



B.E/B.TECH DEGREE EXAMINATIONS: NOV/DEC 2024

(Regulation 2018)

Fourth Semester

ELECTRICAL AND ELECTRONICS ENGINEERING

U18EET4002: Generation, Transmission and Distribution

COURSE OUTCOMES

- CO1:** Understand the principles of power generation utilizing various conventional energy sources
- CO2:** Impart the knowledge of generation of electricity based on various Non-conventional energy sources and study the PV module characteristics using modern software tools.
- CO3:** Analyze the essential components of transmission line modeling and its performance.
- CO4:** Describe and select the configurations of different line insulators and cables.
- CO5:** Acquire knowledge on different types of distribution systems.

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. Point out the different types of power plants. | CO1 | [K ₂] |
| 2. Give any two merits of hydro electric power plant. | CO1 | [K ₂] |
| 3. What are the impacts of renewable energy? | CO2 | [K ₁] |
| 4. What are fuel cell and its two advantages? | CO2 | [K ₁] |
| 5. Define transmission efficiency. | CO3 | [K ₁] |
| 6. Examine the factors which affecting corona. | CO3 | [K ₂] |
| 7. List the methods of improving string efficiency in line insulators. | CO4 | [K ₂] |
| 8. Point out any four insulating materials used for underground cables. | CO4 | [K ₂] |
| 9. Classify the distribution systems. | CO5 | [K ₂] |
| 10. Compare the transmission lines are 3 phase, 3 wire systems with 3 phase 4 wire systems. | CO5 | [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) Sketch and explain the working of coal thermal power plant and also list out its merits. | 8 | CO1 | [K ₃] |
|---|---|-----|-------------------|

- b) Describe the working of nuclear power plant with necessary diagram and also mention its demerits. 8 CO1 [K₃]
12. a) Elaborate the working of solar power plant with a neat sketch. 8 CO2 [K₃]
 b) Illustrate the working of hybrid renewable energy systems with relevant diagram. 8 CO2 [K₃]
13. a) A medium single phase transmission line 110 km long has the following constants:
 Resistance / km= 0.2Ω; Reactance / km =0.64Ω;
 Susceptance / km= 15×10⁻⁶ mho;
 Receiving end voltage = 66kV
 Assuming that the total capacitance of the line is localized at the receiving end alone, determine (i).Percentage Regulation (ii).Transmission Efficiency. 8 CO3 [K₄]
 b) Explain various steps involved in receiving end power circle diagram with neat sketches. 8 CO3 [K₃]
14. a) What are the various properties of insulators? Also briefly explain suspension type and pin type with a neat sketch. 8 CO4 [K₃]
 b) With neat diagram and describe the various methods of grading of underground cables. 8 CO4 [K₃]
15. a) Draw the structure of electric power system and illustrate the different voltage levels adopted in power system. 8 CO5 [K₃]
 b) Interpret the working of radial and ring main distribution systems with relevant diagram. 8 CO5 [K₃]
16. a) Derive the capacitance of a three-phase overhead line for symmetrical spacing. 8 CO3 [K₄]
 b) Describe in detail about the construction features of HT and LT cables. 8 CO4 [K₃]
