DARJEELING POLYTECHNIC

1ST INTERNAL EXAM 2021

CST-2nd Year-3rd Semester

SUBJECT: DIGITAL LOGIC DESIGN

F.M. : 20

TIME: 45 mins.

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1) Choose the correct alternatives. [5 x 1=5]

a) In Binary code, shifting a register to left by one bit position is equivalent to

i) Subtraction by 2 ii) addition by 2 iii) division by 2 iv) multiplication by 2

b) Which of the following gate cannot be used as inverter?

i) NAND ii) NOR iii) XOR iv) OR

c) The unique output for a NAND logic gate is a 0

i) When all the inputs are 0 ii) when all the inputs are 1

iii) any one input is 0 iv)any one input is 1

d**) A universal logic gate is one which can be used to generate any logic function. Which of the following is a universal logic gate?**

i) OR ii) AND iii) XOR iv) NAND

e) **Octal to binary conversion: (24)8 =?**

i) (111101)2 ii) (010100)2 iii) (111100)2 iv) (101010)2

2) a) Implement AND, OR, NOR by using NAND gates only. [6]

OR

b) Write down the six postulates of BOOLEAN ALGEBRA [6]

3) Convert the following :any three [3 x 3 =9]

i) 359 base 10 to base 2

ii) 1101101 base 2 to base 10

iii) 7574 base 8 to base 10

iv) 11010011 base 2 to base 1O