SCHOOL OF COMPUTER SCIENCE AND APPLICATIONS
Odd Semester 2024-2025
Assignment I

Programme: PG – MCA
Semester: I
Section: A
Date of Announcement: 09-01-25
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Course Code: M23DE0101
Course Title: Mathematics for Computer Applications
Name of the Faculty: Dr. M Vinayaka Murthy

Sl. No	Assignment Question	CO	PO	PSO
1.	Show that $A - (A \cap B) = A - B$ Prove that $(\boldsymbol{A} - \boldsymbol{B}) - \boldsymbol{C} = \boldsymbol{A} - (\boldsymbol{B} \cup \boldsymbol{C}) = (\boldsymbol{A} - \boldsymbol{C}) - (\boldsymbol{B} - \boldsymbol{C})$	1	1	1
2	If A = {1, 2, 3}, B = {2, 4, 6}, C = {1, 3, 4, 5}, U = {1, 2, 3, ... 6} calculate $A \cup B, A \cup C,$ $A \cap B, A \cap C, B - A, C - A, A \cup (B \cap C), A \cap C\ (B \cup C), (A \cup B)', (A' \cup B'),$ $A' \cup (B' \cap C)$	1	1	1
3.	In a survey of 100 families the numbers that read the most recent issue in various magazines were found to be as follows: Reader digest=28; Reader digest and science today=8; Science today = 30; Reader digest and Caravan=10; Caravan =42; Science today and Caravan =5; All the magazines = 3. Find (i) How many read none of the three magazines, (ii) How many read caravan as their only magazine, (iii) How many read Reader digest as their only magazine, (iv) How many read Science today as their only magazine, (v) How many read exactly two magazines	1	1,3	1,2
4	A total of 1232 students have taken a course in Spanish, 879 have taken a course in French, and 114 have taken a course in Russian. Further, 103 have taken courses in both Spanish and French, 23 have taken courses in both Spanish and Russian, and 14 have taken courses in both French and Russian. If 2092 students have taken at least one of Spanish, French, and Russian, how many students have taken a course in all three languages?	1	1,3	1,2
5	How many integers between 1 and 567 are divisible by 3, 5 and 7?	1	1,2	1,3
6	If $M_R = \begin{pmatrix} 1 & 0 & 1 \\ 1 & 0 & 1 \\ 0 & 1 & 0 \end{pmatrix}, M_s = \begin{pmatrix} 1 & 0 & 1 \\ 0 & 1 & 1 \\ 1 & 0 & 0 \end{pmatrix},$ then find $M_{R \cup S}, M_{R \cap S}, M_{\bar{R}}, M_{ROS}$	1	1,2	1

7	If A = {1, 2, 3, 4} and R and S are relation of A × A, defined by R = {(1, 2), (1, 3), (2, 4), (4, 4)} and S = {(1, 1), (1, 2), (1, 3), (1, 4), (2, 3), (2, 4)} find RoS, SoR, So(RoS), R^2, and S^2.	**1**	**1,2**	**1**
8	Define the equivalence relation. Let A = {1, 2, 3, 4} and R be a relation defined by set A, i.e., R ⊆ AxA, where R = {(1, 1), (1, 4), (4, 1), (4, 4), (2, 2), (2, 3), (3, 2) (3, 3)}, Show that R is an equivalence relation.	**1**	**1,2**	**1,3**
9	Let A be the set of factors of a particular positive integer m and ≤ be the relation divides, $\leq = \{(x, y)/x \leq y, x \in A and\ y \in A(\ x\ divides\ y)\}$. Draw a Hasse diagram for $(i) m = 12, (ii)\ m = 45, (iii) m = 210$	**1**	**1,2**	**1,2**
10	Let X = {1, 2, 3, 4} and R = {x, y} {x ≥ y} Draw the graph of R and also its matrix	**1**	**1,2**	**1,3**
11	If f : R → R is defined by $f(x) = 3x = 4$ find $f^{-1}(a)$, $f^{-1}(-2)$, $f^{-1}(-16)$	**1**	**1,2**	**1,2**
12	A function f : R → R is defined by $f(x)$ $2x + 5$. Examine whether f is one-one and onto if to find the inverse.	**1**	**1,2**	**1,2**
13	Let considered the integer sequence a_0, a_1, a_2, a_3, ... where $a_0 = 1, a_1 = 2, a_2 = 3$ and $a_n = a_{n-1} + a_{n-2} + a_{n-3}$ for all n ∈ Z^+, where n ≥ 3. Find the value of $a_3, a_4, a_5, a_6 and\ a_7$.	**1**	**1,2**	**1,3**
14	If $f(x) = x^2$, $g(x) = x + 5$, $h(x) = \sqrt{x^2 + 2}$. Verify that $fo(goh) = (fog)oh$.	**1**	**1,2**	**1,3**

Subject Teacher **H O D** **Director**