

KAMARAJ COLLEGE (Autonomous)

Accredited with A+ Grade by NAAC

(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)

THOOTHUKUDI – 628 003

(5 Pages)

Reg. No:

Question. Code No : 2400024

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UG Degree - End Semester Examinations , November 2024

First Semester

B.Sc. Mathematics

SEC I - MATHEMATICS FOR COMPETITIVE EXAMINATIONS – I

(For those who joined in July 2024 onwards)

Time : 3 Hours

Maximum : 75 Marks

PART - A (10 × 1 = 10 Marks)

Answer ALL Questions

Choose the correct answer :

1. $156 + 328 \times 0.8 = ?$

(a) 287.2

(b) 352.8

(c) 418.4

(d) 451.2

2. The average of first 8 multiples of 5 is -----.

(a) 22.5

(b) 21.8

(c) 20

(d) 24

3. The product of two consecutive even numbers is 528.

Find the smaller number

(a) 16

(b) 33

(c) 22

(d) 48

4. A number added to its square gives 56. Find the number.
- (a) 11 (b) 7
(c) 9 (d) 12
5. The cost of 20 folders and 15 pens is Rs. 995. What is the cost of 12 folders and 9 pens?
- (a) Rs. 652 (b) Rs. 597
(c) Rs. 447 (d) Rs. 348
6. On selling an article for Rs. 264, a man loses 4%. In order to gain 12%, he must sell the article for -----.
- (a) Rs. 283.85 (b) Rs. 285
(c) Rs. 298.50 (d) Rs. 308
7. If $3A = 4B = 5C$, then $A : B : C =$ -----.
- (a) 3 : 4 : 5 (b) 5 : 4 : 3
(c) 12 : 15 : 20 (d) 20 : 15 : 12
8. Two numbers are in the ratio 4: 5 and their LCM is 180. What is the smaller number?
- (a) 9 (b) 15
(c) 36 (d) 45
9. A number when divided by 6 is diminished by 40, find out the number
- (a) 72 (b) 84
(c) 60 (d) 48
10. 170 % of 1140 -----.
- (a) 1938 (b) 1824
(c) 1968 (d) 1881

PART B - (5X5=25 Marks)

**Answer ALL Questions choosing either (a) or (b).
Answer should not exceed 250 words.**

11. (a) Simplify : $\frac{59 \times 59 \times 59 \times 47 \times 47 \times 47}{59 \times 59 \times 59 \times 47 \times 47 \times 47}$

(OR)

(b) The average of 6 numbers is 16. If one number is excluded, the average becomes 17. Find the excluded number.

12. (a) If 16% of 40% of a number is 8, then find the number

(OR)

(b) 23 times positive integer is more than twice its square by 63. Find the integer.

13. (a) A bicycle is bought for Rs. 1530 and sold for Rs. 1275. Find the loss percent.

(OR)

(b) Find a single discount equivalent to a series discount of 10%, 20% & 40%.

14. (a) If $(3x + 5y) : (3x - 5y) = 5 : 1$, then find $x : y$

(OR)

(b) Divide Rs. 420 among A, B and C in the ratio $\frac{1}{3} : \frac{5}{6} : \frac{7}{9}$

15. (a) Three partners A, B and C invest in a business in such a way that $6 \text{ (A's capital)} = 8 \text{ (B's capital)} = 10 \text{ (C's capital)}$. Find the share of each out of a profit of Rs. 94000.

(OR)

(b) Find (i) ? % of 36 = 6 and (ii) ? % of 25 = 0.5

PART C - (5 × 8 = 40 Marks)

Answer ALL Questions choosing either (a) or (b).

Answer should not exceed 500 words.

16. (a) The price of 10 chains is equal to 4 tables. The price of 15 chains and the total price of 2 tables are together is Rs.4000. Find 18 chains and 6 tables?

(OR)

(b) The average of 11 results is 70. If the average of first 6 results is 68 and that of the last 6 results is 73. Find the 6th result.

17. (a) $\frac{3}{4}$ of a number is 19 less than the number. What is the number?

(OR)

(b) The sum of the digits of a two-digit number is 9. On subtracting 63 from the number, its digits are interchanged. Find the number.

18. (a) A chair is sold for Rs. 705 at a loss of 6%. Find its cost price.

(OR)

(b) If the selling price of 10 apples is the same as cost price of 8 apples, find loss percent.

19. (a) A bag contains one-rupee, 50-p and 25-p coins in the ratio 5 :7 :12 amounting to Rs. 69. Find the number of coins of each type.

(OR)

(b) An employer reduces the number of employees in the ratio of 9 : 8 and increases their wages in the ratio 14 : 15. In what ratio the wages bill is increased or decreased?

20. (a) Two partners A and B started a business by investing Rs. 300000 and Rs. 250000 respectively. At the end of an year, they earned a profit of Rs. 132000. Find the share of each in the profit.

(OR)

(b) The population of a town is 176400. It increases at 5% per annum.

i) What will be its population after 2 years?

ii) What was its population 2 years ago?