Question No.1

A pyramid has an equilateral triangle as its base, of which each side is 8 cm. Its slant edge is 24 cm. The whole surface area of the pyramid (in cm^2) is:

$(16\sqrt{3} + 24\sqrt{35})$

$(12\sqrt{3} + 24\sqrt{35})$

$(24\sqrt{3} + 36\sqrt{35})$

✓ $(16\sqrt{3} + 48\sqrt{35})$

Question No.2

If 80 litres of milk solution has 60% milk in it, then how much milk should be added to make milk 80% in the solution?

- 70 litres
- 50 litres
- 60 litres
- 80 litres

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Question No.3

If the highest common factor (HCF) of x and y is 15, then the HCF of $36x^2 - 81y^2$ and $81x^2 - 9y^2$ is divisible by _____.

- 135
- 120
- 180
- 90

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Question No.4

What is the perimeter of a square inscribed in a circle of radius 5 cm?

- ○ $20\sqrt{2}$ cm
- ○ $40\sqrt{2}$ cm
- ○ $30\sqrt{2}$ cm
- ○ $10\sqrt{2}$ cm

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Question No.5

If the curved surface area of a cylinder is 126 π cm^2 and its height is 14 cm, what is the volume of the cylinder?

- $283\frac{1}{2}$ π cm^3
- $137\frac{1}{2}$ π cm^3
- $128\frac{1}{2}$ π cm^3
- $125\frac{1}{2}$ π cm^3

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Question No.6

Simplify the following.

$$\frac{\sqrt{10+\sqrt{25+\sqrt{108+\sqrt{154+\sqrt{225}}}}}}{\sqrt{16+19.25\times 4^2}}$$

- $\frac{7}{18}$
- $\frac{2}{9}$
- $\frac{5}{18}$
- $\frac{1}{9}$

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Question No.7

A, B, and C invested capital in the ratio of 3 : 4 : 8. At the end of the business term, they received the profit in the ratio of 2 : 3 : 5. What is the ratio of their invested time?

- 15 : 16 : 13
- 13 : 18 : 15
- 16 : 18 : 15
- 16 : 21 : 18

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Question No.8

The probabilities of solving a problem by three students A, B and C are $\frac{3}{7}$, $\frac{5}{9}$ and $\frac{1}{5}$ respectively. The probability that problem will be solved is:

- $\frac{155}{315}$
- $\frac{64}{315}$
- $\frac{251}{315}$
- $\frac{32}{315}$

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Question No.9

Reshma covers 45 km at a speed of 15 km/h by bicycle, 80 km at a speed of 40 km/h by car, and another 6 km at a speed of 2 km/h on foot. Find her average speed for the whole journey (correct to 2 decimal places).

- 16.38 km/h
- 43.50 km/h
- 18.36 km/h
- 15.25 km/h

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Question No.10

A dishonest dealer marks up his goods by 50% and then gives a discount of 20% on the marked price. Apart from this, he uses a faulty balance which reads 1kg for 900 gm. What is his net profit percentage (rounded off to the nearest integer)?

- 24
- 27
- 36
- 33

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Question No.11

If △ABC is right angled at B, AB = 12 cm and ∠CAB = 60°, determine the length of BC.

- ○ $24\sqrt{3}$ cm
- ○ 12 cm
- ○ $12\sqrt{2}$ cm
- ○ $12\sqrt{3}$ cm

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Question No.12

Find the number of diagonals of a regular polygon, sum of whose interior angles is 2700°

- 121
- 119
- 127
- 117

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Question No.13

In 5 years, the simple interest on an amount of Rs. X is $\frac{2}{5}^{\text{th}}$ of the principal. The rate of interest per annum is:

- 12%
- 8%
- 10%
- 5%

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Question No.14

Find the value of given expression. 3 - (- 6){- 2 - 9 - 3} ÷ 7{1 + (- 2)(- 1)}

- -1
- 15
- 7
- 1

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Question No.15

The difference between the length of two parallel sides of a trapezium is 12 cm. The perpendicular distance between these two parallel sides is 60 cm. If the area of the trapezium is 1380 cm^2, then find the length of each of the parallel sides (in cm).

- 27, 15
- 31, 19
- 29, 17
- 24, 12

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Question No.16

For a sample data, mean = 60 and median = 48. For this distribution, the mode is:

- 18
- 48
- 36
- 24

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Question No.17

The centroid of an equilateral triangle PQR is L. If PQ = 6 cm, the length of PL is:

- $4\sqrt{3}$ cm
- $3\sqrt{3}$ cm
- $2\sqrt{3}$ cm
- $5\sqrt{3}$ cm

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Question No.18

Find the exact value of cos 120°.

- 1
- 0
- -0.5
- 0.5

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Question No.19

If $4x^2 + y^2 = 40$ and $xy = 6$, then find the value of $2x + y$.

- 6
- 8
- 5
- 4

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Question No.20

The ratio of the number of coins of 25 paise, 50 paise, Rs. 2 and Rs. 5 is 5 : 4 : 3 : 1, respectively. If the total amount of the coins is Rs. 285, then the difference between the number of 25 paise and Rs. 5 coins is:

- 80
- 30
- 40
- 60

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Question No.21

The average mark obtained by Saloni in four papers is 51, and in the fifth paper, she gets 56 marks. Find her new average in all five papers.

- 51
- 52
- 49
- 50

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Question No.22

A and B can complete a work together in 48 days. A is 4 times as work efficient as B. In how many days can B alone complete the work?

- 220 days
- 320 days
- 240 days
- 120 days

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Question No.23

For what value of m will the system of equations 18x - 72y + 13 = 0 and 7x - my - 17 = 0 have no solution?

- 28
- 24
- 9
- 12

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Question No.24

Successive discounts of 10% and 10% are equivalent to a single discount of:

- 18%
- 19%
- 20%
- 21%

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Question No.25

From the top of an upright pole $24\sqrt{3}$ feet high, the angle of elevation of the top of an upright tower was 60°. If the foot of the pole was 60 feet away from the foot of the tower, what tall (in feet) was the tower?

- $84\sqrt{3}$
- $36\sqrt{3}$
- $44\sqrt{3}$
- $60\sqrt{3}$

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Question No.26

The mode of the following data is _____.

13, 15, 31, 12, 27, 13, 27, 30, 27, 28 and 16

- 28
- 27
- 30
- 31

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Question No.27

Six years ago, the ratio of ages of A to B was 7 : 5. After 4 years from now, the ratio of their ages will be 11 : 9. What is A's age at present?

- $24\frac{1}{2}$ years
- $22\frac{1}{2}$ years
- $23\frac{1}{2}$ years
- $21\frac{1}{2}$ years

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Question No.28

Mrs. Deepa Devi saves 30% of her salary. If she receives Rs. 42,000 per month as her salary, what is her monthly expenditure?

- Rs. 29,200
- Rs. 29,400
- Rs. 29,300
- Rs. 29,100

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Question No.29

Find the amount (integral value only) if a sum of ₹6,500 is being borrowed at 10% interest per annum for 2 years if interest is compounded half-yearly

- ₹8,150
- ₹7,900
- ₹7,650
- ₹8,250

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Question No.30

The number 1254216 is divisible by which of the following numbers?

- 5
- 11
- 16
- 8

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