Course Code : CST 357 **SUVT/MS – 22 / 2512**

Sixth Semester B. E. (Computer Science and Engineering) Examination

SOFTWARE ENGINEERING

Time : 2 Hours] [Max. Marks : 40

Instructions to Candidates :—

(1) All questions carry marks as indicated against them.
(2) Due credit will be given to neatness and adequate dimensions.
(3) Assume suitable data and illustrate answers with neat sketches wherever necessary.

1. (a) What is a process framework ? Explain the framework activities applicable to all software projects. 3(CO1)

   (b) Why requirement elicitation is difficult ? Draw and explain the activity diagram for eliciting requirements. 4(CO1)

2. (a) The project title Library Management System is Library Management software for monitoring and controlling the transactions in a library focuses on basic operation in a library. Explain waterfall model and discuss how it is used to develop the mentioned system for linear and sequential approach. 4(CO2)

   (b) Describe spiral model and extend your understanding that when this model is preferred by the developer. 3(CO2)

3. (a) Elaborate what is Boundary value analysis (BVA), a software testing technique.

   Consider, an Online Bus Reservation System asks number of seats to be reserved by user where user can reserve seats till its capacity will be full. If a tester wants to test that particular field using Boundary Value,

what do you think will be a correct set of input values ? Also, give justification on you output.

(i) {1, 2, capacity -1, capacity, capacity + 1}

(ii) {0, 1, capacity, capacity + 1}

(iii) {0, 1, 2, capacity + 1, a very large number}

(iv) {0, 1, 10, 100, capacity, capacity + 1} 4(CO3)

(b) "Regression testing is an important strategy for reducing side-effects in a program". Justify. 3(CO3)

4. (a) Explain four P's in management spectrum. 2(CO4)

(b) Provide an insight into the role of a business case in software development projects with example. 4(CO4)

5. (a) Explain function point metrics.

Also compute the function point value for a project with the following information domain characteristics :

(1) No. of user inputs = 32

(2) No. of user outputs = 60

(3) No. of user inquiries = 24

(4) No. of files = 8

(5) No. of external interfaces = 2

All of these data are of average complexity. Assume that all complexity adjustment values are average and 14 algorithms have been counted. 4(CO3)

(b) Explain how Halsted metric for source code used to measure the complexity, maintainability and testability of code using primitive measures of operators and operands. Give an estimate on program volume and volume ratio. 3(CO3)

6. (a) Define software risk ? What are reactive and proactive risk strategies ? 2(CO4)

(b) Explain the following major Software configuration management tasks that help systematically to manage, organize and control changes during the Software Development Life Cycle.

(i) Functions implemented by a SCM repository.

(ii) Features supported by repository to support SCM. 4(CO4)