

2021

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) State the role of program counter.
- (b) Write down any two characteristics of IAS Computer.
- (c) Define the functions of CAM.
- (d) Write down the significance of cache memory.
- (e) Convert the following arithmetic expressions from infix to reverse polish notation :

$$A + B * C/D - E$$
- (f) Write down the two differences between memory mapped I/O and I/O mapped I/O.
2. (a) Define Instruction Cycle. Explain its operation with a flowchart. 3+5
- (b) What do you mean by effective address of an instruction? 2
3. (a) What are the three ways a negative integer number can be represented? Explain how $(-12)_{10}$ can be represented in each case. 3+5
- (b) Define virtual address. 2
4. (a) Evaluate the following arithmetic expression using three address and one address instruction format :

$$X = P + Q - R - S / M$$
 3+4
- (b) Describe the working principle of keyboard. 3
5. (a) Consider a direct mapped cache of size 32KB with block size 512 Bytes. The size of main memory is 16 MB. Find number of bits in tag and line number. 3+3
- (b) Write down the differences between CISC and RISC processors. 4
6. (a) Write down the flowchart / algorithm of Addition and Subtraction with sign-magnitude data. 6
- (b) Write down the differences between direct and indirect addressing mode. 4

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7. (a) In how many ways DMA controller transfers the data? Define each of them. 1+5
(b) Write down the significances of Polling. 4
8. (a) Write down the key features of SCSI & PCI bus. 5
(b) Compare between write through and write back methods in cache. 5
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