MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END THEORY EXAMINATION

B.Sc.(Hons.) Agriculture

[Fifth Deans' Committee Recommended Syllabus]

Semester	: **IV**	Term	: **Second**	Academic Year	: **2024-25**
Course No.	: **ENGG 243**	Title	: **Renewable Energy and Green Technology**		
Credits	: **2(1+1)**				
Day & Date	: **Thursday, 17.04.2025**	Time	: **9:00 to 11:00 hrs.**	Total Marks	: **40**

Note :
1. Solve **ANY EIGHT** questions from **SECTION 'A'.**
2. All questions from **SECTION 'B'** are compulsory.
3. All questions carry equal marks.
4. Draw neat diagram wherever necessary.

SECTION 'A'

Q.1 What is Energy? Explain in short the primary and secondary energy sources.

Q.2 Discuss the options to utilize energy obtained from the sun.

Q.3 Explain the ethanol production process by wet milling process.

Q.4 Which are the factors affecting the biogas generation in biogas digester? How these are to be maintained?

Q.5 Write the advantages and disadvantages of biodiesel.

Q.6 Explain downdraft gasifier or Co-current fixed bed (downdraft) gasifier with a neat sketch.

Q.7 Explain the pyrolysis or destructive distillation of biomass.

Q.8 Explain the construction of a basic flat plate collector with a neat sketch.

Q.9 Write the points to be considered for site selection for solar pond. Enlist the advantages and disadvantages of solar pond.

Q.10 Discuss the fundamentals of Solar Photo Voltaic System.

SECTION 'B'

Q.11 Fill in the blanks:

1) Insulating material is filled between outer and inner box of box type solar cooker to restrict _____ loss.
2) The solar dryer is called _____ type solar dryer, when fan is used in it.
3) In ethanol production, saccharification of fermented product can be done by adding _____ in the mixture.
4) _____ is the solar water heater, where hard water is heated indirectly.

Q.12 Define the following terms:

1) Ocean Thermal Energy Conversion
2) Tidal energy
3) Geothermal energy
4) Off-grid DC system (without inverter)

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