CAMBRIDGE International Education
Cambridge International School

ISG International School Guwahati

Name: _____ Class: 9 Roll No.: _____

Worksheet 2: Data Transmission (Packet Switching)

Section A: Multiple Choice Questions (5 marks)

Circle the correct answer.

1. What is the approximate size of a data packet?
   a) 64 bytes
   b) 64 KiB
   c) 1 MiB
   d) 128 KiB

2. Which part of the packet contains the actual data being transmitted?
   a) Header
   b) Payload
   c) Trailer
   d) CRC Check

3. What is the purpose of the sequence number in the packet header?
   a) To encrypt the data
   b) To reassemble packets in the correct order
   c) To identify the sender's IP address
   d) To compress the data

4. What does CRC Check in the trailer ensure?
   a) Data encryption
   b) Data accuracy
   c) Faster transmission speed
   d) Larger packet size

5. In packet switching, what determines the route of a packet?
   a) The sender's preference
   b) The receiver's IP address
   c) Routers based on network conditions
   d) The payload size

Section B: Short Answer Questions (10 marks)

6. Define "data transmission" and distinguish between local and remote transmission. *(2 marks)*

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7. Label the three main parts of a data packet and briefly describe the function of each. *(3 marks)*

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8. Explain why packets may arrive out of order during transmission and how the destination device handles this issue. *(2 marks)*

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9. What is the role of routers in packet switching? *(1 mark)*

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10. State **one** advantage and **one** drawback of packet switching. *(2 marks)*

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Section C: Structured Questions (10 marks)

11. Study the following packet header information:
    - Sender IP: 192.168.1.1
    - Receiver IP: 192.168.1.2
    - Sequence Number: 3
    - Packet Size: 64 KiB

a) Why is the sequence number important? *(1 mark)*

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b) How does the receiver use the packet size information? *(1 mark)*

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12. A packet's trailer contains a CRC Check value of "B" (hexadecimal). The receiver calculates a value of "A" from the payload.
    a) What does this indicate? *(1 mark)*

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    b) What action will the receiver take next? *(1 mark)*

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13. Describe how packet switching ensures reliability even if some network paths are busy or faulty. *(3 marks)*

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14. A student argues that packet switching is unsuitable for live video streaming. Do you agree? Justify your answer using **two** reasons. *(3 marks)*

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