Data Compression-Unit 1 (Information Theory) Practice Questions

Total points   12/25   ?

Your Year & Section *

- ☑ 3CSA
- ☑ 3CB
- ☑ 3CBC
- ☑ 4CSA
- ☑ 4CSB
- ☑ 4CSC
- ☑ Other: M.B.B.S. M.D.

Your Complete Roll No. *

101010101010

Your Complete Name (In Block Letters) *

SHAZAM!!!!

✗ 1) Data Compression is the function of which layer in OSI reference model ? *   0/1

○ A) Application Layer   ✗

○ B) Presentation Layer

○ C) Transport Layer

○ D) Data Link Layer

○ Other: ....

Correct answer

◉ B) Presentation Layer

✗ 2) Which of the following techniques is a lossless data compression technique ? *   0/1

◉ A) JPEG   ✗

○ B) MP3

○ C) Lempalziv

○ D) MPEG

Correct answer

◉ C) Lempalziv

✕ 3) What is the result of lossless compression on the string "25.888888888"? * 0/1

◉ A) 25 ✕

◯ B) 25. [9]8

◯ C) 26

◯ D) 26. [0]8

Correct answer

◉ B) 25. [9]8

✕ 4) Under which category, TEXT COMPRESSION technique comes? * 0/1

◉ A) Data Quality scheme ✕

◯ B) Coding scheme

◯ C) Data Type Scheme

◯ D) Application Scheme

Correct answer

◉ C) Data Type Scheme

✓ 5) Compression ratio is the rate of compressed data? * 1/1

◉ A) True ✓

◯ B) False

✓ 6) Which term is used for describing the difference between original and 1/1
reconstruction data? *

◉ A) Distortion ✓

○ B) Fidelity

○ C) Quality

○ D) None of the above

✕ 7) Data Compression is making file big by predicting the most frequent 0/1
bytes and storing them in big space? *

◉ A) True ✕

○ B) False

Correct answer

◉ B) False

✓ 8) The self information "i" associated with an event A is? * 1/1

◉ A) i(A) = -logb P(A) ✓

○ B) i(A) = logb P(A)

○ C) i(A) = -logb 1/P(A)

○ D) None of the above

✓ 9) Composite source model is a composition of several sources with only 1/1
one source being active at a given time? *

◉ A) True   ✓

○ B) False

✗ 10) ..... can be defined as the measurement of average uncertainity of 0/1
information? *

◉ A) Self Information   ✗

○ B) Entropy

○ C) Physical Model

○ D) None of the above

Correct answer

◉ B) Entropy

✗ 11) What do you mean by a Prefix Code? *   0/1

◉ A) A code in which no codeword is a suffix to another code word   ✗

○ B) A code in which no codeword is a prefix to another code word

○ C) A code in which a codeword is a suffix to another code word

○ D) A code in which a codeword is a prefix to another code word

Correct answer

◉ B) A code in which no codeword is a prefix to another code word

✓ 12) For an alphabet A = {a1, a2, a3, a4}, the first order entropy for p(a1)= 1/1
p(a2)= p(a3)= p(a4) = ¼ is? *

◉ A) 2 bits   ✓

○ B) 3 bits

○ C) 4 bits

○ D) 5 bits

✗ 13) For a =010 and b = 01011, the dangling suffix is ? *   0/1

◉ A) 00   ✗

○ B) 10

○ C) 01

○ D) 11

Correct answer

◉ D) 11

✓ 14) The entropy of the sequence 12323454567898910 is ? *   1/1

◉ A) 3.25 bits   ✓

○ B) 1.25 bits

○ C) 3.75 bits

○ D) 2.25 bits

✕ 15) The code { a1 = 1, a2 = 10, a3 = 110, a4 = 111} is *   0/1

  ⦿ A) Uniquely decodable code   ✕

  ◯ B) Not Uniquely decodable code

Correct answer

  ⦿ B) Not Uniquely decodable code

✓ 16) Consider an alphabet A with source letters (a1, a2, a3, a4) with   1/1
      probabilities P(a1) = 0.5, P(a2) = 0.25, P(a3) = 0.125, P(a4) = 0.125, and the
      respective codes as C(a1) =0, C(a2) = 0, C(a3) = 1, C(a4) = 10, the average
      length for the code is? *

  ⦿ A) 1.125 bits/symbol   ✓

  ◯ B) 1.50 bits/symbol

  ◯ C) 2.00 bits/symbol

  ◯ D) 2.25 bits/ symbol

✕ 17) Which of the following is a prefix code for a source with letters a1, a2, 0/1
      a3, a4? *

  ⦿ A) { 0, 1, 00, 11}   ✕

  ◯ B) {0, 10, 110, 111}

  ◯ C) { 0, 01, 011, 0111}

Correct answer

  ⦿ B) {0, 10, 110, 111}

✓ 18) Which of the following code is not uniquely decodable? *   1/1

○ A) {0, 01, 11, 111}   ✓

○ B) {0, 01, 110, 111}

○ C) {0, 10, 110, 111}

○ D) None of the above

✓ 19) For models used in lossless compression, we use a specific type of   1/1
Markov process called ? *

○ A) Discrete time interval   ✓

○ B) Time interval

○ C) Two state process

○ D) None of the above

✗ 20) DMC refers to? *   0/1

○ A) Digital Markov Compression   ✗

○ B) Digital Main Compression

○ C) Dynamic Markov Compression

○ D) Dynamic Main Compression

Correct answer

○ C) Dynamic Markov Compression

✓ 21) ASCII pressures the prefix property because every code word has different length (7 bits in standard ASCII of bits in External ASCII). * 1/1

○ A) True ✓

○ B) False

✓ 22) Which model is based on understanding of the process generating the data? * 1/1

● A) Markov Model ✓

○ B) Probability Model

○ C) Physical Model

○ D) Composite Source Model

✗ 23) Which Coding scheme is used for image or audio data compression where the loss of this precision can be tolerated? * 0/1

● A) Run Length ✗

○ B) Huffman

○ C) JPEG

○ D) Lempalziv

Correct answer

● C) JPEG

✓ **24) The number of bits/ symbol is called the ? ***   1/1

⦿ A) Rate of the code   ✓

◯ B) Length of the code

◯ C) Entropy of the code

◯ D) None of the above

✗ **25) Choose the correct answer from the following: For a Huffman tree with a root node, ***   0/1

⦿ A) Left branch corresponds to 1 and right branch corresponds to 0   ✗

◯ B) Left branch corresponds to 10 and right branch corresponds to 01

◯ C) Left branch corresponds to 0 and right branch corresponds to 1

◯ D) Left branch corresponds to 01 and right branch corresponds to 10

Correct answer

⦿ C) Left branch corresponds to 0 and right branch corresponds to 1

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