U.G. 2nd Semester Examination - 2021

COMPUTER SCIENCE

[PROGRAMME]

Course Code : COM.SC-G-CC-L-201B

(Computer System Architecture)

Full Marks : 30   Time : $1\frac{1}{2}$ Hours

The figures in the right-hand margin indicate marks.

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

GROUP–A

1.   Answer any **five** questions :   2×5=10

   a)   Distinguish between auto increment and auto decrement addressing mode.

   b)   What is pipelining and what are the advantages of pipelining?

   c)   How many memory chips are needed to construct 2M×16 memory system using 512K×8 static memory chips?

   d)   What is an opcode? How many bits are needed to specify 32 distinct operations?

   e)   Define program counter.

[Turn over]

   f)   What is the use of EEPROM?

   g)   What are the benefits of serial communication?

   h)   Define micro-operation.

GROUP-B

2.   Answer any **two** questions: 5×2=10

   a)   Design a 4-bit adder circuit using full adders and explain its function.   5

   b)   Explain various addressing modes with examples.   5

   c)   Describe various mechanisms of data transfer from a peripheral device.   5

   d)   What do you mean by interrupt? Explain the steps through which the processor handles the interrupt.   2+3=5

   e)   How is a computer instruction executed? Draw the instruction cycle.   3+2=5

GROUP-C

Answer any **one** question :   10×1=10

3.   Define cache memory. Describe various mapping techniques associated with cache memories.
                    2+8=10

4. Explain DMA controller with the help of a block diagram. 10

5. Write short notes on any **two** of the following:

5×2=10

   a) Number systems

   b) Computer registers

   c) Reduced instruction set computer (RISC)

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