

Enrollment No: \_\_\_\_\_

Exam Seat No: \_\_\_\_\_

# C.U.SHAH UNIVERSITY

## Summer Examination-2017

Subject Name: Alternate Energy Sources

Subject Code: 4TE03AES1

Branch: B.Tech(Mechanical)

Semester: 3

Date: 06/04/2017

Time: 10:30 To 01:30

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) Which of the following states in India ranks first in the installation of wind power? **1**  
A. Gujarat      B. Andhra Pradesh      C. Maharashtra      D. Tamil Nadu
  - b) What is the concentration ratio of compound parabolic concentrator **1**  
A. 4-7      B. 6-7      C. 4-12      D. 4-10
  - c) What is the most common material used for making solar cells? **1**  
A. Silver      B. Silicon      C. Brass      D. Plastic
  - d) An anemometer is an instrument used for measurement of **1**  
A. Solar radiation      B. Wind speed      C. Temperature gradient      D. Depth in ocean
  - e) The electrical output of a solar cell depends on the **1**  
A. Intensity of solar radiation      B. Heat component of solar radiation  
C. Ultraviolet radiation      D. Infrared radiation
  - f) A solar still is device used for **1**  
A. Heating water      B. Cooling water  
C. Distilling water      D. Production of electricity
  - g) Which source of renewable energy is caused by uneven heating of earth's surface? **1**  
A. Solar      B. Wind      C. Geothermal      D. Biomass
  - h) Mention the cause of local winds **1**
  - i) Write the full form of EMS. **1**
  - j) Specify the working principle of a hydro-electric power plant. **1**
  - k) State the full form of SCADA. **1**
  - l) Define diffused radiation. **1**
  - m) Define Bio-mass **1**
  - n) State the principle of Magneto Hydrodynamic power generation. **1**

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

- Q-2 Attempt all questions (14)**
- a) There is immense requirement to find alternatives for non-renewable energy sources. Explain **7**
  - b) Classify energy resources and explain in detail. **7**
- Q-3 Attempt all questions (14)**



a)	State the instruments used for solar radiation measurement. Explain construction and working of Pyranometer.	7
b)	List types of solar thermal power plants. Discuss working of solar pond electrical power plant with neat sketch.	7
<b>Q-4</b>	<b>Attempt all questions</b>	<b>(14)</b>
a)	Explain compound parabolic concentrator with neat sketch.	7
b)	Explain the working of liquid metal MHD system with help of neat sketch.	7
<b>Q-5</b>	<b>Attempt all questions</b>	<b>(14)</b>
a)	Classify Biogas plants. Explain KVIC digester with a schematic diagram.	7
b)	Classify windmills and explain horizontal axis windmill turbine (HAWT).	7
<b>Q-6</b>	<b>Attempt all questions</b>	<b>(14)</b>
a)	What is magneto hydro dynamic generation? Explain basic principle of operation of such a generator.	5
b)	Write the advantages and disadvantages of wave energy.	5
c)	Why energy management is required?	4
<b>Q-7</b>	<b>Attempt all questions</b>	<b>(14)</b>
a)	Define EMS. Explain Energy Audit in detail.	7
b)	What is low temperature liquid dominated geothermal resources? How this heat can be utilized for power generation? Also state the advantages of such a system.	7
<b>Q-8</b>	<b>Attempt all questions</b>	<b>(14)</b>
a)	Explain, what do you understand by energy conservation and its importance?	5
b)	Explain Closed cycle OTEC system in detail	5
c)	State advantages and disadvantages of wind energy	4

