

Roll No. 

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Total No. of Pages : 02

Total No. of Questions : 09

**B.Tech.(EE) PT (Sem.-2)**  
**ELECTRONICS DEVICES AND CIRCUITS**  
Subject Code : BTEE-304  
Paper ID : [A2626]

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTION TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION - B & C. have FOUR questions each.
3. Attempt any FIVE questions from SECTION B & C carrying EIGHT marks each.
4. Select atleast TWO questions from SECTION - B & C.

**SECTION-A****1. Answer briefly :**

- a. Differentiate between intrinsic and extrinsic semiconductors.
- b. What do you mean by load line? Explain.
- c. Compare CB and CE transistor configurations.
- d. List the advantages of JFET over BJT.
- e. Define slew rate with respect to operational amplifier.
- f. Discuss the need of integrated circuits.
- g. Discuss the principle of Crystal oscillator.
- h. Why all pass filter is needed? Discuss.
- i. Explain line and load regulations.
- j. What is the need of regulated power supply? Explain.

### SECTION-B

2. Discuss the principle, construction and characteristics of Zener diode.
3. Draw the circuit diagram of push-pull amplifier and explain its working.
4. Explain Op-Amp as a :
  - a. Differentiator
  - b. Schmitt trigger
5. Draw the circuit diagram of a Wien bridge oscillator and explain the function of each component in detail.

### SECTION-C

6. Draw the circuit diagram of switched mode power supply and explain its working.
7.
  - a. Draw and explain the basic circuit configurations of full wave rectifier. Also calculate the ripple factor of the circuit.
  - b. Draw and discuss any of the three-transistor configurations. Also draw and explain input and output characteristics of the selected configuration.
8. With the help of circuit diagram explain the bistable and monostable mode of operation of Timer 555. Support your answer with relative waveforms.
9. Discuss the following :
  - a. Clipping and clamping circuits.
  - b. Characteristics of PN junction diode.