



PAN AFRICA CHRISTIAN UNIVERSITY

BACHELOR OF COMMERCE

END TERM SPECIAL EXAMINATION – ONLINE

DEPARTMENT: BUSINESS

COURSE CODE: BCM 303

COURSE TITLE: MANAGEMENT DECISION MODELS

Time: 2 HOURS

Instructions

- Read all questions carefully before attempting.*
- Answer Question one and ANY three questions out of the FIVE Provided*

QUESTION ONE

- a) Define the following terms in relation to management decision models:
 - i. Queuing theory **(2 marks)**
 - ii. Slack **(2 marks)**
- b) Highlight any two situations that cause queues to happen **(2 marks)**
- c) Discuss why it is important to learn management decision models **(4 marks)**

QUESTION TWO

- a) Highlight the three basic requirements for decision making **(3 marks)**
- b) Discuss the model that a manager can use to solve machine replacement problems in the organization **(3 marks)**
- c) Explain any two characteristics of operations research **(4 marks)**

QUESTION THREE

- a) State the four properties of a linear programming model **(4 marks)**
- b) A company manufactures two products X and Y, which require, the following resources. The resources are the capacities machine M1, M2, and M3. The available capacities are 50, 25, and 15 hours respectively in the planning period. Product X requires 1 hour of machine M2 and 1 hour of machine M3. Product Y requires 2 hours of machine M1, 2 hours of machine M2 and 1 hour of machine M3. The profit contribution of products X and Y is KES. 5/- and KES. 4/- respectively.

Required

Formulate the linear programming model constraints **(6 marks)**

QUESTION FOUR

- a) Distinguish an iconic model from an analogue model **(4 marks)**
- b) Discuss the three main steps that are followed when constructing a model **(6 marks)**

QUESTION FIVE

- a) Outline any five characteristics of an appropriate decision-making model **(5 marks)**
b) You are given the below transportation model

From \ To				Supply
	A	B	C	
1	6	8	10	150
2	7	11	11	175
3	4	5	12	275
Demand	200	100	350	650

Required

Calculate the optimal solution using the Northwest Corner method **(5 marks)**

QUESTION SIX

- a) Highlight the five types of queues **(5 marks)**
b) Discuss the assumptions in game theory. **(5 marks)**