

BACHELOR OF COMPUTER APPLICATION
Third Semester (Repeat)
COMPUTER ORGANIZATION & ARCHITECTURE
(BCA - 14)

Duration: 3Hrs.

Full Marks: 70

Part-A (Objective) =20
Part-B (Descriptive) =50

(PART-B: Descriptive)

Duration: 2 hrs. 40 mins.

Marks: 50

Answer any four from Question no. 2 to 8
Question no. 1 is compulsory.

1. What do you mean by computer organization and architecture? Explain the Von Neumann architecture. (3+3+4=10)
2. What do you mean by normalization? How negative numbers are represented? Perform $(11) + (-5)$ using 1's and 2's complement. (2+2+6=10)
3. Differentiate between hardware control and micro programmed control. Explain instruction cycle. (5+5=10)
4. Explain pipelining. Give the characteristics of RISC and CISC. (4+6=10)
5. What do you mean by assembly language? What is an assembler? Write an assembly language program to subtract two numbers. (3+2+5=10)
6. Explain the basic computer instruction formats. Explain direct and indirect addressing mode with diagram. (5+5=10)
7. Differentiate between programmed I/O and interrupt-initiated I/O. Explain direct memory access (DMA). (4+6=10)
8. What is main memory? What is cache memory? Explain magnetic disk with diagram. (3+2+5=10)

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Duration: 20 minutes

Marks – 20

(PART A - Objective Type)

I. Choose the correct answer:

1×20=20

1. The decimal equivalent of $(10001)_2$ is
A. 9 B. 17 C. 25 D. None of the above
2. A..... is a group of devices that store digital data.
A. register B. object C. component D. datum
3. A gate is a logical circuit with one or more input signals but only..... output signal.
A. one B. two C. three D. four
4. The ALU carries out arithmetic and logic operations. It processes..... numbers rather than decimal numbers.
A. decimal B. hexadecimal
C. binary D. octal
5. What is the 2's complement of 1100 number?
A. 1011 B. 0011 C. 1111 D. 0100
6. What is the 1's complement of 0010 1101 number?
A. 0010 1101 B. 1101 0010
C. 1010 1100 D. 1010 1100
7. A flip-flop can store:
A. 1 bits of data B. 2 bits of data
C. 3 bits of data D. 4 bits of data

8. The radix of the binary number is:
A. 3 B. 1 C. 2 D. 10
9. Which of the following registers is loaded with the contents of the memory location pointed by the PC?
A. Memory Address Register B. Memory Data Register
C. Instruction Register D. Program Counter
10. Which of the following registers is used to keep track of address of the memory location where the next instruction is located?
A. Memory Address Register B. Memory Data Register
C. Instruction Register D. Program Counter
11. Which is the computer memory that does not forget?
A. ROM B. RAM C. PROM D. all of the above
12. Which of the following is an example of non-volatile memory?
A. RAM B. VLSI C. LSI D. ROM
13. Which of the following memories must be refreshed many times per second?
A. Static RAM B. Dynamic RAM
C. EPROM D. ROM
14. 1 byte is equal to
A. 16 bits B. 4 bits C. 8 bits D. 32 bits
15. Conversion of binary number 11001_2 to its decimal number is
A. 27_{10} B. 39_{10} C. 50_{10} D. 25_{10}
16. Decomposing a sequential process into sub operations and executing each sub operation concurrently with each other is known as.....
A. Pipelining B. Vector
C. Array D. None of the above

17. Instead of giving the operand address, if operand is given directly in the instruction itself, then it is known as.....

- A. Direct addressing
- B. Indirect addressing
- C. Immediate mode
- D. All of the above

18. CISC stands for

- A. Computer Instruction Set Computer
- B. Comparing Instruction Set Computer
- C. Complex- Reduced Interface Set Computer
- D. Complex Instruction Set Computer

19. A computer that employs a microprogrammed control unit will have

- A. a main memory
- B. a control memory
- C. A and B
- D. none of the above

20. In Direct memory access (DMA), CPU is used as an intermediate path.

- A. True
- B. False
