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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

B.Tech III Year II Semester Regular Examinations August-2022

NON-CONVENTIONAL ENERGY RESOURCES

(Mechanical Engineering)

Time: 3 hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

UNIT-I

- | | | | |
|---|---|----|----|
| 1 | a Outline the merits and demerits of Conventional energy sources? | L2 | 6M |
| | b Explain briefly any three renewable energies. | L2 | 6M |

OR

- | | | | |
|---|---|----|----|
| 2 | a Assess the need of renewable energy resources. | L5 | 6M |
| | b Describe the impact of Energy Utilization on environment. | L2 | 6M |

UNIT-II

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|---|---|----|----|
| 3 | a Explain Solar Radiation. | L2 | 6M |
| | b Discuss about Extraterrestrial and Terrestrial solar radiation. | L2 | 6M |

OR

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|---|--|----|----|
| 4 | a Outline the challenges and remedies associated in the use of solar energy. | L2 | 6M |
| | b Derive an equation for the thermal analysis of a flat plate collector | L4 | 6M |

UNIT-III

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|---|--|----|----|
| 5 | a Explain the process of wind formation. | L2 | 6M |
| | b List out the uses and working of wind sock in aviation industry. | L4 | 6M |

OR

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|---|--|----|----|
| 6 | a Describe the functions of wind energy system components. | L1 | 6M |
| | b Describe the working of VAWT with a neat sketch. | L1 | 6M |

UNIT-IV

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|---|---|----|----|
| 7 | a What are the different forms of bio-energy? | L1 | 6M |
| | b Explain about biomass direct combustion. | L2 | 6M |

OR

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|---|--|----|----|
| 8 | a Describe the working of Spreader stoker with a neat sketch . | L1 | 6M |
| | b What is biomass and why is it called renewable energy? | L1 | 6M |

UNIT-V

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|---|---|----|----|
| 9 | a List out the merits and demerits of hydrogen energy | L4 | 6M |
| | b What are the different methods of hydrogen storage? | L1 | 6M |

OR

- | | | | |
|----|---|----|----|
| 10 | a Explain the hydrogen production through Electrolysis process. | L1 | 6M |
| | b Distinguish between wave and tidal energy. | L5 | 6M |

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