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Total No. of Printed Pages: 1

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B. Tech. (CSE) (Semester – 5th)

GRAPH THEORY

Subject Code: BCSED1512

Paper ID: [18111125]

Time: 03 Hours

Maximum Marks: 60

Instruction for candidates:

1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 5 questions of 5 marks each. The student has to attempt any 4 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A

(2 marks each)

Q1. Attempt the following:

- a. What are Hamiltonian graphs?
- b. Define spanning trees.
- c. Define graph and sub-graph.
- d. Define chromatic number.
- e. What are planar graphs?
- f. Define Kuhn-Tucker Conditions.
- g. Give an example of minimum spanning tree.
- h. Give Euler's formula. Write its application also.
- i. What is coloring theorem?
- j. What are complete graphs?

Section – B

(5 marks each)

- Q2. Explain matrix representation of a graph with example.
- Q3. Show that a connected graph G is an Euler Graph iff all vertices are of even degree
- Q4. Explain five color theorem in detail
- Q5. Explain Kruskal's algorithm with an example.
- Q6. Explain random search method using an example.

Section – C

(10 marks each)

- Q7. Explain DFS algorithm in detail.
- Q8. Explain Dijkstra's shortest path algorithm with an example.
- Q9. Explain network flow problem.