* 4743 *

C14–EE–603

4743

BOARD DIPLOMA EXAMINATION, (C–14)

MARCH/APRIL—2017

DEEE—SIXTH SEMESTER EXAMINATION

POWER SYSTEMS—III (SWITCH GEAR 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 switch gear apparatus.

2. State any three properties of sulphur hexafluoride gas.

3. Define fuse and list the various types of fuses.

4. Classify the relays based upon time of operation.

5. List the applications of directional over current induction relay.

6. What are the different types of faults occurring in a power transformer?

7. What is the purpose of time grading of protection system and where is it employed?

8. Why are induction-type IDMT relays most suitable for the protection of radial feeders?

9. What is the difference between a lighting arrester and a surge absorber?

10. What are the advantages of neutral grounding?

PART—B

10×5=50

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

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

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

11. *(a)* Explain the high resistance interruption method to quench the arc.

(b) Explain the working of single break type of BOCB.

12. A generating station has two alternators of ratings 4000 kVA and 6000 kVA and of percentage reactances 10% and 8% respectively connected from common bus bars. The load is taken to the feeder through a 12000 kVA transformer of 5% reactance. What should be the approximate rating of circuit breaker in the feeder circuit?

13. Explain the construction and operation of *(a)* solenoid and plunger-type relay and *(b)* current balance differential relay.

14. Explain the differential protection for alternator stator with neat diagram.

15. Explain the working of Buchholz relay and its protection scheme for transformer.

16. *(a)* Explain the principle of obtaining directional property for an induction-type over current relay.

(b) Explain pilot wires and their effects.

17. Explain the protection of ring main feeder using directional relays.

18. Explain the resistance grounding with neat sketch and phasor diagram.

★ ★ ★