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PRESIDENCY UNIVERSITY

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Bengaluru

Mid Term Examinations - October 2026

Date: 05/10/2026 **Time:** 09:30 AM - 11:00 AM

Course Code: ISE2500 **Course Name:** Software Testing and Quality Assurance

Semester: Fifth Semester **Max. Marks:** 50 **Weightage:** 50%

CO - Levels	CO1	CO2
Marks	66	24

PART A: Answer Following Questions. 10 M

Q.N.	Questions	M	CO	BT
1	Process of evaluating software to find bugs, ensure alignment, and verify requirements. Primary objective: defect identification/prevention, risk reduction, and quality assurance.	2	CO1	BT1
2	Alpha is done internally by QA/developers in a controlled/lab environment before release. Beta is conducted by external end-users in real-world, uncontrolled environments.	2	CO1	BT2
3	ECP & BVA (18 <=Age<=35) ECP: Valid: 18 <=Age<= 35. Invalid: Age < 18, Age> 35. BVA Test Values: 17, 18, 19, 34, 35, 36.	2	CO1	BT3
4	A graph showing program execution paths. Nodes represent basic blocks/statements or decision points; directed edges represent control flow transfers between them.	2	CO2	BT1
5	Smoke tests critical core paths to verify if a new build is stable enough to test (broad/shallow). Sanity verifies specific bug fixes or small code changes (narrow/deep)	2	CO2	BT2

PART B : Answer Any 1 Following Questions. 10 M

Q.N.	Questions	M	CO	BT
6	Diagram: States: New (logged), Assigned (routed to dev), Open (investigating), Fixed (resolved by dev), Pending Retest (in deployment), Retest (re-verified by QA), Verified (bug gone), Reopened (bug persists), Closed (archived).	10	CO1	BT2
7	Testing shows presence of defects, not absence. 2. Exhaustive testing is impossible. 3. Early testing saves cost/time. 4. Defect clustering (Pareto 80/20). 5. Pesticide paradox (tests must be updated). 6. Testing is context-dependent. 7. Absence-of-errors fallacy.	10	CO1	BT2

PART C: Answer Any 1 Following Questions. 10 M

Q.N.	Questions	M	CO	BT
8	Black-Box: Tests functionality without code access; performed by QA/testers; uses ECP, BVA, Decision Tables; misses internal logic/unreachable code. White-Box: Tests internal structure, logic, and paths; performed by devs/engineers; uses statement, branch, path coverage; misses missing requirements.	10	CO1	BT2

ANSWER KEY

PTO (Please Turn Over)

9	Top-Down: Starts from high-level control modules moving downwards; uses Stubs (dummy low-level modules simulating unbuilt components). Bottom-Up: Starts from lowest utility modules moving upwards; uses Drivers (test scripts/callers feeding data into low-level routines).	10	CO1	BT1

PART D: Answer Any 1 Following Questions. 10 M				
Q.N.	**Questions**	**M**	**CO**	**BT**
10	Interval & Limits: Valid: (0, 25]. Lower: 0 (exclusive), Upper: 25 (inclusive). 2-Point: {0, 1, 12, 25, 26} kg 3-Point: {0, 1, 2, 12, 24, 25, 26} Outcomes: Accept 1, 2, 12, 24, 25; Reject 0, 26. OBOE Errors: Swapping > with >= (accepting 0 kg) or <= with < (rejecting 25 kg).	10	CO1	BT3
11	State Transition (3-Attempt Authentication): States: Login Page, Attempt 1, Attempt 2, Attempt 3, Logged In, Account Blocked. Transitions: Correct credentials at any attempt -> Logged In. Wrong at Attempt 1 -> Attempt 2; wrong at Attempt 2 -> Attempt 3; wrong at Attempt 3 -> Account Blocked. Test Cases: TC1 (Valid at Att 1), TC2 (Fail 1, Valid 2), TC3 (Fail 1, Fail 2, Valid 3), TC4 (Fail all 3-> Blocked).	10	CO1	BT3

PART E: Answer Any 1 Following Questions. 10 M				
Q.N.	**Questions**	**M**	**CO**	**BT**
12	Definition: White-box metric measuring percentage of code executed by tests. Statement, Branch/Decision, Function, Condition Formula	10	CO2	BT2
13	Metrics: Nodes N=6, Edges E=7, Predicates P=2. V(G) = E - N + 2 = 7 - 6 + 2 = 3. V(G) = P + 1 = 2 + 1 = 3. Closed Regions + 1 = 2 + 1 = 3.	10	CO2	BT3

ANSWER KEY