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BOARD DIPLOMA EXAMINATION, (C–09)
OCT/NOV—2018
DEEE—SIXTH SEMESTER EXAMINATION

POWER SYSTEM–II

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 regulation pertaining to transmission lines.

2. What are the requirements of conducting materials?

3. State the disadvantages of HVDC transmission system.

4. State the factors influencing the selection of line supports.

5. Mention any three causes for failure of insulators.

6. Give the list of equipment used in substations.

7. State the classification of underground cables.

8. What are the requirements of good distribution system?

9. State the need of protection of transmission system.

10. Defines surge and state its types in power system.

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PART—B 10×5=50

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

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

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

11. Explain corona in transmission lines and list the factors affecting corona. Also write the methods of reducing corona.

12. A three-phase, 50-Hz 150-km line has a resistance, inductive reactance and admittance of 0.1 , 0.5 , 3×10^6 per phase. If the line delivers 50 MW at 110 KV 0.8 p.f. lagging determine the sending end voltage and current using nominal -method.

13. *(a)* Derive the euation for power loss due to charging current in transmission lines.

    (b) A single-core cable 5 km long has an insulation resistance of 0.4×10^6 ohm. The core diameter is 20 mm and the diameter of the cable over the insulation is 50 mm. Calculate the resistivity of the insulation material.

14. Derive an equation for the approximate method of calculating sag, when the supports are (a) at the same level in still air, and (b) with the effect of wind and ice.

15. Calculate the maximum voltage that a string of three suspension insulators can withstand, if the maximum voltage for each

insulator is not to exceed 17 kV. The capacitance between each link pin and earth is 20% that of self-capacitance.

16. Find the sending end voltage and power factor of A.C distributor as shown below. The power factors are with respects to receiving end voltage.

A   (0.15+J0.2)   B   (0.15+J0.2)   C V_c=220V

↓   ↓   ↓

               60A   100A
         0.9PF log   0.8 PF log
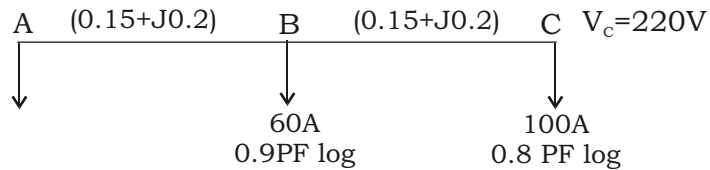
17. Explain pilot wire protection of transmission lines.

18. Explain the construction, working and application of the yrite type lightning arrestor with a neat sketch.

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