Reg. No:

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular Examinations May 2019
NON CONVENTIONAL ENERGY SOURCES
(Mechanical Engineering)

Time: **3 hours**   Max. Marks: **60**

(Answer all Five Units **5 X 12 = 60** Marks)

UNIT-I

1	a	What are the instruments that can be used to measure solar radiation?	4 M
	b	Discuss the limitations of non-conventional sources of energy.	8 M

OR

2	Discuss the following: (i) Latitude (ii) Declination angle (iii) Surface Azimuth angle (iv) Hour angle	12 M

UNIT-II

3	Discuss the following with suitable sketches: (i) Flat plate collectors (ii) Concentrating collectors	12 M

OR

4	a	Explain the working of solar PV power generation using neat sketches.	6 M
	b	Discuss how the thermal energy is stored in the Solar pond ?	6 M

UNIT-III

5	a	Explain the working principle of horizontal wind mill with suitable figure.	6 M
	b	List out the advantages and disadvantages of wind energy.	6 M

OR

6	a	With a neat sketch explain the components of Wind energy conversion system.	6 M
	b	What are the different types of vertical axis machines draw with neat sketches?	6 M

UNIT-IV

7	a	Write short note on the following: (i) biomass (ii) bio fuel (iii) bio energy	6M
	b	List out the methods used for biomass conversion to energy. Discuss about them.	6 M

OR

8	a	Compare fixed dome and float drum type bio digesters.	6 M
	b	With a neat sketch explain the working of any one type of bio digester.	6 M

UNIT-V

9	Explain the working of fuel cell and their applications with suitable diagrams.	12M

OR

10	Discuss the following with suitable sketches: (i) Tidal Energy (ii) Wave Energy	12M

END