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Question Paper Code	12503
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B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2023
Fifth Semester
Electrical and Electronics Engineering
20EEEL501 - ELECTRICAL ENERGY GENERATION SYSTEMS
(Regulations 2020)

Duration: 3 Hours

Max. Marks: 100

PART - A (10 × 2 = 20 Marks)
Answer ALL Questions

- | | <i>Marks,
K-Level, CO</i> |
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| 1. Define steam rate and heat rate. | 2,K1,CO1 |
| 2. What is the necessity of feed pump in thermal power plant? | 2,K1,CO1 |
| 3. Define the Otto cycle and highlight its primary applications. | 2,K2,CO2 |
| 4. What is reheating and regeneration of gas turbine? | 2,K1,CO2 |
| 5. Define nuclear fission. | 2,K2,CO3 |
| 6. Infer the work done by Neutron Detector in a Reactor. | 2,K2,CO3 |
| 7. Define Tidal Power. | 2,K1,CO4 |
| 8. List the types hydraulic turbines. | 2,K1,CO4 |
| 9. Define Load Curve and Load Duration curve. | 2,K1,CO5 |
| 10. Differentiate between base load and peak load. | 2,K2,CO5 |

PART - B (5 × 13 = 65 Marks)
Answer ALL Questions

11. a) Provide a detailed analysis of the layout of a modern coal power plant, considering both the physical and technological aspects. 13,K2,CO1
- OR**
- b) Summarize the working of BFBC & CFBC at atmospheric conditions. 13,K2,CO1
12. a) Discuss the essential components of the diesel power plant with neat layout. 13,K2,CO2
- OR**
- b) Describe the Brayton cycle used in gas turbine engines. How can the efficiency of the Brayton cycle be improved, and what factors influence its overall performance? 13,K2,CO2
13. a) Explain in detail the process of nuclear fission and its role in the generation of nuclear power. 13,K2,CO3

OR

b) Explain the working of **BWR** based Nuclear Power Plant with neat layout. Also give its merits and Demerits. *13,K2,CO3*

14. a) Describe in detail the typical layout of a hydroelectric power plant. Discuss its functions. *13,K2,CO4*

OR

b) Explain the construction and principle of operation of wind power plant with neat sketch. *13,K2,CO4*

15. a) Explain about power plant economics, the fixed costs and operating costs of a power station. *13,K2,CO5*

OR

b) Explain the site selection criteria for Thermal and nuclear power plants. *13,K2,CO5*

PART - C (1 × 15 = 15 Marks)

16. a) Analyze the global potential for tidal energy and its role in the future energy mix. Discuss regions with significant tidal resources and the challenges associated with harnessing tidal power on a large scale. *15,K4,CO3*

OR

b) Explain the following with neat diagram :

(i) Benson boiler *8,K2,CO1*

(ii) Anyone type of cogeneration power plant. *7,K2,CO1*