



C09-EE-403

3475

**BOARD DIPLOMA EXAMINATION, (C-09)
OCT/NOV—2016
DEEE—FOURTH SEMESTER EXAMINATION
POWER SYSTEMS—I**

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 disadvantages of non-conventional energy sources.
2. State the advantages of Thermal Power Stations.
3. Classify the Hydro-Electric Power Stations.
4. Define the terms 'nuclear fission' and 'nuclear fusion'.
5. Define maximum demand.
6. What is meant by Integrated Power Station?
7. State the advantages of SF₆ circuit breaker.
8. State the uses of impedance relays.
9. Write a short note on stator earth fault protection system in alternator.
10. List different types of fault in transformers.

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PART—B

10×5=50

- Instructions :** (1) Answer *any five* questions.
(2) Each question carries **ten** marks.
(3) Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer.

- 11.** (a) State the functions of (i) boiler and (ii) condenser. 5
(b) State the functions of (i) turbine and (ii) alternator. 5
- 12.** Explain the working of Hydro-Electric Power Station with a neat sketch.
- 13.** Explain the working of Nuclear Power Station with block diagram.
- 14.** List the various types of tariff.
- 15.** A generating station has two alternators of ratings 4000 kVA and 6000 kVA and of percentage reactance's 10% and 8% respectively connected from the common bus-bars. The load is taken to the feeder through a 12000 kVA transformer of 5% reactance. What should be the short circuit kVA and the approximate rating of circuit-breaker if the fault occurs on the feeder?
- 16.** Explain the construction and working principle of induction type over current relay with neat sketch.
- 17.** Explain the working of Buchholz relay with a neat sketch.
- 18.** (a) Explain the measures to control radio-activity in Nuclear Power Stations. 5
(b) A power station has a maximum demand of 150 MW with an annual load factor of 50%. Calculate the electrical energy generated per annum. 5
