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BOARD DIPLOMA EXAMINATION, (C-16)  
MARCH /APRIL-2019  
DEEE - FIFTH SEMESTER EXAMINATION  
POWER SYSTEMS – II (T,D & P)

Time: 3Hrs

Max. Marks: 80

## PART-A

10x3=30M

**Instructions:** 1) Answer all questions. Each question carries 3 marks  
2) Answer should be brief and straight to the point and shall not exceed five simple sentences.

- 1) Compare solid and hollow conductors in any three aspects.
- 2) What is Ferranti effect?
- 3) State any three advantages of hot line technique.
- 4) State the different types of HVDC transmission systems.
- 5) Define sag. List Factors affecting it.
- 6) Classify the cables on the basis of number of conductors and voltage rating.
- 7) What are the advantages of gas insulated substation.
- 8) Define i) feeder ii) distributor iii) Service main.
- 9) Write any two advantages and disadvantages of radial distribution system.
- 10) Write short notes on Pilot-Wire protection system.

## PART-B

10x5=50M

- Instructions:** 1) Answer any five questions Each question carries 10 marks  
2) Answer should be comprehensive and the criterion for valuation is the content but not length of the Answer.

- 11) a) State the factor affecting CORONA 4M  
b) Compare solid and stranded conductors in six aspects 6M
- 12) A 3 phase 50HZ 250KM over head transmission line delivers a load of 25 MVA, at 132 KV, and 0.8 Pf lagging. The resistance and inductive reactance of the line 27.5 ohms per phase respectively, While shunt admittance is  $7.38 \times 10^{-4}$  mho per phase. Calculate  
a) Sending end current b) Sending end voltage (line to line)  
c) Voltage regulation. Use nominal II method.
- 13) a) Derive an expression for sag in over head lines when the support are at same levels. 7M  
b) State the methods of improving string efficiency 3M
- 14) a) List the causes for failure of insulators.  
b) A three phase overhead transmission line is being supported by three disc insulators. The potential across the top and middle units are 12.7 KV and 15 KV respectively. Calculate i) Ratio of capacitance between pin and earth to self capacitance of each unit  
ii) The line voltage iii) String efficiency
- 15) a) Compare overhead lines with underground cables in any five aspects.  
b) Derive the expression for insulation resistance of a cable. 5+5
- 16) a) Compare indoor and outdoor substations in any five aspects.  
b) List any five equipment used in substation and briefly explain the function of each.
- 17) A single phase a.c distributor AB 250 m long is fed from end A and loaded as follows.  
i) 120 A at 0.8 pf lagging 100 m from point A  
ii) 100 A at 0.707 pf lagging 250 m from point A  
The total resistance and resistance of the distributor are  $0.25 \Omega$  and  $0.125 \Omega$  per km. Calculate the voltage at sending end when the load p.f refer to voltage at far end of 230 V.
- 18) Explain the protection of parallel feeders using direction relays with neat diagram.