

Dr. Babasaheb Ambedkar Open University
Term End Examination February – 2026

Course	: BCAR	Date	: 22-Feb-2026
Subject Code	: BCAR-303	Time	: 11:30am to 01:45pm
Subject Name	: System Programming and Introduction to Microprocessor	Duration	: 02.15 Hours
		Max. Marks	: 70

Section A

Answer the following (Attempt any three)

(30)

1. Define System Programming. Explain the difference between System Software and Application Software with examples.
2. Describe the Architecture of the 8085 Microprocessor in detail, including its register organization and ALU.
3. What is an Assembler? Explain the design of a Two-Pass Assembler and the functions performed in each pass.
4. Explain the 8085 Addressing Modes (Immediate, Register, Direct, Indirect, and Implicit) with one example each.
5. What is a Macro? Explain the process of Macro expansion and differentiate between Macros and Procedures.

Section B

Answer the following (Attempt any four)

(20)

1. Explain the functions of a Loader and describe the "Absolute Loader" scheme.
2. Discuss the role and types of Linkers in the program execution process.
3. Explain the 8085 Instruction Cycle, including Fetch cycle and Execute cycle.
4. Write a short note on the flag register of the 8085 Microprocessor.
5. Explain the "EQU" and "ORIGIN" assembler directives with examples.
6. Describe the steps involved in the compilation process (Phases of a Compiler).

Section C

Part – A (Multiple Choice Questions)

(10)

- 1 Which of these is a system software?

A. MS Word
B. Operating System
C. Photoshop
D. Tally
- 2 The 8085 Microprocessor is a/an _____ bit processor.

A. 4-bit
B. 8-bit
C. 16-bit
D. 32-bit
- 3 Which register is known as the 'Accumulator' in 8085?

A. Register B
B. Register C
C. Register A
D. Register H

- 4 The Program Counter (PC) in 8085 is a _____ bit register.
- A. 8
 - B. 16
 - C. 4
 - D. 32
- 5 Which assembler directive is used to define a constant?
- A. START
 - B. END
 - C. EQU
 - D. DS
- 6 A Linker produces which of the following as output?
- A. Source code
 - B. Object code
 - C. Executable machine code
 - D. Assembly code
- 7 Which pin of 8085 is used to reset the microprocessor?
- A. TRAP
 - B. HOLD
 - C. RESET IN
 - D. INTR
- 8 In 8085, the 'HL' register pair is primarily used as a:
- A. Counter
 - B. Memory Pointer
 - C. Stack Pointer
 - D. I/O Port
- 9 The process of replacing a macro name with its group of instructions is called:
- A. Compilation
 - B. Assembly
 - C. Macro Expansion
 - D. Linking
- 10 Which flag is set when the result of an arithmetic operation is zero?
- A. Sign Flag
 - B. Carry Flag
 - C. Zero Flag
 - D. Parity Flag

Part – B (Do as Directed)

(10)

State whether the following statements are true or false

- 1 A Compiler translates the entire source program into machine code at once.
- 2 8085 has 16 address lines.
- 3 The 'MOV A, B' instruction uses immediate addressing mode.
- 4 Procedures save memory space as compared to Macros.
- 5 Stack is a LIFO (Last-In-First-Out) data structure used in microprocessors.
- 6 An Assembler is an example of application software.
- 7 The 8085 microprocessor has 5 hardware interrupts.
- 8 A Loader is responsible for placing the executable program into main memory.
- 9 In a Two-Pass assembler, symbols are defined in Pass 2.
- 10 8085 can address up to 64 KB of memory.
