KERALA AGRICULTURAL UNIVERSITY
B. Tech. (Agrl. Engg.) 2023 & Previous Admissions
VI Semester Final Examination – June 2026

Fpme 3215 **Energy Technology for Renewable Power Production (2+0)** **Marks: 50**
Time: 2 hours

I **Fill in the blanks** **(10x1=10)**

1. Green plants trap solar energy through the process of "photosynthesis" and convert it into organic matter, known as .....
2. The rise and fall of .....offers a means for storing water at the rise and discharging the same at fall.
3. According to .....when the two ends of a loop of two dissimilar metals are held at different temperatures, an electromotive force is developed and the current flows in loop.
4. Peat, lignite, bituminous and anthracite are the name of stages in the formation of .....
5. .....ministry is mainly responsible for refining, distribution, import, export of petroleum products and natural gas in India.

State True or False

6. The most abundantly available fossil fuel in India is petroleum.
7. Nuclear energy is a source of non-renewable sources of energy.
8. The major non-renewable energy usage in India is petroleum and other liquids.
9. Natural gas is a non-renewable energy.
10. A Solar cell is an electrical device that converts the energy of light directly into electricity by the photovoltaic effect.

II **Write short notes on ANY FIVE of the following** **(5x2=10)**

1. Define the term cogeneration in context of power generation.
2. Define the terms "Energy and Energy technology"
3. What are 'Extraterrestrial and terrestrial solar radiations?
4. What are the reasons for variation in solar radiations reaching the earth, than received on the outside of the atmosphere?
5. What is solar air heater?
6. Enumerate the processes which are used for the biomass conversion to energy or to biofuels.
7. What is wind energy pattern factor?

III **Answer ANY FIVE of the following** **(5x4=20)**

1. What do you mean by 'Energy audit? Briefly explain its significance.
2. What is Magnet-Hydro-Dynamic (MHD) generator?
3. What is wave energy? Explain the energy associated with it
4. What are the advantages of hydrogen as fuel?
5. Give the layout of a modern steam power plant and explain it briefly.
6. Illustrate the various factors to be considered while selecting the site for a nuclear power plant:
7. What are the essential components of a nuclear reactor? Briefly explain reactor core.

IV **Write an essay on ANY ONE of the following** **(1x10=10)**

1. Explain with the help of a diagram the construction and working principle of a natural and forced convection solar water heater.
2. Explain in detail the biomass conversion processes along with its classification.

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