

Paper Code Number: 2643 (1.CC)		2023 (1 st -A) INTERMEDIATE PART-I (11 th Class)		Roll No: <u>MTN-11-23</u>	
BUSINESS MATHEMATICS (COMMERCE GROUP) PAPER-I					
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	$(101)_2 + (11)_2$ is equal to:	$(101)_2$	$(111)_2$	$(110)_2$	$(1000)_2$
2	If $A = \begin{bmatrix} 1 & 2 & 4 \\ 3 & 1 & 0 \end{bmatrix}$ then order of A' will be:	3×2	2×3	3×3	2×2
3	Inverse of the matrix will be possible if the matrix is:	Singular	Null matrix	Non-singular	Row matrix
4	The missing term x in the proportion $x : 5 :: 15 : 25$ is:	3	5	15	25
5	What percent Rs.50 is of Rs.250?	5%	50%	10%	20%
6	In which case more interest is earned if interest rate is compounded?	Annually	Monthly	Quarterly	Semi-annually
7	A cubic function is of degree:	2	1	3	0
8	The graph of a linear function is:	Parabola	Straight line	Circle	Curve
9	The quadratic formula for $ax^2 + bx + c = 0$ is:	$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$	$\frac{-b \pm \sqrt{c^2 - 4ac}}{2a}$	$\frac{-b \pm \sqrt{b^2 - 4bc}}{2a}$	$\frac{-b \pm (b^2 - 4ac)^2}{2a}$
10	A binary number $(101)_2$, in decimal number system is equal to:	4	5	6	3

BUSINESS MATHEMATICS (COMMERCE GROUP) PAPER-I

TIME ALLOWED: 1.45 Hours

SUBJECTIVE

MAXIMUM MARKS: 40

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.

6 × 2 = 12

- (i) Define Ratio with example.
- (ii) Define Proportion.
- (iii) 300 is what percentage of 1000.
- (iv) Find the simple interest on Rs.5000 for 10 years at 8% per annum.
- (v) Write the formula of compound interest.
- (vi) Solve for x : $2x + 20 - 5x = x - 6 + 9x$
- (vii) Solve the equation $x + 2[3x + 8] - 7 = 16$
- (viii) Solve $9x^2 = 81$
- (ix) Solve by factorization $x^2 + 9x + 18 = 0$

3. Attempt any six parts.

6 × 2 = 12

- (i) Differentiate between Even and Odd function.
- (ii) Draw the graph of liner equation $\frac{x}{2} + \frac{y}{4} = 1$
- (iii) Convert 35 into binary system.
- (iv) Convert $(10001)_2$ into decimal number.
- (v) Solve $(10000) - (1011)_2$.
- (vi) Define Column Matrix.
- (vii) Find AB if $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$, $B = \begin{bmatrix} 2 \\ 4 \end{bmatrix}$
- (viii) Find $|A|$ if $A = \begin{bmatrix} 1 & 5 \\ 3 & 2 \end{bmatrix}$
- (ix) Find $B - A$ if $A = \begin{bmatrix} 1 & 2 \\ 3 & 2 \end{bmatrix}$, $B = \begin{bmatrix} -3 & -2 \\ 4 & 2 \end{bmatrix}$

SECTION-II

NOTE: Attempt any two questions.

2 × 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? 4
- (b) Calculate compound interest when Rs.750 invested for 8 years at 12% per annum. 4
- 5.(a) If $f(x) = ax + 12$ and $f(-3) = 0$ then find the value of 'a'. 4
- (b) Solve the equation $\frac{1}{x} - \frac{1}{x-2} = 3$, $x \neq 0, 2$ by using quadratic formula. 4
- 6.(a) Solve the system by Crammer's rule. $2x + 3y = 5$, $x + 2y = 3$ 4
- (b) Simplify $(11111)_2 - [(1011)_2 + (1111)_2]$ 4

BUSINESS MATHEMATICS PAPER-I
(COMMERCE GROUP)

TIME ALLOWED: 15 Minutes
MAXIMUM 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 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. No credit will be awarded in case BUBBLES are not filled. Do not solve question on this sheet of OBJECTIVE PAPER.

Q.No.1

- (1) In the proportion $a : b :: c : d$ the extremities are:
 (A) a and b (B) a and d (C) b and c (D) c and d
- (2) 20% of Rs.1200 is:
 (A) Rs.240^{FGStudy.com} (B) Rs.100 (C) Rs.120 (D) Rs.420^{FGStudy.com}
- (3) For simple interest $T =$
 (A) $\frac{P}{I} \times R$ ^{FGStudy.com} (B) $I \times P \times R$ (C) $\frac{R}{I \times P}$ (D) $\frac{I}{P} \times R$
- (4) Graph of the function $f(x) = 4x - 3$ is:
 (A) A circle (B) A triangle (C) A straight line (D) A parabola^{FGStudy.com}
- (5) If $\frac{2x+3}{x-1} = \frac{2}{5}$ then the value of x is:
 (A) $\frac{17}{8}$ ^{FGStudy.com} (B) $\frac{-17}{8}$ (C) $\frac{15}{7}$ (D) $\frac{-15}{7}$ ^{FGStudy.com}
- (6) Discriminant of $2x^2 - 3x - 2 = 0$ is:
 (A) 24^{FGStudy.com} (B) 27 (C) 23 (D) 25
- (7) The additive inverse of $\begin{bmatrix} 2 & 1 \\ 3 & -4 \end{bmatrix}$ is:
 (A) $\begin{bmatrix} -2 & -1 \\ -3 & 4 \end{bmatrix}$ ^{www.FGStudy.com} (B) $\begin{bmatrix} -2 & 1 \\ 3 & 4 \end{bmatrix}$ (C) $\begin{bmatrix} 1 & 2 \\ 4 & 3 \end{bmatrix}$ ^{www.FGStudy.com} (D) $\begin{bmatrix} -2 & -1 \\ 3 & -4 \end{bmatrix}$ ^{FGStudy.com}
- (8) Number of digits used in binary system is:
 (A) 2 (B) 1 (C) 4 (D) 3
- (9) Sum of $(11)_2$ and $(11)_2$ is:
 (A) $(101)_2$ (B) $(100)_2$ (C) $(110)_2$ (D) $(111)_2$
- (10) If B is a rectangular matrix of order $p \times q$, then order of B^t is:
 (A) $p \times p$ (B) $p \times q$ (C) $q \times q$ (D) $q \times p$

INTERMEDIATE PART-I (11th CLASS)BUSINESS MATHEMATICS PAPER-I
(COMMERCE GROUP)TIME ALLOWED: 1.45 Hours
MAXIMUM MARKS: 40SUBJECTIVE**NOTE:** Write same question number and its part number on answer book, as given in the question paper.SECTION-I

2. Attempt any six parts.

6 × 2 = 12

- (i) How do you define ratio? Give one example.
- (ii) Define direct proportion and give one example.
- (iii) A student got 935 marks out of 1100 marks. What is his percentage?
- (iv) Define annuity due and write its formula for present value.
- (v) If Rs.5000 is deposited for 6 years at simple interest rate of 5% p.a. then calculate simple interest and its amount.
- (vi) Solve the equation $6x - 8 = 2x + 4$
- (vii) In linear equation $x + 5 = 2$, identify constants and variables.
- (viii) Solve by completing square method $3x^2 + 6x - 9 = 0$

- (ix) Solve by factorization method $2x^2 - 9x + 4 = 0$

3. Attempt any six parts.

6 × 2 = 12

- (i) Define even and odd functions.
- (ii) Identify abscissa and ordinate of the point $(2, -5)$.
- (iii) Change 7 into Binary number.
- (iv) Simplify $(1001)_2 \times (111)_2$
- (v) Find the difference of $(10)_2$ from $(101)_2$
- (vi) Define upper triangular matrix and give its example.
- (vii) Find the sum of matrices $A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix}$, $B = \begin{bmatrix} 2 & 3 \\ 1 & 1 \end{bmatrix}$
- (viii) If $A = \begin{bmatrix} 3 & -3 \\ -6 & -5 \end{bmatrix}$, then find $|A|$
- (ix) If $A = \begin{bmatrix} 1 & 4 \\ 3 & 2 \\ 2 & -5 \end{bmatrix}$, $B = \begin{bmatrix} -16 & 5 \\ 3 & 4 \\ 1 & 7 \end{bmatrix}$ then find $(A + B)'$

SECTION-II**NOTE:** Attempt any two questions.

- 4.(a) After 6% of a bill has been deducted Rs.282 remain to be paid. How much was the original bill? 4
- (b) At what rate Rs.500 double itself in 5 years by simple interest. 4
- 5.(a) Plot the graph of $y = 2x^2 - 6x + 5$ 4
- (b) Solve the pair of simultaneous equations $5x + 2y = 64$, $2x - y = 4$ 4
- 6.(a) If $A = \begin{bmatrix} 4 & 9 \\ 7 & 6 \end{bmatrix}$, then find A^{-1} and prove $A^{-1}A = AA^{-1} = I_2$ 4
- (b) Evaluate $(1010111)_2 \times (11011)_2$ 4

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Paper Code
Number: 2641

2022 (2nd-A)

Roll No. _____

INTERMEDIATE PART-I (11th CLASS)

BUSINESS MATHEMATICS (COMMERCE GROUP)

PAPER-I

TIME ALLOWED: 15 Minutes

MAXIMUM 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 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. No credit will be awarded in case BUBBLES are not filled. Do not solve question on this sheet of OBJECTIVE PAPER.

Q.No.1

- (1) 4.5 is a ratio of:
(A) 45 and 100 (B) 45 and 10 (C) 4 and 50 (D) 50 and 100
- (2) 5 % commission on sales of Rs. 200,000 is:
(A) Rs. 10000 (B) Rs. 8000 (C) Rs. 12000 (D) Rs. 15000
- (3) Interest is classified in classes:
(A) 4 (B) 3 (C) 2 (D) 5
- (4) The function $f(x) = 5$ is a:
(A) Linear function (B) Constant function (C) Quadratic function (D) Cubic function
- (5) If $3x + 2 = 8$ then the value of x is:
(A) 2 (B) 3 (C) 4 (D) 6
- (6) The correct quadratic formula is:
(A) $x = \frac{-b \pm \sqrt{b^2 + 4ac}}{2a}$ (B) $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
(C) $x = \frac{-b \pm \sqrt{4ac - b^2}}{2a}$ (D) $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2}$
- (7) In Null matrix each element is:
(A) Zero (B) One (C) Three (D) Two
- (8) If number of rows and columns of a matrix are not equal then it is:
(A) Row matrix (B) Rectangular matrix (C) Square Matrix (D) Null Matrix
- (9) The method used to convert decimal number to binary number is:
(A) Subtraction (B) Addition (C) Multiplication (D) Division
- (10) 9 is binary number system is:
(A) $(11)_2$ (B) $(101)_2$ (C) $(1001)_2$ (D) $(110)_2$

INTERMEDIATE PART-I (11th CLASS)

BUSINESS MATHEMATICS

(COMMERCE GROUP)

PAPER-I

TIME ALLOWED: 1.45 Hours

MAXIMUM MARKS: 40

SUBJECTIVE

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

SECTION-I

2. Attempt any six parts.

6 × 2 = 12

- (i) What percentage of 1000 is 25?
 (ii) What is invoice price?
 (iii) Name the two different types of proportion.
 (iv) Write the formula for present value of annuity.
 (v) Define simple interest and give its formula.
 (vi) Find the x-intercept and y-intercept of line $2x + 3y = 12$.
 (vii) Find the slope and y-intercept of $y = \frac{3}{2}x - 2$.
 (viii) Solve $8x^2 = 72$.

(ix) Write down name of two methods to solve quadratic equation.

3. Attempt any six parts.

6 × 2 = 12

- (i) Define odd and even function.
 (ii) Find an equation of straight line if slope is 2 and y-intercept is 5.
 (iii) Write down any two number systems.
 (iv) Convert $(10001)_2$ to its number in decimal system.
 (v) Define order of matrix and give its one example.
 (vi) Subtract $(1111)_2$ from $(1111101)_2$.
 (vii) If $P = \begin{bmatrix} 2 & 1 \\ 3 & 1 \end{bmatrix}$ and $Q = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ find PQ.
 (viii) Find x if $\begin{bmatrix} 2 & 1 \\ 3 & x \end{bmatrix}$ is a singular matrix.
 (ix) Define a skew-symmetric matrix and give one example.

SECTION-II**NOTE:** Attempt any two questions.

4.(a) If 20 men prepare 10 chairs in a day. How many more men are required to prepare 25 such chairs in a day?

(b) In how many years a sum of Rs. 5550 would amount to Rs. 7050 at 8% per annum compound semi-annually?

5.(a) Draw the graph of function $f(x) = 3x^2 - 4x + 1$ (b) Find value of x if: $\frac{2x-4}{5x+2} = \frac{4x-8}{10x+3}$ 6.(a) If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & 3 \\ 5 & 6 \end{bmatrix}$, prove that $(AB)^t = B^t A^t$ (b) Simplify $(11011)_2 \times (11110)_2$.