Name: _____ Student ID: _____

Section A

1. In 2023, the Michigan state legislature changed the retirement plan for public school teachers. Retirement pension salary of a Michigan public school teacher is a percentage of the average of their annual salary for last three years of teaching. Normally, the number of years of teaching service is the percentage multiplier. To encourage senior teachers to retire early, the Michigan legislature enacted the following incentive structure:

   ▪ Teachers must apply for the incentive before July 11, 2023.
   ▪ Teachers who are currently eligible to retire (age >= 63) shall have a multiplier of 1.6% on their salary up to, and including $90,000, and 1.5% on compensation in excess of $90,000.
   ▪ Teachers who meet the 80 total years of age plus years of teaching shall have a multiplier of 1.55% on their salary up to and including $90,000 and 1.5% on compensation in excess of $90,000.

   a. Specify how many tests will be required to ensure Code Coverage. Explain how you have arrived at the number of tests. **[10%]**

   b. Construct a Decision Table for testing software developed according to the above problem description. **[12%]**

   c. Specify the test cases according to the Decision Table you have constructed in part (b). Explain in detail what principles you have used to generate your test cases. Use a simple form of test case specification, i.e., a table with the following headings. **[20%]**

Test case ID	Input values	Expected results

   d. What are the compensation multipliers for a person who is currently 64 with 20 years of teaching whose salary is $95,000? **[04%]**

2. If you take the train before 9:30 am or in the afternoon after 4:00 pm until 7:30 pm (the rush hour), you must pay full fare. A saver ticket is available for trains between 9:30 am and 4:00 pm, and after 7:30 pm.

   a. What are the partitions values to test the train times for ticket types? Which are valid partitions, and which are invalid partitions? **[05%]**

   b. Derive test cases for the partitions. Use a simple for of test case specification, i.e., a table with the following headings. **[10%]**

Test case ID	Input values	Expected results

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Section B

3. Suggest **three** possible problems that could arise if a company does not develop effective configuration management policies and processes. **[09%]**

4. What is software configuration management? What is the aim of each of its activities? **[10%]**

Section C

5. A non-functional requirement concerning performance is missing from the system documentation. How should this be described? **[05%]**
   a. It is a mistake.
   b. It is a failure.
   c. It is a fault.
   d. It is an error.

6. Which statement about static and dynamic testing is True? **[05%]**
   a. Static testing and dynamic testing have different objectives.
   b. Static testing and dynamic testing find the same types of defects.
   c. Static testing identifies defects through failures; dynamic testing finds defects directly.
   d. Static testing can find some types of defects with less effort than dynamic testing.

7. Which of the following are the main activities of the work product review process? **[05%]**
   1) Planning.
   2) Initiate review.
   3) Select reviewers.
   4) Individual review.
   5) Review meeting.
   6) Evaluating review findings against exit criteria.
   7) Issue communication and analysis.
   8) Fixing and reporting.
   a. 1, 2, 4, 7, 8
   b. 2, 3, 4, 5, 8
   c. 1, 2, 3, 5, 7
   d. 1, 4, 5, 6, 7

8. In a competition, ribbons are awarded as follows: less than 12 metres, no ribbon, a yellow ribbon up to 25 metres, a red ribbon up to 35 metres, and a blue ribbon for further than that. What distances (in metres) would be chosen using Boundary Value Analysis? **[05%]**
   a. 0, 11, 12, 25, 26, 35, 36.
   b. 11, 12, 13, 29, 30, 31, 40.
   c. 7, 18, 32, 39.
   d. 0, 12, 13, 26, 27, 36, 37.

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