Printed Pages – 4

TCS – 404

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

PAPER ID : 1070 Roll No.

B.Tech.

(SEM IV) EVEN SEMESTER THEORY EXAMINATION, 2009-2010

SOFTWARE ENGINEERING

Time : 3 Hours *Total Marks : 100*

Note : *(i) Attempt ALL the questions. All questions carry* ***equal*** *marks. Assume missing data if any.*

(ii) Be precise with your answers.

1. Attempt **any four** parts of the following : **(4x5=20)**

(a) Define the term "Software Engineering" and illustrate the various characteristics of Software.

(b) What do you mean by Software Engineering Process ? List two fundamental objectives of software process.

(c) What is a prototype model ? Under what circumstances it is beneficial to construct a prototype model ? Does the construction of prototype model always increase the overall cost of Software development ?

(d) Discuss Spiral model along with its advantages and disadvantages.

(e) Compare and contrast the Water Fall Model with Prototype Model. Give specific application areas that illustrate the appropriateness of each.

(f) What do you mean by Software crisis ? Discuss.

2. Attempt **any four** of the following : (4x5=20)

(a) What do you mean by SRS ? List the various characteristics of a good SRS. Discuss the IEEE standards for SRS also.

(b) Describe the key steps in Requirement Analysis.

(c) List the various key process area of CMM at various maturity levels. Bring five differences between ISO 9000 and SEI - CMM standards.

(d) Describe the differences between Verification and Validation and explain why validation is particularly difficult process.

(e) Differentiate Data Flow Diagram (DFD) with Entity - Relationship Diagram. Draw the E - R diagram of Course registration process of students at an institute.

(f) Write short notes on Software Quality Assurance (SQA).

3. Attempt **any two** of the following : (2x10=20)

(a) Describe the various strategies of design. Which design strategy is most popular and practical ?

(b) Define the term Coupling and Cohesion. Explain various types of Coupling and Cohesion. Bring five differences between Coupling and Cohesion. What problems are likely to arise if two modules have high Coupling ?

(c) Illustrate Halestead's Software Science of Software Measurement and Metrics. How can we calculate the cyclomatic complexity in basic path testing ? Assume a procedure and calculate the cyclomatic complexity for that procedure.

4. Attempt **any two** of the following : **(2x10=20)**

(a) What do you mean by test case ? Describe Top - Down and Bottom - up testing strategies along with their advantages and disadvantages. Illustrate Regression testing also.

(b) (i) List the various objectives of testing ? Discuss the Alpha and Beta Testing of products along with their advantages and disadvantages.

(ii) Explain Formal Technical Review (FTR).

(c) Write short notes on :

(i) Walk Through and Code Inspection

(ii) Unit, Integration and Acceptance testing.

(e) Compare and contrast the Water Fall Model with Prototype Model. Give specific application areas that illustrate the appropriateness of each.

(f) What do you mean by Software crisis ? Discuss.

2. Attempt **any four** of the following : (4x5=20)

(a) What do you mean by SRS ? List the various characteristics of a good SRS. Discuss the IEEE standards for SRS also.

(b) Describe the key steps in Requirement Analysis.

(c) List the various key process area of CMM at various maturity levels. Bring five differences between ISO 9000 and SEI - CMM standards.

(d) Describe the differences between Verification and Validation and explain why validation is particularly difficult process.

(e) Differentiate Data Flow Diagram (DFD) with Entity - Relationship Diagram. Draw the E - R diagram of Course registration process of students at an institute.

(f) Write short notes on Software Quality Assurance (SQA).

3. Attempt **any two** of the following : (2x10=20)

(a) Describe the various strategies of design. Which design strategy is most popular and practical ?

(b) Define the term Coupling and Cohesion. Explain various types of Coupling and Cohesion. Bring five differences between Coupling and Cohesion. What problems are likely to arise if two modules have high Coupling ?

(c) Illustrate Halestead's Software Science of Software Measurement and Metrics. How can we calculate the cyclomatic complexity in basic path testing ? Assume a procedure and calculate the cyclomatic complexity for that procedure.

4. Attempt **any two** of the following : **(2x10=20)**

(a) What do you mean by test case ? Describe Top - Down and Bottom - up testing strategies along with their advantages and disadvantages. Illustrate Regression testing also.

(b) (i) List the various objectives of testing ? Discuss the Alpha and Beta Testing of products along with their advantages and disadvantages.

(ii) Explain Formal Technical Review (FTR).

(c) Write short notes on :

(i) Walk Through and Code Inspection

(ii) Unit, Integration and Acceptance testing.

5. Attempt **any two** of the following : (2x10=20)

(a) What do you mean by Software Configuration Management Activities ? Describe COCOMO model. Suppose a project is to be developed in organic mode and you have estimated the size of product to be about 100,00 LOC. Compute the nominal effort and development time.

(b) Draw the general architecture of CASE tool and explain its various components in detail. Discuss the importance of CASE tools in a software life cycle along with its limitations.

(c) (i) What do you mean by Reverse Engineering ? Describe the various objectives of Reverse Engineering.

(ii) Illustrate the various types of Software maintenance in detail.

- o O o -