Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S8 (R,S) Examinations April 2026 (2019 Scheme)

Course Code: CST458
Course Name: SOFTWARE TESTING

Max. Marks: 100 **Duration: 3 Hours**

PART A

Answer all questions, each carries 3 marks. Marks

1		Define the term test case	(3)
2		Write the differences between failure, error, fault and defect	(3)
3		Describe the two complementary phases of unit testing and their significance.	(3)
4		Explain the responsibilities of the presenter and moderator in a review team.	(3)
5		Describe structural graph coverage for design elements in software testing.	(3)
6		With a neat graph explain touring, side trips and detours	(3)
7		What are the guidelines for equivalence class partitioning in software testing?	(3)
8		Summarize the key testing concepts proposed by Howden	(3)
9		Write the need for grey box testing and list the steps in grey box methodology	(3)
10		What is the purpose of pattern testing, and how is it used?	(3)

PART B

Answer any one full question from each module, each carries 14 marks.

Module I

11	a)	How do verification and validation differ in software testing?	(7)
	b)	Describe the concept of coverage criteria in software testing and highlight the key characteristics that define an effective coverage criterion.	(7)

OR

12	a)	Compare and contrast black box testing, white box testing and grey box testing	(6)
	b)	Describe the different types of testing widely used with necessary examples	(8)

Module II

13	a)	Explain dynamic unit testing with the help of a suitable diagram.	(7)
	b)	Explain mutation testing and its significance.	(7)

OR

14	a)	Compare and contrast control flow testing and data flow testing	(7)
	b)	Explain the JUnit framework and its usage in unit testing	(7)

Module III

15 a) Draw CFG fragment for (6)

(i) Simple if

(ii) if else

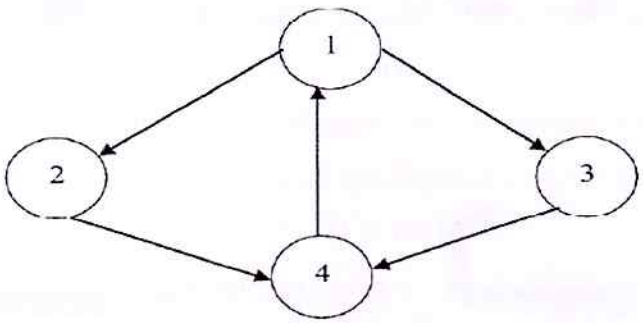
(iii) Simple while loop

b) Draw Control Flow Graph for the following function (8)

```
int binsearch(int X, int V[ ], int n)
{
    int low, high, mid;
    low = 0; high = n - 1;
    while (low <= high)
    {
      mid = (low + high)/2;
      if (X< V[mid])
          high = mid - 1;
      else if (X > V[mid])
          low = mid + 1;
      else
          return mid;
    }
 return -1;
}
```

OR

16 a) Explain simple path coverage and complete path coverage with the help of CFG. (7)



b) Explain the inheritance graph and coupling DU-pairs, providing examples for each. (7)

Module IV

17 a) Explain the following terms (8)
   a. Pair-wise coverage
   b. T-wise coverage
   c. Base choice coverage
   d. Multiple base choice coverage

   b) Differentiate between boundary value analysis and equivalence class partitioning (6)

OR

18 a) How does Boundary Value Analysis differ from Equivalence Partitioning in software testing? (6)

   b) Explain All Combinations Coverage (ACoC), Each Choice Coverage (ECC) with examples (8)

Module V

19 a) Write a brief overview of regression testing. (6)

   b) Why Grey Box testing is chosen and write the methodology behind it (8)

OR

20 a) Explain the statistical testing approach, particularly when testing systems with large data inputs. (8)

   b) Explain briefly about parameterized unit testing (6)

****