

KABARAK



UNIVERSITY

**UNIVERSITY EXAMINATIONS
2010/2011 ACADEMIC YEAR
FOR THE DEGREE OF BACHELOR OF SCIENCE IN
TELECOMMUNICATIONS**

COURSE CODE: TPCM 312

COURSE TITLE: SYSTEM ANALYSIS AND DESIGN

STREAM: Y3S1

DAY: WEDNESDAY

TIME: 9.00 – 12.00 P.M.

DATE: 23/03/2011

INSTRUCTIONS:

Answer ALL questions in PART ONE and any THREE questions in PART TWO.

PLEASE TURN OVER

PART ONE

Question One (20 marks)

- a. Describe how the following organization factors can influence the design of an information system.
- i. Levels of management (2 marks)
 - ii. Organizational culture (1 mark)
- b. Organization XYZ recruits you to design an information system for them. They have branches in almost all the major towns in Kenya. Describe the method that you would use to gather the information requirements of the employees and give reasons for your answer. (2 marks)
- c. What advantage does observation have over interviewing as a means of collecting information? (1 mark)
- d. How can prototyping be used as part of the system design life cycle (SDLC), and what advantages does it bring to SDLC? (2 marks)
- e. The following are the activities involved in the student registration process of a small college.
- The prospective student fills in a form providing their information. They provide a means of verifying their identity and their academic qualifications. A new account is then created for the prospective student.
 - The prospective student selects the course they want to register for from the information provided about all courses offered in the college.
 - The prospective student's academic credentials are compared to the minimum entry requirements of the course chosen; if they are met then the student is given provisional registration.
 - The student is registered once they pay the required student registration fee and they are issued with a student registration card.
- i. Draw the context data flow diagram for the student registration system. (2 marks)
 - ii. Draw Diagram 0 for the student registration system. (3 marks)
- f. Using an example explain what an error line is used for in data flow diagrams. In which data flow diagrams can error lines be included? (2 mark)
- g. In data flow diagrams what is meant by a primitive process. (1 mark)

h. Organization SRT sales goods via an ecommerce site on the internet. The following table contains part of an events response table for some of the events that occur in the system

Event	Source	Trigger	Activity	Response	Destination
Customer logs on	Customer	Customer username and password	Find customer record and verify password Send welcome page	Welcome page	customer
Customer browses item on web storefront	Customer	Item information	Find price and quantity available. Send item response page	Item response web page	customer

Draw the physical data flow diagram (DFD) fragments for each of the events in the events response table. (3 marks)

i. What is a virtual organization? Give one advantage of a virtual organization. (1 mark)

PART TWO

Question Two

- a. Describe the phases of rapid application development. (3 marks)
- b. You are recruited by organization ABC to create information system for them. The organization has pressing business reasons for speeding up the application development process including gaining a competitive edge. During the process of gathering the information requirements of the employees you realize the following
- Almost all the employees are computer illiterate
 - The employees are demoralized and job satisfaction is very low
 - A large percentage of the employees do not even know the goals and objectives of the organization.
- i. Give reasons why you would not use rapid application development (RAD) to speed up the application development process.
 - ii. Given the employee demographic and the need to speed up application development, what method would you use in the design and implementation of the system? (3 marks)
- c. Describe;
- i. Three advantages that rapid application development has over system development life cycle (SDLC)
 - ii. One disadvantage of RAD compared to SDLC (2 marks)
- d. Name two software tools that can be used in rapid application development (RAD). Describe why these tools are suitable for RAD. (2 marks)

Question Three (10 marks)

- a. A system analyst can use one of the following methods to acquire system software.
Give two advantages and two disadvantages of each method.
- i. Create custom software (1 mark)
 - ii. Purchase commercial off the shelf software (1 mark)
 - iii. Outsourcing software services to an application service provider (1 mark)
- b. Identifying costs and benefits is an important step when preparing the system proposal.
Costs and benefits can each be divided into two categories, describe these categories giving examples of each. (2 marks)
- c. XYZ is a rapidly growing mail order house specializing in all cotton clothing.
Management would like to expand sales to the Web with the creation of an ecommerce site.
The company has two full time system analysts and one programmer. Company offices are located in a small isolated town and the employees who handle the traditional mail order business have little computer training. Would you recommend commercial off the shelf software, custom software or outsourcing to an application service provider? Give reasons for the choice you have made. (3 marks)
- d. Describe four criteria that can be used to evaluate a computer hardware vendor. (2 marks)

Question Four (10 marks)

- a. There are a lot of similarities between printed paper forms and electronic forms, describe the two main differences between the two types of forms. (1 mark)
- b. Describe four different types of output technologies. (2 marks)
- c. What is the importance of including feedback in a user interface? (1 mark)
- d. Describe four situations when it is appropriate to provide feedback to a user of an information system. (2 marks)
- e. Describe four ways of validating data input to an information system. (2 marks)
- f. You are contracted by organization BNG to design an information system for them. Most of the employees who will do data entry are visually impaired. Describe the type of user interface you will design for the system and how it will give feedback to the users. (2 marks)

Question Five (10 marks)

- a. Describe four strategies that can be used to convert from an old system to a new system. (3 marks)
- b. User training is normally carried out during the implementation of a new information system.
- i. Give two advantages of user training.
 - ii. Name four sources of human resource (people) that can be used to train users. (2 marks)
- c. Name and describe
- i. The three main concepts (elements) of IT security.
 - ii. The additional concept of IT security (2 marks)
- d. Describe two measures each that you can use to implement
- i. Physical security of an information system
 - ii. Network security
 - iii. Software (application) security (3 marks)