

**MASTER OF COMPUTER APPLICATION
FIRST SEMESTER (SPECIAL REPEAT)
COMPUTER ORGANIZATION & ARCHITECTURE
MCA-101**

**SET
A**

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 3 hrs.

Full Marks: 70

Time: 30 mins.

Marks: 20

(Objective)

Choose the correct answer from the following:

1 × 20 = 20

1. Booth multiplication algorithm looks after multiplication with negative number as:
 - a. 2's Complement
 - b. 1's complement
 - c. Signed Magnitude
 - d. None
2. How many select lines would be required for an 8 : 1 MUX?
 - a. 2
 - b. 4
 - c. 8
 - d. 3
3. Which logic gate is used to design an adder circuit?
 - a. NAND
 - b. NOR
 - c. XOR
 - d. XNOR
4. Which of the following is responsible for arithmetic and logic operations?
 - a. ALU
 - b. Memory
 - c. Control Unit
 - d. All the above
5. Clock frequency of CPU is measured in terms of.....
 - a. Microsecond
 - b. Giga hertz
 - c. Gigabits
 - d. All the above
6. A computer program that converts entire program into machine language at a time is:
 - a. Assembler
 - b. Compiler
 - c. Interpreter
 - d. None
7. Which of the following is called data distributor?
 - a. MUX
 - b. DEMUX
 - c. Encoder
 - d. Decoder
8. In 8-bit microprocessor, how many opcodes are possible?
 - a. 246
 - b. 278
 - c. 250
 - d. 256
9. Which of the following is unidirectional?
 - a. Address bus
 - b. Data bus
 - c. Both a & b
 - d. None
10. Which of the following is a special purpose register of microprocessor?
 - a. Program counter
 - b. Instruction register
 - c. Accumulator
 - d. None

11. During a write operation if the required block is not present in the cache then..... occurs.
 - a. Write miss
 - b. Write latency
 - c. Write hit
 - d. Write delay
12. The bit used to indicate whether the block was recently used or not is.....
 - a. Reference bit
 - b. Dirty bit
 - c. Control bit
 - d. Idol bit
13. Any condition that causes a processor to stall is called as.....
 - a. Hazard
 - b. Page fault
 - c. System error
 - d. None of the mentioned
14. The computer cluster architecture emerged as a result of.....
 - a. ISA
 - b. Workstation
 - c. Super computers
 - d. Distributed systems
15. In the client server model of the clusterapproach is used.
 - a. Load configuration
 - b. FIFO
 - c. Bankers algorithm
 - d. Round robin
16. The CISC stands for.....
 - a. Computer Instruction Set Compliment
 - b. Complete Instruction Set Compliment
 - c. Computer Indexed Set Components
 - d. Complex Instruction Set computer
17. The iconic feature of the RISC machine among the following is.....
 - a. Reduced number of addressing modes
 - b. Increased memory size
 - c. Having a branch delay slot
 - d. All of the mentioned
18. Pipe-lining is a unique feature of.....
 - a. RISC
 - b. CISC
 - c. ISA
 - d. IANA
19. The pipeline process is also called as.....
 - a. Superscalar operation
 - b. Assembly line operation
 - c. Von Neumann cycle
 - d. None of the mentioned
20. In binary multiplication, the multiplier is stored in.....
 - a. B Register
 - b. A register
 - c. Q register
 - d. E register

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(Descriptive)

Time : 2 hr. 30 mins.

Marks : 50

[Answer question no.1 & any four (4) from the rest]

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| 1. What is Cache memory? Why cache is used in computer? How do you measure the performance of a cache? Explain. | 2+2+6=10 |
| 2. a) What is DMA? Explain DMA transfer.
b) Design a 2 to 4 decoder circuit with the help of truth table. | 5+5=10 |
| 3. a) Subtract $(15)_{10}$ from $(10)_{10}$ using 2's compliment method.
b) What is Universal gate? Realize an OR gate using NAND gates only. | 5+5=10 |
| 4. a) What do you mean by Addressing modes? Explain various addressing modes of 8085 microprocessor.
b) Explain the stages of instruction cycle of a computer with block diagram. | 5+5=10 |
| 5. a) Write an Assembly program to add two numbers.
b) Explain the organization of Status register of a basic computer with neat diagram. | 5+5=10 |
| 6. What is the role of peripheral devices? Define Interface. | 5+5=10 |
| 7. a) What is pipeline processing? Explain with a suitable example.
b) Realize a Full adder using two Half adder circuits. | 5+5=10 |
| 8. Explain Booth's multiplication algorithms with a suitable example. | 10 |

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