



MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY
(MMUST)
MAIN CAMPUS

UNIVERSITY REGULAR EXAMINATIONS
2021/2022 ACADEMIC YEAR

SECOND YEAR SECOND SEMESTER EXAMS

FOR THE DEGREES OF

BACHELOR OF INFORMATION SYSTEMS AND KNOWLEDGE MANAGEMENT

COURSE CODE: BIK223

COURSE TITLE: INFORMATION SYSTEMS DEVELOPMENT

DATE: Monday 25/04/2022 TIME: 8:00a.m-10:00a.m

INSTRUCTIONS: Please attempt question one and any other two questions
TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

Paper Consists of 3 Printed Pages. Please Turn Over



1) Question one (30 MARKS)

- a) Distinguish between the following systems development concepts [8mks]
 - i) ERD and DFD
 - ii) Object oriented system analysis and structured system analysis
 - iii) Systems development and software engineering
 - iv) Inclusive gateway and exclusive gateway on activity diagrams
- b) The following are some of the tools available to a systems analyst for use in systems development. Using suitable illustrations, describe them and explain how each is used
 - i) A data dictionary [4MKS]
 - ii) Swimlanes [4mks]
- c) The systems development life cycle (SDLC) is the process of determining how an information system (IS) can support business needs, designing the system, building it, and delivering it to users. Describe the phases of SDLC [14mks]

2) Question Two (20 MARKS)

- One common experience that students in every college and university share is enrolling in a college course.
- a) Draw a level 1 data flow diagram of data movement for enrollment in a college course. Use a single sheet and label each data item clearly [8mks]
 - b) Explode one of the processes in your original data flow diagram into sub-processes, adding data flows and data stores [6mks]
 - c) List the parts of the enrollment process that are “hidden” to the outside observer and about which you have had to make assumptions to complete a second-level diagram [6mks]

3) Question Three (20 MARKS)

- Both systems development and software engineering share modelling tools that makes them to appear synonymous
- a) Both processes have an implementation stage. Distinguish between the implementation activities in the two [4MKS]
 - b) Briefly describe The following Object Oriented Systems development concepts. Give examples how they are used in systems development [9mks]
 - i) Encapsulation
 - ii) Aggregation
 - iii) Object
 - c) The purpose of the class diagram is to show the static structure of the system being modelled. Briefly describe the structure of a class in a class diagram [7MKS]

4) Question Four (20 MARKS)

- An activity diagram is a special case of a state diagram in which all (or at least most) of the states are action or sub-activity states and in which all (or at least most) of the transitions are triggered by completion of the actions or sub-activities in the source states.
- a) Outline any four Notations and briefly describe how they are used [8 MKS]
 - b) Outline the systematic process of ordering and taking delivery of items online using

- an ecommerce facility such as Amazon or Jumia [6mks]
- c) Using activity diagram notations, represent the process outlined above [6mks]

5) Question five (20 MARKS)

Estimating the time a project will take is a critical factor in controlling systems development projects. Some of the tools available for a project manager include PERT, CPM and Gantt charts.

- a) Distinguish between the following project control concepts
- i) PERT and CPM [3mks]
 - ii) Milestones and critical activities [3mks]
- b) The table below shows a breakdown of activities of a project and their dependencies.

Activity	Activity Description	Predecessors	Duration
A	Excavate	—	2 weeks
B	Lay the foundation	A	4 weeks
C	Put up the rough wall	B	10 weeks
D	Put up the roof	C	6 weeks
E	Install the exterior plumbing	C	4 weeks
F	Install the interior plumbing	E	5 weeks
G	Put up the exterior siding	D	7 weeks
H	Do the exterior painting	E, G	9 weeks
I	Do the electrical work	C	7 weeks
J	Put up the wallboard	F, I	8 weeks
K	Install the flooring	J	4 weeks
L	Do the interior painting	J	5 weeks
M	Install the exterior fixtures	H	2 weeks
N	Install the interior fixtures	K, L	6 weeks
O	Handover the finished property		0

- i) Draw a well labelled CPM diagram to show how the project will progress from start to end [8mks]
- ii) What is the total time required to complete the project if no delays occur? [3mks]
- iii) Which are the critical activities where any delays must be avoided to prevent delaying project completion? [3mks]