

SUB- IE&QC

1. The objective of scientific layout is
 - a) to produce better quality of product
 - b) to utilize maximum floor area
 - c) to minimize production delays
 - d) all of these

2. The probabilistic/ expected time is given by (where to = Optimistic time, tp = Pessimistic time, and tn = Most likely time)
 - a)
$$\frac{t_o + t_p + t_n}{3}$$
 - b)
$$\frac{t_o + 2t_p + t_n}{4}$$
 - c)
$$\frac{t_o + 4t_p + t_n}{5}$$
 - d)
$$\frac{t_o + t_p + 4t_n}{6}$$

3. For a product layout the material handling equipment must
 - a) Have full flexibility
 - b) Employ conveyor belts, trucks etc.
 - c) Be a general purpose type
 - d) Be designed for a particular application

4. Which of the following layouts is suited for mass production?
 - a) Process
 - b) Product
 - c) Fixed position
 - d) Plant

5. The artificial activity, which indicates that an activity following it can't be started unless the preceding activity is complete, is known as
 - a) Event
 - b) Dummy
 - c) Free float
 - d) Artificial

6. PERT
 - a) Provides an approach for keeping planning up-to-date
 - b) Provides a way for management to require that planning be done on a uniform and logical basis

- c) Permits management to foresee quickly the impact of variations from the plan
- d) All of the above

7. The probability distribution of activity times in PERT follows following distribution

- a) Normal
- b) Binomial
- c) Beta
- d) Exponential

8. Which of the following are the guidelines for the construction of a network diagram?

- a) Each activity is represented by one and only one arrow in the network
- b) Dangling must be avoided in a network diagram
- c) Dummy activity consumes no time or resource
- d) All of the above

9. ABC analysis deals with

- a) Analysis of process chart
- b) Flow of material
- c) Ordering schedule of job
- d) Controlling inventory costs money

10. Which of the following layouts is suited to job production?

- a) Process
- b) Product
- c) Fixed position
- d) Plant

11. . The product layout

- a) Lowers overall manufacturing time
- b) Requires less space for placing machines
- c) Utilizes machine and labour better
- d) All of these

12. The time of completing a project in network analysis is given by following time of the critical activity meeting at the final triode

- a) Early start
- b) latest start
- c) Early finish
- d) Latest finish

13. The EOQ in inventory theory refers to

- a) Average level
- b) Optimum level
- c) Warehouse capacity
- d) Break even analysis

14. Production cost refers to prime cost plus

- a) factory, administration, sales overheads and profit
- b) factory, administration and sales overheads
- c) factory and administration overheads
- d) factory overheads

15. The advantage of product layout is

- a) Lower total materials handling cost and total production time.
- b) Less work in process
- c) Less floor area required per unit of production
- d) All of these

16. The advantage of process layout is

- a) Less duplication of equipment and greater flexibility of production
- b) Better control of complicated or precision processes
- c) Easier to handle breakdown of equipment
- d) All of these

17. Critical Path Net Work helps an engineer

- a) To concentrate his attention on critical activities
- b) To be cautious for avoiding any delay in the critical activities to avoid delay of the whole project
- c) To divert the resources from noncritical advanced activities to critical activities
- d) All of the above

18. The disadvantage of product layout is

- a) Skilled labour to operate machines
- b) Production time is longer, requiring more goods in inventory
- c) High initial investment for the specialized facilities
- d) High cost of inspection

19. Inventory control in production, planning and control aims at

- a) Achieving optimization
- b) Acceptable customer service at low capital investment in inventory
- c) Ensuring against market fluctuations
- d) Discounts allowed in bulk purchase

20. When slack of an activity is negative

- a) the activity is critical and any delay in its performance will delay the completion of whole project
- b) It represents that a programme falls behind schedule and additional resources are required to complete the project in time
- c) It represents a situation where extra resources are available and the completion of project is not delayed
- d) All of the above

21. Break even analysis is a

- a) long term analysis
- b) short term analysis
- c) average of short and long term analysis
- d) any one of these

22. A critical activity has

- a) zero slack

- b) average slack
- c) maximum slack
- d) minimum slack

23. A PERT network has three activities on critical path with mean time 3, 8 and 6 and standard deviations 1, 2 and 2 respectively. The probability that the project will be completed in 20 days is

- a) 0.80
- b) 0.84
- c) 0.90
- d) 0.50

24. Which one of the following statements is not correct?

- a) PERT is activity oriented and CPM is event oriented
- b) In PERT, three time estimates are made, whereas in CPM only one time estimate is made
- c) In PERT slack is calculated whereas in CPM floats are calculated
- d) Both PERT and CPM are used for project situation.

25. If the demand for an item is doubled and the ordering cost is halved then EOQ

- a) Remains unchanged b) Increases by a factor of 1.414 c) Is doubled d) Is halved

26. Setup costs do not include

- a) Labour cost of setting up machines b) Ordering cost of raw material
- c) Maintenance cost of the machines d) Cost of processing the work piece

27. Which of the followings are the benefit of inventory control

- 1. Improvement in customers relationship.
- 2. Economy in purchasing.
- 3. Elimination of the possibility of duplicate ordering.

Select the correct answer using the code given below:

- a) 1, 2 and 3 b) 1 and 2 only c) 2 and 3 only d) 1 and 3 only

28. The type of layout used for manufacturing steam turbines, is

- a) Product layout
- b) Process layout
- c) Fixed position layout
- d) Any one of these

29. The type of layout used for manufacturing Aeroplane, is

- a) Product layout
- b) Process layout
- c) Fixed position layout
- d) Any one of these

30. PERT stands for

- a) Programme Evaluation and Review Technique
- b) Planning Estimation and Resulting Technique
- c) Programme Estimation and Reporting Technique
- d) Process Estimation and Review Technique

31. A dummy activity in a network diagram

- a) is an artificial activity
- b) is represented by a dotted line
- c) does not consume time or resources
- d) all of these

32. In inventory control, the economic ordering quantity is obtained by the quantity whose procurement cost is equal to inventory carrying cost.

- a) True
- b) False

33. Product layout is best suited where

- a) One type of product is produced.
- b) Product is standardized.
- c) product is manufactured in large quantities
- d) all of the above

34. Break even analysis consists of

- a) fixed expenses
- b) variable cost
- c) sales revenue
- d) all of these

35. Slack represents the difference between the

- a) earliest completion time and normal expected time
- b) earliest completion time and latest allowable time
- c) normal expected time and earliest completion time
- d) latest allowable time and normal expected time

36. Simplex method is the method used for

- a) Network analysis
- b) Value analysis
- c) Queuing Theory
- d) Linear programming

37. If TL is the largest allowable event occurrence time, total activity slack (s) is equal to

- a) $L_i - E_i$
- b) $L_j - E_j$
- c) $E_j - E_i$
- d) Both (a) and (b)

38. Six sigma is a business driven, multi-dimensional structured approach to

- a) Reducing process variability
- b) Increasing customer satisfaction
- c) Lowering defects and improving process
- d) All of these

39. The main purpose of the measure phase of DMAIC is to

- a) Determine the customer requirements
- b) Develop solutions
- c) Find root causes
- d) Set baseline data to understand how the process is currently performing

40. Six sigma can be defined as

- a) A representation of variation
- b) A summary statistic
- c) Permission to improve processes
- d) All of these

41. The DMAIC stands for

- a) Define, Measure, Analyze, Improve and control
- b) Develop, Measure, Analyze, Improve and Control
- c) Define, Measure, Analysis, Implement, Control
- d) None of these

42. Main purpose of the define phase is to

- a) Select a project
- b) Select a team
- c) Decide on which data to collect
- d) Get agreement on the project's purpose, goals

43. Which part in quality management is the critical part ?

- a) Performance measurement
- b) Customer's view
- c) Systematic approach
- d) Process of thinking

44. Which of the following is false for communication in TQM ?

- a) Forceful
- b) Open involvement
- c) It should be clear
- d) 3 way communication

45. Which statement is correct for TQM ?

S1: Design of the formal system is one time effort.

S2: TQM is a management philosophy.

- a) T, T
- b) F, F
- c) F, T
- d) T, F

46. What is included in quality assessment in TQM ?

- a) Strategic quality planning
- b) Quality and operational results
- c) Management of process quality
- d) All of the above

47. Core principles of the TQM

- a) Customer and process orientation only
- b) Continuous improvement only
- c) Process orientation and continuous improvement only
- d) Continuous improvement, process and customer orientation

48. Which factor is the basis of decision making in TQM ?

- a) Opinions only
- b) Facts only
- c) Both opinions and facts
- d) Neither of them

49. Which of the following concepts are incompatible with JIT.

- a) Local optimization
- b) the EOQ model
- c) Inspect once at the end of the process
- d) All of these

50. Which of the diagrams below is the most applicable to the 80/20 rule?

- a) Pareto diagram
- b) Histogram
- c) Fishbone diagram
- d) Range chart