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Question Paper Code : 71066

B.E./ B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2023.

Seventh Semester

Agriculture Engineering

OCH 752 – ENERGY TECHNOLOGY

(Common to: Biomedical Engineering/ Computer Science and Engineering/
Computer and Communication Engineering/ Electronics and Communication
Engineering/ Electronics and Telecommunication Engineering/ Medical Electronics/
Artificial Intelligence and Data Science/ Computer Science and Business Systems/
Information Technology)

(Regulations 2017)

Time : Three hours

Maximum : 100 marks

Answer all questions in Part – A and as per choice in Part – B & Part – C.
Part – A Part – B and Part – C questions should be answered separately in the same
answer sheet. Any Missing Data can be Suitably Assumed.

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Why energy is an essential part of human life?
2. How can we fix energy crisis?
3. What is the difference between conventional and nonconventional sources?
4. What is the combustion efficiency of fluidized bed?
5. How does the darrieus rotor work?
6. What is geothermal energy and how does it work?
7. How does biomass energy work?
8. Define biocrude.
9. Why energy conservation is important?
10. What is meant by energy performance?

PART B — (5 × 13 = 65 marks)

11. (a) Discuss in detail about various forms of energy with its common units. (13)

Or

- (b) Explain in detail about Indian Energy Scenario in terms of Energy supply and consumption. (13)

12. (a) A steam power station spends Rs. 30 lakhs per annum for coal used in the station. The coal has a calorific value of 5000 kcal/kg and costs Rs. 300 per ton. If the station has thermal efficiency of 33% and electrical efficiency of 90%, find the average load on the station. (13)

Or

- (b) Draw and explain the operation of a modern steam power station. (13)

13. (a) With suitable data, Explain about the wind electric power generation in India.

Or

- (b) What is the present status of development of biomass energy resources in India? Explain. (13)

14. (a) Compare the relative performance of a floating drum and fixed one type biogas plants. (13)

Or

- (b) Explain in detail about the function of Deenbandhu biogas digester with a neat sketch. And also write its merits and demerits. (13)

15. (a) Explain suitably about the necessity of energy conservation. (13)

Or

- (b) Give a neat description note on Energy conservation Act, 2001. (13)

PART C — (1 × 15 = 15 marks)

16. (a) What is meant by Energy Plantation? What are its features and significance? (15)

Or

- (b) Considering the data given below, find out the output power of a module operating to achieve maximum power point (15)
- (i) typical maximum power at STC = 87W
 - (ii) NOCT – 49°C
 - (iii) Power output coefficient 0.38%
 - (iv) Ambient temperature = 35°C
 - (v) Irradiance = 865 w/m².
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