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***B.Tech. Degree VI Semester Examination in
Marine Engineering June 2015***

MRE 601 MANAGEMENT SCIENCE

Time: 3 Hours

Maximum Marks: 100

(5 × 20 = 100)

- I. (a) Explain the “14 Principles of Scientific Management” evolved by Henri Fayol. (10)
 (b) What are the different types of industrial organisations? (10)
- OR**
- II. (a) Explain SWOT analysis. (10)
 (b) Write notes on ‘delegation of authority and responsibility’. (10)

- III. (a) What are the different types of production systems? Explain its advantages and disadvantages. (10)
 (b) A project has the following time schedule. (10)

Activity :	1-2	1-3	1-4	2-5	3-6	3-7	4-6	5-8	6-9	7-8	8-9
Duration : (months)	2	2	1	4	8	5	3	1	5	4	3

Construct network diagram and compute:

- (i) EST, LST, EFT and LFT of activities.
 (ii) Total float for each activity.
 (iii) Critical path and its duration.

OR

- IV. (a) Explain the various types of plant layout. (10)
 (b) Find the initial feasible solution for the transportation problem by Vogel’s approximation method. (10)

	To				
From	W ₁	W ₂	W ₃	Supply	
F ₁	2	7	4	5	
F ₂	3	3	1	8	
F ₃	5	4	7	7	
F ₄	1	6	2	14	
Demand	7	9	18		

- V. (a) Explain ISO 9000 series of quality management system. (10)
 (b) Define inventory. What are the different inventory control systems? (10)

OR

(P.T.O.)

- VI. (a) What is job evaluation? Explain different methods of job evaluation. (10)
 (b) The following matrix gives the pay off (in rupees) of different strategies S_1, S_2, S_3 against conditions N_1, N_2, N_3 and N_4 . (10)

Strategy	States of nature			
	N_1	N_2	N_3	N_4
S_1	4000	-100	6000	18,000
S_2	20,000	5,000	400	0
S_3	20,000	15,000	-2,000	1,000

Indicate the decision taken under following approaches:

- (i) Pessimistic.
 (ii) Optimistic.
 (iii) Equal probability.
 (iv) Regret.
 (v) Hurwizz criterion, the degree of optimism being 0.7.
- VII. (a) Explain in detail 'Ratio Analysis'. (10)
 (b) Rank the following projects under NPV method. (10)

Project	Initial outlay	Net cash flow per annum (in ₹)		
		1	2	3
1	10,000	2,000	4,000	12,000
2	10,000	10,000	3,000	3,000
3	10,000	8,000	8,000	2,000

Assume a 10% discount factor.

OR

- VIII. (a) Explain supply chain management? How is it relevant to shipping industry? (10)
 (b) Write the difference between equity shares and debentures. (10)

- IX. (a) Define incentive. What are the different types of wage incentive plans? (10)
 (b) Compare recruitment and selection. (10)

OR

- X. (a) What is motivation? Explain different theories related to motivation. (10)
 (b) Write a note on trade union. Explain worker's participation in management. (10)
