C14–EE–603

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BOARD DIPLOMA EXAMINATION, (C–14)
SEPTEMBER/OCTOBER - 2020
DEEE—SIXTH SEMESTER EXAMINATION

POWER SYSTEMS—III

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. Define switchgear and classify it.

2. Compare OCB with SF_6 CB in any three aspects.

3. Define fuse and mention different fuse materials.

4. Classify the relays based upon the principle of operation.

5. State the principle of distance relay.

6. List the probable faults in alternator stator and rotor.

7. What is the need of busbar protection?

8. Draw the wiring diagram for protection of transmission line using circulating current differential relaying scheme.

9. What are the causes for surge production?

10. What is the need of grounding the neutral?

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. Explain the principle and working of air-blast circuit breaker with neat diagram.

12. The estimated short-circuit MVA at the busbars of generating station *A* is 500 MVA and of station *B* is 400 MVA. The generated voltage at each station is 33 kV. If these stations are interconnected through a line having a reactance of 1 Ω and negligible resistance, calculate the possible short-circuit MVA at both stations.

13. Explain the construction and working of directional over-current induction relay with neat diagram.

14. Explain the Buchholz relay and its protection scheme for transformers.

15. Explain the differential protection for alternator stator with a neat sketch.

16. *(a)* Explain the working of thermal relay. 5

(b) Explain the protection of transmission lines by using definite distance relays. 5

17. Explain the protection of parallel feeders using directional and non-directional relays.

18. Explain the construction and working of thyrite-type lightning arrester with neat diagram.

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