

(2 ½ Hours)

[Total Marks: 75]

- N.B. 1) All questions are compulsory.
 2) Figures to the right indicate marks.
 3) Illustrations, in-depth answers and diagrams will be appreciated.
 4) Mixing of sub-questions is not allowed.

Q. 1 Attempt All (Each of 5Marks)**(15M)****(a) Multiple Choice Questions :**

- (i) The waterfall model has second phase as –
 a. Requirements Analysis and Design
 b. Implementation and Unit Testing
 c. Integration and System Testing
 d. System and software design
- (ii) Which of the following a part of Software Requirement Specification (SRS)?
 a. Observation
 b. structured walkthrough
 c. stakeholder
 d. none of the options
- (iii) Classes communicate with one another via _____.
 a. Read sensors
 b. Dial phones
 c. Messages
 d. None of the above
- (iv) Following diagram has fork and join-
 a. use case diagram
 b. activity diagram
 c. class diagram
 d. none of the options
- (v) The goal of Testing is to design a series of -----that have a high likelihood of finding errors.
 a. Test Plan
 b. Test Cases
 c. Events
 d. Use Cases

(b) Fill in the blanks and select right option from the pool - (internal, Linear sequential model, smaller, pair, probability)

- (i) Waterfall model is also known as _____.
- (ii) Innovative practice in Extreme Programming (XP) is ----- programming.
- (iii) For most risks, the strategy is to perform the actions which will reduce the -----of risk materializing or reduce the loss.
- (iv) The -----logic is tested using the “white box” testing.
- (v) Unit testing is an approach where the focus is on -----programs or modules.

(c) **Answer in 1 – 2 sentences -**

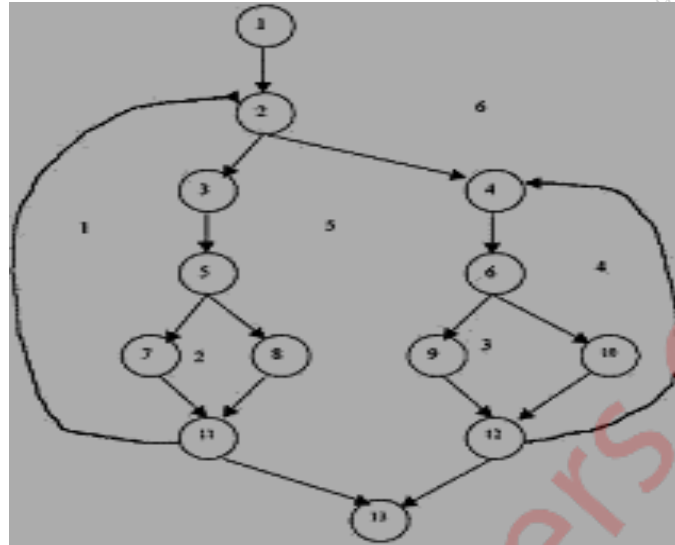
- (i) What is basic scenario?
- (ii) Define software feasibility?
- (iii) Write down any two types of Loop Testing.
- (iv) State any two categories, attempted by Black box testing to find errors.
- (v) What is the type of metric used under white box testing?

Q. 2 Attempt the following (Any THREE) (15M)

- (a) Explain, why requirements are expressed as scenarios which are also known as the user stories in Extreme programming.
- (b) Write various types of relationships handled in Class Diagram with an example.
- (c) Elaborate on - Swimlanes, Transition, Fork and Join. State the diagram, in which these terms are used and draw the same.
- (d) What is Use Case? Draw the use case diagram for the following case study -
An organization services a variety of equipment. Following is a fault report, which may be sent through a mail or communicated on phone, a fault report form is filled in and sent to the dispatch center. A mechanic is selected at the dispatch center and a partial report is prepared. This report includes the mechanic details, fault details and the expected date and time of repair. After the mechanic services the repair, the details of the work are entered in the repair report. This includes the actual date and time spent for repair and the parts used to service the equipment. After the repair form is received, the costing department works out on the cost for the parts used, based on the equipment warranty. The invoice is sent to the customer, who settles the bill with the settlement department.
- (e) Elaborate on Unified Process.
- (f) Write a short note on objectives of system requirements specifications.

Q. 3 Attempt the following (Any THREE) (15M)

- (a) State all and Elaborate on any 4 characteristics on the metrics designed for the Object Oriented Approach.
- (b) Write a short note on coupling and cohesion.
- (c) Define cyclomatic complexity. Find out the cyclomatic complexity for the following CFG by any two methods.



- (d) Classic Computer AMC Co. uses the biometric system for keeping the attendance of the employees and their tasks that they accomplish, at the client's locations. This system takes the details of the employees' database which is attached to this system. From the employee's database system the employee id is captured. The name of the person along with the task they carried out at client's locations is maintained in the database. While the employee puts his/her thumb on biometric system, then the employee id is shown along with system date and time. The data which is generated from the same is taken into the excel sheet by the staff from the office. The report is generated by the office staff per week and the report of working hours also gets displayed. In this manner, the monthly report is also generated.
- State the different parameters used in Function Point(FP). Find out the input and output parameters, mentioned in this case study. State any 4 environment complexity factors used in this case study.

- (e) Write a short note on COCOMO.
- (f) What are the disadvantages of Lines of Code(LOC)? How Function Point(FP) is different from LOC?

Q. 4 Attempt the following (Any THREE)

(15)

- (a) List all and explain any 4 items to compromise the success of software project where the risks factors can be handled.
- (b) Elaborate on Unit Testing along with diagram.
- (c) Explain Alpha and Beta Testing. Write down any 2 points of difference in them.
- (d) Define Test Case. Write down 3 Test Cases for the **case study** mentioned in **Q.3 d.**

- (e) Define Testing. Explain the objectives of Testing.
- (f) State and explain any 5 elements of Software Quality Assurance.

Q. 5 Attempt the following (Any THREE) (15)

- (a) Describe the Incremental Model. When Incremental model is used?
- (b) Define Requirements. Explain its types and elaborate on them.
- (c) Comment on :- Six Sigma enables the qualitative management of product quality
- (d) Case study: A magazine is published monthly and sent by post to its subscribers. Two months before expiry of subscription, a reminder is sent to the subscriber. If subscriptions is not received within a month, another reminder is sent to the subscribers. If renewal subscription is not received upto two weeks before the expiry of the subscription, the subscribers name is removed from the mailing list and the subscriber is informed. Draw an activity diagram for the said case study.
- (e) What is DMADV in context with SQA?
