



BUSINESS MATHEMATICS HSSC-I

Time allowed: 2:15 Hours

Total Marks Sections B and C: 40

NOTE: Attempt any eight parts from Section 'B' and any two questions from Section 'C' on the separately provided answer book. Use supplementary answer sheet i.e. Sheet-B if required. Write your answers neatly and legibly.

SECTION – B (Marks 24)

Q. 2 Attempt any EIGHT parts. All parts carry equal marks.

(8 x 3 = 24)

- (i) A milkman mixes milk with water in the ratio 7:2 respectively. He has 81 litres of mixed milk. What is the quantity of pure milk?
- (ii) Assad's monthly salary is Rs. 5800 per month and his boss promises him a 12% raise at the first of next year. What will be his monthly salary after the raise?
- (iii) A house was sold for Rs. 220000 by an agent, who received a commission of $1\frac{1}{2}\%$. How much commission did he receive?
- (iv) At what annual rate of interest would Rs. 780 amount to Rs. 1320 in 2 years and 3 months?
- (v) Mr. Munir has invested Rs. 25000 at 6% compounded annually. What amount would he received after 4 years?
- (vi) A company is expected to pay Rs. 4 every year on a share of its stock. What is the present value of its stock if money is worth 5% compounded semi-annually?
- (vii) Find the slope and y-intercept of the straight line $4x - 3y - 7 = 0$.
- (viii) Find the market equilibrium point for the following demand and supply functions:
Demand: $P = -3q + 26$
Supply: $P = 4q - 9$
- (ix) Solve $4x^2 - 6x - 5 = 0$ by using quadratic formula.
- (x) Convert $(101101.01)_2$ into a decimal number.
- (xi) Check the singularity of the matrix $A = \begin{bmatrix} 3 & -3 \\ -5 & -5 \end{bmatrix}$.

SECTION – C (Marks 16)

Note: Attempt any TWO questions. All questions carry equal marks.

(2x 8 = 16)

- Q. 3** a. A man needs to borrow Rs. 30,000 for two years. Show by calculation which one of the following loans is more advantageous to him? (04)
- (i) 4.1% simple interest
 - (ii) 4% per annum compounded semi-annually
- b. Find the value of $[(101010011)_2 + (1011111)_2] - (199)_{10}$ by changing into binary number system. (04)
- Q. 4** a. Solve the system of linear equations by Cramer's rule: $x + 3y = 7$ (04)
 $2x - 5y = 12$
- b. If Rs. 300 is deposited in the beginning of each quarter in an account which earns interest at the rate of 8% compounded quarterly. What will be the amount after the end of $3\frac{1}{2}$ years? (04)
- Q. 5** a. If $A = \begin{bmatrix} 1 & -1 & 2 \\ 2 & 1 & 0 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 2 \\ 2 & 0 \\ -1 & 1 \end{bmatrix}$ then verify that $(AB)^t = B^t A^t$. (04)
- b. A manufacturer offered $33\frac{1}{3}\%$ commission to an agent to sale his old stock. The agent received Rs. 15000 as commission. Find the amount received by the manufacturer. (04)