



'সমানো মন্ত্র: সমিতি: সমানী'

UNIVERSITY OF NORTH BENGAL

B.Sc. Honours 1st Semester Examination, 2022

CC2-COMPUTER SCIENCE (13)

COMPUTER SYSTEM ARCHITECTURE

Time Allotted: 2 Hours

Full Marks: 40

The figures in the margin indicate full marks.

1. Answer any **five** questions: 1×5 = 5
 - (a) Find the octal equivalent of $(100011010)_2$
 - (b) What are universal logic gates?
 - (c) Write the truth table of a two-input Exclusive-OR gate.
 - (d) What do you understand by multiplexer?
 - (e) Simplify the Boolean expression $Y = (A' + B) \cdot (A + B)$
 - (f) What do you mean by weighted and non-weighted codes?
 - (g) State the De-Morgan's Laws.
 - (h) What is a decoder?

2. Answer any **three** questions: 5×3 = 15
 - (a) Explain 2's Complement of a binary number with an example. Justify its need.
 - (b) Simplify using K-map $Y = \Sigma(3,4,5,7,9,13,14,15)$.
 - (c) Write a note on J-K flip-flop.
 - (d) Compare the combinational circuits with sequential circuits.
 - (e) Calculate the decimal, binary and hexadecimal equivalent of $(4712)_8$.

3. Answer any **two** questions: 10×2 = 20
 - (a) Explain Direct and Indexed addressing modes.
 - (b) Write notes on RISC and CISC.
 - (c) Explain Tri-State buffer based common bus system with an appropriate diagram.
 - (d) How are numbers represented in floating point representation? Explain with a suitable example.

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