

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI 600086
(For Candidates admitted during the academic year 2019-2020 and thereafter)

B.A / B.Sc. DEGREE EXAMINATION, NOVEMBER 2023
FIFTH SEMESTER

COURSE : INTERDISCIPLINARY CORE
PAPER : RENEWABLE ENERGY AND ENERGY ECONOMICS
SUBJECT CODE : 19ID/IC/RE55
TIME : 3 HOURS **MAX. MARKS : 100**

SECTION – A

I. ANSWER ALL QUESTIONS IN 50 WORDS EACH. (10x3=30)

1. What are renewable and non-renewable energy? List its advantages and disadvantages.
2. Briefly outline the principle involved in wind energy conversion.
3. How is solar thermal energy captured. Explain any two methods of capture.
4. Deduce an expression for power in the wind.
5. How are the solar radiation is made available on earth? Can you outline its approximate quantification.
6. Define energy security.
7. Briefly explain the influence on energy consumption on expanding carrying capacity of the earth
8. What are carbon credits?
9. Define Energy Poverty.
10. What is the break-even price of energy?

SECTION – B

ANSWER ANY SIX OF THE FOLLOWING IN ABOUT 250 WORDS:

(6x5=30)

11. With a neat diagram, Explain the working of solar water heater.
12. How are windfarm sites selected. Elaborate on the factors that determine the location of windfarm.
13. What are the forces that act on the blades of wind turbine. Explain in detail.
14. Write a brief note on different sources of energy.
15.
 - a. Explain the working of solar cooker.
 - b. Explain energy triangle.
16. Write a note on energy development in India.
17. Explain the different indices to measure energy efficiency.
18. What is Levelized Energy Cost?
19. Explain the measures to ensure energy security in India.

SECTION – C**ANSWER ANY TWO OUT OF FOUR QUESTIONS IN 1000 WORDS: (2 x 20 =40)**

20.
 - a. Elucidate on the working of different types of wind turbine?
 - a. Elucidate the impact of renewable energy transition on climate change.

21.
 - a. What is a solar cell? Explain the working of photovoltaic cell and discuss the I-V characteristic of solar cell.
 - b. Bring out the causes of energy poverty in India and measures to alleviate energy poverty.

22.
 - a. What are solar collectors? Explain the different types of collectors.
 - b. Bring out the challenges of the renewable energy sector in India.

23.
 - a. With a neat diagram, explain the various components of a wind machine with a brief note on the working of wind power plant.
 - b. Explain the pricing strategies used for energy products.
