05/10/18 FYIT (Sem = II)

Paper / Subject Code: 77502 / Microprocessor Architecture.

Q. P. Code : 33406

(2½ Hours) **[Total Marks: 75]**

N. B.: (1) **All** questions are **compulsory**.
(2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
(3) Answers to the **same question** must be **written together**.
(4) Numbers to the **right** indicate **marks**.
(5) Draw **neat labeled diagrams** wherever **necessary**.
(6) Use of **Non-programmable** calculators is **allowed**.

1. Attempt *any three* of the following: **15**

a. State the functions of various components of a micro-processor based system.
b. Explain the process of translation of High-level language program into machine code.
c. Draw a neat labelled diagram of the 8085 bus structure and hence explain address bus, data bus and control bus.
d. With the help of a logic diagram and function table, explain 3-to-8 decoder.
e. Describe the memory structure with its requirements.
f. Explain the following pins of 8085:
i. ALE ii. INTR iii. AD7-AD0 iv. RST7.5 v. HLDA

2. Attempt *any three* of the following: **15**

a. State differences between Absolute vs. Partial Decoding.
b. Write a short note on memory-mapped I/O.
c. Describe the programming model of 8085.
d. State and explain with examples 8085 instruction set based on word size.
e. Explain various addressing modes of 8085 with examples.
f. Explain the following instructions:
i. JNZ 16-bit ii. ANA R iii. MOV Rd, Rs iv. LDA 16-bit v. CMA

3. Attempt *any three* of the following: **15**

a. Ten bytes of data are stored in memory location starting from 2250H to 2259H. Write an assembly language program to transfer the entire block of data to new memory locations starting from 2270H.
b. Explain the following logic operations with illustrative examples: 1) RLC 2) RAR
c. State differences between Counter and time delay.
d. Write a program to perform the following functions:
i. Clear all the flags
ii. Load 00H in the accumulator and demonstrate that the Zero flag is not affected by the data transfer instruction.
e. Illustrate difference between Nesting and Multiple-Ending subroutine with neat diagrams.
f. Define Stack ,stack pointer register and describe their uses.

4. Attempt *any three* of the following: **15**

a. Write a subroutine program to convert a number from Binary to BCD.
b. Explain 16-bit data transfer instructions with an example.
c. Explain the function of programs such as Editor, Assembler, Loader and Debugger.
d. Interpret the accumulator bit pattern for the SIM instruction with a neat labelled diagram.
e. State the salient features of the assembler.
f. List and summarize the various interrupts of 8085.

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5. **Attempt *any three* of the following:** 15

a. What is the difference between Pentium III and Pentium IV?

b. List the various data formats of SUN SPARC microprocessor.

c. State the advancements of i7 from i3.

d. What are the design features of Pentium processors?

e. Elaborate the various trends in processor technology.

f. Give the register format for Pentium processor.