Rajasthan Institute of Engineering &amp; Technology, Jaipur

University Roll No. \_\_\_\_\_\_\_\_\_\_\_\_\_\_

1 st Year MBA 2 nd Semester II Mid-Term Examination, Feb – 2019

Subject: -operation and supply management SET- B

Time: - 2 Hrs. [Maximum Marks: -20]

[Min. Passing Marks: 08]

Instructions to the Candidates:

Attempt any 4 questions from Section A and Section B is Compulsory.

Section A

**1. What is supply management? (3)**

Supply management is the act of identifying, acquiring and managing the resources and suppliers that are essential to the operations of an organization. Also known as "[procurement](https://www.investopedia.com/terms/p/procurement.asp)," supply management includes the purchase of physical goods, information, services and any other necessary resources that enable a company to continue operating and growing. The main goals within supply management are cost control, the efficient allocation of resources, risk management, and the effective gathering of information to be used in strategic business decisions.

**2. What is productivity and competitiveness? (3)**

While competition refers to the nature and quality of rivalry, competitiveness refers to the outcome — who wins and who loses. In any industry, the most competitive firms survive and provide the benefits of competition to their investors, employees, customers and host societies. Public policy must deal with competitiveness in developing policies designed to enhance a country's ability to achieve its primary economic goal, which is to assure a rising standard of living for its citizens.

Productivity measures the efficiency with which the resources available to an economy, such as labour, capital and business expertise, are being used to produce goods and services. The challenge for any country is to strengthen the key determinants of productivity growth — in colloquial terms, to get "more bang for the buck." Productivity is **not** about working harder for less. It is about working smarter to earn more.

Working smarter in terms of labour productivity can be achieved in many ways, for example, by equipping employees with more machinery and equipment, by having employees acquire greater skills through education, training or on-the-job experience, or by adopting advanced technologies.

**3. What is work measurement ? (3)**

Work measurement is concerned with the determination of the amount of time required to perform a unit of work. Work measurement is very important for promoting productivity of an organization. It enables management to compare alternate methods and also to do initial staffing. Work measurement provides basis for proper planning.

Since it is concerned with the measurement of time it is also called ‘Time Study’. The exact examination of time is very essential for correct pricing. To find the correct manufacturing time for a product, time study is performed. To give competitive quotations, estimation of accurate labour cost is very essential. It becomes a basis for wage and salary administration and devising incentive schemes.

**4. What is facility layout? Discuss (3)**

Facility layout is an arrangement of different aspects of manufacturing in an appropriate manner as to achieve desired production results. Facility layout considers available space, final product, safety of users and facility and convenience of operations.

An effective facility layout ensures that there is a smooth and steady flow of production material, equipment and manpower at minimum cost. Facility layout looks at physical allocation of space for economic activity in the plant. Therefore, main objective of the facility layout planning is to design effective workflow as to make equipment and workers more productive.

Facility Layout Objective

A model facility layout should be able to provide an ideal relationship between raw material, equipment, manpower and final product at minimal cost under safe and comfortable environment. An efficient and effective facility layout can cover following objectives:

* To provide optimum space to organize equipment and facilitate movement of goods and to create safe and comfortable work environment.
* To promote order in production towards a single objective
* To reduce movement of workers, raw material and equipment
* To promote safety of plant as well as its workers
* To facilitate extension or change in the layout to accommodate new product line or technology upgradation
* To increase production capacity of the organization

**5. What is six sigma quality? (3)**

Six Sigma is a disciplined, statistical-based, data-driven approach and continuous improvement methodology for eliminating defects in a product, process or service. It was developed by Motorola and Bill Smith in the early 1980’s based on quality management fundamentals, then became a popular management approach at General Electric (GE) with Jack Welch in the early 1990’s. The approach was based on the methods taught by [W. Edwards Deming](http://leansixsigmadefinition.com/glossary/w-edwards-deming/), [Walter Shewhart](http://leansixsigmadefinition.com/glossary/walter-shewhart/) and [Ronald Fisher](http://leansixsigmadefinition.com/glossary/ronald-fisher/) among many others. Hundreds of companies around the world have adopted Six Sigma as a way of doing business.

Sigma represents the population standard deviation, which is a measure of the [variation](http://leansixsigmadefinition.com/glossary/variation/) in a data set collected about the process. If a defect is defined by specification limits separating good from bad outcomes of a process, then a six sigma process has a process mean (average) that is six standard deviations from the nearest specification limit. This provides enough buffer between the process natural [variation](http://leansixsigmadefinition.com/glossary/variation/) and the specification limits.

**6. Reasons of Make or buy decisions ? (3)**

* Cost considerations (less expensive to make the part)
* Desire to integrate plant operations
* Productive use of excess plant capacity to help absorb fixed overhead (using existing idle capacity)
* Need to exert direct control over production and/or quality
* Better quality control
* Design [secrecy](https://www.referenceforbusiness.com/knowledge/Secrecy.html) is required to protect proprietary technology
* Unreliable suppliers
* No competent suppliers
* Desire to maintain a stable workforce (in periods of declining sales)
* Quantity too small to interest a supplier
* Control of lead time, transportation, and warehousing costs
* Greater assurance of continual supply
* Provision of a second source
* Political, social or environmental reasons (union pressure)
* Emotion (e.g., pride)

Factors that may influence firms to buy a part externally include:

* Lack of expertise
* Suppliers' research and specialized know-how exceeds that of the buyer
* cost considerations (less expensive to buy the item)
* Small-volume requirements
* Limited production facilities or insufficient capacity
* Desire to maintain a multiple-source policy
* Indirect managerial control considerations
* Procurement and inventory considerations
* [Brand preference](https://www.referenceforbusiness.com/knowledge/Brand_preference.html)
* Item not essential to the firm's strategy

**Section B**

1. **Write short note on capacity planning? (4)**

Capacity is defined as the ability to achieve, store or produce. For an organization, capacity would be the ability of a given system to produce output within the specific time period. In operations, management capacity is referred as an amount of the input resources available to produce relative output over period of time.

in general, terms capacity is referred as maximum production capacity, which can be attained within a normal working schedule.

Capacity planning is essential to be determining optimum utilization of resource and plays an important role decision-making process, for example, extension of existing operations, modification to product lines, starting new products, etc.

### Strategic Capacity Planning

A technique used to identify and measure overall capacity of production is referred to as strategic capacity planning. Strategic capacity planning is utilized for capital intensive resource like plant, machinery, labor, etc.

Strategic capacity planning is essential as it helps the organization in meeting the future requirements of the organization. Planning ensures that operating cost are maintained at a minimum possible level without affecting the quality. It ensures the organization remain competitive and can achieve the long-term growth plan.

### Capacity Planning Classification

Capacity planning based on the timeline is classified into three main categories long range, medium range and short range.

Long Term Capacity**:** Long range capacity of an organization is dependent on various other capacities like design capacity, production capacity, sustainable capacity and effective capacity. Design capacity is the maximum output possible as indicated by equipment manufacturer under ideal working condition.

Production capacity is the maximum output possible from equipment under normal working condition or day.

Sustainable capacity is the maximum production level achievable in realistic work condition and considering normal machine breakdown, maintenance, etc.

Effective capacity is the optimum production level under pre-defined job and work-schedules, normal machine breakdown, maintenance, etc.

Medium Term Capacity**:** The strategic capacity planning undertaken by organization for 2 to 3 years of a time frame is referred to as medium term capacity planning.

Short Term Capacity: The strategic planning undertaken by organization for a daily weekly or quarterly time frame is referred to as short term capacity planning.

### Goal of Capacity Planning

The ultimate goal of capacity planning is to meet the current and future level of the requirement at a minimal wastage. The three types of capacity planning based on goal are lead capacity planning, lag strategy planning and match strategy planning.

### Factors Affecting Capacity Planning

Effective capacity planning is dependent upon factors like production facility (layout, design, and location), product line or matrix, production technology, human capital (job design, compensation), operational structure (scheduling, quality assurance) and external structure ( policy, safety regulations)

**2. Write short note on (4)**

**a) Behavioural consideration in job design**

The effectiveness of jobs depends on the behavior of employees toward that job. Behavioral approach is concerned with behavioral factors such as autonomy, variety, task identity, task significance, feedback mechanism etc. The job itself should be sufficient to motivate employees. It means the above mentioned behavioral factors are analyzed and considered while designing the jobs under this approach. This approach of job design is called behavioral approach. This means the behavioral approach to job design analyzes the considers some behavioral aspects of employees like autonomy, variety, task identity, task significance, feedback mechanism, etc.

So, the behavioral aspects of the employees should be included while designing jobs. The different behavioral methods are as follows:

* Job Enrichment: It is concerned with the process of putting specialized tasks together so that the individual who is assigned with the task is responsible to perform the whole task.
* Job Characteristics: This method states that job characteristics affect the job designing process. It focuses on job redesign, work structuring, job enrichment, and so on to improve organizational productivity and quality of work life of employees.
* Autonomous Team: It is a group of workers in which they solve problems, implement the solution and take full responsibility for outcomes. They are self-directed and self-managed work groups who perform related or interdependent tasks.
* Modified Work Schedule: It is a technique of job design through which the working schedules, timing, work week etc. are rescheduled as per the convenience of the workers.

**b) ISO 14000**

ISO 14000 is a series of environmental management standards developed and published by the International Organization for Standardization ( [ISO](https://searchdatacenter.techtarget.com/definition/ISO) ) for organizations. The ISO 14000 standards provide a guideline or framework for organizations that need to systematize and improve their environmental management efforts. The ISO 14000 standards are not designed to aid the enforcement of environmental laws and do not regulate the environmental activities of organizations. Adherence to these standards is voluntary.

The ISO 14001 standard is the most important standard within the ISO 14000 series. ISO 14001 specifies the requirements of an environmental management system (EMS) for small to large organizations. An EMS is a systemic approach to handling environmental issues within an organization. The ISO 14001 standard is based on the Plan-Check-Do-Review-Improve cycle.

The Plan cycle deals with the beginning stages of an organization becoming ISO 14001-compliant. The Check cycle deals with checking and correcting errors. The Do cycle is the implementation and operation of the ISO 14001 standard within an organization. The Review cycle is a review of the entire process by the organization's top management. And the Improve cycle is a cycle that never ends as an organization continually finds ways to improve their EMS.

The entire process can take several months to several years depending on the size of the organization. If an organization is already ISO 9000-certified, the implementation of ISO 14001 does not take as long. When an organization is compliant, they can either register with a third-party registrar or self-declare their compliance. The ISO 14001 standard is the only ISO 14000