PSIT

Kanpur

QUESTION BANK

DATA COMPRESSION (RCS087)

EVEN SEMESTER (2020-21)

UNIT-1

Q1. What is compression ratio?

(A) The ratio of the number of bits required to represent the data before compression to the number of bits required to represent the data after compression.

(B) The ratio of the number of bits required to represent the data after compression to the number of bits required to represent the data before compression.

(C) The ratio of the number of bits required to represent the data after reconstruction to the number of bits required to represent the data before compression.

(D) The ratio of the number of bits required to represent the data before reconstruction to the number of bits required to represent the data after reconstruction.

(E) None of These

Q2. What does Lossy Compression do with files?

(A) Eliminates no information at all.

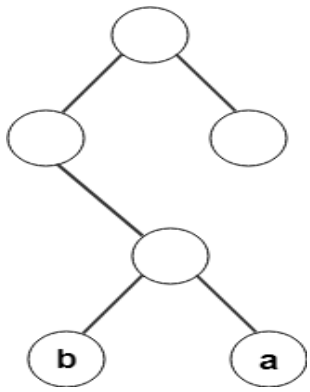
(B) Decrease the file size and keeps the same quality.

(C) Eliminates unnecessary information in a file to reduce file size.

(D) Removes the redundant data and improves the quality.

(E) None of these

Q3. From the following given tree, what is the code word for the character ‘a’?



(A) 011

(B) 010

(C) 100

(D) 101

(E) 110

Q4. Given alphabets are A={a1,a2,a3,a4}, what is the first order entropy if we have the probabilities as P(a1)=P(a2)=P(a3)=P(a4)=1/4?

(A) 3

(B) 2

(C) 4

(D) 6

(E) 1

Q5. Find out the Uniquely decodable codes among the given codes.

(A) {0,01,001,0001}

(B) {1,10,110,0}

(C) {11,110,111,1}

(D) {0,10,101,111}

(E) None of These

Q6. Why data compression is needed?

(A) Conserve storage space

(B) Reduce time for transmission

(C) Reduce computation

(D) for increasing file size

(E) None of These

Q7. How many types of data compression techniques are there?

(A) 1

(B) 3

(C) 2

(D) 4

(E) None of These

Q.8. Which of the following is Lossless Data Compression Algorithms?

(A) LZ77

(B) LZR

(C) Transform Coding

(D) All of the Above

(E) None of the above

Q.9 Which best describes the Lossless Compression?

(A) No information is lost but file size is increased

(B) Files which have the exact same data after compression

(C) There is no loss in information at all after compression

(D) Compression that involves an algorithm

(E) None of These

Q.10 What are the different components of image compression technique?

(A) Redundancy Reduction

(B) Coding

(C) Flipping

(D) Reconstruction

(E) None of these

Q.11 What are the true facts about the Huffman Coding?

(A) It uses famous Greedy Algorithm.

(B) It assigns variable length code to all the characters.

(C) The code length of a character does not depends on the frequency of characters.

(D) It is used for lossy data compression.

(E) None of These

Q.12 How many bits are needed for standard encoding if the size of the character set is X?

(A) log X

(B) X+1

(C) 2X

(D) X^2

(E) None of these

Q.13 The type of encoding where no character code is the prefix of another character code is called?

(A) Optimal Encoding

(B) Prefix Encoding

(C)Frequency Encoding

(D)Trie Encoding

(E)None of These

Q.14 Lossy Techniques are generally used for the compression of data that originate as analog signals, such as

(A) Video

(B) Speech

(C) Text

(D) Document related

(E) None of These

Q.15 If fidelity or quality of a reconstruction is _____, then the difference between the reconstruction and the original is_____.

(A) High, High

(B) High, small

(C) Small, Small

(D) Small, High

(E) None of These

Q.16 Information Theory was given by

(A) Claude von Regan

(B) Claude Elwood Shannon

(C) Claude Monet

(D) Claude Debussy

(E) None of These

Q.17 The essential condition/s for a good error control coding technique is

(A) Better error correcting capability

(B) Maximum transfer of information in bits/sec.

(C) slower coding & Decoding methods

(D) All of the Above

(E) None of the Above

Q.18 The set of binary sequences is called as _____, and the individual members of the set are called as_____.

(A) Codewords, code

(B) Code, Codewords

(C) Alphabets, Symbols

(D) Symbols, Codewords

(E) None of these

Q.19 Composite source model is a combination or composition of several sources. How many sources can be active at any given point of time?

(A) All sources

(B) Only one source

(C) Only first three

(D) Depends on the source model

(E) None of These

Q.20 For models used in Lossless compression, we use a specific type of Markov process. What is that process called?

(A) Constant Time Markov Chain

(B) Discrete Time Markov Chain

(C) Continuous Time Markov Chain

(D) Dynamic Time Markov Chain

(E) None of These

Q.21 Which of the following are the lossy methods of data compression?

(A) MPEG

(B) JPEG

(C) Text

(D) MP3

(E) None of these

Q.22 Which of the following codewords are prefix code

(A) {a=0, b=110, c=10, d=111}

(B) {a=0, b=01, c=10, d=111}

(C) {a=0, b=100, c=10, d=101}

(D) {a=1, b=110, c=10, d=011}

(E) None of These

Q.23 If we have some prior knowledge about the physics of the data generation process, we can use that information to construct a model. What is such a model called?

(A) Probability Model

(B) Physical Model

(C) Markov Model

(D) Two State Markov Model

(E) None of These

Q.24 Out of the following given codes, which codes are Uniquely Decodable codes?

(A) {0,01,10,1}

(B) {0,01,110,111}

(C) {0,01,10}

(D) {0,1,00,11}

(E) None of These

Q.25 Determine the average number of bits required to represent the following symbols, codewords are A=1, B=1, C=0,D=1, E=1,and A=0.5, B=0.2, C=0.1, D=0.1, E=0.1?

(A) 1.9

(B) 2.3

(C) 3.7

(D) 4.1

(E) None of These

Q.26 What are the different measures of performance of any data compression algorithm?

(A) Distortion

(B) Fidelity

(C) Coding

(D) All of the above

(E) None of the Above

Q.27 Suppose, for storing an image which is made up of square arrayof 256*256 pixels requires 65,536 bytes. After compression, it requires 16,384 bytes. Calculate the compression ratio.

(A) 4:1

(B) 2:1

(C) 1:4

(D) 1:3

(E) None of These

Q.28 If P(A)=1/2, P(B)=1/4, P(C)=1/8, P(D)=1/8, Calculate the first order entropy for the given probabilities.

(A) 1.25

(B) 1.75

(C) 2.11

(D) 1.35

(E) None of These

Q.29 Information per source is called as

(A) Sampling

(B) Quantization

(C) Entropy

(D) Normalization

(E) None of These

Q.30 In the multimedia contents, coding and decoding is performed by a software component known as:

(A) codec

(B) modec

(C) sodec

(D) bodec

(E) None of These

UNIT-2

Q31. Huffman codes are _____ codes and are optimum for a given model (set of probabilities).

(A) Parity

(B) Prefix

(C) Convolutional code

(D) Block code

(E) None of These

Q 32. The Huffman procedure is based on observations regarding optimum prefix codes, which is/are

(A) In an optimum code, symbols that occur more frequently (have a higher probability of occurrence) will have shorter codewords than symbols that occur less frequently.

(B) In an optimum code,thetwo symbolsthat occurleast frequently will havethe samelength

(C) Both (A) and (B)

(D) None of these

Q 33. The best algorithms for solving Huffman codes

(A) Brute force algorithm

(B) Divide and conquer algorithm

(C) Greedy algorithm

(D) Exhaustive search

(E) None of These

Q 34. How many printable characters does the ASCII character set consists of?

(A) 128

(B) 100

(C) 95

(D) 90

(E) None of These

Q 35. The difference between the entropy and the average length of the Huffman code is called

(A) Rate

(B) Redundancy

(C) Power

(D) None of these

Q 36. Unit of redundancy is

(A) bits/second

(B) symbol/bits

(C) bits/symbol

(D) none of these

Q 37. The redundancy is zero when

(A) The probabilities are positive powers of two

(B) The probabilities are negative powers of two

(C) Both

(D) None of the above

Q 38. Which bit is reserved as a parity bit in an ASCII set?

(A) Sixth

(B) Seventh

(C) Eighth

(D) Ninth

(E) None of These

Q 39. Bits are needed for standard encoding if the size of the character set is X

(A) X+1

(B) log(X)

(C) X2

(D) 2X

(E) None of These

Q 40. In Huffman coding, data in a tree always occur in

(A) Leaves

(B) Roots

(C) Left sub trees

(D) Right sub trees

(E) None of These

Q 41. An optimal code will always be present in a full tree.

(A) True

(B) False

Q 42. Running time of the Huffman encoding algorithm is

(A) O(Nlog(C))

(B) O(Clog(C))

(C) O(C)

(D) O(log(C))

(E) None of These

Q 43. Running time of the Huffman algorithm, if its implementation of the priority queue is done using linked lists

(A) O(log(C))

(B) O(Clog(C))

(C) O(C2)

(D) O(C)

(E) None of These

Q 44. The unary code for a positive integer n is simply n ___ followed by a ___.

(A) zero, ones

(B) ones, zero

(C) None of these

Q 45. The unary code for 4 is _____.

(A) 11100

(B) 11110

(C) 00001

(D) 00011

(E) None of These

Q 46. In the Tunstall code, all codewords are of _____ length. However, each codeword represents a _____ number of letters.

(A) different, equal

(B) equal, different

(C)Only Equal

(D)Only different

(E) None of these

Q 47. Tunstall coding is a form of entropy coding used for

(A) Lossless data compression

(B) Lossy data compression

(C) Image compression

(D) A and B Both

(E) None of these

Q 48. The main advantage of a Tunstall code is that

(A) Errors in codewords do not propagate

(B) Errors in codewords propagate

(C) The disparity between frequencies

(D) None of these

Q 49. Applications of Huffman Coding

(A) Text compression

(B) Audio compression

(C) Lossless image compression

(D) All of the above

(E)None of these

Q 50.An alphabet consist of the letters A, B, C and D. The probability of occurrence is P(A) = 0.4, P(B)= 0.1, P(C) = 0.2 and P(D) = 0.3. The Huffman code is

(A). A = 0 B = 111 C = 110 D = 10

(B). A = 0 B = 11 C = 10 D = 111

(C). A = 0 B = 111 C = 11 D = 101

(D). A = 01 B = 111 C = 110 D = 10

(E). None of these

Correct option is A

Q 51.The basic idea behind Huffman coding is to

(A). compress data by using fewer bits to encode fewer frequently occuring characters

(B). compress data by using fewer bits to encode more frequently occuring characters

(C). compress data by using more bits to encode more frequently occuring characters

(D). expand data by using fewer bits to encode more frequently occuring characters

(E). None of these

Q 52.Huffman coding is an encoding algorithm used for

(A). lossless data compression

(B). broadband systems

(C). files greater than 1 Mbit

(D). lossy data compression

Correct option is A

Q 53.A Huffman encoder takes a set of characters with fixed length and produces a set of characters of

(A). random length

(B). fixed length

(C). variable length

(D). constant length

Q 54.A Huffman code: A = 1, B = 000, C = 001, D = 01 , P(A) = 0.4, P(B) = 0.1, P(C) = 0.2, P(D) = 0.3 The average number of bits per letter is

(A). 0 bit

(B). 1 bit

(C). 2 bit

(D). 9 bit

Q 55.Which of the following is not a part of the channel coding?

(A). rectangular code

(B). Checksum checking

(C). Hamming code

(D). Huffman code

Q 56.Which of the following is the first phase of JPEG?

(A). DCT Transformation

(B). Quantization

(C). Data Compression

(D). None of the above

Q 57.Which type of method is used is used to compress data made up of combination of symbols?

(A). Run- length encoding

(B). Huffman encoding

(C). Lempel Ziv encoding

(D). JPEG encoding

Q 58.How many passes does lossy compression makes frequently?

(A). One pass

(B). Two pass

(C). Three pass

(D). Four pass

Q 59.Information is the

(A). Data

(B). meaningful data

(C). raw data

(D). Both A and B

Q 60.The type of encoding where no character code is the prefix of another character code is called?

(A) optimal encoding

(B) prefix encoding

(C) frequency encoding

(D) trie encoding

(E) None

UNIT-3

Q61.In dictionary techniques for data compaction, which approach of building dictionary is used for the prior knowledge of probability of the frequently occurring patterns?

(A) Adaptive dictionary

(B) Static dictionary

(C) Both A and B

(D) LZ77 and LZ78

(E) LZW

Q 62.If the probability of encountering a pattern from the dictionary is p, then the average number of bits per pattern R is given by

(A) R=21-12p

(B) R=9-p

(C) R=21-p

(D) R=12-p

(E) R=p-9

Q.63.Static dictionary is

(A) permanent

(B) sometimes allowing the addition of strings but no deletions

(C) allowing for additions and deletions of strings as new input symbols are being read

(D) Both (C) and (B)

(E) Both (A) and (C)

Q64.Adaptive dictionary is

(A) holding strings previously found in the input stream

(B) sometimes allowing the addition of strings but no deletions

(C) allowing for additions and deletions of strings as new input symbols are being read

(D) Both (A) and (B)

(E) Both (B) and (C)

Q.65.LZ78 has _____ compression but very _____ decompression than LZ77.

(A) fast, slow

(B) slow, fast

(C) medium, slow

(D) medium, fast

(E) fast, medium

Q 66. A coding scheme that takes advantage of long runs of identical symbols is called as

(A) Move-to-front coding

(B) Binary coding

(C) Huffman coding

(D) Move-to-back coding

(E) None of these

Q.67. Compression packages which use an LZ77-based algorithm followed by a variable-length coder.

(A) PKZip and PNG

(B) Zip and JPEG

(C) PNG and JPEG

(D) JPEG and GIF

(E) PKZip and Zip

Q.68. Deflate = _____

(A) LZ78 + Huffman

(B) LZ77 + Huffman

(C) LZW + Huffman

(D) Both A and B

(E) Both A and C

Q.69. LZ77 and LZ78 are the two _____ algorithms published in papers by Abraham Lempel and Jacob Ziv in 1977 and 1978

(A) Lossy data compression

(B) Lossless data compression

(C) LZ77 is Lossless data compression and LZ78 is Lossy data compression

(D)) LZ77 is Lossy data compression and LZ78 is is Lossless data compression

(E) None of these

Q.70.If the size of the search buffer is S, the size of the window buffer is W, and the size of the source alphabet is A, then the number of bits needed to code

the triple using fixed-length codes is

(A) log2 S +log2W+ log2 A.

(B) log2 S +log2W

(C) log2W+ log2 A.

(D) log2 S + log2 A.

(E) None of these

Q.71.Given a sequence : wabba/bwabba/bwabba/b. Assuming that the alphabet for the source is _/b_a_b_o_w_, the LZW dictionary initially

Index Entry	alphabet
1	*/b*
2	a
3	b
4	o
5	w

Then the 9 length encoding code will be

(A) 5 2 3 3 2 1 6 8 10

(B) 5 2 3 2 2 1 6 8 10

(C) 5 2 3 3 2 1 6 8 12

(D) 5 2 3 3 2 6 6 8 12

(E) 5 2 3 3 2 5 6 8 10

Q.72.Control codewords in compressed mode for ETM,FLUSH and SETUP is

(A) 0,1,2

(B) 0,2,1

(C) 1,0,2

(D) 1,2,0

(E) 2,0,1

Q.73.On encoding the sequence using ppm : this/bis/bthe/btithe for alphabet set {t,h,i,s,/b} , the cumulative count for letter s in second order context of i is

(A)2

(B)1

(C)3

(D)0

(E) None of these

Q.74.On encoding the sequence: sshtth/bii/be using move-to-front scheme, where alphabet set is { /b, e, h, i, s, t} with initial assignment is { /b=0, e=1, h=2, i=3, s=4, t=5} then encoding sequence is

(A) 4 0 3 5 0 1 3 5 0 1 5

(B) 4 0 3 5 0 0 4 5 0 1 5

(C) 4 0 3 3 0 1 3 5 0 1 5

(D) 4 0 3 0 0 1 3 5 0 1 5

(E) 4 0 3 5 0 1 3 4 0 1 5

Q.75 Full form of GIF.

(A) Graphics Interchange Form

(B) Graphics Inter Format

(C) Graphics Interchange Format

(D) Graphics Interact Format

Q.76.Algorithm used for solving temporal probabilistic reasoning

(A) Depth-first search

(B) Hidden markov model

(C) Bayesian model

(D) Breadth-first search

(E)None of these

Q.77.The old JPEG lossless compression standard makes use of

(A) 6 different predictive scheme

(B) 7 different predictive scheme

(C) 8 different predictive scheme

(D) 9 different predictive scheme

(E) 5 different predictive scheme

Q.78.CALIC Stands for

(A) Context Adaptive Lossless Image Compression

(B) Content Adaptive Lossless Image Compression

(C) Context Adaptive Lossy Image Compression

(D) Content Adaptive Lossy Image Compression

(E)) Context Alternative Lossless Image Compression

Q.79.For three component context vector and three local variation in pixel values in JPEG-LS, Total number of possible context is

(A) 243

(B) 81

(C) 27

(D) 6561

(E) 729

Q.80.The purpose of SIGN variable in JPEG-LS is

(A) prediction refinement step

(B) to reduce number of context

(C) encoding prediction errors

(D) both A and C

(E) ALL A ,B,C

Q.81. JPEG Stands for

(A) Joint Photographic Experts Group

(B) Joint Photographic Extended Group

(C) Joint Photographic Experts Graphics

(D) Joint Picture Experts Group

(E) None of these

Q.82.Modified Huffman scheme is related to

(A) facsimile encoding

(B) Huffman coding

(C) JPEG-LS

(D) Adaptive Dictionary

(E) Static Dictionary

Q.83.In facsimile encoding , the run length is expressed in the form

(A) rl= 128×m+t for t = 0, 1, …, 63, and m = 1, 2, …, 27.

(B) rl= 32×m+t for t = 0, 1, …, 63, and m = 1, 2, …, 27.

(C) rl= 256×m+t for t = 0, 1, …, 63, and m = 1, 2, …, 27.

(D) rl= 64×m+t for t = 0, 1, …, 63, and m = 1, 2, …, 27.

(E) rl= 512×m+t for t = 0, 1, …, 63, and m = 1, 2, …, 27.

Q.84. Multi resolution models generate representations of an image with

(A) fixed spatial resolution and each layer of the pyramid serving as a prediction model

(B) fixed spatial resolution and each layer of the triangle serving as a prediction model

(C) varying spatial resolution and each layer of the triangle serving as a prediction model

(D) varying spatial resolution and each layer of the pyramid serving as a prediction model

(E) None of these

Q.85 . PNG Stands for

(A) Portable Network Graph.

(B) Portable Neutral Graphics.

(C) Portable Network Graphics.

(D) Processed Network Graphics.

(E) Processed Neutral Graphics.

Q.86. HINT Stands for

(A) Hierarchical INTerpolation

(B) Horizontal INTerpolation

(C) Hidden INTerpolation

(D) Huffman INTerpolation

(E) None of these

Q.87. Applications of LZW are

(A) GIF

(B) V.42

(C) Unix compress Command

(D) PNG

(E) None of these

Q.88. In Unix compress command

(A) dictionary is static and of size 512

(B) dictionary is adaptive and of size 256

(C) dictionary is adaptive and of size 512

(D) dictionary is static and of size 256

(E) dictionary is adaptive and of size 128

Q.89. In a BWT algorithm , to encode a sequence of length N

(A) N −1 sequences is created by cyclic shift and arranged in lexicographic order

(B) N+1 sequences is created by cyclic shift and arranged in lexicographic order

(C) N −1 sequences is created by acyclic shift and arranged in lexicographic order

(D) N+1 sequences is created by acyclic shift and arranged in lexicographic order

(E) None of these

Q.90. Decoder in BWT algorithm uses ..... to retrieve original sequence

(A) 2 sequences

(B) 3 sequences

(C) 1 sequence

(D) 4 sequence

(E) None of thes

UNIT-4

Q.91.What is compression ratio?

(A). The ratio of the number of bits required to represent the data before compression to the number of bits required to represent the data after

(B). The ratio of the number of bits required to represent the data after compression to the number of bits required to represent the data before

(C). The ratio of the number of bits required to represent the data after reconstruction to the number of bits required to represent the data before

(D). The ratio of the number of bits required to represent the data before reconstruction to the number of bits required to represent the data after

(E). None of above

Q.92.If fidelity or quality of a reconstruction is , then the difference between the reconstruction and the original is .

(A). High, small

(B). Small, small

(C). High, high

(D). None of the above Answer

(E). Not known

Q.93.What is the type of quantizer, if a Zero is assigned a quantization level?

(A) Midrise type

(B) Mid tread type

(C) Mistreat type

(D) None of the mentioned

(E) Non uniform quantization

Q.94.What is the type of quantizer, if a Zero is assigned a decision level?

(A) Midrise type

(B) Mid tread type

(C) Mistreat type

(D) None of the mentioned

(E) Non uniform quantization

Q.95.Which of the following characterizes a quantizer?

(A) Quantization results in a non-reversible loss of information

(B) A quantizer always produces uncorrelated output samples

(C) The output of a quantizer has the same entropy rate as the input

(D) None of the above

(E) Quantization results in a non-reversible loss of information

Q.96.What is the signal-to-noise ratio (SNR)?

(A) The ratio of the average squared value of the source output and the squared error of the source output

(B) The ratio of the average squared value of the source output and the mean squared error of the source output

(C) The ratio of the average squared value of the source output and the absolute difference measure of the source output

(D) None of the above

(E) Reversible loss of information

Q.97.The output signal of a scalar quantizer has property

(A) The output is a discrete signal with a finite symbol alphabet

(B) The output is a discrete signal with a countable symbol alphabet (but not necessarily a finite symbol alphabet)

(C) The output signal may be discrete or continuous

(D) None of the above

Q.98. What is a Lloyd quantizer?

(A) For a given source, the Lloyd quantizer is the best possible scalar quantizer in ratedistortion sense. That means, there does not exist any other scalar quantizer that yields a smaller distortion at the same rate.

(B) The output of a Lloyd quantizer is a discrete signal with a uniform pmf

(C) Both (A) and (B)

(D) A Lloyd quantizer is the scalar quantizer that yields the minimum distortion for a given source and a given number of quantization intervals.

Q.99.Which of the following statement is correct for comparing scalar quantization and vector quantization?

(A) Vector quantization improves the performance only for sources with memory. For iid sources, the best scalar quantizer has the same efficiency as the best vector quantizer

(B) Vector quantization does not improve the rate-distortion performance relative to scalar quantization, but it has a lower complexity

(C) By vector quantization we can always improve the rate-distortion performance relative to the best scalar quantizer

(D) All of the above

(E) None of the above

Q.100.If {x}n is the source output and {y}n is the reconstructed sequence, then the squared error measure is given by

(A) d(x, y) = (y - x)2

(B) d(x, y) = (x - y)2

(C) d(x, y) = (y + x)2

(D) d(x, y) = (x - y)4

(E) d(x, y) = (x - y)3

Q.101.If {x}n is the source output and {y}n is the reconstructed sequence, then the absolute difference measure is given by

(A) d(x, y) = |y - x|

(B) d(x, y) = |x + y|

(C) d(x, y) = |y + x|

(D) d(x, y) = |x - y|2

(E) d(x, y) = |x - y|

Q102.The set of inputs and outputs of a quantizer can be

(A) Only scalars

(B) Only vectors

(C) Scalars or vectors

(D) None of these

(E) List

Q103.Which of the folowing is/are correct for uniform quantizer

(A) The simplest type of quantizer is the uniform quantizer

(B) All intervals are the same size in the uniform quantizer, except possibly for the two outer intervals

(C) The decision boundaries are spaced evenly

(D) All of the above

Q.104.The main approaches to adapting the quantizer parameters:

(A) An off-line or forward adaptive approach

(B) An on-line or backward adaptive approach

(C) Both

(D) None of the above

(E) Scalar

Q105.Uniform quantizer is also called as

(A) Low rise quantizer

(B) High rise quantizer

(C) Mid rise quantizer

(D) None of the above

(E) Adaptive quantizer

Q106.Non uniform quantizer _____ distortion.

(A) Decrease

(B) Increase

(C) Doesn't change

(D) None of the above

Q107.The output signal of a scalar quantizer has property

(A) The output is a discrete signal with a finite symbol alphabet

(B) The output is a discrete signal with a countable symbol alphabet (but not necessarily a finite symbol alphabet)

(C) The output signal may be discrete or continuous

(D) None of the above

(E) The output is a analog signal with a finite symbol alphabet

Q.108.Vector quantization is rarely used in practical applications, why?

(A) The coding efficiency is the same as for scalar quantization

(B) The computational complexity, in particular for the encoding, is much higher than in scalar quantization and a large codebook needs to be stored

(C) It requires block Huffman coding of quantization indexes, which is very complex

(D) All of the above

(E)The coding efficiency is high always.

Q109.Characteristic of a vector quantizer

(A) Multiple quantization indexes are represented by one codeword

(B) Each input symbol is represented by a fixed-length codeword

(C) Multiple input symbols are represented by one quantization index

(D) All of the above

(E)The coding efficiency is high always.

Q.110.Let N represent the dimension of a vector quantizer. What statement about the performance of the best vector quantizer with dimension N is correct?

(A) For N approaching infinity, the quantizer performance asymptotically approaches the rate-distortion function (theoretical limit)

(B) By doubling the dimension N, the bit rate for the same distortion is halved

(C) The vector quantizer performance is independent of N

(D) All of the above

(E) The vector quantizer performance is high relatively

Q111.Vector quantization is used for

(A) Lossy data compression

(B) Lossy data correction

(C) Pattern recognition

(D) All of the above

(E) None of above

Q112.Vector quantization is used in

(A) Video coding

(B) Audio coding

(C) Speech coding

(D) All of the above

(E) None of above

Q.113.What are process(Techniques) used in video coding?

(A) Partition of frames into macro blocks

(B) Form of Vector Quantization

(C) Both (A) & (B)

(D) None of these

(E) Form of scalar Quantization

Q114.The difference between the entropy and the average length of the Huffman code is called

(A) Rate

(B) Redundancy

(C) Power

(D) None of these

(E) Fidelity

Q115.Unit of redundancy is

(A) bits/second

(B) symbol/bits

(C) bits/symbol

(D) none of these

(E) symol/message

Q116.The redundancy is zero when

(A) The probabilities are positive powers of two

(B) The probabilities are negative powers of two

(C) Both

(D) None of the above

Q117.Applications of Huffman Coding

(A) Text compression

(B) Audio compression

(C) Lossless image compression

(D) All of the above

(E) None

Q118.A coding scheme that takes advantage of long runs of identical symbols is called as

(A) Move-to-front coding

(B) Binary coding

(C) Huffman coding

(D) Move-to-back coding

(E) None

Q119.The process of representing a _____ possibly infinite set of values with a much _____ set is called quantization

(A) Large, smaller

(B) Smaller, large

(C) both A and B

(D) None of these

(E) Large, Large

Q120.Adaptive dictionary –

(A) holding strings previously found in the input stream

(B) sometimes allowing the addition of strings but no deletions

(C) allowing for additions and deletions of strings as new input symbols are being read

(D) Both (A) and (B)

(E) Both (A) and (C)

UNIT-5

Q121.Characteristic of a vector quantizer

A. Multiple quantization indexes are represented by one codeword

B. Each input symbol is represented by a fixed-length codeword

C. Multiple input symbols are represented by one quantization index

D. All of the above

E. None

Q122.Vector quantization is rarely used in practical applications, why?

A. The coding efficiency is the same as for scalar quantization

B. The computational complexity, in particular for the encoding, is much higher than in scalar quantization and a large codebook needs to be stored

C. It requires block Huffman coding of quantization indexes, which is very complex

D. All of the above

E. NONE

Q.123.Let N represent the dimension of a vector quantizer. What statement about the performance of the best vector quantizer with dimension N is correct?

A. For N approaching infinity, the quantizer performance asymptotically approaches the rate-distortion function (theoretical limit)

B. By doubling the dimension N, the bit rate for the same distortion is halved

C. The vector quantizer performance is independent of N

D. All of the above

E. NONE

Q124.Which of the following is/are correct for the advantage of vector quantization over scalar quantization.

A. Vector Quantization can lower the average distortion with the number of reconstruction levels held constant

B. Vector Quantization can reduce the number of reconstruction levels when distortion is held constant

C. Vector Quantization is also more effective than Scalar Quantization When the source output values are not correlated

D. All of the above

E. NONE

Q.125.Vector quantization is used for

A. Lossy data compression

B. Lossy data correction

C. Pattern recognition

D. All of the above

E. NONE

Q.126.The Linde–Buzo–Gray algorithm is a quantization algorithm to derive a good codebook.

A. Scalar

B. Vector

C. Both

D. None of the above

Q.127.Vector quantization is used in

A. Video coding

B. Audio coding

C. Speech coding

D. All of the above

Q.128. What are processes (Techniques) used in video coding?

A. Partition of frames into macroblocks

B. Form of Vector Quantization

C. Both (A) & (B)

D. None of these

Q.129.The process of converting the analog sample into discrete form is called

A. Modulation

B. Multiplexing

C. Quantization

D. Sampling

E. NONE

Q130.The sequence of operations in which PCM is done is

A. Sampling, quantizing, encoding

B. Quantizing, encoding, sampling

C. Quantizing, sampling, encoding

D. None of the above

Q.131.To convert a continuous sensed data into Digital form, which of the following is required?

A. Sampling

B. Quantization

C. Both Sampling and Quantization

D. Neither Sampling nor Quantization

Q132.For a continuous image f(x, y), Quantization is defined as

A. Digitizing the coordinate values

B. Digitizing the amplitude values

C. All of the mentioned

D. None of the mentioned

Q.133.The resulting image of sampling and quantization is considered a matrix of real numbers. By what name(s) the element of this matrix array is called

A. Image element or Picture element

B. Pixel or Pel

C. All of the mentioned

D. None of the mentioned

Q.134.Which conveys more information?

A. High probability event

B. Low probability event

C. High & Low probability event

D. None of the mentioned

Q.135. The probability density function of the envelope of narrow band noise is

A. Uniform

B. Gaussian

C. Rayleigh

D. Rician

E. NONE

Q.136.Which model is known as ignorance model?

A. Physical model

B. Markov model

C. Probability model

D. Composite Source Model

E. NONE

Q.137.Shannons theorem is also called

A. noiseless coding theorem

B. noisy coding theorem

C. coding theorem

D. noiseless theorem Answer

E. NONE

Q.138.Transform coding, vector quantization are examples for

A. Pixel

B. compression

C. Transmission

D. Lossy compression Answer

E. NONE

Q.139. Entropy Coding is an

A. Lossless

B. Lossy

C. 0

D. None

Q.140. is normally used for the data generated by scanning the documents, fax machine, typewriters etc.

A. Huffman Coding

B. Transformation Coding

C. Vector Quantization

D. Runlength Encoding

E. NONE

Q.141. Compression Technique used in Image Video is

A. Huffman Coding

B. Transformation Coding

C. Entropy Coding

D. Differential Encoding

E. NONE

Q.142. Compression Technique used in Audio is

A. Differential Encoding

B. Transformation Encoding

C. Entropy Coding

D. Differential & Transformation Encoding

E. NONE

Q.143. Expansion of LZ Coding is

A. Lossy

B. Lossless

C. Lempel-ziv-welsh

D. Lempel-ziv

E. NONE

Q.144. Expansion of LZW Coding is

A. Lossy

B. Lossles

C. Lempel-ziv

D. Lempel-ziv-welsh

E. NONE

Q.145.Quantization is a……..process.

A. Non linear

B. Reversible

C. Non linear & Reversible

D. None of the mentioned

Q. 146.The mutual information between a pair of events is

A. Positive

B. Negative

C. Zero

D.All of the mentioned

Q.147.The SNR value can be increased by the number of levels.

A. Increasing

B. Decreasing

C. Does not depend on

D. None of the mentioned

Q.148.1 bit quantizer is a

A. Hard limiter

B. Two level comparator

C. Hard limiter & Two level comparator

D. None of the mentioned

Q.149.The low pass filter at the output end of delta modulator depends on

A. Step size

B. Quantization noise

C. Bandwidth

D. None of the mentioned

Q.150.Quantization Matrix in JPEG compression was introduced because

A. It is computationally more efficient to work with matrix than with scalar quantization;

B. It allows better entropy encoding due to DC and AC coefficient distribution in the 8×8 block matrix;

C. It allows better differentiation of DC and AC coefficients in the 8×8 block matrix than a scalar quantization;

D. NONE

ANSWER:

1	(A)
2	(C), (D)
3	(B)
4	(B)
5	(A), (D)
6	(A), (B), (C)
7	(C)
8	(A), (B)
9	(C), (D)
10	(A), (B), (D)
11	(A), (B)
12	(A)
13	(B)
14	(A), (B)
15	(D)
16	(B)
17	(A), (B)
18	(B)
19	(B)
20	(B)
21	(A), (B), (D)
22	(A)
23	(B)
24	(B), (C)
25	(E)
26	(A), (B)
27	(A)
28	(C)
29	(A)
30	(A)
31	B
32	C
33	C
34	C
35	B
36	C
37	B
38	C
39	B
40	A
41	A

42	B
43	C
44	B
45	B
46	B
47	A
48	A
49	D
50	A
51	B
52	A
53	C
54	C
55	D
56	D
57	A
58	B
59	B
60	B
61	B
62	A
63	A,B
64	A,C
65	B
66	A
67	A,E
68	B
69	B
70	A
71	A
72	A
73	A
74	A
75	A,C
76	B
77	C
78	A
79	E
80	A,B
81	A
82	A
83	D
84	D
85	C
86	A

87	A,B,C
88	C
89	A
90	A
91	A
92	D
93	B
94	A
95	A
96	B
97	B
98	D
99	C
100	B
101	E
102	C
103	D
104	C
105	C
106	A
107	B
108	B
109	C
110	A
111	D
112	C
113	C
114	B
115	C
116	B
117	D
118	A
119	A
120	E
121	C
122	B
123	A
124	D
125	D
126	B
127	C
128	C
129	C
130	A
131	C

132	B
133	C
134	B
135	B
136	C
137	A
138	D
139	A
140	D
141	B
142	D
143	D
144	D
145	C
146	D
147	A
148	C
149	C
150	C