Code No. 2277

FACULTY OF ENGINEERING

B.E. 2/4 (EE/Inst.) I – Semester (Main) Examination, December 2012

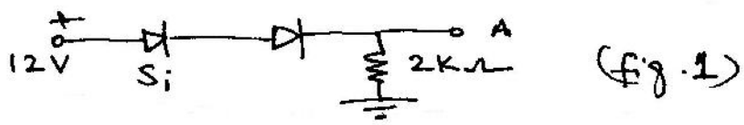
Subject: Electronic Engineering – I

Time: 3 Hours **Max.Marks : 75**

Note: Answer all questions from Part – A. Answer any five questions from Part – B.

PART – A (25 Marks)

1. Determine the current flowing in the circuit shown in Fig. 1. (3)



(Fig. 1)

(3)

2. What is a bleeder resistance? Why it is used in L-C filter? (2)
3. What do you understand by punch through effect? (3)
4. Why collector to base bias is not much used? (2)
5. Explain why E-MOSFET is called sometimes normally-off MOSFET? (2)
6. In case of a JFET the drain current is changed by 0.25 mA when the gate-source voltage is changed by 0.125 V, keeping drain-source voltage constant. Calculate the transconductance of the given JFET. (3)
7. List out the salient features of low frequency BJT amplifier circuits. (3)
8. Why do we need more than one stages of amplifiers in practical circuits. (2)
9. Why a bypass capacitor is used on the bottom of each secondary winding in a transformer-coupled amplifier? (3)
10. Why are RC coupled amplifiers widely used as voltage amplifiers? (2)

PART – B (50 Marks)

11.(a) A single phase full-wave rectifier uses 300-0-300 V, 50 Hz transformer. For a load current of 60 mA, design L-filter using 10 H coil and a suitable capacitor to ensure a ripple factor of not more than 1%. (7)

(b) List out any three differences between the Avalanche and Zener breakdowns. (3)

12.(a) Design a self bias circuit for an NPN silicon transistor having h_{fe} = 100 and V_{BE} = 0.6 V. The desired Q-point is V_{CE} = 5V and I_c = 1 mA and S≤8. Assume V_{cc}= +10V and R_E = 1KΩ. Show the circuit diagram with all the component values. (7)

(b) Compare CB, CE and CC configurations with respect to any three parameters. (3)

13.(a) Draw the circuit diagram and characteristics of Diac. Explain its operation in detail and list out its applications. (7)

(b) What are the factors on which 'turn-off-time' of an SCR depends? (3)

14. Explain the need for cascading amplifiers. What are the different types of cascading? Distinguish between interacting and non-interacting stages. (10)

15.(a) Discuss in detail about various types of distortions in amplifiers. (7)

(b) Three identical cascades amplifier stages has an overall upper 3dB cut-off frequency of 200 KHz. What is upper 3dB cut off frequency of each stage? (3)

16.(a) Discuss about the temperature dependence of VI characteristics of PN junction diode. (4)

(b) Compare UJT and TRIAC. (6)

17. Write a short note on the following:

(a) h-parameters (5)

(Transistor as an amplifier (5)

****