



### SECTION - C

Question numbers 13 to 22 carry 3 mark each

13. Find the value of  $\sqrt{15625}$  and use it to find the value of  $\sqrt{156.25} + \sqrt{1.5625}$

$$\frac{15625}{10000}$$

14. If  $x - \frac{1}{x} = 3$ , find  $x^2 + \frac{1}{x^2}$  and  $x^4 + \frac{1}{x^4}$

$$12.5 + 0.25 = 13.75$$

15. Find the amount of Rs. 4096 for 18 months at  $12\frac{1}{2}\%$  per annum, the interest being compounded semi-annually.

$$A = 4096 \left(1 + \frac{1}{16}\right)^3 = 4096 \times \frac{17}{16} \times \frac{17}{16} \times \frac{17}{16} = 4913$$

16. Arman purchased an old scooter for Rs. 16,000. If the cost of the scooter depreciates after 2 years to Rs. 14,440, find the rate of depreciation.

$$14440 = 16000 \left(1 - \frac{R}{100}\right)^2 \Rightarrow \frac{19}{20} = 1 - \frac{R}{100} \Rightarrow R = 5\%$$

17. A certain sum amounts to Rs. 12,167 in three years at 15% per annum compounded annually. Find the sum.

18. Divide:  $-21 + 71x - 31x^2 - 24x^3$  by  $3 - 8x$  and write quotient and remainder.

19. The distance between two stations is 340 Km. Two trains start simultaneously from these stations on parallel tracks to cross each other. The speed of one of them is greater than the other by 5 Km/hr. If the distance between the two trains after 2 hours of their start is 30Km, find the speed of each train.

OR

20. Three prizes are to be distributed in a quiz contest. The value of the second prize is five-sixths the value of the first prize and the value of the third prize is four-fifths of that of the second prize. If the total value of three prizes is Rs. 150, find the value of each prize.

21. The denominator of a rational number is greater than its numerator by 6. If the numerator is increased by 5 and the denominator is decreased by 3, the number obtained is  $\frac{5}{4}$ . Find the rational number.

22. Construct a quadrilateral ABCD in which  $AB=3\text{cm}$ ,  $BC=4\text{cm}$ ,  $\angle A = 75^\circ$ ,  $\angle B = 90^\circ$  and  $\angle C = 120^\circ$ .



23. The thickness of a metallic tube is 1cm and the inner diameter of the tube is 12cm. Find the weight of 1m long tube, if the density of the metal be  $7.8\text{g/cm}^3$ .

$$\frac{28600 \text{ cm}^3}{7} = 4085.7 \text{ kg} = 4086 \text{ kg}$$

OR

24. A volume of a metallic cylindrical pipe is  $748\text{ cm}^3$ . If its length is 14 cm, and its external radius is 9cm, find its thickness.

25. A card is drawn at random from a pack of 52 card. Find the probability that the card drawn is :-

- (a) A face card  $\frac{12}{52} = \frac{3}{13}$       (b) A spade  $\frac{13}{52} = \frac{1}{4}$       (c) spade or an ace  $\frac{15}{52}$

OR

26. 17 cards numbered 1,2,3,...,17 are put in a box and mixed thoroughly. One person draws a card from the box. Find the probability that the number on the card is :-

- (a) A prime      (b) Divisible by 3      (c) Odd

$$\frac{7}{17}$$

$$\frac{5}{17}$$

$$\frac{9}{17}$$

$$\frac{3, 4, 9, 12, 15}{17}$$

**SECTION -D**

23. A PT teacher wants to arrange maximum possible number of 6000 students in a field such that the number of rows is equal to the number of columns. Find the number of rows if 71 were left out after arrangement. 5929

24. (a) Factorise :  $x^4 - y^4$   $(x^2+y^2)(x-y)(x+y)$  77

(b) If  $3x+5y=11$  and  $xy=2$  then find  $9x^2 + 25y^2$  61

25. The difference between the Compound Interest and Simple Interest on a certain sum of money at 15% per annum for 3 years is Rs. 283.50. Find the sum. 4000

26. Divide the polynomial :  $8x^2 - 2 - 3x + 12x^3$  by  $4x^2 - 1$ . Also verify your answer.  $3x+2, 0$

27. The parallel sides of a trapezium are 20 cm and 10cm. Its non parallel sides are both equal, each being 13 cm. Find the area of trapezium.  $h=12$   $\frac{1}{2}(20+10)12 = 180$

180 OR

The diagonals of a rhombus are in the ration 3:4. If its perimeter is 40cm, find the lengths of the sides and diagonals of the rhombus.  $x=4, 12, 16, \text{ side } 10$

28. Construct a quadrilateral ABCD in which  $AB=BC=CD=DA=5\text{cm}$  and  $\angle A = 120^\circ$ . What type of quadrilateral is this? Rhombus

29. The area of a trapezium is  $384 \text{ cm}^2$ . Its parallel sides are in the ratio 3:5 and the perpendicular distance between them is 12cm. Find the length of each one of the parallel sides.  $\frac{1}{2} \times 8x \times 12 = 384$   $8x = 64$   $\Rightarrow x = 8$   $24, 40$

30. Draw a Histogram for the following data :

Monthly School Fee (In Rs.)	300-350	350-400	400-450	450-500	500-550
No. of School	7	13	15	20	25

OR

The following table shows the colours preferred by a group of people. Draw a pie chart showing the information.

Colours	Number of People
Blue	9
Red	18
Green	6
Yellow	3