2020

COMPUTER SCIENCE — GENERAL

Paper : GE/CC-3

Full Marks : 50

The figures in the margin indicate full marks.

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

Answer ***question no.* 1** and ***any four*** questions from the rest.

1. Answer ***any five*** questions : 2×5

(a) Write down any two characteristics of Von Neumann architecture.

(b) Compare between SRAM and DRAM.

(c) An 8 bit register contains the binary value 10011100. What is the register value after an arithmetic shift left?

(d) What is the significance of high-impedance state?

(e) Define Virtual Memory.

(f) State the role of stack pointer.

2. (a) What do you mean by Instruction set completeness?

(b) Evaluate the following arithmetic expression :

X = (A + B – C + D) / (E – F) using zero address instruction format. 5+5

3. (a) A computer employs RAM chips of 256×8 and ROM chips of 1024×8. The computer system needs 2K bytes of RAM, 4K bytes of ROM, then how many RAM and ROM chips are needed? Draw a memory-address map table (address range in hexadecimal) for the system.

(b) Define hit ratio of cache memory. [(2+2)+4]+2

4. (a) Write down the characteristics of Hardwired control unit and Microprogrammed control unit.

(b) Write down the significance of Priority Interrupt.

(c) State briefly any one bus arbitration technique. (2½+2½)+3+2

5. (a) Describe Booth's Multiplication algorithm.

(b) Apply this algorithm to multiply (–7) × (– 3). 5+5

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6. (a) Explain the set associative cache mapping technique with the help of an example.

(b) Write short notes on –

(i) register indirect addressing

(ii) immediate addressing. 6+(2+2)

7. (a) Explain the functions of PLA.

(b) Compare between memory mapped I/O and I/O mapped I/O. 5+5

8. (a) Explain the concept of page fault in a virtual memory system.

(b) Describe the working principle of VDU.

(c) What is the importance of Program status word? 3+5+2
