Registration No.: | | | | | | | | | | |

Total Number of Pages: 02

Course: B.Tech/IDD
Sub_Code: ECPC3001

5th Semester Regular Examination: 2025-26
SUBJECT: Microprocessor & Microcontroller
BRANCH(S): AEIE, CSE, ECE, EEE, EEVDT, ELECTRICAL, ELECTRICAL & C.E, ETC, CSE, EE, ECE
Time: 3 Hours
Max Marks: 100
Q.Code: U206

Answer Q1 (Part-I) which is compulsory, any eight from Part-II and any two from Part-III.
The figures in the right-hand margin indicate marks.

Part-I

Q1 **Answer the following questions:** **(2 x 10)**

a) What is clock frequency and what is clock frequency of 8086?
b) Mention the string instructions available in an 8086 processor.
c) What is the use of assembly level programming?
d) What is the control word used in 8255 and where it is stored?
e) With example mention how to calculate the physical address for fetching the next instruction to be executed, in 8086?
f) Mention different types of command words used in 8259.
g) How much maximum size of memory can be used with 8051 microcontrollers?
h) What is the significant of bit manipulation instructions in 8051?
i) Mention, what are the types of Interrupts in 8051?
j) Explain the significance of SFRs in 8051 microcontrollers.

Part-II

Q2 **Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve)** **(6 x 8)**

a) Explain about the interrupt handling process used in 8086.
b) Differentiate CISC and RISC architectures.
c) If the clock frequency is 5 MHz for 8085 processor, how much time is required to execute an instruction of 18 T-states?
d) Which are the different features of ARM instruction set that make it suitable for embedded applications.
e) Explain the data transfer, arithmetic and branch instructions of 8086 microprocessor with examples.
f) Explain, why there is a need of modular programming?
g) Explain the maximum mode configuration of 8086 with neat diagram.

h) With a block diagram design explain, how 8255 functions in different modes to accommodate different kind of I/O devices.

i) Explain, how to interface LCD display with 8051 microcontrollers?

j) How does the timer operate in 8051 in mode-2, explain with neat diagram.

k) Explain the bus interface unit and execution unit of 8086 microprocessor.

l) Explain the memory organization of 8051 microcontroller with neat schematics.

Part-III

Only Long Answer Type Questions (Answer Any Two out of Four)

Q3 Assuming crystal frequency of 12 MHz, write a program to generate a square wave of 50 Hz frequency on pin P2.0 of 8051 Microcontroller. **(16)**

Q4 Write an assembly language program for performing multiplication and division of 16-bit numbers using 8086 microprocessors. **(16)**

Q5 Draw the block diagram of 8279 and explain the function of each. **(16)**

Q6 Draw and explain the detail block diagram of an alarm controller using 8086. **(16)**