Code: AC63/ AT63   **Subject: SOFTWARE ENGINEERING**

AMIETE – CS/IT

Time: 3 Hours   **DECEMBER 2012**   **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. Output comparators are used in

   (A) static testing of single module
   (B) dynamic testing of single module
   (C) static testing of single and multiple module
   (D) dynamic testing of single and multiple module

b. The advantage of using LOC (lines of code) as a size-oriented metric is

   (A) LOC is easily computed
   (B) LOC is a language dependent measure
   (C) LOC is a language independent measure
   (D) LOC can be computed before a design is completed

c. The feature of the object oriented paradigm which helps code reuse is

   (A) object   **(B)** class
   (C) inheritance   **(D)** aggregation

d. The quality assurance standard that applies to software engineering is

   (A) ISO 9000   **(B)** ISO 9001
   (C) ISO 9002   **(D)** ISO 9003

e. What are the three generic phases of software engineering?

   (A) Definition, Development, Support
   (B) What, How, Where
   (C) Programming, Debugging, Maintenance
   (D) Analysis, Design, Testing

f. Improving the implementation of the system according to the customer's requirements is known as

(A) Adaptive maintenance   (B) Perfective maintenance
(C) Corrective maintenance   (D) Effective maintenance

g. FP-based estimation techniques require problem decomposition based on

(A) information domain values   (B) project schedule
(C) software functions   (D) process activities

h. If every requirement can be checked by a cost-effective process, then the SRS is

(A) Verifiable   (B) Traceable
(C) Modifiable   (D) Complete

i. What is the normal order of activities in which software testing is organized?

(A) unit, integration, system, validation
(B) system, integration, unit, validation
(C) unit, integration, validation, system
(D) none of these

j. Each time a defect gets detected and fixed, the reliability of a software product

(A) increases   (B) decreases
(C) remains constant   (D) becomes zero

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

Q.2   a.   What are the key challenges being faced by software engineering?   **(5)**

b.   What is meant by risk management? Explain risk management process.   **(6)**

c.   What are the attributes of a good software?   **(5)**

Q.3   a.   Explain the following terms giving suitable example:

(i)   Functional requirement
(ii) Non-functional requirement
(iii) Domain requirement   **(9)**

b.   What is meant by an object model? Discuss Inheritance model, Aggregation model and Interaction model in brief.   **(7)**

Q.4 a. List the benefits of prototyping. Differentiate between the objectives of evolutionary and throw-away prototyping. **(8)**

b. Identify the merits and limitations of formal requirements specification. **(8)**

Q.5 a. Describe object request brokers and the principles underlying the CORBA. **(5)**

b. List the advantages and disadvantages of distributed system architectures. **(5)**

c. What do you mean by domain specific architectural model? Differentiate between two types of domain specific models. **(6)**

Q.6 a. What are the various abstractions possible in Component Based Software Engineering? List few problems associated with CBSE. **(8)**

b. What is meant by design patterns? What are the advantages of using design patterns? **(8)**

Q.7 a. Define the following terms with respect to UI design principles:
   (i)   User Familiarity
   (ii) Consistency
   (iii) Minimal Surprise
   (iv) Recoverability
   (v)   User Guidance
   (vi) User Diversity **(6)**

b. What do you mean by fault tolerance? Where is fault tolerance required? **(4)**

c. Differentiate between forward and backward fault recovery techniques. **(6)**

Q.8 a. Write a brief note on the following estimation techniques:
   (i) Algorithmic cost modelling
   (ii) Expert judgement
   (iii)Estimation by analogy
   (iv)Parkinson's Law
   (v) Pricing to win **(10)**

b. Write some guidelines for interface testing. **(6)**

Q.9 a. What is the main purpose of SEI Capability Maturity Model (SEI CMM)? Explain five different levels of SEI CMM model. **(6)**

b. What do you understand by software configuration? Differentiate among release, version and revision of a software product. **(4)**

c. Write a brief note on software quality review and review process. **(6)**