

B.C.A Semester - 2 (CBCS) Examination
March/April – 2025 (New Course)
Computer Organization and 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. | (03) |
| | <ol style="list-style-type: none">1) Draw the symbol and truth table of AND gate.2) Full name of SOP.3) What is Maxterm. | |
| Que.1 (B) | Answer the following questions. (ANY TWO) | (06) |
| | <ol style="list-style-type: none">1) Explain Universal Gates.2) Explain Logical Gates OR, NOR.3) Differentiate SOP vs. POS.4) Explain don't care condition. | |
| Que.1 (C) | Answer the following questions. (ANY ONE) | (05) |
| | <ol style="list-style-type: none">1) Explain block diagram of digital computer in detail.2) Explain K-Map with appropriate Example. | |
| Que.2 (A) | Answer the following questions. | (03) |
| | <ol style="list-style-type: none">1) What is Flip-Flop?2) Give full form of SR flip flop.3) What is Clock pulses? | |
| Que.2 (B) | Answer the following questions. (ANY TWO) | (06) |
| | <ol style="list-style-type: none">1) Explain JK flip flop in detail.2) Explain Excitation table of Flip-flop.3) Explain Sequential Circuit.4) Explain D Flip Flop. | |
| Que.2 (C) | Answer the following questions. (ANY ONE) | (05) |
| | <ol style="list-style-type: none">1) Explain the block diagram of Combinational Circuit.2) Explain Full Adder in Detail. | |
| Que.3 (A) | Answer the following questions. | (03) |
| | <ol style="list-style-type: none">1) VLSI stands for2) MSI stands for3) CMOS stand for..... | |
| Que.3 (B) | Answer the following questions. (ANY TWO) | (06) |
| | <ol style="list-style-type: none">1) What is IC? Explain digital integrated circuit.2) Write a short note on 2-to-4 line Decoder.3) Write a note on Multiplexer.4) Write short note on Asynchronous 4-bit binary counter. | |
| Que.3 (C) | Answer the following questions. (ANY ONE) | (05) |
| | <ol style="list-style-type: none">1) Explain 4-bit register with parallel load in detail.2) Explain octal to binary encoder. | |
| Que.4 (A) | Answer the following questions. | (03) |
| | <ol style="list-style-type: none">1) DR stands for2) MBR stands for3) The _____ points at an array of data in memory stack. | |

- Que.4 (B) Answer the following questions. (ANY TWO) (06)
- 1) Write short note on Register stack.
 - 2) Explain the major components of CPU.
 - 3) Explain Reverse Polish notation with suitable example.
 - 4) Explain Control word.
- Que.4 (C) Answer the following questions. (ANY ONE) (05)
- 1) Explain registers for basic computers in detail.
 - 2) Explain the general register organization of CPU in brief.
- Que.5 (A) Answer the following questions. (03)
- 1) What is a Control line?
 - 2) What is bus?
 - 3) DMA stands for
- Que.5 (B) Answer the following questions. (ANY TWO) (06)
- 1) Write a note on IO interfaces.
 - 2) Explain DMA in detail.
 - 3) Explain register memory.
 - 4) Describe bus request and bus grant.
- Que.5 (C) Answer the following questions. (ANY ONE) (05)
- 1) Explain a block diagram of computer with I/O processor.
 - 2) Draw and describe a block diagram of ROM chip.
