



# KINGS



COLLEGE OF ENGINEERING

**DEPARTMENT OF MECHANICAL ENGINEERING**  
**QUESTION BANK**

**SUBJECT CODE: MA1451**

**YEAR: IV**

**SUBJECT NAME: ENGINEERING ECONOMICS AND COST ANALYSIS**

**SEM: VIII**

**UNIT I - INTRODUCTION TO ECONOMICS**

**PART – A (2MARKS)**

1. Define Economics?
2. Write any four goals of economy?
3. Explain law of supply and demand?
4. Write about factors in fluency demand?
5. Write about factors in fluency supply?
6. Define Economic efficiency?
7. Define engineering economics?
8. Define marginal cost?
9. Define marginal revenue?
10. Define sunk cost?
11. Define break even analysis?
12. Define P/V ratio?
13. Define processes planning?

**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 the selling price for the same to be decided. The selling price will cover the overheads and ensure the proportion of profit on sales as before. The material in the new model will cost Rs 4000 and the direct wages would be Rs 2000. Following figures relate to the previous year:

Stock material on 1st April 2006 Rs 2,00,000 (8)  
 Stock material on 31 st March 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

**UNITII - VALUE ENGINEERING**

**PART – A (2 MARKS)**

1. What are the approaches available for make or buy decision?
2. Define value engineering?
3. Write any four aims of value engineering?
4. Write the basic steps of value engineering?
5. Define time value of money?
6. Define single –payment compound amount method?
7. Define single payment present worth factor?
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?

**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 shown below. 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 2 4

### **UNIT III - CASH FLOW**

#### **PART – A (2 MARKS)**

1. Write down the techniques for comparing the worthiness of the project?
2. Define present worth method( Revenue dominated cash flow diagram)
3. Define future worth method( Revenue dominated cash flow diagram)
4. Define future worth method(cash dominated cash flow diagram)
5. Define Annual equivalent method(Revenue dominated cash flow diagram)
6. Define Annual equivalent method(cost dominated cash flow diagram)
7. Define rate of return method?
8. What is annual equivalent method of comparing alternatives?
9. What is revenue dominated cash flow?
- 10 What is the economic life of a project?
- 11 What are the various methods available in decision making in selection of Alternative in economic analysis of investment?

#### **PART – B**

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 shown below. Compare them on the basis of annual worth using an interest rate of 15

5 pr year

Variable speed Dual 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

**UNIT IV - REPLACEMENT AND MAINTAINENCE ANALYSES**

**PART – A (2 MARKS)**

1. Write the different types of maintenance?
2. Define prevention maintenance (PM)?
3. Define Break down maintenance ?
4. Write the different types of Replacement?
5. Define economic life of an asset?
6. What are the types of Replacement policies?
7. What are the types of replacement problem?

**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.

### **UNIT-5**

### **DEPRECIATION**

### **PART – A (2 MARKS)**

1. Define Depreciation?
  2. What are the types of Depreciation?
  3. Define Straight line method of depreciation?
  4. Define Declining balance method of depreciation?
  5. Define Sum of the year-digits method of depreciation?
  6. Define sinking fund method of depreciation?
  7. Define Service output method of depreciation?
  8. Define inflation?
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9. List the reasons for inflation?
  10. List the effect of inflation ?

### **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 Rs 8,00,000 and a salvage value at the end of three years is Rs 4,00,000. Rate of interest 10 % (8)
5. (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 of years digits method, determine depreciation charges for each year.