Code No.: R22EC403ES	R22	H.T.No.			8	R						

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
II–B.TECH–II–Semester End Examinations (Regular) -July- 2024
ANALOG AND DIGITAL ELECTRONICS
(Common for CSE, CSC)

[Time: 3 Hours] **[Max. Marks: 60]**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 10 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A **(10 Marks)**

1.	a)	What is meant by Static resistance of diode?	[1M]
	b)	What is the ripple factor for full wave rectifier with capacitor filter?	[1M]
	c)	Explain the early effect?	[1M]
	d)	What are the different configurations of BJT?	[1M]
	e)	Define FET.	[1M]
	f)	What is the fan-out of TTL Logic family	[1M]
	g)	Define multiplexer draw 2:1 MUX.	[1M]
	h)	Draw the full subtractor truth table.	[1M]
	i)	Differentiate between synchronous and asynchronous counter.	[1M]
	j)	What is the need for state reduction in sequential circuit design?	[1M]

PART-B **(50 Marks)**

2.	Define PN junction diode and explain the V-I characteristics of PN junction diode in forward and reverse bias conditions.	[10M]
	OR	
3.	Draw the circuit diagram and explain the working of full wave rectifier and derive the expression for average output current and rectification efficiency.	[10M]
4.	What are the Biasing Techniques used in BJT and explain self-bias technique in detail?	[10M]
	OR	
5.	Explain the working of 2 stage cascade CE Amplifier?	[10M]
6.	Explain the enhancement and depletion modes of MOSFET with the help of its characteristics and construction.	[10M]
	OR	
7.	Design 2 input CMOS NAND and NOR Gates and derive its truth Table.	[10M]
8.	Implement a function $F(A,B,C,D)= \Sigma m(0,1,3,4,8,9,15)$ using multiplexer.	[10M]
	OR	
9.	Reduce the expression $F=\sum m(1, 5, 6, 12, 13, 14) + \sum d(2, 4)$ and implement the real minimal expression using k map.	[10M]
10.	Explain Master-Slave JK Flip-Flop and Mention its Advantages.	[10M]
	OR	
11.	Define shift register. Explain the different types of shift register.	[10M]

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