MCA
Third Semester
MCA 302 Software Architecture

Time : Three hours **Maximum : 75 Marks**

Part A
Answer any ten questions.
Each question carries 3 marks.

1. What is a process framework? Name the framework activities applicable to all software projects.
2. Mention three software myths.
3. List down any three Agile Principles.
4. Briefly explain the design concepts – Abstraction, Modularity and Refactoring.
5. What is software architecture? What is its importance?
6. Briefly describe the quality function deployment technique.
7. Explain the process of formal technical reviews.
8. Mention three attributes and the corresponding metrics for code quality.
9. Briefly describe any three attributes of a good test.
10. Discuss the regression testing strategy and its significance.
11. Explain the approach used to adapt the function point approach of estimation to web application projects.
12. Describe the steps involved in the computation of SPI and SV.

(10 x 3 = 30 marks)

Part B

***All questions carry equal marks*.**

13. a) What is the importance of models in software engineering? Explain with examples of any three process models which are commonly used.

Or

b) Discuss the Extreme Programming approach.

14. a) A meeting scheduler system is meant to manage group meetings to be conducted in a company. Develop the use case diagram for this system. Specify and briefly describe any two important use-cases. For each of these two use cases, construct a neat, complete sequence diagram (in UML notation) showing a successful interaction scenario.
You should state clearly any reasonable assumption you make about the system.

Or

b) Describe the important principles and steps of user interface analysis and design.

15. a) Describe the metrics for the design model of a product. What are the attributes of effective software metrics?

Or

b) Compare and contrast the similarities and differences between software configuration management for conventional software development and SCM for a web-based application development.

16. a) Suppose a program contains 4 decision points, each of which has two branches. How many test cases are needed to perform path testing on such a program? Show clearly how you arrived at the answer.

Or

b) Describe the various testing strategies.

17. a) Estimate the effort required to develop software for a simple module that produces 15 screens, 10 reports and will require around 100 software components. Assume average complexity and average developer / environment maturity. Use the Application Composition Model of COCOMO-II with Object Points. State any assumptions you make.

Or

b) Explain elaborately the various strategies and steps involved in risk management.

(5 X 9 = 45 marks)