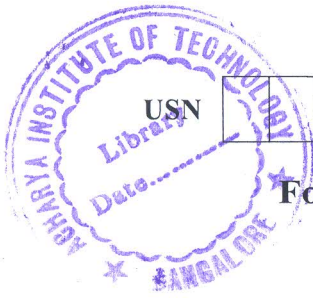


CBGS SCHEME

16/17MCA43



Fourth Semester MCA Degree Examination, Jan./Feb. 2021 Software Testing & Practices

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. What is software quality? Explain about different types of quality attributes. (04 Marks)
- b. Write a sample test plan for the sort program and generate test-cases using the test plan. (04 Marks)
- c. What is test metric? Mention the general core areas that assist in the design of test metrics and explain about project and product metrics. (08 Marks)

OR

- 2 a. Differentiate between software and hardware testing. (04 Marks)
- b. Explain the different activities of defect management process. (04 Marks)
- c. Write an algorithm to generate a minimal BOR-constraint set from an abstract syntax tree of a predicate-Pr. Generate the BOR-constraint set and construct an abstract syntax tree of predicate $P_r = a < b \wedge c > d$. (08 Marks)

Module-2

- 3 a. Define the term software testing. What are different types of faults and explain them with examples. (04 Marks)
- b. Explain the principles of sensitivity and restriction in testing and analysis process and explain them with an example. (04 Marks)
- c. Explain the two fundamental approaches to identify test cases with an example. (08 Marks)

OR

- 4 a. Discuss about the problem of 'Nextdate' function and write the pseudocode to implement the same. (08 Marks)
- b. What is static testing? What are different elements of static testing? Explain about inspection of code. (08 Marks)

Module-3

- 5 a. Explain the procedure involved in Boundary value analysis, mention its limitations and develop boundary value analysis test for triangle problem. Range for 3 sides of triangle are between 1 – 200. (08 Marks)
- b. Write test cases for triangle problem for the followings:
 - (i) Weak-normal equivalence class testing.
 - (ii) Weak-robust equivalence class testing.
 - (iii) Strong-robust equivalence class testing. (04 Marks)
- c. Write few guidelines and observations for equivalence class testing. (04 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and/or equations written eg. 42+8 = 50, will be treated as malpractice.

OR

- 6 a. Explain the decision table based testing. List out the decision table test cases for triangle problem. (08 Marks)
- b. Prove with an example that the decision table based testing helps in finding inconsistencies and non-deterministic. (04 Marks)
- c. Explain in brief about special value testing and random testing. (04 Marks)

Module-4

- 7 a. What are DD-paths? Draw the program graph for triangle problem and list out DD paths. [Note: Write the pseudocode necessary to draw program graph] (08 Marks)
- b. Explain Rapps-Weyuker's DU-Path test coverage metrics. (08 Marks)

OR

- 8 a. Explain the levels of testing using traditional model of software development. (08 Marks)
- b. Explain any one of the specification based life cycle models. (04 Marks)
- c. Explain different water-fall spin-offs. (04 Marks)

Module-5

- 9 a. Describe Mutation testing. List out variations on mutation analysis and briefly explain them. (08 Marks)
- b. Explain fault based adequacy criteria with example. (08 Marks)

OR

- 10 Write a short note on :
- a. Scaffolding.
- b. Quality and process.
- c. Risk planning.
- d. Monitoring the process.

(16 Marks)

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