**E.G.S PILLAY ENGINEERING COLLEGE, NAGAPATTINAM**

**DEPARTMENT OF CIVIL AND MECHANICAL ENGINEERING**

**CYCLE TEST- II**

**Sub Code & Name:** GE6252 & Basic Electrical and Electronics Engg. **Date : 07.04.2014**

**Year & Semester :** I & II **Max.Marks :** 100

**Staff Name :** V.Mohan, K.Nandakumar, S.Sivamani. **Time :** 9 am-11.30am

**ANSWER ALL THE QUESTIONS**

**PART A** 10 X 2 = 20 Marks

1. Is single phase induction motor self starting? Why?
2. Why the transformer rating is in kVA?
3. What are the characteristics of an ideal transformer?
4. What is junction capacitance?
5. When should a transistor be biased? Name two common biasing circuits.
6. Why a BJT is called a current controlled device?
7. Define drift current and diffusion current.
8. Define Storage time.
9. Define current amplification factor for CE configuration in transistors.
10. What is early effect?

**PART-B** 16 X 5 = 80 Marks

11. a) Explain the working of any two types of single phase induction motors with neat diagram and speed –

torque characteristics (16)

**(OR)**

11. b) Explain the construction and operation of single phase transformer with EMF equation. (16)

12.a)(i) A 25 KVA transformer has 500 turns on the primary and 50 turns on the secondary winding. The primary is connected to 3000 V, 50 Hz supply. Find the full load primary and secondary current, the secondary emf and maximum flux in the core. Neglect leakage drops and no load primary current. (10)

(ii) The number of primary and secondary turns of an ideal transformer is 150 and 300 respectively. The transformer is connected to a 220V, 50 Hz source. Determine i) turns ratio ii) mutual flux in core (6)

**(OR)**

12.b)(i) A single phase transformer has 50 primary and 1000 secondary turns. Net cross sectional area of the core is 500 cm2. If the primary winding is connected to 50 Hz supply at 400 V. Calculate the value of maximum flux density on core and the emf induced in the secondary. (10).

(ii) A transformer is supplying load of 32 A at 415 V. If the primary voltage is 3320V, find the following:

i). Secondary volt ampere ii). Primary current iii). Primary volt ampere (6)

13.a (i) Explain the operation of Zener voltage regulator with the required circuit and characteristics. (8)

(ii) Expalin the operation of full wave bridge rectifier with the required waeforms. (8)

**(OR)**

13.b(i) Explain the mechanism of avalanche breakdown and zener breakdown. (8)

(ii) Explain the operation of PNP transistor. (8)

14.a) Explain the V-I characteristics of PN junction diode and Zener diode? (16)

**(OR)**

14. b) Explain the working of half wave rectifier with neat waveform and derive its relevant expressions?(16)

15.a) Draw the circuit of the various transistor configurations. List their important features. Why CE configurations is mainly used. (16)

**(OR)**

15.b) Design and explain the working of Half adder and full adder. (16)