

DipIETE – CS (NEW SCHEME)

Time: 3 Hours

JUNE 2012

Max. Marks: 100

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

NOTE: There are 9 Questions in all.

- 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 of the following is not a part of CPU?

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|-----------------|-----------------------|
| (A) ALU | (B) Control unit |
| (C) Main Memory | (D) None of the above |

b. A32 bit address bus can access over

- | | |
|--------------|----------------|
| (A) 2 GB RAM | (B) 4 GB RAM |
| (C) 1 GB RAM | (D) 512 MB RAM |

c. MBR stands for

- | | |
|----------------------------|----------------------------|
| (A) Memory Buffer Register | (B) Memory Buffer Radar |
| (C) Main Buffer Radar | (D) Memory Binary Register |

d. Zero address instruction are applicable to a special memory organisation, called

- | | |
|------------|------------|
| (A) Graphs | (B) Trees |
| (C) Queues | (D) Stacks |

e. Which of the following memory has the shortest access time?

- | | |
|--------------------------|---------------------|
| (A) Cache Memory | (B) Magnetic Bubble |
| (C) Magnetic Core Memory | (D) RAM |

f. ASCII code uses

- | | |
|-----------|-----------|
| (A) 6-bit | (B) 7-bit |
| (C) 8-bit | (D) 4-bit |

Code: DC57**Subject: COMPUTER ORGANIZATION**

- g. In this technique, data moves between devices in a computer without any interface of CPU
- (A) Programmed I/O (B) DMA
(C) Interrupt Driven I/O (D) None of the above
- h. Which of the following is not an actual memory?
- (A) Registers (B) Cache
(C) RAM (D) Virtual Memory
- i. Translation from symbolic program into binary is done in
- (A) Two Passes (B) Directly
(C) Three Passes (D) Compiler transaction
- j. In computers, subtraction is carried out generally by
- (A) 1's complement method (B) 2's complement method
(C) Signed magnitude method (D) ASCII code method

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

- Q.2** a. What are the basic functional units of a computer system? Explain it with the help of a diagram. (8)
- b. Write a program that can evaluate the expression $X = A + B * [C * D + E * (F + G)]$ using three address machine instructions and two address machine instructions. (8)
- Q.3** a. Write an assembly language program to multiply two positive numbers (8)
- b. What is stack? Explain its operations. (4)
- c. Explain the types of addressing modes with example. (4)
- Q.4** a. What is main limitation of programmed I/O and interrupt driven I/O and how it is overcome by DMA. (6)
- b. Define the term polling. Why it is required? (6)
- c. Explain synchronous bus. (4)
- Q.5** a. What is SCSI bus? Explain main phases involved in the operation of the SCSI bus. (8)

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- b. What is I/O interface? Explain the functions of an I/O interface in detail. (5)
- c. Differentiate between serial interface and parallel interface. (3)
- Q.6** a. Draw a block diagram for a $64\text{ K} \times 8$ memory using $16\text{ K} \times 1$ static memory chips. (8)
- b. Define cache memory? What are the general principles used to make effective use of cache memory? (8)
- Q.7** a. What is virtual memory? Explain the implementation of virtual memory in a computer system. (8)
- b. What is full adder? Draw the logic diagram. (4)
- c. Subtract 19 from 16 using 1's complement (4)
- Q.8** a. Explain restoring division algorithm with example. (8)
- b. Explain IEEE standard for floating point number. (8)
- Q.9** Explain the following:
(i) Execution of a Complete Instruction
(ii) Micro programmed control and hard-wired control. (8×2)