

Code No: 124AE

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B.Tech II Year II Semester Examinations, May - 2017****ELECTRONIC CIRCUITS****(Electrical and Electronics Engineering)****Time: 3 Hours****Max. Marks: 75****Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit.

Each question carries 10 marks and may have a, b, c as sub questions.

**PART- A****(25 Marks)**

- 1.a) Which configuration in BJT provides the Current gain? [2]
- b) How amplifiers are classified according to the type of transistor configuration? [3]
- c) What the term  $f_{\beta}$  indicates at high frequency? [2]
- d) What is Frequency Distortion? [3]
- e) Distinguish between comparators and clipping circuits. [2]
- f) What are the applications of Schmitt trigger? [3]
- g) Explain the operation of Heat sinks. [2]
- h) Why RC circuits are commonly used compared to RL circuits? [3]
- i) How does diode acts as a switch? [2]
- j) Name the technologies which use bipolar transistors. [3]

**PART-B****(50 Marks)**

2. Draw the circuit of an emitter follower, and derive the expressions for  $A_I$ ,  $A_V$ ,  $R_I$ ,  $R_O$  in terms of CE parameters. [10]

**OR**

3. Determine the effect of negative feedback on the input and output impedances of a Voltage-Series feedback amplifier. Show the circuit schematic diagram. [10]

- 4.a) Draw the ideal and actual frequency response curves of single stage amplifiers.
- b) Write a short note on Design of High frequency Amplifiers. [5+5]

**OR**

- 5.a) Draw and explain the FET high frequency model.
- b) Write a short note on Low frequency response of BJT amplifiers. [5+5]

- 6.a) With help of neat circuit diagram and waveforms, explain the working of a collector coupled Monostable multivibrator.
- b) Why commutating capacitors are used in Multivibrators? [7+3]

**OR**

- 7.a) Draw a circuit using diodes to transmit that part of a sine wave which lies between -4V and -7V.
- b) With the help of a neat diagram, explain the working of an emitter-coupled clipper. [5+5]

- 8.a) Explain the high pass RC circuit response for sinusoidal input and derive expression for cut-off frequency.
- b) Discuss the concept of Thermal Runway. [6+4]
- OR**
9. Draw the circuit diagram of Class-B Complementary Push-Pull Amplifier and explain its working and derive the expression for maximum conversion efficiency. [10]
- 10.a) Explain the operation of transistor switch in saturation.
- b) Write a short note on piecewise linear diode characteristics. [5+5]
- OR**
- 11.a) Explain the Break down voltage consideration of transistor.
- b) Discuss about saturation parameters of Transistor and their variation with temperature. [5+5]

---ooOoo---