



KIBABII UNIVERSITY

**UNIVERSITY EXAMINATION
ACADEMIC YEAR 2020/2021**

FIRST YEAR FIRST SEMESTER REGULAR EXAMINATION

MASTERS OF EDUCATION IN EDUCATIONAL PLANNING AND MANAGEMENT

COURSE CODE: EPM 814

COURSE TITLE: INTRODUCTION TO MANAGEMENT SCIENCE

DATE: WEDNESDAY 21 July 2021 TIME 9.00AM-12.00PM DURATION: 3 HOURS

INSTRUCTIONS TO CANDIDATES

Answer Question One (compulsory) and Any other TWO (2) Questions

QUESTION ONE

Assume that you are considering to develop a short course in project management. Use the information give below to answer questions that follow.

Activity	Description	Duration (days)	Preceding activity
A	Design course overview	4	-
B	Identify staff to teach the course	2	-
C	Construct detailed course outline	6	-
D	Send out application forms	10	A
E	Confirm availability of staff to teach the course	2	B
F	Select staff to teach the course	1	C,E
G	Acknowledge students applications	3	D
H	Identify course written material	2	F
I	Prepare teaching material	20	G,H
J	Prepare room for course	1	J

Required:

- a) Construct a network diagram to describe your project (12marks)
- b) Determine the duration and the critical activities of the project (6marks)
- c) What factors do think should be considered in order to give a realistic timescale for completion of the project? (4marks)

QUESTION TWO

An Investor has acquired schools and is contemplating the future of one of its campuses, located in Nakuru. Three alternative decisions are being considered: expand the campus and offer Spanish curriculum, a market with little competition; maintain the status quo at the campus, continue offering a curriculum that is subject to heavy competition, or sell the campus now.

If one of the first two alternatives is chosen, the campus will still be sold at the end of a year. The amount of profit that could be earned by selling the campus in a year depends on local market conditions including the status of government education policies. The following payoff table describes this decision situation:

Decision	State of Nature	
	Favorable Education Policies	Unfavorable Education Policies
Expand the campus	800,000	500,000
Maintain status quo	1,300,000	-150,000
Sell now	320,000	320,000

- I. Determine the best decision by using the following decision criteria:
 - a) Maximax (2marks)
 - b) Maximin (2marks)
 - c) Minimax regret (2marks)
- II. Assume that it is now possible to estimate a probability of .70 that favorable education policies will exist and a probability of .30 that unfavorable education policies will exist. Determine the best decision by using expected value and expected opportunity loss. (9marks)

QUESTION THREE

A company is deciding whether to develop and launch a new product. Research and development costs are expected to be Shs. 400,000 and there is a 70% chance that the product launch will be



successful, and a 30% chance that it will fail. If it is successful, the levels of expected profits and the probability of each occurring have been estimated as follows, depending on whether the product's popularity is high, medium or low.

Product popularity	Probability	Expected profits
High	0.2	500,000
Medium	0.5	400,000
Low	0.3	300,000

It is anticipated that if it is a failure, there is a 0.6 probability that the research and development work can be sold for Shs. 50,000 and a 0.4 probability that it will be worth nothing at all.

Required

Use a decision tree model to advise the management of the company on whether to develop the product or not. (15 marks)

QUESTION FOUR

A school is preparing a trip for 400 students. The company providing the transportation has 10 buses of 50 seats each and 8 buses of 40 seats, but only has 9 drivers available. The rental cost for a large bus is Shs 800 and Shs 600 for the small bus. Calculate how many buses of each type should be used for the trip for the least possible cost. (15marks)

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