Hall Ticket Number:

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VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD

B.E (EEE: CBCS) III-Semester Backlog (Old) Examinations, December 2018

Electronics Engineering-I

Time: 3 hours Max. Marks: 70

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

Part-A (10 × 2=20 Marks)

1. Compare electronic filters.
2. What is Zener breakdown?
3. Define α and β for a transistor and derive the relation between them.
4. What is thermal runaway?
5. Give the significance of transistor h-parameter model.
6. Give statement of Miller's theorem.
7. Compare JFET & MOSFET.
8. Draw the V-I characteristics of N-channel enhancement MOSFET.
9. Draw and explain the characteristics of UJT.
10. Write the principle of operation of Photo diode.

Part-B (5 × 10=50 Marks)

11.a) Draw the circuit of bridge rectifier and explain its advantages over other rectifiers. [4]

b) A diode with forward voltage 0.7 volts is connected as half wave rectifier. The load resistance is 500 ohms and rms ac input is 22 volts. Determine the peak output voltage, peak load current and diode peak inverse voltage. [6]

12. a) A transistor has β=150. Calculate the approximate collector and base currents, if the emitter current is 1 mA. [5]

b) Draw and explain output characteristics of common emitter configuration for npn transistor. [5]

13. a) List out the merits, demerits and applications of RC coupled amplifier. [4]

b) A transistor has its h-parameters given by 1KΩ,50, $2.5x10^{-4}$ and 25μA/V in common emitter configuration using a load resistance of 5KΩ and a source resistance of 1KΩ. Calculate A_V, A_{VS}, A_I, A_{IS}, R_i, and R_o. [6]

14. a) Draw the structure of a JFET and explain its principle of operation with neat diagrams along with the V-I characteristics. Define pinch-off voltage and mark it on the characteristics. [6]

b) Explain the difference between construction of an enhancement type MOSFET and depletion type MOSFET. [4]

15. a) Draw a neat block diagram of a general purpose CRT and explain function of each block. [5]

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b) Draw the block and symbolic representation for SCR. Sketch the V-I characteristics of SCR. [5]

16. a) Draw the circuit of half wave PN junction diode rectifier and explain the operation with relevant sketches. Obtain an expression for the ripple factor and expression for the ripple factor and efficiency of the same circuit. [6]

b) What is operating point? How do you fix it on the DC load line. [4]

17. Answer any *two* of the following:

a) Compare LED and LCD displays. [5]

b) Depletion type MOSFET. [5]

c) Functions of Varactor Diode [5]

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