**SAMPLE QUESTION BANK**

**Program: BE (Mechanical Engineering)**

Curriculum Scheme: **Rev 2016**

**BE Semester VIII**

Course Code: MEC 802 and Course Name: Industrial Engineering and Management

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**MCQ- SAMPLE SET**

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| 1. | In process charts, the symbol used for storage is |
| Option A: | Circle |
| Option B: | Square |
| Option C: | Arrow |
| Option D: | Triangle |
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| 2. | ‘Ergonomics’ is related to human |
| Option A: | comfort and safety |
| Option B: | aesthetics and awe |
| Option C: | beauty and appeal |
| Option D: | occupation and race |
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| 3. | Process layout is more suitable for |
| Option A: | job production |
| Option B: | batch production |
| Option C: | mass production |
| Option D: | project site |
|  |  |
| 4. | Which of the following costs is recorded on the job cost sheet? |
| Option A: | consumables cost |
| Option B: | contract labour cost |
| Option C: | manufacturing overheads cost |
| Option D: | indirect labour cost |
|  |  |
| 5. | A milk powder tin is being weighed as it is filled is an example of |
| Option A: | Operation cum transportation |
| Option B: | Operation cum inspection |
| Option C: | Transportation cum inspection |
| Option D: | Delay and Storage |
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| 6. | Value Engineering could be applied to |
| Option A: | Obsolete product |
| Option B: | Existing product |
| Option C: | New product |
| Option D: | Matured product |
|  |  |
| 7. | Cost of a product is influenced the most at |
| Option A: | it's design stage |
| Option B: | it's manufacturing stage |
| Option C: | it's operating stage |
| Option D: | it's disposal stage |
|  |  |
| 8. | Workplace layout could be studied using |
| Option A: | Two-handed process chart |
| Option B: | Cusum Chart |
| Option C: | Venn Diagram |
| Option D: | Run Chart |
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| 9. | Marginal costing is also known as |
| Option A: | Indirect Costing |
| Option B: | Direct or Variable Costing |
| Option C: | Fixed Costing |
| Option D: | Contract Costing |
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| 10. | Facility location decision does |
| Option A: | consider availability of labour |
| Option B: | not consider availability of utility services |
| Option C: | not consider nearness to market |
| Option D: | not consider nearness to supplier of raw material |
|  |  |
| 11. | The Total Productivity Model was developed by: |
| Option A: | D. J. Sumanth |
| Option B: | American Productivity Centre |
| Option C: | Craig and Harris |
| Option D: | Creamer and Kendrick |
|  |  |
| 12. | TPS is associated with which of the following? |
| Option A: | Lean Manufacturing |
| Option B: | Agile Manufacturing |
| Option C: | Resilient Manufacturing |
| Option D: | Green Manufacturing |
|  |  |
| 13. | Due to which of the following values the sales appeal of a product increases? |
| Option A: | Cost Value |
| Option B: | Exchange Value |
| Option C: | Use Value |
| Option D: | Esteem Value |
|  |  |
| 14. | Value Engineering is applied to: |
| Option A: | Existing Product |
| Option B: | New Product |
| Option C: | New or Existing Product |
| Option D: | Non-performing Product |
|  |  |
| 15. | Which management technique is used to address the problem of poor design and frequent design changes? |
| Option A: | Product Development |
| Option B: | Preventive Maintenance |
| Option C: | Training |
| Option D: | Inventory Control |
|  |  |
| 16. | An aircraft is manufactured using which type of layout? |
| Option A: | Product Layout |
| Option B: | Process Layout |
| Option C: | Group Layout |
| Option D: | Static Position Layout |
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| 17. | Merit rating gives importance to: |
| Option A: | The task |
| Option B: | The person |
| Option C: | The process |
| Option D: | The popularity |
|  |  |
| 18. | The discipline that approaches the study of the body as though it were solely a mechanical system: |
| Option A: | Biomechanics |
| Option B: | Anthropology |
| Option C: | Ergonomics |
| Option D: | Applied Ergonomics |
|  |  |
| 19. | An assembly line is based on this type of layout. |
| Option A: | Product layout |
| Option B: | Process Layout |
| Option C: | Static Position Layout |
| Option D: | Hybrid/Combination Layout |
|  |  |
| 20. | Which of the following is not a characteristic of Cellular Manufacturing? |
| Option A: | Tall factory management structure |
| Option B: | Group cohesiveness |
| Option C: | Self-management |
| Option D: | Formation of part families |
|  |  |
| 21. | **Addition of Excess time to basic work content is called as** |
| Option A: | Main work content |
| Option B: | Aggregate work content |
| Option C: | Total work content |
| Option D: | Overall work content |
|  |  |
| 22. | Ineffective time Within the control of the worker involves |
| Option A: | bad working conditions |
| Option B: | lack of standardization |
| Option C: | Bad planning |
| Option D: | careless workmanship |
|  |  |
| 23. | ………….. is the application of techniques designed to establish the time for a qualified worker to carry out a specified job at a defined level of performance |
| Option A: | Method study |
| Option B: | work measurement |
| Option C: | work study |
| Option D: | motion study |
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| 24. | Outline process chart is a process chart giving an overall picture by recording in sequence only ………….and …………….. |
| Option A: | Operation and transport |
| Option B: | transport and permanent storage |
| Option C: | operations and inspections |
| Option D: | inspections and transport |
|  |  |
| 25. | Critical examination in involves primary questions related to ….. |
| Option A: | Purpose, place, operation, layout, Means by which activities are undertaken |
| Option B: | Purpose, place, sequence, person, means by which activities are undertaken |
| Option C: | Purpose, plan, activity, time play out, means by which activities are undertaken |
| Option D: | Purpose, plan, place, layout , means by which activities are undertaken |
|  |  |
| 26. | ………………..is a chart on which the activities of more than one subject (worker, machine or items of equipment) are each recorded on a common time scale to show their interrelationship. |
| Option A: | Flow process chart |
| Option B: | Two handed process chart |
| Option C: | simo chart |
| Option D: | multiple activity chart |
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| 27. | Work sampling is a method of finding the percentage occurrence of a certain activity by |
| Option A: | random sampling and observation |
| Option B: | statistical sampling and random observation |
| Option C: | Random sampling and analysis |
| Option D: | statistical sampling and analysis |
|  |  |
| 28. | Times today equipment does not involve |
| Option A: | stopwatch |
| Option B: | time study board |
| Option C: | time study form |
| Option D: | Torch |
|  |  |
| 29. | ………is an element who is does not occur in Every work cycle of the job but which may occur at regular or irregular intervals. |
| Option A: | repetitive element |
| Option B: | occasional element |
| Option C: | constant element |
| Option D: | governing element |
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| 30. | As per Rowan plan of wage and incentive system, Bonus is paid for a worker |
| Option A: | Who is output exceed 67% Efficiency |
| Option B: | On the percentage of time saved |
| Option C: | On the percentage of time worked |
| Option D: | On the percentage of Standard Time |
|  |  |
| 31. | P.M.T.S (Predetermined motion and time systems) does not include |
| Option A: | M.T.M (Method Time Measurement) |
| Option B: | Work factor system |
| Option C: | Basic motion time study |
| Option D: | Maynard operation sequence technique |
|  |  |
| 32. | In work measurement, 1 TMU is equal to |
| Option A: | 0.00036 seconds |
| Option B: | 0.06 min |
| Option C: | 0.0006 seconds |
| Option D: | 0.0006 min |
|  |  |
| 33. | Dispatching in Industrial engineering means |
| Option A: | Dispatch of sales order |
| Option B: | Dispatch of factory Mail |
| Option C: | Dispatch of finished product to the customer |
| Option D: | Dispatch of work orders to shop floor |
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| 34. | Which of the following is not an objective of cellular manufacturing |
| Option A: | Reduced manufacturing lead time |
| Option B: | Increased in quality |
| Option C: | Reduced setup time |
| Option D: | Measure standard time |
|  |  |
| 35. | Prime objective of value engineering is |
| Option A: | Find the depreciation value for engineering materials |
| Option B: | Determine the sale value of a product |
| Option C: | Enhance the functional value and / or reduce the cost without change in quality of the product |
| Option D: | Enhance the esteem value of product |
|  |  |
| 36. | Which manufacturing technique involves manufacturing of parts having similarities in geometry/manufacturing process / functions in one location |
| Option A: | Production technology |
| Option B: | Group technology |
| Option C: | Flexible manufacturing system |
| Option D: | Mass production system |
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| 37. | Which of the following is involved in Lean manufacturing? |
| Option A: | Elimination of cost only |
| Option B: | Quality enhancement only |
| Option C: | Reduction of inventory cost only |
| Option D: | Elimination of all types of wastes |
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| 38. | **The following will have an esteemed value** |
| Option A: | Wooden pencil |
| Option B: | Fountain pen with gold plating and diamond studded cap |
| Option C: | Ball pen |
| Option D: | Fountain pen |
|  |  |
| 39. | What does symbol 'D' employ in work study |
| Option A: | Operation |
| Option B: | Inspection |
| Option C: | Delay/ temporary Storage |
| Option D: | Permanent storage |
|  |  |
| 40. | In THERBLIGS, following is not a basic motion element |
| Option A: | Walk |
| Option B: | Move |
| Option C: | Use |
| Option D: | Plan |
|  |  |
| 41. | Productivity is increased when |
| Option A: | Output is decreased without increase in input |
| Option B: | Same output with increase in input |
| Option C: | The rate of increase in output is more compared to rate of increase in input |
| Option D: | The rate of increase in output is less compared to rate of increase in input |
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| 42. | Simplification, standardization and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are the three stages of variety reduction in productivity improvement techniques. |
| Option A: | Satisfaction |
| Option B: | Specification |
| Option C: | Solution |
| Option D: | Specialization |
|  |  |
| 43. | The basic rule to define the function in VE in two words is |
| Option A: | Verb and Adjective |
| Option B: | Verb and Noun |
| Option C: | Noun and Adjective |
| Option D: | Noun and Preposition |
|  |  |
| 44. | The FAST diagram includes vertical broken lines called |
| Option A: | Dotted lines |
| Option B: | Scope lines |
| Option C: | Boundary lines |
| Option D: | Surrounding lines |
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| 45. | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is to determine the standard time for doing an operation. |
| Option A: | Work study |
| Option B: | Method study |
| Option C: | Work measurement |
| Option D: | Productivity |
|  |  |
| 46. | Movement of material and men between department is especially given by |
| Option A: | Travel chart |
| Option B: | Simo chart |
| Option C: | Operation process chart |
| Option D: | Two handed process chart |
|  |  |
| 47. | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the clock device used for filming the operation. |
| Option A: | Wink counter |
| Option B: | Rank counter |
| Option C: | Time counter |
| Option D: | Task counter |
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| 48. | Choose the correct sequence of steps involved in Method Study |
| Option A: | Examine – Define – Select |
| Option B: | Select – Maintain – Develop |
| Option C: | Select – Record - Examine |
| Option D: | Develop – Install – Select |
|  |  |
| 49. | One of the Merit Rating method is |
| Option A: | Check In |
| Option B: | Check Out |
| Option C: | Check List |
| Option D: | Check All |
|  |  |
| 50. | In Merit Rating, each employee is compared with other employee in |
| Option A: | Point allocation method |
| Option B: | Paired comparison method |
| Option C: | Rating scale method |
| Option D: | Forced distribution method |
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| 51. | \_\_\_\_\_\_\_\_\_\_ is one of the environmental factor which may have internal and physiological effect resulting in the auditory system being unable to perceive sound. |
| Option A: | Noise |
| Option B: | Vibrations |
| Option C: | Thermal |
| Option D: | Illumination |
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| 52. | \_\_\_\_\_\_ deals with study of body dimensions and relations for work design |
| Option A: | Physiology |
| Option B: | Psychology |
| Option C: | Anatomy |
| Option D: | Industrial hygiene |
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| 53. | Which of the following facility layout is best suited for the intermittent type of production, which is a method of manufacturing several different products using the same production line |
| Option A: | Product layout |
| Option B: | Process layout |
| Option C: | Fixed position layout |
| Option D: | Cellular manufacturing layout |
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| 54. | In ship manufacturing, the type of layout preferred is |
| Option A: | Product layout |
| Option B: | Process layout |
| Option C: | Fixed position layout |
| Option D: | Combination layout |
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| 55. | \_\_\_\_\_\_\_\_\_\_\_\_\_is the term commonly used to refer to the decision process of assigning tasks to workstations in a serial production system. |
| Option A: | Group technology |
| Option B: | Assembly line balancing |
| Option C: | Decision making |
| Option D: | Cellular manufacturing |
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| 56. | The following is used to transport materials having flat bottoms |
| Option A: | Belt conveyor |
| Option B: | Roller conveyor |
| Option C: | Chain conveyor |
| Option D: | Gear conveyor |
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| 57. | Inspection, scrap, and repair are examples of \_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Option A: | internal costs |
| Option B: | external costs |
| Option C: | costs of dissatisfaction |
| Option D: | societal costs |
|  |  |
| 58. | All of the following costs are likely to decrease as a result of better quality except \_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Option A: | customer dissatisfaction costs |
| Option B: | inspection costs |
| Option C: | maintenance costs |
| Option D: | warranty and service costs |
|  |  |
| 59. | –––––––– are the charts that identify potential causes for particular quality problems. |
| Option A: | Cause and Effect Diagram |
| Option B: | Flow chart |
| Option C: | Control Chart |
| Option D: | Pareto chart |
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| 60. | AS and RS in FMS stands for |
| Option A: | Automated storage and retrieval system |
| Option B: | Automatic storage and rotary system |
| Option C: | Automated storage and recovery system |
| Option D: | Automated storage and regenerative system |
|  |  |
| 61. | Which of the following is the most flexible production system? |
| Option A: | Job-shop production |
| Option B: | Batch production |
| Option C: | Mass production |
| Option D: | Continuous production |
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| 62. | A measure of productivity which reflects a combination of some or all of the resources used to obtain a certain output is |
| Option A: | Labour productivity |
| Option B: | Machine productivity |
| Option C: | Multi-factor productivity |
| Option D: | Materials productivity |
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| 63. | Which of the following is not the part of seven phases of value analysis? |
| Option A: | General phase |
| Option B: | Information phase |
| Option C: | Optimization phase |
| Option D: | Evaluation phase |
|  |  |
| 64. | FAST considers the people to resolve the issue from |
| Option A: | Industrial engineering area |
| Option B: | Mechanical engineering |
| Option C: | Operations management |
| Option D: | Multidisciplinary |
|  |  |
| 65. | Therblig is described by standard symbol and colour in |
| Option A: | Macro-motion study |
| Option B: | Gantt chart |
| Option C: | Micro-motion study |
| Option D: | Curve chart |
|  |  |
| 66. | The symbol ‘O’ in work study is used for |
| Option A: | Operation |
| Option B: | Inspection |
| Option C: | Delay |
| Option D: | Storage |
|  |  |
| 67. | The observed times and the performance ratings for the five elements are given. Compute the standard time assuming rest and personal allowance as 15% and contingency allowance as 2% of the basic time.   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Element | 1 | 2 | 3 | 4 | 5 | | Observed time (min) | 0.2 | 0.08 | 0.5 | 0.12 | 0.1 | | Performance Rating | 85 | 80 | 90 | 85 | 80 | |
| Option A: | 1.7320 minutes |
| Option B: | 1.0732 minutes |
| Option C: | 2.7320 minutes |
| Option D: | 2.0732 minutes |
|  |  |
| 68. | Material handling equipment, roller/belt conveyor are used for the |
| Option A: | Continuous movement, and relatively short distance |
| Option B: | Interrupted movement, and relatively short distance |
| Option C: | Interrupted movement, and relatively large distance |
| Option D: | Continuous movement, and relatively large distance |
|  |  |
| 69. | The characteristics of process layout are  I. Machines are arranged as per their functions  II. A variety of products can be produced  III. Always systematic flow of material occurs through operational areas  IV. General-purpose machines are used |
| Option A: | I & II |
| Option B: | I & III |
| Option C: | I, II & IV |
| Option D: | I, II, III & IV |
|  |  |
| 70. | Time taken by individual work station A, B, C, D, E, F, and G are 9, 8, 6, 10, 7, 7, and 9 minutes in an assembly line, then the line efficiency of the assembly line is |
| Option A: | 20 % |
| Option B: | 70 % |
| Option C: | 80 % |
| Option D: | 90 % |
|  |  |
| 71. | The discipline(s) that has direct influence on human factors in ergonomics is(are)- I. Anthropometry. II. Psychology. III. Mechanics. IV. Value Engineering |
| Option A: | I, II & III |
| Option B: | I & II |
| Option C: | II, III & IV |
| Option D: | III & IV |
|  |  |
| 72. | \_\_\_\_\_\_\_\_ is the amount, if money paid to the worker in cash for the effort of the workers towards production and no other benefits are given to the worker.. |
| Option A: | Minimum wage |
| Option B: | Real Wage |
| Option C: | Fair Wage |
| Option D: | Nominal wage |
|  |  |
| 73. | Center of Gravity method is |
| Option A: | The method that determines the location of a facility that will minimize the shipping cost and travel time to various destinations |
| Option B: | The method that determines the location of a facility closest to the maximum number of customers |
| Option C: | The method that determines the location of a facility closest to the main supplier |
| Option D: | The method that determines the location of a facility in the middle point of all suppliers |
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| 74. | Four key elements for developing agile manufacturing are |
| Option A: | Strategic planning, Product design, Virtual enterprise, Enterprise Resource Planning |
| Option B: | Strategic planning, Product design, Virtual enterprise, Automation and Information Technology |
| Option C: | Virtual enterprise, Product design, Value Analysis, Automation and Information Technology |
| Option D: | Automation and Information Technology, Strategic planning, Product design, Virtual enterprise, Digital Scanning |
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| 75. | Which of the following component is not included in the flexible manufacturing system? |
| Option A: | Processing Stations |
| Option B: | Material Handling and Storage System |
| Option C: | Auxiliary Equipment |
| Option D: | Value stream mapping |
|  |  |
| 76. | Tools and techniques of Lean Manufacturing are- I. Takt Time    II. Cellular Manufacturing    III. Supplier relation   IV. Pull Systems and Kanban |
| Option A: | I, II & III |
| Option B: | II, III & IV |
| Option C: | I, II & IV |
| Option D: | I, III & IV |
|  |  |
| 77. | Production time per unit product for manufacturing a product is generally maximum in |
| Option A: | Process layout |
| Option B: | Cellular layout |
| Option C: | Product layout |
| Option D: | Mixed layout |
|  |  |
| 78. | The working area should be illuminated \_\_\_\_\_\_\_ their surroundings. |
| Option A: | More than |
| Option B: | Less than |
| Option C: | Equal to |
| Option D: | Depends upon type of job performed |
|  |  |
| 79. | An agile supply chain takes care of |
| Option A: | a high level of both demand and supply uncertainty |
| Option B: | either demand or supply uncertainty |
| Option C: | a high level of supply disruptions/uncertainty |
| Option D: | a high level of demand uncertainty |
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**Descriptive SAMPLE SET**

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| Q1. | How does value analysis differ from value engineering? |
| Q2. | What are the different methods of merit rating? |
| Q3. | Explain concept of supply chain management. |
| Q4. | Write short note on Group Technology. |
| Q5. | What are the different Time Study equipment? |
| Q6. | Why productivity is important in Production Management? |
| Q7. | What are the functions of an Industrial Engineer? |
| Q8. | Describe the relationship between Efficiency, Effectiveness and Productivity. |
| Q9. | Differentiate between Value Analysis and Value Engineering. |
| Q10. | How value engineering & value analysis are different from each other? |
| Q11. | Explain principles of motion economy. |
| Q12. | Write note on business process reengineering. |
| Q13. | Explain value stream mapping with suitable example. |
| Q14. | Describe the term productivity and its measures. |
| Q15. | Draw and explain with a dummy the following sequence charts  a) Outline process chart  b) Flow process chart for worker |
| Q16. | Define Productivity. How can the productivity be increased? |
| Q17. | Classify the term ‘Value’ with the help of an example. |
| Q18. | Illustrate the Cycle graph and Chrono cycle graph. |
| Q19. | What are therbligs? Write any five therbligs with their symbol, code and colour. |
| Q20. | What are the different types of Display and Controls? |
| Q21. | What are the different types of plant layout? |
| Q22. | What is anthropometry? How is anthropometry data used in design? |
| Q23. | Define micro- motion study. What are therbligs? When it is used? List the therbligs symbols, colour description, name and code. |
| Q24 | What are the steps to be considered in value analysis? Explain with the help of an example. |
| Q25. | What are the steps involved in Value Analysis? |
| Q26. | State the principles of motion economy as related to the use of Human Body. |
| Q27. | Differentiate between Work Sampling and Time Study. |
| Q28. | What are different techniques of industrial engineering? Explain any two in detail. |
| Q29. | Write note on i) lean manufacturing ii) types of plant layout |
| Q30. | What is a Functional analysis system technique? Construct FAST diagram for ball point pen / pencil with eraser / Projector. |
| Q31. | State the different Productivity measures with their mathematical formulae. |
| Q32. | What is Function Analysis and System Technique? |
| Q33. | Show a SIMO chart for an assembly of nut and bolt. |
| Q34. | What are the factors influencing facility location? |
| Q35. | Explain the contributions of F.W. Taylor in the development of scientific management. |
| Q36. | Explain the important principles of material handling. |
| Q37. | Define method study. What are its objectives? Also explain factors to be considered while selecting job for method study. |
| Q38. | What is meant by Business Process Re-engineering? |
| Q39. | What is meant by Line Balancing? How is it done? |
| Q40. | Differentiate between Lean Manufacturing and Agile Manufacturing. |