I D NO.

PRESIDENCY UNIVERSITY, BENGALURU

SCHOOL OF ENGINEERING

Weightage: 40 % Max Marks: 40 Max Time: 2 hrs. 09 May Wednesday 2018

ENDTERM FINAL EXAMINATION MAY 2018

Even Semester 2017-18 Course: **EEE 208 Electrical Machines- I** IV Sem. Electrical

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Instructions:

(i) *Read the question properly and answer accordingly.*

(ii) *Question paper consists of 3 parts.*

(iii) Scientific and Non-programmable calculators are permitted

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Part A

(3 Q x 6 M= 18 Marks)

1. Derive an expression for the voltage regulation of an alternator with a lagging power factor.
2. Explain why Synchronous motors are not self starting.
3. A 6 pole, 3 phase star connected alternator has an armature with 90 slots and 8 conductors per slot and rotates at 1000 rpm. The flux per pole is 0.05 Wb. Calculate the emf generated, if the winding factor is 0.97 and pitch factor is unity.

Part B

(1 Q x 10 M= 10 Marks)

4. a) What is meant by rotating magnetic field? Explain the production of rotating magnetic field in a three phase synchronous motor. 8 M

   b) A DC motor is found to stop running after a short period of time. What do you think could be the reasons? How would you remedy each? 2 M

Part C

(1Q x 12 M= 12 Marks)

5. a) A 440 V DC shunt motor takes a no load current of 2.5 A. The resistance of the shunt field and the armature are 550 Ω and 1.2 Ω respectively. The full load line current is 32 A. Find the full load output and the efficiency of the motor. 8 M

   b) List the advantages and disadvantages of Hopkinson's test. 4 M

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PRESIDENCY UNIVERSITY, BENGALURU

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Weightage: 20% Max Marks: 20 Max Time: 1 hr. 27 March Tuesday 2018

TEST – 2 **SET A**

Even Semester 2017-18 Course: **EEE 208 Electrical Machines- I** IV Sem. Electrical

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Instruction:

(i) Read the question properly and answer accordingly.
(ii) Question paper consists of 3 parts.
(iii) Scientific and Non-programmable calculators are permitted

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Part A

(2 Q x 3 M = 6 Marks)

1. What is back emf in a DC motor? Explain its significance.
2. A Series motor should never be started on no load. Justify this statement with proper reasoning.

Part B

(1 Q x 6 M = 6 Marks)

3. Why starter is needed for a DC motor? With neat sketch, explain the operation of a 3-point starter used for DC motor.

Part C

(1 Q x 8 M = 8 Marks)

4. A 100 H.P., 500 V DC shunt motor has 4 poles and a 2 circuit wave winding with 492 conductors. The flux per pole is 50 mWb and full load efficiency is 92 %. The armature and the commutating pole winding have a total resistance of 0.1 Ω, shunt field resistance is 250 Ω. Calculate for full load, (a) The speed, and (b) The useful torque

ID NO :	

PRESIDENCY UNIVERSITY, BENGALURU

SCHOOL OF ENGINEERING

Weightage: 20 % Max Marks: 20 Max Time: 1 hr. 22 Feb Thursday 2018

TEST – 1

Even Semester 2017-18 Course: **EEE 208 Electrical Machines-I** IV Sem. Electrical

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Instruction:

(i) Read the question properly and answer accordingly.
(ii) Question paper consists of 3 parts.
(iii) Scientific and Non-programmable calculators are permitted

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Part A

(2 Q x 3 M = 6 Marks)

1. Name the type of DC Generator used for the applications:
   (i) Boosters (ii) Battery Charging (iii) Electroplating
2. A 4 pole, d.c. generator has a wave wound armature with 792 conductors. The flux per pole is 0.12 Wb. Determine the speed at which it should be run to generate 240 V on no load.

Part B

(1 Q x 6 M = 6 Marks)

3. A 4 pole long shunt lap wound generator supplies 25 kW at terminal voltage of 500 V. The armature resistance is 0.03 Ω, series field resistance is 0.04 Ω and shunt field resistance is 200 Ω. The brush drop may be taken as 1 V / brush. Determine the emf generated.

Part C

(1 Q x 8 M = 8 Marks)

4. Explain with a neat sketch, the construction of DC machine stating the functions of each part.