BUSINESS MATHEMATICS   (COMMERCE GROUP)   PAPER-I MTN-24

| TIME ALLOWED: 15 Minutes | OBJECTIVE | MAXIMUM MARKS: 10 |

Q.No.1 You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that bubble in front of that question number, on bubble sheet. Use marker or pen to fill the bubbles. Cutting or filling two or more bubbles will result in zero mark in that question.

S.#	QUESTIONS	A	B	C	D
1	The simple interest on a loan of Rs.3000 for 2 years at 7% is:	Rs.220	Rs.320	Rs.520	Rs.420
2	If $f(x) = x^2 - 4$, then $f(-2)$ is equal to:	0	4	-4	8
3	If 5 times a number of 190, then the number will be:	40	39	38	36
4	The solution set of the equation $2x^2 + 11x + 5 = 0$ is:	$\left\{\frac{1}{2}, 5\right\}$	$\left\{-\frac{1}{2}, -5\right\}$	$\{1, 5\}$	$\{-1, -5\}$
5	21 in binary number system is:	$(1011)_2$	$(10111)_2$	$(10001)_2$	$(10101)_2$
6	$(1101)_2 \times (10)_2 = $ _____	$(11010)_2$	$(10110)_2$	$(10011)_2$	$(101011)_2$
7	The value of λ if $A = \begin{bmatrix} \lambda & 4 \\ 3 & 2 \end{bmatrix}$ is singular:	$\lambda = 2$	$\lambda = 4$	$\lambda = 6$	$\lambda = 8$
8	If $A = \begin{bmatrix} -1 & -2 \\ 3 & 4 \end{bmatrix}$ then Adjoint of A is:	$\begin{bmatrix} 3 & 4 \\ -1 & -2 \end{bmatrix}$	$\begin{bmatrix} 4 & 2 \\ -3 & -1 \end{bmatrix}$	$\begin{bmatrix} -4 & -2 \\ 3 & 1 \end{bmatrix}$	$\begin{bmatrix} 4 & 2 \\ -3 & 1 \end{bmatrix}$
9	The ratio between 3.5kg and 10.5kg is:	$1 : 8$	$1 : 3$	$1 : 21$	$3 : 4$
10	Using fundamental principle of proportion, what is value of x in $12 : x :: 28 : 21$	12	10	9	16

NOTE: Write same question number and its parts number on answer book, as given in the question paper.

SECTION-I

2. Attempt any six parts. MTN-24 $6 \times 2 = 12$

(i)	If 15 dozens of eggs cost Rs.600. How much will cost 5 dozens of eggs?
(ii)	The ratio of boys and girls in a school is $9:5$. If total number of students is 1050. Find the number of boys.
(iii)	Calculate Zakat on an amount of Rs.2500000?
(iv)	Define Annuity due.
(v)	Solve $\dfrac{3x+2}{4} = \dfrac{2x+6}{5}$
(vi)	Find the domain and range of $y = 2x + 3$
(vii)	Solve by factorization $4x^2 + 4x - 3 = 0$
(viii)	Find the discriminant of $4x^2 - 13x + 3 = 0$
(ix)	What is the simple interest on Rs.180000 for two years at 5%?

3. Attempt any six parts. $6 \times 2 = 12$

(i)	Define odd function.
(ii)	If $f(x) = \dfrac{x^2 + 3x - 2}{x + 4}$, find $f(0)$.
(iii)	Convert $(35)_{10}$ into binary system.
(iv)	Convert $(1011)_2$ into decimal system.
(v)	Simplify $(1011)_2 - (1000)_2$
(vi)	Find AB if $A = \begin{bmatrix} 2 & 1 \\ 3 & 1 \end{bmatrix}$, $B = \begin{bmatrix} 2 \\ 1 \end{bmatrix}$
(vii)	Define rectangular matrix.
(viii)	Find the value of x if $A = \begin{bmatrix} 2 & 1 \\ 3 & x \end{bmatrix}$ is singular.
(ix)	If $A = \begin{bmatrix} 4 & -4 \\ 6 & -5 \end{bmatrix}$, then find $|A|$ and $Adj\,A$.

SECTION-II

NOTE: Attempt any two questions. $2 \times 8 = 16$

4.(a)	15 men can finish a job in 8 days. How many men are required to do the same job in 5 days?
(b)	Find the compound interest if Rs.10000 loaned for 5 years @ 8% per annum.
5.(a)	Draw the graph of $y = x^2$
(b)	Solve the equation by using quadratic formula $x^2 - 3\left(x + \dfrac{25}{12}\right) = 9x$
6.(a)	Simplify $\{(100111)_2 + (10101)_2\} - (10111)_2$
(b)	If $\begin{bmatrix} 1 & 5 \\ 3 & y \end{bmatrix}\begin{bmatrix} z \\ 7 \end{bmatrix} = \begin{bmatrix} 35 \\ 14 \end{bmatrix}$ Find y and z.