

BA5107 Total quality management

2mark Question with Answer

Unit-III

Statistical Process Control

1. Define SPC?

Statistical Process Control (SPC) may be defined as the application of statistical methods do the measurement and analysis of variation in any process.

2. What do you mean by measures of central tendency?

A measure of central tendency of a distribution is a numerical value that describes the central position of the data.

3. What are the three measures of central tendency?

- Mean
- Median
- Mode

4. What do you mean by measures of dispersion?

Measures of dispersion tell us how the individual observations are spread on either side of the Centre.

5. What are the three measures of dispersion?

- Range
- Mean deviation
- Standard deviation

6. Define the term reliability?

Product reliability is defined as the ability as a product to perform a required at a product to perform a required function under stated conditions.

7. What are the objectives of reliability engineering?

- To prevent failure
- To provide economics benefits
- To assist with the optimization of operating availability
- To lower the maintenance and its costs, etc.

8. Differentiate between availability and maintainability?

Availability is the probability that the system is ready to perform its stated task as and when required.

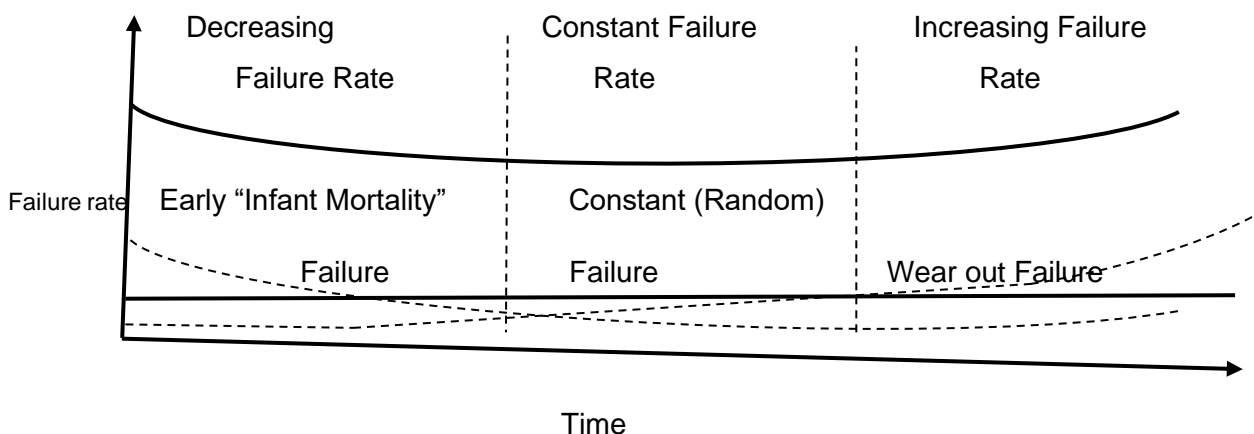
Maintainability is the probability that failed unit can be put back to satisfactory working condition within a given downtime.

9. Differentiate between MTTR and MTBF?

Mean Time To Repair (MTTR) is the average time to failure of a large sample of identical components or subsystems.

Mean Time Between Failure (MTBF) is the average time between successive failures of a system or a repairable component.

10. Draw the product life characteristics curve?



11. What is redundancy?

Redundancy is the existence of two or more means of carrying out a stated function in a given system.

12. Define maintenance?

Maintenance is defined as the management control, execution and quality assurance of activities which ensure the achievement of optimum availability and performance of a plant in order to meet business objectives.

13. What are the types of maintenance?

The four types of maintenance are:

1. Corrective or break down maintenance
2. Scheduled or routine maintenance
3. Preventive maintenance
4. Predictive maintenance

14. What do you mean by the term corrective or breakdown maintenance?

Corrective maintenance implies that repairs are made after the failure of machine or equipment.

15. Explain the term scheduled or routine maintenance?

Scheduled maintenance is a stitch-in-time procedure aimed at avoiding breakdowns. This includes all work undertaken to keep the production equipment in efficient condition. It may cover periodic inspection, cleaning, lubrication, overhaul, repair, replacement, etc.

16. What do you mean by preventive maintenance?

Preventive maintenance is carried out before the failure arises or prior to the equipment actually breaks down. It is a safety measure designed to minimize the possibility of unanticipated breakdowns and interruptions in production.

17. What do you mean by the term predictive maintenance?

In predictive technique, on the prediction of any fault, maintenance is being done. In this technique, equipments condition is measured periodically on a continuous basis. This enables maintenance staff to take a timely action such as equipment's repair and overhaul.

18. What is TPM?

TPM is the systematic execution of maintenance by all employees through small group activities. The dual goals of TPM are zero breakdowns and zero defects.

19. What are the objectives of TPM?

The objectives of TPM are:

1. To improve equipment effectiveness
2. To achieve autonomous maintenance
3. To plan maintenance
4. To train all staff in relevant maintenance skills
5. To achieve early equipment management

20. What are the six big losses?

The six big losses are:

1. Breakdowns
2. Setup and changeover
3. Idling and minor stoppages
4. Reduced speed
5. Defects and rework
6. Startup losses

21. What is the concept of 'true' TPM?

The concept of 'true' TPM is that everyone from the operator to top management is responsible for maintenance activities.

22. What do you mean by the term Tero-technology?

TPM's comprehensive role in integration of interrelated activities has been described as Tero-technology. Tero-technology is concerned with the application of managerial, financial, engineering and other skills to extend the operational life and increase the efficiency of equipment and machinery.

23. What is BPR?

Business process reengineering is the fundamental rethinking and radical redesign of business process to achieve dramatic improvements in critical, contemporary measures of performance such as cost, quality, service and speed.

24. How BPR differs from TQM?

Primary Criteria	TQM (process improvement)	BPR (process innovation)
Level of change	Incremental	Radial
Starting point	Existing process	Clean state
Frequency of change	One-time /continuous	One- time
Time required	Short	Long
Participation	Bottom- up	Top- down
Typical scope	Narrow, within functions	Broad, cross- functional
Risk	Moderates	High
Primary enabler	Statistical control	Information Technology
Type of change	Cultural	Cultural/ structural

25. What is a business process?

A business process may be defined as a series of steps designed to produce a product or a service.

26. What do you mean by process mapping?

Process mapping provides tools and proven methodology for identifying company's current As- Is business and can be used to provides a To-Be roadmap for reengineering the company's product and service business enterprise functions.

27. Mention the benefits of BPR?

1. Quantum leap in company performing
2. Inverse efficiency
3. Improved product quality
4. Reduced costs
5. Shared data and information

28. Mention the specific use of up- chart?

Specific use of up- chart as:

The up- chart focuses on the number of nonconforming items when the sample size is constant.

29. What is process capability index?

Process capability index or process capability ratio is a statistical measure of process capability the ability of a process to product output within specification limits.

30. What is flowchart?

A flow chart is formalized graphic representation of a logic sequence, work or manufacturing process, organization chart, or similar formalized structure. The purpose of a flowchart is to provide people with a common language or reference point when dealing with a project or process.

Flowcharts use simple geometric symbols and arrows to define relationships. In programming for instance, the beginning or end of a program is represented by an oval. A process is represented by a rectangle, a decision is represented by a diamond and an I/O process is represented by parallelogram.

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