

M.Sc. (Physics) (NEP Pattern) Semester-I
NEP-233 / 01MSCPH1 - DSC Paper-I - Semiconductor Physics and Devices

P. Pages : 2

Time : Three Hours



GUG/W/24/15134

Max. Marks : 80

Either:

1. a) Explain in detail: 8
- i) Solar cell & its applications
- ii) Photo diode & its characteristics
- b) Explain construction and working of PNP transistor with its characteristics in CE mode. 8

OR

- e) Explain in detail about Zener diode and its applications. 8
- f) Explain FET (Field Effect Transistor), its characteristics & applications. 8

Either:

2. a) Explain construction and working of MOSFET and its applications. 8
- b) Explain construction and working of Zener Regulated Power Supply (ZRPS). 8

OR

- e) Explain construction, working and applications of RC-Coupled amplifier. 8
- f) Explain in detailed about Hartley Oscillator and its applications. 8

Either:

3. a) Write a note on Monostable and Bistable Multivibrators. 8
- b) Explain construction & working of Half adder and Full adder. 8

OR

- e) How NOR and NAND gates are used as a building block for electronic circuits explain. 8
- f) Explain use of X-OR gate as a parity generator. 8

Either:

4. a) Write a note on microwave transmission and its advantages & disadvantages. 8
- b) Discuss about microwave propagators and effect of atmosphere on propagation. 8

OR

- e) Explain following: 8
- i) Magnetrons
- ii) Klystrons
- iii) Travelling wave
- f) Explain different fading sources, defectors, components and antennas used in Microwave system. 8
5. Attempt all of the following:
- a) Write a short note on: 4
- Silicon Controlled Rectifier (SCR)
- b) Explain CMOS gates in detail. 4
- c) Explain A/D and D/A converters. 4
- d) Write a short note on ground reflection. 4
