STRATHMORE UNIVERSITY BUSINESS SCHOOL

MASTER OF BUSINESS ADMINISTRATION IN HEALTHCARE MANAGEMENT

END OF SEMESTER EXAMINATION

HCM 8201: DECISION ANALYSIS FOR HEALTHCARE MANAGERS

Date: Saturday,27th April 2019 **Time:** 3 hours

Instructions

1. This examination consists of **FOUR** questions.
2. Answer **Question ONE** and **ANY OTHER TWO** questions.
3. Use the idea for a start-up that you worked on in class as examples, but you can also use other ideas/businesses to illustrate your answers with examples

Question 1 (Compulsory) (20 Marks)

Decision making in healthcare settings often occur under conditions of uncertainty. This often requires the use of game-theoretic approaches to help in making a decision. Read the following scenario that is based on decision making under uncertainty carefully and answer the questions that follow.

The roll out of 'Linda Mama' Social insurance scheme has expanded financial access to maternal and child health (MCH) services. You therefore anticipate an increase in demand for MCH services. Your current capacity is for 15,000 clients against an estimated demand (all things remaining equal) of 21,000. You need to decide whether to build/allocate space for one more MCH clinic (which will increase capacity to 18,000), to build/allocate space for two more MCH clinics (which will increase capacity to 21,000), or not to build/allocate space at all.

Additionally, you have heard rumors that the neighboring health facility is also considering expanding its MCH services to take advantage of the expected increase in demand. And the policy recommendation to attach co-payment to 'Linda Mama' is due for discussion and a vote in parliament. If accepted, it is expected to dampen demand for MCH services as it will place a financial burden on the expected consumers of the MCH services. The capacity and demand table is presented below.

Choices (MCH built)	Capacity (000's)	Estimated demand (000's)			
		E1 – neighbor doesn't expand, policy rejected	E2 – neighbor expands, policy rejected	E3 – neighbor doesn't expand, policy accepted	E4 – neighbor expands, policy accepted
0	15	21	17	19	12
1	18	21	17	19	12
2	21	21	17	19	12

a) Construct a payoff matrix assuming (a) that payoff is proportional to the difference between capacity and demand, and (b) that overcapacity is just as undesirable as under capacity and therefore the greater the absolute value, the worse the payoff

b) What would you recommend based on each of the following (a) maximax solution, (b) maximin solution, and (c) minimax regret?

Question 2 (20 Marks)

a) Distinguish between graphic and symbolic decision support models **(4 Marks)**

b) Provide short descriptions of the following elements of decision support models **(8 Marks)**

i. Outcome variables
ii. Intermediate or endogenous variables
iii. Exogenous variables
iv. Control variables

c) What issues should one consider when building decision support models? **(8 Marks)**

Question 3 (20 Marks)

a) What are the pros and cons of (a) individual decision making, and (b) group decision making **(8 Marks)**

b) describe and illustrate with examples, any four cognitive biases that may affect decision making **(12 Marks)**

Question 4 (20 Marks)

a) What is a performance matrix? **(2 Marks)**

b) How would you go about developing a performance matrix? **(6 Marks)**

c) Describe, with illustrative examples, three ways through which you can make a shortlist from the performance matrix? **(12 Marks)**