2M6204

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M.B.A. (Sem. - II) (Main & Back) Examination, June/July-2011
M-204 Operations & Production Management

Time : 3 Hours] [Total Marks : 70
[Min. Passing Marks : 28

The question paper is divided in two sections. There are sections A and B. Section A contain 6 questions out of which the candidate is required to attempt any 4 questions. Section B contains short case study/application base 1 question which is compulsory. All questions are carrying equal marks.

Use of following supporting material is permitted during examination.

(Mentioned in form No. 205)

1. Nil 2. Nil

SECTION - A

1 (a) What is mean by the term operations ? How does it differ from the term production ? 4

(b) List the factors with reasons to be considered for the establishment of petroleum refinery at BARMER. 4

(c) Develop a trend line for the following data to forecast the demand for the period 10 and 11 :

Period	Demand
1	44
2	52
3	50
4	54
5	55
6	55
7	60
8	56
9	62

6

2 (a) Using data, obtain the EOQ and the total variable cost associated with the policy of EOQ.
Annual demand = Rs. 20,000
Ordering cost = Rs. 150 per order
Monthly Inventory carrying cost = 2% of average inventory value. 8

(b) Review the assumptions of EOQ model used in the derivation. 3

(c) Describe the philosophy of JIT with respect to inventory. 3

3 (a) A company plans to assign 5 salesman to 5 districts in which it operates. Estimate of sales revenue in thousands of rupee for each salesman in different districts are given in the table shown. What should be the placement of the salesman if the objective is to maximise the expected sales revenue ?

Salesman \ District	D_1	D_2	D_3	D_4	D_5
S_1	40	46	48	36	48
S_2	48	32	36	29	44
S_3	49	35	41	38	45
S_4	30	46	49	44	44
S_5	37	41	48	43	47

7

(b) Solve the following transportation problem. Obtain the initial solution by NW corner rule :

From \ To	P	Q	R	S	Supply
A	7	3	8	6	60
B	4	2	5	10	100
C	2	6	5	1	40
Demand	20	50	50	80	200

Obtain the optimal solution. 7

4 (a) A company manufactures 30 units per day. The sales of these items depends upon demand which has the following distribution :

Sales (units)	Probability
27	0.10
28	0.15
29	0.20
30	0.35
31	0.15
32	0.05

The production cost and sales price of each unit are Rs. 40 and Rs. 50 respectively. Any unsold product is to be disposed off at a loss of Rs. 15 per unit. There is a penalty of Rs. 5 per unit if demand is not met. Using the following random numbers, estimate the total profit/loss for the next ten days : 10, 99, 65, 99, 95, 01, 79, 11, 16, 20 .

If the company decides to produce 29 units per day, what is the advantage or disadvantage of the company ?

10

(b) List the factors influencing plant lay-out decision.

2

(c) List various material handing equipments.

2

5 (a) A time study is made of a punch press operator the results of which yield an average time per piece of 0.30 minute. The punch press operator's performance during the study was rated as 120 percent. If total allowances are 10 percent of STANDARD TIME. What is the standard time for this operation ?

8

(b) Define motion and time study according to
(i) Taylor, and
(ii) Gilbreth.

4

(c) Discuss in brief cycle graph and chronocycle graph.

2

6 (a) Using the information contained in the table shown, do each of the following :
(i) Draw a precedence diagram
(ii) Assuming an eight-hour working, compute the cycle time needed to obtain an out put of 400 units/day.
(iii) Determine the minimum number of work stations required :

Task	Immediate Follower	Task Time (Mins)
a	b	0.2
b	e	0.2
c	d	0.8
d	f	0.6
e	f	0.3
f	g	1.0
g	h	0.4
h	end	0.3

(iv) Compute the resulting efficiency of the system.

10

(b) Discuss briefly production planning and control.

4

SECTION - B

7 A small project is comprised of 7 activities whose time estimates are listed in the table below :

Activity	Estimates optimistic	Duration Most likely	in weeks Pessimistic
1-2	1	1	7
1-3	1	4	7
1-4	2	2	8
2-5	1	1	1
3-5	2	5	14
4-6	2	5	8
5-6	3	6	15

(a) Draw the project network and identify all the paths through it.

4

(b) Find the expected duration and variance for each activity. What is the expected project lenght ?

2

(c) Calculate the variance and standard deviation of the project length.
What is the probability that the project will be completed ?
(i) At least 4 weeks earlier than expected time.
(ii) No more than 4 weeks later than expected time.

6

(d) If the project due date is 19 weeks, what is the probability of not meeting the due date.
Given

Z :	0.50	0.67	1.00	1.33	2.00
p :	0.3085	0.2514	0.1587	0.0918	0.0228

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