Enrolment No/Seat No.: _____

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

(An Autonomous College U/s UGC Act 1956)

B. Voc. SEMESTER-I, SEMESTER END EXAMINATION - WINTER 2024

Subject Code: 1SRE102 **Date: 13-12-2024**

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 - Bloom's Taxonomy Levels (R-Remember, U-Understanding, A-Application, N-Analyze, E-Evaluate, C-Create), CO - Course Outcomes.

		Marks	BL	CO
Q.1	**Objective-Type Questions**	**[05]**		
(a)	In a p-type semiconductor, the majority carriers are	**1**	**R**	**1**
	(i) Electrons **(ii)** Holes			
	(iii) Protons **(iv)** Neutrons			
(b)	Which diode is used as voltage regulator	**1**	**U**	**2**
	(i) PN Junction Diode **(ii)** LED			
	(iii) Zener Diode **(iv)** None of Above			
(c)	Which configuration of transistor is used as an Amplifier	**1**	**U**	**3**
	(i) Common Emitter **(ii)** Common Base			
	(iii) Common Collector **(iv)** None of Above			
(d)	Full form of MOSFET is	**1**	**R**	**4**
	(i) Metal offset semiconductor FET **(ii)** Main oxide semiconductor FET			
	(iii) Metal oxide sheet FET **(iv)** Metal oxide semiconductor FET			
(e)	IC 7805 Provides	**1**	**U**	**5**
	(i) +5 Volts **(ii)** -5 Volts			
	(iii) +/- 5 Volts **(iv)** +10 Volts			

Q.2	**Attempt Any Three**	**[15]**		
	(a) Explain energy band diagram of Conductor, Insulator and Semiconductor.	**5**	**R**	**1**
	(b) Explain half wave rectifier with waveforms.	**5**	**U**	**1**
	(c) Explain Zener Diode with its symbol & V-I Characteristics.	**5**	**R**	**2**
	(d) Explain Seven Segment Display.	**5**	**R**	**2**
Q.3	**Attempt Any Three**	**[15]**		
	(a) Draw symbols of PNP & NPN transistor. Show Biasing of NPN transistor in Active region.	**5**	**U**	**3**
	(b) Explain Common Emitter transistor configuration.	**5**	**U**	**3**
	(c) Explain voltage divider bias for transistor.	**5**	**R**	**3**
	(d) Give Difference between BJT & JFET.	**5**	**U**	**4**
Q.4	**Attempt Any Three**	**[15]**		
	(a) Explain N channel JFET with its V-I Characteristics.	**5**	**U**	**4**
	(b) Explain N channel E-MOSFET with its V-I Characteristics.	**5**	**U**	**4**
	(c) Write short note on Voltage regulator IC 78xx	**5**	**R**	**5**
	(d) Draw & Explain block diagram of SMPS	**5**	**A**	**5**

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