Enrolment No/Seat No.: _____

R.N.G.PATEL INSTITUTE OF TECHNOLOGY-RNGPIT

(An Autonomous Institute U/s UGC Act 1956)

B.Voc. SEMESTER-III, SEMESTER END EXAMINATION – WINTER 2025

SUBJECT CODE: 1SRE304 **DATE: 23-12-2025**

SUBJECT NAME: POWER ELECTRONICS FOR SOLAR PV SYSTEM

TIME: 11:00 AM to 01:00 PM **TOTAL MARKS: 50**

Instructions

1. It is **compulsory** for students to write **Enrolment No. /Seat No.** on the question paper.
2. Attempt all questions in the question paper.
3. The figures to the right of each question indicate full marks. Make suitable assumptions with proper justification wherever required.
4. Simple, non-programmable scientific calculators are permitted.
5. BL - Cognitive Level (As per Revised Bloom's Taxonomy) (R-Remember, U-Understanding, A –Application, N –Analyze, E – Evaluate, C -Create), CO - Course Outcomes.

			Marks	BL	CO
Q.1	**(a)**	Explain VI characteristics of Diode with neat diagram	**05**	**U**	**1**
	(b)	Explain VI characteristics of MOSFET with neat diagram.	**05**	**U**	**1**
Q.2	**(a)**	Explain single phase full wave controlled bridge rectifier.	**05**	**U**	**2**
	(b)	Explain three phase half wave controlled bridge rectifier.	**05**	**U**	**2**
		OR			
Q.2	**(a)**	Explain single phase half wave controlled bridge rectifier.	**05**	**U**	**2**
	(b)	Explain three phase full wave controlled bridge rectifier.	**05**	**U**	**2**
Q.3	**(a)**	Explain principal of operation of chopper.	**05**	**N**	**3**
	(b)	Write a short note on buck-boost converter.	**05**	**U**	**3**
		OR			
Q.3	**(a)**	What is the difference between Linear voltage regulator and Switch mode power supply? Explain the working of any one regulator.	**05**	**N**	**3**
	(b)	Write a short note on boost converter.	**05**	**U**	**3**

Q.4	**(a)**	Discuss various application of inverter.	**05**	**R**	**4**
	(b)	Discuss 180 mode of three phase inverter with necessary waveforms	**05**	**U**	**4**
		OR			
Q.4	**(a)**	Difference between grid tied and off grid inverter	**05**	**R**	**4**
	(b)	Explain the basic principle of single phase full-wave inverter	**05**	**U**	**4**
Q.5	**(a)**	Explain Energy Storage Systems in Solar PV Application.	**05**	**R**	**5**
	(b)	Explain different types of solar PV system.	**05**	**U**	**5**
		OR			
Q.5	**(a)**	Explain different components of solar PV systems in brief.	**05**	**R**	**5**
	(b)	What is MPPT for solar PV system? Explain types of MPPT techniques.	**05**	**U**	**5**

****