

2011

Time : 3 hours

Full Marks : 80

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

*Answer from **both** the Groups as directed. •*

Group – A

(Objectives Type Questions)

1. Choose the correct answer of the following :

2×10 = 20

- (i) Defect prevention is defined as :
- (a) Finding and fixing errors after insertion
 - (b) Finding and fixing errors before release but insertion

- (c) Finding and fixing errors after release
- (d) Avoiding defect insertion
- (ii) Product quality is defined as :
 - (a) Delivering a product with correct requirements
 - (b) Delivering a product using correct development procedures
 - (c) Delivering a product which is developed iteratively
 - (d) Delivering a product using high quality procedures
- (iii) The main goal of quality assurance is :
 - (a) Set coding standards
 - (b) Improve software project management
 - (c) Reduce the technical and programmatic risk
 - (d) Specify corrective actions
- (iv) Software interoperability is :
 - (a) The ability of a software system to work on different hardware platforms.

- (b) The ability of a software system to work under different operating systems
 - (c) The ability of a software system to exchange information with other software systems and to use the exchanged information
 - (d) The ability to replace a software system with another software system that has similar functionality
- (v) Which of the following statement is NOT true ?
- (a) Coding standards address naming of constants
 - (b) Coding standards address the number of errors encountered per 1000 lines of code
 - (c) Coding standards address layout of code text
 - (d) Coding standards address the use of program comments
- (vi) Which of the following statements is NOT true ?
- (a) A good design methodology should provide a clear division of design from implementation

- (b) A good design methodology should not promote a top-down decomposition strategy
 - (c) A good design methodology should encourage phased development of the software
 - (d) A good design methodology should help to minimize future maintenance
- (vii) Which form of software development model is most suited to a system where all the requirements are known at the start of a project and remain stable throughout the project ?
- (a) Waterfall model
 - (b) Incremental model
 - (c) Evolutionary model
 - (d) Spiral model
- (viii) Which of the following statements is NOT true ?
- (a) Requirement must be testable
 - (b) Requirements must be concerned with system functionality only

- (c) Requirements must be complete
 - (d) Requirements must be unambiguously stated
- (ix) Verification is done :
- (a) At the end of the finished product
 - (b) At the end of the each phase
 - (c) Both (a) and (b)
 - (d) None of the above
- (x) Coupling refers to :
- (a) An interconnection between multiple
 - (b) An interconnection between single module
 - (c) An interconnection between two module
 - (d) All of the above
- (xi) A type of evolutionary development where the objective of the process is to understand the customer's requirements is known as :
- (a) Throw away prototyping
 - (b) Software reuse

(c) Exploratory programming

(d) None of the above

(xii) Software engineering is the application of science and mathematics by which capabilities of computer equipment are made useful to man via computer :

(a) Program

(b) Procedures

(c) Association documentation

(d) All of the above

(xiii) Large, Complex industrial strength software system having myriad of conflicting requirements have some problem related to the :

(a) System analysis

(b) Design

(c) Coding

(d) Testing

Group – B

(Long-answer Type Questions)

Answer any four of the following :

2. (a) Distinguish between a software product and a software process. 8

- (b) Define software engineering. What are the characteristics of software product? 7
3. (a) Explain different process models along with their relative merits and demerits. 8
- (b) Explain different software design strategies with proper illustrations. 7
4. (a) Write short notes on CASE tools. 8
- (b) Explain, how both waterfall model and the prototyping model can be accommodated in the spiral process model. 7
5. (a) List and explain briefly the different types of documentation. 8
- (b) Briefly describe the desirable characteristics and structure of a requirements document. 7
6. (a) Give a brief description of software prototyping and briefly discuss the various prototyping techniques. 8
- (b) Describe any two techniques for developing software prototypes. 7

7. (a) What are the principles to be followed while designing user interface. 8
(b) Discuss software reliability metrics and discuss their applications. 7
8. (a) Discuss the difference between verification and validation and explain, why validation is a particularly difficult process. 8
(b) Discuss the stages involved in static analysis of a program. 7
9. (a) Discuss the difference between black-box testing and structural testing and suggest how they can be used together in the defect testing process. 8
(b) Explain, why interface testing is necessary given that individual units have been extensively validated through unit testing and program inspections. 7
10. (a) Explain the COCOMO for software cost estimation. 8
(b) Discuss the techniques for estimating project duration and determining the staffing pattern. 7

