ED-973

Bachelor of Business Administration
1st Semester Examination, March-April 2021

Paper - III

Business Mathematics

Time : Three Hours]   [*Maximum Marks* : 90
                                     [*Minimum Pass Marks* : 32

Note : Answer **all** questions. All questions carry equal
marks. Logarithm/Antilog table may be used.

Unit-I

1. Discuss minor and co-factor of a determinant
   with example. Also explain the rules to find
   the value of a determinant.

OR

Find the product of *AB* and *BA* of two matrix
A and *B* where :

$$A = [1 \ 2 \ 3 \ 4] \qquad B = \begin{bmatrix} 1 \\ 2 \\ 3 \\ 4 \end{bmatrix}$$

(2)

Unit-II

2. (*a*) An agent is paid commission of 5% on cash sales and 4% on credit sales. If on a total sales of ₹ 50,000 he is paid ₹ 2,400. Find the amount of cash and credit sales.

   (*b*) Mr. Narendra gets $8\frac{1}{4}$% commission on sales and 1% bonus on sales above ₹ 5,000. He receives ₹ 600 as commission and bonus. Find the amount of sales.

OR

Betul Traders sells two scooters at a price of ₹ 9,900 each. In this transaction there is a profit of 10% on one scooter and a loss of 10% on the other (second scooter). What is the profit or loss on the whole transaction and what percent ?

Unit-III

3. (*a*) If 1 is added to the numerator of a fraction it becomes 1 and if 4 is added to the denominator it becomes $\frac{1}{2}$. Find the fraction.

   (*b*) Solve the following equation by elimination method :

$$x + y = 10$$
$$x + 2y = 4$$

OR

DRG_204_(4)   *(Continued)*

(3)

Find the value of *x* with the help of logarithms :

$$x = \frac{1.5 \times 1.2}{0.0036}$$

Unit-IV

4. (*a*) The average temperature of Monday, Tuesday & Wednesday was 40°C and Tuesday, Wednesday & Thursday was 41°C, the temperature of Thursday was 42°C. Find the temperature of Monday.

(*b*) The average of three numbers is double of the fourth number. If the average of all the four numbers is 28. Find the fourth number.

OR

(*a*) The cost of a cinema ticket was ₹ 5.00 This was reduced by 20% with result that the total sale proceeds are increased by 20%. What was the percentage increase in audience ?

(*b*) Divide ₹ 7,860 between ABC and D in such a way that A and B combined get 3 times than what C and D get combined. And B gets 4 times to C and C gets 11 times to D.

DRG_204_(4) *(Turn Over)*

(4)

Unit-V

5. (*a*) Shyam lent out ₹ 1,000 to Mohan for 2 years and ₹ 300 for 3 years at simple interest. He got ₹ 217.50 in all as interest. Find the rate of interest.

   (*b*) A certain sum at 4% simple interest per annum becomes ₹ 3,136 in 3 years. Find the sum.

OR

Find the compound interest on ₹ 6,950 @ 12% per annum for 1 year and 9 months while the interest is due quarterly.

_____