

**ENGINEERING ECONOMICS
UNIT- I - INTRODUCTION TO**

ECONOMICS

PART – A (2MARKS)

1. Define Economics? (May 2015)
2. Write any four goals of economy? (May 2015)
3. Explain law of supply and demand? (Dec2015)
4. Write about factors in fluency demand?
5. Write about factors in fluency supply? (Dec2012)
6. Define Economic efficiency? (Dec2015)
7. Define engineering economics?
8. Define marginal cost? (May 2011, May2015)
9. Define marginal revenue?
10. Define sunk cost?
11. Define break even analysis?(Dec2012, MAY2015, MAY2016)
12. Define P/V ratio?(Dec2013)
13. Define processes planning?
14. State the law of Demand.(Dec 2009), (May 2014)
15. What is Break-Even Analysis?(Dec2009)
16. Define Opportunity cost(Dec2013)

PART -B (16 MARKS)

1. Analyse the various types of elasticity of demand and their usefulness (Dec2015)
2. what is a material? What are factors would you consider while selecting a material (Dec2015)
3. Explain the concept of law of supply and demand with suitable example?(Dec2012)
4. Briefly explain about element of cost and its classification?(May2014)
5. Explain the concept of break even analysis with clear diagram?(Dec2012)
6. i) Briefly explain about process planning and its various types?(May2015)(8)
ii) Explain the scope of engineering economics (May2015) (8)
7. (a) (i) Explain as to how the concept of elasticity of demand is superior to concept of law of demand.
(ii) Analyse the various types of elasticity of demand and their usefulness. (4 + 12)(Dec 2009)
8. What' is cost volume profit analysis? State the assumptions and applications of break even analysis. (4 + 4 + 8)(Dec 2009)
9. Mention about the law of supply and demand (8)(May2015)
10. Suguna associates has the following details (May 2015)
Fixed cost = 20,000, variable cost per unit = Rs.100,
Selling price per unit = Rs.200 . Find out i) Break even point in quantity,
ii) Break even point in sales

UNIT- II - VALUE ENGINEERING

PART – A (2 MARKS)

1. What are the approaches available for make or buy decision?(**May 2015**)
2. Define value engineering?(**May2014**), (**Dec2015**),(**MAY2016**)
3. Write any four aims of value engineering? (**MAY2016**)
4. Write the basic steps of value engineering?
5. Define time value of money?(**May 2010**)
6. Define effective Interest rate (**May2015**)
7. Define single payment present worth factor?(**Dec2012**)
8. Define equal payment series sinking fund factor method?
9. Define equal payment series present worth factor method?
10. Define equal payment series capital recovery factor method?
11. Explain the concept of Discounting. (**Dec2009**), (**Dec2015**)
12. What is Value Engineering? (**Dec2009**)
13. Define Value Analysis and value Engineering (**Dec2012**)

PART :B (16 MARKS)

1. A person wishes to have a future sum of Rs. 1,00,000 for his son's education after 10 years from now. What is the single-payment that he should deposit now so that he gets the desired amount after 10 years? The bank gives 15% interest rate compounded annually. (**May 2015**)
2. A person is planning for his retired life. He has 10 more years of service. He would like to deposit Rs. 8,500 at the end of the first year and thereafter he wishes to deposit the amount with an annual decrease of Rs. 500 for the next 9 years with an interest rate of 15%. Find the total amount at the end of the 10th year of the above series.(**May 2015**)
3. Problems in equal payment series present worth factor method?(**May 2011**)
4. Problems in equal payment series capital recovery factor method?
5. What are all the function, aims of value engineering? Discuss the value engineering procedure. (**Dec 2009**)
6. (i) What is time value of money? How is it useful in taking investment related decision?
(**May 2015**), (**Dec2015**)
(ii) Compute the present value of Rs. 1,000 receivable 6 years hence if the rate of discount is 10 percent? (4 + 4 + 8)(**Dec2009**)
7. Mention the basic principles of brain storming (8)
8. State and explain the functions and aims of value engineering (**Dec2015**)
9. A company wants to set up a reserve which will help the company to have an annual equivalent amount of Rs. 10,00,000 for the next 20 years towards its employees welfare measures. The reserve is assumed to grow at the rate of 15% annually. Find the single-payment that must be made now as the reserve amount.(**APRIL/MAY2016**)
10. A bank gives loan to a company to purchase equipment which is worth of Rs. 5,00,000, at an interest rate of 18% compounded annually. This amount should be repaid in 25 yearly equal

installments. Find the installment amount that the company has to pay to the bank.
(APRIL/MAY2016)

UNIT - III - CASH FLOW

PART – A (2 MARKS)

1. What are the methods of cash flow?(Dec2015)
2. Define present worth method(Revenue dominated cash flow diagram)(Dec2012)
3. Define future worth method(Revenue dominated cash flow diagram)(May2015)
4. Define future worth method(cash dominated cash flow diagram (May 2011)
5. Define Annual equivalent method(Revenue dominated cash flow diagram)
6. Define Annual equivalent method? (Dec2015)
7. Define rate of return method?(Dec2012), (Dec2013), (May2015)
8. What is Present worth method of comparing alternatives?(Dec2009)
9. How is rate of return method useful in evaluating the alternatives?(Dec2009)

PART :B (16 MARKS)

1.An engineer has two bids for an elevator to be installed in anew building. The details of the bids for the elevators are as follows: Determine which bid should be accepted, based on the present worth method of comparison assuming 15% interest rate, compounded annually.(May 2015)

<i>Bid</i>	<i>Engineer's estimates</i>		
	<i>Initial cost</i> (Rs.)	<i>Service life (years)</i>	<i>Annual operations & maintenance cost (Rs.)</i>
Alpha Elevator Inc.	4,50,000	15	27,000
Beta Elevator Inc.	5,40,000	15	28,500

2. Problems in future worth method (Revenue dominated cash flow diagram)
3. Explain Annual equivalent method (Revenue dominated cash flow diagram)(May2011)
4. Problems in Annual equivalent method (cost dominated cash flow diagram)
5. Problems in rate of return method
6. (a) Discuss with example, present worth method and future worth method of comparison of alternatives.(Dec2009), (May2014), (Dec2015)
7. What is rate of return method? Explain with suitable example. (Dec2009), (Dec2015)

UNIT- IV - REPLACEMENT AND MAINTAINENCE ANALYSES

PART – A (2 MARKS)

1. Write the different types of maintenance?
2. Define prevention maintenance (PM)?(May 2010),(May2015), (Dec2015)
3. Define Break down maintenance ?(May 2012)
4. Write the different types of Replacement?(May2014), (Dec2015)
5. Define economic life of an asset?
6. What are the types of Replacement policies?(May 2010)
7. What is Predictive Maintenance? (Dec2009)
8. What are all the types of Replacement Problem? (Dec2009)
9. What are the reasons for replacement (May2015)

PART – B (16 marks)

1. Problems in types of Replacement?(Dec2011), (Dec2013)
2. Problems in finding the economic life of an asset?
3. Problems in Capital recovery with return(Dec2013)
4. Problems in Simple probabilistic model for assets which fail completely
- 5.(i) What is defender challenger concept in replacement ?Illustrate with an example. (8)
(ii) Explain the causes for replacement of assets ,in detail with examples (8)(May 2011)
6. Initial cost of a machine is Rs 6,00,000, with other details as below: (8)

Year	1	2	3	4	5
Resale value (Rs)	4,20,000	3,00,000	2,04,000	1,44,000	96,500
Cost of spares (Rs)	40,000	42,700	48,800	57,000	68,000
Cost of labour (Rs)	1,40,000	1,60,000	1,80,000	2,10,000	2,50,000
- Determine the optimum period for replacement of the machine.
7. Analyse the various types of maintenance and their relative merits and demerits.(Dec2009)
8. (i) Trace out the types of replacement problem.
(ii) .Develop a simple probabilistic model for items which fail completely (Dec2009)

9. The following table gives the operation cost, maintenance cost and salvage value at the end of every year of a machine whose purchase value is Rs. 20,000. Find the economic life of the machine assuming interest rate, $i = 15\%$. (May 2015)

End of year (n)	Operation cost at the end of year (Rs.)	Maintenance cost at the end of year (Rs.)	Salvage value at the end of year (Rs.)
1	3,000	300	9,000
2	4,000	400	8,000
3	5,000	500	7,000
4	6,000	600	6,000
5	7,000	700	5,000
6	8,000	800	4,000
7	9,000	900	3,000
8	10,000	1,000	2,000
9	11,000	1,100	1,000
10	12,000	1,200	0

10. Two years ago, a machine was purchased at a cost of Rs. 2,00,000 to be

useful for eight years. Its salvage value at the end of its life is Rs. 25,000. The annual maintenance cost is Rs. 25,000. The market value of the present machine is Rs. 1,20,000. Now, a new machine to cater to the need of the present machine is available at Rs. 1,50,000 to be useful for six years. Its annual maintenance cost is Rs. 14,000. The salvage value of the new machine is Rs. 20,000. Using an interest rate of 12%, find whether it is worth replacing the present machine with the new machine. (May 2015)

11. What are the factors involved in determination of economic life of an asset (Dec 2015)

12. Identify the replacement problem and suggest your ideas to eradicate it (Dec 2015)

13. A firm is considering replacement of equipment, whose first cost is Rs. 4,000 and the scrap value is negligible at the end of any year. Based on experience, it was found that the maintenance cost is zero during the first year and it increases by Rs. 200 every year thereafter. (a) When should the equipment be replaced if $i = 0\%$? (b) When should the equipment be replaced if $i = 12\%$? (APRIL/MAY 2016)

14. A diesel engine was installed 10 years ago at a cost of Rs. 50,000. It has a present realizable market value of Rs. 15,000. If kept, it can be expected to last five years more, with operating and maintenance cost of Rs. 14,000 per year and to have a salvage value of Rs. 8,000 at the end of the fifth year. This engine can be replaced with an improved version costing Rs. 65,000 which has an expected life of 20 years. This improved version will have an estimated annual operating and maintenance cost of Rs. 9,000 and ultimate salvage value of Rs. 13,000. Using an interest rate of 15%,

make an annual equivalent cost analysis to determine whether to keep or replace the old engine. (APRIL/MAY 2016)

UNIT-V
DEPRECIATION

PART – A (2 MARKS)

1. Define Depreciation?(May2015), (Dec2015)
2. What are the types of Depreciation?(May 2012)
3. Define Straight line method of depreciation?(Dec2012), (May2011)
4. Define Declining balance method of depreciation?
5. Define Sum of the year-digits method of depreciation?
6. Define sinking fund method of depreciation?(May 2012)
7. Define Service output method of depreciation?
8. Define inflation?(May2014)
9. State the objectives behind provision of depreciation. (Dec2009)
10. What is Sinking fund method of depreciation? (Dec2009)
11. What is benefit to Cost Ratio(May2015)
12. Differentiate straight line method of depreciation and declining balance method of depreciation(Dec2015)

PART – B (16 MARKS)

1. Problems in different types of depreciation methods (16) (May2010, May 2015), (Dec2015)
2. Problems in inflation adjusted decision (16)
3. Problems in finding the economic life of an asset (16)
4. (a) (i) How to adjust inflation in evaluating public alternatives? Explain the procedure. (8)
(ii) Find the depreciation annuity by annuity method after three years, when the initial cost of the machine is Rs 8,00,000 and a salvage value at the end of three years is Rs 4,00,000. Rate of interest 10 % (8)(May2014)
5. (i) What is economic life of an asset? How to determine it? Explain (May 2011)
(ii) The cost of a machine is Rs 1,60,000 and its scrap value is Rs 40,000. Estimate life 5 years using sum of years digits method, determine depreciation charges for each year.
6. (a) (i) Analyse the causes and objectives behind the provision of depreciation.
(ii) Original cost of the machine Rs. 10,000 Life time 5 years Scrap or residual value Rs. 1,000. Find out the rate of depreciation for the machine using straight line method. (6 + 10) .(Dec2009).
7. (b) (i) Write about the procedure to adjust inflation.
(ii) Give out examples on comparison of alternatives and determination of economic life of asset. (8 + 8)(Dec 2009), (May 2015)

8. Two mutually exclusive projects are being considered for investment. Project A 1 requires an initial outlay of Rs. 30,00,000 with net receipts estimated as Rs. 9,00,000 per year for the next 5 years. The initial outlay for the project A2 is Rs. 60,00,000, and net receipts have been estimated at Rs. 15,00,000 per year for the next seven years. There is no salvage value associated with either of the projects. Using the benefit cost ratio, which project would you select? Assume an interest rate of 10%. (APRIL/MAY 2016)

9. A company has recently purchased an overhead travelling crane for Rs. 25,00,000. Its expected life is seven years and the salvage value at the end of the life of the overhead travelling crane is Rs. 1,00,000. Using the straight line method of depreciation, find the depreciation and the book value at the end of third and fourth year after the crane is purchased. S. An automobile company has purchased a wheel alignment device for Rs. 10,00,000. The device can be used for 15 years. The salvage value at the end of the life of the device is 10% of the purchase value. Find the following using the double declining balance method of depreciation:

(a) Depreciation at the end of the seventh year (b) Depreciation at the end of the twelfth year (c) Book value at the end of the eighth year (APRIL/MAY 2016)

2 Marks Questions and Answers

Unit –I (INTRODUCTION TO ECONOMICS)

1. Define Economics?

Economics is the science that deals with the production and consumption of goods and services and the distribution and rendering of these for human welfare.

2. Write any four goals of economy?

- A high level of employment
- Price stability
- Efficiency
- An equitable distribution of income
- Growth

3. Explain law of supply and demand?

- The demand and supply of a product are interdependent and are sensitive with respect to the price of that product.
- Decrease in the price of a product, leads to an increase in demand of product but lowering of the price makes the producers restrain from releasing more quantities of the product in the market.

- The point of intersection of the supply curve and the demand curve is known as the **equilibrium point** because at the price corresponding to this point, the quantity of supply is equal to the quantity of demand.

4. Write about factors influencing demand?

- Income of the people
- Prices of related goods
- Tastes of consumers

5. Write about factors influencing supply?(Dec2012)

- Cost of the inputs
- Technology
- Weather
- Prices of related goods

6. Define Economic efficiency?

Economic efficiency is the ratio of output to input of a business system.

$$\text{Economic efficiency (\%)} = \frac{\text{Output}}{\text{Input}} \times 100 = \frac{\text{Worth}}{\text{Cost}} \times 100$$

7. Define engineering economics?

The technical efficiency of a diesel engine is as follows:

$$\text{Technical efficiency} = \frac{\text{Heat equivalent of mechanical energy produced}}{\text{Heat equivalent of fuel used}} \times 100$$

Technical efficiency is always < 100%; which is mainly due to frictional loss and incomplete combustion of fuel, which are considered to be unavoidable phenomena in the working of a diesel engine.

8. Define marginal cost? (May 2011) , (May 2015)

- Marginal cost of a product is the cost of producing an additional unit of that product. Let the cost of producing 20 units of a product be Rs. 1000, and the cost of producing 21 units of the same product be Rs. 1045. Then the marginal cost of producing the 21st unit is Rs. 45.

9. Define marginal revenue?

- Marginal revenue of a product is the incremental revenue of selling an additional unit of that product. Let, the revenue of selling 20 units of a product be Rs.1500 and the revenue of selling 21 units of the same product be Rs. 1585. Then, the marginal revenue of selling the 21st unit is Rs. 85.

10. Define sunk cost?

This is known as the past cost of an equipment/asset. Let us assume that an equipment has been purchased for Rs. 1,00,000 about three years back. If it is, considered for replacement, then its present value is not Rs. 1,00,000. Instead, its present market value should be taken as the present value of the equipment for further analysis. So, the purchase value of the equipment in the past is known as its sunk cost.

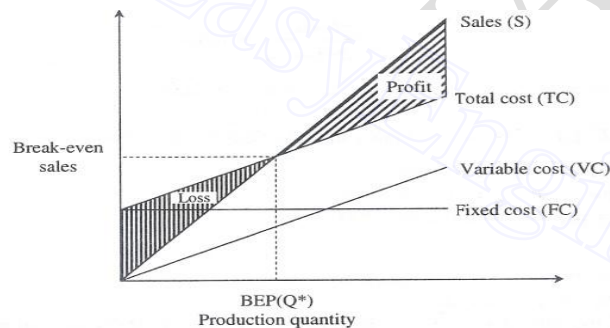
15. Define break even analysis? (Dec2012)

To find the cut-off production volume from where a firm will make profit.

Let s = selling price per unit ; ; v = variable cost per unit ; ;

FC = fixed cost per period ; ; Q = volume of production

The total sales revenue (S) of the firm is $S=s \times Q$



The total co

$TC = Total$

The linear p

The intersection point of the total sales revenue line and the total cost line is called the break-even point.

16. Define P/V ratio? (Dec2013)

P/ V ratio is a valid ratio which is useful for further analysis.

The different formulae for the PIV ratio are as follows:

Contribution Sales - Variable costs

1.
$$\text{PIV ratio} = \frac{\text{Sales} - \text{Variable costs}}{\text{Sales}} = \frac{\text{Contribution}}{\text{Sales}}$$

17. State the law of Demand. (Dec 2009)

Decrease in the price of a product, leads to an increase in demand of product but lowering of the price makes the producers restrain from releasing more quantities of the product in the

market. Increase in income level of the people improves their purchasing power leading to shift the demand

14. Define Opportunity cost (Dec2013)

In practice, if an alternative (X) is selected from a set of competing alternatives (X, Y), then the corresponding investment in the selected alternative is not available for any other purpose. If the same money is invested in some other alternative (Y), it may fetch some return. Since the money is invested in the selected alternative (X), one has to forego the return from the other alternative (Y). The amount that is foregone by not investing in the other alternative (Y) is known as the opportunity cost of the selected alternative (X).

Unit –II – Value Engineering

1. What do you mean by “make or buy decision”

Make or buy decision is a determination whether to produce a component part internally or to buy it from an outside supplier. The organization should evaluate the costs and benefits of manufacturing a product or product component against purchasing it and then select the alternative which results in the lower cost.

2. What are the different approaches followed in make or buy decision?

The following are the approaches followed in make or buy decision.

Simple cost analysis, Economic analysis, Break-even analysis

3. What is meant by value analysis\value engineering?

Value analysis is a special type of costs reduction technique. It critically investigates and analyses the different aspects of material, design cost and production of each and every component of the product in order to produce it economically without decreasing its utility, function or reliability.

4. What do you understand by value of a product?

Value differs from both price and costs proportionate to the function. We can express value mathematically as $\text{Value} = \text{function}/\text{cost}$

5. Explain “function”.

Function specifies the purpose of the product or what the product does, what is its utility.

6. What are the various functions of a product?

Functions can be classified into the following three categories:

Primary function, Secondary function, Tertiary function

7. What are the different types of values?

Cost value, Exchange value, Use value, Esteem value

8. Write any four objectives of value analysis.

Reduce the costs of the product. Simplify the product. Use cheaper and better materials. Modify and improve product design so as to make it acceptable to consumer.

9. Differentiate value analyses and value engineering.

VALUE ANALYSIS Vs VALUE ENGINEERING

1. Value analysis is the application of a set of techniques to improve its value
2. it's a remedial process
1. Value engineering is the application of exactly the same set of techniques to design the stage
2. It's a preventive process

10. List any four advantages of value engineering.

1. Value engineering/analysis identifies and reduces the product cost.
2. It modifies and improves the product design.
3. It increases the performance/utility of the product by economical means.
4. It helps to generate new ideas

11. What is "interest"?

Interest is the cost of using capital. It is the premium paid by a borrower to compensate a lender for the administration cost of making a loan, the risk of non-payment, and the loss of earnings of the loaned money.

12. What is "interest rate"?

An interest rate is a percentage that is periodically applied and added to an amount of money over a specified time.

13. Explain time value of money.

The economic value of the sum depends on when it is received. Because the money has the earning power over time, a rupee received today has a greater value than a rupee received at future time.

14. What is "economic equivalence"?

Economic equivalence refers to the fact that the cash flow- whether a single payment- can be converted to an equivalence cash flow at any point of time.

15. What is meant by "simple interest"?

The interest earned in each period is calculated based on the principle amount. In this scheme, calculation of interest on interest is not applicable.

16. What is meant by “compound interest”?

The interest earned in each period is calculated based on the total amount at the end of previous period. This total amount includes the principle plus accumulated interest up to the end of previous period.

17. What does “single cash flow refer to”?

The simplest case involves the equivalence of a single present amount and its future worth. Thus, the single cash flow formulas deal with only two amounts: a single present amount p , and its future worth.

Unit –III (CASH FLOW)

1. Say some of the main cost concepts.

- 1) Actual costs and opportunity costs
- 2) Incremental costs and sunk costs
- 3) Explicit costs and implicit costs
- 4) Past costs and future costs
- 5) Accounting costs and economic costs
- 6) Direct cost and indirect cost

2. What are actual costs and opportunity costs ?

Actual costs which a firm incurs for producing or acquiring a product or a service. As example for this is the cost on raw materials, labor, rent, interest.

3. What are incremental costs and sunk costs ?

Incremental cost is the additional cost due to change in the level of nature or business activity. Sunk costs are the costs that are not altered by a change in quantity produced and cannot be recovered.

4. What are Explicit costs and implicit costs ?

Explicit or paid out costs are those expenses which are actually paid by the firm. Implicit costs are the theoretical costs in the sense that they go unrecognized by the accounting system.

5. What are past costs and future costs ?

Past costs are the actual costs incurred in the past are generally contained in the financial accounts. Future costs are costs that are expected to occur in some future period or periods.

6. What are accounting costs and economic costs ?

Accounting costs are the actual outlay costs. Economic cost relate to the future,

7. What is direct and indirect cost?

Direct cost is traceable cost or assignable cost are the ones that have direct relationship with a unit of operation like a product, a process or a product, or a department of the firm. On the otherhand, indirect costs or non traceable costs or common or non assignable costs are the costs whose course cannot be easily and definitely traced to the plant.

8. What are private costs and social costs?

Private costs are those which are actually incurred or provided for the business activity by an individual or the business firm. Social costs on the otherhand are the total costs to the society on account of production of a good.

9. What are controllable and non controllable costs ?

Controllable costs are those which are capable of being controlled or regulated by the managers and it can be used to assess the managerial efficiency in controlling the cost in his department.

Non controllable costs are those which cannot be subjected to administrative controls and supervision.

10. What are replacement costs and original costs?

Original costs or the historical costs are the costs paid for assets such as land, building, cost of plant, equipment and materials. Replacement costs are the costs that the firm incurs if it wants to replace or acquire the same assets now.

11.what are incremental cost and marginal cost?

Incremental cost is important when dealing with decisions where discrete alternatives are to be Compared marginal cost deals with unity unit output.

12.what are the determinants of cost?

- 1) level of output
- 2) price of inputs.
- 3) size of plant
- 4) output stability
- 5) production lot size
- 6)level of capability utilization

- 7) technology
- 8) learning effect
- 9) breadth of product range, 10) geographical location

13. What are the two aspects in cost output relationships?

- 1) Cost output relationship in short run.
- 2) Cost output relationship in long run.

14. What are the terms involved in cost output relationship?

- 1) Average fixed cost.
- 2) Average variable cost.
- 3) Average total cost.

15. What is level of capacity utilization?

The higher the capacity utilization fixed cost per unit of output is bound to be low.

Unit – IV (REPLACEMENT AND MAINTENANCE ANALYSIS)

1. What is replacement analysis?

Replacement analysis involves the replacement of existing obsolete or worn-out assets in order to avoid failure in operations. The problems often faced by management of many industries are whether to replace the existing equipment with new and more efficient replacement or to continue to use existing replacement should be replaced with efficient equipment. This class of decision analysis is known as replacement analysis.

2. What is gradual failure?

Gradual failure is progressive in nature. It can be depicted in machine equipment, which is gradually depreciating or deteriorating with the time resulting in very high operating and maintenance costs or decreased residual value. It is easier to predict such type of failures and taking the corrective measures by providing a replacement policy for such machine equipment.

3. Define economic service life of an asset?

The economic service life of an asset is defined to be the period of useful life that minimizes the annual equivalent cost of owning and operating the asset.

4. What are the types of replacement problem?

- (a) Replacement of assets that deteriorate with time. This can be further classified into two types: (i) Determination of economic life of an asset. (ii) Replacement of an asset with a new asset.
- (b) Simple probabilistic model for assets which fails completely.

5. Explain capital recovery cost?

Capital recovery cost computed from the first cost of the machine. Generally speaking as an asset becomes older, its salvage value becomes smaller. As long as the salvage value is less than the initial cost, the capital recovery cost is a decreasing function of the life of the asset. In other words, the longer we keep an asset, the lower the capital recovery cost becomes.

6. Explain operating costs?

The operating costs of an asset including operating and maintenance costs, labor costs, material costs and energy consumption costs. O & M costs tend to increase as a function of the age of an asset usually increases as the asset ages. As long as the annual operating cost increase with the age of equipment, the annual equivalent operating cost is an increasing function of the life of the asset.

7. Explain annual equivalent total cost.

Annual equivalent total cost of owning and operating an asset is a summation of the capital recovery cost and the annual equipment operating cost of the asset.

8. Explain sunk costs.

The purchase cost of equipment three years ago and repair cost of last year are called as sunk cost. A sunk cost is any past cost unaffected by any future investment decision. In a proper engineering economic analysis, only future cost should be considered; past sunk cost should be ignored.

9. What is meant by maintenance?

Maintenance is concerned with the day to day problem of keeping production facilities and equipment in proper operating condition. The machines and equipments should be continuously monitored for their efficient functioning. Otherwise, the quality of service will be poor and the cost of operation and maintenance would increase with the passage of time.

10. Name the type of maintenance.

- (a) Corrective or breakdown maintenance
- (b) Scheduled maintenance (c) Preventive maintenance and (d) Predictive maintenance

11. State the main causes of breakdown.

- (i) Failure to replace worn out parts (ii) Lack of lubrication (iii) Indifference towards minor faults

12. State any two disadvantages of breakdown maintenance.

- (i) Delays in production. (ii) Faster plant deterioration.

UNIT –V - DEPRECIATION

1. Define the term depreciation?

Depreciation is a process of allocating the acquisition cost of the tangible assets less salvage value, if any, in a systematic and a rational manner over the estimated life of the asset.

2. Mention the various methods used in depreciation calculation.

The various methods used in depreciation calculations are: 1. Straight line method 2. Declining balance method 3. Sum of the years digits method 4. Sinking fund or annuity method 5. Service output method

3. What are the causes of depreciation?

The causes of depreciation are:

1. Wear and tear
2. Depletion
3. Obsolescence
4. Lapse of time

4. Write five reasons for providing depreciation?

The reasons for providing depreciations are:

1. To know the correct profits.
2. To show correct financial positions.
3. To make provision for replacement of assets.
4. To compute tax liability.
5. To decide for how much to buy or sell the assets in the second-hand market.

5. How to compute the sum of the digits of the years, if an asset has a life of six years?

Sum of the years = $1+2+3+4+5+6 = 21$
 $1 = n(n+1)/2 = 6(6+1)/2 = 42/2 = 21$

6. What is evaluation of public alternative?

Evaluation of public alternative is nothing but the selecting of best alternative from the available alternatives.

7. What is the main objective of evaluation of public alternatives?

To provide goods and services to the public at the minimum cost is the main objective of evaluation of public alternatives. In the situation of public alternative evaluation must consider a point that whether the benefit of the public activities are least equal to its costs of consumptions during the job.

8. What is „BOOK VALUE“?

The value at which asset is carried on the balance sheet. In other words, the cost of assets minus accumulated depreciation.

9. What is service output method of depreciation?

Service output method of depreciation is a type of computing, Depreciation based on service rendered by an asset.

10. Define the term cost ratio?

The ratio between the equivalent benefit and equivalent costs is called the benefit cost ratio
BC ratio = $\text{equivalent benefit} / \text{equivalent costs}$

11. Define term inflation.

Inflation may be defined as the sustained rise in the general price level. It is an economic condition where there is an increase in prices resulting in the fall in the purchasing power of money.

PIT MECHANICAL
www.EasyEngineering.net