# 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)     The comparison of two similar quantities is called:

    A.    Percentage                B.    Ratio

    C.    Proportion              D.    Interest

(ii)    If the simple interest on Rs 15000 for 3 years is Rs 900, the rate is:

    A.    10%                  B.    7%

    C.    2%                   D.    4%

(iii)   Amount paid to an agent as the remuneration of his services is called:

    A.    Commission           B.    Salary

    C.    Profit                 D.    Loss

(iv)    The time between successive payments of an annuity is called:

    A.    Payment Interval      B.    Present Value

    C.    Term                D.    Amount

(v)     The point (0, 6) is called:

    A.    X-intercept    B.    Origin    C.    Y-intersect    D.    Y-intercept

(vi)    A number is multiplied by 2, then subtracted from 80, the result is -40, the number is:

    A.    20    B.    60    C.    16    D.    8

(vii)   If $b^2 - 4ac < 0$ then the roots are:

    A.    Equal    B.    Imaginary    C.    Real & Unequal   D.    Complex

(viii)  If two linear equations in two unknowns have no common solution, they are called:

    A.    Inconsistent Equations      B.    Consistent Equations

    C.    Dependent Equations       D.    Simultaneous Equations

(ix)    $(11111)_2 = (\_\_\_\_)_{10}$

    A.    30    B.    32    C.    31    D.    40

(x)     Matrix multiplication is not:

    A.    Distributive           B.    Associative

    C.    Singular              D.    Commutative

**For Examiner's use only:**

Total Marks:           | 10 |

Marks Obtained:       |   |

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# 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)    If the sum of two numbers is 12 and twice the first is 6 greater than four times the second, what are the numbers?

(ii)    If the area of a rectangular plot is 5400 square feet and its perimeter is 300 feet, what are the length and width of the plot?

(iii)    Ratio of the ages of three children is $2:5:1$. The sum of their ages is 32 years. Find the ages of the youngest and the eldest child.

(iv)    Mr Alam purchased 10 laptops. Each cost Rs 32000/-. He is allowed a trade discount of 12%. He also has an offer of 8% cash discount. How much amount he has to pay finally?

(v)    For $A = \begin{bmatrix} 3 & 9 & 5 \\ 1 & 4 & 7 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 1 \\ 0 & 2 \\ 1 & 0 \end{bmatrix}$

Find:
     (i)    AB (if possible)
     (ii)    BA (if possible)

(vi)    In how many years a sum of Rs 3000 would amount to Rs 4814.07, at 6% interest compounded semi-annually?

(vii)    Evaluate $(1011)_2 \times (1001)_2$      (Give your answer in base 10).

(viii)    Mrs Salma purchased a sewing machine on instalments which was to be payed back in 1 year, by paying Rs 1000 at the end of each month. If the interest was 8% compounded monthly, what was the cash price of the machine?

(ix)    For the points A=(1,4) and B=(−1,8), tell in which Quadrant A and B lie. Find the slope and equation of the line passing through A and B.

(x)    Solve the equation    $\dfrac{2x-4}{5x+2} = \dfrac{4x-8}{10x+3}$

(xi)    Find the inverse of    $A = \begin{bmatrix} 4 & -6 \\ 10 & -8 \end{bmatrix}$

## SECTION – C (Marks 16)

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

**Q. 3**   **a.**    Ahmed's total investment in bonds is Rs 50000. He had made two investments, first one at 8% and second at 10%. If his total income through these investments is Rs 4600, what was the amount of each investment?

     **b.**    A factory makes 1554 units in 14 days with the help of 20 workers. If 2 workers go on leave, how many units can be produced, if there are only 10 days?

**Q. 4**   **a.**    Mr Mehmood deposits an amount of Rs 15000, at the end of each six months. What amount will he get on deposits if the interest rate is 6% compounded semi-annually, after making 8 deposits?

     **b.**    If $A = \begin{bmatrix} 2 & -3 \\ 2 & 3 \end{bmatrix}$, $X = \begin{bmatrix} x \\ y \end{bmatrix}$ and $B = \begin{bmatrix} -20 \\ 40 \end{bmatrix}$    use $AX = B$, to find the value of $x$ and $y$.

**Q. 5**    A manufacturer of a certain product knows that he can sell as many units as he can produce in a week at a price of Rs 50 each. His variable cost of production is Rs 10 per unit and total fixed costs are Rs 4000. Now do as directed below:

(i)    Construct Cost function and Revenue function.
(ii)    Construct Profit function.
(iii)    Find Break-even point.
(iv)    Tell whether the manufacturer bears a Loss or gain a Profit on selling 150 units. Also give the amount of Profit or Loss.