

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

T3 EXAMINATION- December 2018

B.Tech V Semester

COURSE CODE: Software Engineering

MAX. MARKS: 35

COURSE NAME: 10B11CI512

COURSE CREDITS: 4

MAX. TIME: 2Hr

*Note: All questions are compulsory.*

1. [3 + 3 Marks] (CO 1)
  - a. Consider a software project with 5 tasks T1- T5. Duration of the 5 tasks (in days) are 15, 10, 12, 25 and 10, respectively. T2 and T4 can start when T1 is complete. T3 can start when T2 is complete. T5 can start when both T3 and T4 are complete. Draw the activity graph and find the latest start date of the task T3?
  - b. You have been appointed a project manager for a small software products company. Your job is to build a breakthrough product that combines virtual reality hardware with state-of-the-art software. Because competition for the home entertainment market is intense, there is significant pressure to get the job done. What team structure would you choose and why?
2. [3 + 3 Marks] (CO 2)
  - a. Discuss some of the problems that occur when requirements must be elicited from three or four different customers.
  - b. Discuss the advantages and disadvantages of pair programming.
3. [3 + 3 Marks] (CO 3)
  - a. Suppose you are asked to design the user interface of a large software product. Would you choose a menu-based, a direct manipulation, a command language or a mixture of all these types of interfaces to develop the interface for your product? Justify your choice.
  - b. Apply "stepwise refinement approach" to develop two levels of procedural abstractions for a simple task scheduling algorithm for an operating system.
4. [3 + 3 Marks] (CO 4)
  - a. You work for a very small organization-only 11 people are involved in developing software. Is software process improvement for you? Explain your answer.
  - b. There is a subtle difference between restructuring and forward engineering. What is it?
5. [4 + 2 Marks] (CO 4)
  - a. Describe the difference between process and project metrics.
  - b. List the relative advantages of using either the Lines of Code (LOC) or the function point metric to measure the size of a software product for software project planning?

6. [ 2 + 3 Marks] (CO 4)

- a. A software team delivers a software increment to the end users. The users uncover eight defects during the first month of use. Prior to delivery, the software team found 242 errors during formal technical reviews and all testing tasks. What is the overall DRE of the project after one month's usage?
- b. Compute the function point value for a project with the following information domain characteristics:  
Number of user inputs: 32  
Number of user outputs: 60  
Number of user inquiries: 24  
Number of files: 8  
Number of external interfaces: 2

Assume all complexity adjustment values are average.

| Information domain values | Simple | Average | Complex |
|---------------------------|--------|---------|---------|
| External Inputs           | 3      | 4       | 6       |
| External Outputs          | 4      | 5       | 7       |
| External Inquiries        | 3      | 4       | 6       |
| Internal Logical files    | 7      | 10      | 15      |
| External Interface Files  | 5      | 7       | 10      |