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M.Sc. (IT) (First Semester)
EXAMINATION, Dec. - Jan., 2021-22
Paper Fourth
COMPUTER SYSTEM ARCHITECTURE
(MSC(IT) - 104)

Time : Three Hours]

[Maximum Marks : 100

[Minimum Pass marks : 40

Note : Attempt all sections as directed.

Section - A

(Objective/Multiple Choice Questions)

(1 mark each)

Note : Attempt all questions.

Choose the correct answers:

1. Which of the following allows simultaneous write and read operations?
(A) ROM
(B) EROM
(C) RAM
(D) None of the above

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2. Which of the computer memory is fastest?
(A) Register
(B) RAM
(C) Hard disk
(D) None of the above
3. Which of the following format is used to store data?
(A) Decimal
(B) Octal
(C) BCD
(D) Hexadecimal
4. Which of the following memory of the computer is used to speed up the computer processing?
(A) Cache memory
(B) RAM
(C) ROM
(D) None of the above
5. Which of the following circuit is used to store one bit of data?
(A) Flip-Flop
(B) Decoder
(C) Encoder
(D) Register

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6. Which of the following is a way in which the components of a computer are connected to each other?
- (A) Computer parts
 - (B) Computer architecture
 - (C) Computer hardware
 - (D) None of the above
7. Subtraction in computers is carried out by -
- (A) 1's complement
 - (B) 2's complement
 - (C) 3's complement
 - (D) 9's complement
8. The collection of 8 - bits is called as -
- (A) Byte
 - (B) Nibble
 - (C) Word
 - (D) Record
9. In which of the following form the computer stores its data in memory?
- (A) Hexadecimal form
 - (B) Octal form
 - (C) Binary form
 - (D) Decimal form

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10. Where is the decoded instruction stored?
- (A) Registers
 - (B) MDR
 - (C) PC
 - (D) IR
11. CISC stands for -
- (A) Complex instruction set computer
 - (B) Complete instruction sequential compilation
 - (C) Complex instruction sequential compiler
 - (D) None of the above
12. Which of the following is an essential data transfer technique?
- (A) MMA
 - (B) DMA
 - (C) C A D
 - (D) C A M
13. Which memory device is generally made of semiconductors?
- (A) Hard - disk
 - (B) Floppy - disk
 - (C) Cd - disk
 - (D) RAM

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14. The CPU chip used in the computer system is made up of -
- (A) Gold
 - (B) Silver
 - (C) Silicon
 - (D) Copper
15. The binary equivalent of the decimal number 10 is -
- (A) 0010
 - (B) 1010
 - (C) 10
 - (D) 010
16. A collection of wires that connects several devices or computer parts is called:
- (A) Link wire
 - (B) Bus
 - (C) Cable
 - (D) Bidirectional
17. Which unit is used to measure the CPU's processing power?
- (A) GIPS
 - (B) MIPS
 - (C) KIPS
 - (D) Nano seconds

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18. What is a "register"?
- (A) Digital circuit
 - (B) Combinational circuit
 - (C) Arithmetic circuit
 - (D) Sequential circuit
19. Which of the following is the fastest means of memory access for CPU?
- (A) Registers
 - (B) Cache
 - (C) Main - Memory
 - (D) Virtual Memory
20. What does ASCII stands for?
- (A) American scientific code for interchanging information
 - (B) American standard code for interchanging information
 - (C) American standards code for information interchange
 - (D) American scientific code for information interchange.

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Section - B

(Very Short Answer Type Questions)

(2 marks each)

Note : Attempt all questions. Write answer using 2-3 sentences.

1. Convert $(7014)_8$ into decimal number.
2. Perform the binary arithmetic operation:
 $(10011110)_2 + (11101101)_2$
3. Describe RTL,
4. Explain program loops.
5. Explain concept of Bus.
6. Describe Assembler.
7. What is DMA?
8. Describe Hit Ratio.
9. Describe Virtual memory.
10. Explain associative mapping.

Section - C

(Short Answer Type Questions)

(3 marks each)

Note : Attempt all questions. Answer precisely using < 75 words.

1. Subtract by 2's complement method. $10100 - 10110$.

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2. Explain error detection codes.
3. Explain instruction cycle.
4. Explain computer Register.
5. Explain stack organization.
6. Explain RISC Vs CISC.
7. Explain I/O processor.
8. Explain the concept of hand shaking.
9. What is virtual memory?
10. Explain modes of transfer.

Section - D

(Long Answer Type Questions)

(6 marks each)

Note : Attempt all questions. Answer precisely using 150 words.

1. Explain logic gates with proper diagram. Discuss about combinational circuit.
2. Explain various micro - operation. Explain interrupt cycle.
3. Explain input - output interfaces? Discuss about DMA with proper description.
4. Explain various modes of data transfer. Discuss hand-shaking and asynchronous serial data transfer using example.
5. Explain static & dynamic RAM and also explain various types of ROM.