Code: DC57   **Subject: COMPUTER ORGANIZATION**

DipIETE – CS

Time: 3 Hours   **DECEMBER- 2014**   **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. The control unit of computer

   (A) Performs ALU operations on the data
   (B) Controls the operation of the output devices
   (C) Is a device for manually operating the computer
   (D) Direct the other unit of computers

b. Which of the following is a set of general purpose internal registers?

   (A) Stack   **(B)** Scratch pad
   (C) Address register   **(D)** Status register

c. Interrupts which are initiated by an I/O drive are

   (A) Internal   **(B)** External
   (C) Software   **(D)** Hardware

d. The register used as a working area in CPU is

   (A) Program counter   **(B)** Instruction register
   (C) Instruction decoder   **(D)** Accumulator

e. Where does a computer add and compare data?

   (A) Hard disk   **(B)** Floppy disk
   (C) CPU chip   **(D)** Memory chip

f. A stack organized computer has

   (A) Three-address Instruction   **(B)** Two-address Instruction
   (C) One-address Instruction   **(D)** Zero-address Instruction

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g. MRI indicates

   (A) Memory Reference Information **(B)** Memory Reference Instruction
   (C) Memory Registers Instruction   **(D)** Memory Register information

h. The cost for storing a bit is minimum in

   (A) Cache   **(B)** Register
   (C) RAM   **(D)** Magnetic tape

i. The bus which is used to transfer data from main memory to peripheral device
   is

   (A) Data bus   **(B)** Input bus
   (C) DMA bus   **(D)** Output bus

j. Arithmetic shift left operation

   (A) Produces the same result as obtained with logical shift left operation
   (B) Causes the sign bit to remain always unchanged
   (C) Needs additional hardware to preserve the sign bit
   (D) Is not applicable for signed 2s complement representation

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

Q.2 a. Give the difference between memory address, memory location and byte.   **(8)**

   b. Discuss the different types of operations used in instructions and instruction
       sequencing.   **(8)**

Q.3 a. What do you mean by effective address of data? List any four addressing modes.
             How is effective address calculated for them?   **(8)**

   b. What is an instruction? With example explain three, two, one, zero address
       instructions.   **(8)**

Q.4 a. Explain briefly the following: **(2×4)**
            (i)   Interrupts
            (ii) Direct memory Access

   b. What are functions I/O interface? Explain with the help of figure.   **(8)**

Q.5   Explain the following:-   **(2×8)**
            (i) PCI BUS
            (ii) SCSI BUS

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Q.6 a. What is the difference between asynchronous and synchronous DRAM? **(4)**

  b. Discuss various types of Read only memories. **(6)**

  c. What is cache memory? Discuss direct mapping techniques. **(6)**

Q.7 a. What is virtual memory? Also discuss address mapping algorithm. **(10)**

  b. Perform 2's complement addition of $(-5)_{10} + (-9)_{10}$ in 8 bit format. **(6)**

Q.8 a. Multiply the following pairs of signed 2's – complement numbers using the Booth algorithm: A = 001111 and B = 001111 **(8)**

  b. Discuss the Arithmetic operations on floating point numbers. **(8)**

Q.9 a. With the help of figure, explain multiple-bus organization. **(8)**

  b. Show, how a microprogrammed control unit works? Discuss its advantages over conventional control unit. **(8)**