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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	:	2013/14
Date	:	31st August 2014
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. (a) Write brief notes on following.

(i) Productivity

(ii) Integrated Materials Management.

(iii) Inspection and Quality Control in Purchasing. (4 marks each)

(b) Explain the process of preparing a materials budget. (8 marks)

Q2. (a) Discuss special features of capital equipment purchasing. (8 marks)

(b) Explain phases of negotiation in purchasing. (12 marks)

Q3. Potential locations for a facility at A, B, C, have the cost structure shown below in the table. The product is expected to sell at Rs. 150/-

a) Find the most economical location for an expected volume of 8000 units per year. (5 marks)

b) What is the expected profit if the site selected in (a) is used? (5 marks)

c) For each location what would be the best output range? (10 marks)

Potential location	Fixed cost/year Rs.	Variable Cost /unit Rs.
A	250,000.00	90.00
B	350,000.00	60.00
C	600,000.00	40.00

Q4. (a) Explain what is "line balancing" in a production plant. (8 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	0.92
5	0.88
6	1.00
7	0.98
8	1.95

Assume that you have got 11 equal skilled operators.

i) Balance the line with required people for each operation. (5 marks)

ii) What is the maximum output in a 9-hour working shift? (7 marks)
(Assume that 30 minutes lunch and 15 minutes two tea breaks are given. Fatigue and other allowance are included in the given time.)

Q5. A firm has developed the forecast in units as given in the following table for an item which has a demand influenced by seasonal factors. Available production days per month are also given in the table.

a) Prepare a chart showing the daily demand requirements. (6 marks)

b) Plot the demand as a histogram and as a cumulative requirement over time. (6 marks)

Month	**Forecast Demand**	**Production Days**
January	220	22
February	90	18
March	210	21
April	396	22
May	616	22
June	700	20
July	378	21
August	220	22
September	200	20
October	115	23
November	95	19
December	260	20

c) Using above information determine the monthly inventory balances, required to follow a plan which would allow absorption of the fluctuations in demand. Assume that there is an inventory balance of 566 units at the end of previous year. (8 marks)

Q6. (a) Explain the importance of inventory control. (8 marks)

(b) Explain A – B – C analysis in inventory control and its limitations. (12 marks)