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Index No. _____

2903/302

Candidate's Signature _____

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Date _____

OPERATIONS MANAGEMENT

July 2015

Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN SUPPLY CHAIN MANAGEMENT

DIPLOMA IN PROJECT MANAGEMENT

MODULE III

BUSINESS EDUCATION SINGLE AND GROUP CERTIFICATE

EXAMINATIONS

STAGE III

OPERATIONS MANAGEMENT

3 hours

INSTRUCTIONS TO CANDIDATES*Write your name and index number in the spaces provided above.**Sign and write the date of the examination in the spaces provided above.**This paper consists of SEVEN questions.**Answer any FIVE questions in the spaces provided in this question paper.**All questions carry equal marks.**Do NOT remove any pages from this question paper.**Candidates should answer the questions in English.***For Examiner's Use Only**

Question	1	2	3	4	5	6	7	TOTAL SCORE
Candidate's Score								

This paper consists of 19 printed pages.

Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

1. (a) The transformation process in operations management can take different forms. Explain **four** of these forms. (8 marks)
- (b) The project manager of a residential building has ordered for five different spare parts of a construction equipment. All the spare parts go through two processes; machining and polishing. The table below shows the amount of time, in minutes, that each spare part takes in each of the processes.

Spare Part	Process Time (minutes)	
	Machining	Polishing
A	50	105
B	70	45
C	110	50
D	80	60
E	35	50

Using the Johnson's rule:

- (i) show the order in which the spare parts should be passed through the facility;
- (ii) determine the total amount of time that it will take to machine and polish all the spare parts. (12 marks)

2. (a) Explain each of the following technologies used in operations management, giving two advantages in each case:

- (i) Flexible Manufacturing Systems;
- (ii) Computer Integrated Manufacturing Systems;
- (iii) Computer Aided Design;
- (iv) Benchmarking.

(12 marks)

(b) Explain each of the following production systems, giving an example of a product produced in each system:

- (i) Projects;
- (ii) Batch production;
- (iii) Mass production;
- (iv) Jobbing.

(8 marks)

- 4. (a) The maintenance manager at a local dairy plant intends to introduce a proactive maintenance program in their plant. Explain the benefits that the firm may derive from implementing such a program. (10 marks)

- (b) Explain **five** key elements of lean manufacturing approach in a manufacturing industry. (10 marks)

5. (a) Madiba Cement Company intends to build a new plant to manufacture special purpose cement. The site selection team is evaluating three sites and they have scored the important factors for each site as follows:

Location Factor	Scores (0 to 100)			
	Weight	Site 1	Site 2	Site 3
Labour pool and climate	0.30	80	65	90
Proximity to suppliers	0.20	100	91	75
Wage rates	0.15	60	95	72
Community environment	0.15	75	80	80
Proximity to customers	0.10	65	90	95
Shipping modes	0.10	85	92	65

Using the data above, determine the most suitable site to locate the plant. (12 marks)

- (b) Differentiate between product operations and service operations in a firm. (8 marks)

6. (a) Explain **five** types of costs that a firm may incur in plant and equipment maintenance. (10 marks)
- (b) Explain **five** roles of the purchasing and supply department during product development and design. (10 marks)

- 7. (a) A project management and consulting firm intends to develop a suitable production system for a start up business. Advise the firm on the factors to consider while carrying out this exercise. (8 marks)

- (b) Explain **six** characteristics of a good Enterprise Resource Planning (ERP) system. (12 marks)
