

# OPERATION RESEARCH & FOOD PLANT MANAGEMENT

Full Marks: 100

## PART 1: Operation Research:

- a) Historical Development, Definition and future Scope b) Techniques methodology frequently used , case studies c) role of Research in Industry and Administration d) Selection & evaluation of problems and projects in industrial research e) The role of models in Or - the need to strike a balance between simplicity & complex city f) Network analysis: PERT & CPM g) Linear programming: Assumption , simplex method h) queuing models: Concept Basis structure, Classification mathematical formulation, Monte Carlo simulation of queuing, industrial applications
- 20

## PART 2 : Food Plant Management

### *Section A: Financial Management Aspects*

1. **Financial Management:** Concept, Definition purpose of investment, Types of capital: Fixed & working capital source of Finance: Internal and external sources Reserve & Surplus, Financial Accounting & book Keeping, The journal & Ledger Financial Statements , Balance Sheets, Profit & Loss a/c, Financial ratios. The time preference for money, compound value, Value of an Annuity Due 7
2. **Inventory Control:** Nature of inventories, need to hold inventories, objectives of inventory management, Technique of inventory Management, Functions of inventories, Inventory models, ABC analysis. 4
3. **Cost volume - profit Analysis:** Introduction, Assumption in B-E Analysis, Calculation of Break even point, limitation. Advantage and Application of B-E Analysis 4
4. **Industrial Budgeting and Cost Analysis:** Concept budget control, budget preparation, introduces Budget, Capital Budgeting Decisions: Nature of investment decisions, Investment evaluation criteria(Traditional and Modern Methods) Problems in cost reduction, cost reduction technology. modern tools for cost reduction 6
5. **Industrial Costing :** Introduction , cost , Accounting: Necessity and importance of cost control, Elements of Cost , Process cost & Cost of production 3
6. Analysis of Risk & Forecasting 2

### SECTION B : Production Management Aspects

7. Product design & development: Product design, design & product costs, Factors determining the design of a product, Characteristic of a good product design, new food product development, product life cycle, necessity of product development, product life cycle, Tools for product development 6

8. **Production planning and Control:** Objectives, components of PPC, Steps in production planning and control, importance of production planning and /or control, differences between pp and PC. 6
9. **Plant location:** Introduction, Importance, dynamic nature of plant location, localization of plants, factors of plant location, location analysis. 3
10. **Plant Layout:** Meaning, Definition, Objectives, Advantages, Types, Techniques of plant layout, Features of a good layout, Factors relevant for the choice of layout, Building for a plant.
11. **Productivity:** Concept , Measures, Importance of productivity, factors affecting productivity, Techniques to improve productivity, measurement of productivity. 2
12. Industrial Standardization of the products 2
13. Coordination of sales, Production and Quality control department. 2
14. **Quality Control:** Quality control & product quality, factors controlling quality, growth of quality control, Objectives of SQC, Statistical Techniques, Control charts, Use of control charts & types, Theory of control charts, Control charts for variables, Control chart for fraction defectives (p- chart) & its examples. 6

### **Section C: Industrial Management Aspects:**

15. **Manpower Management:** Recruitment & selection, Training, Promotions & transfer, Job evaluation, Wage & salary administration, wage incentive plans, Motivation: Concept theory of motivation, process of Motivation. 8
16. **Industrial ownership:** Concept , types of ownership , sole proprietorship , Partnership Organization: Features of Partnership, types of partners, Limited partnership , Deed Registration of firms, Mutual rights & obligation, dissolution , Evaluation , joint stock company 10
17. **Management Functions:** Planning, Organizing, Directing , Controlling, Co-ordination and decision making 6
18. **Management by objectives (MBO) :** Concept , Definition, Objectives, Steps in setting up MBO , Advantage and limitations of MBO. 2
19. Purchasing, Manufacturing and Internal Finance and office services. 5
20. **Organization:** Concept, Organization functions, principle of organizational structure, types of Organization, Characteristics of Organization executives. 4

### **Section D: Marketing Management Aspects**

Concepts of Marketing , Definition, Principle and Functions of Marketing, Marketing management & its functions, Marketing Research, sales Forecasting, The marketing mix, Advertising, Sales promotion, Channels of distribution, Product packaging, Pricing

Section E: Miscellaneous

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| a) | Role of government regulatory agencies in establishing food industries | 2 |
| b) | Concept of mixed economy   | 2 |

PRACTICAL:

1. Preparation of a report after the spot studies in a given factory.
2. Markest survey of different food products existing in the market .
3. Exercise in CPV , Inventory Control, Capital Budgeting etc.
4. Exercise in industrial costing - Based on seasonal local food materials.
5. Exercise on plant layout and location.
6. Study of the problems of an industry and solution of the problem.
7. Exercises on Quality control .

Textbooks:

1. Khanna, O.P Industrial Engineering and Management Dhanapat Rai & Sons, Delhi, 1999
2. Dalela, S & Ali, M.A Text Book of Industrial Engineering and managemnt systems, Standards Publishers Distributors, Delhi, 1985
3. Bhusan, Y.K Fundamental of Business Organization & Management Sultan Chand & Sons, New Delhi 1996
4. Goel, S.B Production /Operations management (For Engineering, Management & Commerce students)
5. Pandey, I.M Financial management, Vikas publishing House Pvt.Ltd 1998
6. Ahuja, K.K Personnel Management , Kalyani publishers, 1992
7. Arora, M.N. Cost Accounting principles & practice, Vikas publishing House Pvt.Ltd. 1993
8. Ahuja, K.K Management & Organization, CBS publishers & Distributors 1993