Total No. of Questions: 6

Seat No.:

BACHELOR OF TECHNOLOGY (CBCS - 2023)
B. Tech. Sem-V Computer Science & Engineering : WINTER: 2025
SUBJECT: SOFTWARE TESTING & QUALITY ASSURANCE

Day : Tuesday
Date : 16/12/2025

W-30729-2025

Time : 02:30 PM-05:30 PM
Max. Marks : 60

NB :
1. All questions are COMPULSORY.
2. Figures to the right indicate FULL marks.
3. Draw neat labelled diagrams WHEREVER necessary

Q. 1 Differentiate between verification and validation with suitable examples. How do both contribute to software quality assurance? (10)

OR

Q. 1 Describe the steps involved in test planning and test design. Explain why these activities are critical for the success of a software testing project. (10)

Q. 2 Explain and compare different system integration techniques — incremental, top-down, bottom-up, sandwich, and big bang. Discuss their advantages, limitations, and suitable application scenarios. (10)

OR

Q. 2 Define and explain with examples:
(a) Boundary Value Analysis (BVA)
(b) Decision Table Testing
Discuss how both techniques help identify critical input conditions and logical errors. (10)

Q. 3 Define the taxonomy of system tests. Explain with examples how various types of system tests are categorized based on purpose, environment, and system behavior. (10)

OR

Q. 3 Explain interoperability, scalability, and stress testing. Discuss their importance in ensuring performance and reliability of large-scale distributed software systems. (10)

Q. 4 Explain how international software quality frameworks like ISO-9126 and ISO 9000:2000 help standardize quality assessment across organizations. Illustrate with an example. (10)

OR

Q. 4 Discuss process quality and product quality in detail. Explain how each influences the final software performance and reliability. (10)

Q. 5 What is fault tolerance? Explain the mechanisms and strategies used to achieve failure containment in software systems, with suitable examples. (10)

OR

Q. 5 Compare and contrast different software quality assurance techniques and activities. Which techniques are most effective for ensuring defect prevention and quality improvement? (10)

Q. 6 Discuss the role of test automation in XP/Agile models. How does automation support continuous integration, testing, and delivery in Agile environments? (10)

OR

Q. 6 Explain the process model for test automation. Draw a neat labeled diagram and describe each phase in detail. (10)

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