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 businessman on an investment of Rs.1000 made a profit of Rs.300. What per cent did he make on his investment?

(ii) What is the amount of commission on sale of Rs.30000 if the rate of commission is 5% on first Rs.20000 and 6% on over Rs.20000?

(iii) What number is 20% more than Rs.9000?

(iv) Find x and y intercept of $x+3y=12$

(v) Show that the following are either even or odd function:

a. $f(x)=x^2+1$ b. $f(x)=x^3$ c. $f(x)=x^4+x^2$

(vi) At what rate Rs.5000 double itself in 5 years by simple interest?

(vii) Solve the equation for the value of x $\frac{3x+2}{4} = \frac{2x+6}{5}$

(viii) Solve the equation by quadratic formula: $3x^2-9x+5=0$

(ix) Find the inverse of $A=\begin{bmatrix}4 & 1\\ 2 & 3\end{bmatrix}$ and prove that $AA^{-1}=I$

(x) Solve the following system of equations: $2x-3y=1$, $x+4y=6$

(xi) Convert into a decimal system. $(101101.010)_2$

SECTION – C (Marks 16)

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

Q. 3 **a.** 15 machines working 8 hours a days can produce 360 units in 6 days. If 3 of the machines are out of order, how many units could be produced by running the remaining machines 10 hours a day for 8 days?

b. The price of a share in stock exchange dropped from Rs.62.50 to Rs.52.50 in a week. What was the percentage change in the price of share?

Q. 4 **a.** Find the compound interest on Rs. 10,000 invested at 4% per annum for 8 years compounded:

(i) Annually (ii) Semi-annually (iii) Quarterly

b. Find the accumulated value of Rs. 8000 invested at the end of each quarter for 5 years at 8% compounded quarterly.

Q. 5 **a.** If $A=\begin{bmatrix}5 & 4 & 3\\ 6 & 3 & 1\\ 8 & 9 & 2\end{bmatrix}$ and $B=\begin{bmatrix}1 & 3 & 4\\ 2 & 4 & 5\\ 3 & 1 & 6\end{bmatrix}$ prove that $A(B+C)=AB+AC$

b. Simply $\left[(100111)_2+(10101)_2\right]-(10111)_2$ by changing into decimal number system.

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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 milk-man mixes milk with water in the ratio of 7 : 2 . He has 35 litres of mixed milk.

What is the amount of pure milk?

A. 18.22 litres B. 23.22 litres C. 27.22 litres D. 20 litres

(ii) Simplest form of $\frac{4}{9}$ to $\frac{1}{3}$ is:

A. 3 to 4 B. 4 to 3 C. 12 to 9 D. 4 to 27

(iii) The cost of a chair is Rs.160. The markup is 20%. What is the amount of profit on cost?

A. Rs.32 B. Rs. 31.50 C. Rs.30 D. Rs. 29.25

(iv) The simple interest for 3 years at 6% is Rs. 180. The principal is:

A. Rs. 1000 B. Rs.2000 C. Rs.2500 D. Rs.2800

(v) If $P = f(t)$, where P is population of a country and t is time, then:

A. P is independent and t is dependent variable

B. P is dependent and t is independent variable

C. Both P and t are dependent variables

D. Both P and t are independent variables

(vi) The roots of the equation $x^2 + 2x = 0$ are:

A. 0,2 B. 0,-2 C. 2,-2 D. 0,1

(vii) If two linear equations with two unknown have no common solution. then the equations are called:

A. Consistent B. Inconsistent C. Identical D. Homogeneous

(viii) Conversion of $\frac{7}{8}$ to binary number is:

A. $(0.111)_2$ B. $(0.011)_2$ C. $(0.101)_2$ D. $(0.010)_2$

(ix) If payments start on a certain date and continue for indefinite period, then it is called:

A. Ordinary annuity B. Annuity due

C. Perpetuity D. Contingent annuity

(x) If the matrix $\begin{pmatrix} x & 6 \\ 2 & 3 \end{pmatrix}$ is singular, then x is equal to:

A. 2 B. 4 C. 6 D. 10

For Examiner's use only:

Total Marks: 10

Marks Obtained: