C09–EE–**606**

3769

BOARD DIPLOMA EXAMINATION, (C–09)
OCT/NOV—2015
DEEE—SIXTH SEMESTER EXAMINATION

POWER SYSTEMS—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 short, medium and long transmission lines.

2. Write the application of hotline technique.

3. What are the protective measures adopted for HVDC system?

4. State any three comparisons between pin- and suspension-type insulators.

5. State any three advantages of steel poles over wooden poles.

6. State the uses of capacitor banks in substations.

7. State any three relative merits of outdoor over indoor substations.

8. Compare between AC distribution system and DC distribution system in three aspects.

9. Write a short note on pilot wire protection system.

10. State the use of thyrite-type lightning arrestor.

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. Compare the volume of conductor material required in DC 2-wire system and 3-phase, 4-wire, AC 2-wire system in overhead lines.

12. A 3- transmission line delivers 3600 kW at a p.f. 0·8 lagging to a load. If the sending end voltage is maintained at 33 kV, determine the receiving end voltage and transmission efficiency. Take the resistance and reactance of each conductor are 5 31 and 5 34 respectively.

13. A transmission line has a span of 300 m. Cross-sectional area of conductor is 1 cm^2, weight of the conductor is 0·65 kg/m, breaking stress is $5000 \text{ kg} / \text{cm}^2$, wind pressure is 0·8 kg/m and ice coating is 0·6 kg/m. Factor of safety is 2·5. Find the sag and vertical sag.

14. *(a)* Draw a neat diagram of stay arrangement and label the parts.

(b) Draw the earthing layout of 33/11 kV substation and label the parts.

15. *(a)* What are the advantages and disadvantages of ring main distribution system?

(b) Classify the types of distribution systems.

16. Explain with a neat sketch the differential protection of bus bars.

17. Explain the method of solid grounding system with a diagram.

18. *(a)* Explain Ferranti effect with a phasor diagram.

(b) A single-core cable has the diameter of 2·5 cm and thickness of insulation is 1·25 cm. Calculate the insulation resistance per km assuming the resistivity of insulation as $1\ 5\ 10^7$ -cm.

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