

USELT13 - Electronics Paper-I : Photonic Devices and Power Electronics

P. Pages : 2

Time : Three Hours



GUG/S/23/13349

Max. Marks : 50

- Notes :
1. All questions are compulsory and carry equal marks.
 2. Draw well labeled diagrams wherever necessary.
 3. Use of log table / calculator is allowed.

Either:

1. a) What is Light Emitting Diode? Explain its construction and operation. State its some advantages and disadvantages. **1+5**
+4

OR

- b) Explain construction and working of the semiconductor lasers. Compare LED and laser diode. **7+3**

Either:

2. a) What is photodetector? **1+6**
Explain the construction and working of photodiode. **+3**
Compare photoconductor and photodiode.

OR

- b) Explain the construction and working of solar cell. **7+3**
Compare LED and LCD.

Either:

3. a) What is power MOSFET? Explain its construction and working. Explain V-I characteristics of SCR. **1+6**
+3

OR

- b) What is DIAC? Explain its construction and working. Draw VI characteristics of DIAC and explain it. **1+6**
+3

Either:

4. a) What is phase-controlled rectifiers? Explain AC voltage control using TRIAC as a switch. **3+7**

OR

- b) Explain the construction and working of the followings: **5+5**
i) Series inverter, and
ii) Bridge inverter.

5. Attempt **any ten** of the following:

- a) What is Photon? 1
- b) What is direct transition in LED. 1
- c) Write any one application of laser. 1
- d) What is photodetector? 1
- e) Draw diagram of photomultiplier tube. 1
- f) State advantage of LCD displays. 1
- g) What is SCR? 1
- h) What is thyristor ratings? 1
- i) What is Triac? 1
- j) What is dc link inverter? 1
- k) State any one disadvantage of series inverters. 1
- l) What is inverter? 1
