

JUNE 2010

NOTE: There are 9 Questions in all.

- **Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.**
 - **Out of the remaining EIGHT Questions, answer any FIVE Questions. Each question carries 16 marks.**
 - **Any required data not explicitly given, may be suitably assumed and stated.**
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Q.1 Choose the correct or the best alternative in the following: (2×10)

- a. _____ process is intended to establish the existence of defects in Software System
- (A) Verification (B) Debugging
(C) Defect Testing (D) None of the above
- b. Which of the following is not an Iterative model?
- (A) Incremental Development (B) Evolutionary development
(C) Spiral Model (D) None of the above.
- c. Which of the following is a metric for specifying non-functional requirements?
- (A) Speed. (B) Power.
(C) Line of Codes. (D) None of the Above.
- d. The most widely used data modeling technique is _____.
- (A) Data Flow Diagrams (B) Entity-Relation-Attribute Modeling
(C) UML Modeling (D) Behavioral Modeling
- e. Which of the following is not an advantage of using a distributed approach to system development?
- (A) Resource Sharing (B) Fault Tolerance.
(C) Openness (D) Security
- f. What is configuration management in software engineering?
- (A) Overall management of the design of the system
(B) Management of the configurable components in a system.
(C) The identification of the configuration of a system at discreet points in time to control changes to the configuration.
(D) In object-oriented programming, the management of objects that control the configuration of some other function(s) in the system.
- g. Which modeling methodology most clearly shows the classification and abstraction of entities in the system?
- (A) data flow model (B) event driven model
(C) object oriented model (D) entity-relationship model

h. One of the approaches to developing dependable software is:

- (A) Fault tolerance
- (B) Security
- (C) Exhaustive Testing
- (D) None of the above.

i. Which of the following is aiding in Rapid application development?

- (A) Database Programming Languages
- (B) Form and Report generators.
- (C) Links to office applications
- (D) All of the above.

j. Software _____ is work done to enhance software functionality, correct errors and improve the performance of software

- (A) Sre-design
- (B) maintenance
- (C) corrections
- (D) Re-engineering

Answer any FIVE Questions out of EIGHT Questions.
Each question carries 16 marks.

Q.2 a. Explain with the help of neat diagrams any three Software process models. Give examples when each of these models will be suitable. (12)

b. What do you understand by the term “emergent system properties”, Explain. (4)

Q.3 a. Explain the following system models:-

- (i) Behavioral model. (ii) Structural model. (6)

b. List any four metrics for specifying non-functional requirements which may be placed on a system. (4)

c. For the case study of “ATM Banking”, draw a data flow diagram modelling the data processing involved when a customer withdraws cash from the machine. (6)

Q.4 a. Explain in detail the concepts of Software prototyping as an aid towards Rapid Software development (8)

b. Explain various formal specification techniques. (8)

Q.5 a. Using the example of a multi-user, web based System to provide a film and photograph Library, explain the Client-Server model of Architectural design. (6)

b. Draw the architecture of an integrated CASE toolset. (4)

c. What do you mean by an object request broker? Explain the principles underlying the CORBA standards. (6)

Q.6 a. Using examples explain the difference between an object and object class. (4)

b. Discuss the benefits of software reuse. (6)

c. Explain in detail the CBSE process using suitable diagram. (6)

- Q.7** a. With the help of suitable diagram explain the UI design process. (6)
- b. Explain the two approaches N-version programming and Recovery blocks of software fault tolerance. (5)
- c. Explain features of dependable process and dependable programming. Give an illustration. (5)
- Q.8** a. Explain the concept of structural testing. For the Binary search routine, derive the test cases. Write binary search routine and find paths. (6)
- b. Briefly explain the estimation techniques of software cost estimation. (6)
- c. Draw the block diagram of the cleanroom development process. (4)
- Q.9** a. What do you understand by software metrics? Explain in detail the difference between predictor metrics and control metrics. (6)
- b. Explain with the help of a neat diagram the staged CMMI mode. (6)
- c. List and explain briefly the two types of Configuration Management workbenches. (4)