UNIVERSITY OF NORTH BENGAL

B.Sc. Honours 1st Semester Examination, 2019

CC2-COMPUTER SCIENCE (13)

COMPUTER SYSTEM ARCHITECTURE

Time Allotted: 2 Hours   Full Marks: 40

The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.
All symbols are of usual significance

GROUP-A

1. Answer any *five* questions from the following: $1 \times 5 = 5$

   (a) What is the difference between a register and a counter?

   (b) What is a T flip-flop?

   (c) Compute the binary equivalent of $(5.5)_{10}$.

   (d) What is an interrupt?

   (e) What is a RISC?

   (f) What is Cache memory?

   (g) Expand DMA.

   (h) How many select lines does an 8×1 MUX require?

GROUP-B

2. Answer any *three* questions from the following: $5 \times 3 = 15$

   (a) What is a full-adder? Design a full-adder using half-adders.

   (b) Discuss edge-triggering a J.K. flip-flop.

   (c) Discuss instruction set by giving an example.

   (d) Write a short note on instruction pipelining.

   (e) Compare and contrast programmed I/O and interrupt driven I/O.

GROUP-C

3. Answer any *two* questions from the following: $10 \times 2 = 20$

   (a) Discuss the bus interconnection design of a basic computer by giving example.

   (b) Discuss the design of a hardwired control unit assuming your own instruction set.

   (c) What are addressing modes? Discuss different addressing modes with the help of suitable diagrams.

   (d) Discuss the structure of a microprogrammed control organisation with a suitable diagram. What is its advantage over hardwired control?

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