B.E. (Electrical Engineering (Electronics & Power)) Third Semester (C.B.S.)

Non Conventional Energy Sources

P. Pages : 2 **NRT/KS/19/3308**

Time : Three Hours *0183* Max. Marks : 80

Notes :
1. All questions carry marks as indicated.
2. Solve Question 1 OR Questions No. 2.
3. Solve Question 3 OR Questions No. 4.
4. Solve Question 5 OR Questions No. 6.
5. Solve Question 7 OR Questions No. 8.
6. Solve Question 9 OR Questions No. 10.
7. Solve Question 11 OR Questions No. 12.
8. Due credit will be given to neatness and adequate dimensions.
9. Assume suitable data whenever necessary.
10. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) Explain the following terms : **8**

i) Solar constant ii) Hour Angle
iii) Declination Angle iv) Till Angle.

b) Explain the various reasons for the variation in solar radiation reaching the earths surface than received at the outside of atmosphere. **5**

OR

2. a) Explain advantages & disadvantages of concentrating collectors over flat plate collectors. **7**

b) What is the difference between pyrheliometer & pyranometer ? **6**

3. a) Describe the principle & working of solar pond for solar energy collection & storage. **7**

b) What are different methods of solar energy storage. Explain any one in detail. **7**

OR

4. a) Explain energy balance equation & collector efficiency to assess the performance of solar collector. **7**

b) Give the advantages of using selective absorber coating for concentrating collector suggest the names of such material. **7**

5. Write short notes on :

i) Central receiver solar thermal plant. **5**

ii) Passive solar space heating system. **4**

iii) Working of solar distillation tower. **4**

OR

6. a) Explain with details solar pumping & solar cooking. **7**

b) Explain the principle of green house system with neat sketch. **6**

7. a) What are advantages & disadvantages of Wind Energy Conversion System (WECS) ? **7**

b) What are the different parameters to be considered for selecting site for Wind Energy Conversion System (WECS) ? **6**

OR

8. a) How are wind energy conversion system classified. **6**

b) Explain & derive an expression for power developed by the wind ? **7**

9. a) What are the basic difficulties in tidal power developments ? **7**

b) What is the difference between power from waves & power from tides ? **7**

OR

10. a) Compare double basin arrangement in tidal power generating system with single basin arrangement. **7**

b) What are the different components of tidal power plant ? Explain its working. **7**

11. a) What do you understand by geothermal energy ? What are geothermal fields ? **7**

b) What is small scale hydro electric power generation ? Explain its working principle. **6**

OR

12. Write short notes on :

i) Types of biogas plant. **5**

ii) Anaerobic Digestion. **4**

iii) MHD closed cycle system. **4**

****