Code No. : 5355/N

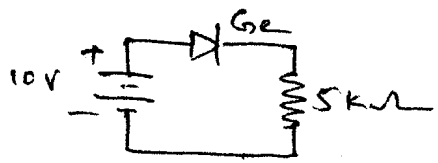
FACULTY OF ENGINEERING
B.E. 2/4 (EE/Inst.) (Semester – I) (New) (Main) Examination, January 2012
ELECTRONIC ENGINEERING – I

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 in figure 1.



2

2. What are the drawbacks of bridge rectifier over centre-tap rectifiers ? 3

3. A BJT has $I_B = 10\ \mu A$, $\beta = 99$ and $I_{CO} = 1\ \mu A$. What is its collector current IC ? 3

4. Why CC transistor configuration is seldom used ? 2

5. In a JFET the drain current changes from 1.2 mA to 1.5 mA when the gate to source voltage is varied from –4.25 V to –4.10 V, keeping the drain-source voltage constant. Determine the transconductance for the given JFET. 3

6. Sketch the VI characteristics of a SCR. 2

7. What do you understand by the cascade configuration ? 3

8. Draw any one of the low frequency BJT amplifier circuit. 2

9. What is the effect of emitter (source) bypass capacitor on LF response with respect to multistage amplifiers ? 3

10. List out the salient features of multistage amplifiers. 2

PART – B **(50 Marks)**

11. a) A single phase fullwave rectifier makes use of π-section filter with two $10\mu F$ capacitors and a choke of 10 H. The secondary voltage is 280 V_{rms} with respect to centre tap. If the load current is 100 mA, determine the dc output voltage and percentage ripple in the output. Assume supply frequency of 50 Hz. **7**

    b) What is the purpose of bleeder resistance in a rectifier circuit using L-C filter ? **3**

12. a) Explain the difference between ac and dc load line. Derive the load line equation of a BJT in CE configuration. **5**

    b) Draw the circuit of a CE amplifier with emitter bias. Derive the relation for stability factor for such a circuit. **5**

13. a) Describe the construction and operation of a MOSFET in depletion region. **5**

    b) Prove that the transconductance g_m of a JFET is given by $gm = \frac{2}{|V_p|}\sqrt{I_{DS}\, I_{DSS}}$, where V_p = pinch-off voltage, I_{DS} = drain current, I_{DSS} = max. I_{DS} corresponding to $V_{Gs} = 0$ volt. **5**

14. Discuss in detail about Miller's theorem and difference amplifier. **10**

15. Explain with neat diagrams about the frequency response of RC and transformer coupled amplifiers. **10**

16. a) Compare DIAC and TRIAC. **5**

    b) Explain about zener and avalanche breakdowns. **5**

17. Write short note on the following :

    a) h-parameters **5**

    b) UJT. **5**