



III B.Tech II Sem Regular End Examination, June 2022

Renewable Energy Sources**(Electronics and Communication Engineering)****Time: 3 Hours.****Max. Marks: 70**

Note: 1. Question paper consists: Part-A and Part-B.

2. In Part - A, answer all questions which carries 20 marks.

3. In Part - B, answer any one question from each unit.

Each question carries 10 marks and may have a, b as sub questions.

PART- A**(10*2 Marks = 20 Marks)**

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| 1. a) | Writ the examples of renewable energy sources. | 2M | C01 | BL1 |
| b) | What is the principle of wind power generation? | 2M | C01 | BL1 |
| c) | Name the different types of fuel cells | 2M | C02 | BL2 |
| d) | Describe the photovoltaic cell. | 2M | C02 | BL2 |
| e) | How does an induction generator work? | 2M | C03 | BL2 |
| f) | Illustrate induction generator with neat diagram. | 2M | C03 | BL3 |
| g) | Sketch the circuit diagram of lead acid battery | 2M | C04 | BL3 |
| h) | How flywheel stores the energy. | 2M | C04 | BL4 |
| i) | What is the importance of alternative sources of energy? | 2M | C05 | BL4 |
| j) | What is the need of interconnection of alternative energy sources with grid? | 2M | C05 | BL4 |

PART- B**(10*5 Marks = 50 Marks)**

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|------|---|----|-----|-----|
| 2 a) | What is the distributed generation and give merits of DG Integration into the Grid. | 5M | C01 | BL1 |
| b) | Explain the demand side management in power systems. | 5M | C01 | BL1 |

OR

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| 3 | Explain the demand side management Options and supply side management options in power systems. | 10M | C01 | BL1 |
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| 4 a) | Describe Solar Energy Generation by Photovoltaic Effect. | 5M | C02 | BL2 |
| b) | Draw the Output Characteristics of Solar cell. | 5M | C02 | BL2 |

OR

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| 5 | Draw the photovoltaic cell and analyze the solar power generation by PV cell. | 10M | C02 | BL4 |
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- 6 a) Explain the Steady-State Operation of induction generator. 5M C03 BL2
b) Draw and explain the characteristics of induction generator. 5M C03 BL2
- OR**
- 7 Describe the self-excitation process and stand-alone operation of induction generator. 10M C03 BL3
- 8 a) Explain about pumped hydroelectric Energy Storage. 5M C04 BL2
b) What is the compressed air energy storage? 5M C04 BL1
- OR**
- 9 Explain any two types of energy storage system with neat diagram. 10M C04 BL2
- 10 a) What is the importance of Injection of Instantaneous Active Power into the system? 5M C05 BL3
b) What is the importance of Injection of Instantaneous Reactive Power into the system? 5M C05 BL3
- OR**
- 11 Why interconnection of alternative energy sources with the grid is need and writ the standards and codes for interconnection. 10M C05 BL5

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