Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**End Semester Examination – April/May – 2017**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| **Code** | **14EE3016** | **Duration :** | **3hrs** |
| **Sub. Name:** | **ENERGY MANAGEMENT AND AUDIT** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Q. No. | Sub Div. | Questions | Course  Outcome | Marks |
| 1. | a. | What is mean by energy management? And explain the role of energy management in electrical and mechanical utilities. | CO1 | 15 |
| b. | Discuss about the steps to prepare Energy audit report. | CO2 | 5 |
| (OR) | | | | |
| 2. | a. | Illustrate about various energy audit instruments and its usages during auditing. | CO2 | 15 |
| b. | Brief about Electricity Act, 2003. | CO1 | 5 |
| 3. | a. | List the duties and responsibilities of Energy Auditors. | CO2 | 15 |
|  | b. | Investigate the causes for Energy Losses in Induction Motors. | CO3 | 5 |
| (OR) | | | | |
| 4. | a. | Recommend various energy management techniques used in industries to improve the performance efficiency. | CO1 | 15 |
|  | b. | State Sector wise Potential for Energy Conservation. | CO3 | 5 |
| 5. | a. | Create action plan for energy management system and describe about the steps involved to implement the plan. | CO1 | 15 |
|  | b. | Sketch the organization structure of energy management in Hindalco. | CO1 | 5 |
| (OR) | | | | |
| 6. | a. | Write the energy management policies of the following organization  i. Reliance Industries limited.  ii. Tata chemicals limited. | CO1 | 15 |
|  | b. | State the energy conservation policy with an example. | CO3 | 5 |
| 7. | a. | After finding that the old boiler has an efficiency of 60% while a new boiler would have an efficiency of 85%, a hotel industry manager has decided to invest Rs. 4.5 Lakhs to get a new boiler. Determine whether this investment is cost effective or not if the lifetime of the boiler is 10 years and the discount rate is 5 %. The boiler consumes18,800 lit/year at a cost of Rs.15/lit. An annual maintenance fee of Rs. 6,570 is required for the boiler independent of its age. Use the following methods to perform the economic analysis.  (1) Net present worth  (2) Rate of Return  (3) Benefit cost ratio  (4) Discounted payback period  (5) Simple payback period | CO1 | 15 |
|  | b. | List from your experience/thinking how an employees can be motivated. | CO3 | 5 |
| (OR) | | | | |
| 8. | a. | Explain the key features of energy information system. Taking your own industry as an example, list down the important data you would like to collect and monitor for effective energy management. | CO3 | 15 |
|  | b. | What is the barrier to the use of energy information systems? | CO2 | 5 |
|  | | **Compulsory:** |  |  |
| 9. | a. | Explain the steps involved in the force field analysis. Taking your own industry as an example, list down the positive and negative forces. | CO3 | 15 |
|  | b. | State the importance of the communication statergies of energy manager. | CO1 | 5 |

ALL THE BEST