

Institute of Information Technology (IIT)

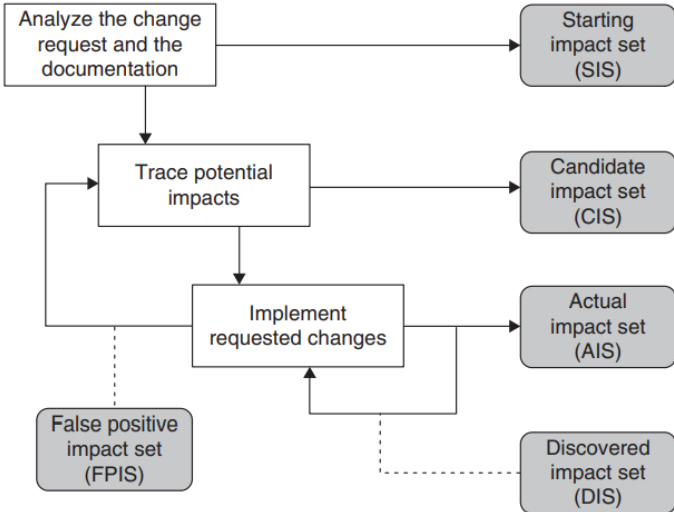
Noakhali Science and Technology University

Class Test, January 2023

Course Title: SE 4203 Software Maintenance

Topics: Change Impact Analysis & Legacy Systems

Max Marks : 30

Q.No.	Answer any <u>six (06)</u> of the following questions	Marks
 <p>Figure 1: Change Impact Analysis Process © 2008 IEEE</p>		
1	Discuss about the methods or techniques for identifying the Starting Impact Set (SIS) of Figure 1.	5
2	Discuss about the methods or techniques for identifying the Candidate Impact Set (SIS) of Figure 1.	5
	<pre> begin S1: read(X) S2: if (X < 0) then S3: Y = f₁ (X); S4: Z = g₁ (X); else S5: if (X = 0) then S6: Y = f₂ (X); S7: Z = g₂ (X); else S8: Y = f₃ (X); S9: Z = g₃ (X); end-if; end-if; S10: write(Y); S11: write(Z); end. </pre> <p>Figure 2: A Program</p>	
3	Construct Program Dependency Graph (PDG) for the program in Figure 2. Describe how PDG facilitates change impact analysis.	5

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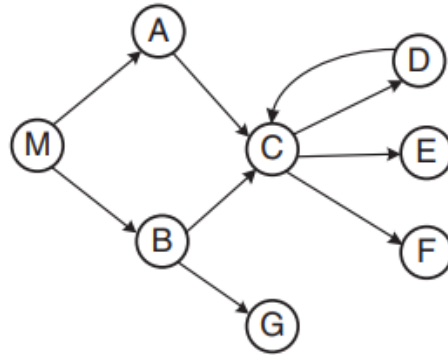


Figure 3: Call graph

4	Describe how call graph facilitates change impact analysis using Figure 3.	5
5	Write short notes on 'Ripple Effect based change impact analysis'	5
6	What is a legacy system? Discuss different types of solutions to the legacy problem.	5
7	What is a database wrapper? Discuss the difference between b-wrapper and f-wrapper with examples. How can these two concepts be used in migration?	5
8	Describe briefly about the below migration techniques for legacy systems below a) Cold turkey b) Database first c) Database last d) Composite database e) Chicken little f) Butterfly g) Iterative	5