



Daffodil International University

Department of Computer Science and Engineering

Faculty of Science & Information Technology

Final Examination, Fall 2020 @ DIU Blended Learning Center

Course Code: CSE333 (Day), Course Title: Software Engineering

Level: 3 Term: 3 Section: O-1, O4, O14

Instructor: AS Modality: Open Book Exam

Date: Sunday 20 December, 2020 Time: 09:00am-01:00pm

Four hours (4:00) to support online open/case study based assessment Marks: 40

Directions:

- Students need to go through the CASE STUDY shown in this exam paper.
- Analyze and answer specific section based on your own thinking and work.
- Do not share as this will be treated as plagiarism by Blended Learning Center.

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.

A voter registration System helps people to manage giving their important vote. Election Commission can manage and authorize user account .They can verify the validity of accounts and printing and supply of ballot papers to all polling stations located all over the country. Besides, citizen who born between 1st January 2018 and 20 December 2020 can register but they are not treated as a voter until they reach 18. At the time of enrollment one need some papers like S.S.C. or equivalent certificate, Birth certificate, Passport / Driving license / TIN certificate, Utility bill copy/House rent receipt/Holding tax receipt – (as a proof of address), Citizenship certificate (as applicable), Father, Mother, Husband/wife's ID card photocopy. Election commission server will contain all data base related information. Provide these information to user and admin when needed. If a National Identity Card of any citizen is lost or damaged in any way, he/she may apply in prescribed manner to NID Wing for a fresh one. Upon receiving an application the NID Wing shall, within a prescribed time and in the prescribed manner, issue a fresh National Identity Card to such citizen.

In case of correction of information, the applicant must apply with supporting document. In all cases, SSC certificate will get priorities if the person is SSC qualified. Besides, birth registration certificate, passport, driving license, marriage/divorce certificate, and newspaper published circulation, magistrate court affidavit, service book etc. may be required as a proof of corrected information.

Those who already registered as a voter but need to migrate their voter area they have to fill up migration form. These forms have to be sent to concern Upzila/Thana Election Offices for verification. A photocopy of ID card has to be attached with the migration form.

1. Draw the Class Diagram for the above scenario.

[10]

2. Construct a BPM and GUI for correction of voter information.

[5+5]

3. a) For the code below design 3 test suites using White box Testing:

[4]

```
printf ("Input the value of a : "); //Node-1 (N1)
scanf ("%d", &a);
printf ("Input the value of b : ");
scanf ("%d", &b);
if (a>0 && b>0) //Node-2 (N2)
{
    a=b+2; //Node-3 (N3)
    printf ("The value of a = %d ", a);
    printf ("\n");
} else if (a>0 || b>0) //Node-4 (N4)
{
    a=b-2; //Node-5 (N5)
    printf ("The value of a = %d ", a);
    printf ("\n");
} else {
    a=0; //Node-6 (N6)
    printf ("The value of a = %d ", a);
    printf ("\n");
    b=0;
    printf ("The value of b = %d ", b);
}
printf ("Finish"); //Node-7 (N7)
system ("pause"); }
```

b) Mr. Sazid Ahmed Ezan is a software manager at “Meta Data”. He is in charge of the development of a safety-critical software system, which is designed to control a radiotherapy machine to treat patients suffering from cancer. This system is embedded in the machine and must run on a special purpose processor with a fixed amount of memory (256 Mbytes). The machine communicates with a patient database system to obtain the details of the patient and, after treatment, automatically records the radiation dose delivered and other treatment details in the database. Assume that software product has been estimated to be 65,800 lines of source code. Assume that the average salary of software engineers be Rs. 24,500/- per month. Determine the effort required to develop the software product and the nominal development time.

[3]

c) Kraft IT is a small software company that sells office automation software. The smaller company’s spreadsheet software has a large market share, with many satisfied users (A major reason for the acquisition was that these existing users are potential customers for your company’s other products). Unfortunately, no documentation for the spreadsheet software can be found, and the source code is not commented. How would you go about maintaining this software to keep the customers happy?

[3]

4. a) Quality indicators for private universities of Bangladesh are decided and imposed by the policy makers, which ultimately reflect the perception of authority of University Grant Commission, government agencies, senior faculties of different public and private universities, and partially the parents of students. Educationists are also interested to focus on the students' perspectives of quality of education in private universities. A group of academicians planned to conduct a study on the issue from three different perspectives-institutional characteristics, faculty characteristics and student characteristics.

[5]

Write a research proposal for the above scenario and address the following issues.

- i) Research Problem ii) Research Objectives iii) Research Question
- iv) Research Methodology v) Research Outcomes

b) Mr. Safwan Ahmed is one of your very cooperative colleague who is a very good programmer produces software with a low number of defects. But the problem is that he consistently ignores organizational quality standards. How should his managers react to this behavior?

[5]