1C8113

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MCA I - Sem. (Main & Back) Exam., 2022

MCA – 104 Computer Architecture

Time: 3 Hours **Maximum Marks: 70**

Min. Passing Marks: 28

Instructions to Candidates:

Attempt all ten questions from Part A. All five questions from Part B and three questions out of five questions from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used /calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. NIL 2. NIL

PART – A

(Answer should be given up to 25 words only) **[10×2=20]**

All questions are compulsory

Q.1 What are logic gates?

Q.2 What are registers? What are its various types?

Q.3 What is the task of ALU and CU?

Q.4 What do you mean by an instruction set?

Q.5 What is an interrupt?

Q.6 What are the various data movement instructions?

Q.7 Define Cache Memory.

Q.8 What are Assembler Directives?

Q.9 Explain the concept of Shared Memory.

Q.10 What is Distributed Multi-Computing?

PART – B

(Answer should be given up to 100 words only) **[5×4=20]**

All questions are compulsory

Q.1 What do you understand by Floating Point representation? Explain it with the help of an example.

Q.2 Differentiate between Hardwired and Micro-Programmed Control Unit.

Q.3 Explain the different types of Addressing modes in detail. What must be the address field of an indexed addressing mode instruction to make it the same as a register indirect mode instruction?

Q.4 Explain the concept of virtual memory with the help of diagram. Explain, how virtual address is mapped to actual physical address?

Q.5 Explain Array and Vector processors and their working in detail.

PART – C

Attempt any three questions **[3×10=30]**

Q.1 What is a Flip-flop? Draw the circuit diagram of a Master-Slave J-K Flip-flop using NAND gates. How race-around condition is eliminated in a Master-Slave J-K Flip-flop?

Q.2 What do you mean by Bus? What are the various types of Buses available in Computer Organization?

Q.3 What is Direct Memory Access (DMA)? Explain its working with suitable diagram.

Q.4 Write short notes on –

(a) Memory Hierarchy

(b) Associative Memory

(c) Auxiliary Memory

(d) Linking and Loading

Q.5 Explain the instruction set and architecture of 8085 Microprocessor with the help of a functional block diagram.
