Q.P. Code: 16ME313 **R16**

Reg. No | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year I Semester (R16) Regular Examinations November/December 2018

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)**	Explain the working of global radiation measuring instrument?	6 M
	b)	Discuss the following: (i) Zenith Angle (ii) Declination Angle	6 M

OR

2	**a)**	With a neat sketch explain the working of Pyranometers?	6 M
	b)	What is the need for alternate energy sources? Explain by considering solar energy.	6 M

UNIT-II

3		Explain the working of solar thermal power generation using neat sketches	12M

OR

4	**a)**	Discuss how the thermal energy is stored in the Solar pond?	6 M
	b)	Explain working principle of Photo voltaic cells with suitable sketches.	6 M

UNIT-III

5	**a)**	Explain the working principle of vertical wind mill with suitable figure.	8 M
	b)	What are the impacts of wind energy on environment? Explain.	4 M

OR

6	**a)**	State the essential features of a probable site for a wind form.	6 M
	b)	Explain the terms (i) Yaw control (ii) Pitch control (iii) Tethering control	6 M

UNIT-IV

7	**a)**	Write short note on bio energy from agriculture waste.	6 M
	b)	Write short note on bio energy by burning plants.	6 M

OR

8		Write short note on the following (i) fixed dome type bio digester (ii) float drum type bio digesters.	12M

UNIT-V

9		Explain the following with suitable sketches : (i) OTEC (ii) Hybrid systems	12M

OR

10		Discuss the following with suitable figures: (i) Geothermal power plants (ii) Fuel cell systems.	12M

END