

1639**October 2024**

Time – Three hours
(Maximum Marks: 100)

[N.B. Answer all the questions, choosing any two subdivision from each question. Each subdivision carries 10 marks.]

1. (a) Describe about the operation of full wave rectifier with a neat sketch.
(b) Explain the construction and working principle of positive clipper with a neat sketch.
(c) Write a note on photodiode.
(d) Explain the working principle of LED with its characteristics.
2. (a) Explain the construction and working principle of NPN transistor with a neat sketch.
(b) Discuss about the various modes of operation of BJT.
(c) Describe the CE configuration of BJT with necessary diagrams.
(d) Write a note on voltage divider bias in BJT.
3. (a) Describe the operation of RC coupled amplifier with a neat diagram.
(b) Write a note on cascade and cascode configuration in multistage amplifiers.
(c) Illustrate the construction and operation of differential amplifier.
(d) Explain the construction and operation of class B push pull amplifier.

[Turn over.....

4. (a) Explain the construction and operation of Colpitts oscillator with a neat sketch.
 - (b) Write a note on the theory of oscillation.
 - (c) Discuss about the various types of negative feedback amplifiers.
 - (d) Explain the construction and operation of RC phase shift oscillator with a neat sketch.
-
5. (a) Explain the construction and working principle of N channel JFET.
 - (b) List out the differences between FET and BJT. Also mention the types of FET.
 - (c) Discuss about the construction and operation of N channel enhancement mode MOSFET.
 - (d) Describe the operation of UJT as a relaxation oscillator with necessary diagrams.
