



Reasons for replacement

1. Technological development ✓
2. Poor performance over years ✓
3. Unable to meet the required demands ✓

Capital equipment that deteriorates with time:

It is concerned with the equipment and machinery that deteriorates with time. Many people feel that equipment should not be replaced until it is physically worn off. But, it is not correct, preferable equipment must be constantly renewed and updated otherwise it will be in the risk of failure or it may become obsolete.

deteriorates with time

Reasons for replacement

1. Deterioration
2. Obsolescence
3. Technological development
4. Inadequacy

Deterioration is the decline in the performance of the equipment as compared to the new equipment. It may occur due to wear and tear. Due to this

- a) Increase in the maintenance cost.
- b) Reduces the product quality
- c) Decreases the rate of production
- d) Increases the labor cost
- e) Reduces the efficiency of the equipment

Models:

Model 1:

"Replacement of items whose maintenance Cost increases with time and the value of the money remains constant during the period"

Model 2: "replacement of items whose maintenance cost increases with time and value of money also changes with time".

Model 3: "Group Replacement policy"

Model 1: Notation and symbols

C- Purchase cost of the machinery or equipment

S- Salvage value or resale value or scrap value of the machinery or equipment

T_c total cost increased on the item or equipment during the period y

$$T_c = C + m(Y) - S$$

Where $M(Y)$ is the cumulative maintenance cost in that period.

$G(Y) \rightarrow$ Average cost incurred on the equipment or item during the period.

$$G(Y) = T_c / y$$

Problem 1

The cost of the machine is Rs 6100/- and its scrap value is Rs 100 at the end of every year. The M.C. found from experience are as follows:

Year	1	2	3	4	5	6	7	8
M.C	100	250	400	600	900	1200	1600	2000

When should the machine be replaced?