

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY,
WAKNAGHAT

COURSE CODE:12B1WEC732

MAX. MARKS: 15

COURSE NAME: DIGITAL SYSTEM DESIGN

MAX. TIME: 1 Hr.

CREDITS: 3

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

1. Minimize using Quine McCluskey technique [5 Marks]
 $R = f(w, x, y, z) = \Sigma(1, 3, 4, 5, 6, 9, 11, 12, 13, 14)$
2. Design a modulo-6 up down counter using JK flip flop. When $x=1$, the counter counts up and for $x=0$ counter counts down. Terminal Count TC is 1 when the count is complete on either side. [4 Marks]
3. A clocked sequential circuit with a single input x and single output z produces an output $z=1$ whenever the input x completes the sequence 1011 and overlapping is allowed. Obtain the state diagram and state table for this circuit. [3 Marks]
4. Draw Mealy and Moore synchronous machine models. Label the excitation variables, state variables, input variables and output variables in both diagrams. [3 Marks]
