

Register No.:

**2226**

**October 2024**

***Time – Three hours***  
***(Maximum Marks: 100)***

- N.B.**
1. Answer all questions under Part-A. Each question carries 3 marks.
  2. Answer all the questions either (A) or (B) in Part-B. Each question carries 14 marks.

**PART – A**

1. What is the need for filters?
2. List any two opto-electronic devices and give their applications.
3. What is thermal runaway?
4. Compare BJT and JFET.
5. Mention the types of amplifier according to their frequency of operation.
6. What are the conditions for sustained oscillation?
7. Draw the symbol of SCR, DIAC and TRIAC.
8. Define holding current.
9. List the types of wave shaping circuits.
10. Draw the circuit diagram of voltage tripler.

[Turn over.....

**PART – B**

11. (a) Explain the working of Zener diode as a voltage regulator and draw its regulation characteristics.

(Or)

- (b) Explain the construction and working principle of photodiode with neat sketch. Draw its V-I characteristics.

12. (a) Explain the construction and working of common emitter transistor as an amplifier. Also list out its applications.

(Or)

- (b) Explain the working of UJT relaxation oscillator and draw its output wave form.

13. (a) (i) Explain the effects of negative feedback on gain, input and output impedance, bandwidth, distortion and noise. (10)

- (ii) Draw the block diagram of various feedback connections. (4)

(Or)

- (b) Explain the working of Hartley oscillator. Mention its frequency of oscillation.

14. (a) Explain the construction and working of SCR with necessary diagram.

(Or)

- (b) Explain the working of DIAC and draw its V-I characteristics. Also list out its applications.

15. (a) Explain the working of positive and negative clamper. Draw their input and output wave forms.

(Or)

- (b) Explain the working of astable multivibrator. Draw its output wave forms.