

FACULTY OF SCIENCE**B.Sc. II-Semester (CBCS) Examination, May / June 2019****Subject : Electronics****Paper – II : Electronic Devices****Time : 3 Hours****Max. Marks: 80****PART – A (5 x 4 = 20 Marks)****(Short Answer Type)****Note : Answer any FIVE of the following questions.**

- 1 Explain tunneling phenomenon.
- 2 Explain the junction capacitance.
- 3 Define α and β of a transistor and derive the relation between them.
- 4 The collector current of a transistor is 5mA. If $\beta=140$, $I_B=35\mu A$, then calculate leakage current I_{CO} .
- 5 Explain briefly UJT as relaxation oscillation.
- 6 An N-channel JFET has a pinch-off voltage of -4.5V and $I_{DSS} = 9mA$. At what value of V_{GS} in the pinch off region will I_D equal to 3mA.
- 7 Draw the diagram of LED and mention its applications.
- 8 Mention Application of SCR.

PART – B (4 x 15 = 60 Marks)**(Essay Answer Type)****Note: Answer ALL the questions.**

- 9 (a) How is P-N junction diode formed? Explain its characteristic curves and types of breakdowns.
OR
(b) Describe the construction and working of a varactor diode. Draw and explain its characteristics.
- 10 (a) Explain the two methods of transistor biasing.
OR
(b) Define h-parameters for a low frequency CE transistor. Give an equivalent h-parameter model for a BJT under CE configuration.
- 11 (a) Explain the construction and working of a JFET. Explain its characteristics.
OR
(b) Explain the construction and working of UJT. Explain its characteristics.
- 12 (a) Draw a half-wave SCR circuit and explain its operation. Indicate the current and voltage waveform of the SCR.
OR
(b) Explain the construction and operation of a photovoltaic cell. Mention its applications.