

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-3 EXAMINATION- December 2017

B.Tech V Semester

COURSE CODE: 10B11CI512

MAX. MARKS: 35

COURSE NAME: Software Engineering

COURSE CREDITS: 4

MAX. TIME: 2 Hr

Note: All questions are compulsory.

1. [2.5 + 2.5 Marks]

- a. Assume you work for an organization that develops database products for individuals and small businesses. This organization is interested in quantifying its software development. Suggest appropriate metrics and how these can be collected.
- b. Which diagrams in UML capture the behavioral view of the system? Which UML diagrams capture the structural aspects of a system?

2. [2.5 + 2.5 Marks]

- a. List the role and task for the System Architect.
- b. Suggest reasons why the productivity rate of programmers working as a pair might be more than half that of two programmers working individually.

3. [2.5 + 2.5 Marks]

- a. Suggest factors that should be taken into account by engineers during the process of building a release of a large software system.
- b. Suggest ways in which the user interface to an e-commerce system such as online bookstore or music retailer might be adapted for users who have a visual impairment or problems with muscular control.

4. [2.5 + 2.5 Marks]

- a. Give two advantages and two disadvantages of the approach to process assessment and improvement that is embodied in the process improvement frameworks such as the CMMI.
- b. Design the architecture of a system that accepts natural language commands and translates these into database queries in a language such as SQL.

5. [5 Marks]

Explain Basic COCOMO model. A project size of 250 KLOC is to be developed. Software development team has average experience on similar type of projects. The project schedule is not very tight. Calculate the effort and development time of the project. [$a_b=3.0$, $b_b = 1.12$, $c_b =2.5$, $d_b =0.35$]

6. [5 Marks]

Draw an activity chart showing the project schedule for the following set of activities. Also estimate the time required to finish the project.

TASK	DURATION (days)	DEPENDENCIES
T1	10	
T2	15	T1
T3	10	T1, T2
T4	20	
T5	10	
T6	15	T3, T4
T7	20	T3
T8	35	T7
T9	15	T6
T10	5	T5, T9
T11	10	T9
T12	20	T10
T13	35	T3, T4
T14	10	T8, T9
T15	20	T12, T14
T16	10	T15

7. [5 Marks]

Consider a project with the following functional units:

Number of user inputs = 50

Number of user outputs = 40

Number of user enquiries = 35

Number of user files = 06

Number of external interfaces = 04

Assume all complexity adjustment factors and weighting factors are average. Compute the function points for the project. [The average value for EIs, EOs, EQs, ILFs, EIFs are 4, 5, 4, 10, 7 respectively].