**EE1**

**Hall Ticket Number:**

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| **IV/IV B.Tech (Regular) DEGREE EXAMINATION** | | | |
| **January, 2024** | **Common to CB, CE, DS, EC, EI, ME, CS & IT** | | |
| **Seventh Semester** | **Non-Conventional Energy Sources** | | |
| **Time:** Three Hours | | **Maximum:** 70 Marks | |
| ***Answer question 1 compulsory.*** | | | **(14X1 = 14Marks)** |
| ***Answer one question from each unit.*** | | | **(4X14=56 Marks)** |
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|  |  |  | CO | BL | M |
| 1 | a) | Define Solar Constant. | CO1 | L1 | 1M |
|  | b) | What are Conventional Energy Sources? | CO1 | L1 | 1M |
|  | c) | List the Ultimate Energy Sources. | CO1 | L1 | 1M |
|  | d) | List the applications of Solar Collectors. | CO1 | L1 | 1M |
|  | e) | What is the use of second glass plate in solar collectors. | CO2 | L1 | 1M |
|  | f) | What is photon energy? | CO2 | L1 | 1M |
|  | g) | List different types of PV cells | CO2 | L1 | 1M |
|  | h) | Write any two advantages and disadvantages of WECS. | CO2 | L1 | 1M |
|  | i) | Name the device used to measure the wind speed? | CO3 | L1 | 1M |
|  | j) | What is the purpose of controller used in WECS? | CO3 | L1 | 1M |
|  | k) | Name the types of Biogas plants? | CO3 | L1 | 1M |
|  | l) | What is anaerobic digestion? | CO4 | L1 | 1M |
|  | m) | Write advantages and disadvantages of tidal power? | CO4 | L1 | 1M |
|  | n) | List different types of OTEC plants. | CO4 | L1 | 1M |
| **Unit-I** | | | | | |
| 2 | a) | Write the differences between Renewable energy sources and Conventional Energy sources. | CO1 | L2 | 7M |
|  | b) | Explain Sphagatti and Pie diagrams with neat sketches. | CO1 | L2 | 7M |
| **(OR)** | | | | | |
| 3 | a) | Briefly explain about energy planning? | CO1 | L3 | 7M |
|  | b) | Briefly explain about energy efficiency? | CO1 | L3 | 7M |
| **Unit-II** | | | | | |
| 4 | a) | Briefly explain operation and working principle of solar flat plate collectors with neat sketch? | CO2 | L4 | 7M |
|  | b) | Briefly explain operation and working principle of solar Pond with neat sketch? | CO2 | L2 | 7M |
| **(OR)** | | | | | |
| 5 | a) | Briefly explain operation and working principle of any two concentrating solar collectors with neat sketch? | CO2 | L2 | 7M |
|  | b) | What is solar PV and explain its working and operation with neat sketches? | CO2 | L2 | 7M |
| **Unit-III** | | | | | |
| 6 | a) | Explain the site selection for WECS? | CO3 | L2 | 7M |
|  | b) | Explain horizontal axis wind mills with neat sketches? | CO3 | L2 | 7M |
| **(OR)** | | | | | |
| 7 | a) | Explain components of WECS with neat sketches? | CO3 | L2 | 7M |
|  | b) | Derive maximum power equation for a wind turbine? | CO3 | L2 | 7M |
| **Unit-IV** | | | | | |
| 8 | a) | What are the main types of OTEC power plants? Describe their working principle in brief with neat sketches? | CO4 | L2 | 7M |
|  | b) | State merits and demerits of OTEC plants? | CO4 | L2 | 7M |
| **(OR)** | | | | | |
| 9 | a) | What is meant by anaerobic digestion and explain with neat sketches? | CO4 | L2 | 7M |
|  | b) | Explain the working of Biogas plant with neat sketches? | CO4 | L2 | 7M |

