

B.TECK
(SEM VIII) THEORY EXAMINATION 2017-18
RENEWABLE ENERGY RESOURCES

*Time: 3 Hours**Total Marks: 100***Note:** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A****1. Attempt all questions in brief. 2 x 10 = 20**

- a. Define Conventional sources of Energy.
- b. What do you understand by Solar Energy?
- c. Define Solar Cell.
- d. Discuss about wind energy.
- e. Write Bio gas production technique.
- f. How you handling the Slurry?
- g. What are the uses of Biomass?
- h. How to find energy from solid waste?
- i. Write types of grassfire.
- j. Define photovoltaic power generation.

SECTION B**2. Attempt any three of the following: 10 x 3 = 30**

- a. Comment on the growth of the energy sector in India
- b. What are the important performance indices of a solar collector? Based on what features the performance of a solar collector can be evaluated?
- c. Draw the block diagram of wind electric system mentioning its basic components
- d. What are the different biomass energy resources and what is the energy yield from each of them.
- e. The basin area of a tidal power plant is $20 \times 10^6 \text{ m}^2$. The tidal range is 8m, calculate the energy generated in kWh

SECTION C**3. Attempt any one part of the following: 10 x 1 = 10**

- (a) Briefly discuss the following: i) solar irradiance ii) solar constant iii) extraterrestrial radiations iv) terrestrial radiations
- (b) Write the advantages and disadvantages of concentrating collectors over flat-plate types of solar collectors.

4. Attempt any one part of the following: 10 x 1 = 10

- (a) Derive the expression for energy and power in single basin tidal system.
- (b) Explain with sketches the various methods of tidal power generation. What are the limitations of each method?

- 5. Attempt any *one* part of the following: **10 x 1 = 10****
- (a) Write a short note on bio-gas plant.
 - (b) What are biomass conversion technologies? Draw a schematic diagram to explain various conversion technologies and product
- 6. Attempt any *one* part of the following: **10 x 1 = 10****
- (a) What do you understand by Agro forestry for Bio-energy? Explain in brief.
 - (b) Distinguish between Fixed and Float drum Biodigesters
- 7. Attempt any *one* part of the following: **10 x 1 = 10****
- (a) Explain how Hill climbing technique of maximum Power Point technique is used in PV system
 - (b) Explain in detail about the Flat plate collectors (Glaze type) with a neat sketch