**1. What is elasticity of demand?**

   Elasticity of demand may be defined as 'the degree of responsiveness of quality demanded to a change in price'

**2. Define the term 'cost'?**

   Cost may be defined as a total of all expenses incurred, weather paid of outstanding, in the manufacture and scale of product.

**3. What is opportunity cost?**

   Opportunity cost may be defined as the potential benefit that is given up as you seek an alternative course of action. In other words, the expected return or benefit for gone in rejecting one course of action for another.

**4.  What do you mean by marginal cost?**

   The institute of cost & works accounts of india defined marginal cost as, *"the amount at any given volume of output by which aggregate costs are changed, if the volume of output is increased or decreased by one unit".*

**5.  Explain marginal cost?**

   Marginal costing is defined by the ICWA as, *"the ascertainment by differentiating between fixed cost and variable cost, of marginal costs and of the effect on profit of changes in volume or type of output".*

**6.  What is meant by marginal revenue?**

   The revenue that can be obtained from selling one more unit of product is called marginal revenue.

**7.  Give a short note on sunk cost?**

   A cost which was incurred or sunk in the past and is not relevant to the particular decision making is a sunk cost or sunk loss. It may be variable or fixed or both.

**8.  List out the elements of cost?**

   The element of cost are:
   (i)     Materials
   (ii)    Labor cost
   (iii)   Expenses

**9.  Define the term costing?**

   Institute of cost and management Accountants (I.C.M.A) London has defined costing as the ascertainment of costs. *"it refers to the techniques and process of ascertaining costs and studies the principles and rules concerning the determination of costs of product and services"*

### 10. What is break even point?

The break even point is, the volume of output at which neither a profit is made nor a loss is occurred.

It is a point where the total sales are equal to total cost.

### 11. Write the formulae to find P/V ratio?

The formula for computing the P/V ratio is given below:

$$\text{P/v ratio} = \frac{Contribution}{sales}$$

$$(\text{or}) \quad = \frac{Fixed\ cost + Profit}{sales}$$

$$(\text{or}) \quad = \frac{Fixed\ cost + Profit}{sales}$$

### 12. List out the formulas to find the Margin of safety?

Margin of safety = Actual sales- sales at B.E.P

$$(\text{or}) = \frac{Profit}{\frac{P}{v}\ ratio}$$

$$(\text{or}) = \frac{Profit}{Contribution} \times sales$$

$$\text{As per percentage} = \frac{Margin\ of\ saftey}{Total\ Sales} \times 100$$

### 13. What is fixed costs?

Fixed costs means that the costs tends to be unaffected with the volume of output. Fixed costs depends upon the passage of time & does not vary directly with the volume of output. It is also known as period cost, (e.g) rent & rates of factory buildings. Insurance of buildings, depreciation of buildings, etc.

### 14. Give a short note on variable cost.

Variable costs tends to vary directly with the volume of output. It varies almost in direct portion to the volume of production. The examples of such expenses are the cost of direct materials, direct labour, direct chargeable expenses such as power, repairs, etc. if production increases, the costs will also increases, the costs will also increases and vice versa.

### 15. What is contribution?

Contribution is the difference between sales and marginal cost of sales. The formula for contribution are as follows:

Contribution = sales – Marginal cost

(or)    = sales – variable cost

Contribution = Fixed cost ± Profit or loss

# PART –B

1. Explain in detail about flow in an economy? (16)

2. Explain the concept of law of supply and demand with suitable example? (16)

3. Briefly explain about element of cost and its classification? (16)

4. Explain the concept of break even analysis with clear diagram? (16)

5. Briefly explain about process planning and its various types? (16)

6. (a) (i)Bring out the scope of engineering economics with appropriate examples (8)

   (ii) A concern manufacturing a domestic appliance proposes to put up an improved model in market and theselling price for the same to be decided .The selling price will cover the overheads and ensure the proportion ofprofit on sales as before.The material in the new model will cost Rs 4000 and the direct wages would be Rs2000.Following figures relate to the previous year:
   Stock material on 1st April 2006 Rs 2,00,000 (8)
   Stock material on 31 stMarch 2007 Rs 2,20,000
   Purchase of raw material in this period Rs 5,20,000
   Manufacturing wages Rs 1,60,000
   Works overhead Rs 80,000
   Administrative and sales overhead Rs 80,000
   Sales during the year Rs 9,02,000
   Suggest a selling price .Overhead absorption base on % of direct labour.

7. (i) Explain the process of material selection in new product development (8)

   (ii) From the following details ,calculate the break even point .What will be the selling price per unit if break even point to be brought to 900 units:
   Variable cost per units Rs 750 (8)
   Fixed expenses Rs 27,00,000
   Selling price per unit Rs 1,000

8. Define economics. Also discuss the flow of goods, services, resources andmoney payments in a simple economy with the help of a suitable diagram.

9.Illustrate the effect of price on demand and supply; illustrate with the helpof a diagram.

10.Discuss the factors which influence demand and supply.

**1.  What do you mean by Make or Buy Decisions?**

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 result in the lower cost.

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

The following are the approaches followed in ake or buy decisions.
1.  Simple cost analysis
2.  Economic analysis
3.  Break-even analysis

**3.  What is meant by value analysis/value engineering?**

Value analysis is a special type of cost reduction technique. It critically investigates and analyses the different aspects of materials, 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 cost in the sense that it is the cost proportionate to the function. We can express value mathematically as

$$value = \frac{Function\ or\ utility}{cost}$$

**5. Explain 'function'**

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

**6. What are the various functions of a product?**

Functions can be classified into the following three categories;

1. Primary functions

2. Secondary functions

3. Tertiary functions

**7. What are the different types of values?**

1. Cost value

2. Exchange value

3. Use value

4. Esteem value

## 8. Write any four objectives of value analysis?

1. Reduce the cost of the product

2. Simplify the product

3. Use (new) cheaper and better materials

4. Modify and improve product design so as to make it acceptable to consumers.

## 9. Differentiate value analysis and value engineering.

| Value analysis | Value engineering |
|---|---|
| 1. Value analysis is the application of a set of techniques to an existing product with a view to improve its value | Value engineering is the application of exactly the same set of techniques to a new product at design stage |
| 2. It is a remedial process | It is a preventive process |

## 10. List any four advantages of value engineering.

1. Value engineering/analysis identify and reduce 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 administrative 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 length of time.

## 13. Explain Time Value of Money.

The economic value of a sum depends on when it is received. Because money has earning power over time (it can be put to work, earning more money for its owner), a rupee received today has a greater value than a rupee received at some future time.

## 14. What is 'Economic Equivalence'?

Economic equivalence refers to the fact that a cash flow weather a single payment or a series of payments can be converted to an equivalent cash flow at any point of time.

### 15. What is meant by value '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 the previous period. This total amount includes the principle plus accumulated interest upto the end of the previous period.

### 17. What does "single cash flow" refers to?

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

### 18. What does "equal (uniform) series" refers to?

Probably the most familiar category includes transactions arranged as a series of equal cash flows at regular intervals, known as an equal-payment series or uniform series.

### 19. What does "Linear gradient series" refers to?

While many transactions involve series of cash flows, the amounts are not always uniform; they may, however, vary in same regular way. One common pattern of variation occur when each cash flow in a series increases (or decreases) by a fixed amount.

### 20. What is compound amount factor?

The factor $(1+i)^N$ is known as the compound amount factor. Like the concept of equivalence, this factor is one of the foundations of economic analysis. Given this factor, all the other important interest formulas can be derived which is designated (F/P, I, N)

### 21. What is present worth factor?

The factor $1/(1+i)^N$ is known as the present worth factor and is designated (P/F, I, N). it is also referred as the discounting factor.

### 22. What is sinking fund factor?

The factor $i/(1+i)^N - 1$ is called the equal payment series sinking fund factor or sinking fund factor, and is referred to by the notation (A/F, i, N). A sinking fund is an interest-bearing account into which a fixed sum is deposited each interest period, it is commonly established for the purpose of replacing fixed assets.

### 23. What is capital recovery factor?

The factor $i(1+i)^N/(1+i)^N-1$ is called the equal payment series capital recovery factor, or simply capital recovery factor, which is designated (A/P, I, N). in finance, this A/P factor is referred to as the annuity factor. The annuity factor indicates a series of payments of a fixed, or constant, amount for a specified number of periods.

### 24. What is uniform gradient conversion?

The factor $\left[\frac{(1+i)^N - i\,N - 1}{i[(1+i)^N - 1]}\right]$ is called the uniform gradient factor or the gradient to equal payment series conversation factor and is designated (A/G, i, N). The future sum of annual equal payments at the end of every year for N years is equal to the total amount of gradient series at the end of N years.

### 25. What is 'effective interest rate'?

Effective interest rate is a percentage which is periodically applied to measure the cost of money when the interest rates compounded for less than a year i.e., monthly, quarterly, half yearly. The formula to compute effective interest rate is

$$R = (1+i/C)^C - 1$$

Where ,        i= the nominal interest rate

C = the number of interest periods in a year

### 26. Explain the concept of Discounting?

Finding the present worth of a future sum is simply the reverse of compounding and is known as discounting process.

The formula to obtain present worth is

$$P = \frac{F}{(1+i)^N} = F(P/F, i, N)$$

(P/F, i, N) is the factor notation for single payment present worth factor. The interest rate I and the P/F factor are also referred to as the discount rate and discount factor, respectively.

## PART –B

1. Explain in details about criteria for make or buy decision and its approaches? (Also see problems) (16)

2. Problems in single –payment compound amount method?(16)

3. Problems in single payment present worth factor?(16)

4. Problems in equal payment series sinking fund factor method?(16)

5. Problems in equal payment series present worth factor method?(16)

6. Problems in equal payment series capital recovery factor method?(16)

7. ( i) What is uniform gradient conversion?Illustrate with an example. (8)

(ii)What is value engineering ?With suitable example ,explain the various phases of value (8)engineering job plan:
(a) An engineer is considering two types of pressure sensors for a low pressure steam line.The costs are shownbelow.Which should be selected based on a present worth comparison at an interest rate of 16 % per year?
Type X Type Y
First cost Rs 76,000 Rs 1,29,000
Maintenance cost/year 12,000 9000
Salvage value 0 20,000
life,years 24

9. Explain the time value of money.

10.A person deposits a sum of Rs. 1,00,000 in a bank for his son's educationwho will be admitted to a professional course after 6 years. The bank pays15% interest rate, compounded annually. Find the future amount of thedeposited money at the time of admitting his son in the professionalcourse.

# UNIT- III     CASH FLOW

### 1. What is revenue dominated cash flow?

The profit/revenue, salvage value of all inflows to an organization will be assigned with positive sign and the costs outflows will be assigned with negative sign is called revenue dominated cash flow.

### 2. What is cost dominated cash flow?

The costs outflows will be assigned with positive sigh and the profit, revenue, salvage value all inflows etc., will be assigned with negative sigh is called cost dominated cash flow.

### 3. What is annual equivalent method of comparing alternatives?

In these case of revenue dominated cash flow, the corresponding annual equivalent revenues are to be computed and compared, then the alternative with the maximum annual equivalent revenue should be selected as the best alternative.

In these case of cost dominated cash flow, the corresponding annual equivalent costs are to be computed and compared, then the alternative with the minimum annual equivalent cost should be selected as the best alternative.

### 4. Mention the various rate of return method.

The various rate of return methods are

   1. Internal rate of return (IRR)

   2. Average rate of return (ARR)

   3. Net preset value method (NPV)

   4. Pay-back period (PBP)

### 5. What is rate of return?

Rate of return is the break-even interest rate, I, which equates the present worth of a projects cash outflows to the present worth of its cash inflows.

### 6. What is present worth method?

The present worth measures the surplus in an investment project at time zero (0). The present worth of all cash inflows is computed against the present worth of all cash outflows associated with an investment of project is called present worth method.

### 7. What is future worth analysis?

Net future worth measures the surplus at a time period other than zero (0). Future worth analysis is particularly useful in an investment situation where we need to compute the equivalent worth of a project at the end of its investment period.

### 8. What is annual equivalent method?

The criterion provides a basis for measuring investment worth by determining equal payments on an annual basis is called annual equal method.

1. Problems in present worth method (Revenue dominated cash flow diagram) (16)

2. Problems in future worth method (Revenue dominated cash flow diagram) (16)

3. Problems in Annual equivalent method (Revenue dominated cash flow diagram) (16)

4. Problems in Annual equivalent method (cost dominated cash flow diagram) (16)

5. Problems in rate of return method (16)

6.. A company that manufactures amplified transducers is trying to divide between the machines shownbelow.Compare them on the basis of annual worth using an interest rate of 15
5 pr year
Variable speedDual speed
First cost,Rs 4,50,000 2,40,000
Annual operating cost Rs 3,10,000 3,50,000
Overhaul in years 2 and 4 ,Rs - 60,000
Overhaul in years 5 ,Rs 1,20,000 -
Salvage value ,Rs 1,00,000 80,000
Life ,years 8 6

7.Alpha Industry is planning to expand its production operation.It has identified three different technologies for meeting the goal. The initialoutlay and annual revenues with respect to each of the technologies aresummarized in Table 4.1. Suggest the best technology which is to beimplemented based on the present worth method of comparison assuming 20%interest rate, compounded annually.

Table 4.1
Initial outlay Annual revenueLife(Rs.) (Rs.) (years)
Technology 1 12,00,0004,00,000 10
Technology 2 20,00,0006,00,000 10
Technology 3 18,00,0005,00,000 10

8.A granite company is planning to buy a fully automatedgranite cutting machine. If it is purchased under down payment, the cost of themachine is Rs. 16,00,000. If it is purchased under installment basis, them company has to pay 25% of the cost at the time of purchase and the remainingamount in 10 annual equal installments of Rs. 2,00,000 each. Suggest the bestalternative for the company using the present worth basis at i = 18%,compounded annually.

9. FutureWorth Method:A man owns a corner plot. He must decide which of the several alternatives to select in trying to obtain a desirable return on hisinvestment. After much study and calculation, he decides that the two bestalternatives are as given in the following table: Build Build soft
Gasstation ice-cream stand
First cost (Rs.) 20,00,00036,00,000
Annual property taxes (Rs.) 80,000 1,50,000
Annual income (Rs.) 8,00,000 9,80,000
Life of building (years) 20 20
Salvage value (Rs.) 0 0
Evaluate the alternatives based on the future worth method at i = 12%.

10. Annual Equivalent Method: A company provides a car to its chief executive. The ownerof the company is concerned about the increasing cost of petrol. The cost perlitre of petrol for the first year of operation is Rs. 21. He feels that the cost ofpetrol will be increasing by Re.1 every year. His experience with his companycar indicates that it averages 9 km per litre of petrol. The executive expects todrive an average of 20,000 km each year for the next four years. What is theannual equivalent cost of fuel over this period of time?. If he is offered similarservice with the same quality on rental basis at Rs. 60,000 per year, should theowner continue to provide company car for his executive or alternativelyprovide a rental car to his executive? Assume i = 18%. If the rental car ispreferred, then the company car will find some other use within the company.

### 1. What is replacement analysis?

Replacement analysis involve the replacement of existing obsolete or worn-out assests in order to avoid failure in operations. The problem often faced by management of various industries are weather to replace the existing equipment with new and more efficient equipment or to continue to use existing equipment, and when existing equipment should be replaced with efficient equipment. This class of decision analysis is known as replacement analysis.

### 2. What is meant by 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 and/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 (replacement due to gradual failure, or wear and tear of the components of the machine). This can be further classified into the following 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.(Replacement due to sudden failure).

### 5. Explain capital recovery cost?

Capital recovery cost computed from the first cost (initial investment/purchase price) 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 include operating and maintenance (O & M) costs, labour costs, material costs, and energy consumption cost. O & M costs tend to increase as a function of the age of the asset. Because of increasing trend of the O & M costs, the total operating costs of an asset usually increases as the asset ages. As long as the annual operating cost increase with the

age of the 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 (average first cost) and the annual equivalent operating costs of the asset.

## 8. Explain sunk cost?

The purchase costs of an equipment three years ago and repair cost of last year are called as sunk cost. A sunk c0st is any past cost unaffected by any future investment decision.

In a proper engineering economic analysis, only future cost should be considered; past sunk costs should be ignored.

## 9. What is meant by maintenance?

Maintenance is considered with the day-to-day problem of keeping production facilities and equipment in proper operating condition.

The machines and equipment's should be continuously monitored for this 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 types of maintenance?

(a) Corrective or Breakdown maintenance

(b) Scheduled maintenance

(c) Preventive maintenance

(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

# PART – B

1.Problems in Maintenance (16)

2. Problems in types of Replacement? (16)

3. Problems in finding the economic life of an asset? (16)

4. Problems in Capital recovery with return (16)

5. Problems in Simple probabilistic model for assets which fail completely (16)

6.(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)

7. 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 2,10,00 0 2,50,000
Determine the optimum period for replacement of the machine.

8.Replacement and Maintenance Analysis:A firm is considering replacement of an equipment, whosefirst 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 thefirst 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 $i = 12\%$?
(a) When $i = 0\%$. In this problem,
(i) First cost = Rs. 4,000
(ii) Maintenance cost is Rs. 0 during the first year and it increases
by Rs. 200 every year thereafter.

9. Explain with examples the replacement of existing asset with anew asset.

10.Challenger and Defender: Two years ago, a machine was purchased at a cost ofRs. 2,00,000 to be useful for eight years. Its salvage value at the end of its lifeis Rs. 25,000. The annual maintenance cost is Rs. 25,000. The market value ofthe present machine is Rs. 1,20,000. Now, a new machine to cater to the needof the present machine is available at Rs. 1,50,000 to be useful for six years. Itsannual maintenance cost is Rs. 14,000. The salvage value of the new machineis Rs. 20,000. Using an interest rate of 12%, find whether it is worth replacingthe present machine with the new machine.

# UNIT – V    DEPRECIATION

## 1. Define the term "Depreciation".

Depreciation is the process of allocation the acquisition cost of the tangible assests 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 methods

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. Deplection

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 position.

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 complete 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

$$21 = \frac{n(n+1)}{2}$$

$$= \frac{6(6+1)}{2}$$

$$= \frac{42}{2}$$

$$= 21$$

### 6. What is elevation of public alternatives?

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 this situation of public alternative evaluation must consider a point that whether the benefits of the public activity are at least equal to its costs of consumption during the job.

### 8. What is 'book value'?

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

### 9. Define the term 'benefit cost ratio'.

The ratio between the equivalent benefit and equivalent cost is called benefit cost ratio.

i.e., $\quad$ BC ratio $= \dfrac{Equivalent\ bebefits}{equivalent\ costs}$

### 10. Define the term 'inflation'.

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

### 11. What are the types of inflation?

The types of inflation are:

1. Creeping inflation

2. Moderate inflation

3. Galloping inflation

4. Hyper inflation

### 12. What is service output method of depreciation?

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

## PART – B

1. Problems in different types of depreciation methods (16)

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 Rs8,00,000 an salvage value at the end of three years is Rs 4,00,000. Rate of interest 10 % (8)

5. Depreciation:(i) What is economic life of an asset?How to determine it ?Explain
(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 ofyears digits method ,determine depreciation charges for each year.Demonstrate the calculations of thesum-of-the-years-digits method of depreciation.

6. Evaluation Of Public Alternative:In a particular locality of a state, the vehicle users take aroundabout route to reach certain places because of the presence of a river. Thisresults in excessive travel time and increased fuel cost. So, the state governmentis planning to construct a bridge across the river. The estimated initialinvestment for constructing the bridge is Rs. 40,00,000. The estimated life of thebridge is 15 years. The annual operation and maintenance cost is Rs. 1,50,000.The value of fuel savings due to the construction of the bridge is Rs. 6,00,000in the first year and it increases by Rs. 50,000 every year thereafter till the endof the life of the bridge. Check whether the project is justified based on BC ratioby assuming an interest rate of 12%, compounded annually.

7. Discuss the difference in evaluating alternatives of private and publicorganizations.

8. Consider the evaluation of the alternative of constructing a bridge across ariver. List the different benefits and costs related to this alternative.

9. Adjust Inflation: Suppose a 40-year old man is planning for his retirement. Heplans to retire at the age of 60 and estimates that he can live comfortably onRs. 24,000 per year in terms of today's rupee value. He can invest his savingsat 15% compounded annually. Assume an average inflation rate of 9% for thenext 30 years.What equal amount should he save each year until he retires so that he canmake withdrawals at the end of each year commencing from the end of the 21
styear from now that will allow him to live as comfortably as he desires for 10years beyond his retirement?

10. Declining Balance Method of Depreciation: A company has purchased an equipment whose first cost

is Rs. 1,00,000 with an estimated life of eight years. The estimated salvage valueof the equipment at the end of its lifetime is Rs. 20,000. Determine thedepreciation charge and book value at the end of various years using the straightline method of depreciation and demonstrate the calculations of the declining balance method of depreciation by assuming 0.2 for K.