ROLL NO. _____

Code: AC63/AT63 Subject: SOFTWARE ENGINEERING

AMIETE – CS/IT (Current Scheme)

Time: 3 Hours **JUNE 2015** **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. What is software engineering?

(A) Set of computer programs, procedures and possibly associated document concerned with the operation of data processing.
(B) Software engineering is Design, Coding, Development.
(C) Software engineering implement a single independent function.
(D) Software engineering is the establishment and use of sound engineering practice in order to produce economical and reliable software that will perform efficiently on real machine.

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

(A) re-design **(B)** maintenance
(C) corrections **(D)** re-engineering

c. The software process

(A) is the general set of activities undertaken to develop a software product.
(B) includes project management activities such as planning and scheduling.
(C) uses various process models to engineer software.
(D) includes configuration management activities as part of it.

d. Spiral model incorporates:

(A) Programming **(B)** Documentation
(C) Risk analysis **(D)** Prototyping

e. Which is the last step in classic life cycle paradigm?

(A) Analysis **(B)** Design
(C) Coding **(D)** Maintenance

f. What is / are the correct statement(s) with respect to software quality?

(A) The Capability Maturity Model (CMM) is a scheme to classify a software development organization according to its capability.
(B) The quality management process starts after the design stage of the software development process.
(C) A quality plan sets out the desired product qualities and how they are assessed.
(D) Each deliverable of the software development process is an input to the quality management process.

g. A data dictionary was created during the requirements analysis phase of a software engineering project. What information does it contain?

(A) content description **(B)** data type
(C) restrictions **(D)** all of these

h. Which statement about a prototype is true?

(A) It is a functional model of the entire system.
(B) It is the complete untested product ready for final review by the customer.
(C) It is necessary in order to accurately verify that the product is progressing in accordance with requirements specifications.
(D) It is a full-scale model of the entire system at some partial stage in development showing the functional form of the system.

i. _____ is developed or engineered not manufactured.

(A) software **(B)** product
(C) system **(D)** all of these

j. What is functional decomposition in software system design?

(A) a design method that breaks a system into smaller units.
(B) a requirements analysis method that breaks the system into cohesive and related units.
(C) a design methodology that uses modular prototypes to build the complete system.
(D) the ability to upgrade the features of a particular module of a system with minimal impact on other modules.

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

Q.2 a. With the help of a suitable diagram, explain the software lifecycle. **(8)**

b. Explain the CASE toolset architecture. **(4)**

c. Describe briefly the process of risk management. **(4)**

Q.3 a. What do you mean by requirement engineering? Explain its activities in details. **(8)**

b. Draw the Use Case Diagram for a Library Management System. **(4)**

c. Differentiate between the functional and non functional requirements. **(4)**

Q.4 a. Explain the RAD technique in detail. **(8)**

b. Explain the various stages of software specification and its interface with the design process. **(4)**

c. What do you mean by prototype of a software? What are the benefits of making a prototype in software development? **(4)**

Q.5 a. What are the likely limits on the scalability of a distributed system? Explain. **(5)**

b. With the help of a diagram, explain object oriented architectural model of an invoice processing system. **(6)**

c. Explain the use of different client-server architectures. **(5)**

Q.6 a. What are the benefits and problems of software reuse? **(8)**

b. Explain the basic elements of a component model. **(4)**

c. Write a note on "Component Based Software Engineering". **(4)**

Q.7 a. What are the various characteristics of dependable processes? **(8)**

b. Explain the general principles of user interface design. **(8)**

Q.8 a. Discuss the differences between verification and validation, and explain why validation is particularly a difficult process? **(8)**

b. Describe two metrics that have been used to measure programmer productivity. **(4)**

c. Differentiate between the structural testing and Functional testing. **(4)**

Q.9 a. What are the different levels of CMM? Explain each in detail. **(8)**

b. What is SQA? Discuss the different software quality factors. **(8)**