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	Which one of the following Semiconductor has Band gap Energy of 1.1 eV? a) Germanium b) Silicon c) Carbon d) Gallium	K1	CO1
	2	Infer the correct majority carriers of P type semiconductor. a) Protons b) Electrons c) Neutrons d) Holes	K2	CO1
2	3	What is the forward Resistance of an Ideal Diode? a) 0 Ω b) ∞ Ω c) Mega Ω d) depends on doping	K1	CO2
	4	Predict the resistance occurs in AC input of a diode. a) static b) dynamic c) Average d) variable	K2	CO2
3	5	Select the appropriate doping of Transistor Emitter. a) Very lightly b) Lightly c) Moderately d) Heavily	K1	CO3
	6	Infer Which one of the following FET mode describes input characteristics? a) Gate b) drain c) source d) substrate	K2	CO3
4	7	Select the correct LED output colour sequence. a) GaAsP-Red b) Si-yellow c) Ge-Green d) GaP-blue	K1	CO4
	8	Predict the Seven segment displays formation. a) LED b) Laser c) Phototransistor d) LDR	K2	CO4
5	9	How many junctions and layers are there in SCR? a) 2,3 b) 3,4 c) 4,3 d)3,2	K1	CO5
	10	Visualize any one of the following that works as Unipolar device. a) Diac b) Triac c) SCR d) UJT	K2	CO5

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.	Examine the Effect of Temperature on semiconductor.	K3	CO1
		(OR)		
	11.b.	Illustrate about Intrinsic Semiconductors.		
2	12.a.	Approximate Ideal diode model and explain.	K2	CO2
		(OR)		
	12.b.	Discuss the VI characteristics of Zener diode.		

Cont...

3	13.a.	Explain the working of PNP transistor.	K4	CO3
	(OR)			
	13.b.	Compare BJT with FET.		
4	14.a.	Explain Einstein's photo Emission theory.	K2	CO4
	(OR)			
	14.b.	Summarize the working & Importance of LED.		
5	15.a.	How will you turn ON SCR?	K4	CO5
	(OR)			
	15.b.	Compare SCR with Triac.		

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	Discuss the formation of PN junction diode.	K2	CO1
2	17	Draw a circuit to study VI characteristics of a PN junction diode and explain its working in forward and reverse mode.	K3	CO2
3	18	Explain the construction and characteristics of Field Effect Transistor.	K4	CO3
4	19	Discuss the construction and characteristics of photo diode.	K2	CO4
5	20	Analyze the working of SCR.	K4	CO5

Z-Z-Z END