

6635

BOARD DIPLOMA EXAMINATION, (C-16)

JUNE-2019

DEEE- FIFTH SEMESTER EXAMINATION

POWER SYSTEMS – II (T,D & P)

TIME: 3 Hours

Max.Marks: 80

PART-A

10X3=30M

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) What is meant by skin effect and proximity effect in transmission line conductors.
- 2) List any six advantages of AC transmission.
- 3) What are the methods of reducing corona in over head transmission lines.
- 4) List any six advantages of HVDC transmission system.
- 5) Define the terms a) Flash over b) Puncture
- 6) Classify the cables based on voltage rating.
- 7) State relative merits of outdoor substations over indoor substations in any three aspects.
- 8) Define feeder, distributor and service Mains.
- 9) Distinguish between primary distribution and secondary distribution system
- 10) Draw the scheme of protection of parallel feeders using directional relays.

PART-B

5X10=50M

Instructions :

- 1) Answer any **five** questions including question 18 which is compulsory
- 2) Each question carries **ten** marks
- 3) Answer should be comprehensive and the criteria for valuation is the content but not the length of the answer.

11) An overhead 3-phase transmission line delivers 5MW at 22KV at 0.8 lagging power factor. The resistance and reactance of each conductor per phase is 4 ohms and 6 ohms respectively. Determine
i) sending end voltage, ii) percentage regulation iii) total line losses and iv) transmission efficiency.

12) a) State Ferranti effect.

b) Compare stranded conductors with hollow and solid conductors in three aspects.

13) Explain sag briefly. Derive an expression for sag when supports are at same level in a transmission line.

14) In a 33kV, 3 phase overhead line, there are 3 units in the string of insulators. If the capacitance between each insulator pin and earth is 11% of self capacitance of each insulator, find

i) The distribution of voltage over 3 insulators

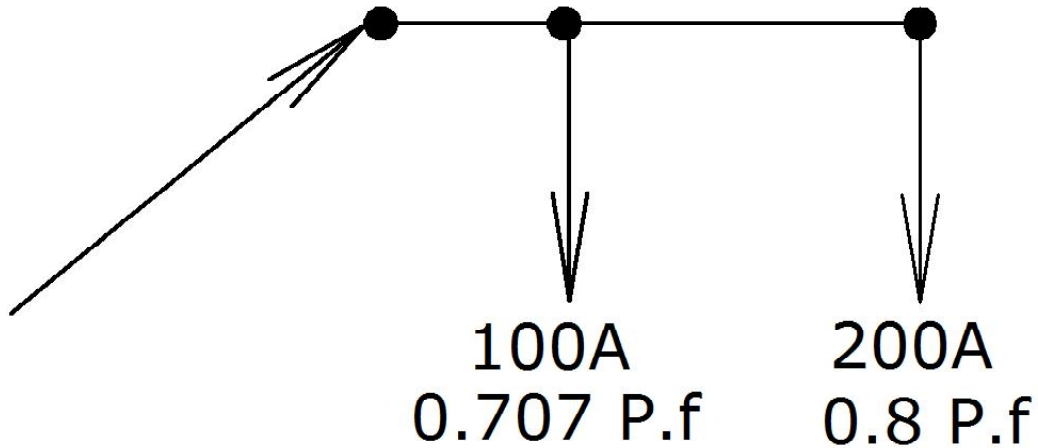
ii) String efficiency

15) a) Derive an expression for the insulation resistance of a cable.

b) Compare overhead line conductors and underground cables in five aspects.

16) Write short notes on a) Switch gear b) Transformer c) Meters d) Cables in a substation.

- 17) A two wire AC feeder is loaded as shown in figure below. The power factors are lagging and are referred to the voltage at the respective load points. The section impedance $FA=(0.03+j0.05)$ ohm and $AB= (0.05+j0.08)$ ohm. If the voltage at the far end is to be maintained at 230 volt. Calculate the voltage at the supply end.



- 18) Explain the protection of ring main feeder using directional relays with neat diagram.

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