

B.TECH
(SEM VII) THEORY EXAMINATION 2022-23
RENEWABLE ENERGY RESOURCES

Time: 3 Hours Total Marks: 100
RER-074

Note: Attempt all Sections. If you require any missing data, then choose suitably.

SECTION A

1. Attempt all questions in brief. 2 x 10 = 20

- (a) State the importance of solar cells.
- (b) Define the scope of Renewable energy.
- (c) Comment on Solar radiation and its benefits.
- (d) State Solar Irradiance and sun peak hours.
- (e) Enlist the sources of Geothermal energy in our environment.
- (f) Enlist the types of MHD system.
- (g) State Thermo ionic conversions.
- (h) Define briefly about cut in speed and tip speed ratio.
- (i) Enlist 2 advantages of Anaerobic digestion
- (j) Define Methanogenesis.

SECTION B

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

- (a) Discuss briefly about various conventional energy resources with renewable energy.
- (b) Explain in detail about Solar cell power plant and its applications
- (c) Illustrate briefly about different geothermal energy resources and mention its direct uses.
- (d) Examine in brief about the tidal and wave energy mechanism
- (e) State Briefly about Solid Biomass, Liquid biofuels and Biogas generation process.

SECTION C

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

- (a) Explain Renewable Energy and its classification with the help of flow chart also State Solar absorption radiation and the conversion process happening directly from the sun. Enlist the parameters for achieving high efficiency.
- (b) Discuss in detail about Solar Thermal Power plant and its methodological process with suitable process flow diagram.

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

- (a) Explain the working of Solar Flat plate collectors with the help of a diagram and briefly explain its components
- (b) Describe in detail about solar concentrators and the process involved in the making of solar concentrators with the help of diagrams.

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

- (a) Explain in detail about Flash steam and Dry steam plant systematic process with clear flow chart diagram.
- (b) Illustrate in detail about MHD Power generation system. Classify its systems with clear flow chart diagram, applications and its uses.

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

- (a) Explain Wind energy and its importance in detail. Describe briefly about the main components of the windmill.
- (b) State Thermo-electrical conversions towards field. Discuss in detail about performance and limitations of thermoelectric power generator.

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

- (a) Describe in detail about Anaerobic digestion and its Process steps in Biomass.
- (b) Explain in detail about OTEC and its types.