

Name :

Roll No. :

Invigilator's Signature :

CS/B.Tech(CHE)/SEM-7/HU-715/2011-12

2011

INDUSTRIAL MANAGEMENT

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

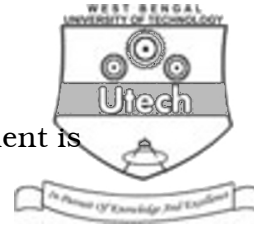
GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following :

10 × 1 = 10

- i) Who among the following is known as "Father of Scientific Management" ?
 - a) F.W. Taylor
 - b) Henri Fayol
 - c) Gilbreth
 - d) Max Weber.
- ii) Which of the following is a method of manpower demand forecasting ?
 - a) Work study
 - b) Inventory analysis
 - c) Wastage analysis
 - d) Managerial Judgement.



- iii) Basic objectives of financial management is
- a) profit maximization
 - b) Wealth maximization
 - c) both of these
 - d) none of these.
- iv) A Game without a Saddle point can be solved by using
- a) Pure strategies
 - b) Mixed strategies
 - c) Both (a) & (b)
 - d) none of these.
- v) Ratio Analysis is a widely used technique for measuring
- a) Liquidity of a firm
 - b) Solvency of a firm
 - c) Profitability of a firm
 - d) All of these.
- vi) If a transportation problem has m origins and n destinations then the total number of Basic Feasible Solution are at least
- a) $m + n + 1$
 - b) $m - n + 1$
 - c) $m + n - 1$
 - d) $n - m + 1$.



vii) Two-person zero sum game means that the value of the game is

- a) 1
- b) •
- c) 0
- d) $1/2$.

viii) C-chart records in Statistical Process Control.

- a) number of defects
- b) fraction defective
- c) number of defectives
- d) none of these.

ix) Which one of the following is known as MRP-II ?

- a) Material Requirement Planning
- b) Material Resource Planning
- c) Manufacturing Requirement Planning
- d) Manufacturing Resource Planning.

x) Measure of efficiency of a productive system is also known as

- a) Utility
- b) Efficacy
- c) Effectiveness
- d) Productivity.

- ## GROUP – B

Answer any *three* of the following. $3 \times 5 = 15$

- | Player A | Player B | | |
|----------|----------|-----|---|
| 1 | 3 | - 2 | 4 |
| 2 | - 1 | 4 | 2 |
| 3 | 2 | 2 | 6 |

- 4



GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following.

3 × 15 = 45

7. a) The following table gives dividend and share price data for Hind Manufacturing Company. The face value of equity share is Rs. 10. :

Year	Dividend per share	Closing share price
2001	2.50	12.25
2002	2.50	14.20
2003	2.50	17.50
2004	3.00	16.75
2005	3.00	18.45
2006	3.25	22.25
2007	3.50	23.50
2008	3.50	27.75
2009	3.50	25.50
2010	3.75	27.95
2011	3.75	31.30

Calculate :

i) the annual rates of return

ii) the average rate of return.

5 + 3



b) Solve the following L.P.P. by simplex method :

$$\text{Maximize } Z = X_1 + X_2 + X_3$$

$$\text{subject to } 3X_1 + 2X_2 + X_3 \leq 3$$

$$2X_1 + X_2 + 2X_3 \leq 2$$

$$X_1, X_2, X_3 \geq 0$$

7

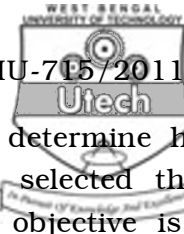
8. What do you mean by the term "Acceptance Sampling" and what are the four parameters of an OC curve ?

A patrolling inspector at the Vikas Engineers recorded the following day-wise output of L-15 slip rings in a work week of six days. The data also gives the number of defectives found in the day's production :

Day	1	2	3	4	5	6
Quantity produced	540	484	512	528	532	404
No. of defectives	20	13	11	15	19	12

Using day's output as the day's sample, construct a control chart for the fraction defectives and give your comments on the results.

7 + 8



9. a) The owner of Metro sports wishes to determine how many advertisements to place in the selected three monthly magazines A, B and C. His objective is to advertise in such a way that total exposure to principal buyers of expensive sports good is maximized. Percentages of readers for each magazine are known. Exposure in any particular magazine is the number of advertisement placed multiplied by the number of principal buyers. The following data may be used :

	Magazine A	Magazine B	Magazine C
Readers	1 lakh	0.6 lakh	0.4 lakh
Principal buyers	10%	15%	7%
Cost per advertisement (Rs.)	5000	4500	4250

The budgeted amount is almost Rs. 1 lakh for the advertisements. The owner has already decided that magazine A should have no more than 6 advertisements and that B and C each have at least 2 advertisements. Formulate one L.P. model for the problem. 8

- b) Find the initial basic feasible solution for the following transportation problem by VAM : 7

	<i>Destination</i>				
	D_1	D_2	D_3	D_4	Supply
O_1	11	13	17	14	250
O_1	16	18	14	10	300
O_1	21	24	13	10	400
Demand	200	225	275	250	

10. a) A firm's sales are Rs. 4,50,000, cost of goods sold is Rs. 2,40,000 and inventory is Rs. 90,000. What is its turnover ? Also calculate the firm's gross margin. 5



- b) The only current assets possessed by a firm are : cash Rs. 1,05,000, inventories Rs. 5,60,000 and Debtors Rs. 4,20,000. If the current ratio for the firm is 2-to-1, determine its current liabilities. Also calculate the firm's quick ratio. 5
- c) Why are the activity ratios calculated ? Do calculations of current asset turnover ratios and indicate their quality ? Explain. 5
11. Define Economic Order Quantity ? Establish the EOQ Model when unit price of a given item is fixed.
- Impellers are procured by CRI Pumps Ltd. from a local firm and are consumed at an average rate of 500 nos. per month. If the procurement cost is Rs. 36.00 per order and the cost of holding it in stock is Rs. 1.20 per unit per year, determine the quantity that should be procured at a time to optimize the costs involved.
- If the consumption of the above item increases to 40 nos. per day and its actual inventory carrying cost is Re. 0.02 per unit per day, what shall be its revised EOQ ? (Assume 300 working days in a year). 2 + 5 + 8
12. Write short notes on any *three* of the following : 3 × 5
- a) Scientific Management
 - b) Span of Control
 - c) Uses of a Balance Sheet
 - d) Debt-equity ratio
 - e) Du-Pont Analysis.

