

Roll No.

Total Pages : 03

BT-I/D-21

41006

ELEMENTS OF ELECTRONICS
ENGINEERING
EL-101E

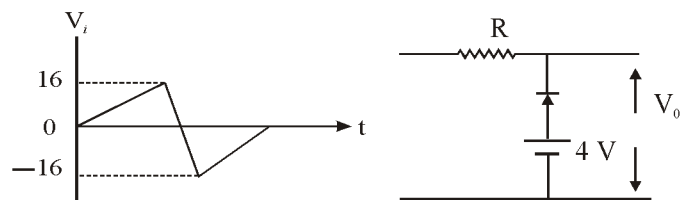
Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) Discuss how can one use silicon diode as a clipper ?
Determine V_0 for the following circuit : **8**



- (b) Explain the working of Zener diode as a voltage regulator. **7**
2. (a) Explain the construction and characteristics of LED's. **8**
- (b) What are clamper circuits ? What is the role of RC networks in the clamper circuit ? **7**

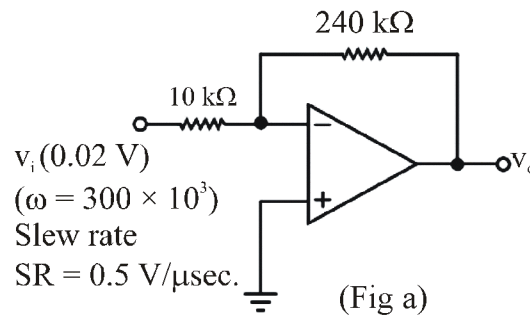
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Unit II

3. Discuss in detail the common emitter configuration of NPN transistor ? Shows that $I_E = (\beta + 1) I_B$. **15**
4. What are the utilities of using feedback in circuits ? Explain the utility of feedback in the working of Wien Bridge Oscillator. **15**

Unit III

5. (a) Discuss the differential and common mode operation of an Op-Amp. **8**
- (b) Consider fig (a) :



Determine the maximum frequency of operation.

7

6. (a) Write short notes on the following Op-Amp Parameters : **8**
- (i) Input offset voltage

- (ii) Input bias current
 - (iii) Gain-Bandwidth
 - (iv) Max. signal frequency.
- (b) Discuss the concept of Virtual ground in an Op-Amp. Explain the working of Op-Amp as unity follower and summing amplifier. 7

Unit IV

7. (a) Explain the operation of JFET as VVR (Voltage Variable Resistor). 8
- (b) Explain the construction and characteristics of a UJT. 7
8. (a) Discuss the basic operation and characteristics of depletion type MOSFET. 7
- (b) Discuss the characteristics (i) SCR (ii) Triac. 8