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Code No. : 13315 S

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS), HYDERABAD
B.E. (ECE: CBCS) III-Semester Supplementary Examinations, June-2019
Electronics Engineering-I

Time: 3 hours

Max. Marks: 60

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

Part-A ($10 \times 2 = 20$ Marks)

1. Give differences between Zener breakdown and Avalanche breakdown.
2. Determine the forward bias voltage applied to a silicon diode to cause a forward current of 10mA and reverse saturation current $25 \times 10^{-7} \text{A}$ at room temperature.
3. Write consequences of base width modulation.
4. Give the relationship between BJT current components.
5. Draw the h-parameter model of CE and CC configurations.
6. Give the applications of common base amplifier.
7. Discuss the parameters of JFET.
8. Does FET acts as voltage variable resistor. If yes, explain how?
9. Define latch current and hold current.
10. List the applications of an LED.

Part-B ($5 \times 8 = 40$ Marks)

11. a) Show that a full wave rectifier is twice as efficient as a half wave rectifier. [5]
b) Design an inductor filter connected to a full wave rectifier operating at Indian frequency to provide a d.c output with 4% ripple factor for a 100Ω load. [3]
12. a) Explain how a transistor is used as an amplifier [4]
b) Draw universal bias circuit and derive an expression for its stability factor. [4]
13. a) Explain the frequency response of RC coupled BJT amplifier. [4]
b) Mention the characteristics of common emitter amplifier and applications. [4]
14. a) With the help of suitable diagrams explain the working of different types of MOSFET. [5]
b) Calculate the value of R_s required to self bias an N-channel JFET [3]
with $I_{DSS} = 40 \text{mA}$, $V_p = -10 \text{V}$ and $V_{GS} = -5 \text{V}$.
15. a) Write the working principle of photo transistor. [4]
b) From the energy band diagram, explain the V-I characteristics of a tunnel diode. [4]
16. a) Obtain ripple factor for a full wave rectifier with shunt capacitor filter. [5]
b) Compare CB and CC configurations of a transistor. [3]
17. Answer any *two* of the following:
a) Write short notes on the effect of emitter by pass capacitor on frequency response. [4]
b) Compare the characteristics of MOSFET with JFET. [4]
c) Discuss the principle of operation of an LCD. [4]