Daffodil International University

Department of Computer Science and Engineering
Faculty of Science & Information Technology
Final Examination, Semester: Fall 2019
Course Code: CSE 498 (DAY), Course Title: Social and Professional Issues in Computing
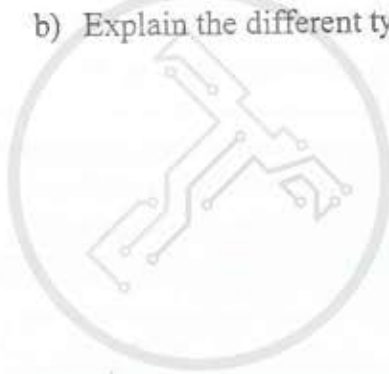

Time: 2 hours

Marks: 40

Answer all the following questions.

You must answer parts of a question sequentially. The figure in square brace at the right side of a question indicates the marks allocated to the questions.

1. The faculty at a large university requested that the campus store sells an electronic device, Auto-Grader, for students to use when taking machine-scorable tests. Students enter test answers into the device. When done, they send the answers to the instructor's laptop or tablet in the classroom. Once the instructor's computer receives the answers, it immediately grades the test and sends each student's score back to the student's device.

   a) Suppose you are a university dean. Now decide whether you allow the use of this system. Analyze the decision as both an ethical and practical problem. Mention any warnings or policies you might include if you approve use of the system. [5]

   b) Discuss potential benefits and problems or risks of using the system. [5]

2. Suppose you are a member of a team working on a computer-controlled crash avoidance system for automobiles. You think the system has flaws that could endanger people and the testing was not done fully. The project manager does not seem concerned and expects to announce the completion of the project soon. Now answer the followings:

   a) Who are the stakeholders? What are the alternative actions open to you? What action will you choose? [5]

   b) Whatever you choose will be clearly and fully explained using brainstorming phase and analysis phases? [5]

3. Your neighbor owns a sandwich shop. He asks you to write an inventory program for him and he will pay you for this. The program works pretty well and later you discover that your neighbor has given copies to his several friends who also operate small food shops.

   a) Do you think your neighbor should have asked your permission to give away your program? Do you believe the other merchants should pay you for the copies? Why or why not? [5]

   b) Differentiate between copyright and patent? Briefly explain open source software and free software with example? [5]

4. Suppose you are responsible for the design and development of a computer system to control an amusement park ride. Sensors in the seats will determine which seats are occupied, so the software can consider weight and balance. The system will control the speed and duration of the ride. The amusement park wants a system where, once the ride starts, a person is not needed to operate it.

    a) Which type of error can occur in this system? List some important things that you can or should do to ensure the safety of the system? [5]

    b) Explain the different types of computer errors and failures. [5]