VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD B.E. II Year (E.E.E.) I-Semester Supplementary Examinations, May/June-2017

Electronic Engineering-I

Time: 3 hours

Max. Marks: 70

Note: Answer ALL questions in Part-A and any FIVE from Part-B

Part-A (10 X 2=20 Marks)

- 1. Briefly describe the phenomenon of zener breakdown.
- 2. Explain how a p-n junction diode functions as a rectifier.
- 3. Derive the relation $\alpha_{dc} = \frac{\beta_{dc}}{1 + \beta_{dc}}$
- 4. Describe why bias stabilization is done in a BJT amplifier?
- Mention the applications of SCR and TRIAC.
- 6. Define the three FET parameters g_m , r_d and μ . Prove that $\mu = g_m r_d$.
- 7. Define Common Mode Rejection Ratio (CMRR).
- 8. Draw any one of the low frequency BJT amplifier circuit.
- 9. List different types of distortions in amplifiers.
- 10. Mention the importance of multistage amplifiers.

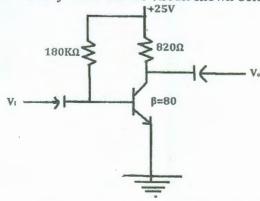
Part-B $(5 \times 10 = 50 \text{ Marks})$

- 11. a) Explain the operation of full-wave bridge rectifier with necessary diagrams and [6] waveforms.
 - b) A full wave rectifier (with capacitor filter) is fed from 220 V to 40 V step down transformer. If average D.C current in load is 1 A and capacitor filter of 800 μ F, calculate the load regulation and ripple factor. Assume power line frequency of 50 Hz.
- 12. a) Describe the importance of early effect in bipolar junction transistor.

[5]

b) Determine Q-point and stability factor for the circuit shown below.

[5]



- 13. a) Describe the basic structure of TRIAC. Draw and discuss its volt-ampere [6] characteristics.
 - b) A JFET has a drain current of 4 mA. If $I_{DSS} = 8$ mA and $V_{GS(off)} = -6$ V. Find the [4] value of V_{gs} and V_{p} .