North Campus
Final Examination Spring Semester 2020

Subject	Software Quality Assurance	**Program**	BSCS
Name	Areeba Shakeel	**Section Code**	372001057
Id	7454	**Maximum Marks**	40
Start date & Time	June 8th, 2020 at 12:00 AM	**Submission Deadline**	June 15th, 2020 at 06:00 PM

Q. No. 1	**Scenario Based Questions & Answers – each carry equal marks**	**Max Marks 10**

1. George Wise is an exceptional programmer. Testing his software modules reveals very few errors, far fewer than the team's average. He keeps his schedule promptly, and only rarely is he late in completing his task. He always finds original ways to solve programming difficulties, and uses an original, individual version of the coding style. He dislikes preparing the required documentation, and rarely does it according to the team's templates. A day after completing a challenging task, on time, he was called to the office of the department's chief software engineer. Instead of being praised for his accomplishments (as he expected), he was warned by the company's chief software engineer that he would be fired unless he began to fully comply with the team's coding and documentation instructions.

   a. Do you agree with the position taken by the department's chief software engineer?
   b. If yes, could you suggest why his or her position was so decisive?

Answer:

a. Yes, the department's chief software engineer does the right thing.

b. Because he uses a non-standard coding and documentation method which can be the reason of the following difficulties:

- To other programmers who have to develop software modules that need to interface with his module that may result in errors.
- Extra difficulty in performing maintenance task of failure repairs, adaptation of the software to new customers and system improvement tasks.

- Difficulties to an inspection team and testing team that may result in lower than regular rates of error detecting.
- Difficulty to replacement programmer who might be recruited to continue the work of George in the case of his leaving the company or being promoted to a higher position in another project. Misunderstanding George's coding and documentation may result in software errors.

2. "Super Saving Light" is a new software system for control of street illumination and enhancement of its economy, developed for municipality maintenance departments. Among its functions are:
   - Commencement and conclusion of street lighting according to daily timetable, scheduled annually.
   - Partial illumination (only one of each two lights will be activated) during the first and last 15 minutes of each illumination period activated by (1).
   - Measurement of natural light conditions by special sensors to ascertain whether natural lighting is insufficient (e.g., on cloudy days), leading to earlier commencement of street illumination and later conclusion of illumination. In these cases, only one of a trio of streetlights will be activated.
   - Reduction of illumination time according to traffic density, monitored by a traffic sensor installed at every road section, which will reduce illumination as follows: if traffic density is below one vehicle per minute, only half of the street lights in the road section will be activated; if traffic density is below 0.3 vehicles per minute, only one-third of the lights will be activated.

   Mr. Jones, head of the testing team, claims that black box testing is insufficient and that white box tests are necessary for testing "Super Saving Light".

   a. Support Mr. Jones's claim with three software error examples based on the illumination rules described above.

b. In the examples you choose, black box test results will be "OK", while white box testing of the same example will detect at least one error. For each example, explain why errors undetected by black box testing will be detected by white box testing.

Answer:

In the above test cases, which are relatively simple, no error has been found. These test cases are not able to reveal error situations in the following examples:

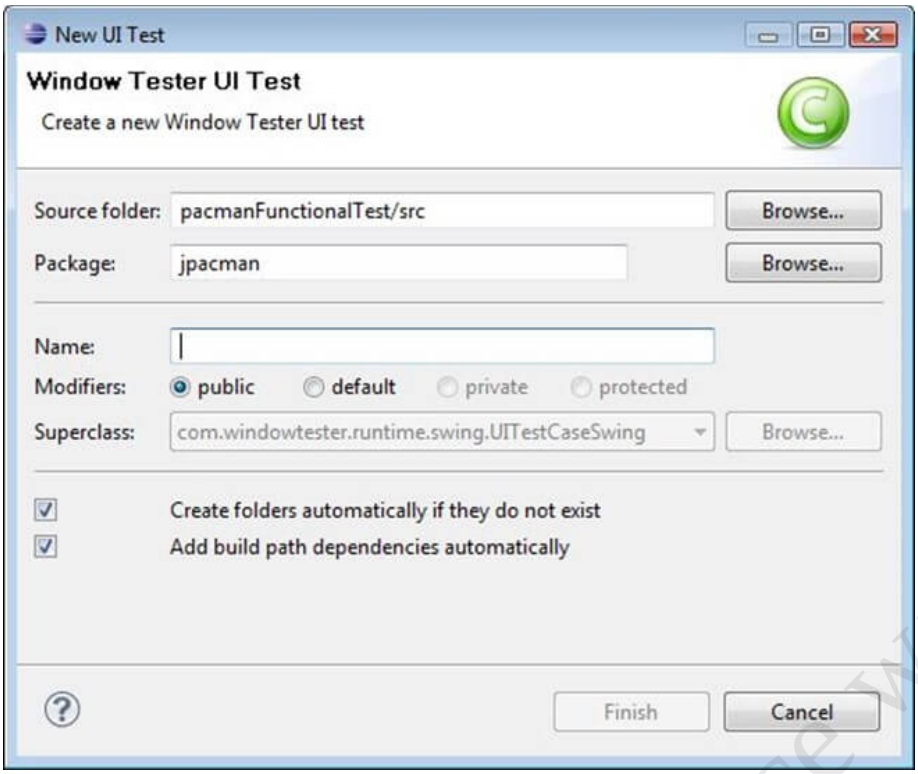
a. The effect of condition 3 should not be applied to the scheduled illumination time.

b. b. The effects of more than one conditions is not cumulative. The minimum of the illumination directions should be applied. For example if conditions 2 and 5 are applied, the black box and white box results are 1/6 and 1/3 of lights activated correspondingly.

It should be noted that more elaborate black box test cases would reveal these errors.

Q. No. 2	User Interface Testing	Max Marks 10

Write down at least 10 test cases of following interface, which may consist of UI and Usability test scenarios.



You may use the template below for documenting test cases.

Test Scenario ID		**Test Case ID**	
Test Case Description		**Test Priority**	
Pre-Requisite		**Post-Requisite**	

Test Execution Steps:

S. No	**Action**	**Inputs**	**Expected Output**	**Actual Output**	**Test Browser**	**Test Result**	**Test Comments**