



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**SCHOOL OF ENGINEERING AND TECHNOLOGY**  
**UNIVERSITY EXAMINATIONS FOR THE DEGREE IN SCIENCE IN CONSTRUCTION**  
**MANAGEMENT**

**3<sup>RD</sup> YEAR 1<sup>ST</sup> SEMESTER 2018/2019 ACADEMIC YEAR**

**CENTRE: MAIN CAMPUS**

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**COURSE CODE: TCM 3312**

**COURSE TITLE: CONSTRUCTION PROJECT PLANNING AND CONTROL**

**EXAM VENUE: STREAM: BSc CONSTRUCTION MGT**

**DATE: ../12/2018 EXAM SESSION:**

**DURATION: 2 HOURS**

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**Instructions**

- 1. Answer question 1 (Compulsory) and ANY other two questions**
- 2. Candidates are advised not to write on question paper**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room**

**QUESTION ONE (30Marks)**

- a. List and define the five functions of management. (5 Marks)
- b. Discuss with the aid of a diagram the Maslow's need theory. (5Marks)
- c. i. Define a project. (2Marks)
- ii. With the aid of a diagram discuss characteristics of a project (4Marks)
- d. i. Define Motivation. (2Marks)
- ii. Discuss the two types of motivation. (4Marks)
- e. Briefly discuss project evaluation and project monitoring (4Marks)
- f. i. Define control (2Marks)
- ii Discuss any two types of control in construction organisation (2Marks)

**QUESTION TWO (20Marks)**

- a. Define linear Programming (3Marks)
- b. Ace Engineering Ltd manufactures three types of automobile trailers: Panda, Puma and Radi. The Engineering workshop is limited with 24 Working days per month on metal working and 60 working days per month on wood working. The production data for the three trailers and the company profit contribution are shown in the table below:

	<b>Panda</b>	<b>Puma</b>	<b>Radi</b>	Capacity
Metal working days	0.5	2	1	24 days
Wood working days	1	2	4	60 days
Profit contribution Sh.000	6	14	13	

Required:-Construct the mathematical model for the given situation as below

- i. Use letters to represent variables (3Marks)
- ii. Identify the decision variables (4Marks)
- iii. Formulate the objective function; and (4Marks)
- iv. Write out the non-negativity constraints. (6Marks)

**QUESTION THREE (20Marks)**

- a. With the aid of a diagram define the following terms:
  - i. Node or event (2.5 Marks)
  - ii. Activity (2.5 Marks)
  - iii. Network (3 Marks)
- b. A construction project consists of 10 activities whose relevant information is given below:

Activity	A	B	C	D	E	F	G	H	I	J
Preceding activity	-	-	A	B	B	B	C,D	F	E,G,H	F,I
Duration	7	6	4	3	8	7	6	5	6	4

Required:

- i. Construct the network for the project (7 Marks)
- ii. Define critical path (2Marks)
- iii. Identify critical path from the above network (3Marks)

**QUESTION FOUR (20Marks)**

- a. Define inventory (3Marks)
- b. Discuss the negative effects of:
  - i. Too large stock/inventory in construction oriented organization (3Marks)
  - ii. Too small stock/inventory in construction oriented organization (3Marks)

c. List and briefly define the tools/Techniques of Operation Research

(4Marks)

d. A stockist has to supply 400 units of a product every Monday to his customers. He gets the product at a cost of Kshs 50 per unit from the manufacturer. The cost of ordering and transportation from the manufacturer is Kshs 75 per order. The cost of carrying inventory is 7.5% of the cost of product.

Required:

Calculate the economic lot size to be maintained (Hint one year has 52 Mondays)

QUESTION FIVE (20Marks)

a. With aid of a well annotated arrow diagram discuss and distinguish the four stages in a project life cycle. (10

Marks)

b. State and Discuss any five of the seven principles of planning applicable to a construction organization (

10Marks)

END