QP Code: RN22BTECH239 | Reg. No | | | | | | | | | | | AR 22

Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
(GIET University)

B. Tech (Fifth Semester - Regular) Examinations, November – 2024

22BELPC35001/22BEEPC35001- Power Electronics

(EE/EEE)

Time: 3 hrs | Maximum: 70 Marks

Answer ALL questions

(The figures in the right hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** questions	CO #	Blooms Level
a. Define latching current in SCR.	CO1	K1
b. Compare MOSFET and BJT?	CO1	K1
c. Compare half controlled rectifier and full controlled rectifier.	CO2	K1
d. What are the control strategies for chopper circuit?	CO3	K1
e. Compare VSI and CSI.	CO4	K1

PART – B **(15 x 4 = 60 Marks)**

Answer ***All*** the questions		Marks	CO #	Blooms Level
2. a.	Explain in detail about the switching and V-I Characteristics of MOSFET	8	CO1	K2
b.	Explain about any two triggering methods of SCR.	7	CO1	K2
	(OR)			
c.	Explain in detail about the switching and V-I Characteristics of IGBT	8	CO1	K2
d.	Explain about snubber circuit.	7	CO1	K2
3.a.	Explain the single-phase full converter with neat circuit and waveforms for RLE load	8	CO2	K2
b.	Explain the single-phase AC voltage controller with neat circuit and waveforms for R load	7	CO2	K2
	(OR)			
c.	Explain the three-phase full converter with neat circuit and waveforms for R load	8	CO2	K2
d.	A single-phase full converter is connected with R-load. The source voltage is 230 V, 50 Hz. The average load current is 10 A for R=20 Ω. Find the firing angle	7	CO2	K3
4.a.	Explain in detail about four quadrant chopper	8	CO3	K2
b.	Explain the Buck regulator with neat circuit and wave forms	7	CO3	K2
	(OR)			
c.	Explain the Boost regulator with neat circuit and wave forms	8	CO3	K2
d.	Explain the cuk regulator with neat circuit and wave forms	7	CO3	K2

5.a.	With neat circuit diagram and output waveforms explain the operation of three phase bridge inverter in 120° mode of operation.	8	CO4	K2
b.	Explain the operation of UPS	7	CO4	K2
	(OR)			
c.	Explain the current source inverter with neat circuit and waveforms	8	CO4	K2
d.	Briefly explain about SMPS	7	CO4	K2

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