MODEL PAPER – FORMATIVE ASSESSMENT-1
C-23-EE-503
BOARD DIPLOMA EXAMINATION, (C-23)
DEEE – FOURTH SEMESTER EXAMINATION
EE-503 : POWER SYSTEMS – II

Time: 90 Minutes   Total Marks: 40

<div align="center">

PART-A   **(1 x 4) + (4 x 3) = 16**
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Instructions:

i.   **Answer all five questions.**
ii. **First question carries four marks and remaining each question carries three marks.**
iii. **Answers should be brief and straight to the point and shall not exceed five simple sentences**

1. Define Ferranti effect. (CO1)
2. Define corona. (CO1)
3. State the advantages of HVDC transmission lines. (CO1)

4. List the factors affecting corona. (CO1)

5. List any six requirements of line supports. (CO2)

<div align="center">

PART-B   **3 X 8 = 24**
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Instructions:

i.   **Answer all three questions.**
ii. **Each question carries eight marks.**
iii. **The answers should be comprehensive and the criteria for valuation are the content but not the length of the answer.**

6. (a) Explain the concept and applications of Hot line technique. (CO1)

<div align="center">(or)</div>

(b) A three phase short transmission line with an impedance of 6+j8 ohm per phase as sending end and receiving end voltage of 120 kV which is operating at a power factor of 0.9 lagging. Determine (i) power output (ii) sending end power factor. (CO1)

7. (a) Define Corona, state the factors affecting corona and list the methods to reduce the same. (CO1)

(or)

(b) Derive the expression for computing regulation and efficiency of medium transmission line using nominal T-method. (CO1)

8. (a) State the advantages and disadvantages of HVDC transmission and list the types of HVDC systems. (CO1)

(or)

(b) Derive an expression calculating sag of a transmission line when the line supports are at same level. (CO2)

Time: 90 Minutes   **Total Marks: 40**

PART-A   **1X4+4X3 = 16**

Instructions:

   i.   Answer all **five** questions.
   ii. First question carries **four** marks and remaining each question carries **three** marks.
   iii. Answers should be brief and straight to the point and shall not exceed five simple sentences

1. State the disadvantages of Loose spans   (CO2)

2. Distinguish Overhead lines and Underground Cables in any three aspects   (CO2)

3. State the need of Substations.   (CO3)

4. State the function of pilot wires   (CO4)

5. What is meant by micro-grid?   (CO5)

Instructions:

i.   Answer all **three** questions.
ii.   Each question carries **eight** marks.
iii.   The answers should be comprehensive and the criteria for valuation are the content but not the length of the answer.

6. (a) An insulator string consists of 3-Units, each having a safe working Voltage of 15KV. The

         ratio of Self-Capacitance to shunt Capacitance of each unit is 8:1. Find the maximum

         safe working Voltage of String. Find the string efficiency .   (CO2)

(or)

    (b) Derive an expression for insulation resistance of a cable   (CO2)

7. (a) State the use and application of substation equipment. (CO3)

(or)

    (b) Explain the protection of transmission lines using distance relays. (CO4)

8. (a) Explain the advantages and disadvantages of radial and ring main distribution systems. (CO5)

(or)

    (b) Compare distributed generation with central generation (CO5)

MODEL PAPER – SUMMATIVE EXAMINATION
C-23-EE-503
BOARD DIPLOMA EXAMINATION, (C-23)
DEEE – FOURTH SEMESTER EXAMINATION
EE-503 : POWER SYSTEMS – II

Time: 3 hours   Total marks: 80

PART-A   10 X 3 = 30

Instructions:

i.   **Answer all questions.**

1. List any six advantages of AC transmission system. (CO1)

2. List the types of HVDC transmission system. (CO1)

3. List the factors affecting corona. (CO1)

4. List any three applications of hot line technique. (CO1)

5. State the causes for the failure of insulators. (CO2)

6. Define string efficiency. (CO2)

7. Distinguish overhead lines with underground cables in any three aspects. (CO2)

8. Define substation and state its functions. (CO3)

9. What is pilot wire?   (CO4)

10. State the need of a smart-grid. (CO5)

PART-B   **5 X 10 = 50**

Instructions:

i.   **Answer any five questions.**
ii.   **Each question carries Ten marks.**
iii.   **The answers should be comprehensive and the criteria for valuation are the content but not the length of the answer.**

11. A three phase short transmission line with an impedance of 6+j8 ohm per phase as sending end and receiving end voltage of 120 kV which is operating at a power factor of 0.9 lagging. Determine (i) power output (ii) sending end power factor. (CO1)

12. A three phase 50 Hz 150 km line has a resistance, inductive reactance and shunt admittance 0.1 ohm, 0.5 ohm and 3×10^{-6} mho per km per phase respectively. If the line delivers 50 MW at 110 kV and 0.8 p.f. lagging. Determine the sending end voltage and current. Assume nominal π circuit for the line. (CO1)

13. Derive an expression for calculating the sag of a transmission line when the line supports are at

same level. (CO2)

14. An insulator string consists of three units each having a safe working voltage of 15 kV. The ratio of self-capacitance to shunt capacitance of each unit is 8:1. Find the maximum safe working voltage of string and string efficiency. (CO2)

15. State the merits and demerits of indoor substation over outdoor substation. (CO3)

16. Define service mains and distributor and Compare between radial and ring distribution systems on any three aspects. (CO3)

17. Explain the protection of transmission lines using definite distance and time distance relays with neat diagram (CO4)

18. Define FACTS controllers. State the types of FACTS controllers. State any three applications of FACTS controllers.