CHUKA   **UNIVERSITY**

UNIVERSITY EXAMINATION
RESIT/SUPPLEMENTARY / SPECIAL EXAMINATIONS FOR THE AWARD OF
BACHELOR OF

BCOM 263: OPERATIONS RESEARCH I

STREAMS: **TIME: 2 HOURS**

DAY/DATE: TUESDAY 04/05/2021   **02.30 P.M - 4.30 P.M.**
INSTRUCTIONS

- **Answer question one and any other two questions**

1. (a) Discuss any **Five** advantages that mathematical models posses over other types of models

(10

Marks)

 (b) Discuss the phases of Operations Research in solving problems.   **(10 Marks)**

(c) A manager of a computer servicing company has obtained five jobs to be done immediately.

He has selected five of his best technicians to do the job. The time required by each

technician to do the jobs is as follows;

TECHNICIAN	JOBS				
	A	**B**	**C**	**D**	**E**
1	216	212	215	214	216
2	212	215	218	217	217
3	217	218	216	219	218
4	216	212	213	214	215
5	219	213	218	219	217
6	220	217	218	221	223

REQUIRED

Assign the technicians the different jobs so as to minimize the total time of doing the jobs

(10 Marks)

2. A company plans to start a project whose activities have been listed as follows;

Activity	Preceding activity	Duration in Days
A	-	9
B	-	4
C	-	7
D	B, C	8
E	A	7
F	C	5
G	E	10
H	E	8
I	D, F, H	6
J	E	9
K	I, J	10
L	G	2

REQUIRED

(i)   Draw a Network diagram for the project   **(8 Marks)**

(ii)   Determine the critical path and the project duration   **(6 Mark**s**)**

(iii) Give any three advantages of using network diagrams in managing projects **(6 Mark**s**).**

3. (i) Explain any **Five** weaknesses of using the Reorder level system in managing inventories.

(10 Marks)

(ii) The following data relates to the usage of a particular stock item in a company.

	Minimum	Normal	Maximum
Lead Time in days	6	8	12
Demand in units per day	70	80	105

The calculated Economic Order Quantity is 300 Units.

Required

(i) Reorder Level

(ii) Minimum Stock Level

(iii) Maximum Stock Level

       (iv) Average stock Level   **(10 Marks)**

4(a) Discuss any **Five** functions of using computers in solving operations research problems   **(10 Marks)**

  (ii) State and explain any **Five** limitations of Operations Research   **(10 Marks)**

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