Set – B

Part – A

1 a) **Statistical quality control** - **statistical quality control**, the use of statistical methods in the monitoring and maintaining of the quality of products and services. One method, referred to as acceptance sampling, can be used when a decision must be made to accept or reject a group of parts or items based on the quality found in a sample. A second method, referred to as statistical process control, uses graphical displays known as control charts to determine whether a process should be continued or should be adjusted to achieve the desired quality.

 **b) Explain Five S’s -** The 5S quality tool is derived from five Japanese terms beginning with the letter "S" used to create a workplace suited for visual control and lean production. The pillars of 5S are simple to learn and important to implement:

* Seiri: To separate needed tools, parts, and instructions from unneeded materials and to remove the unneeded ones.
* Seiton: To neatly arrange and identify parts and tools for ease of use.
* Seiso: To conduct a cleanup campaign.
* Seiketsu: To conduct seiri, seiton, and seiso daily to maintain a workplace in perfect condition.
* Shitsuke: To form the habit of always following the first four S’s.

**c) Process mapping -** It is an important used in DMAIC/MAIC. Process mapping helps in identifying the input and output of the process and effectively minimize variations in the process. The main purpose of using process mapping is to have an accurate and detailed representation of the whole process system using a standard tool flowchart which shows the operations, decision points, delays, movements etc.

**d) Activity Based Costing -** Activity-based costing (ABC) is a [costing](https://en.wikipedia.org/wiki/Costing) method that identifies activities in an organization and assigns the cost of each activity to all products and services according to the actual consumption by each. Therefore this model assigns more [indirect costs](https://en.wikipedia.org/wiki/Indirect_costs) ([overhead](https://en.wikipedia.org/wiki/Overhead_%28business%29)) into [direct costs](https://en.wikipedia.org/wiki/Direct_costs) compared to conventional costing.

**e Pareto Analysis –** It's based on the Pareto Principle (also known as the 80/20 Rule) – the idea that 80 percent of problems may be the result of as little as 20 percent of causes. To use Pareto Analysis, you first need to identify and list the problems that you face, and their root causes.

**Part – B**

**2 a Explain the concept ISO 9000 and its significance.**

**Ans)** ISO 9000 is a series of standards, developed and published by the International Organization for Standardization (ISO). It defines, establishes and maintains an effective quality assurance (QA) system for manufacturing and service industries

Significance - ISO 9000 is significant both internally and externally.

Internal significance

1. It acts as a medium for sustaining quality improvements
2. It provides basis for improving the quality of products continuously.
3. It helps improve quality of products by including the non-manufacturing areas
4. It increases the confidence level of employees
5. It helps the firm to decrease the cost of production by reducing and avoiding wastages.
6. It provides the firm with an effective world-class management system for achieving excellent performance.

External Significance

1. Provides customer satisfaction by providing quality products
2. Boosts confidence level of customers
3. A firm can freely enter into export and domestic market through ISO 9000 certification.
4. Helps in maintaining and increasing confidence level of the organization with the stakeholders.

**b Write in detail about European Quality Award.**

**Ans)** The European Quality Award is now referred to as the [EFQM Excellence Award](https://en.wikipedia.org/wiki/EFQM_Excellence_Award). This distinction is awarded annually by the [European Foundation for Quality Management](https://en.wikipedia.org/wiki/EFQM) to the organisation that is the best proponent in Europe of [Total Quality Management](https://en.wikipedia.org/wiki/Total_quality_management).

The nine first-level categories of the EQA model are:

Leadership

 Policy and strategy

People management

Resources, processes

Customer satisfaction

People satisfaction

Impact on society

Business results.



**3 a A record shows the data regarding the returned shipment during a month**

 **Wrong selection: 82,000 Refused: 2,22,000**

 **Wrong address: 76,000 order cancelled: 9,300 Other : 26,500**

 **Construct the pareto diagram**

Particulars of returned shipments Frequency % of Total

 Wrong Selection 82,000 19.72

 Refused 2,22,000 53.4

 Wrong address 76,000 18.28

 Ordered Cancelled 9.300 2.23

 Others 26,500 6.37

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 Total 4,15,800 100

Wrong selection = 82,000\*100 = 19.72%

 4,15,800

Refused = 2 ,22,000\*100 = 53.4%

 4,15,800

Wrong address = 76,000\*100 = 18.28%

 4,15,800

Ordered Cancelled = 9300\*100 = 2.23%

 4,15,800

Others = 26,500\*100 = 6.37%

 4,15,800

Draw graph

**b. State the benefits of quality circles.**

**Ans)**

**Self-**[**development**](https://hrmpractice.com/tag/development/)**:** QC’s assist self-[development](https://hrmpractice.com/tag/development/) of [members](https://hrmpractice.com/members/) by improving self-confidence, attitudinal change, and a sense of accomplishment.
**Social**[**development**](https://hrmpractice.com/tag/development/)**:** QC is a consultative and participative programme where every [member](https://hrmpractice.com/member/) cooperates with others. This interaction assists in developing harmony.
**Opportunity to attain knowledge:** QC [members](https://hrmpractice.com/members/) have a chance for attaining new knowledge by sharing opinions, thoughts, and experience.
**Potential Leader:** Every [member](https://hrmpractice.com/member/) gets a chance to build up his [leadership](https://hrmpractice.com/leadership/) potential, in view of the fact that any [member](https://hrmpractice.com/member/) can become a leader.
**Enhanced**[**communication**](https://hrmpractice.com/communication/)**skills:** The mutual problem solving and presentation before the [management](https://hrmpractice.com/management/) assists the [members](https://hrmpractice.com/members/) to develop their [communication](https://hrmpractice.com/communication/) skills.
**Job-**[**satisfaction**](https://hrmpractice.com/satisfaction/)**:** QC’s promote creativity by tapping the undeveloped intellectual skills of the individual. Individuals in addition execute activities diverse from regular work, which enhances their self-confidence and gives them huge [job satisfaction](https://hrmpractice.com/job-satisfaction/).
**Healthy work environment:**QC’s creates a tension-free atmosphere, which each individual likes, understands, and co-operates with others.

**Benefits to the organization** :

a) Improve – employee & employer relationship.

 b) Develop – participative culture & team spirit.

c) Reduce – work related errors & cost.

d) Increase – productivity.

e) Improve – quality of the goods & services.

f) Leads – towards the better efficiency.

g) Catalyze – attitudinal change.

h) Save – amount of time

**4 a What are the advantages and disadvantage of QFD?**

Ans)Advantages

1. Focuses on customer needs
2. Flexible and easily adaptable process
3. Converts customer’s requirements into product design and process
4. Involves customers right from designing of product till manufacturing
5. Reduces product development cycle time
6. Reduces engineering costs
7. Improves product quality
8. Helps in gaining competitive advantage
9. Recognizes high risk
10. Promotes multi-disciplinary teamwork.

Disadvantages

1. In case of new market, it is very difficult to determine the customers requirements.
2. Tedious and time consuming process
3. Results in conflicts between teams
4. It does not make use of various tools

**b Define Kanban and discuss its process.**

**Ans)** Kanban is a popular Lean workflow management method for defining, managing, and improving services that deliver knowledge work. It helps you visualize work, maximize efficiency, and improve continuously.

**Implementation Process**

1. Collection of data
2. Calculating the Kanban size
3. Designing the Kanban
4. Training everyone
5. Starting theKanban
6. Auditing and maintaining of Kanban
7. Improving Kanban
8. Application of Kanban

**5 a Describe the DMAIC model in detail.**

Ans) The DMAIC model is one of the most popular and widely used methods to improve business functions or entire organizations. But, what does DMAIC stand for?

### The DMAIC methodology consists of five phases, namely, Define, Measure, Analyze, Improve, and Control. These phases form the pillars of the DMAIC framework, allowing us to improve an existing business function or an entire organization to achieve improvement and effectiveness. Define:

### The Define phase is one of the crucial steps in the DMAIC approach, as it deals with defining the problem. The issue, or “Y,” must be well-defined and should be in tune with the organization’s goal. Then, after having a quantifiable and understandable problem definition, work towards factors that affect the process. This leads you to create an effective problem statement and define the variables that directly affect your goal.

### Measure

### This phase deals with breaking down our issue “Y” into a concise and easily identifiable output. Also, the key inputs or variables are further filtered to segregate in terms of their influence on “Y”. With this phase, we leave with a measurable “Y” and key inputs that directly affect the issue. This is achieved via creating an operational definition, and measurement plan, along with data collection and analyzing it. This phase involves using the Cause and Effect Matrix, FMEA, etc.

### Analyze

### In this phase, we work towards streamlining the process, and isolating the errors that need to be corrected. The Analyze phase helps us understand the gap between current performance and the expected level of performance. This phase is important as it allows us to drill deep into the core of the issue. This enables us to get insights that are often missed as they are embedded deep into the process. The project is then simplified, and you have a clear picture of the project’s achievable goal(s).

### Improve

The Improve phase focuses on, you guessed it, improvement! But this is one of the most challenging phases of the DMAIC process. From the analyze phase, we receive the root causes of problems. Now we turn towards fixing them. This phase pushes you to think of out-of-the-box solutions that are innovative and consistent. You need to do this because one function or process affects the others with a certain change. It is your job to make sure it runs smoothly, with a laid-out plan and process map.

### Control

This phase and its success directly correlates with how successful we are with the previous four phases. This phase is mainly associated with the performance or input changes as derived from the previous phases. Thus, if all things look good, the main task is to make sure that the process or function is always in control. This involves creating a process control plan, educational requirements (if any), etc. Therefore, make sure the key variables are always in the accepted range of variance.

**b What are the steps in six sigma designing?**

**Ans)**

1. Emphasize on the outcomes
2. Retain customers
3. Plan properly
4. Identify the commitment company wide
5. Involvement of company leaders
6. Delegate power to the human resources
7. Provision of on-site mentoring to black belts
8. Selecting the consultants
9. Hold high patience
10. Advertise the success of six sigma
11. Practice Benchmarking
12. Set project baseline and goals.

**6 a) Explain the role of TQM in investment company**

**Ans)**

TQM plays an important role in investment company. The self assessment process should be developed on the basis of TQM which helps the firm in guiding the firm for improving the quality. The assessment process will be developed on the basis of seven aspects of TQM i.e leadership, information and analysis, strategic planning, human resource development and management, process management, business results and customer focus and satisfaction.

Four key components are necessary for assessment

It should be done on the basis of the TQM criteria

It should be an employee oriented attempt

It should be developed by taking an assistance from the consulting firm

It should be evaluated externally by an external examiner

In an investment company, line operations deal with operating as well as quality costs. Operating costs involved in offering the services to the external customers where as , the quality costs are the combination of costs of errors and costs of inspection and prevention errors. Quality costs are divided into four types – internal failure, external failure, appraisal and prevention.

**b Discuss TQM implementation in Health care services.**

**Ans)** TQM is implemented in health careservices for the purpose of

1. Increasing market share and profitability
2. Enhancing customer satisfaction
3. Enhancing the work quality and minimizing costs
4. Enhancing employee relations

 **The following elements are focused**

Structure

Policy deployment

Training

Monitoring – Gathering complete information about the organization

Environment

Quality Result

Successful integration – Integration of strategy and culture

Using charts and Diagrams – uses fishbone diagram, contol charts

Monitoring Sedation Levels

**7 a) Explain the benefits and Costs of TQM.**

**Ans) Benefits Costs**

1. Improved Quality Failure Costs
2. Employee Participation Appraisal Costs
3. Team work Prevention Costs
4. Working relationship Hidden Costs
5. Customer Satisfaction
6. Employee satisfaction
7. Productivity
8. Communication
9. Profitability
10. Market share

**b) Explain in detail about Force Field Analysis**

**Ans)** The force field analysis is a widely-used [change management model](https://creately.com/blog/diagrams/change-management-tools-list/); it works as a diagnostic tool and a powerful decision-making tool during change planning.

One can use it to identify – by visually mapping – the driving forces and restraining forces for and against the initiative and thus work on leveraging the factors in favor while reducing the unfavorable ones to ensure the successful implementation of the change plan.

The [force field analysis tool](https://creately.com/usage/force-field-analysis-examples-templates/) was developed as a [change management model](https://creately.com/usage/kurt-lewin-change-model/)in 1951 by the German-American psychologist, Kurt Lewin who is also known for being a founder of modern psychology. Today, the tool is even widely used to inform business decision-making.

The basic idea behind the force field analysis is that a certain given situation remains the way it is because of counterbalancing forces, or because of the state of equilibrium between forces that drive change and oppose change.

In order to promote change, either the driving forces should be strengthened or the resisting forces should be weakened.

#### Steps in Force Field Analysis Assess the current situation

#### Define the objective

#### Identify the driving forces

#### Identify the restraining forces

#### Evaluate the forces

**8 a Discuss the merits and demerits of ABC.**

**Ans) Merits**

* Accurate Product Cost: ...
* Information about Cost Behaviour: ...
* Tracing of Activities for the Cost Object: ...
* Tracing of Overhead Costs: ...
* Better Decision Making: ...
* Cost Management: ...
* Use of Excess Capacity and Cost Reduction: ...
* Benefit to Service Industry

Demerits

* Time Consuming
* Expensive
* Transparency
* Technical Limitations

**b Design an organization structure for six sigma.**

**Ans)** Six sigma organization should make sure that the top management and all the organizational employees participate in the organizational activities for making the process of six sigma successful.

 Apex Council

 Sponsor Champions

####  Master black belt

 Black belt (Six sigma organization structure)

 Green belt

 Team members

Apex council – Highest authority which consists of heads of the functions. The chairman of this council is CEO

Sponsor – Helps in reviewing and monitoring the growth of the project on a regular basis.

Champion – Sets the vision and takes the business decisions.

Master Black Belt- He is the person who had completed the black belt certification and had guided nearly 15 projects for completion.

Black Belts - He is the person who had completed the black belt certification and had guided nearly 4 projects .

Green Belt - He is the person who had completed the Green belt certification and attained at least one process improvement project effectively.

Team Members – Is a fresher who receives a six sigma project after completion of his training.

**9 a) Discuss the components of service system quality and approaches to quality**

 **Management in services.**

 **Ans) Components of Service System Quality**

1. Employees – The quality of human contact acts as the basis for the customers for assessing the service quality. Job satisfaction of service employee is directly elated with the customer satisfaction.
2. Information Technology – It plays an important role in modern service organizations as it has the potential to process higher volumes of information and serves the customers demanding service at increased speed.

Approaches to Quality Management

1. Product attributed approach – The customers assess the compliance of the product with the standardized requirement. This approach concentrates on reliability, durability, conformance, Performance, features, aesthetics and serviceability.
2. Consumer Oriented Approach – Also called as User based approach. This approach assumes that quality is what the customer perceives.

**b) Explain the role played by TQM in the success of financial services.**

Ans) Financial service sector has contributed significantly in the economic development of our country. Financial service basically includes several organizations like banks, investment agencies, insurance agencies etc.

In financial services, managers and staff are associated with each other. The customer and employee play an important role. Financial companies emphasizes upon enhancing the different attributes of service products.

The main objective of determining the success of TQM in financial service is to recognize and take appropriate actions for the areas that needs greater attention. The success of TQM can be understood with the help of determining three main elements of the TQM program

1. Top management
2. External customers
3. Management Team