

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 0114

Roll No.

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, B.Tech.

(SEMESTER-IV) THEORY EXAMINATION, 2012-13

SOFTWARE ENGINEERING

Time : 3 Hours]

[Total Marks : 100

SECTION - A

1. Attempt all parts.

10 × 2 = 20

- (a) What are some of the indicators of software crisis ?
- (b) How Software Engineering Processes are different from Conventional Engineering Processes ?
- (c) Identify some problems associated with the implementation of a successful quality assurance plan in a software development organization.
- (d) What do you mean by Unambiguous and Complete SRS ?
- (e) What problems arise if two modules have high coupling ?
- (f) Why is good design important for a software product ?
- (g) Explain the role of recursive testing and its role in the integration testing.
- (h) Can system testing be considered to be a structural testing ?
- (i) Explain situations under which software re-engineering would be useful.
- (j) Heavy maintenance and quality of a software product are inversely proportional. Explain.



SECTION – B

2. Attempt any **three** parts.

10 × 3 = 30

- (a) Spiral model is a realistic approach to the development of large-scale system and software. Justify and explain the model.
- (b) What is requirement analysis ? What is its importance ? What does a software requirement specification document (SRS document) contain ? Explain.
- (c) Define Coupling in the context of software design. What are the different types of coupling in practice ? Discuss them briefly. Also discuss why data coupling is the best form of coupling.
- (d) What do you mean by Black Box Testing ? What are some considerations in this regard ? Discuss two methods of black box testing in detail.
- (e) What are the generic types of cost models for software cost estimation ? Explain.

SECTION – C

Attempt **all** parts.

10 × 5 = 50

3. Attempt any **two** parts.

- (a) How does the risk factor affect the spiral model of software development ?
- (b) Explain what is meant by 'software crisis' and how they are handled.
- (c) Differentiate between iterative Enhancement Model and Evolutionary Development Model.

4. Attempt any **two** parts.

- (a) Which ISO quality assurance standard applies to software engineering ? How is it different from SEI-CMM model ?
- (b) Why is SRS also known as the black-box specification of system ?
- (c) Explain any two requirements elicitation methods.

5. Attempt any two parts.

(a) Compute function point value for a project with the following domain characteristics :

Nó. of I/P = 30

No. of O/P = 62

No. of user Inquiries = 24

No. of files = 8

No. of external interfaces = 2

Assume that all the complexity adjustment values are average. Assume that 14 algorithms have been counted.

(b) List the important shortcomings of LOC for use as a software size metric. Does the function point metric overcome these ? Explain your answer.

(c) For the flow graph shown in Fig. 1,

(i) Compute the cyclomatic complexity

(ii) Find out independent path

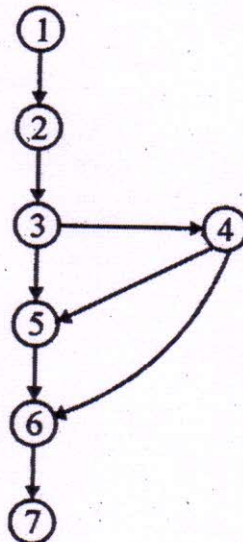


Fig. 1

6. Attempt any two parts.

- (a) Explain the 'Walk Through' approach to software testing.
- (b) What do you mean by test-cases ? Explain, how will you design black-box test cases for a function named **func-quadratic-eqn**. **func-quadratic-eqn** accepts three floating point numbers representing a quadratic equation of the form $ax^2+bx+c=0$, it computes and displays the solution.
- (c) Explain what is meant by 'Integration testing' and 'Regression testing'.

7. Attempt any two parts.

- (a) Describe Version Control and Change Control in the context of Software Configuration Management.
- (b) Discuss the role of the data dictionary in a CASE environment. How automated support for data dictionary can be provided ?
- (c) Differentiate corrective, adaptive, perfective and preventive maintenance in the context of software.