KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2017/2018

FIRST SEMESTER EXAMINATION FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION

BMS 847: SYSTEMS ANALYSIS AND DESIGN

DATE: Wednesday, 22nd November 2017 **TIME:** 5.30 p.m. - 8.30 p.m.

INSTRUCTIONS

1. Question 1 is ***compulsory*** and carries ***40 marks***
2. Answer question ***one*** and any other ***three*** questions

Question 1

a) A university consists of a number of departments. Each department offers several courses. A number of subjects make up each course. Students enroll in a particular subject and take subjects towards the completion of that course. Each subject is taught by a lecturer from the appropriate department, and each lecturer tutors a group of students.

Required:

(i) Identify the entities, attributes, relationships, and cardinality ratios from the description. **[4 marks]**

(ii) Draw an entity-relationship diagram showing the items you identified. **[6 marks]**

b) LeonLora is a garage that has a number of customers each of whom may have one or more cars. Customers book their cars in for service (maintenance or repair). As each car is booked in a service card is raised with details of what type of service is required. These cards are placed in a service pending file. If a customer is booking a service for the first time then the customer file is updated with his/her details. Similarly, if a car is being serviced for the first time its details are recorded on the car file.

When the service takes place a mechanic is assigned to the task. He retrieves the service card from the file and updates it with information such as time spent on the service and parts used.

On completion of the service, the service card is returned to a service complete file.

Each day the service complete file is reviewed and the parts file is updated. If any items fall below the reorder level a parts purchase order is raised and sent to the appropriate supplier. The car file is also updated with details of the service performed on it.

At the end of each month all cards in the service complete file are taken by the invoice clerk who will raise an invoice for each customer who had cars serviced during the month.

Using the above scenario:-

(i) Draw a Context Diagram **[4 marks]**

(ii) Draw a first level DFD **[8 marks]**

c) Explain the reasons why it is important that the analyst should investigate and document the current business system. **[6 marks]**

d) Justify the significance of feasibility study in systems development process. **[6 marks]**

e) Recommend and justify the changeover strategies to be adopted for the following systems:

(i) Electronic point of sale system for chains of bookshops countrywide. **[2 marks]**

(ii) University admission system. **[2 marks]**

(iii) Airline seat reservation system. **[2 marks]**

Question 2

a) Describe the features of any **four** types of systems with reference to the general systems theory. **[4 marks]**

b) Prototypes allow the system analyst to establish the information people use to carry out their job. Examine the advantages and disadvantages of prototypes as a requirement gathering technique. **[6 marks]**

b) A system development project will have the following activities.

Activity	**Dependency**	**Duration**
A	-	3
B	A	5
C	L	7
D	L	2

E	-	9
F	B, C	6
G	E	5
H	B, C	6
I	A	3
J	I	3
K	D, F	4
L	-	4

Required:
Draw a network diagram and indicate the earliest, latest and project duration time expressed in weeks for the activities in the above scenario. Show the critical path for the project. **[10 marks]**

Question 3

a) Discuss the pros and cons of using CASE tools in software production. **[4 Marks]**

b) An electronic store offers 10% discount to a customer who buys goods worth sh. 10,000 and above. Additionally, the store offers a gift worth sh. 3000 to a customer who buys goods worth sh. 40,000 and above. Draw a flow chart to depict this information. **[6 marks]**

c) Explain all the stages of a Systems Development Life Cycle (SDLC) while stating the deliverables associated with each step. **[10 marks]**

Question 4

a) Explain the competencies that a systems analyst should possess in order to effectively handle the activities related to systems analysis and design. **[4 marks]**

b) Cost/Benefit analysis is a very important part of any feasibility study of system development cycle. Discuss how as a Systems Analyst can go about to do a Cost/Benefit Analysis. **[8 marks]**

c) A marketing company wishes to construct a decision table to decide how to treat clients according to three characteristics: Gender, City Dweller and Age group: A (under 30), B (between 30 and 60), C (over 60). The company has four products (W, X, Y and Z) to test market. Product W will appeal to female city dwellers. Product X will appeal to young females. Product Y will appeal to Male middle aged shoppers who do not live in cities. Product Z will appeal to all except older females.

Required:

Create a decision table that can model the above programming logic. **[8 marks]**

Question 5

a) You have been asked to help in the development of a new computerized call centre. Customers from a national Bank will ring up if they wish to change the details of their account. For instance, they might want to open a new account, close an old account, they might want to change the address of the person who owns the account and so on.

(i) Explain two requirements gathering techniques that can be used to identify the potential usability problems that might arise for people working with this new system. **[4 Marks]**

(ii) Identify the two strengths and two weaknesses of each technique. **[8 Marks]**

b) Describe **three** populations of users with special needs. For each population, suggest **four** ways in which the user interfaces could be designed to better serve them. **[8 Marks]**