**DAILY ASSESSMENT FORMAT**

|  |  |  |  |
| --- | --- | --- | --- |
| **Date:** | **29/05/2020** | **Name:** | **DHAMINI C L** |
| **Course:** | **LOGIC DESIGN** | **USN:** | **4AL17EC025** |
| **Topic:** | **Analysis of clocked sequential**  **circuits**  **Digital clock design** | **Semester & Section:** | **6TH & A** |
| **Github Repository:** | **DHAMINI-CL-Course** |  |  |

|  |
| --- |
| **FORENOON SESSION DETAILS** |
|  |
| **Report:**  **ANALYSIS OF CLOCKED SEQUENTIAL CIRCUITS**  **• Some flip-flops have asynchronous inputs that are used to force the flip-flop to a**  **particular state independently of the clock**  **• The input that sets the flip-flop to 1 is called preset or direct set. The input that**  **clears the flip-flop to 0 is called clear or direct reset.**  **• When power is turned on in a digital system, the state of the flip-flops is unknown.**  **The direct inputs are useful for bringing all flip-flops in the system to a known**  **starting state prior to the clocked operation.**  **• The knowledge of the type of flip-flops and a list of the Boolean expressions of**  **the combinational circuit provide the information needed to draw the logic**  **diagram of the sequential circuit. The part of the combinational circuit that gene**  **rates external outputs is described algebraically by a set of Boolean functions**  **called output equations. The part of the circuit that generates the inputs to flip-**  **flops is described algebraically by a set of Boolean functions called flip-flop input**  **equations (or excitation equations).**  **• The information available in a state table can be represented graphically in the**  **form of a state diagram. In this type of diagram a state is represented by a circle**  **and the (clock-triggered) transitions between states are indicated by directed lines**  **connecting the circles.**  **• The time sequence of inputs, outputs, and flip-flop states can be enumerated in a**  **state table (transition table). The table has four parts present state, next state, inputs**  **and outputs.**  **• In general a sequential circuit with 'm' flip-flops and 'n' inputs needs 2m+n rows**  **in the state table.**  **Positive Edge Triggered D Flip-flop**  **• A circuit diagram of a Positive edge triggered D Flip-flop is shown as below. It**  **has an additional reset input connected to the three NAND gates.**  **• When the reset input is 0 it forces output Q' to Stay at 1 which clears output Q**  **to 0 thus resetting the flip-flop.**  **• Two other connections from the reset input ensure that the S input of the third SR**  **latch stays at logic 1 while the reset input is at 0 regardless of the values of D and**  **Clk.**  **• Function table suggests that:**  **o When R = 0, the output is set to 0 (independent of D and Clk).**  **o The clock at Clk is shown with an upward arrow to indicate that the flip-**  **flop triggers on the positive edge of the clock.**  **o The value in D is transferred to Q with every positive-edge clock signal**  **provided that R = 1.**  **Analysis with D Flip-Flops**  **The input equation of a D Flip-flop is given by DA = A ⊕ x ⊕ y. DA means a D Flip-**  **flop with output A.**  **The x and y variables are the inputs to the circuit. No output equations are given, which**  **implies that the output comes from the output of the flip-flop.**  **The state table has one column for the present state of flip-flop 'A' two columns**  **for the two inputs, and one column for the next state of A.**  **• The next-state values are obtained from the state equation A(t + 1) = A ⊕ x ⊕ y.**  **• The expression specifies an odd function and is equal to 1 when only one variable**  **is 1 or when all three variables are 1.**  **Analysis with JK Flip-Flops**  **• The circuit can be specified by the flip-flop input equations:**  **o JA = B; KA = Bx'**  **o JB = x'; KB = A'x + Ax' = A ⊕ x**  **• The next state of each flip-flop is evaluated from the corresponding J and K inputs**  **and the characteristic table of the JK flip-flop listed as:**  **o When J = 1 and K = 0 the next state is 1**  **o When J = 0 and K = 1 the next state is 0**  **o When J = 0 and K = 0 there is no change of state and the next-state**  **value is the same as that of the present state.**  **o When J = K = 1, the next-state bit is the complement of the present-**  **state bit.**  **• The characteristic equations for the flip-flops are**  **o A(t + 1) = JA' + K'A**  **o B(t + 1) = JB' + K'B**  **• This gives us the state equation of A by substituting the values of JA, KA**  **o A(t + 1) = BA' + (Bx')'A = A'B + AB' + Ax**  **• The state equation provides the bit values for the column headed "Next State" for**  **A in the state table. Similarly, the state equation for flip-flop B can be derived**  **from the characteristic equation by substituting the values of JB and KB.:**  **o B(t + 1) = x'B' + (A ⊕ x)'B = B'x' + ABx + A'Bx'**  **Analysis with T Flip-Flops**  **• The circuit can be specified by the characteristic equations:**  **o Q(t+1) = T ⊕ Q = T'Q + TQ'**  **• The sequential circuit has two flip-flops A and B, one input x, and one output y**  **and can be described algebraically by two input equations and an output equation:**  **o TA = Bx**  **o TB = x**  **o y = AB**  **• The state table for the circuit is listed below. The values for y are obtained from**  **the output equation. The values for the next state can be derived from the state**  **equations by substituting TA and TB in the characteristic equations yielding:**  **o A(t + 1) = (Bx)' A + (Bx)A' = AB' + Ax' + A'Bx**  **o B(t + 1) = x ⊕ B**  **Date: 29 MAY 2020 Name:** |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Date:29/5/2020** |  | **Name: DHAMINI C L** |  | |
| **Course:PYTHON** |  | **USN:4AL17EC025** |  | |
|  |  |  |  | |
| **Topic: database websit** |  | **Semester & Section:6TH A SEC** |  | |
| **AFTERNOON SESSION DETAILS** | | | |
| **Image of session** | | | |
| **Report – Report can be typed or hand written for up to two pages.**  Before connecting to a MySQL database, make sure of the followings −   * You have created a database TESTDB. * You have created a table EMPLOYEE in TESTDB. * This table has fields FIRST\_NAME, LAST\_NAME, AGE, SEX and INCOME. * User ID "testuser" and password "test123" are set to access TESTDB. * Python module MySQLdb is installed properly on your machine. * You have gone through MySQL tutorial to understand [MySQL Basics.](https://www.tutorialspoint.com/mysql/index.htm)  Example Following is the example of connecting with MySQL database "TESTDB"  #!/usr/bin/python  import MySQLdb  # Open database connection  db = MySQLdb.connect("localhost","testuser","test123","TESTDB" )  # prepare a cursor object using *cursor()* method  cursor = db.cursor()  # execute SQL query using *execute()* method.  cursor.execute("SELECT VERSION()")  # Fetch a single row using *fetchone()* method.  data = cursor.fetchone()  print "Database version : %s " % data  # disconnect from server  db.close()  While running this script, it is producing the following result in my Linux machine.  Database version : 5.0.45  If a connection is established with the datasource, then a Connection Object is returned and saved into **db** for further use, otherwise **db** is set to None. Next, **db** object is used to create a **cursor** object, which in turn is used to execute SQL queries. Finally, before coming out, it ensures that database connection is closed and resources are released. Creating Database Table Once a database connection is established, we are ready to create tables or records into the database tables using **execute** method of the created cursor. | | | |