

**DipIETE – CS (Current & New Scheme)**

Time: 3 Hours

**DECEMBER 2015**

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 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 Register
- b. A stack pointer is
 

(A) a 16-bit register in the microprocessor that indicate the beginning of the stack memory.
(B) a register that decodes and executes 16-bit arithmetic expression.
(C) The first memory location where a subroutine address is stored.
(D) a register in which flag bits are stored
- c. What is the control unit's function in the CPU?
 

(A) to transfer data to primary storage
(B) to store program instruction
(C) to perform logic operations
(D) to decode program instruction
- d. When a subroutine is called, the address of the instruction following the CALL instructions stored in/on the
 

(A) stack pointer	(B) accumulator
(C) program counter	(D) stack
- e. A microprogram written as string of 0's and 1's is a
 

(A) symbolic microinstruction	(B) binary microinstruction
(C) symbolic microprogram	(D) binary microprogram
- f. Access time is faster for
 

(A) ROM	(B) SRAM
(C) DRAM	(D) Both (B) and (C)
- g. The device which is used to connect a peripheral to bus is called
 

(A) control register	(B) interface
(C) communication protocol	(D) None of these

**Code: DC57/DC107**

**Subject: COMPUTER ORGANIZATION**

- h. The number of instruction needed to add 'n' numbers and store the result in memory using only one address instruction is  
 (A) n (B) n+1  
 (C) n-1 (D) independent of n
- i. Which memory is non volatile and may be written only once?  
 (A) RAM (B) EE-ROM  
 (C) EPROM (D) PROM
- j. How many address lines are needed to address each memory locations in a 2048 x 4 memory chip?  
 (A) 10 (B) 11  
 (C) 8 (D) 12

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

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- Q.2** a. What are basic operational concepts? Explain. (6)  
 b. Explain single bus structure. (5)  
 c. Explain register transfer notation (RTN). (5)
- Q.3** a. Define addressing mode. Explain different types of addressing modes. (2+6)  
 b. Define stack. Explain types of instruction format. (2+6)
- Q.4** a. Explain synchronous bus and asynchronous bus. (8)  
 b. Explain the DMA controller. (8)
- Q.5** a. Explain SERIAL PORT and draw a block diagram of a typical SERIAL INTERFACE. (8)  
 b. Explain the universal serial bus (USB) in a computer system. (8)
- Q.6** a. Explain static memories and dynamic memories. (8)  
 b. What is cache memory? Explain associative mapping cache. (8)
- Q.7** a. What is virtual memory? Write down the advantages of virtual memory. (8)  
 b. Explain 4-bit adder with carry look ahead logic. (8)
- Q.8** a. Explain booth multiplication algorithm. (8)  
 b. Explain the circuit diagram for restoring division. (8)
- Q.9** a. Explain execution of a complete instruction. (8)  
 b. Explain microprogrammed control in detail. (8)