Register Number: ……..

B.TECH DEGREE EXAMINATIONS: APRIL/MAY 2014

(Regulation 2009)

Third Semester

FASHION TECHNOLOGY

EEE255:Electrical and Electronics Engineering

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

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. The rms value of the resultant current in a wire which carries a dc current of 10 A and a sinusoidal alternating current of peak value 20 A is

   a) 14.1 A b) 17.3 A c) 22.4 A d) 30.0 A

2. As sine wave has a frequency of 50 Hz. Its angular frequency is

   a) 50/π rad/sec b) 50/2 π rad/sec c) 50π rad/sec d) 100π rad/sec

3. The direction of rotation of a D.C series motor can be changed by

   a) Interchanging supply terminals b) Interchanging the field terminals
   c) Either of (a) and (b) d) None of the above

4. In squirrel cage induction motors, the rotor slots are usually given slight skew in order to

   a) Reduce windage losses b) Reduce eddy currents
   c) Reduce accumulation of dirt and dust d) Avoid magnetic locking

5. The dynamometer type wattmeter measures

   a) Current b) voltage
   c) power d) All the above

6. If an energy meter disc makes 10 revolutions in 100 seconds when a load of 450 w is connected to it, the meter constant (in rev/kwh) is

   a) 1000 b) 500
   c) 1600 d) 800

7. The depletion region of a junction diode is formed

   a) when forward bias is applied to it b) when the temperature of the junction is reduced
   c) under reverse bias d) during the manufacturing process

8. In R-C CE amplifier emitter load resistance R_E is used to:

   a) increase the load b) decrease the load
   c) attain proper stability factor d) decrease V_{CE} voltage

9. A control system in which the control action is somehow dependent on the output is known as

   a) closed loop system b) semi closed loop system
   c) open system d) None of the above

10. The initial response when the output is not equal to input is called

    a) transient response b) error response
    c) dynamic response d) None of the above

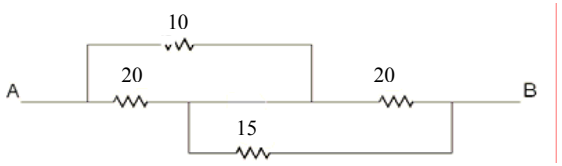
PART B (10 x 2 = 20 Marks)

11. Define electrical power with unit.
12. An aluminium conductor of length 300m has a diameter of 2.54 mm. If the resistivity of aluminium is 28.3 micro-ohm mm, calculate the resistance of the conductor.
13. Draw the electrical and mechanical characteristics of dc shunt motor.
14. A three phase 4 pole induction motor runs at 1460 rpm on a 60 Hz supply. Find the synchronous speed and slip of the rotor.
15. What is deflecting torque?
16. The moving coil type instruments cannot be used in AC circuits. Why?
17. Specify the construction details of a bipolar junction transistor.
18. NAND and NOR gates are called as universal gates. Why?
19. Define open loop control system.
20. What are the components in position feedback control system?

PART C (5 x 14 = 70 Marks)

21. a) (i) Deduce the expression for average value, rms value and peak factor of a sinusoidal wave. (6)

    (ii) Find the current flow in each node if the voltage across AB is 30V. (8)



(OR)

b) A circuit consists of a resistor of 12 ohm, an inductor of 0.1H and a capacitor of 15 micro farad connected in series. Calculate (i) resonant frequency, (ii) current at resonant frequency and (iii) voltage across each element when a voltage of 36

V at resonance frequency is applied to the circuit.

22. a) (i) Explain the working of a three point starter used in dc machine. (8)

(ii) How speed control is achieved in dc motor using any one method? (6)

(OR)

b) (i) Explain the operating principle of the induction motor. (7)

(ii) Describe the construction details of a stepper motor with neat diagram. (7)

23. a) Draw the diagram of the dynamometer type wattmeter and explain the working principle with necessary equations.

(OR)

b) How do you select the transducers and classify the transducers? Explain about inductive and capacitive transducer.

24. a) What are the three configurations of BJT and which mode is commonly used? Derive the expression for current gain parameters and its relationship for a transistor.

(OR)

b) (i) Explain briefly about the architecture of microprocessor. (10)

(ii) Convert the following Hexa decimal number to octal number. (4)

a) FC

b) A9

25. a) Explain the block diagram of feedback control system with a neat sketch.

(OR)

b) How the position feedback is achieved in control system? Explain in detail.

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