Sequential Circuits

Question 1: How many Flip-Flops are required for mod–16 counter?

A. 5

B. 6

C. 3

D. 4

Question 2: In a JK Flip-Flop, toggle means

A. Set Q = 1 and Q = 0.

B. Set Q = 0 and Q = 1.

C. Change the output to the opposite state.

D. No change in output.

Question 3: A ring counter consisting of five Flip-Flops will have

A. 5 states

B. 10 states

C. 32 states

D. Infinite

Question 4: How many flip flops are required to construct a decade counter

A. 10

B. 3

C. 4

D. 2

Question 5: For JK flip flop with J=1, K=0, the output after clock pulse will be

A. 0

B. 1

C. no change

D. None of the above

Question 6: The output of SR flip flop when S=1, R=0 is

A. 1

B. 0

C. No change

D. None of the above

Question 7: Which statement BEST describes the operation of a negative-edge-triggered D flip-flop?

A. The logic level at the D input is transferred to Q on NGT of CLK.
B. the Q output is ALWAYS identical to the CLK input if the D input is HIGH.
C. the Q output is ALWAYS identical to the D input when CLK = PGT.
D. the Q output is ALWAYS identical to the D input.

Question 8: Synchronous counters eliminate the delay problems encountered with asynchronous counters because the:
A. input clock pulses are applied only to the first and last stages
B. input clock pulses are applied only to the last stage
C. input clock pulses are not used to activate any of the counter stages
D. input clock pulses are applied simultaneously to each stage

Question 9: How many different states does a 3-bit asynchronous counter have?
A. 2
B. 4
C. 8
D. 6

Question 10: The bit sequence 0010 is serially entered (right-most bit first) into a 4-bit parallel out shift register that is initially clear. What are the Q outputs after two clock pulses?
A. 0000
B. 1000
C. 0010
D. 1111

Question 11: Determine the number of flip flops needed to construct a register capable of storing octal number up to 10.
A. 5
B. 4
C. 8
D. 10

Question 12: Assume that 4 bit counter starts in the 0000 state. What will be the count after 12 input pulses?
A. 12
B. 11
C. 10
D. None of these

Question 13: Johnsons and Ring counter are

A. Asynchronous counters

B. synchronous counters

C. Both A and B

D. None of the above

Question 14: The output of a JK flip flop with clear inputs is '1'. The output can be changed to '0' with one of the following conditions.

A. J=K=0 and clock

B. J=1, K=0 and clock

C. J=K=1 and clock

D. J=0, K=1 and clock

Question 15: The terminal count of a modulus-11 binary counter is _____.

A. 1010

B. 1000

C. 1001

D. 1100

Question 16: On the third clock pulse, a 4-bit Johnson sequence is $Q_0 = 1$, $Q_1 = 1$, $Q_2 = 1$, and $Q_3 = 0$. On the fourth clock pulse, the sequence is _____

A. $Q_0 = 1, Q_1 = 1, Q_2 = 1, Q_3 = 1$

B. $Q_0 = 1, Q_1 = 1, Q_2 = 0, Q_3 = 0$

C. $Q_0 = 1, Q_1 = 0, Q_2 = 0, Q_3 = 0$

D. $Q_0 = 0, Q_1 = 0, Q_2 = 0, Q_3 = 0$