

March

20 080-286  
Friday

## Selective Inventory Management Techniques

The inventory of an industrial organization consists of hundreds and even thousands of items having varying costs, usage and lead time together with procurement and for technical problems.

∴ All the items in inventory cannot be controlled with the same degree. The more attention has to be pay to items whose usage value is high and vice-versa.

Hence selective approach has to be adopted by the organization to control inventory which is termed as selective inventory control

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Problem: ~~few~~

ABC analysis, VED analysis, FNSID analysis are few of them.

### ABC analysis

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It comply with the categorization of items ~~into~~ based on their usage values. Items of high usage value but small in number are classified as 'A' items and require strict inventory control.

Items of moderate value and size are classified as 'B' items and demands reasonable attention of management Monday 23

While the ~~values~~ items having less usage value and large in number are classified as 'C' items and would be under simple control.

Thus ABC (Always Better Control) is one of the selective inventory control Technique based on the analysis of items based on their proportional value and can be categorised as:

A: 5 to 10% of the total number of items accounting for 70 to 80% of the annual usage. ~~Tuesday~~ 24

B: 10 to 20% <sup>items</sup> accounting for about 15 to 20% of the annual usage value

C: 70 to 80% <sup>items</sup> accounting for about 5 to 15% of the annual usage value.

### Steps of doing 'ABC analysis'

1. Find the annual usage value of every item in the sample by multiplying the

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25 <sup>085-281</sup> Wednesday annual requirement by its unit cost.

2) Arrange these items in descending order of usage value computed above

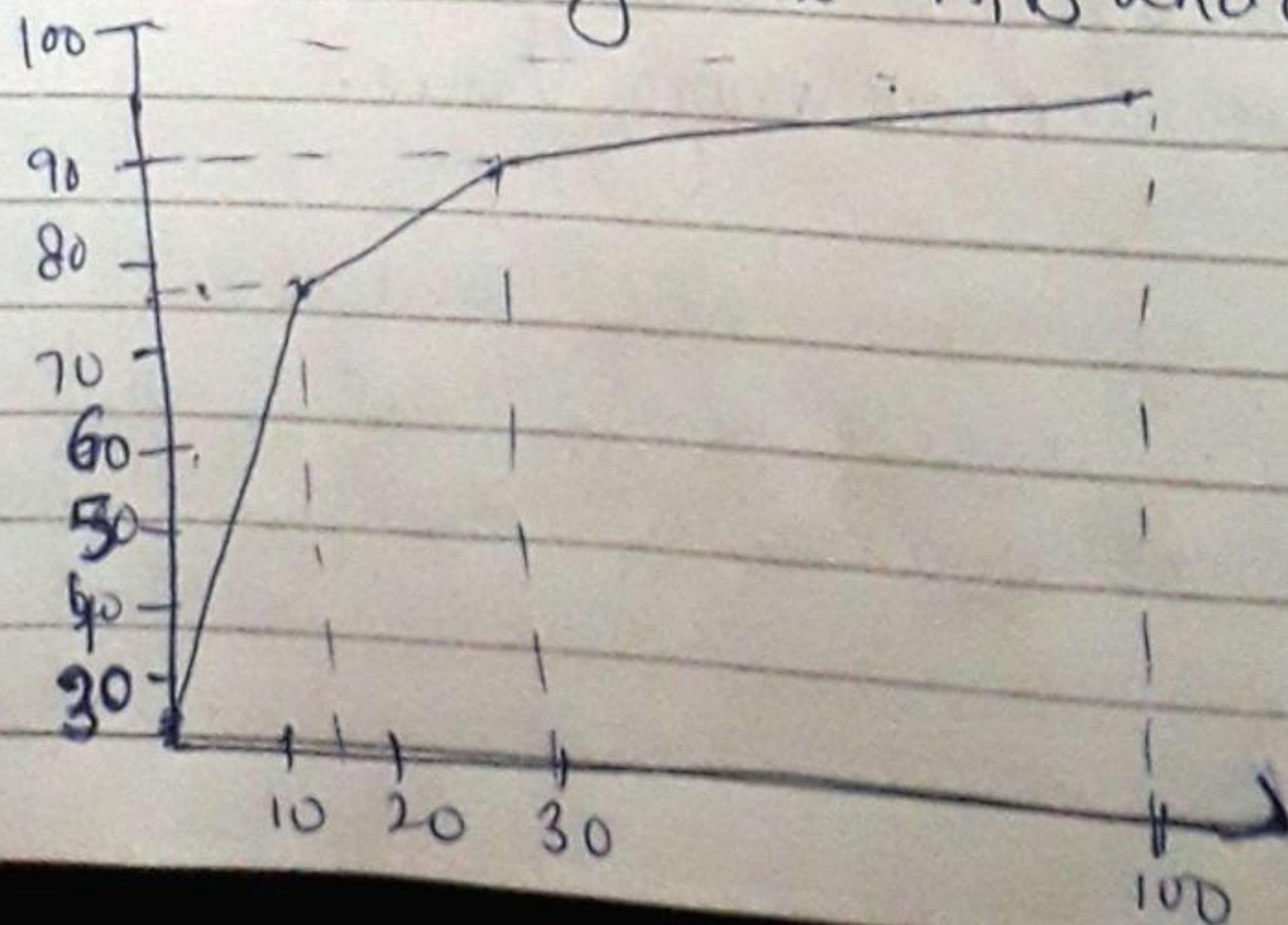
3) Accumulate the total number of items and the usage value.

4) Convert the accumulated totals of number of items and usage value into % of the grand totals

5) Plot the two percentages (cumulative % of annual usage value vs. cumulative % of items). The curve

26 <sup>086-280</sup> Thursday obtained is called ABC distribution curve or Pareto curve.

6) Mark the cut-off points X and Y where the curve changes its slope, dividing it into three segments A, B and C



ABC  
Classification

Items under category 'A' has high usage value i.e. costly requires greater attention and therefore may be produced in less amount.  
Fixed interval inventory control system may be used for these items.

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'C' items require very little capital and have low inventory carrying costs and should be brought in bigger lots so fewer orders and consequently acquisition cost.  $\therefore$  A fixed-order quantity system may be used for such items.

'B' items are usually placed under statistical control and attract periodic control of management (s, S) inventory control system might be used for these items.

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Note:-

1) Whenever items can be substituted for each other, they should be considered as one item.

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2) All items consumed by the organization such as spares, raw materials, semi-finished and finished products must be considered together and then classified into the three categories A, B or C.

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3) There may be more than three categories and period of consumption may not be a year.

### Advantages of ABC Analysis

- 1) ABC analysis is a dynamic procedure and must be repeated at least when product mix changes.
- 2) It helps in exercising selective control over the items by concentrating on <sup>minimum</sup> item under category A and require to maintain <sup>minimum</sup> buffer stock for them and their demand must be calculated carefully etc.
- 3) It provides a more sound cost perspective to the management and enables them to ~~prioritize~~ prioritize in cost reduction programme.
- 4) It avoids wastage of time and ~~an~~ energy in making improvement in area that yield only marginal benefits (class (C) category)
- 5) It is used to control raw material, components and work in progress inventories.

31 091-271  
Tuesday

Example 1

Classify the items as A, B and C

Wednesday 1

Item No.	Annual Consumption in pieces	Unit price (in paise)
S01	30000	10
S02	280000	15
S03	3000	10
S04	110000	5
S05	4000	5
S06	220000	10
S07	15000	5
S08	80000	5
S09	60000	15
S10	8000	10

Thursday 2

Sol<sup>n</sup> The first step is to compute the annual usage value for each item by multiplying the per unit price by the annual use and to rank them in descending order of their annual usage values.

Item no	Annual Consumption	Unit price	Usage (₹)	Ranking
S01	30000	10	3000	6
S02	280000	15	42000	1
S03	3000	10	300	9
S04	110000	5	5500	4
S05	4000	5	200	10
S06	220000	10	22000	2
S07	15000	5	750	8
S08	80000	5	4000	5
S09	60000	15	9000	7
S10	8000	10	800	10

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Item No	Category	Annual usage	Cummulative annual usage	Cummulative usage %	% items
502	A	42 000	42 000	48	20
506		22 000	64 000	73	20
509	B	9 000	73 000	83	30
504		5 500	78 500	90	40
508		4 000	82 500	94	50
501		3 000	85 500	98	60
510	C	800	86 300	98.6	70
507		750	87 050	99.4	80
503		300	87 350	99.8	90
505		200	87 550	100.0	100

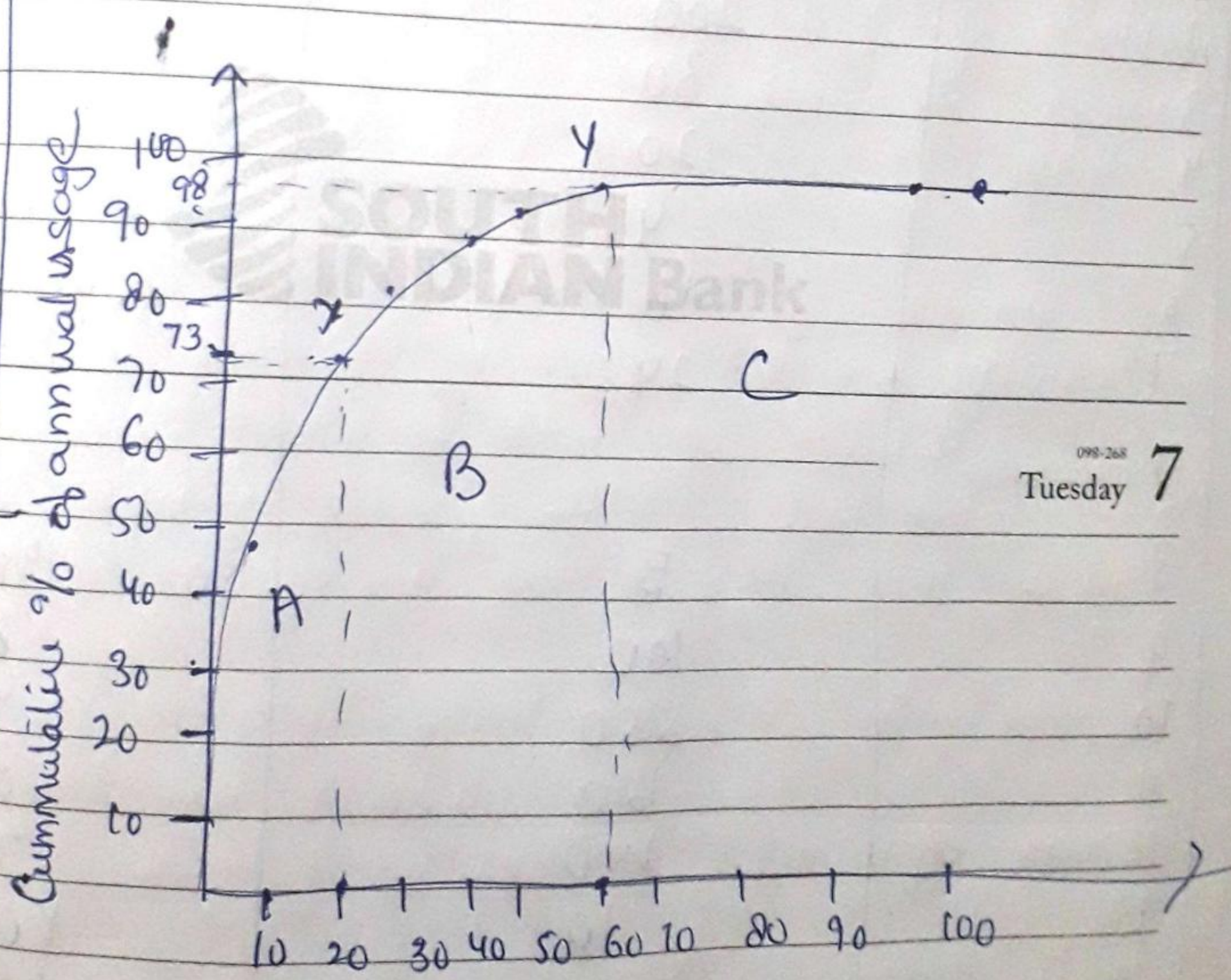
Now Plot the graph before comp. categories into A, B and C

Choose cut off pt x & y where curve changes its shape. It divides the all inventory items into three categories A, B and C. items respectively.

The above table clears that it is nec to tightly control only 20% of the inventory items (A class) controls over 73% of annual usage

while 40% of 25% of items of category

Cummulative % of items  
 10  
 20  
 30  
 40  
 50  
 60  
 70  
 80  
 90  
 100



Cummulative % of items  
 while 40% of item in B categories account for 25% of item while ~~only~~ remaining 40% item of category C accounts for 2% of annual wage.



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8 09-2020 Wednesday

Example 2 Draw ABC curve for the data given below

Item no	Quantity Consumed. in year	Cost per Unit (Rs)
1	2	40
2	200	5
3	30	1000
4	20	20
5	4	2000
6	16	2000
7	24	50
8	5	40
9	100	8
10	250	5
11	120	8
12	140	7
13	10	10
14	20	10
15	400	5

9 10-2020 Thursday

final table

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Order No	Annual Usage (Rs)	Cumulative Annual Usage	Common C/P Usage	QoI Item	Category
6	32000	32000	45.71	6.67	A
3	30000	62000	88.57	13.33	
7	1200	63200	96.28	1	
8	1000	64200	91.71	<del>26.67</del>	B
10	1000	65200	93.14	<del>26.67</del>	
15	1000	66200	94.57	<del>33.33</del>	
18	980	67180	94.97	<del>40.00</del>	
11	960	68140	97.34	<del>46.67</del>	
9	800	68940	98.49	<del>53.33</del>	
4	400	69340			
8	200	69540			
14	200	69740			
13	160	69840			
1	80	69920			
5	80	70000			

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13 <sup>104-262</sup> Monday

## VED Analysis

This analysis divides items into three categories in the descending order of their criticality to the production process or other services. 'V' stands for vital items and their stock analysis requires more attention since out of stock situation would result in stoppage of production. Thus 'V' items should always be sufficiently stocked to ensure smooth operation of the organization.

'E' stands for essential items which are necessary for the efficient running of the system but without which system will not fail. Care should be taken to ensure that they remain always in stock.

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'D' represents desirable items. They do not immediately affect production but help to increase efficiency and decrease fatigue.

VED analysis categorises the items on the basis of their criticality it can be used to determine the stock levels of spare parts and special raw material which are scarce and difficult to produce.

## FNSD Analysis

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This analysis divides items into four categories in the descending order of their consumption rate. 'F' stands for fast moving items, stock for which the consumption rate is high and are consumed over a short span of time. Stock must be observed carefully and constantly and all steps must be taken to replenish their stock in item to avoid stock-out situations.

'N' denotes normal moving items, stocks for which are exhausted over a year or so.

'S' represents slow moving items, such items may take 2 years or more to be consumed at the existing consumption rate but they will be consumed any way. Their stock levels must be carefully reviewed before placement of their replenishment orders to ~~maintain~~ minimise the risks of surplus stock being left when such items become obsolete or dead.

Thursday 1

'D' mean dead stock and for such items no demand can be seen. Dead stock represents money spent that cannot be realised but occupies