DipIETE – CS (NEW SCHEME)   –   Code: DC57

Subject: COMPUTER ORGANIZATION

Time: 3 Hours

DECEMBER 2011

Max. Marks: 100

NOTE: There are 9 Questions in all.

- **Please write your Roll No. at the space provided on each page immediately after receiving the Question Paper.**
- **Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.**
- **The answer sheet for the Q.1 will be collected by the invigilator after 45 Minutes of the commencement of the examination.**
- **Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.**
- **Any required data not explicitly given, may be suitably assumed and stated.**

Q.1 **Choose the correct or the best alternative in the following:**   (2×10)

a. Which part is known as the brain of a computer system?

   (A) Registers   **(B)** RAM
   (C) ROM   **(D)** CPU

b. Which of the following is not an output device?

   (A) Scanner   **(B)** Printer
   (C) Monitor   **(D)** None of the above

c. In this addressing, the address field contains the address of a word in memory, which in turn contains the address of the operand.

   (A) Immediate   **(B)** Direct
   (C) Indirect   **(D)** Register

d. MAR stands for

   (A) Main Address Register   **(B)** Main Address Radar
   (C) Memory Address Radar   **(D)** Memory Address Register

e. In a non-vector interrupt

   (A) the branch address is not assigned to fixed location
   (B) the branch address is assigned to fixed location
   (C) Both **(A)** and **(B)**
   (D) None of the above

f. In Reverse Polish notation, expression A+B*C

    (A) AB*C +   **(B)** ABC* +
    (C) ABC+ *   **(D)** None of the above

g. An address of main memory is

    (A) Logical Address   **(B)** Physical Address
    (C) Virtual Address   **(D)** None of the above

h. The resister used as a working area in CPU is

    (A) Program Counter   **(B)** Instruction Register
    (C) Instruction Decoder   **(D)** Accumulator

i. The 2's complement form (use 6-bit word) of the number 1001 is

    (A) 110011   **(B)** 110111
    (C) 100011   **(D)** 111101

j. FFFF will be the last memory location in a memory of size

    (A) 1 K   **(B)** 16 K
    (C) 32 K   **(D)** 64 K

Answer any FIVE Questions out of EIGHT Questions.
Each question carries 16 marks.

Q.2   a. What is program execution time?   **(2)**

       b. Explain the bus structure of computer system.   **(6)**

       c. Explain three address, two address and one address instructions with example.
                                                  (8)

Q.3   a. What is an assembly language? Explain the working of a two pass assembler.
                                                  (8)

       b. What is queue? Differentiate between stack and queue.   **(4)**

       c. Explain in brief subroutine nesting and processor stack.   **(4)**

Q.4   a. What is the necessity of a DMA in a system? Explain the working of DMA with the help of a block diagram.   **(8)**

       b. Explain the process of enabling and disabling of interrupts.   **(8)**

Q.5 a. What is parallel interface? Explain the input interface with a suitable circuit.**(8)**

b. What is SCSI Bus? Write the function of different SCSI signals. **(8)**

Q.6 a. What are dynamic memories? Explain internal organisation of a 1 M×1 dynamic memory chip. **(8)**

b. Describe the different mapping functions of cache memory. **(8)**

Q.7 a. What is virtual memory? Why virtual memory is used in computer system? **(8)**

b. What is a full adder? Design an n-bit ripple carry adder. **(8)**

Q.8 a. Using Booth's algorithm multiply 25 with -6. **(8)**

b. Draw the block diagram of hardware implementation of binary division. **(8)**

Q.9 a. Explain the steps required to fetch a word from memory. **(8)**

b. Write a note on Hard-wired control. **(8)**