

Question Pattern & Suggestion

Su Mo Tu We Th Fr Sa

IPE

Date 01/02/2024

IPE semester final question
Patter (PART B):

SIR

- Motivation leadership
 - ↳ scenario based
- Quality
 - ↳ math
- HRM, Supplychain, Organisational Design.
 - ↳ normal, strengthen ques.

- 3 set out of 4.
- Mixed chapter ques.

for both
PART A &
PART B

Qubits 45

Part A

Math List

Budget, Scheduling, Workstation, MRP, Break-Even Analysis

Math Video

[Successor & MRP Math Video](#)

[Break Even Analysis Math Video](#)

Math PDF

 [IPE Part A All Math.pdf](#)

 [Work Station Math.pdf](#)

Theory By Paul

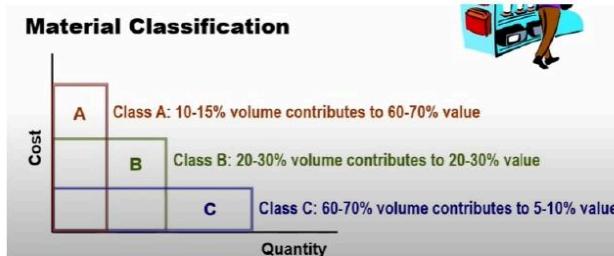
Inventory

Three types of costs associated with maintaining inventory:

- **Holding cost:** This is the cost of keeping inventory in storage. It includes rent for the storage space, insurance, taxes, the cost of perishable items going bad, items becoming outdated or obsolete, and the cost of the money tied up in stock that could have been used elsewhere (opportunity cost), manage employee cost, electricity cost, room rent.
- **Ordering cost:** These are the costs involved in placing orders for new inventory. This includes the administrative expenses of processing orders, the cost of shipping, receiving, and handling the inventory, and potentially the cost of production setup if the items are being manufactured.
- **Shortage cost:** Also known as stockout cost, this is the cost incurred when inventory runs out. It includes lost sales if customers go elsewhere, backorder costs if you have to fulfill orders at a later date, and potentially the loss of customer goodwill or damage to the business's reputation.

Four main functions of inventory:

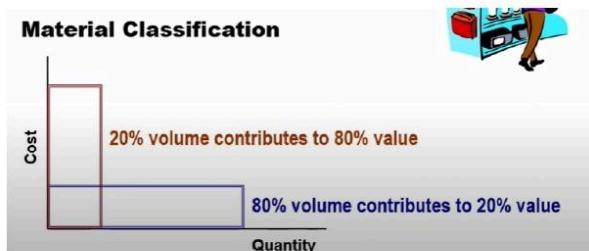
- **To meet anticipated demand:** This means keeping enough products in stock to satisfy what your customers are expected to buy. By predicting how much will be sold, a business ensures that it has sufficient products to meet that demand.
- **To smooth production requirements – seasonal:** If a product is in more demand during certain times of the year (like ice cream in summer or heaters in winter), businesses keep extra stock during off-peak times to prepare for these seasonal spikes in sales. This helps keep production steady even when sales fluctuate.
- **To protect against stockouts:** A stockout occurs when there is no more product available for sale. Keeping inventory helps prevent these situations, ensuring that customers can always find what they need and sales aren't lost.
- **To take advantage of quantity discounts:** Often, suppliers offer discounts if you buy in large quantities. By purchasing more products at once for inventory, a business can save money per unit, which can reduce overall costs.



Class A items are the most valuable, even though they account for a small percentage of the total number of items in the inventory (10-15%), they represent a large portion of the inventory value (60-70%). These items require close management and tracking. **Vaccine**

Class B items strike a balance between A and C. They are moderately important in terms of cost and quantity, accounting for 20-30% of the inventory items and contributing to 20-30% of the inventory value. **Garments Cloths**

Class C items are the least valuable; they make up the majority of the inventory items (60-70%) but only contribute to a small portion of the inventory value (5-10%). These items typically require simpler controls and management. **Bricks, sands**



80/20 rule, as it applies to material or inventory classification. This principle states that a small percentage of items (in this case, 20% of the volume) often represents a large portion of the value (80% of the total value), and vice versa.

In inventory management, this suggests that a relatively small number of items typically contribute the majority of the inventory cost or value, and these are the items that should receive the most attention in terms of management and optimization. Conversely, a large number of items will contribute only a small portion to the total value, indicating that they are less critical and can be managed with less effort. This concept is useful for prioritizing inventory control activities and streamlining processes to focus on the most impactful areas.

Why is having less classes important?

Having fewer classes in inventory (or any other classification system) is important because it simplifies management, reduces complexity, and improves focus on critical areas. This can lead to more efficient use of resources and better decision-making.

- **Allocate resources better:** More time, effort, and capital can be put into securing and managing the high-value Class A items that drive the majority of the revenue.
- **Improve decision-making:** With a simplified classification system, managers can make quicker and more informed decisions without getting bogged down by the details of a plethora of minor items.
- **Increase efficiency:** Processes can be optimized for each class based on its impact on the business, leading to overall operational efficiency.
- **Reduce costs:** By not over-investing in managing low-impact items, the company can reduce costs related to storage, ordering, and management.

Budget

|Committed and actual budget lines are important in time-phased budget-why?

- **Committed Budget:** This is like the money you've already spent on materials you haven't used yet. Let's say you buy all your wood in June, even though you'll be building the treehouse throughout July and August.

Why it's important: Knowing how much you've already spent helps you plan for the rest of the summer. You won't accidentally spend that money on something else, like a new skateboard, because you remember that it's already set aside for the treehouse.

- **Actual Budget:** This is the total amount of money you actually end up spending on the treehouse. So, at the end of the summer, you look back at how much you spent on wood, nails, paint, etc.

Why it's important: This tells you if you stayed within your summer allowance. Did you go over budget and have to do extra chores to afford it all, or did you save some money that you can now use for something else?

In a time-phased budget for a project, keeping track of both the committed and actual budgets over time makes sure you're not spending too much too soon and that you have enough money to finish the project as planned.

Facility Layout

Product Layout Description: (For Assembly line)

- **Standardized Processing Operations:** The layout is optimized for the smooth flow of materials through a sequence of standard operations, each designed to progressively assemble or manufacture a product.
- **High Volume Flow:** The goal is to achieve a rapid production rate with minimal delays between steps.
- **Specialization:** Workers and equipment are specialized in particular tasks, which enhances efficiency and skill development but can also make the work less varied and interesting.

Advantages of Product Layout:

- **High Rates of Output:** Product layout can lead to a high volume of products being produced because of the streamlined process.
- **Low Unit Cost:** Since the production volume is high, the cost of producing each unit is reduced.
- **Low Material Handling Time:** Materials move quickly from one station to the next without backtracking or delays.
- **High Utilization of Labor and Equipment:** Workers and machines are specialized in specific tasks, leading to fewer downtimes and increased efficiency.

Limitations of Product Layout:

- **Repetitive Work:** The tasks are monotonous, leading to boredom and potential fatigue among workers.
- **Inflexible System:** The layout is designed for a specific product and set of processes, so it's hard to adapt to new products or changes in production.
- **Susceptible to Breakdown:** If one part of the line breaks down, it can halt the entire production process.

The **process layout**, also known as a functional layout, is where similar processes or functions are grouped together. For example, all drilling machines are in one area of the shop, and all lathes are in another. This kind of layout is designed to process items or provide services that involve a variety of processing requirements, making it flexible for handling a wide range of products or services but less efficient for any single one.

The example given with the medical equipment (X-ray, Ultrasound, ECG, and Pathology) illustrates a healthcare setting where a process layout is used. Each type of equipment is used for different diagnostic purposes, so they are grouped by function. A patient would move to the specific equipment needed for their particular diagnostic test. This setup allows a hospital to handle various patient needs efficiently, although it might require patients to move between

different areas for different tests, which can be less efficient than if all tests were done in a single location.

Advantages of Process Layout:

- **Versatility:** It can handle a variety of processing requirements, which makes it suitable for facilities that produce different products or services.
- **Resilience to Breakdowns:** The layout is not particularly vulnerable to equipment failures because there are usually multiple machines capable of performing the same process.
- **Maintenance:** General-purpose equipment is easier to maintain due to its commonality and the versatility of the tasks it can perform.

Limitations of Process Layout:

- **Cost:** There can be high inventory costs, especially for batch processing, because different products may require different processing, leading to a build-up of inventory.
- **Complex Scheduling:** Routing and scheduling can be complex and challenging since different products may require different process paths and times.
- **Underutilization:** Equipment utilization rates can be low because machines might not be used all the time as they wait for different products to be processed.
- **Inefficiency:** Material handling can be slow and inefficient, as products might need to move back and forth between different processes.

Fixed Position Layout:

- In a Fixed Position Layout, the product being worked on remains stationary, and the workers, materials, and equipment are moved around it.
- This type of layout is necessary when the product is too large, heavy, or bulky to move, such as ships, large aircraft, or buildings.
- The benefit of this layout is that it avoids the complexities and risks associated with moving large objects.
- The challenge, however, is coordinating all the work since multiple tasks may need to be performed simultaneously in the same space.

Cellular Layout:

- A Cellular Layout groups machines into cells, each of which is dedicated to a specific set of processes needed for a set of similar items.
- It is a hybrid system that can incorporate the principles of both product and process layouts.
- Each cell operates as a small "mini-factory" with all the equipment needed to complete a component or group of similar components.

- The advantages of a cellular layout include reduced setup times, shorter material flow paths, and the ability to adapt quickly to changes in production.
- It's particularly effective for manufacturing environments that produce a variety of similar products requiring different operations.

Q:

2. Describe the reasons behind the inflexibility of product layout.

Product layouts can be inflexible for several reasons:

- **Dedicated Equipment:** The machinery is often specialized for a specific sequence of operations.
- **High Setup Costs:** Changing the layout or retooling equipment for different products can be costly and time-consuming.
- **Linear Dependency:** If one workstation in the line experiences a breakdown or delay, it can stop the entire production process.

Q:

2. Describe the advantages and disadvantages of U -shaped layout over Product Layout .

A U-shaped layout is a specific type of product layout optimized for human and material flow. It allows workers to handle multiple tasks without moving long distances, facilitating a quick response to problems or changes in the production process.

Advantages of U-shaped layout over traditional straight-line product layout:

- **Improved Communication:** Workers face each other, which promotes easier communication and teamwork.
- **Better Access:** A U-shaped layout often allows one worker to operate several machines without moving much, increasing efficiency.
- **Flexible Staffing:** It is easier to add or remove workers as needed to match production demands.

Disadvantages of U-shaped layout:

- **Space Requirements:** It might require more floor space than a straight-line layout.

- **Complex Setup:** The initial setup of a U-shaped line can be more complex as it requires careful planning to ensure that all parts of the process are accessible.

Q:

2. Which type of layout is more efficient for an assembly line? Also briefly explain the reasons.
 - **Streamlined Workflow:** Workstations are arranged according to the production process, minimizing movement of parts and reducing handling time between stages.
 - **Specialization:** Workers can specialize in specific tasks, improving their speed and proficiency.
 - **Equipment Utilization:** Machines are arranged for maximum efficiency, often allowing for continuous operation and high utilization rates.
 - **Simplicity of Routing:** Materials move in a simple and direct path from start to finish, which simplifies scheduling and reduces confusion.
 - **Easier Supervision:** The linear nature of the process makes it easier to manage and supervise.

Q:

2. Briefly describe the importance of Line balancing in a factory floor.

Line balancing is crucial on a factory floor because it aims to distribute the workload evenly across all operations in the assembly line. The goal is to ensure that every workstation has the right amount of work—no more, no less—so that there are no bottlenecks or idle times.

Here's why it's important:

- **Maximizes Efficiency:** It prevents delays and minimizes waiting times between processes, ensuring that each step in the assembly line flows smoothly into the next without interruptions.
- **Increases Output:** By balancing the line, each workstation can operate continuously, which can increase the overall production rate.
- **Reduces Labor Costs:** Well-balanced lines can reduce the need for excess labor and prevent the overburdening of certain workers, which can decrease costs and improve employee morale.

- **Improves Utilization:** It ensures that all workers and machines are utilized to their full potential, which can decrease the need for additional equipment and space.
- **Facilitates Smooth Production:** A balanced line can handle production rate changes more easily. If the demand increases, a balanced line can adapt without significant disruptions or the need for major changes.

MRP

Material Requirement Planning (MRP) is a computerized system that helps manage inventory by keeping track of what materials are needed for production and scheduling when to reorder them. It ensures that the right materials are available at the right time, preventing shortages or excess stock. MRP streamlines the production process by coordinating and optimizing the flow of materials, making it easier for businesses to meet their production needs efficiently.

- Inventory Management:
 - Right Part:** Ensuring that the correct components or materials are available.
 - Right Quantity:** Determining the appropriate quantity of materials to meet production needs.
 - Right Time:** Scheduling replenishment orders at the right time to avoid stockouts or excess inventory.
- Capacity Planning:
 - Complete Load:** Assessing and managing the production capacity to ensure it is fully utilized without overloading or underutilizing resources.
- Priority Management:
 - Due Date:** Prioritizing orders based on their due dates to meet customer deadlines and maintain a smooth production flow.
- Overall Goal:
 - Getting the Right Material to the Right Place at the Right Time:** The ultimate objective of MRP is to efficiently coordinate and optimize the flow of materials, ensuring that the correct materials are delivered to the right location precisely when needed.

Inputs of MRP:

Bill of Material (BOM):

- Components of an Item: Lists all the parts or materials needed to assemble a final product. For example, in the production of a bicycle, the BOM would list components such as wheels, frame, pedals, and chain.
- Usage Quantities: Specifies the quantities of each component required to produce one unit of the final product. For example, If the bicycle BOM states that two wheels are needed, this indicates the usage quantity for the unit parent (the bicycle).
- Parent-Component Relationships: Defines how different parts or materials are related within the assembly or production process. The BOM would show how components are related; for instance, the frame is the main parent, and wheels, pedals, and chain are components linked to it.

Master Production Schedule (MPS):

- Production Plan: Outlines the schedule for producing specific quantities of finished goods over a certain period. Suppose a company plans to produce 100 bicycles in March, 150 in April, and 120 in May. This information forms the MPS.
- Timeline: Specifies when production should occur to meet customer demand and maintain optimal inventory levels. The MPS would specify when during each month the production of bicycles should occur to meet customer demand and maintain optimal inventory.

Inventory Record Database:

- Current Stock Levels: Provides information on the quantity of each item currently in stock. If the inventory record shows there are 30 wheels, 20 frames, and 15 pedals in stock, these are the current levels.
- Lead Times: Indicates the time it takes to receive new inventory once an order is placed. If it takes one week to receive a new batch of wheels after placing an order, the lead time for wheels is one week.
- Reorder Points: Specifies the inventory level at which new orders should be initiated to prevent stockouts. If the company decides to reorder wheels when there are only 10 left in stock, the reorder point for wheels is 10 units

Forecasting

Steps in forecasting process:

1. Determine the purpose of the forecast:

- Understand why you need the forecast and what specific information you are trying to predict. This helps set the goals and scope of your forecasting.

2. Establish a time horizon:

- Decide the period for which you want to make predictions. Whether it's short-term or long-term, having a defined time frame helps in selecting appropriate forecasting methods.

3. Select a forecasting technique:

- Choose a method or model for predicting future outcomes. This can include quantitative methods like statistical models or qualitative methods like expert judgment, depending on the nature of the data and the forecasted variables.

4. Gather and analyze relevant data:

- Collect data that is pertinent to the forecasted variable. Ensure the data is accurate and comprehensive. Analyze the data to identify patterns or trends that can guide your forecasting process.

5. Prepare the forecast:

- Use the selected forecasting technique and the analyzed data to create the actual forecast. This involves applying the chosen model or method to generate predictions for the future based on the patterns observed in the data.

6. Monitor the forecast:

- Keep track of how well the forecast aligns with actual outcomes over time. Regularly update the forecast as new data becomes available and refine your methods based on the accuracy of previous predictions.

Break-even analysis

Break-even analysis is a financial calculation used to determine the level of sales, in both units and dollars, at which a business neither makes a profit nor incurs a loss. In other words, it's the point at which total revenue equals total costs, and this is known as the break-even point (BEP).

Here's how the components mentioned in your text contribute to the break-even analysis:

1. ****Fixed Costs****: These are expenses that do not change regardless of how many units are produced or sold. They include items like depreciation, taxes, rent, and debt payments. Since these costs are constant, they must be covered by sales revenue in order for the business to be profitable.
2. ****Variable Costs****: These costs fluctuate with the level of production. They include costs for materials, labor, and other expenses directly tied to the production volume. The more you produce, the higher these costs will be.

To find the break-even point in dollars, multiply the break-even point in units by the price per unit.

The objective of break-even analysis is to understand how many units of a product or service must be sold to cover the company's costs, after which the company starts to profit. This analysis helps businesses set sales targets, determine pricing strategies, and make informed decisions about fixed and variable costs. It is a critical tool in financial planning, management decision-making, and cost control.

Quiz 1

Set 1

1. Bottom-up budget is better than Top-down budget - do you agree with this statement? Justify your answer. (4)

2. Consider a project requiring 30 units of products to be produced. An expert worker takes 15 hours to complete a single part. However, 23 parts need to be produced to be an expert at 70% learning rate. If the wage rate is Tk. 150/hour, by how much amount will be the budget underestimated without considering the learning effect? (6)

Quiz-4

To be produced = 30 units

$$T_n = 15 \text{ hrs}$$

$$n = 23$$

$$L_r = 70\% = 0.7$$

⇒ we know,

$$T_i = \frac{T_n}{n^r} ; \frac{15}{(23)^{0.5145}} = 75.28 \approx 76 \text{ hrs} ; r = \frac{\ln(L_r)}{\ln 2} = \frac{\ln(0.7)}{\ln 2} = -0.5145$$

From exec; (Assume.)

$$\text{1st unit completion time } 1 \text{ hr}$$

$$\text{23rd " " " } 7.819 \text{ hr}$$

NOW,

$$\text{1st unit completion time } 76 \text{ hrs}$$

$$\begin{aligned} \text{23rd " " " } & (76 \times 7.819) \text{ hrs} \\ & = 594.244 \text{ hrs} \\ & \approx 595 \text{ hrs} \end{aligned}$$

For the rest;

$$(30-23) \text{ units} = 7 \text{ units}$$

$$\text{Completion time} = (7 \times 15) = 105 \text{ hrs}$$

$$\therefore \text{Total Completion time} = (595 + 105) = 700 \text{ hrs.}$$

From our given information.

$$(30 \times 15) = 450 \text{ hrs.}$$

$$\therefore \text{Loss} = 700 - 450 = 250 \text{ hrs.}$$

$$\therefore \text{Amount of money that will be underestimaded} = (250 \times 150) \text{ TK.} \\ = 37500 \text{ TK.} \\ (\text{Ans.})$$

Set 2

1. Committed and actual budget lines are important in time-phased budget-why?

2. Consider a project that requires 50 units of parts to be produced. An expert worker takes 18 hours time to complete a single part. However, 37 parts need to be produced for a worker to be an expert at 85% learning rate. How many hours does the worker need to complete all 50 parts? If the monthly wage of a worker is Tk. 16000, then what will be the type of the budget and how much amount will the budget be under-estimated or over-estimated ?

parts need to be produced = 50 units

$$T_h = 18 \text{ hr}$$

$$n = 37$$

$$LR = 85\% = 0.85$$

$$\Rightarrow T_i = \frac{T_h}{n^r} ; r = \frac{\ln(0.85)}{\ln(2)}$$
$$= -0.2344$$
$$= \frac{18}{(37)^{-0.2344}}$$
$$= 41.96 \text{ hrs}$$
$$\approx 42 \text{ hrs}$$

From exec; (Assume)

1st part completion time 1 hr

37th " " 17 hr

Now,

1st part completion time 42 hrs

37th " " (42×17) hrs.

$$= 714 \text{ hrs}$$

For the rest; $(50-37) = 13$ units

$$(13 \times 18) = 234 \text{ hrs.}$$

\therefore Total completion time with LR = $(714 + 234)$ hr

= 948 hr; is the required hour
the workers need to
complete all 50 parts

From our given information;

$$(50 \times 18) = 900 \text{ hr}$$

$$\therefore \text{Loss} = (948 - 900) = 48 \text{ hrs.}$$

\therefore The budget will be underfunded.

Assuming working days in a month is 20 days.

$$\text{So, } 20 \text{ days monthly wage is TK. } 16000$$
$$1 \text{ day} \quad \text{wage is TK. } \frac{16000}{20}$$
$$\qquad \qquad \qquad \text{TK. } 800$$

~~So, 24 hrs~~

Assuming working hour per day is 7 hrs.

$$\text{So, } 7 \text{ hrs wage is } 800 \text{ TK.}$$
$$1 \text{ hr} \quad " \quad " \quad \frac{800}{7} \text{ TK.}$$
$$= 114.28 \text{ TK.}$$
$$\approx 115 \text{ TK.}$$

\therefore The amount of budget that will be underestimated is

$$= (48 \times 115) \text{ TK.}$$
$$= 5520 \text{ TK.}$$

(Ans.)

Set 3

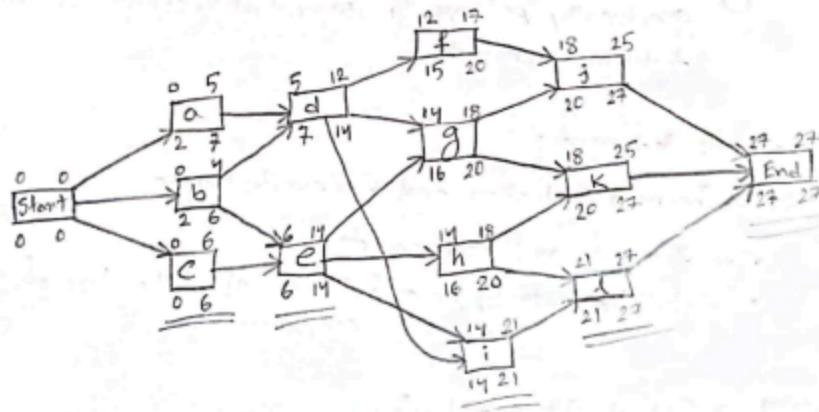
1. For the following task table, draw the network diagram, calculate project duration, find all possible critical paths.

Task	Successor	Duration
h	K, l	4
j	7
f	j	5
d	f,g,i	7
i	l	7
b	d,e	4
l	6
g	J,k	4
a	d	5
e	g,h,i	8
c	e	6
k	7

2. Explain the differences between Activity on Node and Activity on Arrow .

Quiz-1

Task	Successor	Duration
h	k,l	4
j	7
f	j	5
d	f,g,i	7
l	l	7
i	d,e	4
b	6
g	j,k	4
a	d	5
e	g,h,i	8
c	e	6
k	7



~~Project duration is : 27~~
 Project duration is : 27
 All possible critical Path: C → E → I → L → End

Quiz 2

Set 1

1. For the following task table, calculate the minimum number of workstation and corresponding line efficiency for a desired output rate of 90 units in 2 hr. time:

Task	Predecessor	Time (sec)
A	65
B	50
C	A	35
D	B	45
E	C,D	38
F	E	53
G	E	29
H	F,G	41
I	H	33
J	H	48

Show the assignment of tasks to the required minimum number of workstations.

2. Describe the reasons behind the inflexibility of product layout.

Quiz-2

Task	Predecessor	Time (Sec)
A	—	65
B	—	50
C	A	35
D	B	45
E	C,D	38
F	E	53
G	E	29
H	F,G	41
I	H	33
J	H	48

$$\sum t = 437$$

Given,

$$\begin{aligned} \text{90 units in } & 2 \text{ hr} \\ 1 \text{ unit in } & \left(\frac{2 \times 60}{90} \right) \text{ min} \\ & = \frac{2 \times 60 \times 60}{90} \text{ sec} \\ & = 80 \text{ sec} \end{aligned}$$

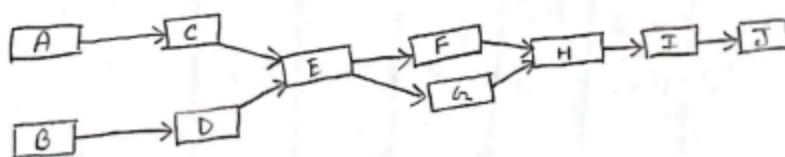
\therefore Cycle time = 80 sec / pc

$$\begin{aligned} \text{Theoretical minimum: } & \frac{\sum t}{C} \\ & = \frac{437}{80} \\ & = 5.4625 \\ & \approx 6 \end{aligned}$$

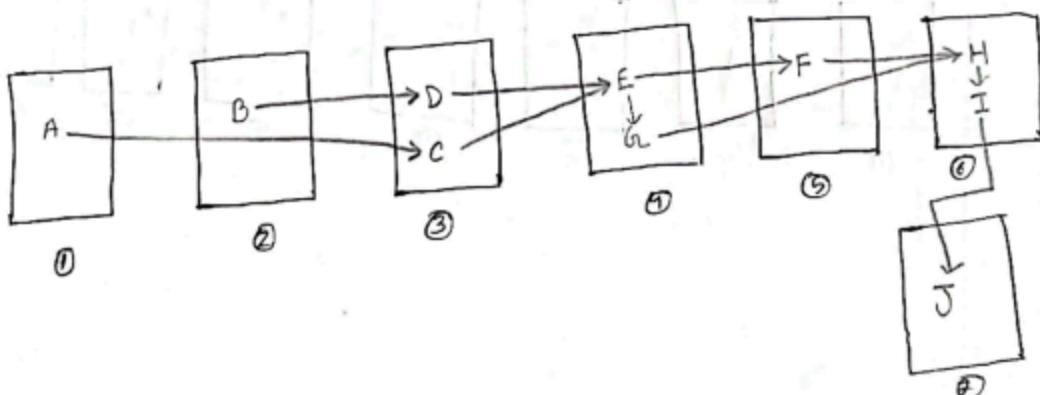
$$\begin{aligned} \text{Idle time: } & n \cdot c - \sum t \\ & = (6 \times 80) - 437 \\ & = 43 \end{aligned}$$

$$\begin{aligned} \text{efficiency: } & \frac{437}{480} \times 100 \\ & = 91.04\% \end{aligned}$$

Precedence Graph:



Work Station:



Set 2

1. For the following task table, calculate line efficiency to have a desired output rate of 36 units/hr.

Task	Predecessor	Time (sec)
A	C	35
B	C	30
C	D,E	25
D	F	20
E	F	28
F	G, I	22
G	H, J	35
H	30
I	40
J	45

Also, assign the tasks to the required minimum number of workstations.

2. Which type of layout is more efficient for an assembly line? Also briefly explain the reasons.

$$\text{Sop. cycle time } c = \frac{1}{36} \text{ min/units} = \frac{1 \times 3600}{3600} = 100 \text{ sec}$$

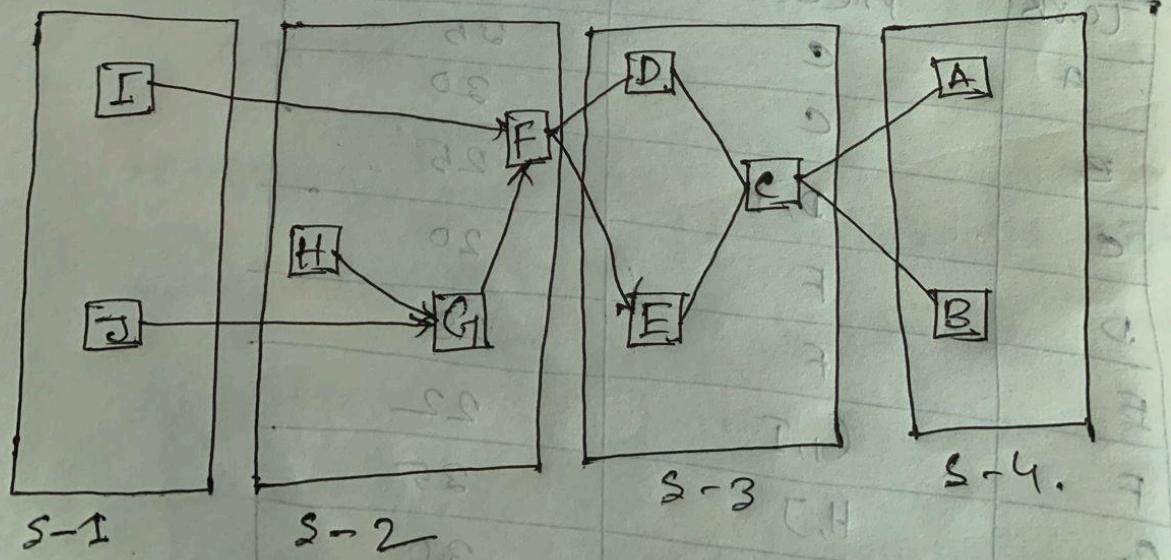
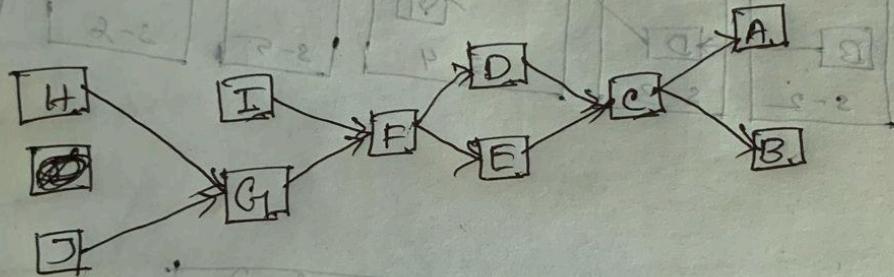
$$TM = \frac{310}{100 \text{ sec}} = 3.1$$

Minimum number of stations required $n = 4$.

$$\text{Idle time} = 400 - 310 = 90 \text{ sec}$$

~~Efficiency~~ Efficiency $= \frac{310}{400} \times 100 = 77.5\%$

$$\text{Balance delay} = 22.5\%$$



Set 3

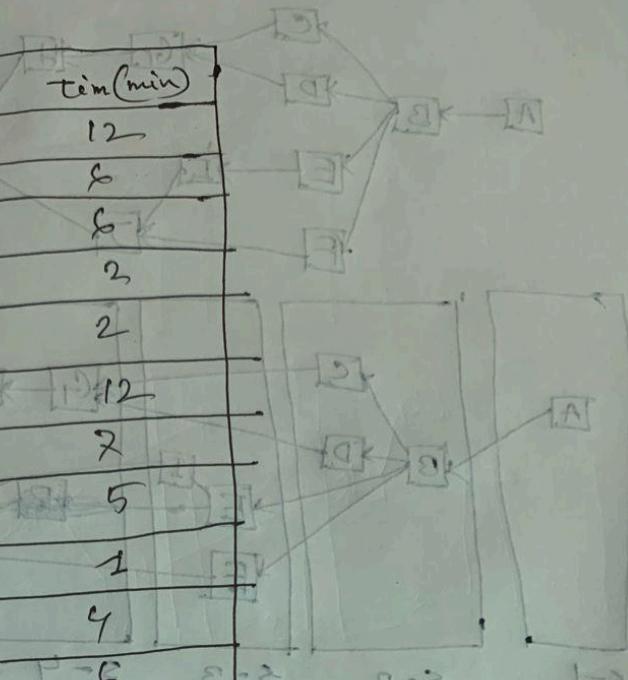
1. For the following task table, calculate minimum number of stations to accommodate the tasks and also the line efficiency for a desired output rate of 8 pcs in 2 hrs. Assign the tasks to the calculated stations:

Task	A	B	C	D	E	F	G	H	I	J	K	L
Predecessor	A	B	B	B	B	C,D	G	E	F, I	H, J	K
Time (min)	12	6	6	2	2	12	7	5	1	4	6	7

2. Briefly describe the importance of Line balancing in a factory floor.

set-4

Task	Predecessor	Time(min)
A	-	12
B	A	8
C	B	6
D	B	2
E	B	12
F	C,D	2
G	G	5
H	E	1
I	,F,I	4
J	H,J	8
K	K	7
L		8 > 70



$$\text{cycle time, } C = \frac{2}{8} = \frac{2 \times 60}{8} = 15 \text{ min/PCG}$$

$$TM = \frac{70}{15} = 4.67$$

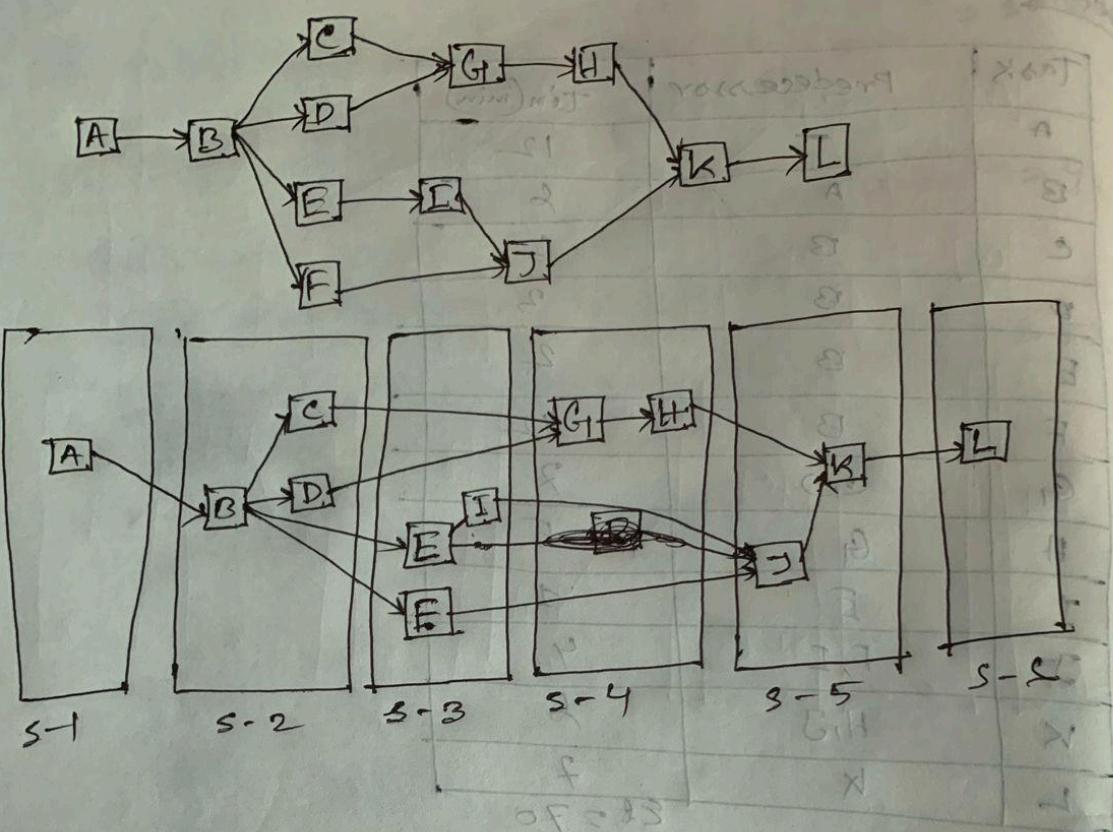
Min number of station required, $n = 5$.

Efficiency

$$\text{Idle time} = 75 - 70 = 5 \text{ min.}$$

$$\text{Efficiency} = \frac{70}{75} = 93.33\%$$

$$\text{Balance delay} = 6.67.$$



$$OF = \frac{OF}{SF} = \frac{10}{8} = 1.25 \text{ hit ratio}$$

$$FDP = \frac{OF}{SF} = MT$$

Given $S = N$, therefore we have to do maximum work

~~Efficiency~~

~~idle time~~ = $OF - SF = 2$ min

$$\text{Efficiency} = \frac{SF}{OF + SF} = \frac{8}{18} = 0.444$$

~~FDP~~ = $\frac{OF}{SF} = 1.25$ seconds

Set 4

1. For the following task table, calculate the minimum required number of stations and efficiency to have a desired output of 360 units in 3 hrs. Also assign the jobs to required workstations.

Task	Successor	Duration
C	16
D	G	13
B	F,C	18
H	A,B,I	14
F	16
G	B,I	16
E	H	15
A	F	17
I	C	18

2. Describe the advantages and disadvantages of U -shaped layout over Product Layout .

Task	Successor	Duration
X _C	—	16
X _D	G _L	13
X _B	F, C	18
X _H	A, B, I	14
X _F	—	16
X _G	B, I	16
X _E	H	15
X _A	F	17
X _I	C	18

$$\sum t = 143$$

Given,

$$360 \text{ units in } 3 \text{ hrs}$$

$$1 \text{ unit in } \frac{(3 \times 60 \times 60)}{360}$$

$$= 30 \text{ Sec}$$

$$\therefore c = 30 \text{ sec/pc}$$

Theoretical minimum, TM

$$= \frac{143}{30} = 4.767$$

$$\approx 5$$

$$\text{Idle time} = (5 \times 30) - 143$$

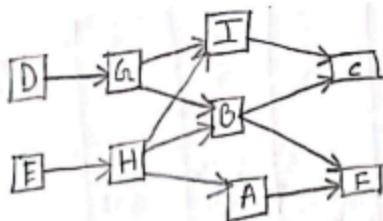
$$= 150 - 143$$

$$= 7$$

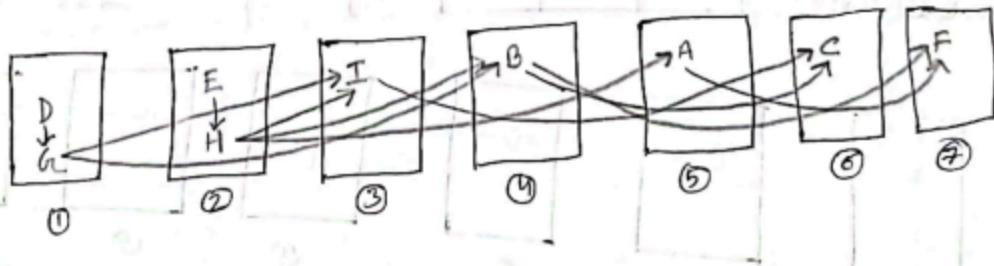
$$\text{efficiency} = \frac{143}{150} \times 100$$

$$= 95.33\%$$

Precedence graph:



Work Station:



Part B

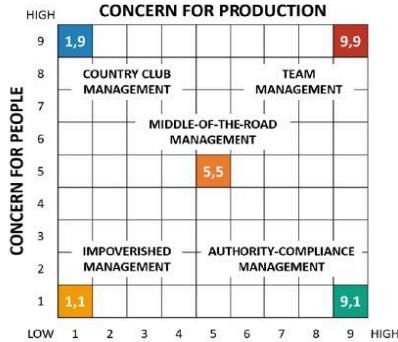
Math List: Quality Management

Math Video

[Control Chart Math By Paul](#)

[Control Chart Math Video](#)

Theory By Paul



1. Impoverished Management (1,1):

- Low concern for production and low concern for people.
- Leaders tend to avoid responsibility and are not actively engaged in the well-being of the team.
- **Example:** Imagine a schoolteacher who rarely interacts with students, doesn't provide guidance, and isn't interested in the students' well-being. The teacher is disengaged and avoids taking responsibility for both teaching and caring for the students.

2. Country Club Management (1,9):

- Low concern for production but high concern for people.
- Emphasis on creating a friendly and comfortable work environment, but productivity may suffer.
- **Example:** Picture a friendly camp counselor who focuses on making the campers happy and creating a positive atmosphere. However, the counselor is less concerned about sticking to the schedule or ensuring that activities are completed on time, leading to a less productive camp experience.

3. Authority Compliance Management (9,1):

- High concern for production but low concern for people.
- Focus on strict rules, top-down decision-making, and achieving goals at the expense of employee morale.
- **Example:** Think of a strict sports coach who demands high performance and strictly enforces rules during practice. The coach cares more about winning games and achieving results than considering the players' well-being or fostering a positive team environment.

4. Team Management (9,9):

- High concern for both production and people.
- Emphasis on fostering a collaborative work environment while achieving high productivity.
- **Example:** Envision a soccer coach who encourages teamwork, values each player's opinion, and creates a positive and supportive environment. The coach focuses on both building strong relationships among players and achieving success on the field.

5. Middle-of-the-Road Management (5,5):

- Moderate concern for both production and people.
- Strives for a balance between achieving goals and maintaining a positive work environment.
- **Example:** Picture a school principal who sets realistic academic goals for students while also ensuring that teachers have a manageable workload. The principal aims for a balance between academic achievement and creating a positive school environment.

Explanation of Fielder model,

The more favorably you rated the person you least prefer to work with the more relationship-oriented you are!

The less favorably you rated the person you least like working with the more task-oriented you are!

More Relationship-Oriented:

- If you rate the person you least prefer to work with more favorably, it means you focus on maintaining a positive relationship despite differences in work styles.
- **Example:** Your colleague has a different approach to completing tasks, but you appreciate their friendly and collaborative attitude. Despite potential challenges in working together, you prioritize the relationship.

More Task-Oriented:

- On the other hand, if you rate the person you least like working with less favorably, it indicates a higher priority on task accomplishment, even if it strains the relationship.
- **Example:** Your colleague may not align with your preferred work methods, causing frustration. You prioritize efficiency and completing tasks over maintaining a close relationship, addressing issues related to work processes.

High LPC = Relationship-oriented Leader.

Low LPC = Task-oriented Leader.

To understand the favorableness of the situation:

1. Leader-Member Relations:

- *Definition:* Refers to the level of confidence, trust, and respect that employees have for their leader.
- *Rating Options.* Typically categorized as either "good" or "poor."
- *Impact on Leadership Style.* In situations with good leader-member relations, leaders may have more flexibility in their leadership style. In contrast, poor leader-member relations may necessitate a more directive or task-focused approach.

2. Task Structure:

- *Definition.* Reflects the degree of formalization and structure in job assignments and tasks within the organization.
- *Rating Options.* Can be classified as either "high" or "low."
- *Impact on Leadership Style.* In situations with high task structure, where roles and responsibilities are well-defined, leaders may use a more directive style. In contrast, in situations with low task structure, leaders may adopt a more flexible or participative style.

3. Position Power:

- *Definition.* Indicates the degree of influence a leader has over critical activities such as hiring, firing, promotions, and salary decisions.
- *Rating Options.* Typically assessed as either "strong" or "weak."
- *Impact on Leadership Style.* Leaders with strong position power may have more control and authority, allowing for a more directive style. Leaders with weak position power may need to rely on a more participative or relationship-oriented approach.

Application:

- The model suggests that effective leadership is contingent on the alignment between these three factors and the leader's inherent leadership style.

- For example, a leader with a relationship-oriented style may be more effective in situations with good leader-member relations, while a task-oriented leader may excel in situations with high task structure.

By understanding these components and their interplay, leaders can adapt their styles to fit the specific characteristics of the situation, increasing their likelihood of success.

Paul Hersey and Ken Blanchard's Situational Leadership Theory (SLT) focuses on the idea that effective leadership is contingent on the readiness of followers and emphasizes the adaptability of leadership styles based on specific situations. SLT incorporates the same two dimensions identified by Fiedler: task and relationship behaviors.

Task Readiness:

- Refers to the followers' ability or competence to perform a given task.
- High task readiness implies that followers are capable and skilled in the task at hand.
- Low task readiness indicates a lack of skills or competence in performing the task.

Psychological Readiness:

- Relates to the willingness and motivation of followers to undertake a given task.
- High psychological readiness means followers are motivated and committed to the task.
- Low psychological readiness suggests a lack of enthusiasm or motivation.

Leadership Styles in SLT: (Imagine a team working on a new project:)

1. Telling (S1):

- High task, low relationship.

-Unable and Unwilling

- **Telling (S1):** The leader might use a telling style when introducing a new task to a team member who is inexperienced with the project. The leader gives explicit instructions and closely monitors progress.

2. Selling (S2):

- High task, high relationship. (**Unable and willing**)
- Applied when followers' task readiness is moderate. The leader emphasizes two-way communication to build trust and gain commitment.

Example: As the team member gains some experience, the leader may shift to a selling style, engaging in more two-way communication, explaining the importance of the task, and encouraging commitment.

3. Participating (S3):

- Low task, high relationship. (**Able and unwilling**)
- Suitable when followers have high task readiness but low psychological readiness.

The leader collaborates with followers to encourage their input and involvement.

Example: If the team member becomes more proficient but lacks enthusiasm, the leader might adopt a participating style, seeking input and involving them in decision-making to increase motivation.

4. Delegating (S4):

- Low task, low relationship. (**Both able and willing**)
- Appropriate when followers have high task and psychological readiness. The leader provides minimal guidance, allowing followers to take ownership of the task.

Example: As the team member becomes both skilled and motivated, the leader could delegate more responsibilities, allowing the team member to take on a more independent role in the project.

Acceptance theory of authority

Authority comes from the willingness of subordinates to accept it.

Example: Team Project in a Marketing Agency

1. Understanding the Order:

- The team leader, in a marketing agency, communicates a new project to create a promotional campaign for a client's product launch. The objectives, target audience, and tasks are clearly explained during a team meeting.

2. Consistency with Organization's Purpose:

- The marketing agency's overarching goal is to provide innovative and effective marketing solutions for clients. The project aligns with this purpose as it involves creating a promotional campaign to boost the client's product sales.

3. No Conflict with Personal Beliefs:

- The team leader ensures that the proposed promotional strategies are ethically sound and align with the team's values. For instance, the team decides against using manipulative advertising tactics that may conflict with their personal beliefs about honesty in marketing.

4. Ability to Perform the Task:

- The team leader assesses each team member's strengths and assigns tasks accordingly. Graphic designers handle visuals, content writers focus on messaging, and data analysts contribute insights. Each team member possesses the skills required for their designated tasks.

In this scenario, the team members are more likely to accept the authority of the team leader because the conditions of the Acceptance Theory are fulfilled. They understand the project, it aligns with the agency's purpose, there are no conflicts with personal beliefs, and they have the ability to perform their tasks effectively. This voluntary acceptance fosters a positive and collaborative team atmosphere, contributing to the success of the project.

Human Resource management:

The Economy: Economic conditions have a profound impact on HRM. For example, during a recession or economic downturn, companies might freeze hiring, reduce work hours, lay off employees, or make other changes to adapt to the reduced economic activity. Conversely, in a booming economy, there may be more focus on recruitment and talent retention.

Employee Labor Unions: In organizations where workers are unionized, many HR decisions are influenced by collective bargaining agreements. These agreements may stipulate certain practices regarding recruitment, promotions, layoffs, training, and disciplinary actions, which HR must follow.

Legal Environment: HRM is significantly influenced by the legal context in which an organization operates. Laws related to employment, such as those ensuring non-discrimination in hiring and employment practices (regarding race, sex, religion, age, color, national origin, or disability), must be carefully adhered to in order to avoid legal penalties and to promote fair workplace practices.

Demographic Trends: This refers to the makeup of the workforce in terms of age groups, such as Traditionalists (born before 1946), Baby Boomers (born between 1946 and 1964), Generation X (born between 1965 and 1977), and Millennials (born between 1978 and 1994). Each group has different experiences, expectations, and work styles, which HR must accommodate and balance.

Technology-based training methods and traditional training methods

Let's create a **scenario** involving a new hire named Alex at a software development company to explain the application of these methods:

****Technology-Based Training Methods:****

Week 1: Alex is provided with a series of CD-ROMs containing interactive training modules covering the company's software development process and the languages and tools used. He goes through these modules at his own pace.

Week 2: Alex attends a series of live video conferences hosted by the company's overseas development team, which offers insights into real-time project management and troubleshooting techniques.

Week 3: Alex is enrolled in an e-learning course to learn about the company's proprietary software. This course includes quizzes and coding exercises, which Alex can complete remotely.

****Traditional Training Methods:****

Week 4: Alex starts "on the job" training by shadowing a senior developer, Jane, and learns about the company's codebase and ongoing projects.

Week 5: Alex is introduced to "job rotation." He spends a few days in various departments, such as QA, UX/UI, and customer support, to understand the software lifecycle from multiple perspectives.

Week 6: The company assigns a mentor to Alex. This experienced developer, Raj, provides coaching and addresses Alex's questions about the projects he is working on.

Week 7: Alex participates in "experiential exercises" by working on a small project in a team of other new hires to apply his learning in a controlled environment.

Week 8: Alex is given a series of workbooks and manuals for deeper learning about complex algorithms and data structures used in the company's projects.

Week 9: Alex attends "classroom lectures" given by the company's CTO on emerging technologies and how they are relevant to the company's future projects.

Through this combination of technology-based and traditional methods, Alex becomes well-equipped to perform his role effectively within the company.

Performance appraisal methods

Scenario: Customer Service Excellence in a Retail Store

Background:

Imagine a retail store that prioritizes exceptional customer service to enhance customer satisfaction and loyalty. The store manager is conducting performance appraisals for the customer service representatives (CSRs) based on various methods.

1. Written Tests/Essay:

- *Scenario:* CSRs are given a written test covering product knowledge, communication skills, and problem-solving abilities.
- *Explanation:* The written test assesses the CSRs' understanding of the products they sell, their ability to effectively communicate with customers, and their capacity to handle various customer service scenarios.

2. Critical Incident:

- *Scenario:* A CSR successfully handles a customer complaint about a faulty product, ensuring a swift resolution and the customer leaving satisfied.
- *Explanation:* This critical incident is recorded as an example of exemplary performance, showcasing the CSR's problem-solving skills and dedication to customer satisfaction during the performance appraisal.

3. Graphic Rating Scale:

- *Scenario:* CSRs are rated on a scale of 1 to 5 for communication skills, with descriptors such as "clear and concise communication" and "active listening."
- *Explanation:* The graphic rating scale provides a quantitative assessment of each CSR's communication skills, helping the manager identify specific areas of strength or improvement.

4. BARS (Behaviorally Anchored Rating Scale):

- *Scenario:* A BARS is used to evaluate CSRs based on behaviors like "proactively offering assistance" and "handling irate customers with patience."
- *Explanation:* The BARS method uses specific behavioral anchors to provide a more detailed assessment, offering insights into the CSRs' customer-centric behaviors during interactions.

5. Multi-person Comparison:

- *Scenario:* CSRs are ranked against their peers based on customer feedback, sales numbers, and response time to customer inquiries.
- *Explanation:* This comparative approach helps identify top-performing CSRs who consistently excel in customer service, enabling the manager to recognize and reward high performers while addressing areas for improvement.

6. 360-Degree Appraisal:

- *Scenario:* Feedback is gathered from customers, fellow CSRs, and the store manager to provide a comprehensive view of each CSR's performance.

- *Explanation:* The 360-degree appraisal incorporates input from various perspectives, offering a well-rounded evaluation of the CSRs' customer service skills, teamwork, and overall effectiveness.

This scenario illustrates how different performance appraisal methods can be applied to evaluate and enhance customer service excellence in a retail setting. Each method contributes unique insights to the overall assessment process.

HRM ISSUES:

1. Managing Downsizing:

- **Issue:** Organizations often face the need to downsize due to economic challenges, restructuring, or technological advancements. Companies sometimes need to make changes, like cutting jobs or rearranging things.
- **Challenges:** Making sure employees don't feel too sad or stressed, telling them what's going on honestly, and helping those who might lose their jobs find new opportunities.

2. Managing Workforce Diversity:

- **Issue:** Workforces are becoming increasingly diverse in terms of age, gender, ethnicity, and cultural backgrounds.
- **Challenges:** Making sure everyone feels welcome and respected, treating everyone fairly no matter where they're from or how they look, and giving everyone a fair chance to succeed.

3. Sexual Harassment:

- **Issue:** Sometimes, people at work might do things that make others feel uncomfortable or hurt.
- **Challenges:** Creating clear rules that say what's not allowed, making it easy for people to report problems without fear, and teaching everyone about how to act respectfully.

4. Managing Work–Life Balance:

- **Issue:** Juggling work and personal life can be tough. With the rise of remote work and evolving expectations, maintaining a healthy work–life balance is a growing concern.

- **Challenges:** Letting people work in ways that fit their lives, making sure everyone knows when to work and when to take a break, and making sure people don't feel too stressed.

5. Controlling HR Costs:

- **Issue:** Companies need to save money while still being a good place to work. Organizations face pressure to optimize HR budgets while still attracting and retaining top talent.

- **Challenges:** Figuring out smart ways to save money, still helping employees learn and grow, and using technology to make things efficient without cutting too much.

L.L. Bean's operational approach, focusing on the order fulfillment process and the distinction between pull and push processes in the context of their supply chain. Let's break down each point:

1. L.L. Bean's Make-to-Stock Environment:

- *Explanation:* L.L. Bean operates in a **make-to-stock environment**, which means they produce goods in anticipation of customer demand rather than waiting for specific customer orders before starting production.

2. Pull Process in Customer Order Cycle:

- *Explanation:* L.L. Bean executes all processes in the customer order cycle after the customer order arrives. This approach is characteristic of a pull process, where production and processes are triggered by actual customer demand rather than being preemptively initiated.

3. Raw Material Purchased in Advance:

- *Explanation:* L.L. Bean purchases raw materials six to nine months before customer demand is expected. This strategy aligns with make-to-stock practices, allowing the company to have sufficient materials on hand to meet anticipated demand.

4. Manufacturing Lead Time:

- *Explanation:* Manufacturing itself begins three to six months before the point of sale. This indicates that L.L. Bean engages in a manufacturing process that starts well in advance of the expected sale date, contributing to their ability to stock products for prompt order fulfillment.

5. Push Processes in Replenishment Cycle:

- *Explanation:* All processes in the replenishment cycle are performed in anticipation of demand and are thus push processes. In a push system, goods are produced based on forecasts and pushed into the distribution channel, potentially leading to excess inventory.

In summary, L.L. Bean's operational model involves making products in anticipation of demand (make-to-stock), but the execution of processes in the customer order cycle follows a pull approach, triggered by actual customer orders. The replenishment cycle, on the other hand, is described as a push process, indicating proactive production to meet anticipated demand. This combination of push and pull strategies is common in retail and manufacturing to balance efficiency and responsiveness to customer needs.

Ethan Allen's operational approach, focusing on customization and the build-to-order environment. Let's break down the key points:

1. Build-to-Order Environment:

- *Explanation:* Ethan Allen operates in a **build-to-order environment**. This means that they produce furniture items based on specific customer orders rather than manufacturing goods in anticipation of general demand.

2. Triggered Production by Customer Order:

- *Explanation:* The arrival of a customer order serves as the trigger for production. In a build-to-order model, production is initiated in response to the specific requirements outlined in the customer's order.

3. Manufacturing Cycle as Part of Customer Order Fulfillment:

- *Explanation:* The **manufacturing cycle is integrated into the customer order fulfillment process**. This suggests that Ethan Allen's production activities are closely tied to the customer order cycle, reinforcing the build-to-order nature of their operations.

4. Two Cycles in the Supply Chain:

- *Explanation:* Ethan Allen's supply chain for customized furniture effectively consists of two cycles:

- **Customer Order and Manufacturing Cycle:** This cycle involves the customer placing an order, triggering the manufacturing process to create the customized furniture.

- **Procurement Cycle:** This cycle likely involves the sourcing and procurement of raw materials and components necessary for the manufacturing of customized furniture.

In summary, Ethan Allen's approach is centered around customization and build-to-order manufacturing. The entire supply chain revolves around fulfilling customer orders, with the manufacturing cycle intricately linked to the customer order fulfillment process. Additionally, there is a distinct procurement cycle involved in securing the required inputs for the manufacturing of customized furniture.

DRIVERS OF SUPPLY CHAIN PERFORMANCE

There are six major drivers of supply chain performance

1. Facilities:

- **Explanation:** Facilities are the physical locations where products are stored or made. Decisions about these locations affect how well a supply chain works.

- **Example:** If a clothing company sets up a factory in a country where cotton is grown, it can save on transportation costs and be more responsive to changes in fashion trends.

2. Inventory:

- **Explanation:** Inventory is all the stuff a company has, like raw materials and finished products. How a company manages its inventory can make the supply chain work better or worse.

- **Example:** If a grocery store uses a system where products are restocked just as they're running out, it minimizes waste and ensures products are always available (better efficiency).

3. Transportation:

- **Explanation:** Transportation is moving things around in the supply chain. How a company chooses to move stuff affects how fast it can respond to customer needs and how efficient it is.

- **Example:** Using fast air shipping for perishable goods helps a company respond quickly to market demands but may cost more (higher responsiveness, potentially lower efficiency).

4. Information:

- **Explanation:** Information is data about everything in the supply chain. Good information helps a company make smart decisions, affecting efficiency and responsiveness. concerning facilities, inventory, transportation, costs, prices, and customers throughout the supply chain

- **Example:** A company uses real-time data on customer demand to adjust production schedules, ensuring products are made just in time to meet customer needs (better responsiveness).

5. Sourcing:

- **Explanation:** Sourcing is about deciding who does what in the supply chain. These decisions affect how quickly a company can respond to changes and how efficiently it operates.

-Example: Imagine you have a bakery, and you need flour to make your delicious cakes. Instead of trying to grow and harvest wheat yourself (which would take a lot of time and effort), you decide to buy already processed flour from a reliable supplier. This is like outsourcing – getting someone else to do a specific job for you.

6. Pricing:

- Explanation: Pricing is about how much a company charges for its products. It affects how much customers buy and how well the supply chain performs.

- Example: A company selling premium smartphones at a higher price might have lower sales but higher profits, impacting both efficiency (higher profits) and responsiveness (lower demand).

Motivating employee

Expectancy Theory, developed by Victor Vroom, is a psychological theory that describes the motivation behind choices individuals make regarding behavioral alternatives. The theory suggests that individuals are motivated to perform actions when they expect that their actions will lead to outcomes they value. The theory is composed of three main components:

1. ****Expectancy (Effort-Performance Linkage)**:** This is the belief that one's effort will result in performance. If a person believes that putting in a certain amount of effort will lead to good performance, then the expectancy is high.

2. ****Instrumentality (Performance-Reward Linkage)**:** This is the belief that if one can perform well, then a valued outcome will be received. It's the degree to which a person believes that performing at a particular level will lead to the attainment of a desired outcome.

3. ****Valence (Attractiveness of Reward)**:** This is the value an individual places on the rewards of an outcome, which is based on their needs, goals, values, and sources of motivation.

Using Vroom's Expectancy Theory, let's break down your situation at AUST CSE Department:

- **Expectancy:** You understand that completing this project with additional hard work will likely lead to a higher level of performance. You believe that your effort will positively affect the quality of the project.

- **Instrumentality**: Your teacher has made it clear that your performance on the project will be directly tied to the award of two class test marks. This creates a clear performance-reward link in your mind; you see a direct connection between doing well on the project and receiving the extra marks.

- **Valence**: The two class test marks are valuable to you because they can positively impact your overall grade, which is important for your academic success. Thus, the reward (extra marks) has a high valence for you.

Application of the Theory in Brief:

Given the project assignment by your teacher, you assess that putting in extra effort can lead to a well-executed project (high expectancy). You are also informed that based on the quality of your project (performance), you will be rewarded with two additional class test marks (high instrumentality). These additional marks are significant to you because they can boost your grade, which you find highly desirable (high valence). Therefore, according to Vroom's Expectancy Theory, your motivation to work extra hard on the project is high because you expect that your increased effort will result in better performance and, consequently, the desired reward of extra marks.

Quiz 1

1. Write the advantages and disadvantages of work specialization. (5)

(1) Advantages:

- High performance/ production
- Hence the workers become skilled in particular job.
- No sleep time for the workers.

Disadvantages:

- Fatigue, boredom, exhaustion
- The workers are limited skilled
- Workers don't get job if they quit work

2. Write the differences between the following project structures-

- i. Functional and Weak Matrix (2.5)
- ii. Heavy Matrix and Dedicated (2.5)

(2) In project structures there is a matrix structure. When project duration is 2/3 month matrix structure is used. Here one a project manager is hired and other people are from existing people.

(i) In functional there is no project manager. Here 100% authority is functional manager's. In weak matrix there is Project manager and functional manager. Here PM have more authority power than FM. In weak PM only do planning and other stuffs done by the FM.

(ii) In heavy and dedicated there is PM and FM. And PM has more power over FM. Then what's the difference? In heavy PM have to implement ~~the suggestion~~ the suggestion of FM. But in dedicated PM

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can implement / not it's not mandatory.

3. Write the name of the motivation theories that explain the following situations best: (05)

- i. My colleague earns more than I do even though we work the same -
- ii. My manager tells me to do my best. He should be more specific -
- iii. Employees do not enjoy their jobs, they avoid responsibility -
- iv. Afnan earns a handsome salary; he now wants to establish his command in the office -
- v. Employees are self-directed and thrive to improve themselves -

(5)

- (i) Equity theory
- (ii) Locke's goal setting theory
- (iii) McGregor's Theory X and Theory Y
- (iv) Maslow's Hierarchy of needs theory
- (v) McGregor's theory X and Theory Y

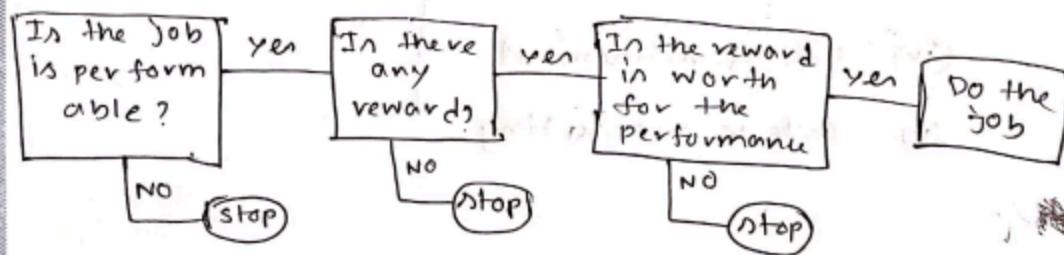
4. You are a student of AUST CSE Department. Your teacher assigned you a project for which you need to work extra hard. Your teacher will award you two class test marks depending on your performance. Explain the situation in brief using Vroom's Expectancy theory. (05)

(a)

Chand, Shilpa, 2019

Vroom's expectancy theory: There are three relationships:

- Expectancy / effort : performance linkage
- Instrumentality / performance : reward linkage
- Valence / attractiveness of reward



So, I assume the work which is assigned by the my teacher is performable. Now there is a

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reward which is ^{two} class test marks depending on my performance. To me I think the reward is worth for the project. So, I will try my best to complete the project with extra hard working to get the maximum reward.

Quiz 2

1. Write any three external factors affecting HRM process. Explain two of them in brief. (5)

(1) 3 external factors of HRM process

- (i) The economy
- (ii) Legal environment
- (iii) Demographic trends

explain 2 (slide- 4,6)

2. Write the name of the recruitment/recruitment types in the following statements: (5)

- i. AUST teachers need to apply through AUST website for a job -
- ii. AceTech isn't filling the openings created through retirements -
- iii. My colleague got the job due to his personal contacts -
- iv. Mr. Ahsan worked for 25 years. The manager requested him to step down due to illness-
- v. Atika dropped her CV in her dream company during CSE Job Fair -

(2)

- (i) company website
- (ii) Attrition
- (iii) Employee referrals
- (iv) Early retirement
- (v) College recruiting

slide (11, 12)

3. Identify the Leadership theories that explains the following situations best: (05)

- i. My colleague is good looking, he thinks he should be the next leader -
- ii. Managers can be rated based on their concern for people and production -
- iii. Rating Least Preferred Co-worker is an important step of leadership -
- iv. Managers tend to provide extra benefit to the people they are close with -
- v. Leader's goals and employee's goals should be aligned -

(3)

- (i) Leadership Trait theory.
- (ii) Leadership Behavioral theory.
- (iii) The fiedler model.
- (iv) Leader-members Exchange (LMX) theory
- (v) Transformational leadership

4. AUST CSE WEEK is at the doors. You are tasked with arranging a Valorant tournament.

Your team members are as follows:

Rayhan – Experienced, arranged such events before

Asif – Fresher, doesn't have experience but enthusiastic to learn

Hridi – Third year student, experienced but lost interest due to academic pressure

Faysal – Doesn't have experience and doesn't want to work, included at the last moment

Using Situational Leadership theory, explain how you should lead your team. (05)

(4)
Leader type

Rayhan – Delegating

Asif – Selling

Hridi – participating

Faysal – Telling

