

AMIETE – CS/IT (Current & New Scheme)

Time: 3 Hours

December 2016

Max. Marks: 100

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

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.
- The answer sheet for the Q.1 will be collected by the invigilator after 45 Minutes of the commencement of the examination.
- 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.

Q.1 Choose the correct or the best alternative in the following: (2×10)

- a. Computer-based systems that have been developed in the past, often using older or obsolete technology are called as
- (A) Traditional Systems (B) Out-of-date systems
(C) Legacy systems (D) Mainframe systems
- b. The significant feature of spiral model is
- (A) Change management (B) Risk analysis
(C) Incremental development (D) Modularization
- c. The statements in form of natural language and some pictures are called _____
- (A) System requirements (B) Design requirements
(C) User requirements (D) User interface requirements
- d. If all of the application processing and data management is carried out on the server and only the presentation software is running in the client then that client-server architecture is called as
- (A) Fat client model (B) Thin client model
(C) Thick client model (D) Thin server model
- e. COTS support reusability means _____.
- (A) Class and function libraries that implement commonly used abstractions are available for reuse.
(B) Shared components are woven into an application at different places when the program is compiled.
(C) Systems are developed by configuring and integrating existing modules available in the market.
(D) Large-scale systems that encapsulate generic business functionality and rules are configured for an organization.
- f. In Extreme programming all the requirements are in the form of _____
- (A) Stories (B) use case diagrams
(C) Flow chart (D) None of these

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- g. Exhaustive testing is _____
 (A) Always possible (B) Practically possible
 (C) Impractical but possible (D) Impractical and Impossible
- h. Non-conformance to software requirements is known as
 (A) Software availability (B) Software reliability
 (C) Software failure (D) None of these
- i. Which of the following is a collection of component versions that make up a system?
 (A) Version (B) Code lines
 (C) Baseline (D) None of these
- j. Which of the following provides a concise, unambiguous, and consistent method for documenting system requirements?
 (A) CMM (B) ISO-9001
 (C) CASE tools (D) Formal methods

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

- Q.2** a. Explain the linear SDLC model for software development. (12)
 b. What are the challenges in formal methods of software development? (4)
- Q.3** a. Explain the requirement engineering process with neat sketch. (12)
 b. Sketch the use case diagram for an ATM automation system. (4)
- Q.4** a. Discuss about principles of agile methods. (7)
 b. What are the components of an object specification for an sub-system? (7)
 c. Differentiate algebraic approach and model based approach of formal specification (2)
- Q.5** a. What do you mean by domain specific architectural model? Differentiate domain specific models types. (6)
 b. Write the advantages and disadvantages of broadcast model approach. (4)
 c. What is client-server model? What are the major components of this model? (6)
- Q.6** a. What are the key factors that you should consider when planning reuse? (8)
 b. Define the four essential elements of design patterns. (4)
 c. Differentiate components and objects. (4)

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Q.7 a. List out the process activities that are geared to fault avoidance and fault detection. (8)

b. Discuss about the various types of interaction styles proposed by Shneiderman. (8)

Q.8 a. Differentiate verification, validation and debugging. (4)

b. Write a note on different types of interface errors that can occur. (4)

c. Write a note on COCOMO model for cost estimation. Suppose we are faced with developing a system that we expect to have about 1,00,000 LOC. Compute the effort and the development time for each of the three development models i.e., organic, semi-detached and embedded. (8)

Project	a_b	b_b	c_b	d_b
Organic	2.4	1.05	2.5	0.38
Semidetached	3.0	1.12	2.5	0.35
Embedded	3.6	1.20	2.5	0.32

Q.9 a. Discuss about quality planning process. (6)

b. Explain the various levels in capability maturity model (CMM) with neat sketch. (10)