

2022

COMPUTER SCIENCE — HONOURS

Paper : CC-5

(Computer Organization and Architecture)

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* from the rest.

1. Answer *any five* questions of the following : 2×5
 - (a) What is ALU?
 - (b) Write the difference between burst mode and cycle stealing technique of data transfer.
 - (c) What is cache memory?
 - (d) What is masking?
 - (e) State the difference between PROM and EPROM.
 - (f) What is the difference between fetch cycle and instruction cycle?
 - (g) What is the function of accumulator?
 - (h) Briefly describe synchronous data transfer.
2. (a) What is the function of ROM? How bootstrap loader is related with ROM?
(b) What is Memory Address map? Why is it used? 5+5
3. (a) Design an array multiplier that multiplies two 2-bit numbers. Use AND gates and binary adders.
(b) What is floating point? 8+2
4. (a) How many times does the control unit refer to memory when it fetches and executes an indirect addressing mode instruction if the instruction is (i) a computational type requiring an operand from memory; (ii) a branch type?
(b) How many categories are there in computer instructions? 8+2
5. (a) Design a digital circuit that performs the four logic operations of EX-OR, EX-NOR, NOR and NAND. Use two variables. Show the logic diagram.
(b) What is temporary register? 8+2

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6. (a) What is flag register?
(b) State the functions of different types of flag registers. 2+8
7. (a) What are the functions of program counter and stack pointer?
(b) What are the functions of DMA controller? 4+6
8. (a) Explain briefly the function of VDU.
(b) What is USB? 8+2
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