Frequently Asked Questions

1. What is replacement policy?

Answer:

Replacement policy is a policy for items whose running cost increases with time but value of money changes with constant rate during a period.

2. What is a depreciation factor?

Answer:

The value of money that decreases with constant rate is known as the depreciation ratio or discounted factor. The discounted value is the amount of money required at the time of the policy decision in order to build up funds at compound interest large enough to pay the required cost when due.

3. What is the objective of knowing a discounted cost?

Answer:

After having an idea of discounted cost, the objective should be to determine the critical age at which an item should be replaced so that the sum of all discounted cost is minimum.

4. When is the problem of replacement felt?

Answer:

The problem of replacement is felt when the job performing units such as men, machines, equipment's, parts, etc. become less effective or useless due to either or sudden, or gradual deterioration in their efficiency, failure or breakdown.

5. What is the benefit of replacing the job performing units?

Answer:

The benefit of replacing them with new ones at frequent intervals is that the maintenance and other overhead costs can be reduced.

6. What is the basic problem to formulate the replacement policy? **Answer:**

The basic problem in such situations is to formulate a replacement policy in order to decrease an age (or period) at which the replacement of the given machinery/ equipment is most economical, keeping in view all possible alternatives.

7. How do we identify that the efficiency deteriorates for items like machinery? **Answer:**

Items such as machines, vehicles, tyres, etc, efficiency deteriorates with age due to constant use and needs increased operating and maintenance costs.

8. How is the deterioration level predictable?

Answer:

The deterioration level is predictable and is represented by

- a. Increased maintenance by operational cost
- b. Its waste or scrap value and damage to item and safety risk
- 9. How is cost of maintenance measured when time is measured continuously?

Answer:

The cost of maintenance of a machine is given as a function increasing with time, whose scrap value is constant. If time is measured continuously then the average annual cost will be minimized by replacing the machine when the average cost to date becomes equal to the current maintenance cost.

10. How is cost of maintenance measured when time is measured discrete?

Answer:

The cost of maintenance of a machine is given as a function increasing with time, whose scrap value is constant. If time is measured in discrete units, then the average annual cost will be minimized by replacing the machine when the next period's maintenance cost becomes greater than the current average cost.

11. What is the total cost incurred when 't' is a continuous variable?

Answer:

When time 't' is a continuous variable if the equipment is used for t years, then the total cost incurred over this period is given by:

TC = capital (or purchase) cost minus scrap value at the end of t years plus running cost for t years.

12. What is the total cost incurred when 't' is a discrete variable?

Answer:

When time 't' is a discrete variable: the average cost incurred over the period n is given by ATC_n is equal to 1 by n { C minus S plus summation R(t)}

13. When is it economical to replace?

Answer:

If the running cost of next year; R(n+1) is more than the average cost of n^{th} year, ATC_n then it is economical to replace at the end of n years.

14. When should we take a decision not to replace?

Answer:

If the present years running cost are less than the previous year's average cost ATC_{n-1} , then do not replace. That is: R(n) less than 1 by n minus 1 {C minus S plus summation R(t)}

15. How is replacement of items on the basis of the present worth factor done? **Answer:**

In replacement of items on the basis of the present worth factor (Pwf) includes the present worth of all future expenditure and revenues for each replacement alternatives. An item for which the present worth factor is less is preferred.