



# **MURANGA UNIVERSITY COLLEGE**

(A constituent College of Jomo Kenyatta University of Agriculture & Technology)

**MAIN CAMPUS**

**ORDINARY UNIVERSITY EXAMINATIONS**

**2014/2015 ACADEMIC YEAR**

**SECOND YEAR SECOND SEMESTER AND FIRST YEAR FIRST SEMESTER**

**FOR THE DEGREES**

**OF**

- 1. BACHELOR OF SCIENCE MATHEMATICS COMPUTER,**
- 2. BACHELOR OF SCIENCE INFORMATION TECHNOLOGY, AND**
- 3. BACHELOR OF BUSINESS INFORMATION TECHNOLOGY**

**COURSE CODE: ICS2210**

**COURSE TITLE: SYSTEMS ANALYSIS AND DESIGN**

**DATE: TIME:**

---

## **INSTRUCTIONS TO CANDIDATES**

Question ONE (1) is compulsory  
Answer THREE (3) questions

MRUC observes ZERO tolerance to examination irregularities

This Paper Consists of 4 Printed Pages. Please Turn Over. ►

**Question one****Case Study for Build-Right Company**

Build-Right is a company offering house building and property improvement services to the public. The proprietor of the company employs a number of skilled workers such as bricklayers, carpenters and plumbers. The proprietor manages the building projects himself, and occasionally helps with the construction work.

Build-Right wants to computerize the management of building work. This includes processing of cost estimates, job scheduling, and payments as described below. When a customer contacts the company to ask for an estimate, the proprietor makes a note of the customer's contact details and records an outline of the proposed work. He agrees a date with the customer to view the property in order to give an estimate of the cost for the work. When visiting the property on the agreed date the proprietor adds more detail to the outline of the proposed work.

Within three days of visiting the property the proprietor produces a fully detailed cost estimate and sends it to the customer. If the customer agrees the estimate, the proprietor schedules a date to start the job (this is based on the size of the job and other jobs that have already been scheduled). A few days before the agreed start date of a job, the proprietor contacts the customer to confirm the start date, and then orders the required building materials from suppliers to be delivered on the date the job starts. At the end of the job the proprietor calculates the actual cost of the job to produce an invoice which is sent to the customer. The customer has 30 days to pay the invoice.

- a) Produce a level one data flow diagram (DFD1) representing the management of building jobs in the Build-Right company described in the case study. 10marks
- b) Most information systems fail to capture the requirements of users/owners of the system. To curb this, after all the facts are analyzed and documented, a formal report should be written which is called statement of requirements. Outline the contents of the statement of requirements. 6marks
- ci) Explain the difference between a functional and non-functional requirements. 4marks  
 ii) Identify three types of non-functional requirement. 3marks
- d) Most organizations allocate over eighty percent of information system budget to maintenance. Describe factors that influence maintainability of an information system. 7marks

**Question two**

a) XYZ company has preferred customers who orders goods more than 1000 KES and are therefore entitled to 5% discount and an additional 5% discount if they use the company visa card. Preferred customers who do not order more than 1000 KES receive 250 KES bonus coupon. All other customers receive 50 KES bonus coupon. Draw a decision tree from the scenario. 8marks

b) Explain 4 possible characteristics of a good software design. 4marks

c) Outline factors that guide a systems designer when designing the user interface for a particular application. 8marks

**Question three**

ai) During the design stage, description of recommended solution is converted into logical and also into physical system specifications. Differentiate the logical design from the physical design of an information system. List down the main deliverable(s) of each design stage. 4marks

ii) Clearly highlight the main deliverables or output during each of the following stages of system analysis, design and development. 6marks

- I. Design
- II. Implementation
- III. Maintenance

b) Home owner's insurance depends on the type of policy and location of the home, but once this is determined, there are other factors that increase or decrease the premium to the home owner. One factor is the construction. A brick home will save the home owner 10% in annual premium and if there is a burglar alarm 5% will be deducted from the premium beyond that. There are choices that home owners make that will increase the premium too. If the home owner wishes to be paid, the replacement rather than depreciated value, add 10% to the base. The home owner may choose to carry a \$100 deductible, instead of a \$250 deductible which will increase the premium by 15%. Note, base is the original premium based on amount the house is insured for and the location of the home. Design the structured English statements of the episode. 10marks

**Question four**

a) Explain the purpose of a feasibility report, and when in the system development life cycle it should be produced. 2marks

b) You are preparing a feasibility report for a proposed IT system and have decided to write the contents page first to help you structure your report. Produce your contents page and describe the purpose of each section. 8marks

c) A student who passes the examination and completes the course work and project satisfactory is awarded a pass. If the course work and the project are unsatisfactory, the student is asked to resubmit the unsatisfactory work, as long as the exam has been passed. A student who fails the examination is deemed to have failed the whole course unless both the course work and the project are satisfactory, in which case the student is allowed to re-sit the examinations. Generate a decision table of the scenario.

10 marks