



KENYATTA UNIVERSITY
UNIVERSITY EXAMINATIONS 2016/2017

**FIRST SEMESTER EXAMINATION FOR THE DEGREE OF MASTER OF BUSINESS
ADMINISTRATION**

BMS 847: SYSTEMS ANALYSIS AND DESIGN

DATE: MONDAY 28TH NOVEMBER 2016

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

Use the following Case Study to do Questions a and b

Utawala Driving School has several offices in the main cities of Kenya. The following are the data requirements of the school.

Each office has a manger (Who tends to be the senior instructor), several senior instructors, and administrative staff. The manager is responsible for the day to day running of the office. Clients must register at an office and this requires that they complete an application form, which records the personal details. Before the first lesson, a client is requested to attend an interview with an instructor to assess the needs of the client and to ensure that the client holds a valid provisional driving license. A client is free to ask for a particular instructor or to request that an instructor be changed at any stage throughout the process of learning how to drive. After the interview, the first lesson is booked. A Client may request individual lessons or book a block of lessons for a reduced fee. An individual lesson is for one hour, which begins and ends in the office. A lesson with a particular instructor records the progress made by the client and notes the mileage used during the lesson. The school has a pool of cars, which are adapted for the purpose of teaching. Each instructor is allocated a particular car. As well as teaching, the instructors are free to use the cars for personal use. The cars are inspected at regular intervals for faults. Once ready, a client applies for a driving test date. To obtain full driving license, the client must pass both the practical and theoretical parts of the test. It is the responsibility of the instructor to ensure the client is well prepared for all parts of the test. The instructor is not responsible for the testing of the client and is not in the car during the test but should be available to drop off and pick the client before and after the test at the Testing Centre. If a client fails to pass, the instructor must record the reasons for failure

Question a

Use the case to answer the following:-

- (i) List all the possible key entities [4 marks]
- (ii) List all the possible relationships [4 marks]
- (iii) Draw a clearly labelled Entity Relationship Diagram (ERD) [4 marks]

Question b

Using the case above:-

- (i) Draw a Context Diagram [4 marks]
- (ii) Draw a first level DFD [4 marks]
- c) Explain the difference between a methodology and a technique for systems development, giving an example of each. [4 marks]
- d) Discuss the setbacks of using CASE tools in software production. [6 marks]
- e) Discuss the options that are available to small-scale enterprises for access and utilization of information technology with no in-house software development staff to develop and implement information systems. [10 marks]

Question 2

- a) You are employed as an analyst by a large car manufacturer. A project has just commenced to which you have been assigned. The investigation stage of the project has been started and previous fact finding interviews have been well documented. When you go to see some people who have not previously been interviewed you find them hostile and unhelpful.

Required:

- i. Identify **five** possible causes of their hostility. [5 marks]
 - ii. For each cause, explain the appropriate action to take to overcome the difficulty during the analysis and design phases of the project. [5 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) Explain the following terminologies used in Object – Oriented Systems Analysis and Design, giving relevant examples. **[8 marks]**

- i. Object
- ii. Class
- iii. Inheritance
- iv. Re-usability

b) Explain all the stages of a Systems Development Life Cycle (SDLC). **[12 marks]**

Question 4

- a) Systems analysts are key individuals in the system development process. They are therefore required to have certain types of skills. Describe **four** types of skills that a system analyst is required to have in order to effectively carry out his/her tasks. [4 marks]
- b) Draw a flowchart for a program that calculates the average of three grades and prints the average. The word GOOD should be printed only if the average is more than 80. [6 marks]
- c) Giving appropriate examples explain the types of Information Systems that a systems analyst may be called upon to analyze and develop. [10 marks]

Question 5

- a) Explain the meaning of the following terms, bringing out clearly the distinction between the terms in each pair: [8 Marks]
- (i) Forward engineering and Reverse engineering.
 - (ii) Open systems and closed systems
- b) A fast-food organization has expanded the number of outlets around a city. At the moment the outlets use conventional cash tills. The organization would like to implement a Point-Of-Sale (POS) system in all its outlets with linkages to a centralized computer. Assume you are the organization's systems analyst and you have been asked to assist in the conversation process from the existing system to the new one:

Required:

Evaluate the change-over options that are available and recommend the most suitable method for the new system. [12 Marks]