MODEL PAPER – FORMATIVE ASSESSMENT-1

C-23-EE-402

BOARD DIPLOMA EXAMINATION, (C-23)

DEEE – FOURTH SEMESTER EXAMINATION

EE-402 : ELECTRICAL MACHINES – II

Time: 90 Minutes Total Marks: 40

PART-A **(1 x 4) + (4 x 3) = 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. (a) The speed of 3 induction motor is always less than Synchronous speed (True/False)

   (b) DOL starters generally used for the starting of Induction motors rated up to _____

   (c) The _____ Induction motors are not self starting. (True/False)

   (d) 3 phase A.C generators are also know as Alternators

2. Compare three phase slip ring and squirrel cage Induction motors (CO1)
3. List at least six applications of three phase Induction motors. (CO1)
4. List the different types of single phase motors. (CO2)
5. Define Chording and Distribution factor (CO3)

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

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 working principle of 3-phase Induction motor in detail. (CO1)

   (OR)

   (b) Explain in detail the relation between torque and slip of 3-phase Induction motor and also draw the torque-slip curve. (CO1)

7. (a) Explain the working principle of split-phase 1-phase Induction motor with neat diagram and also draw the phasor diagram. (CO2)

(OR)

(b) Explain the working principle of operation of Shaded pole type 1-phase Induction motor with neat diagrams. (CO2)

8. (a) Explain the working of Alternator (CO3)

(OR)

(b) Derive EMF equation of an alternator taking into account distribution factor and pitch factor
(CO3)

MODEL PAPER – FORMATIVE ASSESSMENT-2

C-23-EE-402
BOARD DIPLOMA EXAMINATION, (C-23)
DEEE – FOURTH SEMESTER EXAMINATION
EE-402 : ELECTRICAL MACHINES – II

Time: 90 Minutes Total Marks: 40

PART-A **(1 x 4) + (4 x 3) = 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. (a) Synchronous Motor is a self starting motor : (True/False)

(b) Power factor of a Synchronous Motor with under excitation is _____

(c) Speed equation of Synchronous Motor is _____

(d) Synchronous motor is a constant speed motor (True/False) (CO3)

2. Define Voltage Regulation of an Alternator. (CO3)

3. State the conditions for synchronization of alternators . (CO4)

4. State the necessity for parallel operation of alternators. (CO4)

5. What is synchronous condenser? (CO5)

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

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) A 3-phase , 16 pole alternator has a star connected winding with 144 slots and 10 conductors per slots. The flux per pole is 30 m wb sinusoidally distributed. Find the phase and line voltages if the speed is 375 rpm. (CO3)

(or)

(b) Explain armature reaction of Alternator at different power factors. (CO3)

7. (a) Explain the procedure of synchronization of alternators using Dark lamp and Bright lamp method (CO4)

(or)

(b) Two 25 MVA, 3-phase alternators operate in parallel to supply a load of 35 MVA at 0·8 p.f. lagging. If the output of one machine is 25 MVA at 0·9 p.f. lagging, find the output and p.f. of the other machine. (CO4)

8. (a) Explain the Phenomenon of Hunting and how it can be prevented (CO5)

(or)

(b) Explain the effects of varying excitation at constant load with phasor diagrams (CO5)

MODEL PAPER – SUMMATIVE EXAMINATION

C-23-EE-402

BOARD DIPLOMA EXAMINATION, (C-23)

DEEE – FOURTH SEMESTER EXAMINATION

EE-402 : ELECTRICAL MACHINES – II

Time: 3 hours Total marks: 80

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

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. Compare three phase slip ring and squirrel cage Induction motors. (CO1)

2. List at least six applications of three phase Induction motors. (CO1)

3.List different speed control techniques of 3 ph induction motor (CO1)

4. List the different types of single phase motors. (CO2)

5. State the need of an exciter in an alternator (CO3)

6. Define Chording factor and Distribution factor of a Synchronous generator. (CO3)

7. State the advantage of Stationary Armature (CO3)

8. What is need for parallel operation of Alternators (CO4)

9. Mention four applications of synchronous motor with reasons. (CO5)

10. What is synchronous condenser. (CO5)

PART-B **5 X 8 = 40**

Instructions:

i. **Answer all five 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.**

11. Explain the working principle of 3-phase Induction motor in detail. (CO1)

12. Explain the speed control of inductor motors by (i) Frequency changing method (ii) Pole changing method (CO1)

13. Explain the working principle of split-phase 1-phase Induction motor with neat diagram and also draw the phasor diagram (C02)

14. A 3-phase , 16 pole alternator has a star connected winding with 144 slots and 10 conductors per slots. The flux per pole is 30 m wb sinusoidally distributed. Find the phase and line voltages if the speed is 375 rpm. (CO3)

15.Explain armature reaction of Alternator at different power factors. (CO3)

16. Explain the procedure of synchronization of alternators using Dark lamp and Bright lamp method (CO4)

17. Explain the phenomenon of HUNTING and how it can be prevented (CO5)

18. Explain the effects of varying excitation at constant load with phasor diagrams (CO5)