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22ELU102N/22ELU102

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 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	A Semiconductor has -----Temperature coefficient of resistance a. Positive b. Zero c. Negative d. High	K1	CO1
	2	The N-Type Semiconductor is a. Positively Charged b. Negatively Charged c. Electrically Charged d. Electrically neutral	K2	CO2
2	3	An Ideal PN diode, When reverse biased behaves like which o the following? a. Closed Switch b. Perfect Insulator c. Perfect Semiconductor d. Perfect Conductor	K1	CO1
	4	Which of the following Controls the current in a Zener Diode? a. Zener diode Resistance b. Potential barrier c. Reverse bias Voltage d. External Circuits	K2	CO2
3	5	In Common emitter Configuration the independent variables are a. Input Current and input Voltage b. Input Current and Output Current c. Input Current and Output Voltage d. Input Voltage and Output Voltage	K1	CO1
	6	Which of the following device has the highest Input Impedance? a. JFET b. MOSFET c. Crystal Diode d. Ordinary Transistor	K2	CO2
4	7	An LED made using Gallium Phosphide emits radiation in a. Visible Region b. Ultraviolet Region c. Infrared Region d. Green radiation	K1	CO1
	8	Which of the following material used for making Photovoltaic Cell? a. Silicon b. Arsenic c. Antimony d. Germanium	K2	CO2
5	9	Tunnel Diode has very fast operation in a. gamma frequency region b. Ultraviolet frequency c. Microwave Frequency Region d. Radio frequency Region	K1	CO1
	10	An SCR behaves as a ---- Switch a. Unidirectional b. Bidirectional c. Mechanical d. Electromechanical	K2	CO2

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 operation of P Type Semiconductors.	K3	CO3
		(OR)		
	11.b.	Analyze the effect of Temperature on Semiconductor.		
2	12.a.	Describe the operation of PN Junction diode and its Characteristics.	K3	CO3
		(OR)		
	12.b.	Describe a note on Zener Diode and its Characteristics.		
3	13.a.	Illustrate the function of CB Configuration of a transistor.	K4	CO4
		(OR)		
	13.b.	Analyze the operation of FET as a Voltage Variable Resistor.		
4	14.a.	Analyze the working of Light Emitting Diode with neat diagram.	K4	CO4
		(OR)		
	14.b.	Explain the operation of Photo Transistor.		
5	15.a.	Write a note on Tunnel Diode.	K3	CO3
		(OR)		
	15.b.	Illustrate the working of UJT.		

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	Explain the concept of Energy Band Theory.	K4	CO1
2	17	Compare and discuss about the Transition and Diffusion Capacitance of Diode.	K3	CO2
3	18	Illustrate the working CE Configuration of a transistor.	K3	CO3
4	19	Compare the function of Optoisolators and Optocouplers.	K3	CO4
5	20	Describe the Operation of Shockley diode with neat diagram.	K4	CO4

Z-Z-Z END