

# END TERM EXAMINATION

FIFTH SEMESTER (BBA), DECEMBER - 2010

Paper Code : BBA - 305

Subject : Production and Operation Management

Paper ID : 17305

Time : 3 Hours

Maximum Marks : 75

Note : Attempt Five questions in all. Select at least Two questions from each section.

Specification : Calculators allowed.

## Section A

- Q. 1.** Operation Management is becoming a very important subject in business education in the last few decades. Explain the importance of Production and Operation Management and why it is an integral part of business education. State with example. (8+7)
- Q. 2. (a)** Discuss the various models of inventory system. Give examples wherever appropriate. (8)
- (b)** Explain the relationship between quality and productivity under the JIT philosophy. (7)
- Q. 3.** Describe the purposes and differences between P- chart and X bar and R-chart. (15)
- Q. 4. (a)** How do facilities location differ for service and manufacturing plants? (8)
- (b)** Discuss different types of layout formats and what kind of layout is used in a physical fitness center? (7)
- Q. 5.** Write short notes on **any three** : (5×3=15)
- (a) Types of Transformation
  - (b) Waiting line management
  - (c) Forecasting Technique
  - (d) Current manufacturing trends
  - (e) Critical Path Method



**Section B**

**Q. 6.** There should be equal protection under the law against the crimes and so high-crime areas should have more police protection than low-crime areas. Therefore, police patrols and other methods for preventing crime should be used proportionately to crime occurrence.

The city has been broken down into 20 geographic areas, each containing 5000 residences. The 1000 residents sampled from each area showed the following incidences of crime during the past month.

Area	Number of crimes	Sample size
1	14	1000
2	3	1000
3	19	1000
4	18	1000
5	14	1000
6	28	1000
7	10	1000
8	18	1000
9	12	1000
10	3	1000
11	20	1000
12	15	1000
13	12	1000
14	14	1000
15	10	1000
16	30	1000
17	4	1000
18	20	1000
19	6	1000
20	30	1000

Suggest a reallocation of crime protection effort based on P chart analysis.(10)

To be reasonably certain in your recommendations, select a 95 percent confidence level ( $Z = 1.96$ ).

(5)



**Q. 7.** An auto manufacturing facility is being planned so that the parts manufactured can be supplied to three heavy automobile manufacturing facilities. The locations of the current plants with their coordinates and volume requirements are given in the following table :

Plant Location	Coordinates	Volume (Parts per Year)
A	300,320	4,000
B	375,470	6,000
C	470,180	3,000

(a) Calculate the coordinates of the new plant D, using center of gravity method. (10)

- $C_x$  - x coordinate for plant D
- $C_y$  - y coordinate for plant D

(b) Draw these coordinates on your answer sheet only. (5)

**Q. 8.** Resistors for electronic circuit are being manufactured on a high-speed automated machine. The machine is being set to produce a large run of resistors of 1000 ohms each. To set up the machine and to create a control chart, 15 samples were taken with four resistors in each sample. The complete list of samples and their measured values are as follows :

Sample Number	Reading in ohms			
1	1010	991	985	986
2	995	996	1009	994
3	990	1003	1015	1008
4	1015	1020	1009	998
5	1013	1019	1005	993
6	994	1001	994	1005
7	989	992	982	1020
8	1001	986	996	996
9	1006	989	996	996
10	992	1007	1006	979
11	996	1006	997	989
12	1019	996	991	1011
13	981	991	989	1003
14	999	993	988	984
15	1013	1002	1005	992

Develop an X bar chart and R-chart for the above data. (5)

Plot the graph on the copy only and draw your conclusion. (5)

Given ( $A_2 = 0.73$ ,  $D_3 = 0.00$ ,  $D_4 = 2.28$ ) (5)

