Subject: SOFTWARE ENGINEERING

Time: 3 Hours **Max. Marks: 100**

DECEMBER 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.**
- **The answer sheet for the Q.1 will be collected by the invigilator after half an hour 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. CASE tools support----------

(A) Individual process activities **(B)** A set of related activities
(C) All or more process activities **(D)** Process phases

b. Project risks are the risks that-------

(A) Affect the project schedule or resources
(B) Affect the quality or performance of the software being developed
(C) Affect the organization developing or procuring the software
(D) All of above

c. A data flow model shows------

(A) How entities in the system are composed of other entities.
(B) The principal sub-systems that make up a system.
(C) How data is processed at different stages in the system.
(D) How entities have common characteristics.

d. Diagram editors-----

(A) Process the design and report on errors and anomalies.
(B) Are used to create object models, data models and so on.
(C) Allow the designer to find designs and associated design information in the repository.
(D) Take information from the central store and automatically generate system document.

e. RAD environment includes the following tool.

(A) Linker **(B)** A report generator.
(C) Loader **(D)** Assembler

f. A static structural model --------

(A) Shows how the system is organized into processes at run time.
(B) Defines the services offered by each sub-system through its public interface.
(C) Shows relationships, such as data flow between the sub-systems.
(D) Shows the sub-systems or components that are to be developed as separate units.

g. In a thin-client model, all of the application processing and data management is carried out on the-----

(A) Server **(B)** Client
(C) Both client and server **(D)** None of above

h. Object-oriented programming is concerned with-------

(A) Developing an object oriented model of the application domain.
(B) Developing an object oriented model of a software system to implement the identified requirements.
(C) Realizing a software design using an object oriented programming language.
(D) All of above.

i. Sequential composition occurs when---------

(A) In a composite component, the constituent components are executed in a sequence.
(B) One component calls directly on the services provided by another component.
(C) When the interfaces of two or more components are put together to create a new component.
(D) All of the above.

j. Software testing is a--------technique of verification and validation.

(A) Static **(B)** Dynamic
(C) Operational **(D)** Classical

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

Q.2 a. What are CASE tools? Give examples of activities that can be automated using CASE. Explain the classification of CASE tools. **(8)**

b. Explain the contents of the Project Plan. **(4)**

c. Explain features of risk management. **(4)**

Q.3 a. Explain various checks to carried out on requirements document during the requirements validation process. **(4)**

b. Describe features of any four system models. **(8)**

c. Explain functional and non-functional software requirements. **(4)**

Q.4 a. What are various activities involved in the process of developing a formal specification of a sub-system interface. Give an example. **(8)**

b. What is extreme programming? What are the various practices involved in extreme programming? **(8)**

Q.5 a. What is the fundamental difference between fat-client and thin-client approach to client-server systems? Give applications of fat-client and thin-client. **(6)**

b. *Explain the* two main strategies which can be used for decomposing a sub-system into modules along with their advantages and disadvantages. **(6)**

c. Explain features of inter-organisational distributed computing. **(4)**

Q.6 a. Give an example to illustrate object oriented design process. **(5)**

b. What are the various factors to be considered while planning to reuse software? Explain features of generator-based reuse. **(7)**

c. Explain features of component based software engineering. **(4)**

Q.7 a. Explain the various user interaction styles. **(8)**

b. Explain the various software engineering techniques that may help in developing fault-free software. **(8)**

Q.8 a. What is software testing? Explain two distinct types of testing that may be used at different stages in the software process. **(8)**

b. What are the various tools involved in testing workbench? **(8)**

Q.9 a. Explain the two types of standards that may be established as part of the quality assurance process. **(8)**

b. What is a configuration management plan? Briefly explain the contents of a CM plan. **(8)**