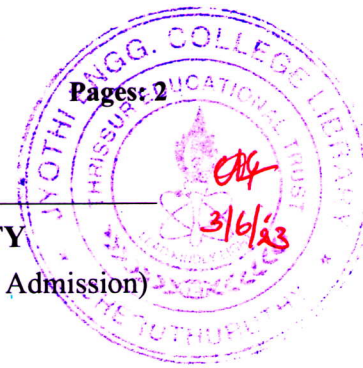


Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fourth Semester B.Tech (Minor) Degree Examination June 2022 (2020 Admission)

**Course Code: EET284****Course Name: Energy Systems**

Max. Marks: 100

Duration: 3 Hours

PART A*(Answer all questions; each question carries 3 marks)*

Marks

- | | | |
|----|---|-----|
| 1 | What are renewable and non-renewable energy sources? | (3) |
| 2 | The luminous efficiency of a lamp is 10 Lumens/Watt, and its luminous intensity is 800 Cd. What is the power of the lamp? | (3) |
| 3 | What are the advantages and disadvantages of wind energy system? | (3) |
| 4 | Explain the working of a solar PV cell. What is fill factor? | (3) |
| 5 | What is the need of Energy storage? | (3) |
| 6 | List 3 characteristics of fuel cell. | (3) |
| 7 | What is the fundamental goal of Energy management? | (3) |
| 8 | Give the significance of institutions promoting energy conservation and energy efficiency with examples. | (3) |
| 9 | Differentiate between cost of capital & discount rate. | (3) |
| 10 | What is energy demand forecasting? | (3) |

PART B*(Answer one full question from each module, each question carries 14 marks)***Module -1**

- | | | |
|----|--|-----|
| 11 | a) Compare energy scenarios in world and India. | (7) |
| | b) Describe about energy security in India. | (7) |
| 12 | a) Explain energy efficient buildings. | (8) |
| | b) Explain the working of fluorescent tube lamp. | (6) |

Module -2

- | | | |
|----|---|------|
| 13 | With the help of a neat block diagram, explain the working principle of solar thermal system. | (14) |
| 14 | a) Draw and explain the block diagram of ocean thermal energy conversion system. | (7) |
| | b) Explain with the help of a schematic, extraction of energy from bio mass. | (7) |

Module -3

- 15 a) Explain the working of a lead acid cell. What are its advantages and disadvantages. (7)
b) Derive the expression for power output and efficiency of a fuel cell. (7)
- 16 a) Explain the working of a typical fuel cell. (10)
b) What are the advantages and disadvantages of fuel cell. (4)

Module -4

- 17 a) Explain different types of energy audit. Explain different phases of energy audit. (10)
b) Explain any government agency related to energy conservation and management at state level. (4)
- 18 a) Discuss the role of BEE in energy management. Explain the regulatory and promotional functions of BEE. (8)
b) Give the significance of institutions promoting energy conservation and energy efficiency. (6)

Module -5

- 19 a) Explain one part, two part and three part tariff. (8)
b) Explain MAED model. (6)
- 20 a) What are the characteristics of energy projects? (8)
b) Explain internal rate of return. (6)
