KERALA AGRICULTURAL UNIVERSITY

B.Tech (Agrl.Engg.) 2014 Admission
Vth Semester Final Examination-January-2017

Cat. No: Fpme.3111.

Title: Electrical Machines and Power Utilization(2+1)

Marks: 50.00

Time: 2 hours

I Fill up the blanks/Choose the best answers (10x1=10)

1. Ampere turns is unit of -----------
2. A moving coil voltmeter measures -----------
3. 1 watt hour = ----------- joule.
4. The kWh meter can be classified as an ----------- instrument.
5. Reciprocal of power factor is called ----------- of a coil.
6. The voltage induced in each winding is called the -----------
7. Which has more efficiency: synchronous or induction -----------
8. Kirchoffs current law is applicable to only
   a) Closed loops in a network b) Electronic circuit c) Junctions in a network d) Electric circuit
9. The ----------- generator has poorest voltage regulation
   a) Shunt b) series c) compound d) high
10. A series motor is best suited for driving
    a) Lathes b) cranes and hoists c) shears and punches d) machine tools

II Write short notes on any FIVE of the following (5x2=10)

1 Emf equation of ideal transformer.

2 Determination of transformer equivalent circuit.

3 Condition for maximum efficiency of transformer.

4 Different losses in dc generators.

5 Critical resistance.

6 Armature torque and its equation.

7 Voltage regulation of dc generators.

III Write short answers on any FIVE (5x4=20)

1 How to improve commutation process.

2 Voltage equation and equivalent circuits of dc motors.

3 Construction of three phase induction motors.

4 Characteristics of single phase induction motors.

5 Relation between torque and slip in motors.

6 Theory of rotating magnetic field in ac machines.

7 Comparison of characteristics of different types of generators.

IV Write essay on any ONE (1x10=10)

1 Write in detail about the measurement of single and three phase power in one wattmeter and two watt meter methods.

2 Write in detail about voltage equation and equivalent circuits of different types of dc motors.

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