

**January 2013**  
**M. Sc. First Semester Examination**

**PHYSICS**  
**Paper IV Electronic Devices**

Time 3 Hours]

[Max. Marks : Regular 85 / Private 100

**Note :** This question paper is meant for both Regular and Private students. Attempt all questions. All questions carry equal marks. The blind candidates will be given 60 minutes extra time.

1. (a) Discuss the construction and working of JFET. What are FET parameters ? Explain  
(b) Describe Gunn diode.

OR

Discuss the following :

- (a) Avalanche transit time devices.
- (b) Impatt diodes and Parametric devices.
2. (a) Explain the construction and working of the following  
(i) LDR (ii) LED  
(b) Obtain conditions for population inversion in active region.

OR

- (a) Explain optical absorption. Discuss construction and working of diode photo detectors.
- (b) Describe optical gain and threshold condition for lasing.
3. (a) Discuss the following :  
(i) Hybrid memories  
(ii) Ferroelectric memories.

- (b) Describe CD-ROM and DVD devices in brief.

OR

- (a) Explain types of ROM. What are the characteristics of SRAM and DRAM ?
- (b) What are charge storage devices ? Explain. <https://www.davvonline.com>
4. (a) Discuss materials properties related to magneto optic and acousto optic effects.
- (b) Explain acoustic wave devices.

OR

- (a) Discuss Electro optic effect.
- (b) Discuss Piezo electric resonators and filters in detail.
5. Write notes on any two of the following

- (a) Tunnel diode.
- (b) Solar cell.
- (c) FDD and HDD
- (d) Piezoelectric devices