THE OPEN UNIVERSITY OF SRI LANKA
FACULTY OF ENGINEERING TECHNOLOGY
POSTGRADUATE DIPLOMA IN TECHNOLOGY IN INDUSTRIAL ENGINEERING –
LEVEL 7
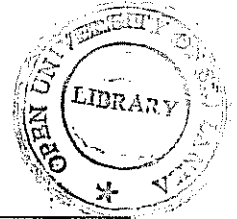**FINAL EXAMINATION – 2008/2009**
MEX 7215 – PRODUCTION PLANNING & MATERIAL MANAGEMENT
DATE : *25 March 2009*
TIME : *0930 hrs – 1230 hrs*
DURATION: *Three (03) hours*

Answer any five (05) questions. All questions carry equal marks.

01. (a) Materials Management functions are dynamic. Discuss.

    (06 marks)

    (b) Explain how materials research can be conducted more effectively and efficiently.

    (07 marks)

    (c) Discuss activities of purchasing function.

    (07 marks)

02. (a) "Setting specifications should be essentially a technical rather than a commercial activity but commercial staff plays an important secondary role in defining specifications" Explain.

    (08 marks)

    (b) Explain factors to be considered in selecting a supplier.

    (12 marks)

03. (a) What factors are you going to consider in designing a warehouse? Explain.

    (10 marks)

    (b) Describe storage activities that should be taken into consideration in determining storage space requirement.

    (10 marks)

04. Information related to 03 products which are manufactured by SMS Fabricators are given bellow.

Cost / unit (Rs/-)	Product A	Product B	Product C
Material Cost	Rs 130.00	Rs 175.00	Rs210.00
Labour Cost	Rs 20.00	Rs 25.00	Rs 40.00
Variable O/H	Rs 35.00	Rs 40.00	Rs 50.00

Machine Hours / Unit	0.20 hrs	0,25 hrs	0,40 hrs
Selling Price	Rs 385.00	Rs 450.00	Rs 600.00
Demand/month	1500 units	1000 units	500 units

Note

a) Machine is operated for 24 hrs /day and 26 days per month (It is assume that there is no any other machine stoppage such as machine breakdown or power failures etc)

b) Total fixed cost per month is Rs 300,000/-.

c) At least 50% of the Product C has to be supplied as there is an agreement.

What is the best mix for production to maximize the production?

(20 marks)

05. (a) Why proper layout is required for a factory? Explain.

(06 marks)

(b) Potential locations for a warehouse at X, Y and Z have the cost structures as shown below. The product is expected to sell at Rs 150/- .

Potential Location	Fixed Cost/Year (Rs/-)	Variable Cost/Unit(Rs/-)
X	200,000/=	80.00
Y	350,000/=	50.00
Z	550,000/=	30.00

(i) Find the most economical location for an expected volume of 8000 units per year?

(05marks)

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

(03 marks)

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

(06 marks)

06. (a) Discuss the "need for production planning and control"

(06 marks)

(b) What are the major activities of production planning and controlling?

(06 marks)

(c) Discuss briefly the cost related to the aggregate production planning decision.

(08 marks)

07. A firm has developed the forecast in units for an item as shown in the table bellow.

Month	Forecast Demand (units)	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
Total	3500	250

(a) Prepare a chart showing the daily demand requirement.

(06 marks)

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

(06 marks)

(c) Prepare a production plan to optimize the resources requirement and inventory

(08 marks)

08. Write short notes on following.

(a) Total quality management.

(05 marks)

(b) Just in time manufacturing.

(05 marks)

(c) Supply chain management

(05 marks)

(e) Enterprise resource planning

(05 marks)