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BOARD DIPLOMA EXAMINATION, (C-16)

MAY/JUNE—2023

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. State the need of non-conventional methods of electrical power generation.
2. Draw the simple line diagram of a tidal power plant.
3. List the methods to control the pollution caused by thermal power plant.
4. Classify hydroelectric power plants based on head.
5. Mention the materials used as (a) coolant and (b) reflector in a nuclear reactor.
6. State the methods of storing solar energy.
7. State any three methods to improve power factor.
8. State the purpose of isolator, in a power system.
9. List the precautions to be taken while applying differential protection in a transformer.
10. Define surge.

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PART—B

10×5=50

- 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 working principle of a thermal power plant with a diagram.
12. Explain the factors affecting the selection of site for a hydroelectric power plant.
13. Explain the working of nuclear power plant with a line diagram.
14. Explain the working of rooftop solar power generation with a diagram.
15. The annual peak load on a 30 MW power station is 25 MW. The power station supplies loads having M.D's of 10 MW, 8.5 MW, 5 MW and 4.5 MW. The annual load factor is 45%. Find (a) average load, (b) energy supplied per year, (c) demand factor and (d) diversity factor. (Assume any missing data.)
16. Explain the working of an air break circuit breaker.
17. Explain the working of a Buchholz relay.
- * 18. (a) Differentiate between isolated operation and integrated operation of power plants.
(b) Explain the working of a thyrite type lightning arrester with a diagram.

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