

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- OCTOBER 2018

B.Tech. V Semester

COURSE CODE: 10B1WCI515

MAX. MARKS: 25

COURSE NAME: Software Testing & Debugging

COURSE CREDITS: 04

MAX. TIME: 1Hr. 30 Minutes

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Vague answers will credit to zero marks.

[CO-2] 1. Consider the following program in C: `#include<stdio.h> main() { increment() ; increment() ; increment() ; } increment() { static int i ; printf ("%d\n", i) ; i = i + 1 ; }`

a. Make the DD graph of the given program b. Compute the cyclomatic complexity of the above program using McCabe formula, Miller's theorem, counting the regions method and graph connection matrix method. c. Trace all the independent paths d. Make a test case table using basis path testing method.

[2+2+2+2]

[CO-2] 2. Write a program in C programming language to check a user entered number is prime or not using call by value. Make the test case table of this program using basis path testing. Create 3 mutants of your program and compute effectiveness of the test cases designed by you.

[5]

[CO-3] 3. Find all du paths (ADUP), all uses (AU) paths and all definition paths for each variable of given below program:

```
#include<stdio.h> main() { int work; static float payment ; scanf ( " %d", & work); if (work>0) { payment=40; if (work>20) { if (work<=30) payment= payment+ (work-25)*0.5; else { payment= payment+ 50 + (work-30)*0.1; if (payment>=3000) payment = payment *0.9; } } } printf(" Final payment=%d", payment); }
```

[2+2+1]

[CO-3] 4. In a banking system rate of interest on the fixed deposit is as follow, if we deposit less than 1 lakh rupees as the principle, then the rate of interest is applicable is 6 percent, 7 percent, or 8 percent depending on whether deposit is for less than 1 year, between 1 to 3 year, or between 3 to 5 years respectively. And if the deposit is more than 1 lakh then the rate of interest is 7 percent, 8 percent, 9 percent depending on whether it is less than 1 year, between 1 to 3 years, or between 3 to 5 years respectively. Draw it's cause effect graph? [3]

[CO-2] 5. Justify the following statements with suitable **programming examples**:

a. Statement coverage is a necessary but not a sufficient condition for logic coverage.

b. Static data flow testing and decision/condition coverage are not enough in certain programming scenarios.

[2+2]