(ii) MVI B, F8H.

(iii) MOV C, A.

(iv) MOV D, B.

(v) HLT. (6)

(c) Describe the different addressing modes of 8085 with suitable examples. (5)

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321606

May-2026

B.Sc. (Physics) VI SEMESTER

Microprocessor (SECP24-601)

Time: 3 Hours] [Max. Marks : 75

Instructions :

1. *It is compulsory to answer all the questions (1.5 marks each) of Part-A in short.*
2. *Answer any four questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART–A

1. (a) Convert 127_{10} to binary. (1.5)

(b) Convert 1100.01_2 to decimal. (1.5)

(c) Convert the following octal to binary (i) 257 (ii) 3527. (1.5)

(d) Convert the following hexadecimal numbers to decimal (i) A6. (ii) 3A5. (1.5)

(e) What is the role of clock in a microprocessor? (1.5)

(f) Why is data bus bi-directional? (1.5)

(g) What is "stack" in microprocessor? (1.5)

(h) What is ALE? Explain the functions of ALE in 8085. (1.5)

(i) How many memory locations can be addressed by a microprocessor with 14 address lines? (1.5)

(j) What is the purpose of DCR instruction? (1.5)

PART–B

2. (a) Add the following binary numbers : (5)

(1) 11010 + 11100.

(ii) 101011 + 110101.

(b) Subtract 100100 from 11100010 using 2's complement. (4)

(c) Subtract the hexadecimal number $D9_{16}$ from $B6_{16}$ and show the result in decimal, octal and hexadecimal number. (6)

3. (a) Convert the following binary numbers to hexadecimal

(i) 10110110_2.

(ii) 11101101_2.

(iii) 11001011_2. (6)

(b) Convert the following decimal numbers to hexadecimal (6)

(i) 45_{10}.

(ii) 125_{10}.

(iii) 255_{10}.

(c) Represent –13 in 8-bit 2's complement form. (3)

4. (a) Explain the register organization of 8085. (8)

(b) Explain the pin diagram of 8085. (7)

5. (a) What are maskable and non-maskable interrupts ? Explain with examples. (7)

(b) What is the role of address bus, data bus and control bus? (8)

6. (a) What are the various flags used in 8085? Explain the significance of each flag. (6)

(b) Draw the neat block diagram of 8085 microprocessor. Also discuss the significance of each block. (9)

7. (a) Define opcode and operand and specify the opcode and operand in the instruction MOV H, L. (4)

(b) Specify the content of the registers and status of flags if the following instruction is carried out

(i) MVI A, 00H.