



'সমানো মন্ত্র: সমিতি: সমানী'

**UNIVERSITY OF NORTH BENGAL**

B.Sc. Honours 1st Semester Examination, 2021

**CC2-COMPUTER SCIENCE (13)**

**COMPUTER SYSTEM ARCHITECTURE**

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.  
All symbols are of usual significance.*

1. Answer any **five** questions: 1×5 = 5
  - (a) Write the name of basic logic gates.
  - (b) Define Boolean algebra.
  - (c) Which one is faster between the RISC and CISC architecture?
  - (d) Convert the given binary number  $(10100110)_2$  to decimal number.
  - (e) Write the full forms of VLSI and CMOS.
  - (f) Define the term micro-operation.
  - (g) What is a flip-flop?
  - (h) How many minterm are there in an  $n$  variable truth table?
  
2. Answer any **three** questions: 5×3 = 15
  - (a) Compare the Combinational circuits and Sequential circuits.
  - (b) Convert the given number with the indicated base  $(4012)_5$  to decimal and binary.
  - (c) Discuss the arrangements of Three-variable and Four-variable K-map.
  - (d) Write a note on SR flip-flop.
  - (e) Write a note on Hit ratio.
  
3. Answer any **two** questions: 10×2 = 20
  - (a) What is multiplexer? With appropriate diagram explain in detail a 4-to-1-line multiplexer.
  - (b) Discuss the SOP form of Boolean expression. Reduce the following Boolean expression in SOP form using K-map.  
$$F(A, B, C, D) = \Sigma(0, 1, 2, 3, 4, 5, 10, 11, 15)$$
  - (c) Explain Half-Adder and Full-Adder with suitable Truth tables and Logic diagrams.
  - (d) Discuss Cache memory and explain the Associative mapping with suitable example.

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