Important CTET Maths Question and Answers with Solution

Q1. Value of $(-3)^3 \times (0.3)^{-2} \times 0.01$ lies:

(a) between —2.5 and —2.25
(b) between 3 and 3.5
(c) between —3.5 and —2.5
(d) between 2.5 and 3.5

Q2. If A and B are digits such that

$$\begin{array}{r} 3\ A \\ +\ B\ 7 \\ \hline 6\ 2 \\ \hline \end{array}$$

then the value of twice of AB is :

(a) 52
(b) 102
(c) 104
(d) 54

Q3. Sum of all the factors of 6 (except itself) is equal to 6. Which of the following numbers depicts the same type of property ?

(a) 27
(b) 36
(c) 32
(d) 28

Q4. A square number is divisible by 6. Then, which of the following statements need not always be true about that square number ?

(a) Itis divisible by 36
(b) Its square root is divisible by 6
(c) Its square root is divisible by 3
(d) Itis divisible by 24

Q5. Which of the following numbers is divisible by 3 and 4 both ?

(a) 1716
(b) 1816
(c) 1713
(d) 1178

Q6. After joining as a chemist in a fire cracker production company, Meenu was told that to make a specific type of gun powder; Carbon, Sulphur and Pottasium Nitrate must to be mixed in the ratio 3 : 2: 1. If 1.2 kg of gun powder is to be made, then how much Sulphur she should add ?

(a) 200g
(b) 300g
(c) 400g
(d) 600g

Q7. When Babu purchased a new Nissan Micra in 2020, its price was 5,00,000 /-. Every year, its price will decrease 4% from that years price. What will be its price (in rupee) in the year 2022 ?

(a) 4,80,000
(b) 4,60,800
(c) 4,60,000
(d) 5,60,800

Q8. A ten litre mixture consists of acid and water only. The acid is 60% in that mixture. If we want to make the percentage of water 25% in the mixture, then how much more acid has to be added to it ?

(a) 3L
(b) 4L
(c) 6L
(d) 7L

Q9. If $x + \frac{y}{2} = \frac{1}{4}, y + \frac{z}{2} = \frac{1}{4} and\ z + \frac{x}{2} = \frac{1}{4}$, then the value of x + y + z is:

(a) 1/4
(b) 1/3
(c) 1/2
(d) 1

Q10. If a and b are positive integers (a and b $\neq$ 0) such that $a^b = 4913$, then $(a+b)^{a-b-14}$ is equal to :

(a) 0
(b) 1
(c) 13
(d) 23

Q11. The measures of four angles of a quadrilateral are in the ratio of 1:2: 3 : 4. What is the measure of the smallest angle ?

(a) 18°
(b) 20°
(c) 36°
(d) 72°

Q12. If a polyhedron has 6 faces and 12 edges, then number of its vertices is :
(a) 4
(b) 8
(c) 14
(d) 18

Q13. In a rectangle ABCD, AC= (2x +3) cm and BD=(3x—5) cm. Then, value of (2x +09) is :
(a) 8
(b) 16
(c) 25
(d) 27

Q14. Bisectors of angles B and C of a triangle ABC intersect at a point O. If ∠BOC=105° then ∠BAC is equal to:
(a) 15°
(b) 30°
(c) 45°
(d) 50°

Q15. If x and y are respectively the supplement and complement of an angle 60° then value of(x+y) is equal to :
(a) 120°
(b) 185°
(c) 145°
(d) 150°

Q16. Area of a rhombus, whose diagonals are of lengths 12 cm and 25 cm, is :
(a) $150\ cm^2$
(b) $100\ cm^2$
(c) $300\ cm^2$
(d) $75\ cm^2$

Q17. MORE is a trapezium in which as MO||RE, MO = 24 units and RE = 18 units. If area of the trapezium is 336 square units, then the distance between MO and RE is :

(a) 12 units
(b) 14 units
(c) 16 units
(d) 18 units

Q18. A gift box of cuboidal shape has to be covered by paper which costs ₹ 0.50 per square centimetre. If the box has dimensions 8cm X 3 cm X 5 cm, then the cost of the paper will be :
(a) ₹ 158.00
(b) ₹ 79.00
(c) ₹ 316.00
(d) ₹ 790.00

Q19. The median of the observations 11, 12, 14, 18, x +2, 22, 22, 25 and 61, arranged in ascending order, is 21. Then, value of 3x +7 is :
(a) 50
(b) 57
(c) 64
(d) 67

Q20. Numbers 3, 4, 5, . . ., 47 are written on separate slips (one number on one slip) and are kept in a box. A slip is drawn from the box, without looking into it. What is the probability of getting a number divisible by 6 ?
(a) 7/44
(b) 7/45
(c) 8/45
(d) 9/44

Q21. $\frac{5}{2} - \frac{2}{5}$ is equal to
(a) $2\frac{1}{10}$
(b) $10\frac{1}{2}$
(c) $10\frac{1}{5}$
(d) $\frac{22}{10}$

Q22. The sum of the greatest 5-digit number and the smallest 3-digit number is
(a) 10098
(b) 10099
(c) 100098
(d) 100099

Q23. How many pieces of wire of length ¾ metres each can be cut from a roll of wire measuring 11 ¼ ?
(a) 15
(b) 12
(c) 11
(d) 10

Q24. (13 hundreds + 13 ones and 13 tens — one thousand) is equal to :
(a) 333
(b) 343
(c) 443
(d) 453

Q25. If 0.239 + 2.93 - 1.29 = 3.92 - k, then what should be added to k to make it 3 ?
(a) 0.995
(b) 0.949
(c) 0.849
(d) 0.959

Q26. What is the sum of the smallest common multiple and the biggest common factor of 60, 72 and 84?
(a) 1272
(b) 2532
(c) 2508
(d) 2544

Q27. Rama has only ₹ 50 and ₹ 100 notes with her. If the total number of notes she has is 25 and the amount of money with her is ₹ 1600, then the number of ₹ 50 and ₹ 100 notes with her are respectively
(a) 10 and 15
(b) 15 and 10
(c) 20 and 5
(d) 18 and 7

Q28. Savita reaches school for a meeting 15 minutes before 9:30 am. She reached half an hour earlier than her colleague who is 35 minutes late for the meeting. What is the scheduled time of the meeting?
(a) 9:05 am
(b) 9:10 am
(c) 9:15 am
(d) 9:25 am

Q29. There are 28 rooms in a school and each room has 6 plants. Each plant needs 180 mL of water daily. If a bottle contains 840 mL water, then what will be the number of such bottles required to water all plants in the rooms for 3 days ?
(a) 108
(b) 112
(c) 115
(d) 118

Q30. Perimeters of a rectangle and a square are equal. Perimeter of the square is 48 cm and the breadth of the rectangle is 4 cm less than the side of the square. Then, the area of therectangle (in cm^2) is
(a) 128
(b) 96
(c) 256
(d) 512

Solutions

S1. Ans.(c)
Sol.

$$(-3)^3 \times (0.3)^{-2} \times (0.01)$$

$$-\frac{27}{0.09} \times 0.01 = -3$$

S2. Ans.(c)
Sol. A= 5 and B= 2
AB = 52 but twice of AB = 2 x 52 = 104

S3. Ans.(d)
Sol. The factors of 28 are: 1, 2, 4, 7, 14, 28.
Sum of the factors excluding 28
1+2+4+7+14=28
Thus, the number 28 satisfies the property that the sum of all its factors (excluding itself) equals the number itself. This type of number is known as a **perfect number**.

S4. Ans.(d)
Sol. It is divisible by 24
$n^2=(6k)^2=36k^2$
n^2 is divisible by 36 but not necessarily by 24.
For example, if n=6, $n^2=36$, which is not divisible by 24.

S5. Ans.(a)
Sol. For option 1716
Sum of digits: 1+7+1+6=15
15 is divisible by 3 and last two digits 16
16 is divisible by 4.

S6. Ans.(c)
Sol. The total parts of the ratio: 3+2+1=6 parts
Weight of one part=1.2/6 kg=0.2 kg
Weight of Sulphur=2×0.2 kg=0.4 kg = 400g

S7. Ans.(b)
Sol. Price in 2021:
Price in 2021=Price in 2020×(1−0.04)
Price in 2021=5,00,000×0.96 = Rs.4,80,000
Price in 2022
Price in 2022=Price in 2021×(1−0.04)
Price in 2022=4,80,000×0.96 = Rs. 4,60,800

S8. Ans.(c)
Sol. Amount of acid in the initial mixture Acid=0.60×10 L=6 L
Amount of water in the initial mixture: Water=0.40×10 L=4 L
Let's assume x liters of acid is added
New total volume=(10+x) L
New amount of acid: (6+x) L
Percentage of water= (Amount of water/ New total volume)×100=25%

$$\frac{4}{10+x} = 0.25$$

4=0.25×(10+x)
4=2.5+0.25x
4−2.5=0.25x
1.5=0.25x
x=6L

S9. Ans.(c)
Sol.

$$x+\frac{y}{2}=\frac{1}{4}, y+\frac{z}{2}=\frac{1}{4} \text{ and } z+\frac{x}{4}=\frac{1}{4}$$

$$x+\frac{y}{2}+y+\frac{z}{2}+z+\frac{x}{2}=\frac{1}{4}+\frac{1}{4}+\frac{1}{4}$$

$$\frac{3x}{2}+\frac{3y}{2}+\frac{3z}{2}=\frac{3}{4}$$

$$x+y+z=1/2$$

S10. Ans.(b)
Sol.

$$a^b = 4913$$

$$(17)^3 = 4913$$

a=17 and b = 3

$$(17+3)^{17-3-14} = (20)^0 = 1$$

S11. Ans.(c)
Sol. The measures of four angles of a quadrilateral = x, 2x, 3x and 4x
$x + 2x + 3x + 4x = 360°$
$10x = 360°$
$x = 36°$ (smallest angle)

S12. Ans.(b)
Sol. V−E+F=2
Given F=6 and E=12
6-12+F = 2
F = 2+6 = 8

S13. Ans.(c)
Sol. Given AC=2x+3 and BD=3x−5
Here diagonals are equal
2x+3=3x−5
x=8
2x+9=2(8)+9=16+9=25

S14. Ans.(b)
Sol.

$\angle BOC = 90° + \frac{1}{2}\angle BAC$

Given $\angle BOC = 105°$

$105° = 90° + \frac{1}{2}\angle BAC$

$15° = \frac{1}{2}\angle BAC$

$\angle BAC = 30°$

S15. Ans.(d)
Sol.
The supplement of an angle 60°

$$x = 180° - 60° = 120°$$

The complement of an angle 60°

$$y = 90° - 60° = 30°$$

$$x + y = 120° + 30° = 150°$$

S16. Ans.(a)
Sol.

Area of rhombus $= \frac{1}{2} \times d_1 \times d_2 = \frac{1}{2} \times 12 \times 25 = 150\ cm^2$

S17. Ans.(c)
Sol.

The area of a trapezium $= \frac{1}{2}(a + b)h$

$$336 = \frac{1}{2}(24 + 18)h$$

672 = 42h Type equation here.

$$h = 16\ units$$

S18. Ans.(b)
Sol. the surface area of a cuboid = 2(lb+bh+hl)

$S = 2(8x\ 3 + 8 x\ 5 + 3 x\ 5) = 2(24+40+15) = 2 x\ 79 = 158\ cm^2$

the cost of the paper required to cover the gift box = 158 x 0.50 = Rs. 79

S19. Ans.(c)
Sol. the median is the 5th observation x + 2 = 21 or x = 19
$3x + 7 = 3 \times 19 + 7 = 57 + 7 = 64$

S20. Ans.(b)
Sol. The total number of numbers = 47-3+1 = 45
The largest number in this range divisible by 6 = 42
the multiples of 6 from 6 to 42 = 6,12,18,24,30,36,42
Count the number of these multiples = 1,2,3,4,5,6,7

$$P = \frac{number\ of\ favorable\ outcomes}{total\ number\ of\ outcomes} = \frac{7}{45}$$

S21. Ans.(a)
Sol.

$$\frac{5}{2} - \frac{2}{5} = \frac{25-4}{10} = \frac{21}{10} = 2\frac{1}{10}$$

S22. Ans.(d)
Sol. Greatest 5 – digit number = 99999
Smallest 3 - digit number = 100
Sum = 99999 + 100 = 100099

S23. Ans.(a)
Sol.

Length of the wire = $11\frac{1}{4} = \frac{45}{4}$

Number of pieces of wire of length $\frac{3}{4} = \frac{45}{4} \times \frac{4}{3} = 15$

S24. Ans.(c)
Sol. 1300 + 13 + 130 – 1000
= 1443 – 1000 = 443

S25. Ans.(d)
Sol.

0.239 + 2.93 - 1.29 = 3.92 – k
⇒ k = 2.041
And 3 – 2.041 = 0.959
So, 0.959 should be added to k to make it 3.

S26. Ans.(b)
Sol. LCM of 60, 72 and 84 = 2520
HCF of 60, 72 and 84 = 12
Sum = 2520 + 12 = 2532

S27. Ans.(d)
Sol.
Let the number of ₹ 50 notes = x
Let the number of ₹ 100 notes = y
ATQ,
x + y = 25 .....(1)
50x + 100y = 1600 .....(2)
Solving equation (1) and eq (2)
X = 18 and y = 7

S28. Ans.(b)
Sol.
Savita reached school = 9:30 – 15 minutes = 9:15
Her colleague reached school = 9:45
Meeting time = 9:45 – 35 minutes = 9:10

S29. Ans.(a)
Sol.
Number of plants = 28 × 6 = 168
Water needed by all plants for one day = 168 × 180 = 30240 ml
Water needed by all plants for three days = 3 × 30240 = 90720 ml
840 ml water is contained = 1 bottle
90720 ml water is contained = $\frac{90720}{840}$ = 108 bottles

S30. Ans.(a)
Sol. Perimeter of square = 4a = 48
a = 12 cm
breath of the rectangle = 12 – 4 = 8 cm
ATQ,
2(l + 8) = 48
L = 16 cm
Area of rectangle = 16 × 8 = 128