

**Industrial Engineering and Management**  
**(ME – 603)**

Answer any six questions.

Questions are of equal value

Time: 3 hours

Full Marks: 70

1. (a) Why a good organization Structure is needed?

(b) Enumerate different types of organization structures.

** S <sub>t</sub> .NO	Factors		S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>
1	Transportation cost per week in Rs.	F1	800	640	500
2	Labour cost per week in Rs	F2	1180	1020	1240
3	Finishing Material Supply	F3	30	80	70
4	Maintenance Facilities	F4	60	20	30
5	Community Attitude	F5	50	80	70

2. (a) Describe briefly Fixed Position Layout and Cellular Layout.

(b) There are three location sites and five relevant factors like transportation cost per week, labour cost per week, finishing material supply, maintenance facilities and community attitude. The costs are

In rupees whereas for the last three factors, points are assigned on 0 – 100 scale. The data are given below:

** S <sub>t</sub> .NO	Factors	Potential Locations sites		
		S1	S2	S3

The location analyst has pre – established weights for various factors. This includes a standard of 1.0 for each Rs. 10/- a week of economic advantage. Other weights applicable are 2.0 on finishing material supply, 0.5 on maintenance facilities and 2.5 on community attitude. Also the organization prescribes a minimum score of 30 for maintenance facilities. Select a suitable site based on the above given data.

3. (a) Describe the factors affecting Production Planning and control. What are the functions (components) of Production Planning and control?

(b) Consider the 8 jobs in 1 machine with processing times, due dates and importance weights as shown below:

Job (i)	1	2	3	4	5	6	7	8
Processing Time ( $t_i$ )	5	8	6	3	10	14	7	3
Due date ( $d_i$ )	15	10	15	25	20	40	45	50
Importance weight ( $w_i$ )	1	2	3	1	2	3	2	1

Using Earliest Due Date Rule find out the Mean Flow Time, Weighted Mean Flow Time, Mean Lateness, Mean Tardiness of the jobs and also find out Maximum Lateness of job and number of tardy jobs.

4. (a) State Importance and Scope of Break even analysis. Describe the scope of Break even chart.

(b) ABC Company is examining a proposal to expand its plant capacity which is expected to increase its annual sales from Rs. 40 lakhs to Rs. 60 lakhs. The expansion will involve an increase in fixed cost from Rs. 15 lakhs to Rs. 20 lakhs. The variable cost is likely to remain unchanged at 50% of sales revenue. Should the company go in for expansion?

5. (a) Explain with examples the Profit/ Volume Ratio (p/v ratio)

(b) What are the uses and advantages of p/v ratio?

6. (a) What do you understand the term "Work Study"? Explain the foundation of Work Study.

(b) Discuss the subdivision of work – Therbligs.

7. Work Study can be divided into two distinct functions, Method Study and Work Measurement. Describe what is meant by each and describe one work measurement technique.

8. (a) What do you mean by the term "Incentive Scheme"?

(b) Discuss Acceptable Productivity Level, Motivated Productivity Level and Participation Ratio.