Enrolment No/Seat No.: _____

R.N.G.PATEL INSTITUTE OF TECHNOLOGY-RNGPIT (An Autonomous College U/s UGC Act 1956)

B.Voc. SEMESTER-II, SEMESTER END EXAMINATION – SUMMER 2025

Subject Code: 1SRE202 Subject Name: FUNDAMENTAL OF DIGITAL ELECTRONICS Time: 11:00 AM to 01:00 PM		Date: 13-05-2025		
		Total Marks:50		
 Instructions It is compulsory for students to write Enrolment No. /Seat No. on the question page. Attempt all questions in the question paper. The figures to the right of each question indicate full marks. Make suitable assumption wherever required. Simple, non-programmable scientific calculators are permitted. BL - Bloom's Taxonomy Levels (R-Remember, U-Understanding, A-Application Create), CO - Course Outcomes. 	iper. ions with prop , N-Analyze, l	er just E-Eval	ificatior uate, C	
	Marks	BL	CO	
Q.1 Multiple-Choice Questions	[05]			
(a) What is 1's compliment of $(101101)_2$?	1	R	1	
(i) 010110 (ii) 010010				
(iii) 010001 (iv) 101000				
(b) What is the output of NOR gate if inputs $A = 0 \& B = 0$?	1	R	2	
(i) 0 (ii) 1				
(iii) 10 (iv) None of these				
(c)gates are Universal gates.	1	U	2	
(i) NOR & OR (ii) NOR & EX-OR				
(iii) NOR & NAND (iv) AND & NOR				
(d) In D-Flip-Flop if $D = 0$ then $Q_{n+1} = $	1	A	5	
(i) 0 (ii) 1				
(iii) Q' (iv) None of these				
(e) In T-Flip-Flop if $T = 0$ then $Q_{n+1} = $	1	A	5	
(i) 1 (ii) Q_n				

(iv)None of these (**iii**) Q_n'

Q.2	Attempt Any Three	[15]		
	(a) Find (i) $(1101.011)_2 = (___]_{10}$	5	R	1
	(ii) $(346.685)_{10} = (___]_{8}$			
	(b) Find $(111001)_2 - (110111)_2$ using 2's complement.	5	R	1
	(c) Draw the logic symbol and truth table for the following logic gates :	5	R	2
	AND, NOT, NOR, EX-OR, EX-NOR.			
	(d) Explain De- Morgan's theorem.	5	U	2
Q.3	Attempt Any Three	[15]		
	(a) Solve the following equation using K-Map	5	A	3
	F (A, B, C, D) = Σ m (0, 1, 2, 3, 5, 7, 8, 11, 13).			
	(b) Solve the following equation using K-Map	5	Α	3
	F (A, B, C, D) = πM (0, 1, 3, 6, 7, 8, 9, 14, 15).			
	(c) Solve the following equation using K-Map	5	A	3
	$F(A, B, C, D) = \Sigma m (1, 5, 6, 12, 13) + d (2, 4, 8, 14).$			
	(d) Explain 8 to 1 Multiplexer.	5	U	4
Q.4	Attempt Any Three	[15]		
	(a) Explain 3 to 8 line Decoder.	5	U	4
	(b) Compare Combinational circuits and Sequential circuits.	5	U	4
	(c) Explain S-R flip-flop.	5	U	5
	(d) Explain J-K flip-flop.	5	U	5
