ is

[Question ID = 4540]

1. $\frac{5}{2}$

[Option ID = 18157]

2. $\frac{3}{2}$

[Option ID = 18158]

3. $\frac{1}{2}$

[Option ID = 18159]

4. 5

[Option ID = 18160]

70) Let R be a relation on the set N of natural numbers defined by nRm , if n divides m. Then, R is

[Question ID = 4541]

1. Reflexive and symmetric

[Option ID = 18161]

2. Transitive and symmetric

[Option ID = 18162]

3. Equivalence

[Option ID = 18163]

4. Reflexive, transitive but not symmetric

[Option ID = 18164]

71) If $f(x) = lx + m$ and $f(x+2) - f(x) = 2$, then

[Question ID = 4542]

1. $l = 1, m = 0$

[Option ID = 18165]

2. $l = 0, m = 1$

[Option ID = 18166]

3. $l = 0, m = 0$

[Option ID = 18167]

4. $l = 1, m \in \mathbb{R}$

[Option ID = 18168]

72) The sum of the series $1 + 2.2 + 3.2^2 + 4.2^3 + \dots + 100.2^{99}$ is

[Question ID = 4543]

1. $100.2^{100} + 1$

[Option ID = 18169]

2. $99.2^{100} + 1$

[Option ID = 18170]

3. $99.2^{99} - 1$

[Option ID = 18171]

4. $100.2^{100} - 1$

[Option ID = 18172]

73) Ram invested an amount of Rs 12,000 at a rate of 10 p.c.p.a. simple interest and another amount at a rate of 20 p.c.p.a. simple interest. The total interest earned at the end of one year on the total amount invested became 14 p.c.p.a. The total amount invested is [Question ID = 4544]

1. Rs 20,000 [Option ID = 18173]

2. Rs 22,000 [Option ID = 18174]

4. Rs 25,000 [Option ID = 18176]

74) A trader mixes 26kg of rice at Rs 20 per kg with 30 kg of rice of other variety at Rs 36 per kg and sells the mixture at Rs 30 per kg. His profit percent is

[Question ID = 4545]

1. a no profit no loss
[Option ID = 18177]
2. 5%
[Option ID = 18178]
3. 10%
[Option ID = 18179]
4. 8%
[Option ID = 18180]

75) The total population of a village is 5000. The number of males and females increases by 10% and 15% respectively and consequently, the population of the village becomes 5600. What was the number of males in the village?

[Question ID = 4546]

1. 2000
[Option ID = 18181]
2. 2500
[Option ID = 18182]
3. 3000
[Option ID = 18183]
4. 4000
[Option ID = 18184]

76) A national cricket team has 18 players that includes 9 batsmen, 2 wicket keepers, 7 bowlers. The captain, who is a wicketkeeper, is always part of the playing team. The playing 11 must have 5 bowlers, 5 batsmen and one wicketkeeper. For today's game, in how many ways can the playing 11 be chosen?

[Question ID = 4547]

1. 21
[Option ID = 18185]
2. 126
[Option ID = 18186]
3. 2646
[Option ID = 18187]
4. 5292
[Option ID = 18188]

77) 481 students of a school are divided into 4 groups. The first group is $\frac{1}{3}$ of the second group. The ratio of the second group to the third group is 2:3. The fourth group is $\frac{1}{4}$ of the second group. How many students are there in the third group?

[Question ID = 4548]

1. 117
[Option ID = 18189]
2. 52
[Option ID = 18190]
3. 234
[Option ID = 18191]
4. 78
[Option ID = 18192]

78) If the diagonals of the rectangular faces of the brick have a ratio of $\sqrt{5} : \sqrt{10} : \sqrt{13}$,

what is the ratio of the of smallest diagonal to the largest diagonal that can be obtained by joining any two pairs of vertices of the brick?

[Question ID = 4549]

1. $\sqrt{5} : \sqrt{14}$
[Option ID = 18193]
2. $\sqrt{5} : \sqrt{15}$
[Option ID = 18194]
3. $\sqrt{5} : 4$
[Option ID = 18195]
4. $\sqrt{5} : \sqrt{17}$
[Option ID = 18196]

79) The number N leaves a remainder m-1 when divided by m for the values m = 5, 6, 7, 8. What is the smallest value of N?

[Question ID = 4550]

1. 539
[Option ID = 18197]
2. 639
[Option ID = 18198]
3. 739
[Option ID = 18199]
4. 839
[Option ID = 18200]

80) $\lim_{x \rightarrow 0} \frac{\sqrt{x+2} - \sqrt{2}}{x}$ is equal to

[Question ID = 4551]

1. $2\sqrt{2}$
[Option ID = 18201]
2. $\sqrt{2}$

3. $\frac{1}{\sqrt{2}}$

[Option ID = 18203]

4. $\frac{1}{2\sqrt{2}}$

[Option ID = 18204]

81)

If α and β are the roots of the polynomial $x^2 - a(x+1) - b$ then $(\alpha+1)(\beta+1)$ is equal to

[Question ID = 4552]

1. $1 + a$

[Option ID = 18205]

2. $1 - a$

[Option ID = 18206]

3. $1 + b$

[Option ID = 18207]

4. $1 - b$

[Option ID = 18208]

82)

$y = 10^n x - 99 \sum_{k=1}^n [10^{-k} x] 10^{n-k}$, $n = [\log_{10} x]$, where $[.]$ is the greatest integer function. If $x = 111$ what is y ?

[Question ID = 4553]

1. 0

[Option ID = 18209]

2. 100

[Option ID = 18210]

3. 111

[Option ID = 18211]

4. 121

[Option ID = 18212]

83)

Derivative of $\tan^{-1} \left(\frac{1 + \cos x}{\sin x} \right)$ with respect to x is :

[Question ID = 4554]

1. 1

[Option ID = 18213]

2. -1

[Option ID = 18214]

3. $\frac{1}{2}$

[Option ID = 18215]

4. $-\frac{1}{2}$

[Option ID = 18216]

84)

If A is a square matrix such that $A^2 = A$, then the value of $7A - (I + A)^3$, where I is an identity matrix, is

[Question ID = 4555]

1. A

[Option ID = 18217]

2. $-A$

[Option ID = 18218]

3. I

[Option ID = 18219]

4. $-I$

[Option ID = 18220]

85) If the fourth term in an arithmetic sequence is -50 and the eighth term is -10 , what is the fiftieth term?

[Question ID = 4556]

1. 210

[Option ID = 18221]

2. 310

[Option ID = 18222]

3. 410

[Option ID = 18223]

4. 510

[Option ID = 18224]

86) The value of $\log_5(0.008)$ is

[Question ID = 4557]

1. 3

[Option ID = 18225]

2. -3

[Option ID = 18226]

3. 4

[Option ID = 18227]

[Option ID = 18228]

87) Solve $\frac{dy}{dx} = \frac{2}{3}xy^{-2}$

[Question ID = 4558]

1. $y = c\sqrt{\frac{3}{2}x}$

[Option ID = 18229]

2. $y = \sqrt{x^2 + C}$

[Option ID = 18230]

3. $y = \sqrt{3x + 2} + C$

[Option ID = 18231]

4. $y = \sqrt{\frac{2}{3}x + C}$

[Option ID = 18232]

88) The perimeter of a rectangle is 350 meters. The ratio of length to its width is 5:2. Find the area of the rectangle.

[Question ID = 4559]

1. 6250 square meters

[Option ID = 18233]

2. 6520 square meters

[Option ID = 18234]

3. 6025 square meters

[Option ID = 18235]

4. 6052 square meters

[Option ID = 18236]

89) The value of $\int_3^4 \frac{3x+32}{(x+4)(6-x)} dx$ is

[Question ID = 4560]

1. $\frac{49}{486}$

[Option ID = 18237]

2. $\frac{486}{49}$

[Option ID = 18238]

3. $\ln \frac{49}{486}$

[Option ID = 18239]

4. $\ln \frac{486}{49}$

[Option ID = 18240]

90)

Given that $z = 3 + 3i$ is a root of the equation $z^3 - 18z + 108 = 0$, the remaining roots are:

[Question ID = 4561]

1. $6 - 6i, -3$

[Option ID = 18241]

2. $6 - 6i, 3$

[Option ID = 18242]

3. $3 - 3i, -6$

[Option ID = 18243]

4. $3 - 3i, 6$

[Option ID = 18244]

91)

Let $x = 3 \sec \theta$ and $y = 2 \sin \theta$, then $\frac{dy}{dx}$ is

[Question ID = 4562]

1. $\frac{3 \cos^2 \theta}{2 \sin \theta}$

[Option ID = 18245]

2. $\frac{2 \cos^2 \theta}{3 \sin \theta}$

[Option ID = 18246]

3. $\frac{3 \cos^3 \theta}{2 \sin \theta}$

[Option ID = 18247]

4. $\frac{2 \cos^3 \theta}{3 \sin \theta}$

[Option ID = 18248]

92) The average of Seema's three test scores is 78. How much must she score in her fourth and final test to make her average 80?

[Question ID = 4563]

1. 80

[Option ID = 18249]

2. 82

[Option ID = 18250]

[Option ID = 18251]

4. 86

[Option ID = 18252]

93) If $g(x) = 2x - 1$, for what value of x , $g(g(x)) = 9$?

[Question ID = 4564]

1. 3

[Option ID = 18253]

2. 4

[Option ID = 18254]

3. 1

[Option ID = 18255]

4. 5

[Option ID = 18256]

94) For a given data set with values 4, 4, 5, 5, 5, 6, 6, 7, which of the following statement is true?

[Question ID = 4565]

1. Mean < Median < Mode

[Option ID = 18257]

2. Mean and Median will be equal.

[Option ID = 18258]

3. Mode will be less than Median.

[Option ID = 18259]

4. Mean will be higher than Median and Mode.

[Option ID = 18260]

95) If $\cos \theta = -0.35$, then what will be the value of $\cos(\pi - \theta)$?

[Question ID = 4566]

1. -0.35

[Option ID = 18261]

2. 0.35

[Option ID = 18262]

3. 0

[Option ID = 18263]

4. 0.55

[Option ID = 18264]

96) The parametric equations of a line are $x = 3 - t$ and $y = 1 + t$. Find the slope of this line.

[Question ID = 4567]

1. 1

[Option ID = 18265]

2. -1

[Option ID = 18266]

3. 3

[Option ID = 18267]

4. -3

[Option ID = 18268]

97) Which of the following is an odd function?

A. $f(x) = 4x^3 + 9$

B. $g(x) = 3x^6 + 5x^4 - x^2$

C. $h(x) = 11x^5 - 4x^3 + 6x$

Choose the *correct* answer from the options given below:

[Question ID = 4568]

1. B only

[Option ID = 18269]

2. A only

[Option ID = 18270]

3. C only

[Option ID = 18271]

4. A and B only

[Option ID = 18272]

98) An angle of 60 radian is equal to

[Question ID = 4569]

1. $360^\circ/\pi$

[Option ID = 18273]

2. $5400^\circ/\pi$

[Option ID = 18274]

3. $10800^\circ/\pi$

[Option ID = 18275]

4. $3600^\circ/\pi$

[Option ID = 18276]

99) If the equation $2x+3y+1=0$, $3x+y-2=0$ and $ax+2y-b=0$ are consistent, then

[Question ID = 4570]

1. $a-b=2$

2. $a+b+1=0$

[Option ID = 18278]

3. $a+b=3$

[Option ID = 18279]

4. $a-b-8=0$

[Option ID = 18280]

100)

If $a_0, a_1, a_2, a_3, a_4, \dots, a_n$ are real number such that

$$a_0 + \frac{a_1}{2} + \frac{a_2}{3} + \frac{a_3}{4} + \frac{a_4}{5} + \dots + \frac{a_n}{n+1} = 0, \quad (n \neq 1),$$
 then the equation

$$a_0 + a_1x + a_2x^2 + a_3x^3 + a_4x^4 + \dots + a_nx^n = 0$$
 has a real root lying between

[Question ID = 4571]

1. 0,1

[Option ID = 18281]

2. 1,2

[Option ID = 18282]

3. 1,3

[Option ID = 18283]

4. None

[Option ID = 18284]

