JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST - 2 EXAMINATION- April 2017

B.Tech (VIII)/ M.Tech (II) Semester

COURSE CODE: ADVANCED SOFTWARE ENGINEERING

COURSE NAME: 10M11CI213

MAX. MARKS: 25

COURSE CREDITS: 3

MAX. TIME: 1 Hr 30 Minutes

Note: All questions are compulsory.

1.
a. It has been suggested that an independent certification authority should be established. Vendors would submit their components to this authority, which would validate that the component was trustworthy. What would be the advantages and disadvantages of such a certification authority?
b. Using an example of a component that implements an abstract data type such as a queue or a list, show why it is usually necessary to extend and adapt components for reuse.
[2.5 + 2.5]

2.
a. Giving reasons for your answer, suggest which dependability attributes are likely to be most critical for the following systems: A healthcare system; Self Driving car.
b. In a medical system that is designed to deliver radiation to treat tumors, suggest one hazard that may arise and propose one software feature that may be used to ensure that the identified hazard does not result in an accident.
[2.5 + 2.5]

3.
a. Suggest a list of good practice guidelines for Dependable programming.
b. It has been suggested that the control software for a radiation therapy machine, used to treat patients with cancer, should be implemented using N-version programming. Comment on whether or not you think this is a good suggestion.
[2.5 + 2.5]

4.
a. For a healthcare application, suggest an example of an asset, exposure, vulnerability, attack, threat, and control.
b. What viewpoints should be considered when developing a requirements specification for a patient records system for healthcare application? What are likely to be the most important cross-cutting concerns?
[2.5 + 2.5]

5. Compare and contrast the agile approach to project management with conventional plan-based approaches. The comparisons should be based on the effectiveness of each approach for planning the allocation of people to projects, estimating the cost of projects, maintaining team cohesion, and managing changes in project team membership. [5]