

Time: 3 Hours

JUNE 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. A group of lines that serves as a connecting path for several devices is called
- (A) CPU (B) BUS
(C) ALU (D) Clock
- b. Cycles per second is also known as
- (A) Hertz (B) Frequency
(C) Bit rate (D) None of these
- c. Memory consists of many millions of storage cells, each of which can store
- (A) 2 bit (B) 4 bit
(C) 1 bit (D) 8 bit
- d. Lower byte addresses are used for the most significant bytes of the word is known as
- (A) Big-Endian (B) Small-Endian
(C) Little-Endian (D) None of these
- e. Indicate the memory addressing scheme that holds the address of the memory location which holds the data is called
- (A) Direct Address (B) Indirect Address
(C) Index Address (D) Buffer Address
- f. A special control unit may be provided to transfer a block of data directly between I/O device and the main memory, without continuous intervention by the processor.
- (A) CPU (B) Memory
(C) DMA (D) Storage Unit

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g. Time to transfer word of data to or from memory is known as

- (A) Memory Latency (B) Memory bandwidth
(C) Seek time (D) Time Quantam

h. ISP stands for

- (A) Information source process (B) Institution Standard protocol
(C) Information standard principal (D) Instruction Set Processor

i. Reference to virtual memory word that is in physical memory

- (A) Page hit (B) Page miss
(C) Page fault (D) Page available

j. ALU is a combinational circuit that has no

- (A) Logic Gates (B) CPU
(C) Internal storage (D) External storage

Answer any FIVE Questions out of EIGHT Questions.

Each question carries 16 marks.

- Q.2** a. Explain with the help of block diagram about the basic functional units used in Computer System. (8)
- b. Explain the connection between the processor and the memory with the help of a diagram. (8)
- Q.3** a. Give the difference between Two-address instruction and Three-address instruction, with example and give their execution process. (8)
- b. How Addressing modes of operands are encoded? Explain it in detail. (8)
- Q.4** a. What are different modes of operation used in DMA? (6)
- b. With neat block diagram explain the working of DMA controller. (6)
- c. Discuss synchronous and asynchronous buses. (4)
- Q.5** a. How internal organization of memory chips is defined? (8)
- b. Give difference between static and dynamic RAMs. (8)
- Q.6** a. What are the function of an interface circuit? (4)

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- b. Draw the diagram of a serial interface & explain its working. (6)
- c. Write a note on standard I/O interfaces. (6)
- Q.7** a. What is Booth's algorithm? Explain it with the help of an example. (8)
- b. Explain the multiplication & division of two floating point numbers. (8)
- Q.8** a. Draw the block diagram of the complete processor and explain its working. (8)
- b. What are microinstructions? Give an example of partial format for field-encoded microinstructions. (8)
- Q.9** a. What is inductance? Derive relation for energy stored in inductor. (8)
- b. Explain IEEE standards for representing floating-point numbers in 32 bits. Explain how normalization is done in IEEE single-precision format. (8)