JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2016

B.Tech. (CSE&IT) VII Semester

COURSE CODE: Graph Algorithms and Applications   MAX. MARKS: 15

COURSE NAME: 10B1WCI733

COURSE CREDITS: 3   MAX. TIME: 1 HR

Note: *All questions are compulsory.*

1. [1 + 2]
    a. Draw a graph that has a Hamiltonian path but does not have a Hamiltonian circuit.
    b. Prove or disprove: A given connected graph G is an Euler graph if and only if all vertices of G are of even degree.

2. [1 + 2]

    a. Let v be a cut-vertex of a simple graph G. Prove that (complement of G) – v is connected.
    b. Prove or disprove: Every u,v walk contains a u,v path.

3. [1 + 2]
    a. Can you construct a graph if you are given all its spanning tree? How?
    b. Prove or disprove: Every closed odd walk contains an odd cycle.

4. In a league with two divisions of 13 teams each, determine whether it is possible to schedule a season with each team playing nine games against teams within its division and four games against teams in the other division. [3]

5. Determine whether the graphs below are isomorphic. [3]