SECTION: A

Q.1.

(a) Why states signals are provided in Microprocessor?

(b) How can you Locate instruction using segment (CS) and instruction pointer (IP)? Briefly explain with example.

(c) Is it possible to access 32 bit data using 16 bit port? Justify your answer.

Q.2.

(a) Explain hardware and software interrupt with example.

(b) Distinguish between SHIFT and ROTATE instruct: SHL, ROL

(c) Describe the difference between instruction MOV AX, 2437H and MOV AX, [223511]

Q.3.

(a) Consider following two strings:

DATA

Str1 DB 'Hello'

str2 DB 5 DUP (?)

Write instruction to copy str1 into str2 in reverse order.

(b) Consider the array declaration:-

w DB 10, 20, 30, 50,60, ?

Write instructions to insert 40 between 30 and 50 (Assume DS and ES are initialized to the data segment)

Q.4.

(a) What is the advantage of using unconditional jump instruction over conditional jump instruction?

(b) Distinguish between DOS and BIOS routines.

(c) When the stack has completely filled the stack area , SP = 0, if another 2 words are pushed onto the stack, what would happen to SP?

SECTION: B

Q.5.

(a) A memory location has a physical address 4A65Ch. Compute (i) the offset address if the segment number is 41FE and (ii) the segment number if the offset address is 124C.

(b) In how many ways can you reverse a bit pattern? Explain with appropriate instructions.

(c) Define addressing mode. Explain base indexed addressing mode with suitable example.

Q.6.

(a) Suppose AL = -28 decimal, BL = 59, CL = 3 decimal. What will be the output if the following instructions are executed?

IMUL BL

SHL AX, CL

(b) Define the term "interrupt". Suppose in your program instruction there is an instruction CWD. What is the purpose of using it?

(c) Suppose AX = 37D7H, BH = 151 decimal. What will be the output of the following code:

DIV BH

MOV BL, AL

ADD AL, 0Ah

SHR AL, 2

NEG AL

show the result of execution of each instruction.

Q.7.

(a) Suppose that AX = 3415h, BX = 5783h, CX = 93ACh and SP = 100h. Give the contents of AX, BX, CX and SP after the following instructions execution:

PUSH AX

PUSH BX

XCHG AX, CX

POP CX

PUSH AX

POP BX

(b) Describe none-maskable interrupt signal, interrupt acknowledge signal and hold-acknowledge signal.

(c) How can 8086 handle 20-bit physical address using 16-bit register? Explain with example.

Q.8.

(a) IF AL contains -15, give the decimal value of AL after SAR AL, 1 is performed.

(b) How can XLAT be used to convert a byte value into other values that comes from a table? Explain with example.

(c) Write an assembly language program to take a single digit integer from user and determine whether it is an even or odd number? Assume that the input will be from 0 to 9.