



**Assignment No. 2: Relations and Functions**

Answer the following questions

Que 1: Define the term relation. Explain the representation of relation with suitable example.

Que 2: Show that relation R is an equivalence relation. Draw the diagram of the relation R. Set  $A = \{1, 2, 3, \dots, 7\}$  and  $R = \{(x, y) : x - y \text{ is divisible by } 3\}$

Que 3: What is POSET? Explain concept of chain, anti-chain and Lattice with suitable example.

Que 4: Draw Hasse diagram for the following relation.

$$A = \{1, 2, 3, 4, 12\}$$

$$R = \{(1, 1), (2, 2), (3, 3), (4, 4), (12, 12), (1, 2), (4, 12), (1, 3), (1, 4), (1, 12), (2, 4), (2, 12), (3, 12)\}$$

Que 5: Explain following terms:

- a. Injective function
- b. Surjective function
- c. Bijective function

Que 6: Let,

$$f(x) = x + 2$$

$$g(x) = x - 2$$

$$h(x) = 3x \text{ for } x \text{ belongs to } \mathbb{R}$$

Where,

$\mathbb{R}$  is the set of real numbers

Find:  $\text{gof}$ ,  $\text{fog}$ ,  $\text{fof}$ ,  $\text{hog}$ ,  $\text{gog}$ ,  $\text{foh}$ ,  $\text{hof}$ ,  $\text{fohog}$

Prof. Sandip Walunj

Subject Teacher

Dr. Amol D. Potganwar

HOD (Computer Engg.)