

Follow Us:

 : <https://facebook.com/groups/educlashco> |  : <https://twitter.com/educlashco>

 : <https://instagram.com/educlashco>

## COA Question Bank

### Unit 1

- Questions on K-Map to find solution in SOP & POS form.
  - $F(A,B,C,D) = A'B'C'D' + A'B'CD + A'B'C'D + A'BCD + ABC'D + ABC'D + ABCD + AB'C'D + AB'CD$
  - $F(A,B,C,D) = \sum m(0,1,4,5,8,9,13,14,15) + d(2,7)$
  - $F(A, B, C, D) = \prod M(5, 8, 9, 10) \cdot D(1, 4, 11, 15)$
  - $F(A,B,C,D) = A'B' + BC' + (CD)'$
- Prove using laws of Boolean algebra
  - $(XYZ + XYZ' + X'Y'Z + X'YZ)' = (X' + Y') \cdot (X + Z')$
- Construct a logic circuit using AND, OR, NOT Gates
  - $Y = (A+B)' \cdot (A+C) \cdot (B+C)$
- Design a combinational logic circuit with 3 input variables that will produce logic 1 output when more than one input variables are logic 1.
- Design a combinational logic circuit with 4 input variables that will produce logic 1 output when no of 1s in the input is even.
- Design a combinational logic circuit with 4 input variables whose output is HIGH when input value is >9.
- Compare combinational Vs sequential circuit.
- Why NAND and NOR gates are termed as universal gates. Implement all the other gates using NOR gate.
- Explain the working of full adder in detail.
- Explain SR flip flop with the help of truth table and circuit diagram.
- Why FF is called as bistable device? Discuss JK FF. Why it is called a versatile FF?
- Discuss 16:1 Multiplexer using truth table, circuit diagram and block diagram.
- Draw the circuit diagram & truth table for 8:1 MUX & 1:8 DEMUX.
- What do you mean by counter? Explain types of counters.
- With the help of diagram explain 4- bit ripple counter.
- Short note on:
  - Half adder
  - De-multiplexer
  - Synchronous counters
  - Asynchronous counters



**educlash Result / Revaluation Tracker**

Track the latest Mumbai University Results / Revaluation as they happen, all in one App

Visit [educlash.com](https://educlash.com) for more

Follow Us:

 : <https://facebook.com/groups/educlashco> |  : <https://twitter.com/educlashco>

 : <https://instagram.com/educlashco>

## Unit 2

1. Compare computer organization Vs computer architecture.
2. Discuss bus structure, bus types & methods of arbitration.
3. Explain bus interconnection structure with the help of data address and control lines. Explain PCI bus structure.
4. Explain Generic model of I/ O module with the help of diagram.
5. What is I/O module? Explain all its function. Draw block diagram of I/O Module.
6. Explain the working of Interrupt Driven I/O module.
7. Compare programmed I/O with interrupt driven I/O. What technique would you suggest to overcome the drawback of programmed I/O & interrupt driven I/O?
8. Explain DMA technique in detail with the help of suitable diagram. (Explain Breakpoints and Cycle stealing in it)
9. Short note on:
  - a. Basic functions of computer system
  - b. Data path and control path
  - c. Functions of I/O module

## Unit 3

1. Discuss memory hierarchy in contemporary computer system.
2. Define cache memory. Explain cache organization in detail.
3. Why Cache memory is needed? Name various elements of cache design.
4. Explain different types of cache memory mapping technique in detail (Direct, Associative, Set-Associative mapping techniques).
5. What is RAID? Discuss any 4 RAID levels with the help of diagram.
6. Define associative memory. Explain its working.
7. What is PROM, EPROM & EEPROM? Differentiate b/w SRAM & DRAM.
8. Short note on:
  - a. SRAM Vs DRAM
  - b. Interleaved memory
  - c. Associative memory
  - d. Flash Memory
  - e. Optical memory



**educlash Result / Revaluation Tracker**

Track the latest Mumbai University Results / Revaluation as they happen, all in one App

Visit [educlash.com](https://educlash.com) for more

Follow Us:

 : <https://facebook.com/groups/educlashco> |  : <https://twitter.com/educlashco>

 : <https://instagram.com/educlashco>

## Unit 4

9. Explain fetch cycle, indirect cycle and interrupt cycle. Draw suitable diagram for them.
10. What are interrupts? What are the different ways of handling interrupts?
11. Explain the role of MAR & MBR in instruction execution.
12. Explain the role of registers in CPU. Discuss the organization of registers in CPU.
13. Explain three types of addressing modes with address calculation formula and its advantages and disadvantages, examples.
14. Why instruction pipelining is needed? Write 2 stage instructions pipelining in detail.
15. What is instruction pipelining? Write a detailed note on six stage instruction pipeline along with diagram. How conditional branching affects pipeline performance?
16. Explain how branches are handled in instruction pipelining.
17. Explain superscalar organization in brief.
18. Discuss limitation of superscalar organization.
19. Explain in detail about the different superscalar instruction issue policies.
20. Explain various factors that affect design of an instruction in the instruction set of a processor.
21. Explain RISC & CISC.
22. Short note on:
  - a. Processor Organization
  - b. Register Organization
  - c. Instruction format
  - d. Addressing modes
  - e. Instruction level parallelism Vs Machine level parallelism
  - f. Write-write dependency
  - g. Anti-dependency
  - h. Register renaming
  - i. Loop buffer



**educlash CGPA Converter**

Convert: SGPI->CGPA & PERCENTAGE / CGPA->PERCENTAGE

Visit [educlash.com](https://educlash.com) for more



**educlash Result / Revaluation Tracker**

Track the latest Mumbai University Results / Revaluation as they happen, all in one App

Visit [educlash.com](https://educlash.com) for more

Follow Us:

 : <https://facebook.com/groups/educlashco> |  : <https://twitter.com/educlashco>

 : <https://instagram.com/educlashco>

## Unit 5

1. Explain the structure and working of control unit.
2. What are micro operations? Write micro operation for fetch cycle, interrupt cycle and indirect cycle.
3. Explain the concept of micro programmed control unit. What are its advantages and disadvantages?
4. Compare hardwired Vs micro programmed control unit.

## Unit 6

1. Draw and explain Flynn's classification of parallel processing.

OR

Explain different types of parallel processing systems.

OR

With reference to parallel processing explain the terms SISD, SIMD, MISD & MIMD. What is their significance in practical parallel processing approaches?

2. Discuss the concept of clustering in parallel organization.
3. Define cluster. Explain different clustering methods in detail with its benefits and limitations.
4. Explain SMPs.
5. Explain Multicore computer organization.
6. Short note on:
  - a. Array processors
  - b. clusters



**educlash CGPA Converter**

Convert: SGPI->CGPA & PERCENTAGE / CGPA->PERCENTAGE

Visit [educlash.com](http://educlash.com) for more



**educlash Result / Revaluation Tracker**

Track the latest Mumbai University Results / Revaluation as they happen, all in one App

Visit [educlash.com](http://educlash.com) for more