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

## AMIETE – CS/IT (NEW SCHEME)

**Time: 3 Hours**                **JUNE 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. A set of activities that ensures that the software built is traceable to customer requirements

    **(A)** verification          **(B)** validation
    **(C)** corrections          **(D)** re-engineering

b. 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

c. _____ is developed or engineered, not manufactured

    **(A)** Software          **(B)** Product
    **(C)** System          **(D)** All of above

d. 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.

e.  Spiral model incorporates:

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

f.  Which statement about the preliminary design stage of a software development project is true?

**(A)** The preliminary design is an internal document used only by programmers.
**(B)** The preliminary design is the result of mapping product requirements into software and hardware functions.
**(C)** The preliminary design of the product comes from the initial meetings between the customer and the programmer.
**(D)** The developers produce the preliminary design by defining the software structure in enough detail to permit coding.

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 the above

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

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

i.  Undergoing several updates to adapt to the continually changing business needs is called as:

**(A)** Testing                    **(B)** Implementation
**(C)** Specification              **(D)** None of above

j.  What is the correct statement 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 before 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.

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

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**Q.2**  a.  What do you mean by system requirements and system design?  **(4)**

b.  With the help of a diagram explain the software lifecycle.  **(6)**

c.  Explain the risk management process. What are the different categories of risk?  **(6)**

**Q.3**  a.  Differentiate between the functional and non functional requirements.  **(8)**

b.  What are the activities performed during the requirement engineering process?  **(8)**

**Q.4**  a.  Explain the various stages of software specification and its interface with the design process.  **(8)**

b.  Explain the RAD technique in detail.  **(8)**

**Q.5**  a.  Explain the CASE toolset architecture.  **(8)**

b.  Differentiate between two-tier client server approach and three-tier client server architecture.  **(8)**

**Q.6**  a.  Explain the various stages of object oriented design.  **(4)**

b.  What are the benefits and problems of software reuse?  **(6)**

c.  Explain the basic elements of a component model.  **(6)**

**Q.7**  a.  Explain the general principles of user interface design.  **(8)**

b.  What are the various characteristics of dependable processes?  **(8)**

**Q.8**  a.  Discuss the difference between Verification and Validation.  **(6)**

b.  What are the different levels of testing?  **(4)**

c.  Explain the basic COCOMO model.  **(6)**

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

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