**EE02**

**Hall Ticket Number:**

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| **IV/IV B.Tech (Regular/Supplementary) DEGREE EXAMINATION** | | | |
| **Jan/Feb, 2021** | **Common to CE, , ECE and ME** | | |
| **Seventh Semester** | **Non-Conventional Energy Sources** | | |
| **Time:** Three Hours | | **Maximum :** 60 Marks | |
| *Answer ALL Questions from PART-A.* | | | (1X12 = 12 Marks) |
| *Answer* ***ANY FOUR*** *questions from PART-B.* | | | (4X12=48 Marks) |
| **Part - A** | | | |

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| 1 | Answer all questions | | (1X12=12 Marks) | |
|  | a) | What are the drawbacks of nonconventional energy sources? | |  |
|  | b) | What is green energy? | |  |
|  | c) | What are the ill effects of electrical energy generated using Fossil fuel? | |  |
|  | d) | What is Solar cell? | |  |
|  | e) | Define solar constant? | |  |
|  | f) | What is Direct & Diffuse radiation? | |  |
|  | g) | Define cut-out velocity. | |  |
|  | h) | What are the disadvantages of vertical axis wind turbine? | |  |
|  | i) | What is Pitch control? | |  |
|  | j) | Which kind geothermal plant is most common type? | |  |
|  | k) | What are the causes of tides? | |  |
|  | l) | What is biogas digester? | |  |
| **Part - B** | | | | |
| 2 | a) | Explain in detail about ultimate energy sources on the earth? | | 6M |
|  | b) | Explain about Primary Energy Supply &End Use Requirements using Spaghetti &Pie Diagram? | | 6M |
|  | | | | |
| 3 | a) | Classify Energy sources into Commercial &Non- Commercial energy sources? | | 6M |
|  | b) | What is the importance of energy management in improving energy efficiency? Explain. | | 6M |
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| 4 | a) | Briefly explain about Solar Pond with a neat sketch? | | 6M |
|  | b) | Explain how solar radiation is measured. | | 6M |
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| 5 | a) | Explain about working of Solar Thermal Central Receiver System with neat diagram? | | 6M |
|  | b) | Explain about non concentrating collectors with neat sketches? | | 6M |
|  | | | | |
| 6 | a) | With a neat block diagram explain about basic components of wind energy conversion system? | | 6M |
|  | b) | What are the types &causes of winds? Derive the expression for Total power in wind stream? | | 6M |
|  | | | | |
| 7 | a) | Briefly explain about Horizontal axis & Vertical axis wind mills with diagrams? | | 6M |
|  | b) | Derive expression for Maximum power in wind stream. | | 6M |
|  | | | | |
| 8 | a) | Explain the concept of geothermal energy with a diagram? | | 6M |
|  | b) | What are biomass conversion technologies? Draw a schematic diagram to explain various conversion technologies and products. | | 6M |
|  | | | | |
| 9 | a) | With a diagram explain about Open cycle &closed cycle OTEC power plant? | | 6M |
|  | b) | Explain the constructional details & working of biogas digester. | | 6M |

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