The Open University of Sri Lanka
Faculty of Engineering Technology

Study Programme	:	**POSTGRADUATE DIPLOMA IN TECHNOLOGY IN INDUSTRIAL ENGINEERING**
Name of the Examination	:	Final Examination
Course Code and Title	:	**MEX7215 - PRODUCTION PLANNING AND MATERIALS MANAGEMENT**
Academic Year	:	2014/15
Date	:	21st September 2015
Time	:	0930 hours -1230 hours
Duration	:	3 hours

General instructions

1. Read all instructions carefully before answering the questions.
2. This question paper consists of **six (06)** questions. All questions carry equal marks.
3. Answer **any five (05)** Questions.

Q1 . Answer the following.

(i) Explain the advantages in integrated materials management.

(ii) Explain why inter-departmental relations are important in purchasing.

(iii) Explain the code of ethics of the Materials Manager.

(iv) Explain the importance of material specifications in purchasing.

(20 marks)

Q2. (a) The task of finding the "right" site for a warehouse is complex. Explain how this problem can be solved.

(10 marks)

(b) What are the factors to be considered in designing a warehouse?

(10 marks)

Q3. Information related to 3 products which are manufactured by ABC Fabricators is as given below.

Cost/unit (Rs/=)	Product X	Product Y	Product Z
Material Cost	Rs. 150.00	Rs. 200.00	Rs. 280.00
Labour Cost	Rs. 20.00	Rs. 30.00	Rs. 40.00
Variable Cost	Rs 30.00	Rs. 40.00	Rs. 60.00
Machine Hrs/unit	0.20 Hrs	0.30 Hrs	0.40 Hrs
Selling Price	Rs. 400.00	Rs. 700.00	Rs. 900.00
Demand / month	2000 units	1500 units	1000 units

Notes:

a) Machine is operated 24 hrs/day and 25 days per month. (It is assumed that there is no machine stoppage due to breakdown or any other matters.)

b) Total fixed cost per month is Rs. 450,000/=

c) At least 30% of the Product Z has to be supplied as there is an agreement with a customer.

(i) What is the best mix for production to maximize the profitability without condition (c)?

(ii) What is the best mix for production to maximize the profitability with condition (c)?

(20 marks)

Q4. (a) Explain the importance of inventory control.

(7 marks)

(b) Explain why a buffer stock is required to be maintained in inventory control.

(6 marks)

(c) Discuss the limitations of A-B-C analysis in inventory control.

(7 marks)

Q5. (a) Discuss the factors influencing locational decisions for maximizing profit.

(6 marks)

(b) Potential locations at A, B, C have the cost structures shown below. The product is expected to sell at Rs. 130/-

(i) Find the most economical location for an expected volume of 6000 units per year.

(4 marks)

(ii) What is the expected profit if the site selected in (i) is used?

(4 marks)

(iii) For what output range is each location best?

(6 marks)

Potential Locations	Fixed Cost/year Rs.	Variable cost/unit Rs.
(A)	150,000	75.00
(B)	200,000	50.00
(C)	400,000	25.00

Q6. (a) Explain what is meant by "line balancing" in a production plant .

(6 marks)

(b) Time taken for each of operation of a production set up is given below.

Operation	Time taken (minutes)
1	1.90
2	2.00
3	1.00
4	0.95
5	0.80
6	1.00
7	0.99
8	1.95

Assume that you have got 11 equal skilled operators.

i) Balance the line with required people for each operation.

(7 marks)

ii) What is the maximum output in a 9-hours working shift?

(7 marks)

(Assume that 30 minutes lunch break and two tea breaks of 15 minutes each are given and fatigue and other allowance are included in the given time.)

*****END OF QUESTION PAPER*****