

4743**BOARD DIPLOMA EXAMINATION, (C-14)****JUNE-2019****DEEE – SIXTH SEMESTER EXAMINATION****POWER SYSTEMS – III (SWITCH GEAR AND PROTECTION)**

Time: 3 Hours]

[Max.Marks: 80

PART-A**10x3=30M**

Instructions: 1) Answer **all** questions. Each question carries **three** marks.
2) Answers should be brief and straight to the point and shall not exceed five simple sentences.

- 1) State any three properties of sulphur hexafluoride gas.
- 2) State the working principle of minimum oil circuit breaker.
- 3) State the importance of short circuit kVA.
- 4) Classify the relays based on principle of operation.
- 5) List the uses of attracted armature type relay.
- 6) List the precautions to be taken for applying differential protection of transformers.
- 7) What is pilot wire?
- 8) What is the relation between number of sections and minimum relay time.
- 9) List any six types of lightning arrestors.
- 10) List any three reasons for the cause of surges.

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PART-B

5x10=50M

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

- 11) Explain the working of air break circuit breaker with a neat diagram.
 - 12) A 10MVA, 6.6kV three phase star connected alternator having a reactance of 20% is connected through a 5 MVA, 6.6kV/33kV transformer of 10% reactance, to a transmission line of length 50km having a resistance and reactance per conductor per kilometer of 0.2 ohm and 1 ohm respectively. Calculate the short circuit current fed to a symmetrical fault occurred between phases of load end of the transmission line.
 - 13) Explain the working of impedance relay with a neat diagram.
 - 14) Explain the split phase protection of alternator against inter turn short circuits with a neat diagram.
 - 15) Explain the differential protection of transformer with a neat diagram.
 - 16) Explain the differential protection of parallel feeders of transmission lines with neat diagram.
 - 17) Explain the working of rod gap type lightning arrestor with a neat diagram.
 - 18) Briefly explain the following:
 - (a) Thermal relay
 - (b) Protection of ring main feeders using directional relays
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