

**OEMT311**

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III Semester B.A. Degree Examination March/April - 2024**MATHEMATICS****Quantitative Mathematics(Open Elective)****(NEP CBCS Semester Scheme)****Time : 2½ Hours****Maximum Marks : 60****Instructions to Candidates:****Answer ALL questions.****I. Answer any FIVE questions****(5×3=15)**

1. Find the LCM of 34 and 46.
2. Rationalize $\frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}+\sqrt{2}}$
3. Find x if $4^{2x} = \frac{1}{32}$
4. Solve for x and y in $x - y = 24$ and $x - 4y = 3$.
5. Find roots for the equation $m^2 - 2m + 1 = 0$.
6. A Car travels a distance of 500 km in 10 hours. What is its speed in km/hr.
7. The Salary of Rohith is increased from 3500 to 4025. Find the increase in percentage.

II. Answer any THREE questions.**(3×5=15)**

8. If the HCF and LCM of two numbers are 3 and 60 respectively and one number is 12, then find the other number.
9. Simplify: $\frac{4^5 \times (64)^3 \times 2^4}{8^6 \times (128)^2}$
10. If $5 + 2\sqrt{6} = (\sqrt{a} + \sqrt{b})^2$ then find the value of a and b .
11. Check whether 99992 is divisible by 8.
12. If $\frac{144}{0.144} = \frac{14.4}{x}$ then find value of x

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**III. Answer any THREE questions.****(3×5=15)**

13. Solve: $\frac{x}{5} + \frac{5}{x} = \frac{x}{6} + \frac{6}{x}$

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

15. Solve $4x - 3y = 8$ and $3x - 4y = -1$ by using elimination method.

16. The Sum of ages of a Son and Father is 56 years, after 4 years the age of the father will be 3 times that of the son. Find their ages.

17. Find the roots of $x^2 - 11x + 30 = 0$ by formula method.

IV. Answer any THREE questions.**(3×5=15)**

18. The Salary of a worker is Rs.2,000. If it is first increased by 10% and then decreased by 10%. What is change in his salary.

19. A bus travels for 7 hours. The first half at 30 km/hr and the second half at 40 km/hr. Find the distance travelled by the bus.

20. If 3 men or 4 women can complete a certain job in 43 days, how long 7 men and 5 Women together can complete the job.

21. Two trains are running in opposite directions with the same speed. If the length of each train is 135 meters and they cross each other in 18 seconds. What is the speed of each train?

22. Find the angle between the hour hand and minute hand of a clock when the time is 2 hours and 20 minutes.
