MODEL PAPER – FORMATIVE ASSESSMENT-1

C-23-EE-302

BOARD DIPLOMA EXAMINATION, (C-23)

DEEE – THIRD SEMESTER EXAMINATION

EE-302 : ELECTRICAL MACHINES – I

Time: 90 Minutes Total Marks: 40M

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

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. (a) The yoke in a DC generator is made up of _____. CO1
   (b) The friction and windage losses are called Iron losses : True / False. CO1
   (c) The voltage equation of a D.C. motor is _____ . CO2
   (d) The type of starter used for DC shunt motor is_____. CO3
2. Define armature reaction. CO1
3. List different methods of improving commutation. CO1
4. Classify the DC motors. CO2
5. State the necessity of a starter. CO3

PART-B **3 X 8 = 24M**

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) Describe the constructional features of a DC generator with a legible sketch. CO1

(OR)

(b) In a 110 V , D.C shunt generator the resistance of the armature and shunt windings are 0.06 ohm and 25 ohm respectively. The load consists of 200 lamps each rated at 55 watts , 110 V. Find the total electromotive force and armature current. Neglect armature reaction and brush drop. CO1

7. (a)Explain the working principle of DC motor. CO2

(OR)

(b) Derive the Torque equation of a DC motor. CO2

8. (a) Explain the flux control method and armature control method of speed control for DC shunt motor. CO3

(OR)

(b) Explain the working of 3-point starter with legible sketch. CO3

MODEL PAPER – FORMATIVE ASSESSMENT-2
C-23-EE-302
BOARD DIPLOMA EXAMINATION, (C-23)
DEEE – THIRD SEMESTER EXAMINATION
EE-302 : ELECTRICAL MACHINES-I

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

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

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. (a) The direct test of DC motor is also known as Brake test: **True / False**. CO3
   (b) The type of electrical measuring instrument which is used only for DC work is_____. CO4
   (c) An example for high resistance is _____. CO4
   (d) The abbreviation of LVDT is _____. CO5
2. List the different tests of DC Motors. CO3
3. Classify the instruments on the basis of principle of working. CO4
4. State the advantages of moving iron instruments. CO4
5. Define transducer. CO5

PART-B **3 X 8 = 24M**

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 method of conducting brake test on DC series motors. CO3

(OR)

(b) Explain the method of conducting brake test on DC shunt motors. CO3

7. (a) Explain the working of permanent magnet moving coil instruments. CO4

(OR)

(b). Describe the construction and working of Megger. CO4

8. (a)Explain the working of Linear Variable Differential transformer. CO5

(OR)

(b). Explain the working of single phase Digital Energy meter with block diagram. CO5

MODEL PAPER – SUMMATIVE EXAMINATION
C-23-EE-302
BOARD DIPLOMA EXAMINATION, (C-23)
DEEE – THIRD SEMESTER EXAMINATION
EE-302 : ELECTRICAL MACHINES – I

Time: 3 hours **Total marks: 80M**

PART-A **10 X 3 = 30M**

Instructions:

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

1. Define armature reaction. CO1
2. Classify DC generators based on excitation. CO1

3. Plot the electrical characteristics of DC shunt motor. CO2
4. List the applications of various DC motors. CO2
5. Explain the significance of back e.m.f in a D.C. Motor. CO2
6. State the necessity of a starter. CO3
7. Classify the instruments on the basis of principle of working. CO4
8. State the advantages of moving iron instruments. CO4
9. State the applications of Transducers. CO5
10. Define sensor. CO5

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

Instructions:

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

11 In a 110 V , D.C compound generator the resistance of the armature, shunt and series windings are 0.06 ohm, 25 ohm and 0.5 ohm respectively. The load consists of 200 lamps each rated at 55 watts , 110 V. Find the total electromotive force and armature current when the machine is connected as (i) long shunt (ii) short shunt. Neglect armature reaction and brush drop. CO1

12. A 4 pole 250 V DC series generator supplies a load of 10 KW at the rated voltage. The armature and series field resistances are 0.1Ω and 0.15Ω respectively. The armature is lap wound with 50 slots, each slot containing 6 conductors. If the flux per pole is 50 mWb. Calculate the speed of the generator. CO1

13. A 400 V shunt motor has armature resistance of 0.8Ω and field resistance of 200Ω.Determine the back emf when giving an output of 7.46 kw at 85% efficiency. CO2

14. Explain the working of 3-point starter with legible sketch. CO3

15. Explain the working of dynamometer type instruments. CO4

16. Describe the construction and working of Megger. CO4

17. Explain the working of Linear Variable Differential transformer. CO5

18. Explain the working of single phase Digital Multimeter with block diagram. CO5