

S.P.U. (P.G.) College, Falna
(Affiliated to Jai Narain Vyas University, Jodhpur)

Assignment for Semester I - 2023-24

Program : Bachelor of Computer Application

Subject / Course Name & Code : MATHEMATICS FOR COMPUTING

[Code – CSA 5002T]

Max. Marks: 30

Note: The question paper is divided into **Two sections A and B**. Write answers as per given instructions.

Section A

(Very Short Answer Type Questions)

Note: Answer all questions. Give answer in One Word or One Sentence or maximum up to 30 Words. Each question carries 2 marks. (5X2=10)

Q.1(A) (1). Define the following with example. (a) Power Set, (b) Sub Set, (c) Null Set

(B) (2). Convert following into Tabular form to Set builder form

(a) {a,e,i,o,u} (b) {3,9,27,81} (c) {2,4,6,8}

(C) If $A = \{1,2,3,4\}$ $B = \{3,4,5,6\}$

find (a) $A \cup B$ (b) $A \cap B$ (c) $A^c \cup B^c$ (d) $A - B$

(D) (4). Define Relation & Function with example.

(E)). Define Symmetric & Skew Symmetric matrix.

Section B

(Long Answer Type Questions)

Note: Answer any two questions selecting one question from each pair (A OR B). Give answer maximum up to 500 Words. Each question carries 10 marks. (2X10=20)

Q.2 (A) If $f: \mathbb{R} \rightarrow \mathbb{R}$, $f(x) = \cos x$ & $g: \mathbb{R} \rightarrow \mathbb{R}$, $g(x) = x^3$ then find $(g \circ f)(x)$ & $(f \circ g)(x)$ & also prove $g \circ f \neq f \circ g$.

OR

Check given function is a one-one, onto or one-one onto (injective, surjective, bijective)

(a) $f: \mathbb{R} \rightarrow \mathbb{R}$ $f(x) = ax + b$ (b) $f: \mathbb{R} \rightarrow \mathbb{R}$ $f(x) = x^2$

Q.3).(a) prove that given matrix. Is Orthogonal Matrix.

$$\begin{pmatrix} \cos \theta & 0 & \sin \theta \\ 0 & 1 & 0 \\ -\sin \theta & 0 & \cos \theta \end{pmatrix}$$

OR

Find the Inverse Matrix. & also prove $A A^{-1} = I$.

$$\begin{pmatrix} 3 & 2 & 1 \\ 0 & -4 & 3 \\ 8 & 12 & -5 \end{pmatrix}$$

