ST. JOSEPH'S UNIVERSITY, BENGALURU -27
UG OPEN ELECTIVE - I SEMESTER
SEMESTER EXAMINATION: OCTOBER 2023
(Examination conducted in November/December 2023)
MTOE - 3: QUANTITATIVE METHODS FOR COMPETITIVE EXAMINATIONS

(For current batch students only)

Use of any kind of calculators are NOT allowed

Time: 2 Hours   Max Marks: 60

This paper contains **TWO** printed pages and **THREE** parts.

PART A

Answer any SIX of the following.   **[6X 2=12]**

1. Find the product 6.3204×100.

2. Evaluate $(27)^{2/3}$.

3. A man buys a book for Rs 27.50 and sells it for Rs 28.50. Find the profit?

4. Find the ratio in which the rice of Rs 9.30 per kg be mixed with rice of Rs 10.80 per kg so that the mixture be worth Rs 10 per kg.

5. When a coin is tossed once, what is the probability of getting a head?

6. Simplify $(3x + 2y)(4x^2 + 8y^2)$.

7. What is the sum of all interior angles of heptagon?

8. Find the distance between the points $(2, -2)$ and $(5, 6)$.

PART B

Answer any THREE of the following.   **[3X 6=18]**

9. Find the sum of all odd numbers up to 100.

10. Ram and Shyam appeared an examination. Ram secured nine marks more than Shyam and his marks was 56% of sum of their marks. What are the marks obtained by Ram and Shyam ?

11. Likitha and Nikitha together have 1210 rupees. If $\dfrac{4}{15}$ of Likitha's amount is equal to $\dfrac{2}{5}$ of Nikitha's amount. How much amount does Nikitha have?

12. Ten years ago, the age of mother was three times the age of her son. After ten years, mother's age will be twice that of her son. Find the ratio of mother to son's age.

13. Yash pays Rs 9000 as an amount on the sum of Rs 7000 that he had borrowed for 2 years. Find the rate of interest.
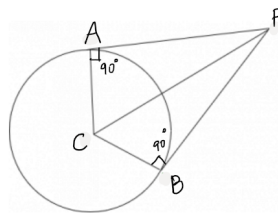
PART C

Answer any FIVE of the following.   **[5X 6=30]**

14. What is the compound interest on Rs 5000 for 2 years at 10% per annum compunded annually.

15. Umesh scored 70 and 75 marks in first and second test respectively. Find the minimum marks he should score in the third test to have an average of atleast 60 marks.

16. In how many different ways can the letters of the word 'OPTICAL' be arranged so that the vowels always come together?

17. Study the bar graph given and answer the following questions

   a) The number of people killed in coal mines in 2006 was what percent of those killed in industrial accidents in that year.
   b) In a year, on a average, how many people were killed in industrial accidents and coal mines together.   **[3+3]**

18. a) What is the volume of the spherical ball having radius 2.1 cm ?
     b) What is the surface area of a cube having side length 8 cm ?   **[3+3]**

19. A man cycles around the boundary of the rectangular park at the rate of 12 kmph and completes one full round in 8 minutes. If the ratio between the lengths and width of the park is 3 : 2. What is the area of the park?

20. What will be the perimeter of the quadrilateral APBC if the radius of circle is 5 cm and length of CP is equal to 13 ?

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