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Reg. No.....

Name.....

B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, NOVEMBER 2022

Fourth Semester

Core Course (Second Core)—MICROPROCESSOR, ARCHITECTURE, PROGRAMMING AND APPLICATIONS

[For the Programme B.Sc. Computer Maintenance and Electronics]

(2013—2016 Admissions)

Time : Three Hours Maximum Marks : 80

Part A

Answer **all** *questions.*
Each question carries 1 *mark.*

1. ———— bus is a group of bidirectional lines used to transfer data between the MPU and peripherals.
2. The control signal used to distinguish between an I/O operation and memory operation is ————.
3. The 8085 microprocessor has ———— number of flag registers.
4. Accumulator is a ———— bit register.
5. The instruction which can load either 16 bit data or 16 bit address into the register pair is ————.
6. Program counter is a ———— bit register.
7. The call location for the interrupt RST 5.5 is ————.
8. In 8085, the SOD pin is used for ————.
9. ———— flag is set if the ALU operation results in zero.
10. The ———— instructions are primarily used in arithmetic multiply and divide operations and for serial data transfer.

(10 × 1 = 10)

Part B

Answer any **eight** *questions.*
Each question carries 2 *marks.*

11. Specify the four control signals commonly used by the 8085 microprocessor.
12. Explain the functions of ALE and IO/M signals of the 8085 microprocessor.

Turn over

13. Define opcode and operand.

14. List the four categories of 8085 instructions that manipulate data.

15. Explain the differences between a JMP instruction and CALL instruction.

16. List the interrupts of 8085 microprocessor.

17. Mention the purpose of SID and SOD lines.

18. Assume (3000) = 05H and (3001) = 03H. What are the contents of H and L registers after the execution of LHLD 3000H ? Explain.

19. Explain the function of the zero flag.

20. Differentiate between maskable and non-maskable interrupts.

21. Why the contents of the stack pointer is decremented when a PUSH operation is executed ?

22. Why do we use XRA A instruction ?

(8 × 2 = 16)

Part C

Answer any **six** *questions.*
Each question carries 4 *marks.*

23. Differentiate between memory mapped and pheriperal mapped I/O. How many maximum devices can be connected to the 8085, using each scheme of mapping ?

24. Explain the register organization of 8085 microprocessor.

25. Explain the various techniques used to specify data for instructions.

26. Explain the working of CMP instruction with examples.

27. Write an 8085 program to add two 8 bit binary numbers. Assume the numbers are stored in memory and store the result in memory.

28. Write an 8085 Assembly Language Program to generate a 1.28 ms delay.

29. Write a subroutine to check whether a given byte in register B is even or odd. If it is even, register D should be loaded with 00H or if it is odd, the register D should have FFH.

30. With examples, explain the direct addressing mode of 8085 microprocessor.

31. Explain SIM and RIM instructions.

(6 × 4 = 24)

Part D

Answer any **two** *questions.*
Each question carries 15 *marks.*

32. Design a microprocessor system to interface an 8K × 8 EPROM and 8K × 8 RAM.

33. With a neat Block diagram explain the architecture of 8085 microprocessor.

34. Write a 8085 program to setup an up down counter to count from 0 to 9 and 9 to 0 continuously with 2 seconds delay between each count.

35. Explain the interrupt process in 8085 microprocessor.

(2 × 15 = 30)