



OEMT311

Reg. No.

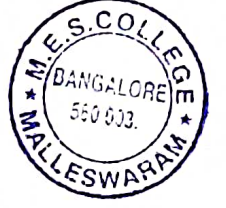
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III Semester B.A. Degree Examination, April- 2023

MATHEMATICS

Quantitative Mathematics (Open Elective)

(NEP Scheme CBCS)



Time : 2½ Hours

Maximum Marks : 60

*Instructions to Candidates:*

Answer all questions.

I. Answer any **five** questions.

(5×3=15)

1.  $\frac{4}{7}$  of a number of 84. Find the number.
2. Multiply  $(3\sqrt{2} - 5\sqrt{3})$  and  $(6\sqrt{3} + \sqrt{7})$ .
3. Find 'x', if  $4^{2x} = \frac{1}{32}$ .
4. Solve for 'x' and 'y' in  $4x - y = 2$  and  $-3x + 2y = 1$ .
5. Find roots for the equation  $m^2 - 2m + 2 = 0$ .
6. A car travels a distance of 500 km in 10 hours. What is its speed in km/hr?
7. If 'A' can do a piece of work in 10 days and 'B' can do a same work in 15 days. Then how many days they will take to do the same work if they work together.

II. Answer any **Three** questions.

(3×5=15)

8. Find the L.C.M. of 219, 1321, 2320 and 8526.
9. If  $3^x \times 3^x \times 9^{2y} = 27$  and  $2^x \times 4^{-y} = \frac{1}{8}$ . Then find the value of 'x' and 'y'.
10. If  $5 + 2\sqrt{6} = (\sqrt{a} + \sqrt{b})^2$  then find the value of 'a' and 'b'.

[P.T.O.]



11. Find the simplest form of a surd  $\frac{\sqrt{3}+1}{\sqrt{3}-1} + \frac{\sqrt{3}-1}{\sqrt{3}+1}$ .

12. Solve  $2 + \sqrt{2} + \frac{1}{2 + \sqrt{2}} + \frac{1}{\sqrt{2} - 2}$ .

III. Answer any **Three** questions.

(3×5=15)

13. Solve the equation  $\frac{4t}{t^2 - 25} = \frac{1}{5 - t}$ .

14. Solve the equation  $\frac{1}{x-2} + \frac{2}{x-1} = \frac{6}{x}$ .

15. Solve the equation  $3x^2 + 12x + 9 = 0$  and hence find the value of 'a' in  $ax^2 + 3x + 2 = 7$ .

16. Solve the equation  $x - y = 9$  and  $x + y = 3$  and find the value of 'k' in  $2x + 7y + k = 3$ .

17. The age of the father is 4 times that of his son. Five years ago father was 7 times as old as his son. Find their present age.

IV. Answer any **Three** questions.

(3×5=15)

18. If 'x' is 5% of 'y' and 'y' is 24% 'z'. if 'x' = 480. Find the value of 'y' and 'z'.

19. The average weight of P, Q and R is 50 kg. If average weight of P and Q is 55 kg and average weight of Q and R is 43 kg. Find the weight of Q.

20. Two trains are running in opposite directions with the same speed. If the length of the each train is 135 m and they cross each other in 18 second what is the speed of each train?

21. A and B can do a work in 15 days, B and C in 20 days, C and A in 12 days. In how many days can they complete it if they work together.

22. Find the angle between the hour hand and the minute hand of a clock, when the time is 4 hours 35 minutes.

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