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OEMT311

Reg. No.

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IV Semester B.Com./B.B.A. Degree Examination, September - 2023

**MATHEMATICS**  
**Quantitative Mathematics**  
**(Open Elective)**  
**(NEP CBCS Scheme)**



Time : 2½ Hours

Maximum Marks : 60

**Instructions to Candidates:**

Answer **All** the questions.

**I. Answer any Five questions.**

**(5×3=15)**

1. Find the LCM of 42, 56, 91 and 126.
2. Find the cube root of  $\sqrt[3]{884736}$ .
3. If  $xy = \frac{14}{15}$ ,  $\frac{x}{y} = \frac{35}{24}$ , then find the value of 'x' and 'y'.
4. Solve the equation  $3x^2 + 7x + 4 = 0$ .
5. Find the value of 'k' in  $3k + 2 + 2x^2 + 3(x + 2) = 10$ , where  $x = 1$ .
6. Solve 28% of 450 + 45% of 280.
7. A train travels for 6 hours at 90 km/hr. Find the distance.

**II. Answer any Three questions.**

**(3×5=15)**

8. The LCM of two numbers is 48. The numbers are in ratio 2:3. Then the sum of the numbers and product of the numbers is.
9. a. If  $a^x = 25$ ,  $b^y = 36$ ,  $c^z = 49$ . Then find the value of  $ax^2 + by^2 + cz^2$ .  
b. If  $\frac{5+3\sqrt{3}}{7+4\sqrt{3}} = a + b\sqrt{3}$ , find the value of  $3b - 2a$ .

[P.T.O.]



10. If  $\sqrt{1 + \frac{55}{729}} = 1 + \frac{x}{27}$ , then find the value of 'x' and hence find  $x^2 + 3x + 7$ .
11. If fraction 'A' is twice the fraction 'B' and the product of two fractions is ' $\frac{2}{25}$ '. Then what is the value of fraction 'A' and 'B'.
12. Simplify  $\frac{(0.05)^3 + (0.04)^3}{(0.05)^2 + 0.05 \times 0.04 + (0.04)^2}$  and find the value of  $a^2 + 2ab + b^2$ .

III. Answer any Three questions.

(3×5=15)

13. Solve the equation  $\frac{1}{x-2} + \frac{2}{x-1} = \frac{6}{x}$
14. Solve the equation  $3^{2x+1} - 3^x = 3^{x+3} - 3^2$ .
15. The cost of 5 kg sugar and 7kg rice is Rs. 153 and the cost of 7 kg Sugar and 5 kg of rice is Rs. 147. Find the cost of 6 kg of sugar and 10 kg of rice.
16. The age of a person 'A' was 7 times that of 'B' 5 years ago. At present the age of 'A' is 4 times that of 'B'. What are present ages of 'A' and 'B'.
17. Solve  $2(x+1)^2 = -34$ . Then find the value of 'a' in  $(a-x)^2 + 2x + 7 = 0$ .

IV. Answer any Three questions.

(3×5=15)

18. a. The average weight of P, Q and R is 50 kg. If average of P and Q is 55 kg and that of Q and R is 43 kg find the weight of 'Q'.
- b. If x is 90% y, then what percent of 'x' is 'y'.
19. If 4 men and 6 women can complete a work in 8 days, while 3 men and 7 women can complete it in 10 days. In how many days will 10 women complete it?
20. a. Find the angle between the hour hand and the minute hand of a clock when the time is 4:55.
- b. What was the day of the week on 13<sup>th</sup> September 1986?
21. a. A train 360 m long is running at a speed of 45 km/hr. In what time will it Pass a bridge 140 m long.
- b. A bus travels at a speed of 60000 m/s in 10800 seconds, then find the distance in km.
22. 12 men and 6 women can do a work in 14 days, while 8 men and 9 women can do the same work in 16 days. If a man gets Rs. 54 perday. What should be the wage of women per day.
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