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*(Knowledge for Development)*

**KIBABII UNIVERSITY**  
**(KIBU)**

**UNIVERSITY EXAMINATIONS**  
**2022/2023 ACADEMIC YEAR**

**END OF SEMESTER EXAMINATIONS**  
**YEAR TWO SEMESTER ONE EXAMINATIONS**  
**FOR THE DEGREE OF BACHELORS OF SCIENCE**  
**(INFORMATION TECHNOLOGY)**

**COURSE CODE: BIT 215**

**COURSE TITLE: SYSTEMS ANALYSIS AND DESIGN**

**DATE: 19/12/2022**

**TIME: 2.00 P.M – 4.00 P.M.**

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**INSTRUCTIONS TO CANDIDATES**

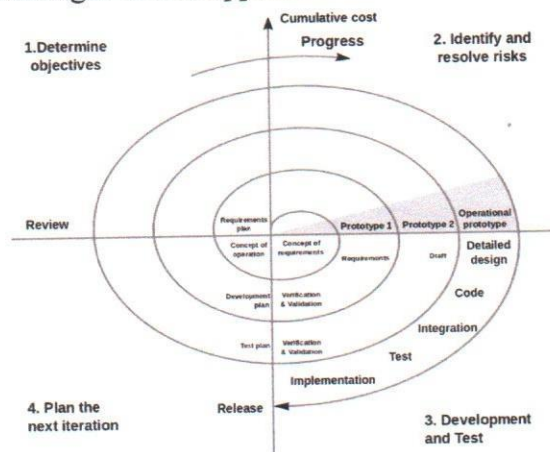
**ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS**

**QUESTION ONE (30 MARKS) [COMPULSORY]**

- a. Kibabii University intends to develop a new information system for the health centre. Explain any three reasons that may have led to this consideration. [6 Marks]
- b. A student has opted to use questionnaires to collect data for an ICT project. Explain one advantage and one limitation of this tool. [4 Marks]
- c. Sandra, a system analyst conducted a technical feasibility study for Kibabii University Health Centre's information system. Explain any two requirements she could have considered. [4 Marks]
- d. Khetia Group of Supermarkets generate employees' payslips using a payroll system. The system accepts hours worked and computes the gross pay given a rate of KES 500 per hour. The system stores this information in a payment file.
  - i. Represent this logic in a system flowchart. [6 Marks]
  - ii. Explain any two limitations of using flowcharts to design systems. [4 Marks]
- e. Maro Agencies has been dealing with a failing ICT project. Describe any three signs that such projects exhibit. [6 Marks]

**QUESTION TWO (20 MARKS)**

- a. The figure below shows an approach to system development.
  - i. Identify this approach. Justify your answer. [2 Marks]
  - ii. Describe three advantages of this approach. [6 Marks]



- b. For each letter of the PIECES framework, use Kibabii ERP scenario to create a problem that a system analyst might discover in an obsolete information system. [12 Marks]

**QUESTION THREE (20 MARKS)**

- a. A system analyst has been tasked with maintaining an information system. Describe any three types of system maintenance he could carry out. [6 Marks]
- b. Explain the differences between logical and physical design models. [4 Marks]
- c. The table below shows the details of a software development project. Use it to answer the questions that follow.

Activity	Duration (days)	Predecessor(s)
A	2	-
B	2	A
C	3	A
D	1	B
E	3	C,D
F	2	C,D
G	5	E
H	6	F,G

- i. Draw a network diagram for the project. **[5 Marks]**
- ii. Determine the critical path for the project using earliest and latest times. **[5 Marks]**

#### QUESTION FOUR (20 MARKS)

- a. Explain any four duties of a project manager in an Information system project. **[8 Marks]**
- b. Explain any three benefits of carrying out a feasibility study in system development. **[6 Marks]**
- c. Distinguish between leasing and outsourcing system acquisition methods. **[2 Marks]**
- d. i. "Many new systems analysts fail to effectively analyse problems". Justify **[2 Marks]**  
ii. Suggest what new systems analysts can do to become more effective. **[2 Marks]**

#### QUESTION FIVE (20 MARKS)

- a. Good interpersonal communication skills are essentials for system analysts. Discuss. **[2 Marks]**
- b. Explain why documentation is important throughout the development process. **[2 Marks]**
- c. Describe the basic steps for designing output. **[8 Marks]**
- d. Transborder LTD prides itself on having up-to-date information on the processing and current location of each shipped item. To do this, Transborder LTD relies on a company-wide information system. Shipped items are the heart of the Transborder LTD product tracking information system. Shipped items can be characterized by item number (unique), weight, dimensions, insurance amount, destination, and final delivery date. Shipped items are received into the Transborder LTD system at a single retail center. Retail centres are characterized by their type, uniqueID, and address. Shipped items make their way to their destination via one or more standard Transborder LTD transportation events (i.e., flights, truck deliveries). These transportation events are characterized by a unique scheduleNumber, a type (e.g., flight, truck), and a deliveryRoute.

Create an Entity Relationship diagram that captures this information about the Transborder LTD system. Be certain to indicate identifiers and cardinality constraints. **[8 Marks]**