



Daffodil International University

Department of Computer Science and Engineering

Faculty of Science & Information Technology

Midterm Examination, Semester: Fall 2019

Course Code: CSE 321 (DAY), Course Title: System Analysis and Design

Section: All, Course Teachers: All

Time: 1.5 hours

Marks: 25

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. a) Talk to a book shop owner and find out what his information requirements are. Divide it into operational, tactical, strategic and statutory components. Describe how his operational and tactical information needs could be satisfied if he installs a PC. [3]
b) A system costs Tk. 3, 50,000 to install and Tk. 3000 per month as recurring expenses. The benefit per year is Tk. 35,740. Assume an interest rate of 3.0% per month, what is the payback period of the investment? (Use Payback method with interest). [2]
2. BARBY Widgets wants to encourage its employees to save for retirement. To promote this goal, BARBY will match an employee's contribution to the approved retirement plan by 50% provided the employee keeps the money in the retirement plan at least two years. However, the company limits its matching contributions depending on the employee's salary and time of service as follows.
BARBY will match five, six, or seven percent of the first 3,00,000 BDT of an employee's salary if he or she has been with the company for at least two, five, or ten years respectively. If the employee has been with the company for at least five years, the company will match up to four percent of the next 2,50,000 BDT in salary and three percent of any excess. Ten-year plus workers get a five percent match from 3,00,000 BDT to 5,50,000 BDT. Long-term service employees (fifteen years or more) get seven percent on the first 3,00,000BDT and five percent after that.
a) Create a decision tree, decision table and structured language that captures the business rules in this policy. [2+2+1]
3. AZX Videos is the local video store. To borrow Videos or DVD's, a customer must first apply for a membership card by completing an application form and providing identification. When hiring items, the customer presents the items together with their membership card to the clerk. The clerk then totals their rental. The customer pays the rental and is issued a receipt that includes the return date for the items. Items rented are recorded on the Customers record. If the items are overdue a notice is placed on the customer record and the Customer must pay a late fee the next time they borrow an item. A monthly report, together with the receipts for the daily banking from the store, is sent to the Accounting Department listing the monthly rentals and any late items outstanding.
a) Construct a Context Level Diagram for the above. [2]
b) Construct Level-1 DFD from your DFD 0. [3]

4. Mr. Nasim is a hostel supervisor of **F R Khan Hall**. He states the following requirements for a hostel information system:

Our hostel has 500 rooms and 4 messes. Currently, there are 1000 students all in 2 seated rooms. They eat in any one of the messes but can get a rebate if they inform and do not eat for at least 4 consecutive days. Besides normal menu, extra items are also given to students when they ask for it. Such extras are entered in an extras book. At the end of the month a bill is prepared based on the normal daily rate and extras and given to each student. We find that bill preparation is delayed. We are also not able to keep proper track of payments and billing for extras. We need a system to streamline this.

a) What are the deficiencies in above scenario?

[2]

b) What would be your main goals and sub goals to eliminate those deficiencies?

[3]

5. The following is the first interview report filed by one of your systems analysis team members:
“In my opinion, the interview went very well. The subject allowed me to talk with him for an hour and a half. He told me the whole history of the business, which was very interesting. The subject also mentioned that things have not changed all that much since he has been with the firm, which is about 16 years. We are meeting again soon to finish the interview, because we did not have time to go into the questions I prepared.”

a) What critical information is missing?

[1]

b) What information is irrelevant to the interview report?

[2]

c) If what is reported actually occurred, what three suggestions do you have to help your teammate conduct a better interview next time?

[2]