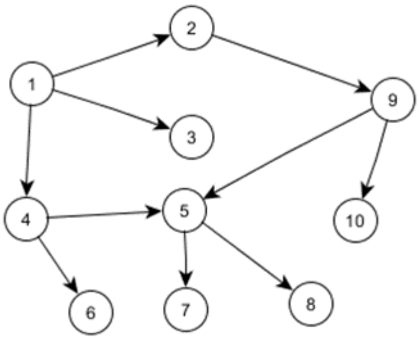
NATIONAL INSTITUTE OF TECHNOLOGY ROURKELA-769008
MID-SEMESTER EXAMINATION, 2018
SESSION: 2018 – 2019 (Spring)

M.Tech.2ndSemester

Subject code: CS6404 **Subject Name:** Software Testing **Dept. Code:** CS
No. of pages: 2 **Full Marks:** 60 **Duration:** 2h*rs*

Figures at the right hand margin indicate marks.
All parts of a question should be answered at one place.
Answer all questions.

Q. No.	Particulars	Marks
1.		2x10=20
(a)	Why is it important to test boundary values while testing a function?	
(b)	If branch coverage has been achieved on a unit under test, then which coverage is implicitly implied?	
(c)	What do you understand by clean room testing?	
(d)	Give two important types of errors that are checked during code walk through.	
(e)	For a program containing four binary branches, how many test cases are necessary for path coverage? Justify your answer.	
(f)	In a state table, what do the rows and columns represent?	
(g)	What do you mean by “kk” anomaly? What is its effect in data flow testing?	
(h)	Give two examples of different types of errors that integration testing target to detect.	
(i)	What do you understand by compatibility testing? Briefly explain with one example?	
(j)	What do you mean by non-repudiation?	
2. (a)	Design black-box test suite for a program that accepts a pair of points defining a straight line and another point and a float number defining the centre of a circle and its radius. The program is intended to compute their points of intersection and prints them.	5
(b)	Consider a system having an FSM for a stack having the following states and transitions: States Initial: Before creation Empty: Number of elements=0 Holding: Number of elements>0, but less than the maximum capacity Full: Number of elements=maximum Final: After destruction Transitions Initial to Empty: Create Empty to Holding, Empty to Full, Holding to Holding, Holding to Full: Add Empty to Final, Full to Final, Holding to Final: Destroy Holding To Empty, Full to Holding, Full to Empty: Delete Design test cases for this FSM using state table based testing.	10
(c)	Generate optimal MC/DC test cases for the following expression: (A||B) && (C||D)	5

3. (a)	Write a function to sort a given array of integers in descending order. i. Construct the CFG of the above function. ii. Determine its cyclometic complexity. iii. Identify the linearly independent paths in the CFG. iv. Design a test suite for the above function that satisfies path coverage.	10
(b)	Calculate the number of test sessions for the call graph shown below, using (i) Pairwise integration testing. (ii) Neighbourhood integration testing.  	3
(c)	What do you mean by selective retest technique? Why is it needed? Explain the steps of selective retest technique? You may draw a suitable diagram to explain the steps in more detail.	7