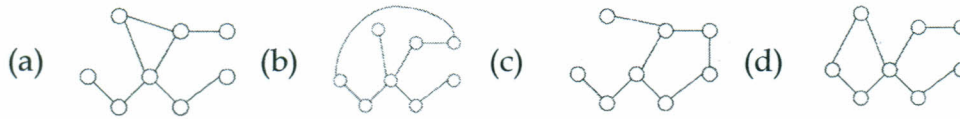
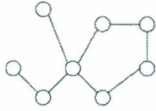


End Term Examination (Backlog), November-December 2018
B. Tech. (CSE), Semester V

Max. Marks: 40

Page 1 of 4

x. Which of the following graphs is isomorphic to



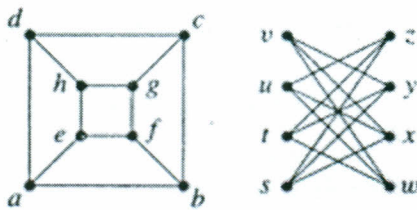
Q.2 Solve the following problems (4 questions @ 2.5 marks)

10

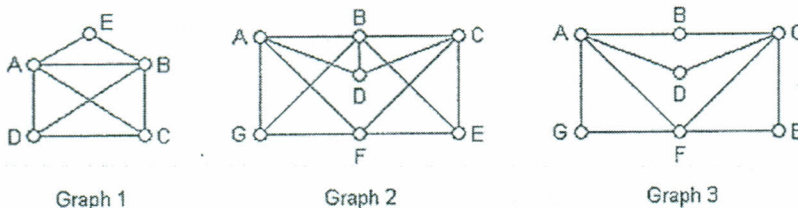
- How many faces will a planar graph with degree sequence 3, 3, 3, 3, 3, 3, 6 have?
- Draw a graph with n vertices, $n - 1$ edges but having a cycle.
- Define what it means for a graph to have an Hamiltonian cycle.
- Explain chromatic number and chromatic polynomial by taking a suitable example.

Q.3A Define simple graph. Show that every simple graph has two vertices of the same degree. 05

Q.3B Determine whether following two graphs are isomorphic. Explain your answer. 05



Q.4A Determine which of the following graphs has an Euler path but no Eulerian circuit. 05



Q.4B Determine whether the statements below are true or false. Explain your answer. 05

- Every disconnected graph has at least one isolated vertex.
- A graph is connected if and only if some vertex is connected to all other vertices.

Q.5A Explain how to use Breadth-First-Search to compute the girth of a graph. 05

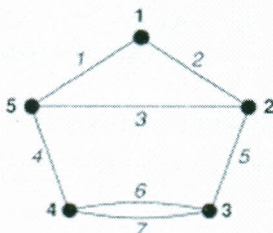
Q.5B Draw K_5 and $K_{5,5}$. Explain the difference between them. 05

- Q.6A Let G be a 4-vertex graph whose list of subgraphs obtained by deleting one vertex appears below. Determine G . 05

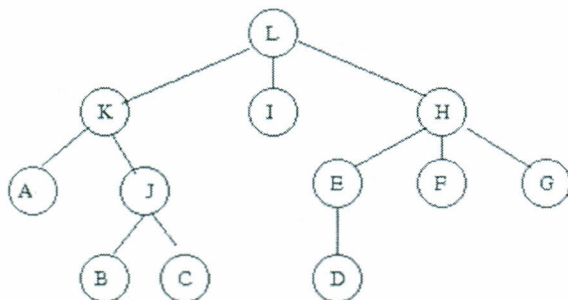


- Q.6B Show by drawing that the wheel graph W_5 is planar. Verify your answer using Euler's theorem. 05

- Q.7A Write down the adjacency and incidence matrix of the following graph. 05



- Q.7B List the nodes of the tree below in preorder, postorder, and breadth-first order. 05



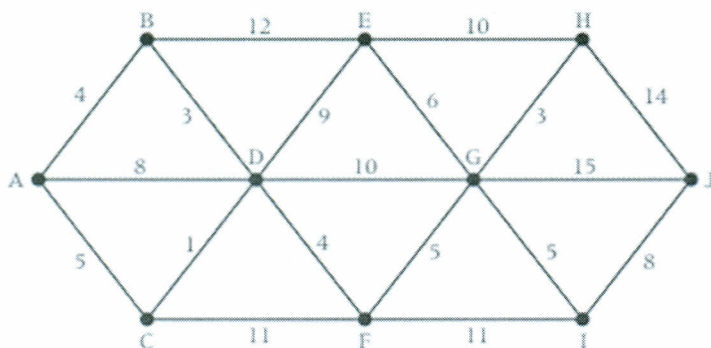
- Q.8A Explain with an example how to use Breadth-First search to compute the girth of a graph. 05

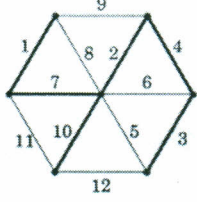
- Q.8B Explain the following by taking a suitable example: 10

- Planar Graphs
- Coloring of the graph
- Regular Graphs
- Trails, Walks and Paths

OR

- Q.8B Find the shortest distance from A to J on the network below using Dijkstra's algorithm. 10



Q.9A	Explain rooted tree and it's various components by taking a suitable example.	5
Q.9B	Find the minimum spanning tree for the following graph using Kruskal's algorithm.	10
		
OR		
Q.9B	Find the chromatic polynomial of the following graph.	10
