



'সমানো মন্ত্র: সমিতি: সমানী'

UNIVERSITY OF NORTH BENGAL
B.Sc. Programme 1st Semester Examination, 2023

DSC1/2/3-P1-COMPUTER SCIENCE
COMPUTER SYSTEM ARCHITECTURE

Time Allotted: 2 Hours

Full Marks: 60

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

GROUP-A

Answer any four of the following

3×4 = 12

1. Define a universal gate. Implement $\bar{A}B + B\bar{C} + AC$ using any universal gate.
2. Convert $(480)_{10} = (?)_8$.
3. Explain the working of FGI and FGO flag registers.
4. What do you mean by hardwired control?
5. Design an 8×1 multiplexer.
6. Implement a half adder using NAND gates only.

GROUP-B

Answer any four of the following

6×4 = 24

7. How are floating point numbers represented in a digital computer?
8. Explain the working of Master-Slave JK flip-flop with its timing diagram.
9. Draw the K-map for the following Boolean function and obtain the minimum SOP.

$$f(A, B, C, D) = \Sigma(0, 2, 3, 6, 7, 8, 10, 11, 12, 15)$$

10. Give the difference between RISC and CISC.
11. State and prove De-Morgan's Theorem.
12. Write a note on Cache memory.

GROUP-C

Answer any two of the following

12×2 = 24

13. Discuss any four addressing modes with example.
14. With a neat schematic, explain about DMA controller and its mode of data transfer.
15. Explain the working of booth's multiplication algorithm with an example.
16. Discuss common bus system organization in detail.

—×—