

**Savitribai Phule Pune University**  
(Formerly University of Pune)  
**Department of Management Sciences (PUMBA)**  
**Executive MBA**

**2<sup>nd</sup> Year (Semester –III) External Exam November – 2015**  
**303(D) Operation Planning & Control**

Time: 2hrs.

Marks: 50

- **Attempt any 4 questions:**
- **Each question carries equal Marks:**
- **Assume suitable data wherever required.**

1. Write short notes on the following:

- a. Scheduling
- b. Dispatching

2. XYZ Ltd. requires 80 units every day for which the company is working 24 Hrs. per day. The product requires following activities to be completed. Draw the network diagram, find the number of work stations to be created by doing line balancing and find line balancing efficiency.

ACTIVITY	PRECEEDING ACTIVITY	DURATION ( MINS. )
A	-	4
B	A	4
C	B	3
D	C	6
E	D	2
F	E	3
G	E	6
H	E	8
I	E	10
J	E	5
K	E	4
L	E	7
M	F,G,H,I,J,K,L	4
N	M	6
P	N	4

3. ABC LTD. has forecasted sales as per following:

Month	Sales Forecast quantity
JAN	1000
FEB	950
MAR	1200
APR	900
MAY	950
JUN	1100
JUL	1050
AUG	1000
SEP	1100
OCT	950

The company wants to decide the strategy for aggregate planning. Each machine can produce 50 units per month. The company has 20 machines. The inventory cost is expected to be 5 Rs. Per unit per month and opportunity cost of Rs. 30 per unit. Each machine requires 2 workers at a time. Initially company has all 20 machines working. The hiring cost is Rs. 800 per worker per month and firing cost is Rs. 1200 per worker per month. For outsourcing policy the outsourcing cost is Rs. 22 per unit with inventory cost of Rs. 5 per unit. What should the company do? Justify with calculations.

4. ABC Ltd. Is engaged in the manufacturing of motors for one of the major automobile companies located at Pune. They have collected following data on manufacturing the motor.
- Demand rate = 3,000 units / Month
  - Manufacturing capacity = 5 times the demand rate.
  - Set up cost = Rs. 3000 per set up.
  - Inventory carrying cost = 2 % per month.
  - Unit Cost = 500 Rs.

They want to know what should be the economic order quantity for manufacturing the motors if no shortage is allowed.

5. What is capacity planning? Explain the concept and process of capacity planning.
6. For the following data do the sequencing using Shortest processing time (Least time reqd.) and Earliest due date and decide the sequencing rule which gives minimum Average delay time

Order Name	Time Reqd. For Process. ( days)	Due date ( number of days )
A	5	18
B	12	16
C	8	19
D	6	21
E	12	35
F	7	25
G	11	32