1. Which compression method is known for its simplicity and efficiency in encoding repetitive sequences in data?

a) Huffman coding
b) Golomb coding
c) LZW coding
d) Run-Length coding

Answer: d) Run-Length coding

Explanation: Run-Length coding works by encoding consecutive repeated data values with a count of the repetition instead of storing each value individually. This method is particularly effective when there are long sequences of the same value in the data.

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2. Which compression technique is commonly used for text and image compression and relies on building a dictionary of repeating patterns?

a) Huffman coding
b) Golomb coding
c) LZW coding
d) Symbol based coding

Answer: c) LZW coding

Explanation: LZW (Lempel-Ziv-Welch) coding is a lossless compression algorithm that works

by replacing repeated patterns with references to a dictionary. It is widely used in applications like GIF images and TIFF files.

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3. Which compression method assigns variable-length codes to input characters, with shorter codes assigned to more frequent characters?

a) Huffman coding
b) Golomb coding
c) LZW coding
d) Run-Length coding

Answer: a) Huffman coding

Explanation: Huffman coding is a widely-used method for lossless data compression. It assigns shorter codes to frequently occurring characters and longer codes to less frequent characters, optimizing the overall compression ratio.

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4. Golomb coding is particularly effective for compressing data with which characteristic?

a) Random distribution
b) Repeating patterns
c) Noisy signals

d) Homogeneous sequences

Answer: b) Repeating patterns

Explanation: Golomb coding is effective for compressing data with repeating patterns or sequences. It’s commonly used in scenarios where the data has a predictable structure or contains many identical or similar elements.

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5. Which compression method is suitable for encoding integer values using a parameterized system based on a division into quotient and remainder?

a) Huffman coding
b) Golomb coding
c) LZW coding
d) Run-Length coding

Answer: b) Golomb coding

Explanation: Golomb coding is particularly suitable for encoding integer values with a parameterized system based on division into quotient and remainder. It’s often used in applications where the data consists of integers with varying lengths.

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6. Which technique is used for embedding copyright information or other data into digital images without affecting their visual quality?

a) Huffman coding
b) Golomb coding
c) LZW coding
d) Digital image watermarking

Answer: d) Digital image watermarking

Explanation: Digital image watermarking is the process of embedding copyright information or other data into digital images in a way that is robust to common image processing operations and imperceptible to human observers.

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7. Which algorithm is used for finding the minimum perimeter polygon that encloses a given set of points?

a) Huffman coding
b) Golomb coding
c) LZW coding
d) Minimum Perimeter Polygons algorithm (MPP)

Answer: d) Minimum Perimeter Polygons algorithm (MPP)

Explanation: The Minimum Perimeter Polygons algorithm (MPP) is specifically designed for finding the polygon with the smallest perimeter that encloses a given set of points. It's commonly used in computational geometry and image processing.

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8. Which compression method is primarily used for reducing the storage space required for transmitting fax documents?

a) Huffman coding
b) Golomb coding
c) LZW coding
d) Run-Length coding

Answer: d) Run-Length coding

Explanation: Run-Length coding is commonly used for compressing fax documents, as they often contain long sequences of identical pixels or patterns, making it effective for reducing storage space and transmission bandwidth.

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9. In which compression technique does the size of the code depend on the frequency of occurrence of the symbols in the input data?

a) Huffman coding
b) Golomb coding
c) LZW coding
d) Symbol based coding

Answer: a) Huffman coding

Explanation: Huffman coding assigns shorter codes to more frequently occurring symbols and longer codes to less frequent symbols, based on their relative frequencies in the input data. This method optimizes the overall compression ratio.

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10. Which compression method is commonly used for compressing grayscale and color images with lossless compression?

a) Huffman coding
b) Golomb coding
c) LZW coding
d) Run-Length coding

Answer: c) LZW coding

Explanation: LZW coding is often used for compressing grayscale and color images with lossless compression, preserving all the original image data without any loss of quality. It’s a popular choice for formats like TIFF and GIF.