



SIDDHARTH GROUP OF INSTITUTIONS :: PUTTUR
Siddharth Nagar, Narayanavanam Road – 517583

QUESTION BANK (DESCRIPTIVE)

Subject with Code : EACM(16EE4313)

Course & Branch: M.Tech -PE

Year & Sem: I-M.Tech & II-Sem

Regulation: R16

Example Design format:

UNIT – I

Basic principles of Energy auditing

1. (a) Explain concept of energy audit? types of energy audit 6M
- (b) Consider a company using 3 energy forms- oil, gas, and electricity. the annual energy Consumption is tabulated below in various energy units. 6M

<u>Energy type</u>	<u>consumption</u>
Oil	10×10^3 gal
Gas	5×10^3 therms
Electricity	995×10^3 KWh

Compute percentage energy balance.

2. Explain the energy conservation schemes 12M
3. Explain brief about electrical energy consumption and conservation in India and world 12M
4. Explain the representation of energy forms? Explain their Significance in energy audit with suitable example. 12M
5. Write short notes on the following 12M
 - (a) energy index with example
 - (b) detail energy audit(DEA)
6. Explain about the energy impedance and security act of 2007 and energy policy act of 1992 10M
7. (a) Explain about codes and standards 12M
 - (b) Write short notes on the following 12M
 - (a) pie chart
 - (b) sankey diagram
8. Write short notes on the following 12M
 - (a) cost index with example
 - (b) preliminary energy audit
9. (a). What is meant by the term 'energy audit' and what are its objectives? 6M
 - (b). Explain about energy conservation schemes
10. explain about thermal power plant energy auditing 12M

UNIT – II**Energy Management**

1. Explain the necessary steps in energy management program.
2. Language and questionnaire in energy management
3. (a) Explain the principles of energy management
(b) Discuss the qualities and functions of energy manager
4. (a) Explain the energy conservation schemes.
(b) Discuss the LANGUAGE of energy manager
5. Explain in detail about initiating, planning and controlling in energy management.
6. (a) Explain the principles of energy management program
(b) write short notes on energy management planning
7. Explain in detail the role of energy manager in energy management
8. What are the different steps involved planning and controlling the energy management?
9. What are the considerations in a questionnaire prepared by energy manager
10. (a) Explain about the check list for top management
(b) write short notes on energy manager

UNIT – III**Energy Efficient Motors**

1. a) Explain the factors affecting of energy efficient motors. 6M
 b) A 40 Hp motor is having the following duty cycle. 6M
 40 Hp - 15 minutes 20 Hp - 20 minutes
 10 Hp - 5 minutes stop - 5 minutes.
 Is this motor is efficient for its operation? Discuss the recommendations.
2. a) Explain in detail about the loss distribution and constructional details of a motor. 6M
 b) Explain about RMS hp, voltage unbalance with suitable examples 6M
3. Explain power factor improvement methods 12M
4. What Are Energy Efficient Motors (EEMS).What factor effecting the energy Efficient motors? 12M
5. Define voltage Unbalance. What are the causes and consequences of voltage unbalance 6M
6. (a)Explain the loss distribution in energy efficient motors 6M
 (b) Explain about the over motoring and motor energy audit 6M
7. Discuss how capacitors can be employed for improvement of power factor of an electrical system. 12M
8. Explain about the location of capacitors for power factor improvement. 12M
9. (a) Explain about effect of harmonics on P.f 6M
 (b) A motor is having the following duty cycle. 6M

STEP	H.P	DURATION(Seconds)
1	3	3
2	7.5	10
3	2.5	12
4	12.5	3

which motor is efficient for its operation? Discuss the recommendations.

- 10.(a) Explain the difference between energy efficient motors and standard motors. 6M
 (c) Explain about RMS Hp Loading 6M

UNIT – IV**Power factor improvement Lighting and Energy instruments**

1. Write a short notes on the following:
 - (a) Lighting energy audit 6M
 - (b) Applications of Plc 6M
2. Write a short notes on the following:
 - (a) Lighting energy audit 6M
 - (b) Tongue tester 6M
3. Write a short notes on the following: 12M
 - (a) Lighting control
 - (b) Data logger
 - (c) Lux meter
4. Explain about Energy Instruments- Watt Meter & Tongue Tester. 12M
5. Explain about Energy Instruments- Pyrometers & Applications of Plc.
6. Explain about power factor improvement methods 12M
7. Explain about Good lighting system design and practice. 12M
8. Explain the working of following instruments 12M
 - (i) Thermocouples
 - (ii) lux meters
 - (iii) pyrometer
 - (iv) data logger
9. Discuss how capacitors can be employed for improvement of power factor of an electrical system. 12M
- 10.(a) Explain about the location of capacitors for power factor improvement. 6M
(b) Explain about effect of harmonics on P.f 6M

UNIT – V**Economic aspects and analysis**

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| 1.Explain in detail about | 12M |
| (a) The time value of money concept | |
| (b) Taxes and tax credit | |
| 2. Explain in detail about | 12M |
| (a) pay back analysis | |
| (b) Depreciation | |
| 3. (a)Explain the methods available for determining the annual rate | 6M |
| (b)For a system, salvage value =0,life of equipment =5years,first cost=1,50,000.calculate
The depreciation rate using sum of years digits method | 6M |
| 4. Explain in detail about the Time value of money concept payback analysis | 12M |
| 5. Explain the concept of depreciation methods in energy economic analysis | 12M |
| 6. (a) Discuss about net present value calculations | 6M |
| (b) pay back analysis | 6M |
| 7. Explain about the following depreciation methods with example | 12M |
| (a) straight line method (b) diminishing method | |
| 8. What are the different applications of life cycle cost analysis | 12M |
| 9. How power factor correction is carried out | |
| 10. (a)write a short notes on return on investment | 6M |
| (b) Explain rate of return with suitable example | 6M |

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