

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION MAY 2017
(Second Semester)

Branch- ELECTRONICS

SEMI CONDUCTOR DEVICES

Time : Three Hours

Maximum : 75 Marks

SECTION-A (20 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (10 x 2 = 20)

- 1 What is a semiconductor?
- 2 Define forbidden energy gap.
- 3 What is a zener diode?
- 4 Define the forward resistance of a diode.
- 5 Name the three possible transistor connections.
- 6 Draw the symbol of n channel and p-channel FET.
- 7 What is LED?
- 8 Define opto isolators.
- 9 What is varactor diode?
- 10 What is CCD?

SECTION - B (25 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 5 = 25)

- 11 a Describe the structure of semiconductor material.
OR
b Explain the conduction mechanism of P-type semiconductor.
- 12 a Explain the VI characteristics of a PN junction diode.
OR
b How zener can act as ah voltage regulator. -
- 13 a Explain the working of npn transistor.
OR
b Explain the operation of an n-channel enhancement MOSFET.
- 14 a Discuss about Einstein's photo emissive & photo electric theory.
OR
b Briefly explain the working of LDR.
- 15 a With a neat sketch, explain the construction of SCR.
OR
b With a neat diagram, explain the I-V characteristics of UJT.

SECTION - C (30 Marks)

Answer any THREE Questions

ALL Questions Carry EQUAL Marks (3 x 10 = 30)

- 16 With a neat diagram, explain the energy band diagram of semi conductor.
- 17 Explain the construction and VI characteristics of zener diode.
- 18 Explain the construction, operation and output characteristics of FET.
- 19 With a neat diagram, explain the working of seven segment display.
- 20 Write notes on (i) Thermistors (ii) Shockley diode.