



DD-973

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

BUSINESS MATHEMATICS

(103)

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

Note : Answer **all** questions. All questions carry equal marks. Graph paper and Log tables to be provided.

Unit-I

1. A manufacturer produces three products A , B , C which are sold in Delhi and Mumbai. The annual sales of the products are given below. If the sale prices of the products A , B , C per unit is ₹ 2, ₹ 3 and ₹ 4 respectively. Calculate total revenue at each place by using matrix :

DRG_174_(4)

(Turn Over)

(2)

Commodities

	A	B	C
Delhi	5000	75000	15000
Mumbai	9000	12000	8700

OR

Prove that :

$$\begin{vmatrix} b+c & a & a \\ b & c+a & b \\ c & c & a+b \end{vmatrix} = 4abc$$

Unit-II

2. What do you understand by LPP ? Explain its main characteristics and scope in context of business.

OR

Solve the following Linear Programming Problem with the help of graphical method :

Maximize $z = 80x_1 + 100x_2$

Subject to,

$$x_1 + 2x_2 \leq 720$$

$$5x_1 + 4x_2 \leq 1800$$

$$3x_1 + x_2 \leq 900$$

$$\text{and } x_1, x_2 \geq 0$$

(3)

Unit-III

3. $\frac{3614 \times (46.28)^2}{102.32 \times 16.82}$

Find the value with the help of logarithm tables.

OR

(a) Find the value of

$$\frac{1}{\sqrt{3}} \times \left(\frac{81}{16}\right)^{3/4} \times \left(\frac{16}{81}\right)^{-1/4} \times \sqrt{\frac{16}{81}} \times \sqrt{\frac{4}{3}}$$

(b) Simplify without use of log tables :

$$\frac{8 \log 2 - 2 \log 4}{\log 2}$$

Unit-IV

4. (a) Average age of women and children workers employed in a factory was 15 years. The average of 16 children was 8 years and the average age of remaining women workers was 22 years. If there are 10 married women amongst women workers. Find the number of the unmarried women workers. Also find out the number of total workers.

(b) Write short notes on ratio and proportion.

OR

(4)

- (a) In an election there were two candidates. A candidate secured 40% of total votes and lost election by 15000 votes. How much votes were casted in favour of winning candidate ?
- (b) A farmer sold his cow for ₹ 4,000 with certain amount of profit. Had he sold it for ₹ 3,400, he would have incurred a loss of one half of the profit he got. Find his cost price. At what price he have sold it to secure 20% profit ?

Unit-V

5. At what rate of compound interest per annum will a sum of ₹ 1,580 amounts to ₹ 1,778 in two years. If the interest is compounded half yearly.

OR

A father left ₹ 15,860 for his three sons *A*, *B*, *C* aged 16 years, 15 years and 14 years respectively with the directions that the sum would be divided in such a way that three sons get the same amount (Principal + Interest) when they are adult (18 years old). Assuming the rate of simple interest at 5% per annum. Calculate their initial sums (Principals).