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Reg. No. :

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**Question Paper Code: 99309**

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2021

Elective

Electrical and Electronics Engineering

19UEE909 - Energy Management and Auditing

(Regulation 2019)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. An energy policy does not include CO1- R
  - (a) Target energy consumption reduction
  - (b) Time period for reduction
  - (c) Declaration of top management commitment
  - (d) Future production projection
  
2. Which of the following is not part of energy monitoring CO1- R
  - (a) data recording
  - (b) data analysis
  - (c) data reporting
  - (d) energy efficiency equipment financing
  
3. The objective of Energy Management is to achieve and maintain optimum CO2- R  
energy through
  - (a) To minimize energy costs
  - (b) Increasing Cost
  - (c) To maximize energy costs
  - (d) To maximize environmental effect
  
4. What is the other name of cogeneration? CO2- R
  - (a) Combined Gas and Heat (CGH)
  - (b) Combined Heat and Power (CHP)
  - (c) Combined Heat and Gas (CHG)
  - (d) Combined Power and Heat (CPH)
  
5. What is the typical frequency of operation of electronic ballast CO3- R
  - (a) 50 Hz
  - (b) 10 Hz
  - (c) 50 KHz
  - (d) 30 kHz

6. Which of the following light source has least life CO3- R  
 (a) Sodium vapor      (b) Mercury Vapor      (c) Halogen      (d) incandescent
7. % of Reduction in Heat Load by Utilization of heat in Exhaust Air CO4- R  
 (a) 8.5%-11.5%      (b) 8.5%-10%      (c) 9.5%-11.5%      (d) 10.5%-12.5%
8. The energy management function is generally vested in CO4- R  
 (a) Senior Management      (b) One energy manager or coordinator  
 (c) Distributed among number of middle manager      (d) (b) & (c) together
9. An electricity meter measures energy directly in CO5- R  
 (a) Watt hours      (b) kilowatt hours.      (c) Megawatt hours      (d) Giga Watt hours
10. Air velocity in ducts can be measured by using and manometer CO5- R  
 (a) Orifice meter      (b) Borden gauge      (c) Pitot tube      (d) Anemometer

PART – B (5 x 2= 10 Marks)

11. Explain the term energy audit CO1-U
12. What is cogeneration and its types? CO2-R
13. Give a short note on utilization of ‘Day lighting’? CO3-R
14. Define unit of Refrigeration CO4-U
15. Define Multi tasking CO5-U

PART – C (5 x 16= 80Marks)

16. (a) Explain briefly the preliminary and detailed energy audits. CO1-App (16)
- Or
- (b) Illustrate the essential elements of a monitoring and targeting system.. CO1- U (16)
17. (a) Apply the Energy management for electric motors CO2- App (16)
- Or
- (b) Identify and describe the three types of cogeneration systems CO2- App (16)
18. (a) Examine all the possible energy conservation measures possible in lighting system CO3- Ana (16)
- Or
- (b) Analyze the Power factor and explain the effect of harmonics CO3- Ana (16)

19. (a) Explain the working principle and operation of thermoelectric refrigerator CO4- E (16)
- Or
- (b) Classify air-conditioning system and explain the central A/C system CO4- E (16)
20. (a) Choose the best meters and instruments for Energy Audit CO5- Ana (16)
- Or
- (b) Explain the Flue gas analyzers CO5- Ana (16)

