B.E. (M.E.) Part III 6th semester Examination, 2013

Industrial Engineering and Management
(ME – 603)

Time: 3 hours

Full Marks: 70

Use Separate Answer Script for each half.
Answer six questions taking THREE from each half.
The questions are of equal value.

First Half

Answer Question No. 1 and any two from rest.

1. (a) How would you define Management Process? Explain the principal function of management. Describe the system approach to management.
(b) How do the required management skills differ in the organizational hierarchy? In what fundamental way are the basic goals of all managers at all the levels and in all kinds of enterprises the same? Explain.

2. (a) What is planning? Discuss the nature and purpose of planning? What are the components of planning and explain each components – briefly.
(b) Explain the classification of planning premises. Discuss the advantages of planning. Why are strategies important? Can an organization be successful without effective strategies?

3. Distinguish between production planning and production control and state their objectives. Describe briefly the objective and elements of production planning and control. Differentiate between loading and scheduling.

4. (a) Define method study and time study and bring out the relationship between them.Discuss the role of method Engineer in raising the industrial productivity.
(b) Explain the various steps required to conduct method study. Prepare operation process charts for the making front-wheel.

5. (a) What are the objectives of 'Time Study'? Explain how time study may eliminate the difficulties of the piece work system based on the past records of output.
(b) Discuss the concept of standard time. Explain clearly the steps involved in arriving at standard time, starting with observed time.

EX/BESUS/ME – 603/13

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SECOND HALF
Answer any three questions.
Questions are of equal value

6. (a) Enumerate briefly Process Layout and Fixed Position Layout.
(b) A manufacturing company is looking for a new plant location site. The company evaluated 5 probable sites (S1, S2, S3, S4, and S5). The location analyst established a subjective scale common to all factors and assigned factor points of the subjective rating of each factor. Five subjective ratings – Poor (A), Fair (B), Adequate (C), Good (D) and Excellent (E) were selected to be used in evaluating each site for each factor. For each of the factors, " Adequate" was assigned a value " 0" and then negative and positive relative worth weights were assigned below and above " Adequate" which are given in the table below:

Factors	Factor Points Ratings Poor (A)	Fair (B)	Adequate (C)	Good (D)	Excellent (E)
Labour Facilities (F1)	- 15	- 12	0	+ 6	+ 10
Community Facilities (F2)	- 3	- 1	0	+ 1	+ 2
Power availability and reliability (F3)	- 10	- 7	0	+ 5	+ 8

Five sites are rated as following on subjective ratings:

S1 = ABD, S2 = DAA, S3 = ECB, S4 = BEC and S5 = CDE on factors F1, F2 and F3 respectively.

On the basis of above information which site is to be selected with the help of decision matrix.

7. (a) What are the assumptions in Break – Even Analysis ?
(b) Shilpa Toy Factory has a capacity to provide 3,999 man-hours per week. The plant can produce two types of toys x and y. Annual costs are Rs. 12,000/- .
The maximum possible sales are estimated to be 4,000 toys of x type and 3,000 toys of y type. Following additional information is available

	Per unit x	y
Variable cost (Rs.)	8	12

Selling price (Rs.)	10	15
Hours to produce	3	4

Find out the product – mix that will maximize net profits of the factory.

8. (a) Discuss the reasons for replacement of equipments in a plant.
(b) An existing piece of equipment has its market value of Rs. 10,000/-, maintenance cost is Rs. 1,000/- per year and has a life of 10 years and no salvage value. The interest rate is 10%. The proposed equipment has an installed cost of Rs. 100,000/-, maintenance cost is Rs. 800/- per year, has a life of 50 years and salvage value of Rs. 15,000/-. Suggest whether the proposed equipment should be purchased or not.

9. (a) Define an entrepreneur.
(b) Discuss the strategy for entrepreneurship development in India.

10. (a) What is a Control Chart ? What are the types of control charts?
(b) The diameters of 10 samples (each sample having 8 shafts) were checked and results found as follows :

	1	2	3	4	5	6	7	8	9	10
X bar (mm)	9.0	9.1	9.5	10.0	9.0	8.9	8.8	9.3	8.6	8.7
R (mm)	1	2	2	1.5	2	1	1.5	2	1	2

Given that A2 = 0.37, D3 = 0.14 and D4 = 1.86.
Draw X bar – R Chart and comment.