

SARASWAT EDUCATION SOCIETY'S
SRIDORA CACULO COLLEGE OF COMMERCE & MANAGEMENT STUDIES
KHORLIM, MAPUSA, GOA

B.Com - Honors / B.Com - General (NEP 20, w. e. f. 2023-24)

F.Y.B.COM. SEMESTER END ASSESSMENT, APRIL, 2024

THEORY EXAMINATION SEMESTER II (Offline mode)

Subject:- BUSINESS MATHEMATICS - II. (SEC-2 COM-147)

M.Marks:- 20..

Duration:- 1 hrs.

Instructions:- 1. Attempt all the questions.

2. Use of non-programmable calculator is allowed.

3. Each question carries equal 4 marks.

4. Each sub-questions of a question carries equal 2 marks.

5. Sub-questions of a question should be answered continuously.

6. Internal choice for sub-questions is available from question 3 onwards.

Q.1. Attempt the following:

a) Define the following terms:

i) Conjunction ii) Disjunction

b) Answer the following

i) A man walks 5 km toward south and then turns to the right. After walking 3 km he turns to the left and walks 5 km. Now in which direction is he from the starting place?

i) West ii) South iii) North-East iv) South-West

ii) The number that will follow the given series of number: 3, 6, 11, __ is ?

i) 13 ii) 16 iii) 18 iv) 22

Q.2. Attempt the following:

a) Answer the following questions:

i) If $A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 5 & 6 \\ 3 & 6 & 7 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & 3 \\ 2 & 3 \\ 2 & 3 \end{bmatrix}$ the order of $A \times B$ is ____

i) 2×3 ii) 3×2 iii) 3×3 iv) 2×2

ii) If $A = \begin{vmatrix} 10 & 20 \\ 30 & 40 \end{vmatrix}$ then $\begin{vmatrix} k1 & k2 \\ k3 & k4 \end{vmatrix} = \underline{\hspace{2cm}}$

i) 0 ii) kD iii) $4kD$ iv) K^2D

b) Select the correct answer from the option provided and complete the statement:

i) The sequence given by : 10, 100, 1000, 10000, is ____

a) AP b) GP c) Neither AP nor GP d) Both AP as well as GP.

ii) Slope of a line perpendicular to line : $x + y = 0$ is ____

a) 1 b) -1 c) 0 d) undefined

Q.3. Attempt the following:

- a) Translate the following simple verbal statements into symbolic form:
- If today is Sunday then it is not true that today is clear and holiday.
 - Today is Sunday iff today it is clear and yesterday was not cloudy.

b) i) Give one example of a scalar matrix.

ii) Find the value of x if $\begin{bmatrix} 1 & 2+x \\ -2 & 6 \end{bmatrix}$ is a singular matrix

.OR.

- c) Find the equation of a line having Y-intercept as -2 and perpendicular to the line $3x + y = 7$.

Q.4. Attempt the following:

- a) If $A = \begin{bmatrix} -2 & 0 \\ 1 & 3 \end{bmatrix}$ $B = \begin{bmatrix} 3 & 5 \\ -7 & 2 \end{bmatrix}$, find the matrix X such that $2A - 3B + 5X = 0$, where 0 is a zero matrix of appropriate order.

b) Find the n th term for the sequence given below.

$$3, \frac{-3}{2}, \frac{3}{4}, \frac{-3}{8}, \frac{3}{16}, \frac{-3}{24}, \dots$$

.OR.

- c) Examine whether the proposition given below a tautology, contradiction or none of the two: $p \leftrightarrow (q \leftrightarrow r)$

Q.5. Attempt the following:

- a) Find the sum of all natural numbers from 100 to 400 which are divisible by 4.
- b) At what time between 4 O'clock and 5 O'clock, will the hands of a clock be together?

.OR.

c) Solve the following equations using determinants

$$2x + y - z = 1, \quad 2y + 3x + z - 3 = 0 \quad \text{and} \quad x - y + 4z = 2$$

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