

Assignment – 1

It is already given in class.

Assignment – 2

Q.1 Write the statement in symbolic form.

a) I will scored good marks in exam if and only if I study hard.

b) p: sam is rich

q: sam is happy

sam is neither rich nor happy.

c) If utility cost goes up or yhe request for additional fund is denied the newcomputer will be purchased if and only if we can show that current computing facility are inadequate.

Q. 2 If $p \rightarrow q$ is true, then show that $\sim p \vee (p \leftrightarrow q)$ is a tautology.

Assignment – 3

Q.1 A die is rolled and a coin is tossed, find the probability that the die shows an odd number and the coin shows a head.

Q.2 A card is drawn at random from a deck of cards. Find the probability of getting the 3 of diamond.

Q.3 A college has 10 basketball players. A 5-member team and a captain will be selected out of these 10 players. How many different selections can be made?

Q.4 Four dice are rolled simultaneously. What is the number of possible outcomes in which at least one of the die shows 6?

Assignment – 4

Q.1 Find transitive closure of given relation using Warshall's algorithm.

Let $A = \{a_1, a_2, a_3, a_4, a_5\}$ & let R be the relation on A whose matrix is

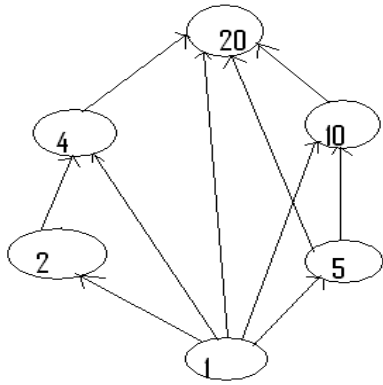
$$\begin{bmatrix} 1 & 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 1 \\ 1 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 1 \end{bmatrix}$$

Q4015(e)-10.5461(d)ln 4y5424(t)5.24card t se phe n

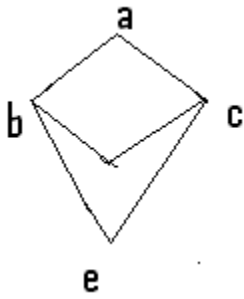
Find whether R Partial order relation and equivalence or not?

Assignment – 6

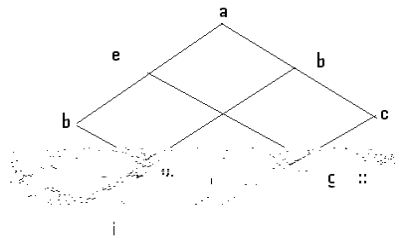
Q.1 Draw the Hasse Diagram for the following fig.



Q.2 Determine whether the posets represented by each of the Hasse Diagram in the following fig. are lattices or not. Justify your answer.

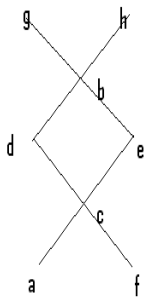


1)



2)

Q.3 Find if there exists 1) All lower and upper bounds of B 2) the least upper and greatest lower bound of set B



$$B = \{c, d, e\}$$

Assignment –7

Q.1 State which of the following are function

$$A=\{a_1,a_2,a_3\} \quad B=\{b_1,b_2,b_3\} \quad D= \{d_1,d_2,d_3,d_4\}$$

- a) $f:A \rightarrow B \{(a_1,b_2),(a_2,b_3), (a_3,b_1)\}$
- b) $f:A \rightarrow D \{(a_1,d_2),(a_2,d_1), (a_3,d_4)\}$
- c) $f: D \rightarrow B\{(d_1,b_1),(d_2,b_2),(d_3,b_1)\}$

Q.2 Determine whether inverse of function exists or not?

$$F:A \rightarrow B$$

$$A=\{1,2,3,4\} \quad B=\{a,b,c,d\}$$

1) $f= \{(1,a),(2,a),(3,c) ,(4,d)\}$

2) $f= \{(1,a),(2,c),(3,b),(4,d)\}$

Q.3 Determine whether function is one to one and onto

$$F:A \rightarrow B$$

Let set A,B are set of integers and $f(a)=a-1$

Assignment – 8

Q.1 Which of the following graph shown in fig. have eulerian path

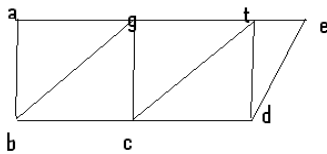


Fig.1

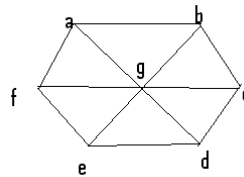
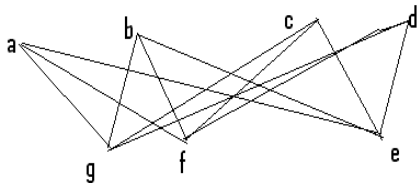


Fig.2

Q.2 Which of the following graph shown in fig. have Eulerian path and circuit, Hamiltonian path and circuit?



Assignment – 9

Q.1 Consider a set $S=\{0,1,2,3\}$ Check whether following algebraic system is semigroup or not?

1) (S,+4) 2) (S,X4) 3)(S,+5)

Q.2 Consider a set $S=\{0,1,2,3\}$ Check whether following algebraic system is monoid or not?

1) (S,+4) 2) (S,X4)

Q.3 Consider a set $S=\{0,1,2,3\}$ Check whether following algebraic system is group or not?

1) (S,+4) 2) (S,X4) 3)(S,+5)

Assignment – 10

Q.1 Draw a tree with 6 nodes, exactly 3 of which have degree 1.

Q.2 Consider the following binary search tree and search for i)key 20 ii) key 50

