KUMARAGURU
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Register Number: ………….

B.E/B.TECH DEGREE EXAMINATIONS: DEC 2014

(Regulation 2013)

Third Semester

U13EET311:BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

(Common to AERO / FT & TXT)

Time: Three Hours   **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. An electric heater is marked 2000 W, 200 V. The resistance of the coil is
   a) 25ohms   b) 200ohms
   c) 40ohms   d) 20ohms

2. The current in a circuit having constant resistance is tripled. The power increases by_____

3. The magnetic force experienced by a charge particle moving in a magnetic field will be minimum when it moves
   a) perpendicular to the field   b) parallel to the field
   c) inclined parallel to the field   d) at an angle of 45

4. What is the value of the current in a wire of 10cm long at the right angle to a uniform magnetic field of 0.5 Weber/m^2 when the force acting on the wire is 5N?

5. The power factor at resonance in RLC circuit is
   a) Zero   b) Unity
   c) 0.5 lagging   d) 0.5 leading

6. The rms value of sinusoidal 100V peak to peak is _____

7. In a transformer, zero voltage regulation at full load is
   a) Not possible   b) Possible at unity Power factor load
   c) Possible at leading Power factor load   d) Possible at lagging Power factor load

8. The full load copper loss of a transformer is 1600W. At half-load the copper loss will be_____

9. In Bipolar Junction transistors, the type of configuration which will give both voltage gain and current gain is
   a) CC   b) CB
   c) CE   d) NONE

10.   In a full-wave rectifier without filter, the ripple factor is _____

PART B (10 x 2 = 20 Marks)
(Not more than 40 words)

11.   State Ohm's Law

12.   What is meant by current and voltage?

13.   Write the equation of coupling coefficient

14.   State faraday's law of electromagnetic induction

15.   What is meant by Apparent power and Power factor?

16.   Define RMS value.

17.   Give some applications of DC motor

18.   Define slip.

19.   Define ripple factor

20.   Define logic gates

PART C (5 x 14 = 70 Marks)
(Not more than 400 words)

Q.No. 21 is Compulsory

21.   Explain the capacitance of a parallel plate capacitor with a dielectric slab.

22.   a)   (i)   Explain the energy stored in magnetic field   (10)

          (ii)   Define permeability and flux density   (4)

(OR)

    b)   (i)   Elaborate the magnetic effects of electric current.   (10)

          (ii)   Define self-inductance and mutual inductance**.**   (4)

23.   a)   (i)   Derive the generation of 3phase voltages in single phase AC circuits   (10)

          (ii)   Define Active and Reactive power   (4)

(OR)

    b)   (i)   Explain resistance, capacitance and inductance in AC circuits.   (10)

          (ii)   Define cycle and frequency   (4)

24.   a)   (i)   Explain the construction of transformer with neat diagram.   (10)

          (ii)   Draw the torque and speed characteristics of DC series motor   (4)

(OR)

b) (i) Explain the working principle of three phase induction motor. (10)

   (ii) Draw the slip-torque characteristics of 3phase induction motor (4)

25. a) (i) Explain the working of full wave rectifiers with neat wave forms. (10)

   (ii) Draw AND and OR gate and write truth table. (4)

(OR)

b) (i) Explain the working BJT circuit for CE configuration. (10)

   (ii) What is an amplifier? State the applications of amplifier (4)

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