Q. P. Code : 33408

(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. How does a Microprocessor work?
b. Explain the following in terms of Compilers:-
   i) Source code
   ii) Object code
c. How is a flip or a latch used as a storage element?
d. What are the different internal data operations and the register of the 8085 microprocessor?
e. Describe the various buses in the 8085 microprocessor.
f. Draw a neat labelled diagram of the 8085 Microprocessor,

2. Attempt *any three* of the following: 15
a. Compare the working of an IN and OUT instruction in 8085 microprocessor
b. Write a short note on Memory mapped I/O techniques.
c. List and describe the various Arithmetic instructions in the 8085 microprocessor instruction set.
d. Write an assembly program to subtract the contents of memory location 2041H from 2040H and store the difference in 2050H.
e. Compare and explain the following instruction :-
   i. LDAX and STAX 2
   ii. JC and JNC 2
   iii. HLT and NOP 1
f. Explain the working of the instructions XRA A and the ANI FOH.

3. Attempt *any three* of the following: 15
a. Write an assembly program for 8085 microprocessor to exchange the contents of memory location 2020H and 2021H
b. Explain how rotate instructions can be used to check the if the hexadecimal number is odd or an even number .
c. Calculate the time delay for the 8085-based Microcomputer with 2 MHz clock frequency.

Label	Mnemonics	Operand	T cycle
	LXI	B, 2384H	10
LOOP:	DCX	B	6
	MOV	A,C	4
	ORA	B	4
	JNZ	LOOP	10/7

d. Write a program to generate a Square wave of a 500 microsecond delay.
e. Explain the effect of the POP and PUSH instruction on the Stack Pointer.
f. List and describe the working of Various Calls and Returns instruction in 8085 microprocessor

4. **Attempt _any three_ of the following:** 15
a. Write an assembly program for 8085 microprocessor to convert $(1111\ 1111)_2$ to its BCD equivalent.
b. Explain the following instruction for 8085 microprocessor :-
   i) DAA
   ii) XCHG
c. Explain the working of an interrupt in 8085 microprocessor.
d. What is the function of an editor , assembler and loader?
e. List and describe of files generated after cross assembling
f. Write a short note on SIM instruction.

5. **Attempt _any three_ of the following:** 15
a. What are the features of Pentium Processor.
b. List and describe the special Pentium registers
c. Describe the memory management in Pentium and Pentium pro processors
d. Compare Core i5 and i7 processors.
e. Describe the general SPARC Architecture.
f. What are the various instruction format in the SPARC Architecture?