

Code No: **R32036****R10****Set No. 1****III B.Tech II Semester Supplementary Examinations, April -2017****INDUSTRIAL ENGINEERING & MANAGEMENT****(Mechanical Engineering)****Time: 3 hours****Max. Marks: 75****Answer any FIVE Questions  
All Questions carry equal marks**

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- 1 a) Explain the concept of management. What is its importance?  
b) Explain the development of industrial engineering.
- 2 a) List out and briefly explain quantitative techniques used for optimal design of layout.  
b) What are the advantages derived from efficient plant layout?
- 3 a) What do you understand by 'work measurement' and elaborate the important techniques involved in work measurement?  
b) What are the benefits of time study?
- 4 The following data were obtained over a 5-day period to indicate X and R chart for a quality characteristic of a certain manufacturing product that had required a substantial amount of rework. All the figures apply to the product made on a single machine by a single operator. The sample size was 3. Two samples were taken per day. Comment on the process using X and R charts

Sample number	Observations		
	1	2	3
1	11	8	8
2	10	12	13
3	10	12	12
4	12	13	11
5	10	13	7
6	10	12	13
7	7	10	8
8	11	12	9
9	10	9	8
10	8	11	11

- 5 a) Explain the difference between job evaluation and merit rating.  
b) What are the principles of human resource management?
- 6 a) Explain the applications of quality circles in management.  
b) Briefly explain the concept of six sigma.

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- 7 State and explain the principles of supply chain management
- 8 Details of a project are shown in table

Activity	Normal		Crash	
	Time (days)	Cost in Rs.	Time(days)	Cost in Rs.
1-2	6	7000	3	14500
1-3	8	4000	5	8500
2-3	4	5000	1	9000
2-4	5	8000	3	15000
3-4	5	5000	3	11000

Indirect cost is Rs.2500 per day.

Determine optimal project duration and optimal cost of project.

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