Register Number....................

B.TECH. DEGREE EXAMINATIONS: NOVEMBER 2009

Second Semester

BIOTECHNOLOGY

U07EE205: Electrical and Electronic Engineering

Time: Three hours   Maximum Marks: 100

Answer ALL the Questions:-

PART A (10 x 1 = 10 Marks)

1. For all substances chemical equivalent by electrochemical equivalent is

    A. 96500 Coulombs   B.9650 Coulombs   C.965 Coulombs   D.96.5 Coulombs

2. The Unit of inductive susceptance is

    A. henry   B. milli-henry   C. siemens   D. ohms

3. Each commutator segment is connected to the armature conductor by means of

    A. insulator   B. dielectric   C. copper lug   D. resistance wire

4. Which of the following is minimized by laminating the core of the transformer?

    A. hystersis Loss   B. eddy Current Loss   C. heat Loss   D. copper Loss

5. A pointer of an instrument once deflected returns to zero position when the current is removed due to

    A. action of gravity   B. mass of pointer   C. controlling torque   D. damping torque

6. The starting torque of a capacitor start motor is

    A. zero   B. Low C. same as rated torque   D. more than rated torque

7. The barrier potential for germanium diode is about

    A. 0.7 volt   B. 0.5 volt   C. 0.8 volt   D. 0.3 volts

8. The majority carriers of n-type semi conductor is

    A. holes   B. electron   C. nucleous   D. neutron

9. The widely used configuration in transistor is

    A. common emitter   B. common collector   C. common base   D. both common emitter and collector.

10. In colpits oscillator circuit phase shifting takes place in

    A. amplifier circuit   B. tank circuit   C. both circuit   D. power supply circuit

PART B (10 x 2 = 20 Marks)

11. State ohms law.

12. Define R.M.S value and average value of an alternating current.

13. List out the main parts of a D.C. machine.

14. What is the principal a transformer?

15. Define slip of an induction motor.

16. What are the methods for producing damping torque?

17. What is the knee voltage in the curve of pn-junciton diode?

18. What is rectifier?

19. What is a transistor? And give its circuit symbol.

20. Draw the operating amplifier symbol.

PART C (5 x 14 = 70 Marks)

21. (a) (i) Derive the expressions for computation of the temperature coefficient of resistance 'α' different temperatures. (10)

(ii) Define form factor and peak factor. (4)

(OR)

(b) (i) State faraday's law of electrolysis. (4)

(ii) A coil of resistance 10 ohms and inductance of 0.1 henry is connected in series with a microfarad capacitor across 200 volt, 50 Hz supply. Calculate inductive reactance, capaci reactance, impedance, current and power factor and the voltage across the coil and capacitor respectively. (10)

22. (a) (i) Explain the principal operation of a D.C. motor. (7)

(ii) Deduce the emf equation of a transformer. (7)

(OR)

(b) Explain with neat sketch the construction of a D.C. generator.

23. (a) (i) Compare wound rotor and squirrel cage rotor. (7)

(ii) Explain double revolving field theory of three phase induction motor. (7)

(OR)

(b) Explain the attraction and repulsion type of moving iron instruments.

24. (a) (i) What is extrinsic semiconductor? Explain with example.

(ii) Draw and explain the pn-junction diode with its characteristics.

(OR)

(b) Explain the circuit diagram of a single phase full wave rectifier and sketch the input output forms.

25. (a) Draw and explain input and output characteristics of a transistor in common e configuration.

(OR)

(b) What are the different types of multivibrators? Explain any two types of multivibrator with sketches.

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