Hall Ticket Number:

Code No. : 12026 AS N/O (B)

VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD

B.E. (CSE : CBCS) II-Semester Advanced Supplementary Examinations, July-2019

Introduction to Electronics Engineering

Time: **3** hours Max. Marks: **60**

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

Part-A (10 × 2 = 20 Marks)

1. Differentiate between drift and diffusion currents in semiconductors.
2. Compare half wave rectifier and full wave rectifier in terms of ripple factor, efficiency and PIV of a diode.
3. Describe the effect of Early Effect on the input V-I characteristics of BJT.
4. Compare BJT and FET.
5. Distinguish between positive and negative feedbacks in amplifier circuits.
6. Give the broad classification of oscillator circuits.
7. Distinguish between an Ideal op-amp and practical op-amp.
8. Justify that the NAND gate is universal gate.
9. Compare DIAC and TRIAC.
10. Discuss the working principle of a strain gauge.

Part-B (5 × 8 = 40 Marks)
(All sub-questions carry equal marks)

11. a) With a neat diagram, explain the phenomenon of Hall-effect in semiconductors.
    b) A half wave rectifier has a load resistance of 3.5 KΩ. If the diode resistance and the secondary coil resistance together is 800 Ω and the input signal has a peak value of 240 V, calculate:
    i) peak, average and rms values of current ii) dc power output
    iii) ac input power iv) efficiency of rectifier
12. a) With a neat sketch, explain the working principle of Field Effect Transistor.
    b) Discuss the functionality of a Zener diode as a voltage regulator with the help of a graph.
13. a) Discuss the advantages of negative feedback in amplifiers.
    b) Explain RC type Oscillators.
14. a) Op-amp acts as an adder and a subtractor. Justify.
    b) Design the Full Adder circuit using logic gates.
15. a) Discuss the working of Piezoelectric and Photoelectric Transducers.
    b) With the required sketches, explain the working of LVDT transducer.
16. a) With a neat circuit diagram and waveforms, explain the working of Full Wave Bridge Rectifier.
    b) With a neat equivalent circuit, define the four hybrid parameters of a BJT in common base configuration.
17. Answer any ***two*** of the following:
    a) Explain the working of Cristal oscillator.
    b) Derive the expression for the output voltage of an instrumentation amplifier constructed using an op-amp.
    c) With a neat sketch, explain the working of Cathode ray oscilloscope.

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