AK-48

003-003207

BCA (Sem.-II) (CBCS) Examination
April-2013
CS-09 COMP. ORGANIZATION & ARCHITECTURE

Faculty Code : 003
Subject Code : 003207

Time : 2½ Hours]   [Total Marks : 70

1.   Attempt **all** MCQ answer.   20

   1.   When input J and K are both equal to 1, a clock transition switches
        the outputs of the flip flop to their_____ state.

        (a)   No Change   (b)   Clear to 0

        (c)   Set to 1   (d)   Complement

   2.   The exclusive NOR gate is equivalent to an _____ gate followed by
        an inverter.

        (a)   XOR   (b)   NOR

        (c)   NAND   (d)   AND

   3.   De Morgan's second theorem say NAND gate is equivalent to a
        bubbled _____ gate.

        (a)   AND   (b)   XAND

        (c)   Inverter   (d)   XOR

   4.   An OR gate has 6 inputs, how many words are in its truth table ?

        (a)   64   (b)   32

        (c)   16   (d)   128

   5.   How many full adders are required to construct an m-bit parallel
        adder ?

        (a)   m/2   (b)   m – 1

        (c)   m   (d)   m + 1

   6.   A Flip Flop can store _____

        (a)   1 bit of duty   (b)   2 bit of duty

        (c)   3 bit of duty   (d)   4 bit of duty

   7.   A 2^n to 1 multiplexer has _____ input data lines and _____ input
        selection lines.

        (a)   n, 2^n (b)   1, 2^n

        (c)   2, 2^n (d) 2^n, n

   8.   The function capacity of SSI device is _____

        (a)   1 to 11 gatts   (b)   12 to 99 gatts

        (c)   100 to 10,000 gatts   (d)   more than 10,000 gatts

   9.   A shit register can be used for _____

        (a)   parallel to serial conversion

        (b)   serial to parallel conversion

        (e)   digital delay line

        (d)   all of above

   10. A _____ TTL device can sink up to 16MA and can source up to
        400MA.

        (a)   Low-power   (b)   High-power

        (c)   Standard   (d)   Medium-power

   11. A bus is a group of _____ carrying digital signals.

        (a)   wires   (b)   gatts

        (c)   transistors   (d)   registers

   12. A Register is a group of _____ with each flip flop capable of storing
        one bit of information.

        (a)   Gates   (b)   1C

        (c)   Clock pulses   (d)   Flip Flop

   13. How many bits are required to encode all twenty six letters ten
        symbols and numbers ?

        (a)   5   (b)   6

        (c)   2   (d)   3

   14. The transfer of new information into a register is referred to as
        _____ the register.

        (a)   expanding   (b)   starting

        (c)   loading   (d)   ending

15. A _____ is a group of devices that store digital duty.
  (a) circuit   (b) register
  (c) bit   (d) byte
16. The maximum number of TTL loads that a TTL device can drive is reliable over specified temp range is _____
  (a) fan out   (b) bipolar
  (c) chip   (d) universal logic circuit
17. The decoders presented in the section are called n-to-m line decoder. where m _____
  (a) $= 2^n$ (b) $> = 2^n$
  (c) $< = 2^n$ (d) $> 2^n$
18. A + B * C + D what is reverse polish notation of it ?
  (a) ABC * D + +   (b) ABCD * + +
  (c) A * BCD + +   (d) None of these
19. The input of half adder is 1 0 0 then output of sum bit is _____
  (a) 1   (b) 0
  (c) can't determine (d) invalid number of inputs
20. The input of full adder is 1 0 1 then output of carry out is _____
  (a) 1   (b) 0
  (c) can't determine (d) invalid number of input

2. (a) Attempt any **Three** :   6
   (1) Explain Logic Gates in brief.
   (2) What is clock pulse ?
   (3) Explain 2*4 decoders.
   (4) What is memory stack ?
   (5) Explain DMA control.
   (6) Why gate is called universal gate ?

  (b) Attempt any **Three** :   9
   (1) Draw and explain 4*1 multiplexer.
   (2) Write a note on combinational and sequential circuits.
   (3) Explain octal and binary encoder.
   (4) Write a note on SR flip flops.
   (5) Explain polish and reverse polish notation.
   (6) What is job of data bus ?

  (c) Attempt any **Two** :   10
   (1) Explain Karnaugh map with example.
   (2) Explain AND and XOR logic gates.
   (3) Write a note on IOP.
   (4) Explain accumulator register.
   (5) Explain 1 * 4 demultiplexers.

3. (a) Attempt any **Three** :   6
   (1) Explain floating point representation.
   (2) Explain and draw a block diagram of register.
   (3) Explain instruction formats with types.
   (4) Write a short note on JK flip flop.
   (5) Write a short note on counter.
   (6) What is interrupt ? Explain types of interrupt.

  (b) Attempt any **Three** :   9
   (1) What is MUX ?
   (2) Explain register stack with push and pop algorithms.
   (3) Explain Memory bus.
   (4) Explain major components of CPU.
   (5) What is combinational circuit ? Explain with types.
   (6) Write a short note on asynchronous data transfer.

  (c) Attempt any **Two** :   10
   (1) Parity bit error detection code.
   (2) Explain binary addition, subtraction, division and multiplication rules.
   (3) Explain Full Adder in detail.
   (4) Explain De-Morgan's theorem.
   (5) Write an example of multiply any two binary numbers.