

1. Which theorem forms the foundation of data compression algorithms by defining the limits of lossless compression?

- a) Shannon's Source Coding Theorem
- b) Huffman's Coding Theorem
- c) Run Length Encoding Theorem
- d) Arithmetic Coding Theorem

Answer: a) Shannon's Source Coding Theorem

Explanation: Shannon's Source Coding Theorem establishes the fundamental limit of lossless data compression. It states that the average code length produced by any uniquely decodable compression algorithm cannot be less than the entropy of the source.

2. Which coding technique guarantees the absence of any codeword being a prefix of another codeword?

- a) Huffman coding
- b) Shannon Fano Encoding
- c) Arithmetic Coding
- d) Lempel-Ziv Coding

Answer: b) Shannon Fano Encoding

Explanation: Shannon Fano Encoding is a prefix coding technique that ensures no codeword is a prefix of another. It divides the symbols into sets based on their probabilities and then assigns binary codewords to each set.

3. What is the primary advantage of Huffman coding over Shannon Fano Encoding?

- a) Faster encoding process
- b) Smaller average code length

- c) Simpler implementation
- d) Higher compression ratio

Answer: b) Smaller average code length

Explanation: Huffman coding produces optimal prefix codes that result in smaller average code lengths compared to Shannon Fano Encoding, leading to better compression efficiency.

4. Which coding technique is based on dividing the symbol set into intervals and encoding each symbol with a binary fraction within its corresponding interval?

- a) Huffman coding
- b) Arithmetic Coding
- c) Run Length Encoding
- d) Lempel-Ziv Coding

Answer: b) Arithmetic Coding

Explanation: Arithmetic Coding is a coding technique that assigns a unique interval to each symbol and encodes the entire message as a single fractional number between 0 and 1, providing high compression efficiency.

5. Which coding algorithm is particularly effective for compressing repetitive sequences in data?

- a) Run Length Encoding
- b) Lempel-Ziv Coding
- c) Extended Huffman coding
- d) Shannon's Encoding Algorithm

Answer: b) Lempel-Ziv Coding

Explanation: Lempel-Ziv Coding is renowned for its effectiveness in compressing repetitive sequences by replacing them with references to previously encountered patterns.

6. In Extended Huffman coding, what additional feature is introduced compared to traditional Huffman coding?

- a) Variable-length codes
- b) Fixed-length codes
- c) Adaptive coding
- d) Context-based encoding

Answer: c) Adaptive coding

Explanation: Extended Huffman coding incorporates adaptive coding, where the codebook is updated dynamically based on the frequency of symbols encountered during encoding.

7. Which coding technique is primarily used for lossless data compression in image and video compression standards like PNG and MPEG?

- a) Arithmetic Coding
- b) Run Length Encoding
- c) Huffman coding
- d) Lempel-Ziv Coding

Answer: a) Arithmetic Coding

Explanation: Arithmetic Coding is widely used in image and video compression standards like PNG and MPEG for its ability to achieve high compression ratios while maintaining lossless data compression.

8. Which coding technique is most suitable for compressing data with long sequences of the

same symbol?

- a) Huffman coding
- b) Run Length Encoding
- c) Lempel-Ziv Coding
- d) Shannon Fano Encoding

Answer: b) Run Length Encoding

Explanation: Run Length Encoding efficiently compresses data with long sequences of the same symbol by representing them as a count-value pair, reducing redundancy in the data.

9. Which coding technique forms the basis for the LZ77 and LZ78 algorithms, widely used in file compression utilities like ZIP?

- a) Run Length Encoding
- b) Lempel-Ziv Coding
- c) Huffman coding
- d) Shannon Fano Encoding

Answer: b) Lempel-Ziv Coding

Explanation: Lempel-Ziv Coding serves as the foundation for LZ77 and LZ78 algorithms, essential components of many file compression utilities like ZIP, by identifying and replacing repetitive patterns in data.

10. Which coding technique focuses on encoding sequences of consecutive data elements as a single value and its count?

- a) Huffman coding
- b) Run Length Encoding
- c) Arithmetic Coding

d) Shannon Fano Encoding

Answer: b) Run Length Encoding

Explanation: Run Length Encoding represents sequences of consecutive data elements as a count-value pair, efficiently reducing redundancy in the data and achieving compression.

### Related Posts:

1. Microwave Engineering MCQs
2. Microwave Semiconductor Devices MCQs
3. RF Network Analysis & Measurement MCQs
4. Microwave Components and Circuits MCQs
5. RF & Microwave Circuit Design MCQs
6. Information Theory MCQs
7. Information Channels MCQs
8. Error Control Coding MCQs
9. BCH and Convolutional Codes MCQs
10. Web Development Essentials MCQs
11. HTML MCQs
12. Style sheets MCQs
13. XML MCQs
14. PHP and MySQL MCQs
15. Basics of programming MCQs
16. Decision control structure MCQs
17. Array MCQs
18. C Programming Essentials Structures, Preprocessor, and Unions MCQs
19. Basic concepts of OOP MCQs
20. Unix/Linux MCQs

21. The Shell Basic Commands, Shell Programming MCQs
22. File System MCQs
23. Process Control MCQS
24. System Security MCQs.
25. Dynamic Host Configuration Protocol MCQs
26. Introduction to Energy Science MCQs
27. Ecosystems mcqs
28. Biodiversity and its conservation MCQs
29. Environmental Pollution mcqs
30. Social Issues and the Environment mcqs
31. Signals and Systems MCQs
32. Linear Time- Invariant Systems mcqs
33. z-Transform mcqs
34. Fourier analysis of discrete time signals mcqs
35. State-Space Analysis, Sampling Theorem, and Signal Reconstruction mcqs
36. Frequency domain representation of signal mcqs
37. Modulation Techniques mcqs
38. FM Modulation & Transmission MCQs
39. Understanding AM and FM Transmission Noise and Receiver Characteristics
40. Control System MCQs: Basics, Feedback, and Analysis
41. Control System Analysis MCQs
42. Frequency Domain Analysis MCQs
43. System Design and Compensation Techniques MCQs
44. State Space & Control Systems MCQs
45. Feedback Amplifiers and Oscillators MCQs
46. Introduction to ICs and Op-Amps MCQs
47. Op-Amp Characteristics MCQs

- 48. OP-AMP applications MCQs
- 49. Electronic Circuits with 555 Timer MCQs
- 50. Voltage Regulator MCQs
- 51. Discrete-Time Signals and Systems MCqs
- 52. The z-Transformmcqs
- 53. Frequency Analysis of Discrete Time Signals mcqs
- 54. Efficient Computation of the DFT mcqs
- 55. Digital filters Design Techniques Mcqs
- 56. Radiation mcqs
- 57. Antenna Fundamentals mcqs
- 58. Types of antennas mcqs
- 59. Aperture and slot mcqs
- 60. Propagation of radio waves mcqs
- 61. Data Communication mcqs
- 62. OSI model mcqs
- 63. ERROR CONTROL AND DATA LINK PROTOCOLS mcqs
- 64. NETWORKS mcqs
- 65. NETWORKING DEVICES AND TCP / IP PROTOCOL SUITE mcqs
- 66. CMOS VLSI Circuit Design MCQs
- 67. Specification of sequential systems mcqs
- 68. Satellite Systems and Orbital Mechanics MCQs
- 69. Satellite Communication & Polarization MCQs
- 70. Satellite and Earth Segment MCQs
- 71. Satellite Communication MCQs
- 72. Satellite Services MCQs
- 73. 8051 Interfacing & Serial Communication MCQs
- 74. MCU Overview 8096 and PIC mcqs

75. Introduction to Embedded Systems mcqs
76. Embedded System Architecture mcqs
77. Input Output and Peripheral Devices mcqs
78. PHYSIOLOGY AND TRANSDUCERS mcqs
79. ELECTRO - PHYSIOLOGICAL MEASUREMENTS mcqs
80. NON-ELECTRICAL PARAMETER MEASUREMENTS mcqs
81. MEDICAL IMAGING MCQS
82. ASSISTING AND THERAPEUTIC EQUIPMENTS MCQS
83. Power Semiconductor Switches MCQS
84. Rectifiers and Thyristors MCQs
85. Inverters & Cycloconverters Inverters MCQs
86. AC Voltage Controllers MCQs
87. DC - DC Converters MCQS
88. Practical Consideration and Technology in VLSI Design MCQs
89. Device Modeling MCQs
90. Circuit Simulation MCQs
91. Structured Digital Circuits and Systems MCQs
92. CMOS Processing Technology MCQs
93. Nanoscale Semiconductor Physics MCQs
94. Introduction to lithography MCQs
95. Tunnel Junctions and Tunneling Phenomena MCQs
96. Nanoelectronics MCQs
97. Scaling of physical systems MCQs
98. Cellular Mobile Systems MCQs
99. Wireless Communication Essentials MCQs
100. Cochannel interference reduction MCQs
101. Types of Noncochannel interference MCQS



- 102. Cellular Network Management MCQs
- 103. Digital Cellular Systems MCQs
- 104. IoT Essentials MCQs
- 105. IoT Technologies MCQs
- 106. Design Principles for Web Connectivity MCQs
- 107. IoT Technologies MCQS
- 108. IOT Design methodology MCQs
- 109. Probability and Random Variable MCQs
- 110. Probability Distributions and Expectations MCQs
- 111. Multiple Random Variables MCQS
- 112. Stochastic Processes MCQs
- 113. Optical Fiber Basics MCQs
- 114. Signal degradation in Optical Fibre MCQs
- 115. Optical sources and detectors MCQs
- 116. Optical Communication MCQs
- 117. Optical networks and amplifiers MCQS
- 118. 5G Wireless Communications MCQ
- 119. 5G Wireless Propagation Channels MCQS
- 120. 5G Transmission and Design Techniques MCQS
- 121. D2D and M2M Communications MCQS
- 122. Millimeter-Wave Communications MCQs
- 123. Review of Cellular Networks MCQS
- 124. LTE systems MCQS
- 125. Wireless Sensor Networks MCQS
- 126. Wireless routing Protocols MCQS
- 127. Internet of things (IoT) and GPS systems MCQS
- 128. Digital Image Processing MCQs

- 129. Transforms and Their Properties MCQs
- 130. Image Enhancement Techniques MCQs
- 131. Image Restoration MCQs
- 132. Compression & Image Watermarking MCQs
- 133. Speech Processing Fundamentals MCQs
- 134. Speech Distortion Analysis MCQs
- 135. HMMs in Speech Modeling MCQs
- 136. Large Vocabulary Continuous Speech Recognition MCQs
- 137. Text-to-Speech Synthesis MCQs
- 138. Theory of Measurement MCQs
- 139. Cathode Ray Tubes, Oscilloscopes, and Bridge Circuits MCQs
- 140. Transducer MCQs
- 141. Signal and Function Generators, Displays MCQs
- 142. Digital and Analog Conversion MCQs
- 143. Number Systems MCQs
- 144. Combinational logic circuits MCQs
- 145. Sequential Logic Design MCQs
- 146. Registers and Counters MCQs
- 147. Logic Families and Semiconductor Memories MCQs
- 148. Semiconductor MCQs
- 149. Diode Circuits & Power Supply MCQs
- 150. Fundamentals of BJT MCQs
- 151. Small Signal analysis MCQs
- 152. Electronic Devices MCQs
- 153. Introduction to circuit theory MCQs
- 154. Network Graph theory MCQs
- 155. Network Theorems MCQs

- 156. Electrical Circuit Analysis and Laplace Transform MCQs
- 157. Two port parameters MCQS
- 158. Evolution of Microprocessors: From 8086 to Pentium MCQs
- 159. 8086 Microprocessor MCQs
- 160. Interfacing Chips in Microprocessor Systems MCQS
- 161. Peripheral Devices in Computer Systems MCQS
- 162. 8051 Microcontrollers & Embedded Systems MCQs
- 163. Sampling, Modulation, and Multiplexing MCQs
- 164. Digital Communication Techniques MCQs
- 165. Digital Modulation Techniques MCQs
- 166. Modulation Techniques and Signal Processing MCQs
- 167. Information Theory and Communication MCqs
- 168. Two-Port Networks and Matching Techniques MCQs
- 169. Passive LC Filters MCQs
- 170. Transmission Line Fundamentals MCQs
- 171. RF Transmission Lines and Matching Techniques: MCQs
- 172. Computer organization and architecture MCQ
- 173. Construction Materials MCQ
- 174. Introduction to Energy Science MCQ
- 175. Environmental Pollution mcq
- 176. Propositional Logic and Finite State Machines MCQ
- 177. Data Structure MCQ
- 178. Digital Systems MCQ
- 179. Analog/Digital Conversion, Logic Gates, Multivibrators, and IC 555 MCQ
- 180. Relationships - Inheritance MCQ
- 181. Numerical Methods MCQ
- 182. Concept of dynamic programming MCQ

- 183. The Software Product and Software Process MCQ
- 184. Basic Structure of Computer MCQ
- 185. Memory Organization MCQ
- 186. Memory Management MCQ
- 187. Software Development and Architecture MCQ
- 188. Introduction to Computational Intelligence MCQ
- 189. Rough Set Theory MCQ
- 190. RL & Bandit Algorithms MCQs
- 191. Study of traditional routing and transport MCQ
- 192. Hive, Pig, and ETL Processing MCQ
- 193. Mathematical Background for Cryptography MCQ
- 194. Data Warehousing MCQ
- 195. Supervised Learning MCQ
- 196. Introduction to Extreme Programming (XP) MCQs
- 197. Neural Network MCQs
- 198. Data Link Layer MCQ
- 199. Transport Layer MCQ
- 200. 3-D Transformations MCQs