

J.C. BOSE UST, YMCA, FARIDABAD
B.TECH. EXAMINATION (Under CBS), MAY-2019
PRINCIPLES OF SOFTWARE ENGINEERING (CE-302)

Time: 3 hrs

M.Marks:60

Note: Part-1 is Compulsory. Attempt any four questions from Part-II.

Part-1

- Q. No.1 (a) What are the advantages of developing a prototype of a system?
(b) Differentiate between functional and non functional requirements.
(c) Define Coupling and Cohesion.
(d) List the important properties of a modular system.
(e) What are software metrics? What is the significance of software metrics?
(f) Differentiate between Quality and reliability.
(g) What are the advantages of static testing as compared dynamic testing?
(h) Define Software Configuration Management? What is its need?
(i) Define the following: Failure, Fault, Error and Testware.
(j) What is the significance of software crisis in reference to software engineering discipline?
(2*10)

Part-II

- Q. No.2 (a) Define Software Engineering. Discuss various software myths.
(b) Discuss the Spiral Model of software development process. Which of the development process model you will follow for the following and why:
(i) A simple data processing project
(ii) A data entry system for the office who never used computer before
(iii) A spreadsheet system with basic features and other features that use basic features
(iv) A new missile tracking system
(v) A payroll software
(4+6)

Q. No.3 (a) Discuss the significance and use of requirement engineering. What are the problems in formulation of requirements?

(b) What are various categories of software metrics? Discuss with the help of examples.
(4+6)

Q. No.4 (a) Compute the function point value for 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.

(b) A software has to be developed for automating the manual railway reservation system. Draw use case diagram explaining all actors and flow of events.
(4+6)

Q. No.5 (a) Discuss the objectives of modular software design. What are the effects of module coupling and cohesion?

(b) What is software maintenance? Describe various categories of maintenance .Which category consumes maximum efforts and why? (4+6)

Q. No. 6(a) Define Software Quality? Explain in detail the ISO 9126 Quality model.

(b) Consider a project to develop a full screen editor. The major components identified are (1) Screen edit (2) Command language interpreter (3) File input and output (4) Cursor movement and (5) Screen movement. The sizes for these are estimated to be 4K, 2K, 1K, 2K and 3K delivered source code lines. Use COCOMO model to determine:

(a) Overall cost and schedule estimates (assume values for different cost drivers, with at least three of them being different from 1.0)

(b) Cost and Schedule estimates for different phases. (4+6)

Q.No.7 Write short note on the following:

(a) Capability Maturity Model

(b) Software Re-engineering

(c) CASE tools

(d) Function Point

(2.5*4)