KUMARAGURU
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B.E DEGREE EXAMINATIONS: APRIL / MAY 2023

(Regulation 2018)

Sixth Semester

COMPUTER SCIENCE AND ENGINEERING

U18CST6004**:** Software Testing

COURSE OUTCOMES:

CO1: Apply software testing fundamentals and testing design strategies to enhance software quality.

CO2: Design test cases for unit test, integration test, system test, regression and acceptance tests

CO3: Discover how work test plan components, test measurements and reviews

CO4: Perform Testing in software with various testing tools

CO5: Develop and validate a test plan

Time: Three Hours   **Maximum Marks: 100**

Answer all the Questions:-
PART A (10 x 2 = 20 Marks)
(Answer not more than 40 words)

1.	Compare verification and validation.	CO1	[K_2]
2.	Illustrate the need for software testing.	CO1	[K_2]
3.	What are the approaches a tester should use to design effective test cases?	CO2	[K_1]
4.	Consider a module that allows a user to enter new widget identifiers into the database. Identifier should consist of 3-15 alphanumeric characters of which the first two must be letters. What equivalence partitions would you create for the above scenario?	CO2	[K_3]
5.	Compare Alpha with Beta testing.	CO3	[K_2]
6.	How to perform integration testing?	CO3	[K_1]
7.	Summarize the different types of goals that are important to an organization.	CO4	[K_1]
8.	Write about the technical challenges in software testing.	CO4	[K_1]
9.	Compare Enterprise-oriented test automation and product-oriented test automation.	CO5	[K_1]
10.	List down any four Configuration Management Tasks.	CO5	[K_1]

Answer any FIVE Questions:-
PART B (5 x 16 = 80 Marks)
(Answer not more than 400 words)

11.	a)	Outline the six essential features/components of software testing for the Payroll Management System.	8	CO1	[K_2]
	b)	Summarize the design defects and coding defects that would occur during software development using examples.	8	CO1	[K_2]

12. a)
```
1. begin int x, y, power;
2. float z;
3. input(x, y);
4. if(y<0)
5. power = -y;
6. else power = y;
7. z=1;
8. while(power!=0)
9. { z=z*x;
10. power=power-1; }
11.  if(y<0)
12. z=1/z;
13. output(z);
14. end
```

Draw the control flow graph and compute the cyclomatic complexity using three different methods for the above code.

8   CO2   [K₃]

b) Suppose we have a specification for a module that allows a user to perform a search for a character in an existing string. The specification states that the user must input the length of the string (maximum 80 characters) and the character to search for. If the string length is out-of-range, an error message will appear. If the character appears in the string, its position will be reported. If the character is not in the string, the message, 'not found' will be output.

8   CO2   [K₃]

1. List the causes effects and rules.

2. Draw the Cause-Effect graph for the above problem.

13. a) Describe Regression testing and Acceptance testing.   8   CO3   [K₁]

b) Illustrate system testing and its types.   8   CO3   [K₁]

14. a) Explain the roles of three groups in Test Planning and Policy Development.   8   CO4   [K₁]

b) Discuss any six test plan components described by IEEE for software testing.   8   CO4   [K₂]

15. a) Outline the different types of Reviews available to ensure software quality.   8   CO5   [K₁]

b) Summarize the skills needed for software test automation.   8   CO5   [K₁]

16. a) Illustrate the use of Test Log and Test Summary report in reporting the test results.   8   CO4   [K₂]

b) Describe the various software testing principles.   8   CO1   [K₁]

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