COMPUTER ARCHITECTURE AND ORGANIZATION

Full Marks – 70

Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer *all* the questions.

GROUP–A

1. (a) Select the correct answer :   1×5=5

    (i) Floating point representation is used to store

        (A) Boolean values   (B) whole numbers

        (C) real integers   (D) integers

    (ii) In computers, subtraction is generally carried out by

        (A) 9's complement

        (B) 10's complement

        (C) 1's complement

        (D) 2's complement

(iii) What characteristic of RAM memory makes it not suitable for permanent storage ?

(A) too slow   (B) unreliable

(C) it is volatile   (D) too bulky

(iv) Which of the following registers is used to keep track of address of the memory location where the next instruction is located ?

(A) Memory Address Register

(B) Memory Data Register

(C) Instruction Register

(D) Program Counter

(v) In a vectored interrupt

(A) the branch address is assigned to a fixed location in memory.

(B) the interrupting source supplies the branch information to the processor through an interrupt vector.

(C) the branch address is obtained from a register in the processor.

(D) None of the above.

(b) Fill up the blanks. (any *ten*) :   1×10=10

(i) The BCD representation of 789 is _____.

(ii) Full form of MAR is _____.

(iii) The memory which is in the lowest in memory hierarchy is _____.

(iv) Interrupts which are initiated by an instruction/program are _____ interrupt.

(v) The full form of EPROM is _____.

(vi) The full form of ASCII is _____.

(vii) The meaning of MOV r1, r2 is _____.

(viii) 1 Megabyte is equal to _____ KB.

(ix) VDU stands for _____.

(x) The keyboard in most common use is the _____ board.

(xi) The full form of CD-ROM is _____.

(xii) Stack pointer is _____ bit register.

(c) Answer the following. (any *five*) :   1×5=5

(i) Name two general purpose register of 8085 microprocessor.

(ii) Which memory unit has lowest access time ?

(iii) What is a nibble ?

(iv) Give example of one weighted code.

(v) What is the function of ALU ?

(vi) Give one example of one address instruction.

(d) State true or false of the following. (any *five*) :   1×5=5

(i) ROM is a erasable memory.

(ii) Scanner is an input device.

(iii) EBCDIC is a character code

(iv) Intel 8085 is a 32 bit microprocessor.

(v) Hard disk is a main memory device.

(vi) Micro programmed control unit is input device.

GROUP – B

2. Answer the following. (any *five*) : 2×5=10

(a) Find the 2's complement form (Use 8 bit) of the number 1010.

(b) What do you mean by RISC ?

(c) Write the purpose of Zero and Carry Flag.

(d) What is polling ?

(e) What are secondary storage devices ?

(f) What is the use of mouse ?

3 Answer the following. (any *five*) : 3×5=15

(a) Write briefly about signed number representation by computer system.

(b) Write briefly about one address instruction and two address instruction.

(c) Write briefly about micro-programmed control unit.

(d) Briefly explain about static and dynamic RAM.

(e) Write the principle of Cache memory.

(f) What is DMA ? Write its basic principle.

(g) Write notes on maskable and nonmaskable interrupts.

4   Answer the following. (any *five*) :   4×5=20

(a) Describe the different addressing modes.

(b) Discuss briefly about BOOTH's multiplication algorithm.

(c) Draw the block diagram of 8085 micro-processor.

(d) What do you mean by track, sector cylinder and cluster of a hard disk ?

(e) What do you mean by Memory Hierarchy ? Explain briefly.

(f) Write brief note on printer.

(g) Write briefly about memory mapped I/o and isolated i/o.