Enrollment No: _____ Exam Seat No:_____

C. U. SHAH UNIVERSITY

Summer Examination-2020

Subject Name : Alternate Energy Sources

Subject Code : 4TE03AES1 **Branch: B.Tech (Mechanical)**

Semester : 3 **Date : 11/03/2020** **Time : 02:30 To 05:30** **Marks : 70**

Instructions:

(1) Use of Programmable calculator & any other electronic instrument is prohibited.
(2) Instructions written on main answer book are strictly to be obeyed.
(3) Draw neat diagrams and figures (if necessary) at right places.
(4) Assume suitable data if needed.

Q-1 **Attempt the following questions:** **(14)**

a) Why is developing renewable energy important to life on Earth?
b) What is biomass?
c) Explain Solar Azimuth Angle.
d) Explain Hour Angle
e) What is the main composition of biogas?
f) Define the term 'Tidal range'.
g) What is the basic principles of OTEC?
h) Define the term 'Total Wind Power Density'.
i) What is Solar Collectors?
j) Why is solar sometimes termed the primary renewable energy?
k) What is an Anaerobic digestion.
l) What is the difference between biofuels and fossil fuels?
m) What is hydro-electric Power?
n) Where is the largest Wind Farm located in India?

Attempt any four questions from Q-2 to Q-8

Q-2 **Attempt all questions** **(14)**

a) Classify the various non-conventional energy sources and their availability with reference to Indian context.
b) What are solar ponds? Discuss working of solar pond with help of neat sketch.

Q-3 **Attempt all questions** **(14)**

a) What do you understand by geothermal energy? What are the advantages and disadvantages of it?
b) Define the term "Energy Management". Write note on "Energy Audit".

Q-4 **Attempt all questions** **(14)**

a) Classify the solar drying and explain with sketch any one solar drying.
b) Explain with neat sketch the vapour dominated geothermal power plant.

Q-5		**Attempt all questions**	**(14)**
	a)	Describe the flat plate collector with the help of a suitable diagram. Name three collectors requiring one axis sun tracking.	
	b)	List advantages and disadvantages of wind energy conversion system.	
Q-6		**Attempt all questions**	**(14)**
	a)	What is wave energy? How it can be used for power generation.	
	b)	What is the basic difference between an active and passive solar heating system?	
Q-7		**Attempt all questions**	**(14)**
	a)	Give the detailed classification of Wind Mills.	
	b)	Explain bio-digester design consideration.	
Q-8		**Attempt all questions**	**(14)**
	a)	Draw neat sketches of open and closed cycle OTEC systems.	
	b)	Explain MHD power generation technology.	