Important HTET Quantitative Aptitude Question and Answers with Solution

Q1. 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

Q2. Which of the following numbers is divisible by 3 and 4 both ?
(a) 1716
(b) 1816
(c) 1713
(d) 1178

Q3. 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

Q4. 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

Q5. 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

Q6.
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

Q7.
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

Q8. 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°

Q9. If a polyhedron has 6 faces and 12 edges, then number of its vertices is :
(a) 4
(b) 8
(c) 14
(d) 18

Q10. 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

Q11. 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°

Q12. 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°

Q13. 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) $75\ cm^2$

Q14. 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

Q15. 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

Q16. 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

Q17. 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

Q18. The value of $\frac{\sqrt{768}\times\sqrt{3267}}{\sqrt{144}}$ is
(a) 198
(b) 128
(c) 132
(d) 134

Q19. If $\left(\frac{-3}{2}\right)^{-3} \div x = \left(\frac{9}{4}\right)^{-2}$, then the value of $(2x+5)^{-1}$ is
(a) 2
(b) 1/2
(c) 3/2
(d) 2/3

Q20. If a = 360 and b = 900, then (LCM of a and b) ÷ (HCF of a and b) is equal to
(a) 5/2
(b) 5
(c) 15
(d) 10

Q21. If a 6-digit number 43x82y is divisible by 72, then what is the value of (2x – y)?
(a) 8
(b) 10
(c) 12
(d) 14

Q22. $\frac{\left(\frac{3}{4}\right)^{-3}\times\left(\frac{3}{8}\right)^{2}\div 3^{-2}}{\left(\frac{2}{3}\right)^{2}\times\left(\frac{4}{3}\right)^{-3}}$ is equal to
(a) 9
(b) 12
(c) 16
(d) 24

Q23. One of the factors of $25(x+y)^2 - 36(x-2y)^2$ is
(a) 7x + 11y
(b) 17y – x
(c) 11x + 7y
(d) 11x – y

Q24. $\frac{(x^2-4)(x-1)(x+1)}{(x^2-3x+2)(x+2)}$ is equal to
(a) x – 1
(b) x + 2
(c) x + 1
(d) x – 2

Q25.

If $5x - 6\left(x + \frac{1}{30}\right) = \frac{1}{3}(x + 1)$, then what is the value of (5x + 6)?

(a) 3
(b) 4
(c) 5
(d) 7

Q26. What is the constant term in the following product?

$$\left(2x^2 - 3x - \frac{9}{x}\right) \times \left(\frac{7}{x} - x\right)$$

(a) –9
(b) –12
(c) 12
(d) 16

Q27. After giving a discount of 15% on the marked price of an article, a shopkeeper still gains 19%. By what percent is the marked price above the cost price?
(a) 30%
(b) 35%
(c) 38%
(d) 40%

Q28. If F, V and E represent the number of faces, number of vertices and the number of edges, respectively of a pyramid whose base is a pentagon, then what is the value of (2V – 3F + E)?
(a) 3
(b) 4
(c) 5
(d) 6

Q29. The length of the diagonals of a rhombus are 24cm and 70cm. What is the length of a side of the rhombus?
(a) 28 cm
(b) 35 cm
(c) 37 cm
(d) 47 cm

Q30. The interior angle of a regular polygon exceeds its exterior angle by 108°. The number of sides of the polygon is
(a) 8
(b) 9
(c) 10
(d) 12

Solutions

S1. 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.

S2. 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.

S3. 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

S4. 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

S5. 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

S6. Ans.(c)
Sol.

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

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

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

$x+y+z=1/2$

S7. Ans.(b)
Sol.

$a^b = 4913$

$(17)^3 = 4913$

a=17 and b = 3

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

S8. 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)

S9. Ans.(b)
Sol. V−E+F=2
Given F=6 and E=12
6-12+F = 2
F = 2+6 = 8

S10. 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

S11. Ans.(b)
Sol.

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

Given $\angle BOC = 105°$

$105° = 90° + \frac{1}{2}\angle BAC$

$15° = \frac{1}{2}\angle BAC$

$\angle BAC = 30°$

S12. Ans.(d)
Sol.

The supplement of an angle 60°

$x = 180° - 60° = 120°$

The complement of an angle 60°

$y = 90° - 60° = 30°$

$x + y = 120° + 30° = 150°$

S13. Ans.(a)
Sol.

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

S14. 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.

$h = 16\ units$

S15. 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

S16. Ans.(c)
Sol. the median is the 5th observation x + 2 = 21 or x = 19
3x +7 = 3 × 19 + 7 = 57 + 7 = 64

S17. 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

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

S18. Ans.(c)
Sol. 132

S19. Ans.(b)
Sol.

$\left(\frac{-2}{3}\right)^3 \div x = \left(\frac{4}{9}\right)^2$

$= -\frac{8}{27} \div x = \frac{16}{81}$

$or, -\frac{8}{27} = \frac{16}{81} \times x$

$or, -\frac{8}{27} \times \frac{81}{16} = x$

$or, x = -\frac{3}{2}$

So, the value of $(2x + 5)^{-1}$

$=\left(2 \times \left(-\frac{3}{2}\right) + 5\right)^{-1}$

$=\left(-\frac{6}{2} + 5\right)^{-1}$

$= (5 - 3)^{-1}$

$= (2)^{-1}$

$= \frac{1}{2}$

S20. Ans.(d)
Sol.

LCM of a and b = 1800

HCF of a and b = 180

So,

(LCM of a and b) ÷ (HCF of a and b)

$\frac{1800}{180} = 10$

S21. Ans.(a)
Sol.

According to the question, 43x82y is divisible by 72

Or, 82y is divisible by 8

Or, y = 4

Sum of the digits = 4 + 3 + x + 8 + 2 + 4 = 21 + x

Now, 21 + x is divisible by 9

So, x = 6

Therefore, (2x – y) = 2 x 6 – 4 = 8

S22. Ans.(c)
Sol.

$$\frac{\left(\frac{3}{4}\right)^{-3} \times \left(\frac{3}{8}\right)^{2} \div 3^{-2}}{\left(\frac{2}{3}\right)^{2} \times \left(\frac{4}{3}\right)^{-3}} = 16$$

S23. Ans.(b)
Sol. 17y – x

S24. Ans.(c)
Sol.

$$\frac{(x^2-4)(x-1)(x+1)}{(x^2-3x+2)(x+2)} = x + 1$$

S25. Ans.(b)
Sol. $5x - 6x - \frac{6}{30} = \frac{x}{3} + \frac{1}{3}$

$-x - \frac{1}{5} = \frac{x}{3} + \frac{1}{3}$

$x + \frac{x}{3} = -\frac{1}{3} - \frac{1}{5}$

$\frac{4x}{3} = -\frac{8}{15}$

$x = -\frac{2}{5}$

$5x + 6 = 5 \times -\frac{2}{5} + 6 = -2 + 6 = 4$

S26. Ans.(b)
Sol. Given $\left(2x^2 - 3x - \frac{9}{x}\right) \times \left(\frac{7}{x} - x\right)$

$= \frac{14x^2}{x} - 2x^3 - \frac{21x}{x} + 3x^2 - \frac{63}{x^2} + \frac{9x}{x}$

$= 14x - 2x^3 - 21 + 3x^2 - \frac{63}{x^2} + 9$

$= 14x - 2x^3 + 3x^2 - \frac{63}{x^2} - 12$

Constant term is -12.

S27. Ans.(d)
Sol.

$\frac{MP}{CP} = \frac{100+p\%}{100-D\%}$ $or, \frac{MP}{CP} = \frac{119}{85} = \frac{7}{5}$

Let, MP = 7x

So, CP = 5x

Here, Article is sold at MP

So, SP = 7x

Profit = 7x – 5x = 2x

P% = 40%

S28. Ans.(b)
Sol. A pyramid with a pentagonal base consists of:

- **1 pentagonal base** (which has 5 edges and 5 vertices),
- **5 triangular faces**, one for each side of the pentagon, connected to the apex (the top vertex of the pyramid).

Total number of faces: F=1+5=6

Total number of vertices: V=5+1=6

Total number of edges: E=5+5=10

2V−3F+E=2(6)−3(6)+10 = 12-18+10 = 4

S29. Ans.(c)
Sol.

According to the question, $S = \frac{\sqrt{(24^2+70^2)}}{2} = \frac{74}{2} = 37$

S30. Ans.(c)
Sol. The interior angle of a regular polygon exceeds its exterior angle by 108°. The number of sides of the polygon is 10