PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION DECEMBER 2018
(First Semester)

Branch - **ELECTRONICS**

SEMICONDUCTOR DEVICES

Time: Three Hours Maximum: 75 Marks

SECTION-A (10 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (10x1 = 10)

1 The most commonly used semiconductor is_____ .
(i) germanium (ii) silicon
(iii) carbon (iv) sulphur

2 The random motion of holes & free electrons due to thermal agitation is called
(i) diffusion (ii) pressure
(iii) ionisation (iv) none of these

3 The knee voltage of a crystal diode is approximately equal to
(i) applied voltage (ii) breakdown voltage
(iii) forward voltage (iv) barrier potential

4 The PIV rating of crystal diode is _____ that of equivalent vaccum diode.
(i) the same (ii) lower than
(iii) more than (iv) none of the above.

5 In an npn transistor are the minority carriers.
(i) free electrons (ii) holes
(iii) donor ions (iv) acceptor ions

6 The current I_R is
(i) electron current (ii) hole current
(iii) donar ion current (iv) acceptor ion current

7 Snell's law relates
(i) light reflection (ii) light refraction
(iii) light transmission (iv) light absorption

8 The combined package of LED and a photodiode is known as
(i) opto coupler (ii) opto isolator
(iii) optically coupled isolator (iv) All of the above

9 The important advantage of tunnel diode is_____ .
(i) less sensitive
(ii) less noise
(iii) operated safely in high temperature
(iv) None of the above

10 An SCR has_____ PN junction.
(i) two (ii) three
(iii) four (iv) none of the above.

SECTION -B (25 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** Marks (5 x 5 = 25)

11 a Explain the working principle of Intrinsic semiconductor.

12 a Write a short note on DC or static resistance.

OR

b Write a note on Reverse Recovery Time.

13 a Explain how the transistor act as switch.

OR

b In detail about the working characteristics of depletion type of MOSFET.

14 a Give an account on photo electric theory.

OR

b Describe the working function of photo transistor.

15 a Explain the various specification of MOV.

OR

b Write a short note on tunnel diode.

SECTION -C (40 Marks!

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 x 8 = 40)

16 a Elaborate the working of n type material in extrinsic semiconductor.

OR

b Explain the properties of PN junction.

17 a Draw and explain the construction of PN junction diode.

OR

b Elaborate the characteristics of zener diode.

18 a Illustrate the working principle of FET.

OR

b Describe the function of common Emitter transistor.

19 a Explain the function of photo voltaic cell.

OR

b In detail about the working principle of seven segment display.

20 a Elaborate the characteristics function of thermistors.

OR

b What is shockley diode? Describe its working with neat diagram.

z-z-z **END**