UNIVERSITY OF NORTH BENGAL

B.Sc. Honours Part-III Examination, 2022

COMPUTER SCIENCE

PAPER-V

REVISED NEW SYLLABUS

Time Allotted: 4 Hours Full Marks: 100

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

Answer any *five* questions of the following 20×5 = 100

1. (a) Describe the basic structure of a typical microprocessor and explain its components. 10

 (b) Describe the various parallel data transfers in a microprocessor. Point out their merits and demerits. 10

2. (a) What is memory hierarchy? Discuss the various types of memories. 10

 (b) What is the difference between direct and indirect address instructions? How many references to memory are needed for each type of instruction to bring an operand into the processor register? 10

3. (a) What are the various steps that an instruction goes through in order to be executed? Explain the cycle with the help of a flowchart. 10

 (b) What is the purpose of having registers in a CPU? Describe the various registers that are usually provided in a micro-computer. 10

4. (a) What are the different transmission media available in data communication? 10

 (b) Explain the different error detection mechanisms available in data communication. 10

5. (a) Explain the OSI model specifying the functionalities of each layer. 10

 (b) What is multiplexing? Explain TDM, FDM and WDM. 10

6. (a) Explain an algorithm for generating lines and curves. 10

 (b) Discuss the concept of animation. 10

7. Discuss the following: 5×4 = 20

   (a) Coding and decoding

   (b) D/A and A/D conversion

   (c) Synchronous and asynchronous operations

   (d) Periodic and non-periodic signals.

8. Write short notes on any *five*: 4×5 = 20

   (a) Gateway

   (b) Clipping (Computer Graphics)

   (c) Assembler

   (d) Co-processors

   (e) Bus architecture

   (f) LAN, MAN, WAN

   (g) Bit rate vs Baud rate.

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