

FACULTY OF SCIENCE

M.Sc. I - Semester (CBCS/Non-CBCS) Examination, December 2014

**Subject: Physics / Applied Electronics
Paper - V: Electronics – I**

Time: 3 hours

Max. Marks: 80

**Note: Answer all questions from Part – A and Part – B.
Each question carries 4 marks in Part – A and 12 marks in Part – B.**

PART – A (8 x 4 = 32 Marks)
(Short Answer Type)

- 1 Explain V-I characteristics of BJT.
- 2 Draw the circuit diagram of Zener regulator and explain its working.
- 3 Draw the circuit diagram of i) fixed bias and ii) collector to base bias
- 4 Draw the circuit of Darlington pair. Mention its advantages.
- 5 Write the conditions to get sustained oscillations.
- 6 Draw the circuit diagram of bistable multivibrator.
- 7 Draw the circuit diagram of square detector and explain its working.
- 8 What is phase modulation? Explain.

PART – B (4 x 12 = 48 Marks)
(Essay Answer Type)

- 9 a) Explain the construction and V-I characteristics of SCR. Write its applications.
OR
b) Draw the block diagram of 78XX regulator and explain its principle of operation.
- 10 a) Write the hybrid π - model of a transistor. Discuss high frequency response of a RC coupled amplifier using hybrid π - model.
OR
b) Discuss the effect of negative feedback in amplifiers.
- 11 a) Draw the circuit diagram of RC phase shift oscillator. Explain its operation and obtain a relation for its frequency of oscillation.
OR
b) Draw the circuit diagram of Schmidt-trigger circuit and explain its working. Mention its applications.
- 12 a) Explain Amplitude modulation. Draw the circuit diagram to get AM. Explain its frequency spectrum.
OR
b) Draw the circuit diagram of a FM discriminator and explain its working.
