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BTECH
(SEM VI) THEORY EXAMINATION 2024-25
MICROPROCESSOR AND MICROCONTROLLER

TIME: 3 HRS**M.MARKS: 100****Note:** Attempt all Sections. In case of any missing data; choose suitably.**SECTION A****1. Attempt all questions in brief.****2 x 10=20**

Q no.	Question	CO	Level
a.	What do you mean by the stack? Discuss the stack register operation in 8085 with suitable example.	1	K2
b.	Which bit of flag register will get set if there is a carry from D3 to D4 in 8085.	1	K2
c.	Which part of the 8086's memory address space can be used to store the instruction of a program?	2	K3
d.	Name two dedicated operations assigned to the CX register.	2	K3
e.	MOV 45, #4FH MOV R0, 45H INC R0 MOV @R0, #30H What is the location value of R0 and the content at that place?	4	K4
f.	How many total external data memory that can be interfaced to the 8051?	4	K2
g.	When the 8051 is reset and the \overline{EA} line is HIGH, where the programs counter points to the first program instruction?	5	K3
h.	What do you mean by PSW and Flag Bits? Explain.	1	K2
i.	Why Interrupts are required? Explain.	2	K3
j.	List various addressing modes in 8085.	1	K2

SECTION B**2. Attempt any three of the following:****10 x 3 = 30**

Q no.	Question	CO	Level
a.	Explain the program status register of 8085. Discuss the condition for the set and reset process of different bits of status register.	1	K3
b.	Draw the pin-diagram of 8085 microprocessors and give the name of the signals associated with timing and control circuit and explain. Discuss the functioning of S_0 , S_1 and IO/\overline{M} for different operation of 8085.	1	K4
c.	What is the operation is being performed by the given program; Explain MOV AX, F000H MOV DS, AX MOV SI, 0400H MOV DI, 0600H MOV CX, 64H NEXT: MOV AH, [SI] MOV [DI], AH INC SI INC DI LOOP NEXT HLT	2	K4
d.	Explain the CWR of 8255 Programmable Peripheral Interface and also discuss the BSR mode.	3	K3
e.	Explain the execution of instructions: LXI H 2000H, LDA 2000 H, RAL, JNC, MVI. State the memory occupied by these instructions.	3	K2



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TIME: 3 HRS**M.MARKS: 100****SECTION C****3. Attempt any one part of the following: 10 x 1 = 10**

Q no.	Question	CO	Level
a.	Calculate the time required by microprocessor 8085 for followings 1. For fetching any Op-code 2. For Memory Read 3. For Memory write	1	K3
b.	Explain the dual nature of the different ports of the 8051. Also discuss why it is required to write 1 before making any port as input port.	4	K3

4. Attempt any one part of the following: 10 x 1 = 10

Q no.	Question	CO	Level
a.	Write an 8086 assembly language program to count the number of ones in a 16-bit register.	2	K5
b.	What is the difference between the interrupt and polling? Why interrupt is preferred over the polling. Also discuss the steps involved to execute any interrupt	5	K3

5. Attempt any one part of the following: 10 x 1 = 10

Q no.	Question	CO	Level
a.	What do you mean by minimum mode and maximum mode of operation in 8086? Give the different signals and model associated with these modes	2	K4
b.	Write a program in which the 8051 reads data from P1 and writes it to P2 continuously and add the same data with 55H with carry reflection.	4	K5

6. Attempt any one part of the following: 10 x 1 = 10

Q no.	Question	CO	Level
a.	If an oven and a LED is connected to the P1.3 and P1.4 respectively, then write a program to add two numbers and if there is carry then LED glows and if no carry the oven start heating.	5	K5
b.	Interface EPROM of 16 K using 8K X 8 chips and a RAM of 8K using 4K X 8 chips to the system lines of 8085 using a 3X8 decoder.	2	K5

7. Attempt any one part of the following: 10 x 1 = 10

Q no.	Question	CO	Level
a.	Write an assembly language program for 8085 and 8051 to find the factorial of a given number	4	K4
b.	Demonstrate the architecture of 8253/54 Programmable Timer and discuss the control word register	3	K5