

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

F.Y.B.COM. SEMESTER END ASSESSMENT, APRIL, 2026

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

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

THEORY EXAMINATION SEMESTER II (Offline mode)

Duration:- 1 hrs.

M.Marks:- 20.

- Instructions:-
1. Question paper has total - 2 pages
 2. Attempt all the questions.
 3. Use of non-programmable calculator is allowed.
 4. Each question carries equal 4 marks.
 5. Each sub-questions of a question carries equal 2 marks.
 6. Sub-questions of a question should be answered continuously.
 7. Internal choice for sub-questions is available from question 3 onwards.

Q.1. Attempt the following:

a) Define the following terms:

- i) Compound statement ii) Contradiction

b) Answer the following

i) If in a certain language, MADRAS is coded as NBESBT, how is BOMBAY coded in that code?

- (a) CPNCBX (b) CPNCBZ (c) CPOCBZ (d) CQOCBZ (e) None of these

ii) Starting from the point X, Jayant walked 15 m towards west. He turned left and walked 20 m. He then turned left and walked 15 m. After this he turned to his right and walked 12 m. In which directions is now Jayant from X?

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

Q.2. Attempt the following:

a) Answer the following questions:

i) Example of diagonal matrix is _____

- a) $\begin{bmatrix} 0 & 2 & 3 \\ 2 & 0 & 2 \\ 3 & 2 & 0 \end{bmatrix}$ b) $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & 3 \end{bmatrix}$ c) $\begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$ b) $\begin{bmatrix} 0 & 0 & 4 \\ 0 & 4 & 0 \\ 4 & 0 & 0 \end{bmatrix}$

ii) If $D = \begin{vmatrix} -2 & 1 \\ -2 & 1 \end{vmatrix}$ then $D =$ _____

- a) 0 b) - 4 c) -1 d) 4

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

i) The sequence given by : - 4, - 4, - 4, - 4, - 4, - 4, is _____

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

ii) Slope of a line perpendicular to the line : $2x + 3y = 5$ is _____

- a) $\frac{3}{2}$ b) $-\frac{3}{2}$ c) $\frac{2}{3}$ d) $-\frac{2}{3}$

Q.3. Attempt the following:

a) Show that whether the statements given below are logically equivalent.

$$p \leftrightarrow q \text{ and } (p \rightarrow q) \wedge (q \rightarrow p)$$

b) If $A = \begin{bmatrix} 2 & 1 \\ 0 & -1 \end{bmatrix}$, $B = \begin{bmatrix} 0 & -1 \\ 3 & 1 \end{bmatrix}$, show that $|AB| = |A| * |B|$

.OR.

c) Prove that the points (3, -5), (4, 3) and (11, -4) are the vertices of an isosceles triangle.

Q.4. Attempt the following:

a) Find the value of x, y and z from the matrix equation)

$$\begin{bmatrix} 3x-1 & 8 \\ 4 & 2 \\ 7 & z \end{bmatrix} + \begin{bmatrix} 5 & 2 \\ 5 & 2y+3 \\ -1 & 0 \end{bmatrix} = \begin{bmatrix} 13 & 10 \\ 9 & 7 \\ 6 & -2 \end{bmatrix}$$

b) The 5th term of an A.P. is 19 and the 15th term is 59. Find its 20th term.

.OR.

c) Let a : Today is Sunday. b : Today it is clear. c : Today is holiday.

Translate the following into simple verbal statements:

i) $a \rightarrow \sim (b \wedge c)$.

ii) $a \leftrightarrow (b \wedge \sim c)$.

Q.5. Attempt the following:

a) Find the sum of all natural numbers between 100 and 400 which are exactly divisible by 6.

b) Solve for x if $\begin{vmatrix} 5 & -3 & 7 \\ 2 & 1 & 2 \\ 9 & -1 & x \end{vmatrix} = 0$

.OR.

c) A can lay railway track between two given stations in 18 days and B can do the same job in 12 days. With help of C, they did the job in 4 days only. How long C would have completed the work independently?
