CMAT 2021 Slot-1

Quantitative Techniques and Data Interpretation

Instructions

For the following questions answer them individually

Question 1

Two pipes A andBcan fill a tank in 5 hours and 20 hours respectively. Both pipes together can fill the same tank in:

A 4 hours

B 6 hours

C 10 hours

D 2 hours

Answer: A

Question 2

In June-2020, the ratio of boys to girls in a college was 3 : 2. In September-2020, there were 80 fewer boys and 20 fewer girls in the college and the ratio of boys to girls was 7 : 5. What was the total number of students in the college in June-2020?

A 1000

B 1100

C 1200

D 1300

Answer: D

Question 3

M is a 4-digit number. If the left most digit is removed, then the resulting three digit number is $\frac{1}{9}^{th}$ of M. How many such M's are possible?

A 10

B 9

C 8

D 7

Answer: D

Question 4

L and M together can complete a piece of work in 72 days, M and N together can complete it in 120 days, and L and N together in 90 days. In what time can L alone complete the work?

A 150 days

B 80 days

C 100 days

D 120 days

Answer: D

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Question 5

Given below are two statements
Statement I : The set of numbers(5,6, 7, p, 6, 7, 8, g) has an arithmetic mean of 6 and mode (most frequently occurring number) of 7. Then $p \times q = 16$.
Statement II: Let p and q be two positive integers such that $p + q + p \times q = 94$. Then $p + q = 20$.
In light of the above statements, choose the correct answer from the options given below

A Both Statement I and Statement II are true

B Both Statement I and Statement II are false

C Statement I is true but Statement II is false

D Statement I is false but Statement II is true

Answer: B

Question 6

A milkman adds 10 litres of water to 90 litres of milk. After selling $\frac{1}{5}^{th}$ of the total quantity, he adds water equal to the quantity he sold. The proportion of water to milk he sells now would be:

A 72 : 28

B 28 : 72

C 20 : 80

D 30 : 70

Answer: B

Question 7

In a $\triangle ABC$, D, E and F are the mid-points of the sides AB, BC and CA respectively. Then the ratio of the area of a $\triangle DEF$ and the area of a $\triangle ABC$ is:

A 1:4

B 1:2

C 2:3

D 4:5

Answer: A

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Question 8

A 100-meter long train crosses a 200-meter long and 20-meter wide bridge in 20 seconds. What is the speed of the train in Km/hour?

A 45

B 36

C 54

D 57.6

Answer: C

Question 9

Given below are two statements:

Statement I: $\frac{\sqrt{7}+\sqrt{5}}{\sqrt{7}-\sqrt{5}} + \frac{\sqrt{7}-\sqrt{5}}{\sqrt{7}+\sqrt{5}} = 2$

Statement II: If $a+b+c=0$**, then** $(a^3+b^3+c^3) \div abc = 3$

In light of the above statements, choose the correct answer from the options given below

A Both Statement I and Statement II are true

B Both Statement I and Statement II are false

C Statement I is true but Statement II is false

D Statement I is false but Statement II is true

Answer: A

Question 10

Given below are two statements:
Statement I : Acoin is tossed three times. The probability of getting exactly two headsis = d
StatementII: In tossing of 10 coins, the probability of getting exactly 5 heads is §3 256°
In thelight of the above statements, choose the correct answer from the options given below.

A Both Statement I and Statement II are true

B Both Statement I and Statement II are false

C Statement is true but Statement II is false

D Statement I is false but Statement II is true

Answer: A

Question 11

If x^2-3x+2 **is a factor of** x^4-px^2+q**, then (p,q) =**

A (5,2)

B (5,4)

C (-5,-4)

D (-5,4)

Answer: B

Question 12

In a 100 meter race, A beats B by 10 meters and B beats C by 5 meters. By how many meters does A beat C?

A 15.0 meters

B 15.5 meters

C 10.5 meters

D 14.5 meters

Answer: A

Question 13

Mohan bought a trouser at 10% discount and sold it to Sohan at a loss of 10%. If Sohan paid Rs. 729 for the trouser to Mohan, then what was the undiscounted price of the trouser?

A Rs. 900/-

B Rs. 800/-

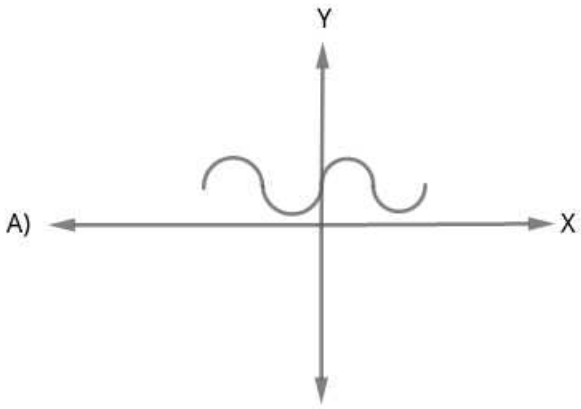
C Rs. 1000/-

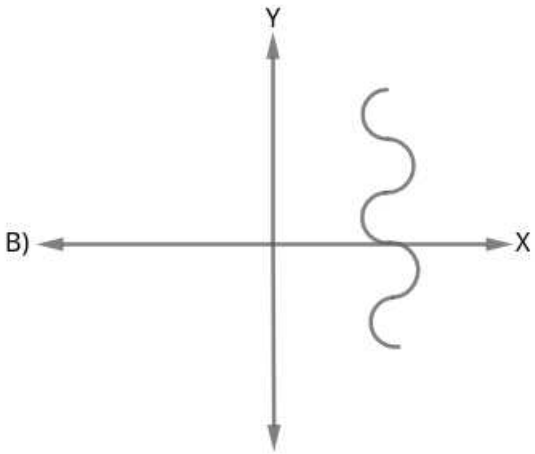
D Rs. 911.25/-

Answer: A

Question 14

Which of the following graphs represent the function of x?





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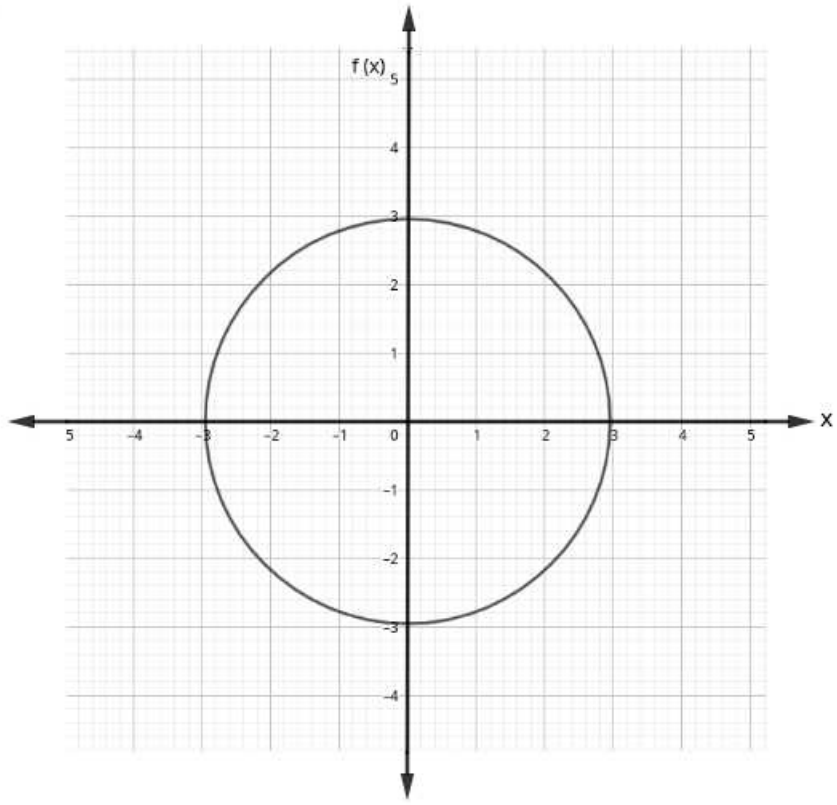
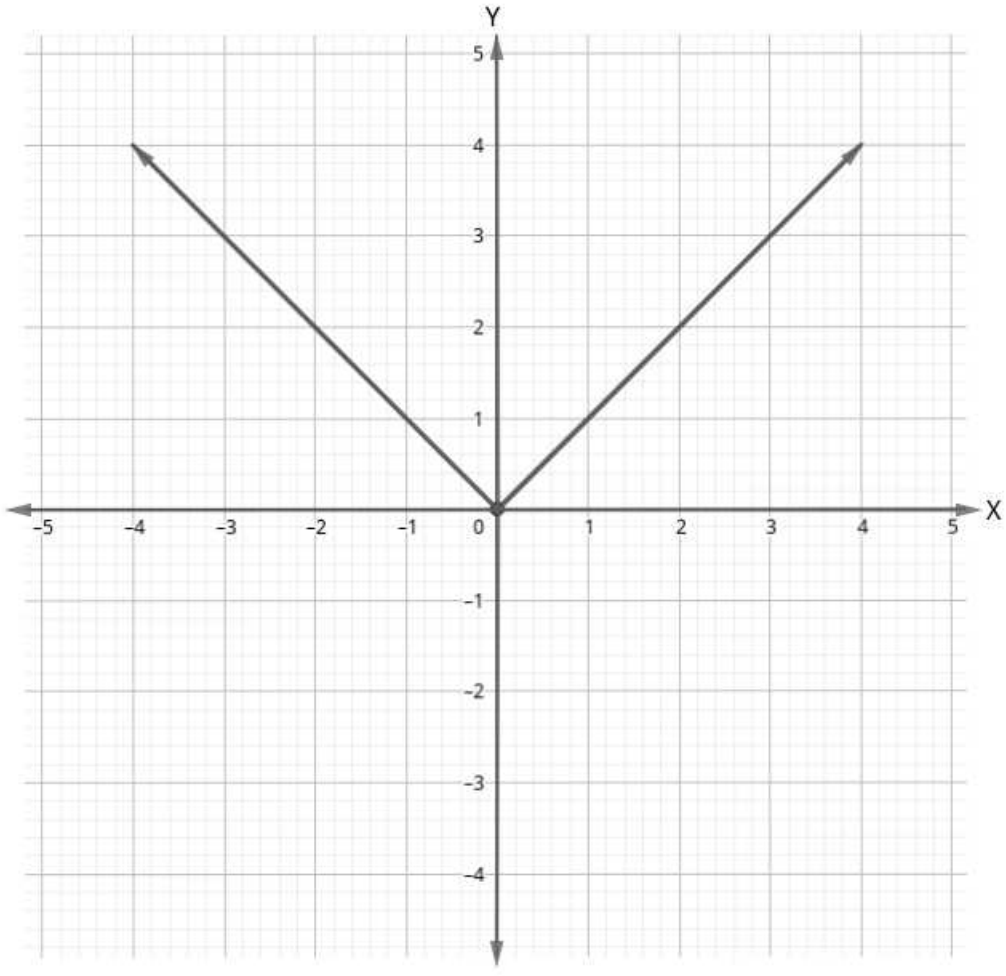


D)



Choose the correct answer from the options given below :

A (A), (B) and (C) only

B (A), (B) and (D) only

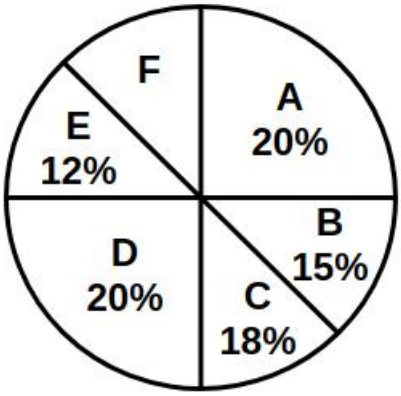
C (A) and (D) only

D (A) and (C) only

Answer: C

Question 15

The following pie-chart indicates the monthly domestic budget of a family:



where A = Food: B = Conveyance; C = Clothing: D = House Rent: E = Miscellaneous Expenses: F = Saving.

If the monthly saving of the family is Rs. 4500, then the monthly income of the family is:

A Rs. 45000

B Rs. 30000

C Rs. 25000

D Rs. 20000

Answer: B

Question 16

Two sisters Neha and Monica walk to school from the house. Neha takes 40 minutes while Monica takes 30 minutes. One day Neha started 5 minutes earlier than Monica. In how many minutes would Monica overtake Neha?

A 5

B 15

C 20

D 25

Answer: B

Question 17

Given below are two statements
Statement I : A committee of 4 can be made out of 5 men and 3 women containing at least one woman in 65 ways.
Statement II : The number of words which can be formed using letters of the word ARRANGE' so that vowels always occupy even place is 36.

In light of the above statements, choose the correct answer from the options given below

A Both Statement I and Statement II are true

B Both Statement I and Statement II are false

C Statement I is true but Statement II is false

D Statement I is false but Statement II is true

Answer: A

Question 18

If $A : B = C : D$, then the value of $\frac{A^2+B^2}{C^2+D^2}$ is

A $\frac{1}{2}$

B $\frac{A+B}{C+D}$

C $\frac{A-B}{C-D}$

D $\frac{A\times B}{C\times D}$

Answer: D

Question 19

The dimensions of a floor are 18×24. What is the smallest number of identical square tiles that pave the entire floor without the need to break any tile?

A 6

B 24

C 8

D 12

Answer: D

Question 20

Which of the following statements regarding quadratic equations are true?
(A) Solution set for the equation $6x^2 - 5x = 4$ is $\left\{-\frac{1}{2}, \frac{4}{3}\right\}$
(B) The nature of the roots of the equation $9x^2 + 6x + 1 = 0$ is equal, real and rational.
(C) If one root of $4x^2 - 3x + K = 0$ is 3 times the other, then $K = \frac{27}{256}$

A (A),(B) and (C)

B (A) and (B) only

C (B) and (C) only

D (C) and (A) only

Answer: B

Question 21

Arrange the following rational numbers in ascendingorder:

(A) $\frac{-4}{5}$

(B) $\frac{-5}{12}$

(C) $\frac{-7}{18}$

(D) $\frac{-2}{3}$

A (A), (B), (D), (C)

B (C), (D), (B), (A)

C (A), (D), (B), (C)

D (D), (C), (B), (A)

Answer: C

Question 22

Match List I with List II.

Let A and B be events with $P(A) = \frac{2}{3}, P(B) = \frac{1}{2}$ **and** $P(A \cap B) = \frac{1}{3}$

List Probability of an event	List-II Value
(A) $P(A \cap B^c)$	(I) $\frac{2}{3}$
(B) $P(A \cup B^c)$	(II) $\frac{1}{3}$
(C) $P(A^c \cap B^c)$	(III) $\frac{5}{6}$
(D) $P(A^c \cup B^c)$	(IV) $\frac{1}{6}$

(Here c stands for complement)

Choose the correct answer from the options given below:

A (A)-(II), (B)-(III), (C)-(IV), (D)-(I)

B (A)-(IV), (B)-(III), (C)-(II), (D)-(I)

C (A)-(I), (B)-(III), (C)-(IV), (D)-(II)

D (A)-(II), (B)-(IV), (C)-(III), (D)-(I)

Answer: A

Question 23

In the year 2020, Production of Sugar (in Million Tonnes) by six major production units A-F of India are shown in the table given below:

Month	A	B	C	D	E	F
April	310	180	169	137	140	120
May	318	179	177	162	140	122
June	320	160	188	173	135	130
July	326	167	187	180	146	130
August	327	150	185	178	145	128

What was approximate percentage decrease in sugar production of unit B in June as compared to April?

A 8%

B 11%

C 15%

D 18%

Answer: B

Question 24

The difference between the compound interest and simple interest for the amount Rs 5000/- in 2 years is Rs. 32. Then the rate of interest per annum is:

A 5%

B 8%

C 10%

D 12%

Answer: B

Question 25

Given below are two statements
Statement I: In the sequence of numbers 30, 90, 182, 306, 462,P..... . the term P is 650.
Statement II : There are 8 digits in 9^8 when it is expressed in decimal form.
In light of the above statements, choose the correct answer from the options given below

A Both Statement I and Statement II are true

B Both Statement I and Statement II are false

C Statement I is true but Statement II is false

D Statement I is false but Statement II is true

Answer: A

Logical Reasoning

Instructions
For the following questions answer them individually