



B.E/B.TECH DEGREE EXAMINATIONS:NOV/DEC 2023

(Regulation 2018)

Third Semester

COMMON TO ALL

U18EER0005: Introduction to Green Energy

COURSE OUTCOMES

- CO1:** To Illustrate the present status of Indian and global energy scenario.
CO2: To outline the basics of electricity.
CO3: To interpret the estimation of energy quantities.
CO4: To Illustrate the measurement of electrical quantities.
CO5: To Illustrate the basics of green energy

Time: Three Hours

Maximum Marks: 100

**Answer all the Questions: -
 PART A (10 x 2 = 20 Marks)
 (Answer not more than 40 words)**

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|---|-----|-------------------|
| 1. Define Green energy. | CO2 | [K ₂] |
| 2. List the advantages of renewable energy. | CO2 | [K ₂] |
| 3. Name any two power generation stations in India. | CO1 | [K ₂] |
| 4. Calculate the power requirement of 10 no's of 20W LED bulb in a room. | CO3 | [K ₃] |
| 5. Calculate the energy requirement of 80W fan working for 5 hours. | CO4 | [K ₃] |
| 6. List the limitations of solar power generation. | CO5 | [K ₂] |
| 7. List the instrument used for voltage and current measurements. | CO4 | [K ₂] |
| 8. Calculate the energy in units for an AC of 2kW and operated for an hour. | CO3 | [K ₂] |
| 9. What are the advantages of hydro power generations? | CO5 | [K ₁] |
| 10. Name any two forms of energy other than electrical energy. | CO1 | [K ₂] |

**Answer any FIVE Questions:-
 PART B (5 x 16 = 80 Marks)
 (Answer not more than 400 words)**

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|--|----|-----|-------------------|
| 11. a) Calculate the energy in units for 20 numbers of 250W LED flood lights and 50 numbers of 100W street light are working for 10 hours in a day and if it's operating for 25 days in a month for an office corridor. Calculate the total power, | 10 | CO3 | [K ₃] |
|--|----|-----|-------------------|

Energy in units and also Energy Cost per month if energy charge is Rs. 5/unit.

- b) List the domestic loads and its power requirement. 6 CO1 [K₃]
12. a) Describe in detail about the energy consumption in India with the Government of India statistics. 8 CO1 [K₂]
- b) Summarize the targets for SDG Goal 7 by India. 8 CO1 [K₂]
13. a) Summarize Government commitment on wind -solar Hybrid policy. 8 CO1 [K₂]
- b) An office uses the 5 numbers of tube light with 40W and 5 numbers of fan with 60W. In a day if both loads operate for 10 hours what will the electricity charges per month. Assume the electricity charge per kWh is Rs.6. 8 CO3 [K₃]
14. a) Define the following parameters. 10 CO2 [K₁]
1. Voltage
 2. Current
 3. Power
 4. Energy
 5. Insulation
- b) Calculate the CO₂ emission for a year while cooking 10 kg of chicken for 5 days a month. 6 CO2 [K₂]
15. a) Describe the working of the ON grid solar power generation with neat sketch. 8 CO5 [K₂]
- b) Describe in detail hydrogen fuel cell power generation with neat sketch. 8 CO5 [K₃]
16. a) Describe the wiring diagram of energy meter in home/ Domestic applications. 10 CO4 [K₂]
- b) Calculate the resistance, Current and energy requirement of the heater load of 2kW, 200V in a home if the heater operates for 30 minutes in a day. 6 CO4 [K₃]
