 BCA(III) — 303

2019

Time : 3 hours

Full Marks : 80

Candidates are required to give their answers in their own words as far as practicable.

The questions are of equal value.

Answer five questions in which Q. No. 1 is compulsory.

1. Choose the correct alternative of the following :

   (a) What is the high speed memory between the main memory and the CPU called ?

   (i) Register memory

   (ii) Cache memory

   (iii) Storage memory

   (iv) Virtual memory

   (b) Which of the following is used in main memory ?

   (i) SRAM

(ii) DRAM

(iii) PRAM

(iv) DDR

(c) Components that provide internal storage to the CPU are :

(i) Registers

(ii) Program counters

(iii) Controllers

(iv) Internal chips

(d) CPU fetches the instruction from memory according to the value of :

(i) Program counter

(ii) Status register

(iii) Instruction register

(iv) Program status word

(e) Memory management technique in which system stores and retrives data from secondary storage for use in main memory is called ?

(i) Fragmentation

(ii) Paging

(iii) Mapping

(iv) None of the above

(f) Which of the following is a universal gate ?

(i) AND

(ii) Ex-OR

(iii) OR

(iv) NAND

(g) Both CISC and RISC architectures have been developed to reduce the :

(i) Cost

(ii) Time delay

(iii) Semantic gap

(iv) All of the above

(h) Piplining is a unique feature of :

(i) RISC

(ii) CISC

(iii) ISA

(iv) IANA

2. What do you mean by primary memory unit and secondary memory unit ? What are the key properties of semiconductor memory ? Explain.

3. (a) Mention any two advantages and two limitations of magnetic tape for storage of digital information.

   (b) Define the term track, cylinder and sector.

4. What is an operating system ? List and briefly define the major types of operating system scheduling.

5. What do you mean by Machine instruction characteristics ? Explain elements of a machine instruction.

6. What do you mean by CISC and RISC ? Describe the difference between CISC and RISC Architecture.

7. Describe the essential characteristics of the super-seals approach to processor design.

8. (a) Construct a truth-table for the following Boolean expression :

   (i) $ABC + \bar{A}\bar{B}\bar{C}$

   (ii) $ABC + A\bar{B}\bar{C} + \bar{A}\bar{B}\bar{C}$

   (iii) $A(B\bar{C} + \bar{B}C)$

   (iv) $(A + B)(A + C)(\bar{A} + \bar{B})$

   (b) Convert the following :

   (i) 000011 and 011100 to decimal number

   (ii) 64 and 145 to binary number

9. Write short notes on any **four** the following :

   (a) History of computer

   (b) I/O modules

   (c) Memory management

   (d) Types of operands

   (e) Micro operations

   (f) Optical memory