

**1641**

**April 2025**

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. List any three types of filters.
2. What are Opto-electronic devices?
3. Mention the different methods of transistor biasing.
4. Define stability factor.
5. What are the applications of negative feedback?
6. State the conditions for Oscillation.
7. Draw the symbol and layered structure of SCR.
8. What are the applications of TRIAC?
9. What is meant by biased Clipper?
10. What is Voltage doubler?

[Turn over.....

PART - B

11. (a) Explain the construction and working principle of Zener diode with neat sketch.  
(Or)  
(b) Explain the construction and working principle of photo diode 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) Explain the working of TRIAC with VI characteristics.  
(Or)  
(b) Explain the working of DIAC with VI characteristics.
15. (a) Explain the working of Schmitt trigger. Draw its input and output waveforms.  
(Or)  
(b) Explain the working of Positive and Negative Clipper and draw their input and output waveforms.
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