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

B.Tech II Year II Semester Supplementary Examinations July-2021

NON - CONVENTIONAL ENERGY RESOURCES

(Mechanical Engineering)

Time: 3 hours

Max. Marks: 60

PART-A

(Answer all the Questions 5 x 2 = 10 Marks)

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|---|---|--|----|
| 1 | a | What is beam radiation and global radiation? | 2M |
| | b | List photovoltaic solar energy applications. | 2M |
| | c | Distinguish wind turbine and wind generator. | 2M |
| | d | What are the biomass converting processes? | 2M |
| | e | What is geothermal power? | 2M |

PART-B

(Answer all Five Units 5 x 10 = 50 Marks)

UNIT-I

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|---|---|--|----|
| 2 | a | Write short notes on solar radiation | 5M |
| | b | Derive an Expression for solar radiation on tilted surfaces. | 5M |

OR

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| 3 | a | Mention the importance of measuring wind speed and classify its measuring instruments. | 5M |
| | b | Describe the working of hot wire anemometer with a neat sketch. | 5M |

UNIT-II

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|---|---|---|----|
| 4 | a | Mention the thermal analysis of flat plate collector. | 5M |
| | b | Write the working principle of flat plate collector with a neat sketch. | 5M |

OR

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| 5 | a | Illustrate the functions of various components in flat plate collectors. | 5M |
| | b | How Flat plate collectors are different from Concentrating collectors. | 5M |

UNIT-III

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|---|---|---|----|
| 6 | a | What is wind power? Explain it in detail. | 5M |
| | b | Mention the merits and demerits of wind energy. | 5M |

OR

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| 7 | a | Differentiate HAWT and VAWT. | 6M |
| | b | Explain briefly the functioning of Darrieus Wind Turbine. | 4M |

UNIT-IV

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| 8 | a | Compare fixed dome and float drum type bio digesters. | 6M |
| | b | Explain the function of Deenbandhu biogas digester with a neat sketch. | 4M |

OR

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| 9 | a | What are the factors affecting the generation of biogas? | 5M |
| | b | Explicate various steps involve in the production of Ethanol. | 5M |

UNIT-V

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| 10 | What is tide? Explain tidal energy and its conversion with neat diagram. | 10M |
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OR

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| 11 | Explain the working of fuel cell and their applications. | 10M |
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END