

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY :: PUTTUR
(AUTONOMOUS)**

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Anantapuramu)
(Accredited by NBA & Accredited by NAAC with 'A' Grade)
(An ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam Road, PUTTUR-517 583

QUESTION BANK

Subject with Code: EM (16ME8810) Course & Branch: M. Tech(TE)
Sem : II-Sem Regulation: R16

UNIT-I

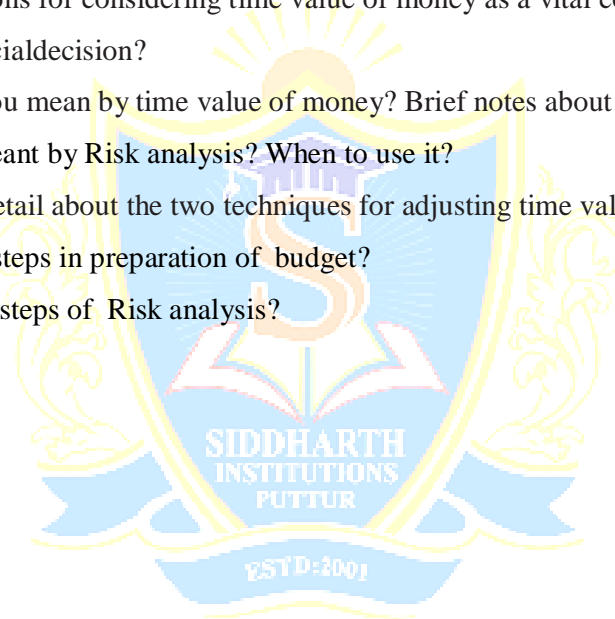
1. a) Define Energy management? Why is it needed? -----5M
b) Brief about managerial objectives for energy management? -----5M
2. What are the principles of Energy Management? -----10M
3. What are the qualities and functions of an energy manager? -----10M
4. Write about energy management in manufacturing industries? -----10M
5. Explain the process of energy management in process industries? -----10M
6. What role has to be played by an energy manager in the energy management of a commercial building? -----10M
7. What are the necessary steps in an energy management programme? -----10M
8. Explain in detail about an energy management program in any one MNC? -----10M
9. a) What is the scope for energy management in industries? -----5M
b) What are the responsibilities of an energy manager in an organisation? -----5M
10. What knowledge and skills should an energy management team should possess in implementing energy management? -----10M

UNIT-II

1. Define energy audit? How it is done and the purpose of it? ----10M
2. What are the objectives of energy audit? ----10M
3. Detail the concepts of energy audit? ----10M
4. Explain about different types of energy audit? ----10M
5. Illustrate different forms of energy with suitable examples? -----10M
6. Explain briefly the difference between preliminary and detailed energy audits? ----10M
7. a. What is the significance of knowing the energy costs? ----5M
b. What are the benefits of benchmarking energy consumption? ----5M
8. Describe in detail about energy conservation schemes? ----10M
9. Define with examples: ----10M
 - a) Energy Index
 - b) Cost index
 - c) Pie chart
10. Generate a report for presentation of Energy audit result? ----10M
11. Write about energy auditing in foundry? ----10M
12. How to conserve the energy with the aid of technology? ----10M
13. What are the design process steps for energy conservation? ----10M
14. Draw the Energy flow network diagram for room heating ? ----10M
15. How to do critical assessment of energy usage? ----10M
16. Write about the formulation process of objectives and constraints of an energy flow system? ----10M
17. What is process integration in relation to energy conservation? What are the advantages of process integration? ----10M

UNIT- III

1. What is the scope and nature of economic analysis? ----10M
2. Differentiate between micro economics and macro economics? ----10M
3. What are the different goals of economics? ----10M
4. Discuss the methodology of economics? ----10M
5. Explain characterization process of Investment project? ----10M
6. What is meant by depreciation and how it is calculated? ----10M
7. Define time based depreciation and brief the methods to calculate it? ----10M
8. Name different methods of depreciation? Explain in detail about any two types of depreciation? ----10M
9. Mention reasons for considering time value of money as a vital consideration for taking a financial decision? ----10M
10. a) What do you mean by time value of money? Brief notes about it? ----5M
b) What is meant by Risk analysis? When to use it? ----5M
11. Illustrate in detail about the two techniques for adjusting time value of money?--10M
12. What are the steps in preparation of budget? ----10M
13. Give detailed steps of Risk analysis? ----10M



UNIT-IV

1. What is meant by Project evaluation and Monitoring? Name the project evaluation methods? -----5M
2. Explain Pay back method with an example? What are its advantages and disadvantages? -----10M
3. What is meant by NPV or Present worth? Mention its disadvantages? -----5M
4. Define Internal rate of return, its formula along with an example? -----5M
5. What is meant by replacement analysis and the reasons for replacement of an equipment? -----5M
6. Who is called as energy consultant? Explain the necessity and responsibilities of energy consultant? -----10M
7. What is the selection criteria for an energy consultant? -----10M
8. Explain about Regulations supporting the development of renewable energy in India? -----10M
9. What is the role and responsibility of Central Electricity Regulatory Commission in India as per Electricity Act, 2003? -----10M
10. a) Due to increased demand, the management of Rani Beverage Company is considering to purchase a new equipment to increase the production and revenues. The useful life of the equipment is 10 years and the company's maximum desired payback period is 4 years. The inflow and outflow of cash associated with the new equipment is given below:
The initial cost of equipment is Rs.37,500. Should Rani Beverage Company purchase the new equipment? -----5M

<u>Annual cash inflow:</u>	<u>Annual cash outflow:</u>		<u>Non cash expenses:</u>
Sales Rs.75,000	Cost of ingredients	Rs.45,000	Depreciation Rs.5,000
	Salary expenses	Rs.13,500	
	Maintenance expenses	Rs.1,500	

- b) A company purchased a machine 3 years ago with an investment of Rs.1,00,000, it is in working condition and still it can provide service for a period of 8 years. Annual

cost of operating the machine is Rs. 23,000 and present selling value in its condition is about Rs.75,000 but the salvage value of machine (in 8 years) is Rs.10,000. If the machine is replaced by a new efficient machine it would cost Rs. 1,50,000, with an operating cost of Rs. 10,000 per year and also having a life of 8 years with no salvage. With an MARR of 10% find out whether the company should retain the ownership of the existing machine or to replace it with latest one. ----5M



UNIT-V

1. a) What is solar energy and brief about its different forms? Mention the types of collecting of solar energy. ----5M
b) Discuss about the different technologies to harness solar energy? ----5M
2. Define solar thermal collector? What are the advantages and disadvantages of solar energy? ----10M
3. Explain in detail about types of Non concentrating collectors? ----10M
4. Explain in detail about types of Concentrating collectors? ----10M
5. What is meant by Thermal Energy Storage? Explain TES process? ----10M
6. Write about TES heating and cooling applications? ----10M
7. What is Wind energy? What are its advantages and disadvantages? ----10M
8. What is a Wind Turbine? Explain about the components of wind turbine? ----10M
9. What are the different configurations of Wind Turbines? Explain? ----10M
10. a) Write about the controls of a Wind turbine? ----5M
b) Explain about performance characteristics of a Wind turbine? ----5M

