



## COA University Questions

May 2015

1. Simplify Following  $F(A,B,C,D)=\sum m(1,7,10,13,14)+d(0,5,8,15)$
2. Compare DRAM and SRAM
3. Write short notes on half adder. Draw circuit diagram.
4. What is a latch? Explain all its properties. Also explain S-R FF.
5. Discuss set associative mapping structure in cache memory.
6. Explain bus interconnection structure
7. What is RAID? Explain any four RAID levels.
8. Explain DMA method of I/O with suitable diagram.
9. Explain different addressing modes along with the address calculation formula and advantages and disadvantages of the same with example.
10. Discuss superscalar processors and the instruction issues policies used in them.
11. Explain sequences of micro operation for various addressing modes in control unit.
12. Explain the concept of cloud computing.
13. Discuss bus design elements
14. Discuss a 4 bit synchronous counter.
15. Write Short note:
  - a) Clusters
  - b) Associative Memory
  - c) Multiplexer and De-multiplexer
  - d) Micro programmed control

DEC 2014

1. Differentiate between superscalar and super pipelined approaches.
2. Simplify the Boolean functions
  - i.  $F(A,B,C,D)=\sum(0,1,3,4,8,10,11,12,14)+d(5,9)$
  - ii.  $F(A,B,C,D)=\pi(2,5,7,8,9,10,12)$

Also draw the circuit diagram of the simplified equation using minimum number of gates
3. Explain full adder with logic diagram.
4. Define flip flop. Explain the working of J-K FF with logic diagram.
5. Explain Flynn's classification with diagrams.
6. Define associative memory. Explain its working.
7. Define Cache memory. Explain any two cache memory mapping in detail
8. List and briefly define types of super scalar instruction issues policies.
9. Explain control signal generation using micro programmed control. Draw necessary diagram.
10. Explain fetch cycle, indirect cycle and interrupt cycle. Show the flow of data during each cycle using suitable diagram.
11. Discuss the functions of I/O module. Explain interrupt- driven and DMA technique in details.
12. With a circuit diagram explain a 4 bit ripple binary counter.
13. Define cluster explain different clustering methods in detail with its benefits and limitations
14. What is RAID? Explain any 3 RAID level in detail with suitable diagrams.
15. Explain system bus. Write different bus arbitration methods
16. List and explain different addressing modes with suitable examples.

May 2014



1. Draw the typical DMA block diagram
2. Compare micro programmed control unit VS hardware control unit
3. Using K-Map simplify the following expression in four variable A,B,C,D.  

$$F(A,B,C,D) = \sum(0,2,4,5,6,7,8) + d(12,13,14,15)$$
4. What do you mean by counter? Explain types of counters?
5. What do you mean by RAID? Explain any four RAID levels.
6. List and explain the use of general purpose register in CPU.
7. Discuss the superscalar processor and the instruction issues policies used in them.
8. Explain memory hierarchy. What is cache memory? Why it is used?
9. What is PROM, EPROM and EEPROM? Differentiate between static RAM and dynamic RAM.
10. Explain the symmetric multiprocessor and their organization.
11. Draw the diagram of flynn's classification of parallel processing.
12. Explain the working of half adder.
13. Draw the diagram of I/O module.
14. What is bus arbitration? Explain daisy chaining and polling with suitable block diagrams.
15. Explain hardwired implementation of control unit with diagram.
16. Write a note on six stage instruction pipelining and effect of conditional branches on the same operation
17. Explain the concept of cloud computing.

## Dec 2013

1. Draw the block diagram of an I/O module.
2. Compare sequential Vs combinational circuit.
3. Using K-Map simplify the following expression in four variable K, L, M, N.  

$$F(K,L,M,N) = \sum(1,7,10,13,14) + d(0,5,8,15)$$
4. Discuss 3-to-8 decoder using truth table. Draw its implementation using the appropriate gates
5. Discuss the set associative cache organization with an example.
6. Discuss SMP organization in detail.
7. Explain different addressing modes along with the address calculation formula and advantages and disadvantages of the same.
8. What is interrupts? Explain a complete instruction cycle state diagram with interrupts.
9. Discuss the 4bit synchronous counter.
10. Explain the DMA method of I/O technique.
11. Differentiate between DRAM and SRAM.
12. Draw and explain the block diagram of control unit.
13. Design a combinational logic circuit with four input variable that will produce logic 1 output when the number of 1s in the input is even.
14. Discuss bus design elements
15. Explain the concept of cloud computing.
16. Explain the instruction pipelining in details.
17. What do you mean by RAID? Explain any four RAID levels

## May 13

1. What is FF? Explain working of an A2 J-K FF. Explain all its states.
2. Using K-map, simplify the following Boolean function.  $F(A,B,C,D) = \sum(0,1,2,5,8,9,10)$ .
3. Design 8-to-1 Multiplex.
4. Compare sequential Vs Combination circuits



5. Explain RISC and CISC architectures in detail.
6. Explain six stage instruction pipeline. Explain the effect of conditional branching with suitable timing diagrams
7. Explain in detail about instruction cycle state diagram.
8. What is addressing model'. Explain its types in detail.
9. What is cache memory? Explain about associative and set associative mapping of cache.
10. Differentiate between the following
  - a. SRAM vs DRAM
  - b. RISC Vs CISC
11. Explain different RAID levels in details
12. Explain about various I/O transfer techniques
13. Explain about the Flynn's classification of SMPs with suitable diagrams
14. Explain with diagram the working of a 4 bit Synchronous binary counter.
15. Explain in detail about the different superscalar instruction issue policies.
16. Explain the following (Any two)
  - i. Micro-Programmed and Hardwired control
  - ii. Decoder(3x8)
  - iii. Full—adder circuit(with truth table)
  - iv. I/O module

## DEC 2012

1. Write short notes on half adder. Draw circuit diagram.
2. Using K-map simplify the following expression in four variable A, B, C, D.  
 $F(A,B,C,D)=\sum m(1,3,5,8,9,11,15)+d(2,13)$ .
3. Design a combinational logic circuit with three input variable that will produce logic 1 output when more than one input variables and logic 1.
4. Convert the following:
  - i.  $(66.38)_{10} = ( )_8$
  - ii.  $(100110111)_2 = ( )_{10}$
5. Discuss different bus design elements.
6. Explain the register organization of CPU.
7. Discuss the set associative Cache organization with example.
8. Explain the concept of micro programmed control unit.
9. Compare SRAM Vs DRAW.
10. Draw and explain the Block diagram of I/O module.
11. Explain the difference combinational circuit and sequential circuits.
12. Explain how branches are handled in instruction pipelining.
13. Discuss the concept of clustering in parallel organization
14. Explain indirect address, register indirect addressing and displacement addressing with address calculation formula and its advantages and disadvantages
15. Discuss the limitation of superscalar organization.
16. Explain the concept of cloud computing.
17. Write a short note on memory characteristics



## DEC 13 old

1. What is FF? Explain working of SR and J-K FF. Explain all its states.
2. Compare sequential VA combinational circuits. Discuss 8 to 1 mux using truth table. Draw its implementation using appropriate gates.
3. Explain DMA method of I/O technique with suitable diagram.
4. Explain six stages instruction pipelines along with conditional branching with suitable timing diagrams
5. Compare following:--
  - i. SRAM Vs DRAM
  - ii. Micro Program Vs hardwired control.
6. Explain RISC and CISE architecture in detail.
7. What is I/O module? Discuss with the help of diagram functioning of I/O module.
8. What is cache memory? Explain cache coherence strategies in single and multiprocessor systems.
9. Explain different RAID levels in details
10. List and explain different superscalar instruction issue policies.
11. Define system bus. What is bus arbitration? Explain different methods of bus arbitration with suitable diagrams.
12. Explain Flynn's classification with suitable diagrams. Also comment on design issues of pipeline architecture.
13. Write short notes on (any four):--
  - a. Memory hierarchy.
  - b. Clusters in parallel organization.
  - c. Associative memory.
  - d. Loop buffer.
  - e. Processor organization.