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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -1 EXAMINATION- February 2018
B.Tech 4th Semester

COURSE CODE:10B11EC401   MAX. MARKS: 15

COURSE NAME: Digital Electronics

COURSE CREDITS: 4   MAX. TIME: One Hr

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

1. Match List-I with List-II and select the correct answer using the codes given below the lists. **[2 Marks]**
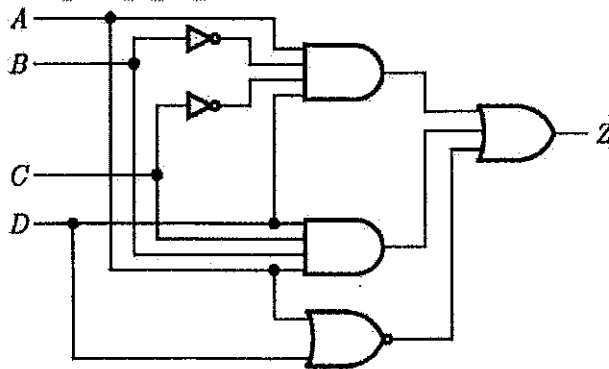
   List – I
   a. $A \oplus B = 0$
   b. $\overline{A+B} = 0$
   c. $\overline{A.B} = 0$
   d. $A \oplus B = 1$

   List - II
   1. $A \neq B$
   2. $A = B$
   3. $A = 1$ or $B = 1$
   4. $A = 1$ or $B = 0$

2. In the following circuit find the simplified output Z in terms of A, B, C and D.   **[2 Marks]**

3. Find the minimum number of NAND gates required to implement the Boolean function $A+AB+A\overline{B}C$ **[1Marks]**

4. Draw a logic circuit with inputs A, B and C that control the passage of a signal according to the following requirements: **[2 Marks]**
   a. Output X will equal A when control input B and C are the same.
   b. X will remain HIGH when B and C are different.

5. Consider the given circuit diagram of switching of light from two different switches. What are the input values of switches so as to turn on the LED? **[2 Marks]**
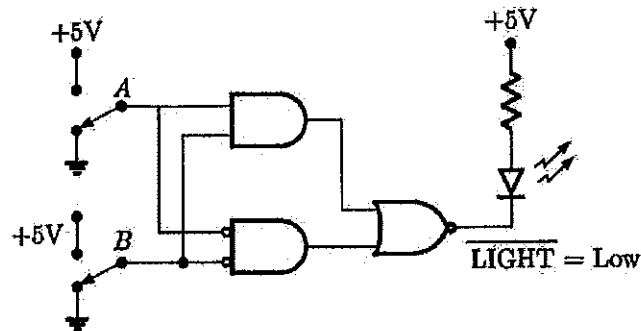
6. In circuit shown below, for what input at the terminals A, B and C the output is X= 1? **[1 Marks]**

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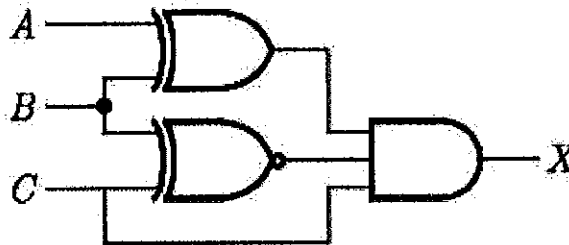
7. Perform the following arithmetic operations with hexadecimal numbers: **[2 Marks]**

   (i)   2BFC + 54A7
   (ii)   AC74-B3F

8. Reduce the following expression to the simplest possible POS and SOP forms: **[3 Marks]**

$$f = \sum m(6,9,13,18,19,25,27,29,31)+d(2,3,11,15,17,24,28)$$