

**B.C.A Semester - 2 (CBCS) Examination****March/April- 2018****CS-09 COMPUTER ORGANIZATION & ARCHITECTURE  
(CORE)****Time: 2:30 Hours****Marks: 70****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate marks.

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- Que-1 (A) Answer the following questions. (04)
1. Define truth table.
  2. Draw circuit for  $x = (A' + B) \cdot (A + B')$
  3. Write down distributive postulates of Boolean algebra.
  4. Explain EX-OR gate shortly.
- Que-1 (B) Answer the following question. (Any One) (02)
1. Explain half adder.
  2. Give the rules of K-map.
- Que-1 (C) Answer the following question. (Any One) (03)
1.  $F(W, X, Y, Z) = \Sigma(4, 5, 6, 7, 9, 13, 15)$  draw and explain K-map.
  2.  $F(W, X, Y, Z) = \Pi(4, 5, 8, 9, 12, 13, 15) + d(6, 7, 10)$  draw and explain K-map.
- Que-1 (D) Answer the following question. (Any One) (05)
1. Explain D flip flop in detail.
  2. What is Associate theorem? Prove that using truth table. (both)
- Que-2 (A) Answer the following questions. (04)
1. Full form of LSI is \_\_\_\_\_.
  2. What is the importance of selection lines in multiplexer?
  3. "data selector" is another name of \_\_\_\_\_.
  4. Explain serial in and parallel out.
- Que-2 (B) Answer the following question. (Any One) (02)
1. Write a short note: buffer register.
  2. What is I.C.? List out their types only.
- Que-2 (C) Answer the following question. (Any One) (03)
1. What is Register? Explain their types in detail.
  2. Write a short note: 4 bit counter.
- Que-2 (D) Answer the following question. (Any One) (05)
1. Describe 4-bit shift register with parallel load.
  2. Explain demultiplexer.  $(1 \times 4)$
- Que-3 (A) Answer the following questions. (04)
1. \_\_\_\_\_ bit is used for positive value.
  2.  $4507_8 = \underline{\hspace{2cm}}_2$
  3. Full form of MQ is \_\_\_\_\_.
  4. Error detection code is used to indicate error but it cannot correct it. True or False?

- Que-3 (B) Answer the following question. (Any One) (02)
1. Calculate (1)  $110110 + 100111$  (2)  $1100 + 0110$
  2. Calculate (1)  $11011 - 1010$  (2)  $111000 - 101101$
- Que-3 (C) Answer the following question. (Any One) (03)
1. Represent ( + 68) in,
    - a. Signed magnitude
    - b. 1's complement
    - c. 2's complement
  2. How can we present any floating number in scientific representation method? Give example.
- Que-3 (D) Answer the following question. (Any One) (05)
1. Explain Error Detection Code in detail.
  2. Calculate  $1110 \times 1011$  using paper method and computer method.
- Que-4 (A) Answer the following questions. (04)
1. OPR code for A+B is \_\_\_\_\_
  2. Full form of PN & RPN is \_\_\_\_\_.
  3. Power failure in compute is \_\_\_\_\_ interrupt.
  4. Stack follows \_\_\_\_\_ method. (option :LIFO, FIFO)
- Que-4 (B) Answer the following question. (Any One) (02)
1. Explain control word.
  2. Describe shortly : Major component of CPU.
- Que-4 (C) Answer the following question. (Any One) (03)
1. Convert infix to prefix :  $A \times 8 - [ B + (D + 6) ]$
  2. Convert infix to postfix :  $A + B - C \times D \times E/F$
- Que-4 (D) Answer the following question. (Any One) (05)
1. What is interruption? Explain their types.
  2. Explain ALU in details.
- Que-5 (A) Answer the following questions. (04)
1. DMA stand for \_\_\_\_\_
  2. BR (bus request) is send from \_\_\_\_\_ to \_\_\_\_\_
  3. True/False DMA is used to reduce the load of CPU?
  4. True/False IO Processor can able to execute their own instructions.
- Que-5 (B) Answer the following question. (Any One) (02)
1. Describe: DMA controller.
  2. Explain: Address buses, Control Lines.
- Que-5 (C) Answer the following question. (Any One) (03)
1. Describe: Benefits of interface.
  2. Give Brief Details about I.O. interface.
- Que-5 (D) Answer the following question. (Any One) (05)
1. Describe: I.O. Processor.
  2. Explain: DMA transfer data in computer network system.

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