

**B.Sc.(IT) 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)
- 1) Draw the symbol and truth table of XOR gate.
  - 2) Full name of POS.
  - 3) What is Minterm
- Que.1(B) Answer the following questions (ANY TWO) (06)
- 1) Explain Universal Gate What is Boolean Algebra explain in detail.
  - 2) Explain Logical Gates OR, NOR.
  - 3) Explain K-Map with appropriate Example .
  - 4) Explain don't care condition.
- Que.1(C) Answer the following questions (ANY ONE) (05)
- 1) Explain block diagram of digital computer in detail.
  - 2) Explain DeMorgan's Theorem.
- Que.2 (A) Answer the following questions (03)
- 1) What is sequential circuit?
  - 2) Give full form of JK flip flop.
  - 3) What is interrupt?
- Que.2(B) Answer the following questions (ANY TWO) (06)
- 1) Describe Master-slave flip flop in detail.
  - 2) Explain Excitation table of Flip-flop.
  - 3) What is Edge-Triggered Flip-Flop?
  - 4) Explain T Flip Flop.
- Que.2(C) Answer the following questions (ANY ONE) (05)
- 1) What is combination circuit? Explain with types of combinational circuit.
  - 2) Describe State Table and State diagram?
- Que.3(A) Answer the following questions (03)
- 1) TTL stands for .....
  - 2) ECL stands for .....
  - 3) MOS stand for.....
- Que.3(B) Answer the following questions (ANY TWO) (06)
- 1) Describe IC, SSI, MSI.
  - 2) Explain octal to binary encoder.
  - 3) Explain 1-to-4 line De- Multiplexer.
  - 4) Write short note on Asynchronous 4-bit binary counter.
- Que.3(C) Answer the following questions (ANY ONE) (05)
- 1) Explain bidirectional shift register with p. arallel load
  - 2) Write a short note on 3-to-8 line Decoder.
- Que.4(A) Answer the following questions (03)
- 1) INPR stands for .....
  - 2) PC stands for .....
  - 3) AR stand for.....

- Que.4(B) Answer the following questions (ANY TWO) (06)
- 1) Write a note on Control word.
  - 2) Explain types of Registers.
  - 3) Explain Polish notation with suitable example
  - 4) Explain evaluation of arithmetic expressions with stack.
- Que.4(C) Answer the following questions (ANY ONE) (05)
- 1) Explain the major components of CPU.
  - 2) Explain the Memory stack organization in detail.
- 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 short note on IO buses.
  - 2) Write a note on DMA transfer.
  - 3) Describe burst transfer.
  - 4) Explain concept of Main Memory.
- 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 RAM chip.
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