

Paper id:

1	1	3	5	0	2
---	---	---	---	---	---

Roll No.

--	--	--	--	--	--	--	--	--	--

B.Tech
(SEM Vth) THEORY EXAMINATION 2018-19
Software Testing and Audit

*Time: 3 Hours**Total Marks: 70***Note:** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A****1. Attempt all questions in brief. 2 x 7 = 14**

- a. Differentiate between verification and validation.
- b. Differentiate the process of debugging and testing.
- c. What is the basic objective of software testing?
- d. What is cyclomatic complexity?
- e. How is mutation testing helpful in testing the software?
- f. Differentiate between re-testing and regression testing.
- g. Define the terms test, test case and test suite.

SECTION B**2. Attempt any three of the following: 7 x 3 = 21**

- a. Compare and contrast bugs, faults and failures using suitable examples.
- b. What is structural testing? Also discuss in detail any two types of code coverage testing.
- c. Identify the reasons which are responsible for changes in the software. Comment on the statement "change is inevitable."
- d. What is the use of a software test plan document in testing? Is there any standard available?
- e. Consider the example of withdrawing cash from an ATM machine. The process consists of the following steps:
 - (i) The customer will be asked to insert the ATM card and enter the PIN number.
 - (ii) If the PIN number is valid, the withdrawal transaction will be performed:
 - (a) The customer selects amount.
 - (b) The system verifies that it has sufficient money to satisfy the request; then the appropriate amount of cash is dispensed by the machine and a receipt is issued.
 - (c) If sufficient amount is not available in the account, a message "Balance not sufficient" is issued.
 - (iii) If the bank reports that the customer's PIN is invalid, then the customer will have to re-enter the PIN.

Generate test cases using class testing.

SECTION C

3. Attempt any *one* part of the following: 7 x 1 = 7
- (a) Explain the different types of verifications methods.
 - (b) Explain the various software testing principles.
4. Attempt any *one* part of the following: 7 x 1 = 7
- (a) A tourist of age greater than 21 years and having a clean driving record is supplied a rental car. A premium amount is also charged if the tourist is on business, otherwise it is not charged. If the tourist is less than 21 year old, or does not have a clean driving record, the system will display the following message: "Car cannot be supplied". Draw the cause-effect graph and generate test cases.
 - (b) Consider a program for determining the day of the week. Its input is a triple of day, month, and year with the values in the range:
$$1 \leq \text{month} \leq 12$$
$$1 \leq \text{day} \leq 31$$
$$1900 \leq \text{year} \leq 2058$$
The possible outputs would be the day of the week or invalid date. Design the boundary value test cases.
5. Attempt any *one* part of the following: 7 x 1 = 7
- (a) Discuss in detail the different techniques for selection of test cases during regression testing.
 - (b) What is regression testing? Explain the various steps of the regression testing process. Which step is the most important and why?
6. Attempt any *one* part of the following: 7 x 1 = 7
- (a) What are the various levels of testing? Explain the objectives of every level. Who should do testing at every level and why?
 - (b) What are the software testing tools? Discuss the static and dynamic testing tools with the help of examples.
7. Attempt any *one* part of the following: 7 x 1 = 7
- (a) What is user interface testing? Explain with the help of an example.
 - (b) What is database testing? What aspects must be covered in order to ensure database correctness in database testing?