

B.E. (Met.) Part – IV 7<sup>th</sup> Semester Final Examination, 2012  
**Industrial ~~Engg. and~~ Management**  
**(ME-706)**

**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**

1. (a) Explain the principal functions of management. Would you attach different level of importance of these functions at various level of management?  
(b) What are the features of management? Explain each element briefly. State the system approach to management.  
(c) Management is both a science and an art. Explain critically.
2. (a) Discuss the importance and purpose of planning. Write characteristics of a good planning.  
(b) What do you mean by Management By Objectives (MBO)? Discuss and write the steps of planning.  
(c) What are the components of planning?
3. (a) Describe the Systematic procedure of work study. Explaining all steps. Enlist the various recording techniques used in method study.  
(b) Give the various symbols utilized as recording techniques with their meaning. Prepare operation process chart for making a cast iron gear.
4. (a) What are the objectives of Time Study? Write what are the jobs to be selected for Time Study?  
(b) What is standard time? Describe briefly how you will calculate “standard time” from the observed time obtained by time study?  
(c) The following data is available from time study on job. Observed time 0.75, Rating 110%, Relaxation allowance 10%, Personal allowance 3%, Delay allowance 2%. Determine standard time? These allowances expressed as percentages of normal time.
5. (a) What are the essential elements of organizing? What are the important sources of conflict between line and staff? How can such conflicts be reduced?  
(b) Explain the meaning and scope of authority, responsibility and accountability.

-----

**Industrial Management**  
**(ME – 706)**

**SECOND HALF**

Use separate answerscript for each half.  
Answer any three questions  
The questions are of equal value.

6. 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 subjecting 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:

Factor Point Ratings

Factors	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, S5 = CDE on factors F1, F2 and F3 respectively.

On the basis of the above information, which site should be selected and why?

7. Enumerate Product Layout and Process Layout.

- 8(a) Discuss Classical Inventory Model and derive Economic Order Quantity (EOQ)

(b) A manufacturer has to supply his customer with 600 units of his product per year. Shortages are not allowed and storage costs amount to 60 paises per unit per year. The set up cost for 1 unit is Rs 80/-. Find the following:

- (i) The economic order quantity.
- (ii) The minimum average yearly cost.
- (iii) The optimum nos. of order per year.
- (iv) The optimum period of supply per optimum order.
- (v) The increase in the total cost associated with ordering (a) 20% more and (b) 40% less than EOQ.

8. Discuss with examples FIFO and LIFO methods used for stock valuation and pricing issues.

9 (a) Write short note on Statistical Quality Control.

(b) The current capacity in amperes of 5 random samples from each batch is recorded. There are 10 such batches. Construct X bar and R charts and comment  
Given that  $A_2 = 0.577$ ,  $D_3 = 0$  and  $D_4 = 2.114$ .

SL Nos	X1	X2	X3	X4	X5
1	43	61	64	69	72
2	46	54	67	71	79
3	18	23	74	76	81
4	37	49	56	67	70
5	41	44	64	70	74
6	21	24	23	45	51
7	56	61	61	62	84
8	25	38	40	46	71
9	24	34	46	51	66
10	33	38	40	49	58

10(a) Enumerate the term Reliability.

(b) Discuss Break down maintenance, Preventive maintenance, Predictive maintenance and relationship between the costs of lost production time and maintenance effort.