

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.

SECTION-A

Q.1	Questions	A	B	C	D
1.	The ratio between 2.5 kg and 4.5 kg is:	2:5	5:9	9:5	2:3
2.	Rs.250 is what percent of Rs.1000?	1.5%	2.5%	3.5%	25%
3.	The formula for finding rate%:	$\frac{I \times 100}{P}$	$\frac{I \times 100}{P \times T}$	$\frac{P \times 100}{I \times T}$	$\frac{T \times 100}{P \times I}$
4.	If $f(x) = \sqrt{x+9}$, then $f(x^2-9) =$	$x+9$	x^2-9	x^2	x
5.	If $x-3=2x+9$, then:	$x=-12$	$x=12$	$x=6$	$x=-6$
6.	The solution set of $3x^2+4x+1=0$ is:	$\left\{\frac{1}{3}, 1\right\}$	$\left\{\frac{-1}{3}, 1\right\}$	$\left\{\frac{-1}{3}, -1\right\}$	$\left\{\frac{1}{3}, -1\right\}$
7.	Conversion of 4 into binary system is:	$(10)_2$	$(11)_2$	$(101)_2$	$(100)_2$
8.	$(10000)_2$ in decimal system is equal to:	18	20	17	16
9.	If order of matrix A is 2×3 and order of matrix B is 3×4 , then order of AB is:	2×2	2×4	3×3	3×4
10.	If $A = \begin{bmatrix} 8 & 9 \\ 12 & 15 \end{bmatrix}$, then order of A^{-1} is:	1×1	2×3	2×2	3×3

Note :- Section **B** is compulsory. Attempt any **Two** Questions from Section **C**.

SECTION-B

2. Write short answers to any Six parts. (6 x 2 = 12)

- i. Distribute Rs.15000 in the ratio 3:2.
- ii. Find the missing term from the proportion 2:3 : □:15
- iii. A dealer bought a bicycle for Rs.15500 and sold for Rs.16740. Find profit percentage.
- iv. Find the simple interest on Rs.5000 invested for 6 months at the rate 8% per annum.
- v. Define the term 'ordinary annuity'.
- vi. Solve $4(x-7) = 3(2x+1) - 5$.
- vii. Find two consecutive integers whose sum is 29.
- viii. Solve $4x^2 - 11x + 6 = 0$ by completing square.
- ix. Discuss the nature of the roots of $x^2 - 5x + 6 = 0$.

3. Write short answers to any Six parts. (6 x 2 = 12)

- i. Define profit function.
- ii. Sketch the graph of $4x + 2y = 10$
- iii. Subtract $(1101)_2$ from $(10011)_2$.
- iv. Evaluate $(100111)_2 \times (111)_2$.
- v. Convert $(10110011)_2$ into decimal system.
- vi. If $A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}$; $B = \begin{bmatrix} 1 & 2 \\ 3 & 4 \\ 5 & 6 \end{bmatrix}$, then find AB.
- vii. If $A = \begin{bmatrix} 2 & 5 \\ x & -10 \end{bmatrix}$ is a singular matrix, then find the value of x.
- viii. Define skew symmetric matrix.
- ix. If $A = \begin{bmatrix} 1 & 2 \\ 4 & 9 \end{bmatrix}$; find the value of $|2A|$.

SECTION-C

Note: Attempt any Two questions. Each question carries 4+4=8 marks. (8x2=16)

- 4.(a) If 15 workers paint 5 houses in a day, then how many workers are required to paint 3 houses in a day.
(b) Find the compound amount at the end of one year if Rs.10,000 are invested at 10% interest compounded annually.
- 5.(a) Draw the graph of function $y = x^2 + 2x - 3$
(b) Solve the equations:
 $2x - y = 11$
 $x + 4y = 1$
- 6.(a) If $A = \begin{bmatrix} 1 & 2 \\ 4 & -3 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & -1 \\ 1 & 1 \end{bmatrix}$ then show that $(AB)^t = B^t A^t$.
(b) Multiply $(11011)_2$ and $(101)_2$.

CANCELLED

J. S. C.

Roll No.

(To be filled in by the candidate)

Business Math

H.S.S.C (11th)-A-2022

Time : 15 Minutes

Paper : I

Objective

Marks : 10

66-22

Paper Code 6 6 4 1

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.

SECTION-A

Q.1	Questions	A	B	C	D
1.	The ratio $\frac{4}{9}:\frac{1}{3}$ in lowest term is:	4:3	3:4	9:3	3:1
2.	20% of 1250 is:	25	250	350	200
3.	The simple interest of Rs.500 borrowed for 4 Years @10% per annum is:	Rs. 720	Rs. 200	Rs. 450	Rs. 350
4.	If $f(x) = 4x - 3$ then $f(2)$ is equal to:	9	5	1	-3
5.	If $3x + 2 = 2x + 8$ then	$x = 6$	$x = 5$	$x = 4$	$x = 3$
6.	The roots of the equation $x^2 + 2x = 0$ are :	0, -2	0, 2	2, -2	0, 1
7.	Conversion of 13 into binary number is:	$(1110)_2$	$(1010)_2$	$(1101)_2$	$(1001)_2$
8.	21 in binary system is:	$(1011)_2$	$(10110)_2$	$(1001)_2$	$(10101)_2$
9.	A square matrix A is called singular if:	$ A \neq 0$	$ A = 0$	$ A < 0$	$ A > 0$
10.	if $\begin{vmatrix} k-2 & 1 \\ 5 & k+2 \end{vmatrix} = 0$ then k is equal to :	3	-3	± 3	0

J. S. S.

Roll No.

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(To be filled in by the candidate)

Business Math

H.S.S.C (11th)-A-2022

Time : 1:45 Hours

Paper : I

Sub - 22

Subjective

Marks : 40

Note :- Section **B** is compulsory. Attempt any **Two** Questions from Section **C**.

SECTION-B

2. Write short answers to any Six parts. (6 x 2 = 12)

- i. Define inverse proportion and give an example.
- ii. What is simplest ratio between 24 and 64.
- iii. Find the amount whose 20% is Rs. 500.
- iv. Define ordinary annuity and write its formula.
- v. Find the simple interest on Rs. 5000 for 10 years at 8% Per annum.
- vi. Solve the equation $\frac{9}{x+4} = \frac{5}{x-8}$
- vii. Solve the equation $2(x+4) = 5x - 28$
- viii. Find the quadratic equation whose roots are -9 and 7
- ix. What is a quadratic equation? Give an example.

3. Write short answers to any Six parts. (6 x 2 = 12)

- i. Define even function and give an example.
- ii. Define domain and range of a function.
- iii. Convert $(1101)_2$ into decimal system.
- iv. Add $(1111)_2$ and $(1010)_2$
- v. Subtract $(111001)_2$ and $(1001)_2$
- vi. Define scalar matrix and give an example.
- vii. Find value of x if the matrix $A = \begin{bmatrix} 1 & 3 \\ 2 & x \end{bmatrix}$ is singular
- viii. Find AB if, $A = \begin{bmatrix} 3 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} 5 \\ 3 \end{bmatrix}$
- ix. Define non-singular matrix and give one example.

SECTION-C

Each question carries 4 + 4 = 8 Marks

4.(a) Find the net amount to be paid, when a discount of 3% was allowed on amount Rs. 10200/=

(b) Calculate the compound interest earned for Rs. 5000/= invested for 6 years @7% per annum.

5.(a) The sum of two numbers is 12 and twice the first is 6 greater than four times of the second. Find the two numbers.

(b) Find the slope and angle of inclination joining the points $P_1(-2,4)$ and $P_2(5,11)$

6.(a) Solve the following system by using matrix method:

$$2x + y = 25$$

$$x - y = 5$$

(b) Solve the following by changing into decimal system:

$$\{(101111)_2 + (111000000)_2\} - (39)_{10}$$

Roll No. (To be filled in by the candidate)

Enter (Part-B)-A-2021

Time : 15 Minutes

Marks : 10

Paper Code

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 circle. Cutting or filling up two or more circles will result no mark. - -

Q.1	Questions	A	B	C	D
1.	If $2:7::x:49$ then x is:	8	14	12	28
2.	20% of 500 is:	70	80	90	100
3.	Simple interest on Rs.400 @ 9% annually in 2 years is:	Rs.36	Rs.360	Rs.72	Rs.720
4.	$ax + by = c$ is an example of:	Exponential Equation	Linear Equation	Identity Equation	Quadratic Equation
5.	The degree of an equation is the highest power of:	coefficient	constant	exponents	variable
6.	The point $(-2, 6)$ lies in the quadrant:	1 st	2 nd	3 rd	4 th
7.	Order of matrix $\begin{bmatrix} 3 & 4 \end{bmatrix}$ is:	1 × 3	3 × 1	3 × 3	1 × 1
8.	Square matrix 'A' will be singular if:	$ A =1$	$ A \neq 1$	$ A \neq 0$	$ A =0$
9.	Decimal number system is based on _____ digits.	2	4	8	10
10.	(1001) ₂ into base 10 is:	8	9	10	12

Note :- Section I is compulsory. Attempt any Two Questions from Section II.

2.

Write short answers to any Six parts.

SECTION - I

- i. Find the ratio between 3 hours and 30 minutes. (6 x 2 = 12)
- ii. If $x:4::9:12$. Then find the value of x .
- iii. Calculate 5% of 5000.
- iv. Define the term Interest.
- v. Find the simple interest on Rs.5000 invested for 3 years at 12% per annum.
- vi. Solve for x , $2(x+5) - (x-6) = 10$
- vii. Solve the equation $x^2 + 5x - 6 = 0$ for x .
- viii. If $y = 6x^2 + x + 2$, find y' for $x = 0$ and $x = -1$
- ix. Solve for x , $\frac{1}{x+1} = \frac{3}{x-1} + \frac{2}{3}$

3.

Write short answers to any Six parts.

(6 x 2 = 12)

- i. If $g(x) = 2x - 1$. Then find $g(0)$ and $g(-3)$
- ii. Define Odd Function.
- iii. If $A = \begin{bmatrix} 4 & 7 \\ 4 & 15 \end{bmatrix}$, $B = \begin{bmatrix} 3 & 8 \\ 2 & 20 \end{bmatrix}$. Then find $A - B$
- iv. If $A = \begin{bmatrix} 4 & 5 \\ 2 & 3 \end{bmatrix}$. Then find A^2
- v. If $A = \begin{bmatrix} 4 & -4 \\ -6 & -5 \end{bmatrix}$. Then find $|A|$
- vi. Find A^{-1} of a matrix $A = \begin{bmatrix} 1 & 2 \\ -1 & 2 \end{bmatrix}$
- vii. Add $(101)_2 + (111)_2$ in a binary number system.
- viii. Convert $(15)_{10}$ into a binary number system
- ix. Evaluate $(111)_2 * (10)_2$

SECTION - II

Each question carries 4 + 4 = 8 Marks

4. (a) A train travels 144 km distance in 2 hours. What will it travel in 50 minutes with the same speed?

(b) At what rate Rs.5000 double itself in 5 years.

5. (a) Given that $f(x,y) = 3x^2 - 2xy + 5y^2$. Then find $f(-2, 3)$ and $f(0, 2)$

(b) The sum of two numbers is 14. If one number is 6 more than other. What are the numbers?

6. (a) Find inverse of the matrix $\begin{bmatrix} 10 & 2 \\ 1 & 0 \end{bmatrix}$

(b) Simplify $\{((00111)_2 + (10101)_2)\} - (10111)_2$