(6 pages) Reg. No. : .....

**Code No. : 20250 E** **Sub. Code : SSCA 4 A/ ASCA 41**

B.C.A. (CBCS) DEGREE EXAMINATION, NOVEMBER 2022.

Fourth Semester

Computer Application

Skill Based Subject — MICROPROCESSOR

(For those who joined in July 2017 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. A group of four bits is known as ————

(a) Bit (b) Byte

(c) Word (d) Nibble

2. The ———— register is used to perform arithmetic and logic operations.

(a) Program counter (b) Stack pointer

(c) Accumulator (d) Flag

3. Dynamic memory stores the bit as a ————

(a) signal (b) voltage

(c) charge (d) word

4. MPU stands for ————

(a) Macro Processing Unit

(b) Micro Processing Unit

(c) Macro Programming Unit

(d) Micro Programming Unit

5. The process of breaking the given task into small units that can be built independently is called ————

(a) modular-design approach

(b) top-down approach

(c) bottom-up approach

(d) simple-design approach

6. What is the result obtained when the rotate instruction RLC is performed on the data 0000 1000?

(a) 0100 0000 (b) 0000 0100

(c) 0000 0001 (d) 0001 0000

7. ———— is a procedure in which various information is passed between a calling program and a subroutine.

(a) Parameter passing (b) Program passing

(c) Instruction passing (d) Data passing

8. When the instruction RET is executed the stack pointer is incremented by ————

(a) 0 (b) 1

(c) 2 (d) 3

9. Multiplication can be performed by ————

(a) repeated addition

(b) repeated subtraction

(c) subtraction followed by addition

(d) addition followed by subtraction

10. The instruction that performs the function of adjusting a BCD sum in the 8085 instruction set is ————

(a) DCX (b) DAA

(c) ADI (d) ANI



PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) List down the various types of microcomputers and discuss about each type briefly.

Or

(b) What is an instruction? Explain the various types of instruction with suitable examples.

12. (a) What is the use of READ/WRITE memory? Explain its types.

Or

(b) Briefly explain the externally initiated signals and interrupts.

13. (a) Discuss the various branch operations of 8085 instruction set.

Or

(b) What is the difference between LXI and MVI instructions? Explain LXI instructions with appropriate examples.

14. (a) Draw a flowchart and write a program to set up a hexadecimal counter.

Or

(b) Write down a program to implement traffic signal controller with appropriate flowchart.

15. (a) Write a program to convert an 8-bit binary number 9FH to ASCII hex code (Assume that the number is stored in memory location XX50H).

Or

(b) Write down the program and subroutine to subtract two 16-bit numbers with carry.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)
Each answer should not exceed 600 words.

16. (a) What is a microprocessor? Describe the role of other components associated to a microprocessor in a system.

Or

(b) Give a detailed account on

(i) 8085 data format

(ii) 8085 instruction word size.

17. (a) What is the function of ROM? Explain its types.

Or

(b) Write a detailed account on the 8085 microprocessor.



18. (a) Explain the various arithmetic operations of 8085 instruction set with suitable examples.

Or

(b) Describe the functions of arithmetic operations related to memory with examples.

19. (a) List down the common errors in a counter program and debugging with an illustration.

Or

(b) Briefly explain the following :

(i) Subroutine documentation and parameter passing

(ii) Restart (RST) instructions

(iii) Conditional call instructions

(iv) Conditional return instructions.

20. (a) A binary number is stored in memory location BINBYT. Convert the number into BCD and store each BCD as two unpacked BCD digits in the output buffer. To perform this task, write a main program and two subroutines - one to supply the powers of ten and the other to perform the conversion.

Or

(b) Write down the program and subroutine to multiply tow 8-bit unsigned numbers.

———————