Name: Priyanka Vishwakarma **Student University Roll No.:** 2200[redacted]	**Printed Pages:**

School of Engineering

Second Sessional Examination, Odd Semester (AS: 2021-22)

B. Tech: Artificial Intelligence-II

Year: Second **Semester:** III

Course Title: Digital Logic Design **Course Code:** BCS3303	**M.M.: 60** **Time:** 3 *hr*

Instructions if any: Read the question Carefully.

SECTION 'A' **Q.N.1. Attempt all parts of the following:**		Course Objective	Marks
a)	Convert $(1101101)_2$ into hexadecimal.	CO1	1
b)	Find 2's compliment of $(1101001)_2$.	CO2	1
c)	Convert $(1011001)_2$ into Gray code.	CO1	1
d)	The output of Ex-Nor gate with symbol?	CO3	1
e)	How many NAND gates are required for the implementation of fall subtractor ?	CO1	1
f)	How many clock pulse are required for input and output in case of serial 4-bit register?	CO4	1
g)	What do you mean by PLA & PAL?	CO1	1
h)	What are the characteristics of EEPROM?	CO3	1

SECTION 'B' **Q.N.2. Attempt any two parts of the following:**		Course Objective	Marks
a)	Represent the decimal number 27 in binary form using: (i) Binary code (ii) Octal code (iii) Excess code	CO1	6
b)	Explain full adder with characteristics table and write it's simplification for sum and carry with the help of K-Map.	CO2	6
c)	What is Flip Flop? Explain JK flip flop in detail.	CO3	6
d)	Explain asynchronous sequential circuits.	CO4	6

B. Tech: Year: 2nd Semester: 3rd

M.M.: 30

SECTION 'C' Attempt all questions with internal choice		Course Objective	Marks
Q.N.3. Attempt any two parts of the following:			
a)	Write short notes on Hamming Code. Explain its role as correction and detection.	CO1	5
b)	Explain, Floating point representation.	CO1	5
c)	Implement the following function with i) NAND Gates, ii) NOR Gates. $F(x, y, z) = \Sigma(0, 6)$	CO1	5
Q.N.4. Attempt any two parts of the following:			
a)	What is Decoder? Design 4X16 decoder from 2X4 decoder.	CO1	5
b)	Implement full adder by using minimum NAND and NOR gates.	CO1	5
c)	Short notes: i) Multiplexer ii) Comparator.	CO1	5
Q.N.5. Attempt any two parts of the following:			
a)	What are the disadvantages of J-K flip-flop? How this problem can be solved?	CO2	5
b)	What do you mean by Don't care condition? Also explain with the help of examples, what is Hazard and how it is eliminated?	CO4	5
c)	What is Shift Register Counter? What are it's types? Also explain Johnson counter.	CO2	5
Q.N.6. Attempt any two parts of the following:			
a)	Explain, Asynchronous sequential circuits.	CO2	5
b)	Explain advantages & disadvantages of asynchronous sequential circuits.	CO3	5
c)	Explain PLA & PAL.	CO3	5

Table 1: Mapping between COs and questions

(Number of COs may vary from course to cou

COs	Questions Numbers
CO1	1. (a, c, e, g) 2. (a) 3. (a, b, c) 4. (a, b, c)
CO2	1. (b) 2. (b) 5.(a,c) 6. (a)
CO3	1. (d, h) 2. (c) 6. (b,c)
CO4	1. (f) 2. (d) 5. (b)