KIBABII UNIVERSITY

UNIVERSITY EXAMINATION
ACADEMIC YEAR 2021/2022

FIRST YEAR FIRST SEMESTER REGULAR EXAMINATION

MASTERS OF EDUCATION IN EDUCATIONALPLANNING AND MANAGEMENT/POLICY STUDIES

COURSE CODE: EPM 814

COURSE TITLE: INTRODUCTION TO MANAGEMENT SCIENCE

DATE: 02/02/2022   **TIME 9.00AM-12.00 NOON**   **DURATION:**   3HOURS

INSTRUCTIONS TO CANDIDATES

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

QUESTION ONE

a) 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 advice the management of the company on whether to develop the product or not. (15 marks)

b) i) Giving examples, distinguish between risks and uncertainties (5marks)
   ii) Discuss the any five strategies of dealing with risks in investment (10marks)

QUESTION TWO

a) 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:

i) Construct a network diagram to describe your project (4marks)

ii) Determine the duration and the critical activities of the project (3marks)

b) Management science encompasses a logical, systematic approach to problem solving which closely parallels what is known as the scientific method for attacking problems. This approach follows a generally recognized and ordered series of steps. Discuss (8 marks)

QUESTION THREE

c) An investor wishes to either invest in a school, hospital or poultry farming. The return from each will be determined by whether the investor succeeds in winning customer loyalty. The profit or loss from each of the three investments and the probabilities associated with each outcome are shown in the following payoff table:

Investment	State of nature	
	High customer loyalty .40	Low customer loyalty .60
School	80,000	-16.000
Hospital	40,000	8,000
Poultry	24,000	20,000

i)   Compute the expected value for each investment and select the best one.   (6 marks)

ii)   Giving a reason, which investment would you consider as the most viable   (1 marks)

iii)   Using examples, describe any four characteristics of a project.   (8 marks)

QUESTION FOUR

Discuss the advantages and disadvantages of Work Break Down Structure (WBS) as used in project planning   (15 marks)

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