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BOARD DIPLOMA EXAMINATION, (C-16)

JANUARY/FEBRUARY—2022

DEEE - FOURTH SEMESTER EXAMINATION

POWER SYSTEMS - I
(GENERATION AND PROTECTION)

Time : 3 hours]   [*Total Marks* : 80

PART—A   3×10=30

Instructions :   (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. Classify the energy sources with examples.

2. List the different methods of energy conservation.

3. State the need of cooling tower in thermal power plant.

4. Classify the hydroelectric power stations on the basis of duty.

5. State the function of control rods in nuclear power station.

6. Write any three factors to be considered for selection of site for wind mills.

7. List the methods to improve the power factor.

8. List the properties of SF6 gas.

9. List the probable faults in a power transformer.

10. Classify the relays based on the time of operation.

PART—B

Instructions : (1) Answer *any* **five** questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. Explain the factors affecting the selection of site for thermal power plant.

12. Explain the principle of working of hydroelectric power station with a neat sketch.

13. Explain fission and fusion reactions with mass energy balance.

14. Explain the working of roof top solar power generation with block diagram.

15. An industrial consumer has a maximum demand of 10 kW with a load factor 50%. If the tariff is Rs. 150 per kVA of maximum demand and 8 paisa per unit consumed, find the overall cost per unit at *(a)* U. P. F. and *(b)* 0·7 P. F. 5+5=10

16. Explain the construction and working of a minimum oil circuit breaker.

17. Explain the differential protection of an alternator.

18. *(a)* Write the effects of load factor and diversity factor on the cost of electrical energy generated. 5

(b) Explain the working of Horn gap lightening arrestor with a neat sketch. 5

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