PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2025
(First Semester)

Branch - **ELECTRONICS**

SEMICONDUCTOR DEVICES

Time: Three Hours

Maximum: 75 Marks

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

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	What is charge of an electron? a) Positive b) Negative c) Neutral d)None	K1	CO1
	2	Infer which among the following is the most commonly used semiconductor? a) Silicon b) Carbon c) boron d) Sulphur	K2	CO1
2	3	How many terminals are present in a diode? a) two b) three c) four d) five	K1	CO2
	4	Infer the knee voltage of Si diode. a) 0.2 V b) 0.7 V c) 0.8 V d) 1.0 V	K2	CO2
3	5	How many PN junctions are present in a transistor? a) two b) three c) four d) five	K1	CO3
	6	Interpret in which region FET operates as a voltage controlled resistor? a) Ohmic region b) cut off c) Saturation d) cut off and saturation	K2	CO3
4	7	Which of the following is a primary component of an opto-isolator? a) A resistor and a capacitor b) A Light Emitting Diode (LED) and a light-sensitive detector c) A transformer and a relay d) A voltage regulator and a filter	K1	CO4
	8	Interpret the photoelectric effect. a) emission of electrons b) emission of protons c) both the above d) none of the above	K2	CO4
5	9	Which is a bidirectional device? a) SCR b) FET c) Diode d) Triac	K1	CO5
	10	Interpret where TRIAC is mostly used? a) DC motor control b) rectifier c) AC power control d) High frequency amplifier	K2	CO5

Cont...

SECTION - B (35 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Explain the energy band of conductor and semiconductor with diagram.	K2	CO1
		(OR)		
	11.b.	Explain extrinsic semiconductor with examples.		
2	12.a.	organize static and dynamic resistance of PN junction diode.	K3	CO2
		(OR)		
	12.b.	Build the circuit of Zener diode as voltage regulator and explain it.		
3	13.a.	Organize the CC configuration of the transistor and explain the VI characteristics of it.	K3	CO3
		(OR)		
	13.b.	Organize the construction of the enhancement type MOSFET and explain it.		
4	14.a.	Examine the operation of LED.	K4	CO4
		(OR)		
	14.b.	Analyze the working principle of LCD.		
5	15.a.	Examine the operation of Schottky barrier diode with diagram.	K4	CO4
		(OR)		
	15.b.	Analyze the characteristics and construction of DIAC.		

SECTION -C (30 Marks)

Answer **ANY THREE** questions

ALL questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Analyze the effect of temperature on conductivity of semiconductor with diagram.	K4	CO1
2	17	Analyze in detail about the construction and VI characteristics of Zener diode.	K4	CO2
3	18	Examine the construction and characteristics of FET.	K4	CO3
4	19	Examine the construction and working of photodiode.	K4	CO4
5	20	Examine in detail the construction and characteristic of TRIAC.	K4	CO5

Z-Z-Z END