

Register No.:

173

October 2023

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 are filters? Why we need filters?
2. What are Opto-electronic devices?
3. Mention the different methods of transistor biasing.
4. What are the types of JFET? Draw its symbol with terminal name.
5. What are the applications of negative feedback?
6. What are the applications of LC Oscillators?
7. Draw the symbol and layered structure of SCR.
8. What are the applications of TRIAC?
9. What is meant by biased Clipper?
10. Draw the circuit diagram of Monostable Multivibrator.

[Turn over.....

PART - B

11. (a) Explain the construction and working of (i) L-section filter  
(ii) Pi section filter with necessary waveforms.

(Or)

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

12. (a) Explain the construction and working of common source FET amplifier.

(Or)

- (b) Explain the construction and working of UJT.

13. (a) (i) What are the effects of negative feedback on an amplifier? (4)  
(ii) Explain the working of common collector amplifier. List out its advantages. (10)

(Or)

- (b) (i) Explain the working of RC Phase shift oscillator. Also write down the expression for frequency of oscillation. (10)  
(ii) What are the applications and advantages of Colpitts oscillator? (4)

14. (a) (i) Explain the two transistor analogy of SCR and two SCR analogy of TRIAC. (10)  
(ii) Compare SCR and Transistor. (4)

(Or)

- (b) Explain the various Modes of TRIAC.

15. (a) Explain the working of Schmitt trigger. Draw its input and output waveforms.

(Or)

- (b) (i) Explain the working of Positive and Negative Clipper and draw their input and output waveforms. (10)  
(ii) Draw the circuit diagram of Voltage Tripler. (4)

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