| Roll No. | | | | | | | | Answer Sheet No._____ |

**Sig. of Candidate._____**   **Sig. of Invigilator._____**

# BUSINESS MATHEMATICS  HSSC–I

## SECTION – A (Marks 10)

**Time allowed: 15 Minutes**

NOTE:  Section–A is compulsory. All parts of this section are to be answered on the question paper itself. It should be completed in the first 15 minutes and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. Do not use lead pencil.

**Q. 1**   **Circle the correct option i.e. A / B / C / D. Each part carries one mark.**

(i)   A bag of sand weighs 16 kg and a bag of cement weighs 20 kg. The ratio of weight of cement to that of sand is _____.

   A.   9:4        B.   5:4        C.   4:5        D.   9:5

(ii)   The population of a city is increased from 28600 to 31317. The percentage increase is _____.

   A.   8.6%        B.   9.5%        C.   9.1%        D.   29.5%

(iii)   When the Principal remains fixed for the entire period, it is _____.

   A.   Simple interest        B.   Compound interest

   C.   Annuity        D.   None of these

(iv)   A payment of Rs. 500 is made in January, Rs. 500 in February, Rs. 500 in April, Rs. 500 in August and so on, is an example of _____.

   A.   Ordinary Annuity        B.   Annuity Due

   C.   Present Value of Annuity        D.   None of these

(v)   Graph of a function $y = 9 + 3x + 5x^2$ is a parabola, which opens _____.

   A.   Downward        B.   Upward

   C.   Rightward        D.   Leftward

(vi)   If 3 is subtracted 7 times from a number, the result is equal to the sum of 5 times the number and 9. The number is _____.

   A.   9        B.   5        C.   $\frac{1}{6}$        D.   6

(vii)   The roots of the equation $3x^2 + 4x + 5 = 0$ are _____.

   A.   Real and equal        B.   Real and unequal

   C.   No real roots        D.   Rational roots

(viii)   The graphical solution of simultaneous equations is _____.

   A.   Point of intersection of lines        B.   y – intercepts of lines

   C.   x – intercepts of lines        D.   Slopes of lines

(ix)   After dividing the binary number $(10010110)_2$ by $(1011)_2$ the remainder is _____.

   A.   $(1101)_2$        B.   $(111)_2$        C.   $(101)_2$        D.   $(100)_2$

(x)   If A and B are two matrices and AB=BA it only satisfies, when _____.

   A.   A and B are square matrices        B.   A and B are transpose of each other

   C.   Either A or B is an identity matrix        D.   A and B are equal matrices

**For Examiner's use only:**

Total Marks:        | 10 |

Marks Obtained:        | |

**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)    Out of 80,000 seats in a cricket stadium, 12% seats were occupied by VIPs and 39040 seats by general public. What percentage of the stadium remained unoccupied?

(ii)    The sum of Rs. 24000/- amounts to Rs. 42000/- in 8 years and 6 months. Find the rate of interest.

(iii)    A profit of Rs. 24000/- is to be distributed among four partners, A, B, C and D in the ratio of 3:4:2:1, respectively. How much profit will each partner get?

(iv)    Find the equation of straight line passing through $(-3, 4)$ and its slope is $\dfrac{2}{3}$. Also find its point when x=3 and x=5.

(v)    Solve $(1280)_{10} - \left[ \left\{ (10111)_2 \times (101)_2 \right\} + (400)_{10} \right]$ by changing the decimal numbers in binary numbers.

(vi)    The area of a plot of land is 126 square metre. If the breadth of plot is 5 metre less then its length, what is its length and breadth?

(vii)    The sum of the ages of a girl and her brother is 26 years. Three years ago, her age was four times the age of her brother. Find their present ages.

(viii)    Mr. Khan purchases 10 colour T.V for his shop for Rs. 25000/- each. He wants to sell them at 25% profit. He offers a discount of 5% to his customers. What net amount would he gain?

(ix)    Mr. Zafar purchased a car on installment bases, which required a monthly installment of Rs. 5000/- for 3 years to pay off. What is the present cach price of the car, if the interest is 12% compounded monthly?

(x)    The sum of three consecutive even integers is 30. Find the integers.

(xi)    If $A = \begin{bmatrix} 1 & -2 \\ 2 & 1 \end{bmatrix}, B = \begin{bmatrix} 4 & 7 \\ -3 & 2 \end{bmatrix}, C = \begin{bmatrix} 6 & 8 \\ 5 & 9 \end{bmatrix}$ prove that $A(B+C) = AB + AC$

### SECTION – C (Marks 16)

**Note:**    **Attempt any TWO questions. All questions carry equal marks.**      ( 2x 8 = 16 )

**Q. 3**    Draw the graph of the equation $y = x^2 - 4x + 3$ by taking the value of $x$ from $-3$ to $3$. Also find the vertex.

**Q. 4**   **a.**    In what time will Rs. 30000/- amount to Rs. 36465/- at 5% interest compounded quarterly?

      **b.**    Mr. Asif has borrowed Rs. 80,000/- from a bank. He will have to pay back the loan in equal monthly installments in a period of 10 years. If the rate of interest is 12% compounded monthly, what amount he has to pay each month?

**Q. 5**   **a.**    If the demand for a bag of flour is given by the function 2P+5q = 200, and supply function for it is P-2q=10 then:

         (i)    Compare the quantity demanded and quantity supplied, when price is Rs 60.

         (ii)    Will there be a surplus or shortage at this price?

         (iii)    Find the Market-Equilibrium Point.

      **b.**    A sales girl got salary and a commission of 5% on her sale. If she made a sale of Rs. 25000/- and got a total of Rs. 5250/- what was her salary.