Enrolment No/Seat No.: _____

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

(An Autonomous Institute U/s UGC Act 1956)

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

SUBJECT CODE: 1SRE102 **DATE: 17-12-2025**

SUBJECT NAME: FUNDAMENTAL OF ANALOG ELECTRONICS

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 Energy Band Diagram of Conductor, Insulator & Semiconductor.	**05**	**U**	**1**
	(b)	Explain Forward & Reverse Biasing of P-N Junction Diode with its Characteristics	**05**	**U**	**1**
Q.2	**(a)**	What is the application of Zener Diode? Explain Zener Diode with its Reverse bias Characteristics.	**05**	**R**	**2**
	(b)	Explain Photo diode with its Characteristics.	**05**	**U**	**2**
		OR			
Q.2	**(a)**	What is the full form LED? Explain Seven Segment LED display with necessary diagrams.	**05**	**R**	**2**
	(b)	Explain Photo transistor with its Characteristics.	**05**	**U**	**2**
Q.3	**(a)**	Explain Common Emitter Transistor configuration with circuit diagram	**05**	**U**	**3**
	(b)	Define Common Base Current gain α, Common Emitter Current gain β & Common Emitter Current gain γ & derive relationship between α & β	**05**	**R**	**3**
		OR			
Q.3	**(a)**	Compare CB, CE & CC configuration of transistor.	**05**	**U**	**3**
	(b)	What is biasing? Explain Voltage divider biasing for transistor.	**05**	**R**	**3**

Q.4	**(a)**	Explain N-Channel JFET with circuit diagram & output Characteristics.	**05**	**U**	**4**
	(b)	Compare BJT & FET.	**05**	**U**	**4**

OR

Q.4	**(a)**	Explain N-Channel MOSFET with circuit diagram & output Characteristics.	**05**	**U**	**4**
	(b)	Explain working of P -Channel JFET with circuit diagram & output Characteristics.	**05**	**U**	**4**
Q.5	**(a)**	What is the full form of SMPS? Explain its working with block diagram.	**05**	**R**	**5**
	(b)	Build circuit of Voltage regulator using IC-7805 & IC-7905, explain its working.	**05**	**A**	**5**

OR

Q.5	**(a)**	What is the full form of UPS? Explain its working.	**05**	**R**	**5**
	(b)	Build circuit of Voltage regulator using IC LM-317, explain its working.	**05**	**A**	**5**

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