



Regulation R17

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A' Grade)

Subject code: 108AA

B.Tech IV Year II Semester Supplementary Examinations, June 2022
RENEWABLE ENERGY SOURCES

(Common to CE & EEE)

Maximum Marks: 70

Duration: 3 Hours

- Note:
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 10 questions. Answer any 5 questions.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks

(10x2M = 20 Marks)

1. Discuss on potential of renewable energy sources with reference to India.
2. Define altitude angle, zenith angle and Azimuth angle.
3. What is solar constant?
4. What is Betz limit?
5. What do understand by photovoltaic conversion?
6. List out three differences between horizontal and vertical axis wind turbine.
7. What is the difference between fissures and fumaroles in geothermal energy?
8. What is the principle of OTEC?
9. Write the principle of fuel cells.
10. State the advantages of anaerobic digestion?

Part-B

Answer all the questions

(5x10M = 50 Marks)

11. List out the steps involved in the calculation of local solar time and day length and give needed formulae. [10]

OR

12. Enumerate different types of concentrating collectors and also list out advantages and limitations. [10]
13. What is a community biogas plant? Explain the problems encountered in it. [10]

OR

14. Derive the expression for power developed due to wind. [10]
15. Derive the equation for solar energy balance equation and collector efficiency their advantages and limitations. [10]

OR

16. With a neat sketch, describe working of a dome and drum type biogas plant? [10]
17. Compare H₂ O acidic fuel cell with H₂ O alkaline fuel cell. [10]

OR

18. Describe the single basin arrangement in tidal power generation. [10]
19. Explain in detail about practical MHD generator? [10]

OR

20. Explain the advantages and limitations of wind energy conversion systems. [10]