Name _____ Enrollment No. _____

Jaypee Institute of Information Technology, Noida
T2 Examination, 2015-16
B.Tech II Semester

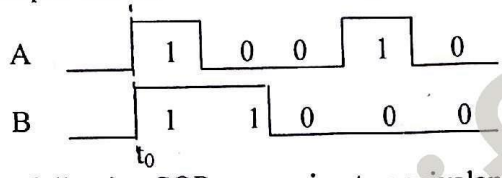
Course Title: Electrical Science - 2 **Maximum Time: 1 hr**
Course Code: 15B11EC211 **Maximum Marks: 20**

Q.1. Attempt the following questions in sequence only - [1x5]

a) Convert octal number $(7324.456)_8$ to hexadecimal number.

b) Use 2's complement to solve 00011101 – 00001101 (where given numbers are in unsigned binary format).

c) Draw the output waveform for the NOR gate to the given input waveforms.



d) Convert the following SOP expression to equivalent POS expression:

$$\bar{A}.\bar{B}.\bar{C} + \bar{A}.B.\bar{C} + \bar{A}.B.C + A.\bar{B}.C + ABC$$

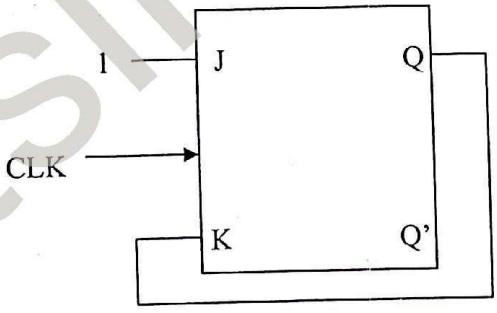
e) Simplify the following expression using K – map.

$$Y = m_1 + m_3 + m_5 + m_7 + m_9 + m_{12} + m_{13}$$

Q.2. Implement the following functions using 3 x 8 Decoder and external NAND gates only: [5]

$F_1(A, B, C) = \sum m\ (2, 4, 7)$
$F_2(A, B, C) = \sum m\ (0, 3)$

Q.3. Consider the following J – K Flip Flop [5]



Assume that the Flip Flop was initially cleared (Q = 0) and then clocked for seven pulses. What is the sequence at the output Q?

Q. 4. Find the minimized SOP Boolean expression available at the output of the given 4X1 MUX. [5]