

International Islamic University Chittagong
Department of Computer and Communication Engineering
Final Examination, Autumn-2021
Course Code: CCE-3507

Course Title: System Analysis, Design and Development

Time: 2.5 Hours Full Marks: 50

The figure in the right margin indicates full marks.

Part A

Answer Two Question from following Questions

- Q.1(a)** Perfect Pizza wants to install a system to record orders for pizza and chicken wings. When regular customers call Perfect Pizza on the phone, they are asked their phone number. When the number is typed into a computer, the name, address, and last order date is automatically brought up on the screen. Once the order is taken, the total, including tax and delivery, is calculated. Then the order is given to the cook. A receipt is printed. Occasionally, special offers (coupons) are printed so the customer can get a discount. Drivers who make deliveries give customers a copy of the receipt and a coupon (if any). Weekly totals are kept for comparison with last year's performance. Draw a context-level data flow diagram for Perfect Pizza. **5**
- Q.1(b)** What are the main benefits of using a data dictionary? How do the data dictionary entries relate to levels in a set of data flow diagrams? **3**
- Q.1(c)** What are the three reasons for producing process specifications? List five conventions that should be followed when using structured English. **2**
- Q.2(a)** What are some of the different model-driven methodologies? What are some of the benefits and disadvantages of prototyping? **3**
- Q.2(b)** List ten factors that must be considered when choosing output technology. List four guidelines to facilitate the design of good display output. **3**
- Q.2(c)** *IIUC* needs to keep better track of students and others who use the many computers available in the Library. **4**
- i) Design and draw a representation of a *display screen* for students to use in signing into the computers in the library. Label the three sections of a display that you included.
- ii) Design a *paper form* to be left alongside each computer that users who are part of the community (but are not students) are required to fill out daily. The form should ask for name, date and time of visit, general purpose for computer use (i.e., *word processing, Web surfing, examining real estate documents online*), and the time they have logged off. Label the seven sections of a form that you included.
- Q.3 (a)** List and describe the contents of the system specification **5**
- Q.3(b)** Describe the primary activities of the design phase of the SDLC **5**

Part B

Answer Three Question from following Questions

- Q.4(a)** What is the difference between exhaustive and selective testing? What errors are commonly found during unit testing? **2**
- Q.4(b)** Derive a flow graph for the functions shown below and apply basis path testing to develop test cases that will guarantee that all statements in the function have been tested. **5**

```

1  intfunctionZ(int y)
2  {
3  int x = 0;

4  while (x <= (y * y))
5      {
6      if ((x % 11 == 0) &&
7          (x % y == 0))
8          {
9          printf("%d", x);
10         x++;
11         } // End if
12     else if ((x % 7 == 0) ||
13              (x % y == 1))
14         {
15         printf("%d", y);
16         x = x + 2;
17         } // End else
18     printf("\n");
19     } // End while
20 printf("End of list\n");
21 return 0;
22 } // End functionZ

```

- Q.4(c)** What is software quality? Define all of the six key quality attributes identified by the ISO 9126 standard. 3
- Q.5(a)** What is the difference between system documentation and user documentation? Describe the procedure manuals of documenting the system including its key sections and complaints against it. 4
- Q.5(b)** What are the common methods of computer training? List the five possible sources of training for users of information systems. 2
- Q.5(c)** What is the process of maintaining information systems? Categorize the maintenance into different types and discuss in brief. 4
- Q.6(a)** What are the relative advantages and disadvantages of the following financial factors in hardware selection? 4
i) Rental,
ii) Lease, and
iii) Purchase.
- Q.6(b)** Write short notes on the following risks to data and applications: 4
i) Social Engineering,
ii) Trojan Horse,
iii) Logic Bomb.
- Q.6(c)** What are the major goals of information security? What is the use of firewall in an organization's network? 2
- Q.7(a)** Distinguish between business, user, and functional requirements. 5
- Q.7(b)** What are the three basic steps of the analysis process? Is each step performed in every project? Why or why not? 5