MAR ATHANASIUS COLLEGE OF ENGINEERING, KOTHAMANGALAM

(GOVERNMENT AIDED AUTONOMOUS ENGINEERING COLLEGE)

DEPARTMENT OF CIVIL ENGINEERING

SECOND SESSIONAL EXAMINATION, SEPTEMBER 2026

FIFTH SEMESTER(MINOR)

RENEWABLE ENERGY(B24CEM52)

Time – 1 Hour 30 Minutes **Max: 40 Marks**

Part A (4X3=12 marks)

1. Explain principle of wind energy conversion theory.
2. Briefly describe wind resource assessment.
3. Name the three main stages involved in the basic process of ethanol production from biomass.
4. Explain the concept of Integrated Solid Waste Management (ISWM) in brief.

Part B

5. (a) With neat diagram explain the construction and working of Wind Energy Conversion System. Explain function of each component. (8 marks)

   (b) Explain environmental considerations in site selection of WECS- impact on birds and bats, noise, shadow flicker, soil bearing capacity, ecological sensitivity. Suggest mitigation measures.

   (6 marks)

6. (a) Draw a neat sketch of a typical floating-drum type biogas plant and explain its construction and working. (6 marks)

   (b) Explain how moisture content, ash content and volatile matter affect the performance of biomass fuels. (8 marks)

VISION

To develop a department proficient in all aspects of civil engineering blending theory and practice

MISSION

1. To impart the right combination of civil engineering fundamentals and use of modern tools to the students
2. To encourage learning with due emphasis given to professional ethics and traditional norms.
3. To enhance the knowledge base of students in liaison with practice and research
4. To encourage life-long learning

Question No.	1	2	3	4	5(a)	5(b)	6(a)	6(b)	**Total Marks**
CO Mapping	3	3	4	4	3	3	4	4	
Bloom Taxonomy Level	II	I	II	I	II	III	II	III	
Max. Marks	3	3	3	3	8	6	6	8	40

	Prepared by	**Scrutinized by**	**Approved by**
Name	Prof. Roniya Joseph	Dr. Sachin Paul	Dr. Elson John
Signature			