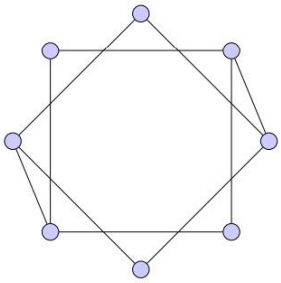
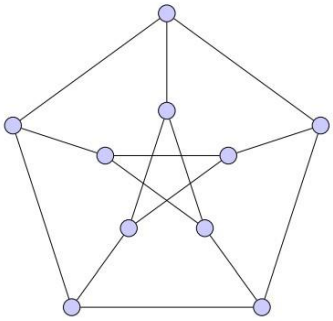
Name: Enrolment No:	UPES UNIVERSITY OF TOMORROW

UPES

Class Test 1

Programme Name : B.Tech **Semester : III**
Course Name : Discrete Mathematical Structure **Time: 40 Min.**
Course Code : CSEG2006 **Max. Marks:**
Nos. of page(s) : 1 **Batch: all retest**

Instructions: Do all questions.

S. No.		Marks	CO
Q 1	(a) Consider the following relation on $\{1,2,3,4,5,6\}$ $R = \{(i,j): \lvert i-j \rvert = 2\}$ Is $'R'$ transitive? Is $'R'$ reflexive? Is $'R'$ symmetric?		
	(b) Let R be the binary relation defined as $R = \{(a,b) \in R^2: (a-b) \leq 3\}$ Determine whether R is reflexive, symmetric, antisymmetric, and transitive.		
Q 3	Which elements of the poset $(\{2,4,5,10,12,20,25\}, \lvert)$ are maximal and which are minimal.		
Q 4	If s is a valid conclusion from the premises $p \to q, p \to r, \sim(q \wedge r)$ and $s \vee p$. If yes or no, justify		
Q 5	Let f and g be functions from the positive integers to the positive integers defined by $f(n) = n^2$, $g(n) = 2^n$. Find $(i) fof,\ (ii) gog,\ (iii) fog,\ (iv) gof$		
Q 2	Which of the following graphs are Hamiltonian? If they are Hamiltonian, identify a Hamiltonian cycle. If they are not Hamiltonian, explain briefly why.  (a)  (b)		