

Model Paper Business Math Class (11th)

Objective

Time: 15 Minutes

Marks: 10

Note: You have four choices for each objective type question as A,B,C and D. The choice which you think is correct; fill that circle in front of that question number in your answer book. Use marker or pen to fill the circles. Cutting or filling up two or more circles will result no mark.

Sr. No	Statement	A	B	C	D
1	15 seconds: 3 minutes=	1:12	1:5	5:1	12:1
2	Formula for simple interest is:	$P(1+i)^n$	$P[(1+i)^n - 1]$	PRT	$P(1-i)^n$
3	Commission on the deal of Rs. 6000 @ 5% =	Rs.500	RS.400	Rs.600	Rs.300
4	If $3x - 2 = 2x + 6$ then $x =$	8	3	5	6
5	Roots of the equation $2x^2 + 3x + 1 = 0$ are:	$1, \frac{1}{2}$	$1, -\frac{1}{2}$	$-1, \frac{1}{2}$	$-1, -\frac{1}{2}$
6	$(1111)_2 - (100)_2 =$	$(111)_2$	$(1011)_2$	$(1110)_2$	$(1100)_2$
7	Point $(-4, -3)$ lies in quadrant	I	II	III	IV
8	A square matrix is said to be skew symmetric if	$A' = 2A$	$A' = A$	$A' = A^2$	$A' = -A$
9	If order of a matrix $A = 2 \times 3$ and order matrix $B = 3 \times 4$ then order of matrix $AB =$	3×4	2×4	3×2	4×3
10	The decimal number 11 in binary system =	$(1101)_2$	$(1011)_2$	$(1001)_2$	$(1110)_2$

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Subjective

Time: 1:45 Hours

Marks: 40

Q.2. Write Short answers to any six (6) questions:

- (i) Divide Rs. 60000 between two persons A and B in ratio 5 : 7.
- (ii) Find the value of x if $x : 750 :: 6 : 50$
- (iii) If 55% of a number is 3000, what is the number.
- (iv) Define ordinary annuity and annuity due.
- (v) Find the simple interest on Rs. 50000 for 10 years at the rate of 12% per annum.
- (vi) Find the value of x from the equation $\frac{2x+3}{x-1} = \frac{2}{5}$
- (vii) Find two consecutive integers whose sum is 41
- (viii) Solve the equation by completing squares $x^2 - 5x + 6 = 0$
- (ix) Define reciprocal equation and give example.

Q.3. Write Short answers to any six (6) questions:

- (i) Define even function and give example.
- (ii) If $f(x) = 5x - 10$, $g(x) = 3x + 5$, then find the values of $(f+g)(x)$ and $(f \cdot g)(x)$.
- (iii) Convert $(71)_{10}$ into binary system.
- (iv) Simplify $(111101)_2 - (11101)_2$
- (v) Convert $(110.11)_2$ into decimal system.
- (vi) If $A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}$, $B = \begin{bmatrix} 7 & 1 \\ 8 & 2 \\ 9 & 3 \end{bmatrix}$, then find AB .
- (vii) Define a non-singular matrix, give example.

- (viii) If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$, $B = \begin{bmatrix} 6 & 8 \\ 4 & -4 \end{bmatrix}$, then find the value of $A - B$
- (ix) Find x and y if $\begin{bmatrix} x+3 & 1 \\ -3 & 3y-4 \end{bmatrix} = \begin{bmatrix} 2 & 1 \\ -3 & 2 \end{bmatrix}$

Q.4. (a) A juice manufacturer produces 3000 units in a day employing 15 workers working 8 hours. Find the number of units manufactured when the employs 18 workers working 6 hours.

(b) Find the compound amount for Rs. 10000 payable at the end of 8 years at the rate 6% compounded annually.

Q.5. (a) Draw the graph of $y = x^2 - 2x - 5$

(b) Solve the following simultaneous equations

$$x - y = 2$$

$$3x + 4y = 7$$

Q.6. (a) If $A = \begin{bmatrix} 4 & 5 \\ 2 & 3 \end{bmatrix}$, then find A^{-1} and prove that $AA^{-1} = I_2$

(b) Evaluate $(11011)_2 \times (1001)_2$.