Scoring Indicators

Code: TED (15) 5001 INDUSTRIAL MANAGEMENT AND SAFETY

Q No.	Scoring Indicators	Split Score	Total Score
	PART A		
I.1	➢ Financial incentives ➢ Non – financial incentives ➢ Semi – financial incentives	2	2
I.2	➢ Job evaluation is systematic way of determining the value/worth of a job in relation to other jobs in an organization. ➢ It tries to assess jobs, not people.	2	2
I.3	➢ Inventory is simply a stock of physical assets having some economic value, which can be either in the form of material, money or labour. ➢ Raw materials including components ➢ Human resources ➢ Financial resources	2	2
I.4	➢ Any activity which does not consume either any resources or time. ➢ These are imaginary activities.	2	2
I.5	➢ Any occurance that interferes with the orderly progress of activity. ➢ An unplanned incident.	2	2
	PART B		
II.1	a) He developed the principles of breaking a task into elements for timing the same. b) He conducted time study to recognise losses of efficiency in industrial operations. c) He defines 'A fair days task', and undertook studies on fatigue incurred by the worker and the time necessary to complete a task. d) He evolved the principles of- Investigate a work on scientific basis, selecting the best worker for a task, and training him to acquire desired skill, developing cooperative spirit between management and workers. f) He developed the functional organization in which each specialists or foreman was made in-charge for each function. g) He establishes work standards through time study. h) He introduced a wage incentive scheme known as "Taylor's differential piece rate system". i) He introduced and operated various costing systems.	6	6
II.2	I. Analysing markets 2. Studying consumer buying habits, behaviour and tastes. 3. Studying the demand level of the products. 4. Studying the competitor's policies and sales strategy. 5. Studying the market fluctuations. 6. Prepare market, sales and other relevant business forecasts. 7. Assisting in the preparation of marketing plan. 8. Preparing the sales budgets from the marketing plan.	6	6

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	9. Deciding on the distribution policy methods and network. 10. Planning advertising campaign. 11. Deciding the payment conditions, discounts etc. 12. Creating communication network for the department. 13. Creating an information system of all the sales territories through a database system.		
II.3	1. Quality is never an accident. it is always the result of untiring and intelligent effort. There has to be the will to produce a quality product. 2. Quality is like a prayer to god, which never comes out without hardwork and devotion. 3. Quality is everybody's business. 4. Quality begins with the cleanliness of the workplace. 5. Take care of quality; quantity will take care of it. 6. Make it right for first time and all times. 7. Quality is achieved through the team work. 8. Document is dependable but, not the memory. 9. Quality begins and ends with education. 10 Quality is the attribute that a customer uses to evaluate products and services.	6	6
II.4	➢ APPLICATION OF CRITICAL PATH METHOD This method was developed in 1957. This method is highly useful in the following situations. 1. Construction of civil and mechanical projects. 2. Electrical and electronic product manufacturing and assembling. 3. Equipment maintenance, plant maintenance and overhauling etc. 4. Setting up new Industries 5. Shifting the manufacturing location from one place to another. ➢ APPLICATION OF PERT This method is used in special situation where the activities in a project is not sure to be completed in a specific time period. There is always an uncertainty whether the project completes or not in a specific time period. So this method can be used in the following applications. 1. Research and development activities 2. Military operations 3. Design and development of new product innovations. 4. Whether forecasting etc	3+3	6
II.5	**GAME THEORY** Game theory is used for decision making under conflicting situations where there are one or more opponents. Opponents, in game theory, are called players. The success of one player tends to be at the cost of other (failure of opponent) and hence they are in conflict. Game theory models studies conflict situation and helps us to improve the decision process by formulating appropriate strategy. Example of conflicting situations are: 1) Candidate for election — success of one leads to failure of other person(s) 2) Advertising and marketing campaigns by competing business firms. 3) Countries involved in military battles. In a competitive situation the courses of action (alternatives) for each competitor may be either finite or infinite. A competitive situation is called a 'game' if it has the following properties. 1) They are finite number of competitors called players. ii) Each player has a finite number of strategies (alternatives) available to him.	6	6

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	iii) A play of game takes place when each player employees his strategy. iv)Every game results in an outcome, *i.e,* loss or gain or draw, usually called pay off.		
II.6	**Role of Safety Officers** 1) The safety officer is responsible for safety of the entire industry and he formulates the policies, measures and actions of safety in consultation with the shop supervisor, executives, workers, union and the R&D etc. 2) He takes Initiative to Conduct periodic meetings of the safety committees, record the suggestions and complain and take necessary steps to implement the modifications and improve safety; standards and procedures. 3) He should note the safety statistics such as frequency rates; severity rates etc. and evaluate the safety standards from time to time. 4) He should conduct safety seminars, safety week or safety month programs periodically. 5) He should consult with the safety councils and government agencies about the new regulations and rules in the subject matter of safety. 6) Implement the safety programs as efficiently as possible. 7) Ensure that the 4E's program of accident prevention is implementing as per the p1anning. 8) Educate the employees to develop safety Conciseness. 9) Give concrete suggestions management for effective implementation of safety programs. 10) Analyze the progress of the safety program. 11) Conduct job safety analysis, plant safety inspections and accident investigations. 12) Conduct preventive maintenance program.	6	6
II.7	**Environmental factors** Environmental factors indicate improper physical and atmospheric surrounding conditions of work which indirectly promote the occurrence of accidents. Environmental factors include. 1. Too low a temperature to cause shivering 2. Too high a temperature to cause headache and sweating 3. Too high a humidity to cause un comfort, fatigue and drowsiness. It may also causes asthmatic complaints 4. Defective and inadequate illumination causing eyestrain, glare, shadows etc. 5. Presence of dust, fumes and smokes and lack of proper ventilation 6. Noise, bad odour, and flash coming from the nearby machinery, equipment or processes. 7. High speed of work because of huge work load or incentive. 8. Lengthy working hours and over time work to earn more 9. Inadequate rest pauses or breaks between the working hours I 0. Poor housekeeping.	6	6
	PART C **UNIT- I**		
III. a	**HENRY FAYOL'S PRINCIPLE** ➢ Known as father of principle of management 1)Division of work 2)Authority and responsibility 3)Discipline 4)Unity of command	8	8

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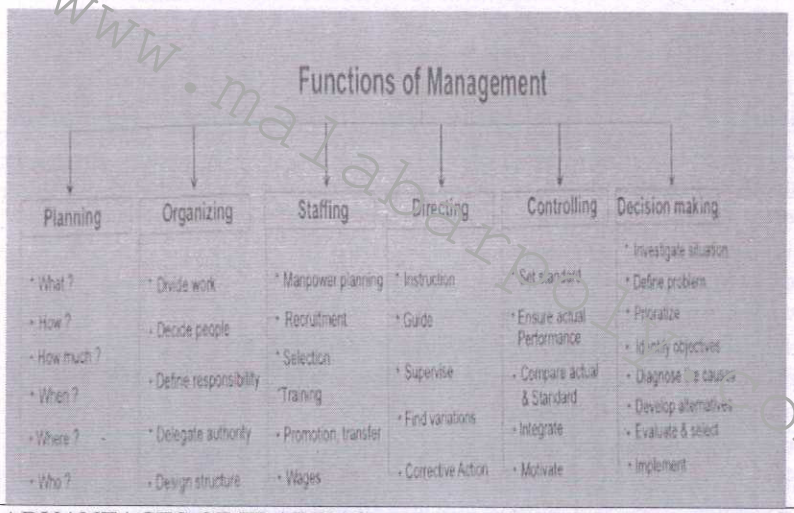
	5)Unity of direction 6)Subordination of individual interest to general interest 7)Remuneration of personnel 8)Centralization 9)Scalar chain 10) Order 11) Equity 12) Stability of workers 13) initiative		
III. b	HALSEY PLAN 1. In this an hourly rate or daily rate is guaranteed. 2. Standard time is fixed for each job. 3. The worker gets the agreed rate per hour for the time spends. 4. An additional bonus or incentive is giver to worker who completes the work earlier than standard time. ➢ 331/3 Halsey plan ➢ 50 -50Halsey plan	7	7
IV. a	**FUNCTIONS OF MANAGEMENT** In every organization managers perform certain functions in order to achieve results. These functions are planning, organizing, directing. Coordinating, controlling and decision making. 	8	8
IV. b	ADVANTAGES OF TRAINING 1. To increase the efficiency of workers/supervisors 2. To reduce wastage of materials, machine and man hour. 3. To increase productivity and reduces production cost. 4. Reduced supervision and improved product quality 5. It gives job satisfaction. 6. It reduces labour turnover and chances of accidents. 7. Less fatigue to the workers. 8. Increased organizational stability and flexibility. 9. Specialization and standardization is easy. 10. It can boost the morale, cooperation and good relation. 11. It helps to build team spirit.	7	7

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	UNIT II		
V. a	**CONCEPT & ROLE OF ISO 9000** ISO stands for international organization for standardization. Its headquarters is in Geneva. 92 countries including India are members of ISO. In 1987, ISO released the ISO 9000 series of standards which were conceptually and fundamentally different from products standards. ISO released six quality standards. 1) ISO 8402 2) ISO 9000 3) ISO 9001 4) ISO 9002 5) ISO 9003 6) ISO 9004	8	8
V. b	1. Purchase requisition. 2. Selection of possible sources of supply. 3. Determining the time, price, quality and quantity. 4. Making request for quotation. 5. Receipt and analysis of quotations. 6. Selection of right source of supply. 7. Placing the purchase order. 8. Following up and expediting of the order. 9. Inspection. 10. Checking and approving vender's invoices for payment. 11. Closing completed records. 12. Maintenance of records and files.	7	7
VI. a	**THREE PRONG APPROACH TO QUALITY PLANNING** We know that the quality planning is the road map to an excellent organizational culture. Quality planning can be achieved by the following three - prong approach. 1. Product planning 2. Managerial and operational planning 3. Preparation of quality plans and making provision for quality improvement.	8	8
VI. b	1. The first most important duty is to plan the stores by effectively utilizing the space. 2To receive the materials goods and equipments after thorough verification and identification. 3. To keep record of materials receipt and their costs. 4 Issue the materials on verification of authorized request and entries are made in the required register. 5 Make the entries in the bin card as and when required. 6. Check the balance of items from time to time and see that desired quantities are available. 7. Whenever the existing stock of an item at anytime is likely to be exhausted he should send this information to store officer, who in turn will inform the purchase section for its purchase. 8. He has to maintain an orderly positioning of all items to get easy access. 9. He has to prevent leakage, theft, wastage and deterioration by taking	7	7

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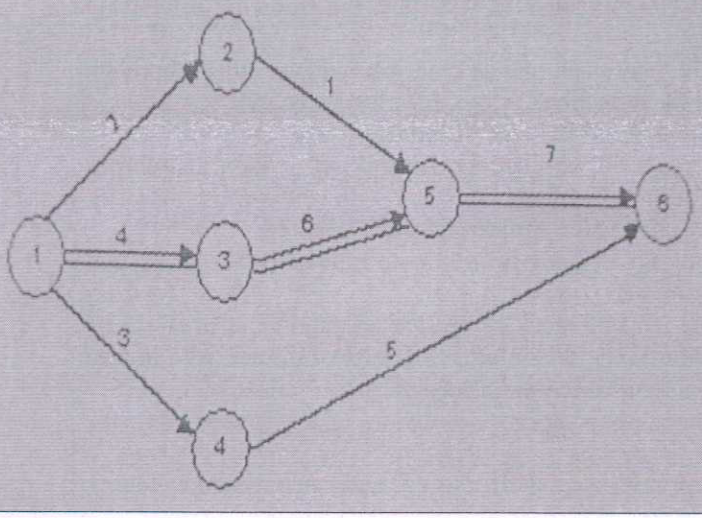
	all possible precaution. 10. Update the records by properly entering receipts and issues. 11. He has to make true that materials are issued promptly to the users. 12. To make sure that stores are kept clean and in good order. 13. To prevent unauthorized persons from entering the stores. 14. Ensure that the required materials are located easily by some coding method. 15. Coordinate and cooperate to the full extent with all other departments.		
	UNIT III		
VII. a	1. The expected time (t_e) is calculated below Activity | $t_e = \frac{t_o + 4t_m + t_p}{6}$ 1 2 | $\frac{1+4\times1+7}{6} = 2$ 1 3 | $\frac{1+4\times4+7}{6} = 4$ 2 4 | $\frac{2+4\times2+8}{6} = 3$ 2 5 | $\frac{1+4\times1+1}{6} = 1$ 3 5 | $\frac{2+4\times5+14}{6} = 6$ 4 6 | $\frac{2+4\times5+8}{6} = 5$ 5 6 | $\frac{3+4\times6+15}{6} = 7$  	8	8

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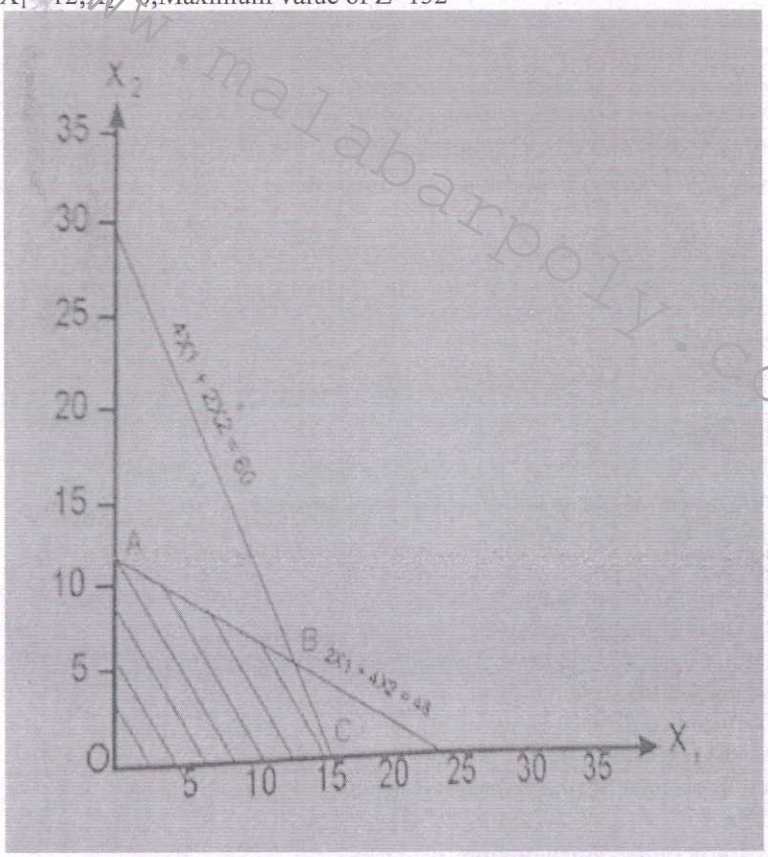
	Projectduration = 17 weeks		
VII. b	**LINEAR PROGRAMMING** Linear programming is a mathematical technique concerned with the allocation of scarce resources. It is a procedure to optimize the value of some objectives. The LP can be used to solve the problems which conform the following • The problem must be capable of being stated in numeric terms. • All factors involved in the problem must have linear relationship e.g.: 1) A doubling of output requires a doubling of manpower. 2) If one unit provides Rs. 100 contributions 10 unit will produce Rs. 1000 and so on.	7	7
VIII. a	Maximize $Z=8X_1+6X_2$ Subjected to $4X_1+2X_2=60$ $2X_1+4X_2=48$ $X_1>=0$; $X_2>=0$ The solution is $X_1=12$; $X_2=6$; Maximum value of Z=132  	8	8

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VIII. b	Various techniques used in operations Research to solve Optimization problems are as follows. I. Linear programming a) Graphical method b) Transportation method I) Vogels approximation Method ii) North west corner method c) Simplex method 2. Waiting line or queuing theory 3. Game theory 4. Dynamic programming	7	7
IX. a	1. Objective 2. Coverage of the act Relevent Provision under the act 1) Licensing andregistration 2) Health 3) Safety 4) Welfare 5) Hours of work 6) Employment of young person 7) leavr	8	8
IX. b	1) Manage business and take decisions 2) Study the market and select the profitable business 3) Select the plant size 4) Select the plant site 5) Organise the sales and hold the customers 6) Promote new invensions 7) Coordinate different factors of production 8) Arrange raw materials, machinery and finance	7	7
Xa	1) Engineering methods 2) Education 3) Enterprising 4) Enforcement	8	8
X b	1) Product identification 2) Preperation of preliminery projectreport to get rough ideaon machinery, raw material and financial requirements 3) Decide the form of ownership 4) Location of industry 5) Preperation ofbusinessplan 6) Apply for registration 7) Select thefinancial agency by comparingthe ratesof interest, surity, level of finance 8) Obtain variousclearances/approvals 9) Follow up sanction of loan 10) Recruit personnel requiredfor production, administration and marketing. 11) Apply for permanent registration 12) Commercial production 13) Quality certification	7	7

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