

**PUNE INSTITUTE OF COMPUTER TECHNOLOGY
DHANKAWADI, PUNE – 43.**

Department of Computer Engineering

Academic Year: 2019-20 (Semester-I)

UNIT TEST II

Year: SE ALL

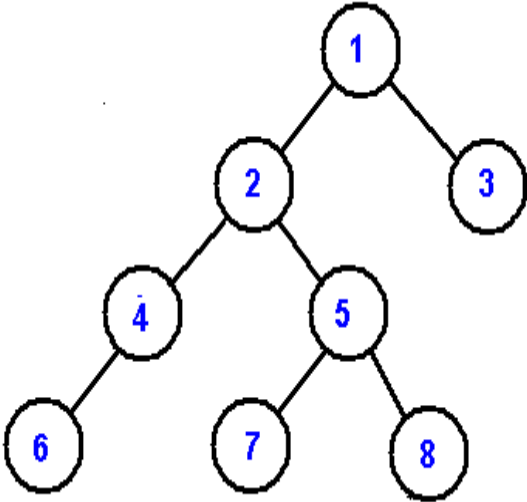
Subject: Discrete Mathematics

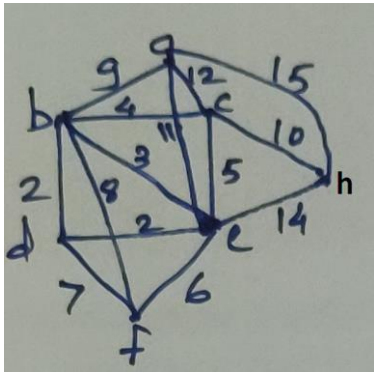
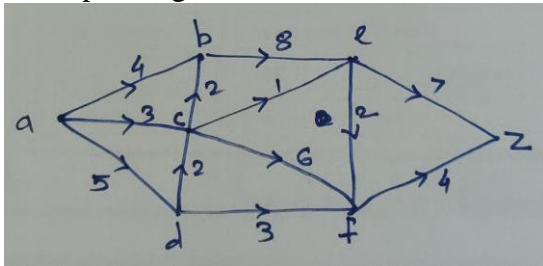
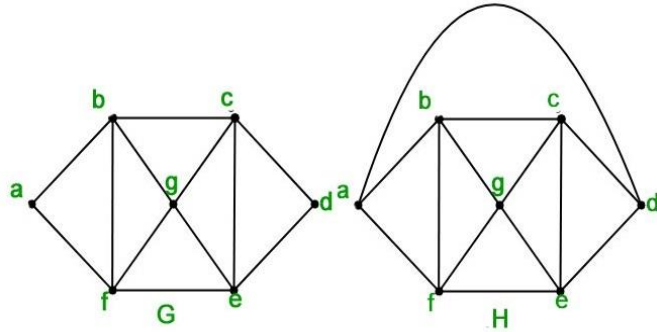
Time: - 1 Hour

Max. Marks: - 30

Instructions to the candidates:-

1. All questions are compulsory.

Q. No.	Sub. Q. No.	Question	Marks	Unit No.	Cos Covered	CO Mapping
1	A	There are 25 telephones in PICT. Is it possible to connect them with wires so that each telephone is connected with exactly 7 others? Justify Your answer.	5	4	CO5	2,1
1	B	Find the pre-order, Post-order and in-order traversal of a tree shown below 	5	5	CO5	
2	A	Determine a minimum spanning tree for the graph using Krushkal's Algorithm	3	5	CO3	

						
2	B	<p>Use the labeling procedure to find a maximum flow in a transport network in given fig. Determine the corresponding minimum cut.</p> 	4	5	CO3	2
2	C	<p>The company has 10 members on its board of directors. In how many ways can they elect a president, a vice president, a secretary and a treasurer ?</p>	3	3	CO4	3
3	A	<p>Consider the set Q of rational numbers and let $*$ be the operation on Q defined by</p> $a*b = a + b - ab$ <p>Find $3*4$, $2*(-5)$, $7*(1/2)$ Is $(Q, *)$ a semigroup? Is it commutative ?</p>	4	6	CO6	3
3	B	 <p>What is the chromatic number of the above graphs?</p>	3	4	CO5	3
3	C	<p>What is Eulerian circuit and path ? How it is used to solve the computational problem ?</p>	3	4	CO5	2