Subject Code: BEE-257

Roll No.

B. Tech
Year: II /Sem: IV
MINOR TEST 2025 - 2026
Subject: Microprocessor: Architecture, Programming, and Interfacing

Time: 2 Hrs. **Max. Marks: 20**
Note: Answer all questions.

Q.1 Attempt any three parts of the following. Q. 1(a) is compulsory.

(a). Draw and explain the pin diagram of the 8085 microprocessor. 4

(b). Explain the addressing modes available in the 8085 Microprocessor. 2

(c). What are the different types of registers available in the 8085 Microprocessor? 2

(d) Write a program in 8085 Microprocessor to add 2, 8-bit numbers stored in registers A and B and store the result in register D. 2

Q.2 Attempt any two parts of the following. Q. 2(a) is compulsory.

(a). Write a program in the 8085 Microprocessor to multiply 2, 8-bit numbers. The 2 numbers are to be loaded in the D and C registers. Store the result in the HL register pair 4

(b). Draw and explain the FLAG Register available in the 8085 Microprocessor. 2

(c). Write a program in the 8085 Microprocessor to exchange the 8-bit data stored in the B and C registers 2

Q.3 Attempt any two parts of the following. Q. 3(a) is compulsory.

(a). Write a program in the 8085 Microprocessor to transfer 10 bytes of data stored in memory location starting from C100H and store the result in memory location starting from C200H. 4

(b). Explain the function of the following instructions- 2
(1) MOV R, M (2) LXI Rp, data-16 bit (3)LDA address (4)CMP R

(c). Differentiate between Jump and Call instructions 2

Subject Code- BEE 257 Roll No. | | | | | | | | | | |

B. Tech
EE II Year (IV Sem)
MAJOR EXAMINATION 2025-26
Subject Name: Microprocessor-Architecture, Programming, and Interfacing

Time: 3Hrs. Max. Marks: 50M

Note: Attempt all questions. Each question carries equal marks.

Q.1 Attempt any five parts of the following. **(5*2=10)**

(a) Explain the role of ALE, $\overline{RD}$, $\overline{WR}$, and IO/$\overline{M}$ signals in the Intel 8085.
(b) What is a stack in 8085? Explain PUSH and POP operations.
(c) What is an interrupt? Explain the hardware and software interrupts in the 8085 Microprocessor.
(d) Explain the concept of memory-mapped I/O and I/O-mapped I/O.
(e) Describe the modes of operation of Intel 8255.
(f) What is DMA? Explain the basic concept of Direct Memory Access.
(g) Explain the function of the instruction queue in Intel 8086.

Q.2 Attempt any two parts of the following. **(2*5=10)**

(a). Draw and explain the architecture of the 8085 Microprocessor
(b). Explain the bus timing diagram of the opcode fetch cycle in 8085.
(c). Explain the following instructions with examples:
ANI data, RRC, DCX Rp, XRA A

Q.3 Attempt any two parts of the following. **(2*5=10)**

(a). (i) Explain addressing modes of 8085 with suitable examples.
(ii) Explain the control and status signals of 8085
(b). Write an 8085 program to arrange a set of 10 numbers in ascending order, stored at location starting from C200 to location C210.
(c). Draw the memory write machine cycle.

Q.4 Attempt any two parts of the following. **(2*5=10)**

(a). (i) Explain the serial and parallel data transfer. Explain asynchronous data transfer in brief.
(ii) Write an 8085 program to find the smallest number from a set of 10 numbers stored at locations starting from C200 to C210.
(b). Draw and explain the architecture of the 8253 PIT.
(c). Draw and explain the pin diagram of 8255 PPI.

Q.5 Attempt any two parts of the following. **(2*5=10)**

(a). Explain the architecture of Intel 8086 with BIU and EU.
(b). (i) Explain memory segmentation in 8086.
(ii) Explain the addressing modes of 8086 with examples.
(c). (i) Explain the flag register of 8086 and its types.
(ii) Explain instruction pipelining and its advantages.

Sub Code: **BEE-304**

Roll No. | | | | | | | | | | |

B. Tech.

Year: III /Sem: V

Test- I (Examination): 2025-26

Subject: Microprocessor: Architecture, Programming and Interfacing

Time: 1 Hr. Max Marks: 10

Note: Attempt ALL questions. Each question carries equal marks

			Marks	CO	BL	PO
Q.1		Attempt any Two parts of the following. **Q. 1 (a) is compulsory.**				
	a)	Draw and Explain the Pin Diagram of 8085 microprocessor with neat labelled diagram.	3	1	1,2	1,2
	b)	Differentiate between Jump and Call Instruction of 8085 microprocessor	2	1,2	1,2,3	1,2
	c)	Explain in brief the Register Group available in 8085.	2	1,2	1,2,3	1,2
Q.2		Attempt any Two parts of the following. **Q. 2 (a) is compulsory.**				
	a)	(i)Explain the detail the classification of interrupts of 8085. (ii) Write a program for 8085 µP to multiply two 8 bit number, store the result at C200 memory location	3	1,2	1,2,3, 4	1,2
	b)	(i)Explain LHLD Address and CMP R Instructions (ii)Write a program to subtract two 8 bit data.	2	1,2	1,2,4	1,2
	c)	Write a program for 8085 µP to add two 8 bit number and result can be 16 bit	2	1,2	1,2,4	1,2

Sub Code: BEE-304

Roll No. | | | | | | | | | | |

B. Tech.

Year: III /Sem: V

Test- II (Examination): 2025-26

Subject: Microprocessor: Architecture, Programming and Interfacing

Time: 1 Hr. Max Marks: 10

Note: Attempt ALL questions. Each question carries equal marks

Q.1 Attempt any Two parts of the following. **Q. 1 (a) is compulsory.** Marks

a) Draw and explain the Pin diagram of 8255 Programmable peripheral Interface (PPI). Explain the handshaking operation in detail. 3

b) Draw and Explain 8253 Programmable Interval Timer (PIT) architecture in detail. 2

c) Write an assembly language program to find smallest numbers in an array of 10 data using 8085 Instruction set. 2

Q.2 Attempt any Two parts of the following. **Q. 2 (a) is compulsory.**

a) (iii) Draw and explain architecture diagram of 8086 Microprocessor. 3
(iv) Explain MOV instructions of 8086 with an example

b) Explain memory segmentation in 8086 Microprocessor 2

c) Distinguish between 8085 and 8086 Microprocessor 2

Subject Code- BEE 304A

B. Tech
EE III Year (V Sem)
MAJOR EXAMINATION 2025-26
Subject Name: Microprocessor-Architecture, Programming and Interfacing

Time: 3Hrs. **Max. Marks: 50M**

Note: Attempt all questions. Each question carries equal marks.

Q.1 Attempt any five parts of the following. **(5*2=10)**

(a) Explain the control and timing unit of 8085 Microprocessor.
(b) Difference between software and hardware interrupts in 8085 Microprocessor.
(c) Explain the evolution of Microprocessors.
(d) Explain the purpose of SID and SOD lines. State the applications of 8085 microprocessor.
(e) Draw pin diagram of Intel 8255 Programmable peripheral Interface (PPI).
(f) Explain the different arithmetic instructions available in 8085 microprocessors.
(g) Explain the feature of instruction pipelining and queue in 8086 Microprocessor architecture.

Q.2 Attempt any two parts of the following. **(2*5=10)**

(a). Draw and explain the architecture of 8085 Microprocessor
(b). (i) Distinguish between Microprocessor and Microcontroller.
(ii) Explain the following instructions:
ADD B, MVI, 35H, LXI B,2000H, MOV A, B, and SBB C
(c). (i) Draw and Explain Flag Register in 8085 Microprocessor.
(ii) Write a program to exchange numbers stored in register A and register B

Q.3 Attempt any two parts of the following. **(2*5=10)**

(a). (i) Define T-state, machine cycle and Instruction Cycle in 8085 Microprocessor.
(ii) Draw and explain Memory write machine cycle
(b). (i) Explain the addressing modes of 8085 Microprocessor (ii) Explain the following instructions:
SUB B, JNZ, STAX, O and DCX Rp
(c). Draw OPCODE fetch machine cycle.
Write a program to add 10 data bytes. Data is stored in memory locations starting from C200. The result is 8 bits only. Store the result in C300 location.

Q.4 Attempt any two parts of the following. **(2*5=10)**

(a). (i) Explain the serial and parallel data transfer. Explain asynchronous data transfer in brief.
(ii) Write an 8085 program to transfer set of 10 numbers stored at location starting from C200 to location C300.
(b). (i) Draw and explain the Pin diagram of Intel 8253 Programmable Interval Timer.
(ii) Write an 8085 program to find the smallest number in an array of 10 data using 8085 instructions set.
(c). (i) Explain Direct Access Memory (DMA) 8257 Controller Architecture and working.
(ii) Write a 8085 program to subtract 2 numbers stored in register B and D.

Q.5 Attempt any two parts of the following. **(2*5=10)**

(a). (i) Draw and explain the architecture of Intel 8086
(ii) Explain the following instructions in 8086
(1) MOV AX, BX (2) XCHG AX, DX (3) INC BL (4) ADD CL, BL
(b). (i) Draw and explain each flag of Flag Register of 8086 microprocessors.
(ii) Explain the data segmentation in 8086 Microprocessor.
(c). (i) Explain with example the different addressing modes supported by 8086.
(ii) Which 8086 general purpose registers can't be used in the indirect memory access addressing?