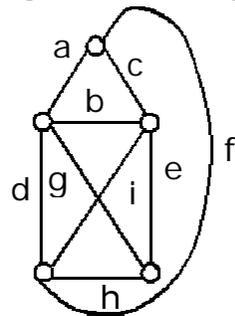


(4)

graph : 10

- (i) Number of vertices of odd degree.
- (ii) Number of pendent vertex.
- (iii) Number of non pendent vertex.
- (iv) Total No. of vertices in the graph.
- (v) Prove that above tree is binary tree or not.

7. (a) Define the spanning tree. 4  
(b) Find out the spanning tree of the given graph. 11



Unit-IV

8. (a) Define the cut-set, also discuss the some properties of the cut-set. 7½  
(b) What do you understand by fundamental circuit? 7½
9. (a) Write the condition for matrix representation of undirected graph. 7½  
(b) Discuss the various types of connectivity in a graph. 7½

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SFS-4712

B.C.A. (Semester-IV) Examination, 2015

(New Syllabus)

Graph Theory

(BCA-S-210)

**Time Allowed : Three Hours ] [ Maximum Marks :100**

Note : Answer five questions in all. Question No. 1 is compulsory. Attempt one question from each unit.

1. (a) Explain the fusion of graph by suitable example. 4 × 10 = 40  
(b) What is difference between walk and path?  
(c) Explain the null graph and pendent vertex.  
(d) Differentiate between closewalk and circuit.  
(e) What do you understand by connected graph? Illustrate with suitable example.

P.T.O.

(2)

- (f) Define the subgraph also Discuss the various types of disjoint graph.
- (g) Discuss the various set operation over the graph.
- (h) What is the importance of Euler graph?
- (i) What do you understand by Hamiltonian circuit?
- (j) Define the connectivity in the graph.

Unit-I

- 2. (a) List the application of graph to solve the Geometrical problem in computation. 7
- (b) Explain the infinite graph with suitable example. 4
- (c) Discuss the various types of degree of a graph. 4
- 3. (a) Give the Mathematical details about the statements the number of vertices of odd degree in a graph is always even. 7½
- (b) Give the suitable example of connected directed graph. How degree of a vertex is defined in directed graph? 7½

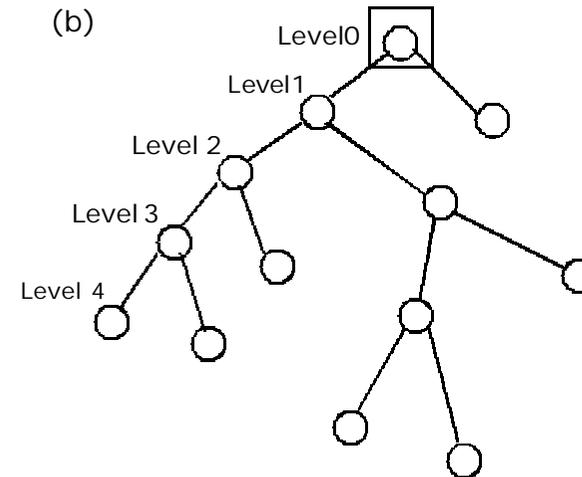
(3)

Unit-II

- 4. (a) What is isomorphism? Illustrate with suitable example. 7½
- (b) What are the components of the graph? List out the various components of the graph. 7½
- 5. (a) How much edges are present in simple graph with n-vertices and having-K-components? 7½
- (b) What would be the condition for a graph to be a Euler graph? 7½

Unit-III

- 6. (a) Define the Binary tree. Also give the suitable example of the binary tree. 5



Find out the following based on above