Code No. 6086N Sub.Code: BCAM14

MCA(CBCS) DEGREE EXAMINATION, NOVEMBER 2020

First Semester

COMPUTER APPLICATIONS

COMPUTER ORGANIZATION AND ARCHITECTURE

(For those who joined in July 2020 onwards)

Time: Three hours Max.Marks:75

Part –A (10x1=10 marks)

Answer all questions, Choose the correct answer

1. The _____ format is usually used to store data.
   a) BCD b) Decimal c) Hexadecimal d) Octal

2. Which of the following shift operations divide a signed binary number by 2?
   a) Logical left shift b) Logical right shift
   c) Arithmetic left shift d)Arithmetic right shift

3. The address mapping is done, when the program is initially loaded is called?
   a) Relocation b) Dynamic relocation
   c) Static relocation d) Executable relocation

4. The circuit used to store one bit of data is known as
   a) Register b) Encoder c) Decoder d) Flip Flop

5. Each word in control memory contains within it a _____
   a) microword b) macroword c) microinstruction d) macroinstruction

6. The_____ field that specifies the operation to be performed.
   a) address field b) mode field c) instruction field d) operation code

7. The usual BUS structure used to connect the I/O devices is
   a) Star BUS structure b) Multiple BUS structure
   c) Single BUS structure d) Node to Node BUS structure

8. In computers, subtraction is generally carried out by
   a) 9's complement b) 10's complement c) 1's complement d) 2's complement

9. Write Through technique is used in which memory for updating the data
   a) Virtual memory b) Main memory c) Auxiliary memory d) Cache Memory

10. The feature of multi processor architecture is
    a) task dependent b) single bus provider for many processors
    c) design is for a specific task d) all of the mentioned.

Part B (5 x 5 = 25 Marks)

Answer all Questions, Choosing either (a) or (b), Each answer should not exceed 250 words

11. a) State and prove De Morgan theorems.

[Or]

b) Explain decoders with example.

12. a) Illustrate 4-bit binary adder with diagram

[Or]

b) Write an assembly language program to subtract two numbers.

13. a) Explain microprogrammed control organization with diagram.

[Or]

b) Discuss Vector processing with example.

14. a) Describe addition algorithm with example.

[Or]

b) Enumerate the Peripheral devices.

15. a) Explain about Main Memory.

Or

b) Discuss Interconnection structures with example.

Part C (5 x 8 = 40 Marks)

Answer all Questions, Choosing either (a) or (b), Each answer should not exceed 600 words

16. a) Explain any five logic gates with graphic symbols and truth tables.

[Or]

b) Simplify using k-map

$F(w, x, y, z) = \sum (0,1,2,4,5,6,8,9,12,13,14)$ .

17. a) Illustrate the ALU with diagram.

[Or]

b) Discuss subroutines with examples.

18. a) Illustrate stack organization with example.

[Or]

b) Discuss Pipelining with example.

19. a) Illustrate BCD adder with suitable diagram.

[Or]

b) Elucidate Direct Memory Access with neat example.

20. a) Discuss the memory hierarchy in computer system.

[Or]

b) What do you mean by multiprocessor? Discuss the characteristics of multiprocessors.