

## SCHEME OF EVALUATION (Scoring indicator)

Revision : 2015 Course Code : 5001 .  
 Course Title : Industrial Management & Safety

Qst. No.	Scoring indicator	Split up score	Sub Total	Total
<b>PART - A</b>				
I 1.	Single ownership, owned by a single man. He invests capital, appoint labours, install machines and enjoys all benefits. He has the rights to determine plans and policies of the organisation. (any two)	2		
I 2.	Economic Order Quantity. It is the difference between maximum stock and minimum stock. It gives solution of the inventory problems. It referred to as the size of the order that gives maximum economy in purchasing the materials. It facilitates the fixation of ordering sequence and the quantities so as to minimise the material cost. (any two)	2		
I 3.	1. Linear programming (a) graphical method (b) transportation method (c) Simplex method 2. Waiting line or Queuing theory 3. Game theory 4. Dynamic programming (any two)	2		
I 4.	The path along which the EFT and LFT are equal. It is the path joining all the critical activities. For critical activities float or slack will be zero. It is the path that consumes more time and decides project duration (any two)	2		
I 5.	It is defined as the number of days of lost time per one thousand man hours worked. It reflects the seriousness of lost time accidents. Severity rate = $\frac{\text{Days lost} \times 10^3}{\text{Total man hours worked}}$ (any two)	2	10	10
<b>PART - B</b>				
II 1.	To achieve common economic objectives a set of people may associate together and form a co-operative society. Co-operative form of			

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	<p>business contributes mutual help, service to the society, no profit maximisation, working together, equality of opportunity etc. The slogan of co-operation is "one for all and all for one". Agriculturists, consumers, labourers etc are registered by the co-operative societies act of the concerned state.</p> <p>There must be atleast 10 members for registering the society. An application should be submitted to the registrar of co-operative societies of the state. The application should state the name, place, the objectives, capital structure, source of fund etc. Bye-laws are the rules and regulations with which the society shall function. Along with application 2 copies of bye-laws and registration fees are submitted to the registrar. If satisfied, he will issue a certificate of registration after which the society can admit members collect capital and commence business.</p>			
II.2.	<p>Forecasting Inventorying Investigating Anticipating Planning Selecting</p>			
	<p>6 activities:-3 marks; definition:-3 marks (3+3)</p>			
III.3.	<p>Analysing markets. Studying consumer buying habits, behaviour and tastes. Studying the demand level of the products. Studying the competitors policies and sales strategy Studying the market fluctuations Assisting in the preparation of marketing plan Preparing the sales budgets from the marketing plan. Deciding the distribution methods, policies, network etc. Planning advertising campaign Ensuring suitable packing of the products</p>			
	<p>(Answer 6 points)</p>			

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II 4.	Product Planning Managerial and operational planning Preparation of quality plans and making provision for quality improvement (3 points :- 1½ Marks; description :- 4½ marks)	6				
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II 6.	Lack of emotional stability Low degree of muscular co-ordination Poor eyesight and hearing Lack of training, proficiency and skill to do work Absence of appropriate mood Insufficient intelligence and commonsense Frustrated mind Lack of experience Lack of health Immature age (Answer any 6 points)	6				

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II 7	<p>1. Mechanical factors</p> <p>2. Environmental factors</p> <p>3. Personal factors</p> <p><u>1. Mechanical factors</u></p> <p>Improper machine guarding            Improper material handling            Broken safety guards            Untested pressure vessels or boilers            Unsafe mechanical design or construction, etc. (any three)</p> <p><u>2. Environmental factors</u></p> <p>Too low temperature cause shivering            Too high temperature cause headache and sweating            Too high humidity cause discomfort, fatigue, asthmatic complaints.            Inadequate illumination cause eye strain, glare, shadows etc.            Poor house keeping etc. (any three)</p> <p><u>3. Personal factors</u></p> <p>Age and health of employees            Home environment            Financial position            Lack of knowledge &amp; skill            Mental worries            Improper usage of tools and equipments etc. (any three)</p> <p>(3 factors : 1½ marks ; description : 4½ marks)</p> <p style="text-align: center;">PART C UNIT - I</p>			
III(a)	<p>Division of work            Authority and responsibility            Discipline            Unity of command            Unity of direction            Subordination of individual interest to general interest            Remuneration of personnel            Centralisation            Scalar chain            Order            Equity</p> <p style="text-align: right;">Stability of workers            Initiative            Esprit de corps</p> <p>(14 points :- 7 marks)</p>	6	30	30
		7		

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III(b)	<p>Planning Organising Staffing Directing Controlling Decision making</p> <p><u>Planning</u> :- Thinking before doing What? How? Howmuch? When? Where? Who is to be done.</p> <p><u>Organising</u> :- Divide the work Decide people Define responsibility Delegate authority Design structure</p> <p><u>Staffing</u> :- Manpower planning Recruitment Selection Training Promotion and transfer Wages</p> <p><u>Directing</u> :- Instruction Guide Supervise Find variation Corrective action</p> <p><u>Controlling</u> :- Set standard Ensure actual performance Compare actual and standard Find variations Corrective action</p> <p><u>Decision making</u> :- Investigate the situation Define problem Prioritize Identify objectives Diagnose the causes Develop alternatives Evaluate &amp; Select Implement</p> <p>Any four functions → 2 marks Description of the four functions → 6 marks</p>			
IV(a)	<p>Standard output      Job knowledge      Education (Any 14 points)</p> <p>Character              Co-operation        Leadership</p> <p>Quantity of output    Initiative              Experience</p> <p>Integrity                Reliability            Judgment</p> <p>Intelligence            Creative ability       Organising ability</p> <p>Loyalty                  Dependability        Enthusiasm.</p>	8	15	15
		7		

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IV(b)	<p><u>Nominal wages</u> :- The amount of money paid to a worker in cash for the effort put by him in an industry. No other advantage to the worker is made.</p> <p><u>Real wages</u> :- The amount needed to meet the necessities, comforts, luxuries and cash payments which a worker can get in return of his effort and work.</p> <p><u>Living wages</u> :- The amount needed to meet some of the requirements of the family like education, food, clothes and some insurance etc along with the prime necessities of life.</p> <p><u>Fair wages</u> :- The amount which must be fair for the worker and should provide him with other necessities of life in addition to food for his family.</p> <p><u>Minimum wages</u> :- According to minimum wages act 1948, wages have been fixed for different parts of the country and this has forced the employers to give not less than this fixed minimum wages to the workers. (Any 4 wages → 8 marks)</p>	8	15	15
V(a)	<p style="text-align: center;"><u>UNIT - II</u></p> <p>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.</p> <p>Quality is like a prayer to God, which never comes out without hardwork and devotion.</p> <p>Quality is everybody's business.</p> <p>Quality begins with the cleanliness of the workplace.</p> <p>Take care of quality, quality will take care of it.</p> <p>Make it right for first time and all times.</p> <p>Quality is achieved through team work.</p> <p>Document is dependable, but not the memory.</p> <p>Quality begins an ends with education.</p> <p>Quality is the attribute that a customer uses to evaluate products and services. (Any 7 mantras → 7 marks)</p>	7		
VI(b)	<p>Receipt Storage Retrieval Issue Records Housekeeping Control Surplus management Verification; Co-ordination and co-operation etc. (Any 8 functions: - 4 marks) (Definition in one sentence + 4 marks)</p>	8	15	15

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VI(a)	<p>A = 4000 units per annum                      S = Rs. 100/- per order                      R = Rs. 20/- per unit per annum</p> $EOQ = \sqrt{\frac{2AS}{R}} = \sqrt{\frac{2 \times 4000 \times 100}{20}} = 200 \text{ units}$	7		
VI(b)	<p>Purchase requisition                      Selection of possible sources of supply                      Determine the time, price, quality, quantity etc.                      Making request for quotation                      Receipt and analysis of quotation                      Selection of right source of supply                      Placing the purchase order                      Following up and expediting the order                      Inspection                      Checking and approving vendors invoices for payment                      Closing completed records                      Maintenance of records and files.                      (Any 8 points)</p>	8	15	15
VII(a)	<p>Activity 1-2, 1-6, 2-3, 2-4, 3-5, 4-5, 6-7, 5-8, 7-8                      te 6, 5, 13, 4, 11, 6, 11, 3, 15</p> <p>Project duration = 33 unit time                      Project activities and expected time is given above.                      Critical path is 1-2-3-5-8.                      Calculation of expected time — 5 marks,                      Drawing network diagram — 2 marks,                      Marking critical path — 2 marks,                      Finding project duration — 1 mark.</p>	10		

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VII(b)	<p>Max min = Maximum of row minimum = 7            Mini max = Minimum of column maximum = 7  <math>\therefore</math> The saddle point is <math>(A_2, B_3)</math>            Optimum strategy for player A is <math>A_2</math>            Optimum strategy for player B is <math>B_3</math>            Player A gets 7 where player 'B' loses 7            So the winner of the game is player 'A'.</p> <p>Finding row minimum and column maximum <math>\rightarrow</math> 2 marks            Finding the saddle point and optimum strategies <math>\rightarrow</math> 3 marks</p>	5	15	15																								
VIII(a)	<p>The allocation matrix of the transportation problem using North-West corner rule is shown below:</p> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <tr> <td style="padding: 5px;">8</td> <td style="width: 40px;"></td> <td style="width: 40px;"></td> <td style="width: 40px;"></td> </tr> <tr> <td style="padding: 5px;">3</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding: 5px;">2</td> <td style="padding: 5px;">5</td> <td></td> <td></td> </tr> <tr> <td style="padding: 5px;">3</td> <td style="padding: 5px;">4</td> <td></td> <td></td> </tr> <tr> <td></td> <td style="padding: 5px;">3</td> <td style="padding: 5px;">6</td> <td></td> </tr> <tr> <td></td> <td style="padding: 5px;">2</td> <td style="padding: 5px;">2</td> <td></td> </tr> </table> <p>Total Cost = <math>3 \times 8 + 3 \times 2 + 4 \times 5 + 2 \times 3 + 2 \times 6</math>  <math>= \text{Rs. } 68/-</math></p> <p>Finding the allocation matrix <math>\rightarrow</math> 5 marks            Finding the total cost <math>\rightarrow</math> 2 marks</p>	8				3				2	5			3	4				3	6			2	2		7		
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VIII(b)	<p>(i) Optimistic time is the shortest possible time in which an activity can be completed if everything goes exceptionally well.</p> <p>(ii) Pessimistic time is the time in which an activity will take to complete in case of difficulty.</p> <p>(iii) Most likely time is the time in which the activity normally expected to complete under normal conditions.</p>																											

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VIII(b)	<p>(iv) Earliest Finish Time (EFT) is the earliest possible time at which an activity can finish</p> <p>(v) Latest Finish Time (LFT) is the total time by which the operation must be completed, so that the schedule date for the completion of the project may not be delayed.</p> <p>(vi) Slack is the difference between LFT and EFT</p> <p>(vii) Concurrent activities are the independent activities that take place simultaneously.</p> <p>(viii) Dummy activities are those activities which neither consumes time nor resources. (1 mark each)</p>	8	15	15
IX(a)	<p>Manage business and take decisions</p> <p>Study the market and select the profitable business</p> <p>Select the plant size</p> <p>Select the plant site</p> <p>Organise the sales and hold the customers</p> <p>Promote new inventions</p> <p>Coordinate different factors of production</p> <p>Arrange raw materials, machinery and finance</p> <p>Employ the labourers</p> <p>Deal with government departments such as sales tax, labour, electricity export-import etc.</p> <p>Decide pricing policy</p> <p>Distribute wages of labour, interests to the capitalist etc.</p> <p>(Any 7 functions)</p>	7		
IX(b)	<p>Engineering</p> <p>Education</p> <p>Enterprising and</p> <p>Enforcement</p> <p>Name the 4 E's → 2 Marks</p> <p>Explanation of the 4 E's → 6 Marks</p>	8	15	15

Qst: No.	Scoring indicators	Split up score	Sub Total	Total
X(a)	Market and demand survey Product and production analysis Material and manpower input Location of site Economic and technical Evaluation Preparation of feasibility/project report Cost-volume, profit relationship and break even analysis (7 constituents → 7 marks)	7		
X(b)	Improper machine guarding Unsafe mechanical design or construction Defective devices Improper material handling Hazardous arrangement (piling, overloading etc) Unsafe apparel Broken safety guards Leaking acid valves Untested boilers or pressure vessels Protruding nails etc. (Any 8 factors → 8 marks)	8	15	15
				