Business Mathematics (Commerce)

(Objective)

Time: 15 Minutes   **Marks : 10**

RWP–24

Note:- Write answers to the questions on the objective answer sheet provided. Four possible answers are given. Which answer you consider correct fill the corresponding circle A,B,C or D in front of each question with marker or ink on the answer sheet provided.

MCQS

1.1 A square matrix A is said to be Skew-symmetric if :

(A) $A^t = A$ (B) $A^t = A^2$ (C) $A^t = 2A$ (D) $A^t = -A$

2. If order of matrix $A = 3 \times 5$, order of matrix $B = 5 \times 4$, then order of $AB =$

(A) 3×3 (B) 3×4 (C) 5×5 (D) 5×3

3. The decimal number 9 in binary system =

(A) $(1000)_2$ (B) $(1011)_2$ (C) $(1001)_2$ (D) $(1100)_2$

4. 30 seconds : 5 minutes

(A)   1 : 10   (B)   6 : 1   (C)   1 : 6   (D)   10 : 1

5. 20% of 9000 is :

(A)   1500   (B)   2000   (C)   1800   (D)   1900

6. If $11x - 9 = 9x - 3$, then x =

(A)   2   (B)   3   (C)   5   (D)   4

7. Compound interest after n years computed on the principal amount P at the rate of R per annum is :

(A) $P[(1 + R)^n - 1]$ (B) $P[(1 + R)^n + 1]$ (C) $P[(1 - R)^n + 1]$ (D) $p[(1 + R)^n - 1]$

8. Roots of the quadratic equation $x^2 + 3x + 2 = 0$ are :

(A) $-1, 2$ (B) $-1, -2$ (C) $1, -2$ (D) $1, 2$

9. $(1111)_2 - (11)_2 =$

(A) $(10010)_2$ (B) $(11010)_2$ (C) $(10100)_2$ (D) $(11011)_2$

10. The point $(5, -3/2)$ lies in :

(A)   Ist - quadrant   (B)   2nd - quadrant   (C)   3rd - quadrant   (D)   4th - quadrant

901-11-A

Business Mathematics (Subjective)

Time: 1:45 Hours   Marks : 40

Section - I

RWP-24

(2x6=12)

2.   **Attempt any six parts from the following:-**

   (i)   Define proportion.

   (ii)   Divide 5000 in ratio 2 : 3

   (iii) 600 is 10% of what number?

   (iv)   Find simple interest on Rs. 5000 @ 6% for 4 years.

   (v)   Define Annuity.

   (vi)   Solve $\frac{7x+8}{3x+1} = \frac{5}{3}$

   (vii) Five times of a number is 150. What is the number?

   (viii) Find the sum and product of the quadratic equation $x^2 - 5x + 6 = 0$

   (ix)   Solve $x^2 - 5x + 6 = 0$ by factrorization.

(2x6=12)

3.   **Attempt any six parts from the following:-**

   (i)   If $f(x) = 3x + 9$, find $f\left(\frac{1}{2}\right)$.

   (ii)   Sketch the graph of $f(x) = x + 3$

   (iii) Convert $(1101)_2$ into decimal system.

   (iv)   Convert 25 into binary system.

   (v)   Find the sum of $(1001)_2$ and $(111)_2$.

   (vi)   What is transpose of a matrix?

   (vii) Find AB if A = $\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ and B = $\begin{bmatrix} 3 \\ 4 \end{bmatrix}$.

   (viii) Find value of x, when $\begin{bmatrix} 8 & x \\ 2 & 4 \end{bmatrix}$ is singular matrix.

   (ix)   Find the adjoint of matrix $\begin{bmatrix} -1 & -2 \\ 3 & 4 \end{bmatrix}$

Section - II

(8x2=16)

Note:-   Attempt any two question from the following:-

4.   (a)   If 20 men can construct a housing unit in 60 days. How many men are required to construct such housing unit in 48 days.

     (b)   Rs 3000 amounts to Rs. 6843.70 in 17 years compounded annually, what is the interest rate?

5.   (a)   Find $x - intercept$ and $y - intercept$ of $f(x) = 2x - 1$. Also draw the graph of $f(x) = 2x - 1$.

     (b)   Solve the equation : $\frac{1}{x} + \frac{1}{x+1} = \frac{2}{x+3}$

6.   (a)   Solve the system of linear equations by Cramer rule:
$$2x - 3y = 1$$
$$x + 4y = 6$$

     (b)   Evaluate: $[(1011)_2 \times (111)_2] - (101)_2$