23135

C23-EE–302

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BOARD DIPLOMA EXAMINATION, (C-23)

OCTOBER/NOVEMBER—2024

DEEE – THIRD SEMESTER EXAMINATION

ELECTRICAL MACHINES – I

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 armature reaction and state its effects.

2. Draw power flow diagram of DC generator.

3. Classify DC motors.

4. Define torque and write the torque equation of DC motor.

5. List any three applications of DC series motor.

6. List different tests of DC motors.

7. State the purpose of obtaining controlling torque in indicating instruments.

8. State the advantages of MI instruments.

9. Define sensor and list its types.

10. List the applications of sensors.

PART—B

10×5=50

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

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

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

11. Derive the E.M.F. equation of DC generator in terms of ϕ, Z, N, P and A.

12. A 8-pole lap-connected armature has 40 slots with 12 conductors per slot generates a voltage of 500 V. Determine the speed at which it is running if the flux per pole is 50 m Wb.

13. Explain the significance of back EMF in DC motors.

14. Explain the working of 3-point starter with legible sketch.

15. Explain the working of attraction type moving iron instrument with neat sketch.

16. Explain the construction and working of Megger with neat diagram.

17. Explain the working of LVDT with neat sketch.

18. Explain the working of single-phase digital energy meter with block diagram.

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