



**NAVRACHANA
UNIVERSITY**

a UGC recognized University

School: School of Engineering and Technology
Program/s: B.Tech-Electrical and Electronics Engineering
Year: 2nd **Semester:** 3rd
Examination: End Semester Examination
Examination year: December - 2021

Course Code: EE208 **Course Name:** Digital Electronics
Date: 07/12/2021
Time: 08:30 am to 10:30 am

Total Marks: 40
Total Pages: 02

Instructions:

- Write each answer on a new page.
- Use of a calculator is permitted/not permitted.
- *COs=Course Outcome mapping. # BTL=Bloom's Taxonomy Level mapping

Q. No.		Marks	COs*	BTL#
Q.1	Find the equivalent weighted code for the following numbers and also find out if the codes are self complementary codes. 1. 4221 BCD for decimal $(48)_{10}$ 2. 5421 BCD for decimal $(56)_{10}$ 3. 8421 BCD for decimal $(23)_{10}$	6	CO2	BT1, BT2
Q.2	Construct the even parity seven bit Hamming code for the word 1011, also state what is even parity and odd parity.	6	CO2	BT1, BT2
Q.3	Divide the following in given Number system (OCTAL AND HEXA TABLE PROVIDED OVERLEAF) a. $73CAD_{16}$ by $B9_{16}$ b. 56243_8 by 43_8 Multiply the following in given Number system a. $11D7_{16}$ by $16E_{16}$ b. 5367_8 by 64_8	8	CO2	BT1, BT2, BT 4
Q.4	Simplify the following Boolean Function by 6 variable K-Map and draw the logic circuit for the simplified expression $F = \sum m(0, 1, 2, 3, 4, 5, 8, 9, 12, 13, 16, 17, 18, 19, 24, 25, 36, 37, 38, 39, 52, 53, 60, 61)$	6	CO3	BT1, BT2
Q.5	Draw and explain with suitable diagram the working of a Serial in Parallel Out Shift Register and also give the timing Diagram for the data 1111 to be shifted through the Register.	6	CO3	BT1, BT2
Q.6	Design a 3 bit Gray code Synchronous Counter using J K Flip Flop, depict the complete procedure from state diagram, Truth Table and K-map used.	8	CO4	BT1, BT2

X	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
2	0	2	4	6	8	A	C	E	10	12	14	16	18	1A	1C	1E
3	0	3	6	9	C	F	12	15	18	1B	1E	21	24	27	2A	2D
4	0	4	8	C	10	14	18	1C	20	24	28	2C	30	34	38	3C
5	0	5	A	F	14	19	1E	23	28	2D	32	37	3C	41	46	4B
6	0	6	C	12	18	1E	24	2A	30	36	3C	42	48	4E	54	5A
7	0	7	E	15	1C	23	2A	31	38	3F	46	4D	54	5B	62	69
8	0	8	10	18	20	28	30	38	40	48	50	58	60	68	70	78
9	0	9	12	1B	24	2D	36	3F	48	51	5A	63	6C	75	7E	87
A	0	A	14	1E	28	32	3C	46	50	5A	64	6E	78	82	8C	96
B	0	B	16	21	2C	37	42	4D	58	63	6E	79	84	8F	9A	A5
C	0	C	18	24	30	3C	48	54	60	6C	78	84	90	9C	A8	B4
D	0	D	1A	27	34	41	4E	5B	68	75	82	8F	9C	A9	B6	C3
E	0	E	1C	2A	38	46	54	62	70	7E	8C	9A	A8	B6	C4	D2
F	0	F	1E	2D	3C	4B	5A	69	78	87	96	A5	B4	C3	D2	E1

HEXADECIMAL MULTIPLICATION / DIVISION TABLE

X	0	1	2	3	4	5	6	7
0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7
2	0	2	4	6	10	12	14	16
3	0	3	6	11	14	17	22	25
4	0	4	10	14	20	24	30	34
5	0	5	12	17	24	31	36	43
6	0	6	14	22	30	36	44	52
7	0	7	16	25	34	43	52	61

OCTAL MULTIPLICATION / DIVISION TABLE