

**FACULTY OF SCIENCE**

**M. Sc. I – Semester (CBCS / Non-CBCS) Examination, December 2013**

**Subject : Physics and 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. Draw the V-I characteristics of SCR and explain.
2. Explain the working of MOSFET.
3. Draw the h-parameter model of common emitter configuration of a BJT.
4. Write the advantages of negative feedback.
5. Write the conditions to get sustained oscillations.
6. Draw the circuit diagram of Bistable multivibrator and mention its applications.
7. Explain Amplitude modulation.
8. Draw the circuit diagram of FM discriminator.

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

- 9.(a) Draw the circuit diagram of transistor series regulator power supply and explain its working.

**OR**

- (b) Draw the block diagram of a 3-pin regulator and explain its functioning.

- 10.(a) Discuss frequency response of a single stage RC coupled amplifier.

**OR**

- (b) Draw the circuit diagram of emitter follower and derive the expression for input impedance and current gain.

- 11.(a) Draw the circuit diagram of a Transistorized RC phase shift oscillator and explain its operation. Obtain an expression for its frequency of oscillation.

**OR**

- (b) Draw the circuit diagram of monostable multivibrator, explain its working and obtain an expression for its quasi stable state.

- 12.(a) Why modulation is needed? Mention the different types of modulation. Draw the circuit diagram balanced AM modulator and explain.

**OR**

- (b) Give the mathematical analysis of AM signal. Draw the circuit diagram of basic reactance modulator and explain.

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