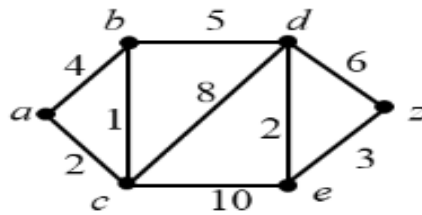




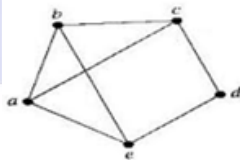
Question Bank for Minor -II

Discrete Mathematics

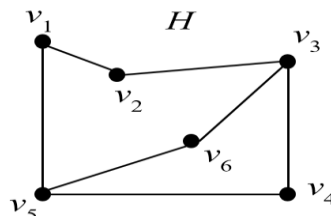
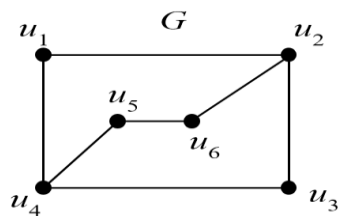
1. Solve the recurrence relation $a_n - 3a_{n-1} + 2a_{n-2} = 5n + 3$ for $n \geq 2$.
2. Using generating function, solve the recurrence relation $a_n - 9a_{n-1} + 20a_{n-2} = 0$ for $n \geq 2$ with $a_0 = -3, a_1 = -10$.
3. Use Dijkstra's algorithm to find the length of a shortest path between a and z in the weighted graph.



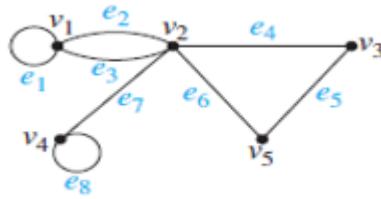
4. Find the chromatic number for following graph.



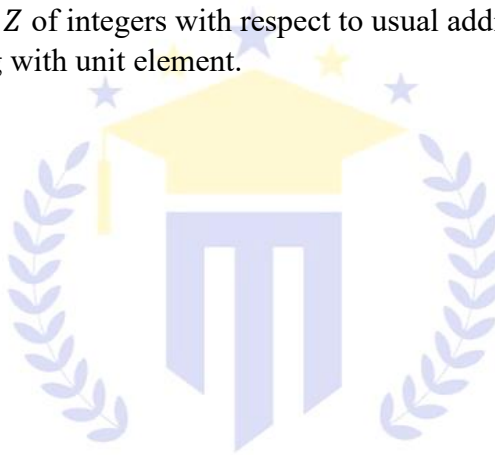
5. Show that the following graphs are Isomorphic.



6. Obtain the incidence matrix of the following graph.



7. Show that $S = \{1, \omega, \omega^2\}$ is a group under multiplication.
8. Find order of $U = \{1, 2, 4, 7, 8, 11, 13, 14\}$ under X_{15} also find order of an elements 2 and 7.
9. Define normal subgroup. Show that $H = \{1, -1\}$ is a normal subgroup of the group $G = \{1, -1, i, -i\}$ under multiplication.
10. Show that the set Z of integers with respect to usual addition and multiplication is a commutative ring with unit element.



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