

PAPER CODE – 6641

11<sup>th</sup> CLASS – 1<sup>st</sup> Annual 2023

BUSINESS MATHEMATICS

DGK-11-23

ME: 15 MINUTES  
MARKS: 10

OBJECTIVE

**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. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero mark in that question.

QUESTION NO. 1

Sr.No	QUESTIONS	A	B	C	D
1	The ratio between 1.5 cm and 4.5 cm is	2 : 5	3 : 1	1 : 3	2 : 3
2	If 7% of the amount is Rs 490, then what is the amount ?	Rs. 4000	Rs. 5000	Rs. 6000	Rs. 7000
3	A fee which is paid for having the use of money is called	Interest	Principal	Percentage	Annuity
4	If $f(x) = 4x^2 - 5x + 1$ , then $f(-x) =$	$4x^2 - 5x - 1$	$4x^2 + 5x + 1$	$4x^2 + 5x - 1$	$4x^2 - 5x + 1$
5	The solution set of $\sqrt{x} + 3 = 4$ is	{1}	{ }	{-1}	{± 1}
6	The solution set of $8x^2 - 14x + 5 = 0$	$\left\{\frac{5}{2}, \frac{-3}{4}\right\}$	$\left\{\frac{-5}{2}, \frac{-3}{4}\right\}$	{-1, -3}	$\left\{\frac{-5}{2}, \frac{3}{4}\right\}$
7	8 in binary system is equal to	$(1001)_2$	$(1010)_2$	$(1000)_2$	$(1011)_2$
8	$(1111)_2$ in decimal system is equal to	23	13	25	15
9	If order of matrix A is 3 x 4 and order of matrix B is 4 x 2, then order of AB is	2 x 3	3 x 4	4 x 2	3 x 2
10	If $A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}$ then $A^t =$	$\begin{bmatrix} 1 & 2 \\ 3 & 4 \\ 5 & 6 \end{bmatrix}$	$\begin{bmatrix} 1 & 3 \\ 2 & 4 \\ 5 & 6 \end{bmatrix}$	$\begin{bmatrix} 1 & 4 \\ 2 & 5 \\ 3 & 6 \end{bmatrix}$	$\begin{bmatrix} 1 & 2 \\ 3 & 5 \\ 4 & 8 \end{bmatrix}$

111 - (Obj) - 1<sup>st</sup> Annual 2023

( PAPER CODE – 6641 )

**BUSINESS MATHEMATICS**

**TIME : 1.45 HOURS  
MARKS : 40**

DGK-11-23

**SUBJECTIVE  
SECTION-I**

**QUESTION NO. 2 Write short answers of any Six (6) parts of the following** 12

i	Divide Rs 750 in the ratio 3 : 2
ii	Find $x$ if $x : \frac{1}{4} :: 12 : 3$
iii	A dealer buys a bicycle for Rs 1200 and sells it for Rs 1500. Find percentage profit.
iv	Find the simple interest to Rs 6000 borrowed for 3 years at the rate 8 % per annum.
v	Define the term "simple annuity".
vi	Solve $\frac{12x-5}{3} = \frac{4x+8}{4}$
vii	Find two consecutive integers whose sum is 43.
viii	Solve $3x^2 - 9x + 5 = 0$ by completing square.
ix	Discuss the nature of the roots of $x^2 + 6x + 9 = 0$

**QUESTION NO. 3 Write short answers of any Six (6) parts of the following** 12

i	Show that $f(x) = x^5 + x^3$ is an odd function
ii	Sketch the graph of the function $f(x) = x^2 + 4$
iii	Find the sum of $(23)_2 + (111)_2$
iv	Evaluate $(11011)_2 - (1101)_2$
v	Evaluate $(10101)_2 \times (111)_2$
vi	Find $ A $ Given that $A = \begin{bmatrix} 1 & 2 & 3 \\ 3 & 2 & 1 \\ 1 & 3 & 2 \end{bmatrix}$
vii	Find the inverse of $A$ , where $A = \begin{bmatrix} 5 & 3 \\ 4 & 2 \end{bmatrix}$
viii	Find the value of $x$ , $A = \begin{bmatrix} 3 & 2 \\ 4 & 6x \end{bmatrix}$ if $ A  = 0$
ix	Find $AB$ if $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ , $B = \begin{bmatrix} 2 & 3 \\ 4 & 5 \end{bmatrix}$

**SECTION-II**

**Note: Attempt any Two questions from this section** 8 x 2 = 16

Q.4 (A)	If 6 pumps raise 108 liters of water in 12 minutes, how long will 4 pumps take to raise 96 liters of water?
	(B) Find the compound interest due in case of Rs 1000 loaned for 5 years at 6 % annually.
Q.5 (A)	If $f(x) = x^2 - 2x + 1$ , find $f(-1)$ , $f(0)$ , $f(2)$ and $f(3)$
	(B) Solve $x^2 - 3x + 8 = 0$ using Quadratic Formula
Q.6 (A)	Find $x$ and $y$ If $\begin{bmatrix} x+3 & 1 \\ -3 & 3y-4 \end{bmatrix} = \begin{bmatrix} y & 1 \\ -3 & 2x \end{bmatrix}$
	(B) Multiply $(11111)_2$ and $(1111)_2$

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11<sup>th</sup> CLASS – 12022

BUSINESS MATHEMATICS

TIME: 15 MINUTES  
MARKS: 10

OBJECTIVE

**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. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero mark in that question.

QUESTION NO. 1

Sr.No	QUESTIONS	A	B	C	D
1	$2 : 7 :: x : 14$ , then value of x is	2	4	6	8
2	20 percent of 200 is	80	60	40	20
3	Formula for simple interest is	Prt	$P(1+i)^n$	$P(1+i)$	SRi
4	If $f(x) = c$ for all x , then $f(x)$ is called ..... function	Linear	Quadratic	Identity	Constant
5	If $5x + 50 = 0$ , then value of x is	-5	-10	-15	-20
6	Product of roots of equation $x^2 - 3x + 5 = 0$	5	-5	3	-3
7	Base of binary system is	10	5	2	3
8	In binary system 3 is equal to	$(101)_2$	$(100)_2$	$(10)_2$	$(11)_2$
9	A square matrix A is called symmetric if $A^t$ equals	A	-A	$A^2$	$-A^2$
10	The determinant of identity matrix is equal to	2	0	-1	1

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SUBJECTIVE  
SECTION-I

QUESTION NO. 2 Write short answers of any Six (6) parts of the following

12

i	Find third proportional to the numbers 4, 42
ii	Mr. Zahid paid zakat of Rs 3700 at the rate of $2\frac{1}{2}\%$ . Find value of his wealth
iii	Divide Rs 96 in the ratio 3:1
iv	Define annuity due
v	Define simple interest and write its formula
vi	Find two consecutive integers whose sum is 41
vii	Solve the equation $4(x - 7) = 3(2x + 1) - 5$
viii	Solve the Quadratic equation by Factorization $x^2 - 4x - 32 = 0$
ix	If $2^x = 16$ , find value of x

QUESTION NO. 3 Write short answers of any Six (6) parts of the following

12

i	Define domain and range
ii	Give two applications of functions in Business
iii	Find the sum of $(1010111)_2 + (11011)_2$
iv	Find the product of $(111)_2 \times (101)_2$ give the answer in decimal form
v	Define the order of a matrix with example
vi	Show that $A = \begin{bmatrix} 0 & -2 & 3 \\ 2 & 0 & 4 \\ -3 & -4 & 0 \end{bmatrix}$ is a skew - symmetric matrix
vii	If $A = \begin{bmatrix} 4 & 9 \\ 7 & 6 \end{bmatrix}$ , $B = \begin{bmatrix} 1 & 2 \\ 3 & 0 \end{bmatrix}$ then find $ AB $
viii	If $f(x) = 2x + 5$ then find $f(2)$ , $f(3)$
ix	If $A = \begin{bmatrix} 4 & 2 & 10 \\ 2 & 8 & 0 \\ 1 & 2 & 1 \end{bmatrix}$ find $A^2$

SECTION-II

8 x 2 = 16

Note: Attempt any Two questions from this section

Q.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 on Rs 2500 invested at 6% per annum. Compounded semi-annually for 8 years
Q.5 (A)	Draw a graph as defined by the function $y = 2x + 3$
(B)	Solve simultaneously $x - y = 2$ $3x + 4y = 7$
Q.6 (A)	Use Cramer's rule to solve the system $3x + y = 1$ $x - 2y = -2$
(B)	Without converting into decimal system, simplify $\{(1011111)_2 + (11111)_2\} + \{(11111)_2 - (10000)_2\}$