KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS

MAIN EXAMINATION

2020/2021 ACADEMIC YEAR

FIRST YEAR SECOND SEMESTER

FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION

COURSE CODE: MBA 813

COURSE TITLE: TECHOLOGY AND OPERATIONS MANAGEMENT

DATE: 26/11/2021   TIME:9.00AM – 12 NOON

INSTRUCTIONS TO CANDIDATES

1) Answer Question **ONE**(Compulsory) and **ANY OTHER THREE** Questions
2) Candidates must hand in their answer booklets to the invigilator while in the examination room
3) Credit is given for legibility, clarity and use of relevant examples
4) Question **ONE** is **40 marks** while Questions **2-5** carry **20 marks** each
5) Clearly write your **Registration Number** on each answer sheet used

TIME: 3 Hours

KIBU observes **ZERO** tolerance to examination cheating

SECTION A

QUESTION ONE

Suppose that usage of an independent demand material was as follows in the months of January to June.

Month	Usage in Litres
January	450
February	190
March	600
April	600
May	420
June	380

a) Determine the July Forecast using Simple Moving Average   **(5marks)**

b) Determine the July Forecast using Weighted Moving Average   **(5marks)**

c) Define the following parameters as used in the equation: $EOQ = \sqrt{(2DO/H)}$

    i). EOQ- Economic Order Quantity   *(2mks)*
    ii). D- Annual Demand   *(2mks)*
    iii). P- Purchase Price   *(2mks)*
    iv). O- Unit Ordering Cost   *(2mks)*
    v). H- Unit Holding Cost   *(2mks)*

d) Explain any five Key Areas of Responsibility for an Operations Manager   **(10 marks)**

e) Discuss Five Storage System Performance Indicators   **(10 marks)**

QUESTION TWO

Operations Managers spend most of their routine hours in making decisions under certainty or uncertainty. The various tools available to an Operations Manager include Models, Quantitative Approaches, Analysis of Trade-Offs and Systems Approach. Explain Five primary reasons why Models are beneficial and effective to an Operations Manager **(20mks)**

QUESTION THREE

a) What do you understand by the term Economic Order Quantity **(4marks)**

b) Distinguish between ordering cost and carrying cost by giving examples of each **(4marks)**

c) An automobile manufacturer uses about 60,000 pairs of bumpers per year, which it orders from a supplier. The bumpers are used at a reasonably steady rate during the 240 working days per year. It costs 20% of the cost to keep the bumpers in inventory per year, and it costs $25.00 to place an order. A pair of bumpers costs $500.00.

Required

i.   Find out the EOQ? **(4marks)**

ii. How many orders will be placed per year? **(4marks)**

iii. Calculate the average inventory **(4marks)**

QUESTION FOUR

Consider the following list of activities and precedence relationships in a project showing times and other relevant information given in the table shown below and questions that follow.

Task	Description	Predecessor	Task Duration (Days)
A	Build internal components	-	7
B	Modify roof and floor	-	6
C	Construct collection stack	A	4
D	Pour concrete and install frame	B	6

E	Build hi-temp burner	B	8
F	Install control system	C	6
G	Install air-pollution control device	C	4
H	Inspect and test	D,F	2
I	Obtain financing	G,H	4

Required:

a) Develop the network of the project   **(15marks)**

b) Calculate the planned duration of the project   **(5 marks)**

QUESTION FIVE

a) Differentiate between design capacity and effective capacity as used in production and operational management   **(6 marks).**

b) Describe the term bottleneck giving an example as used in the manufacturing industry a production manager is likely to encounter during routine operations   **(5Marks).**

c) Describe at least three (3) quantitative forecasting methods, all of which use a variety of mathematical models that rely on historical data and /or causal variables to forecast demand

(9 Marks)