



'समानो मन्त्रः समितिः समानी'

UNIVERSITY OF NORTH BENGAL
B.Sc. Programme 1st Semester Examination, 2022

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

Time Allotted: 2 Hours

Full Marks: 60

The figures in the margin indicate full marks.

GROUP-A

Answer any four questions

3×4 = 12

1. Explain the operation of a XOR gate.
2. Convert $(95.6)_{10}$ into octal number system.
3. Differentiate between combinational and sequential circuits.
4. What are the different types of memories available in a computer?
5. What is a bus? What is the necessity of having a bus in a computer system?
6. Differentiate between RISC and CISC architecture.

GROUP-B

Answer any four questions

6×4 = 24

7. Design a bus system to interconnect four 4-bit registers.
8. Explain fixed and floating point representation of numbers.
9. Explain the different hardwired instruction formats.
10. Write a short note on decoders. How many 3×8 decoders are required to construct a 4×16 decoder?
11. Design a full adder using two half adders.
12. Describe stack organization.

GROUP-C

Answer any two questions

12×2 = 24

13. Write detailed notes on memory hierarchy.
14. What are the sequence of operations that the computer goes through during the execution of an instruction? Explain with the help of a flowchart.
15. Explain JK master slave flip flop. What is race condition?
16. Design a control unit for a typical computer, explaining all the parts.

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