TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF BUILDING & CIVIL ENGINEERING
UNIVERSITY EXAMINATION FOR:
BACHELOR OF SCIENCE IN CIVIL ENGINEERING

ECE 2501: ENGINEERING MANAGEMENT I
SPECIAL/SUPPLEMENTARY EXAMINATION
SERIES: SEPTEMBER 2018
TIME: 2 HOURS
DATE: Sep 2018

Instructions to Candidates
You should have the following for this examination
-Answer Booklet, examination pass and student ID
This paper consists of five questions.
Attempt question ONE (Compulsory) and any other TWO questions.
Do not write on the question paper.

QUESTION ONE (COMPULSORY) 30 Marks

a) State the principles involved in depreciation of plant and with the aid of a hypothetical example explain the double declining method .

b) Define Operational research stating the characteristics of the approach and the main stages involved in the process.

c) Explain with the aid of a hypothetical example the conditional profit table for mutually exclusive events, and build a opportunity loss table for the same.

d) Explain with the aid of appropriate graphs the maintenance costs related to frequency of inspections of construction plant.

ANSWER ANY TWO QUESTIONS FROM THIS SECTION
QUESTION TWO (20 Marks)

a) Discuss the merits of owning plant against hiring of plant. (6marks)

b) A D12, Bulldozer was purchased at ksh. 24m, and has a resale value of sh.10m after 5years of use. The machine covers1.5km, a day in compacting and upgrading a murram

road base, 200mm thick. Determine the cost of 1km of the road upgrade using the bulldozer, given that a lorry of 4m3 of murram costst sh.40000.

QUESTION THREE (20 Marks)

a) Outline the four categories of inventory costs.

b) Discuss the disadvantages of maintaining low and/ or high stock levels.

c) Explain the use of inventory models and outline the deterministic and the stochastic models.

QUESTION FOUR (20 Marks)

Use the data provided below to draw the network analysis diagram for the project X tabulated below. Calculate the corresponding floats of each activity to determine the Critical path of the programme. Show the analysis chart of the project.

ACTIVITY	IMMEDIATELY PROCEDING ACTIVITY	DURATION	
H	-	6	
J	H	6	
K	H	7	
L	K	7	
O	H	5	
P	O	6	
M	J	6	
N	J	5	
Q	N,L	7	
R	N, L	9	
S	M	5	
U	Q, M	9	
T	S	8	
V	P, R	6	
W	P, R	5	

X	U	6	
Y	U, V, W	7	
Z	T, X, Y	7	

Project X.

QUESTION FIVE (20 Marks)

a) Discuss the applications decision theory in business management.

b) Outline with the aid of of hypothetical examples the following techniques applied in decision theory;

i) Worst possible/ best possible.

ii) Maximin criterion,

iii) Minimax regret criterion.