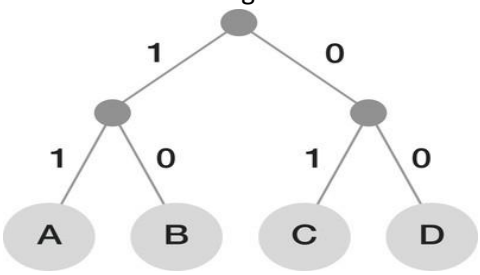
Department of Electronics & Telecommunication Engineering

Data Compression & Encryption (ETE701)

Sem VII CBSGS

Mock Question Paper

1. The correct encoding of the letter A in this tree is... (2M)



   a. 11
   b. 10
   c. 01
   d. 00

2. What does Lossy Compression do to files? (1M)
   a. Increases the file size and keeps the same quality
   b. Eliminates no information at all
   c. Decreases the file size and keeps the same quality
   d. Eliminates unnecessary information in a file to reduce file size

3. If the Search buffer in LZ77 is a b a b r a r then decode the sequence for the token <3,5,C(d)> (2M)
   a. rarrrr
   b. rarrrd
   c. rarrad
   d. raraad

4. LZ77 and LZ78 are the two _____ algorithms published in papers by Abraham Lempel and Jacob Ziv in 1977 and 1978. (1M)
   a. Lossy Data Compression
   b. Lossless Data Compression
   c. Encryption

d. Digital signature

5. A code in which no codeword is a prefix of another codeword is called (1M)
    a. Convolutional Code
    b. Block Code
    c. Prefix code
    d. Dictionary code

6. A Huffman encoder takes a set of characters with fixed length and produces a set of characters of (1M)
    a. Fixed length
    b. Random Length
    c. Variable length
    d. Constant length

7. What is RLE compressed output for the input 'CDDEEEFFFFFFBB'? (2M)
    a. C1D2E3F6B2
    b. 122333444455555
    c. a1b2c3d4e5
    d. E5D4C3B2A1

8. MP3 produces three data rates from 96 Kbps to (1M)
    a. 128 Kbps.
    b. 164 Kbps.
    c. 256 Kbps.
    d. 320 Kbps.

9. According to Nyquist theorem, if highest frequency of signal is f, we need to sample the signal (1M)
    a. f times/sec
    b. 2f times/sec
    c. 3f times/sec
    d. 4f times/sec

10. Consider a mu-Law compander, for which the 8-bit compander output has the following format:

P	S2	S1	S0	Q3	Q2	Q1	Q0

Where P denotes the sign of the sample
S2, S1, S0 is the segmentation code
Q3, Q2, Q1, Q0 denotes the quantization code

For an input sample of (-656), the segmentation code is: (2M)

a. 100
b. 101
c. 011
d. 111

11. The mu-Law compander is based on a (1M)
    a. Elliptic function
    b. Logarithmic function
    c. Parabolic function
    d. Linear function

12. The frequency range of the human ear is from about (1M)
    a. 20 Hz to 2kHz
    b. 20 Hz to 200kHz
    c. 20 Hz to 20 kHz
    d. 0 to 200 Hz

13. In the A-Law compander, The G.711 standard recommends the value of A as (1M)
    a. 55
    b. 255
    c. 155
    d. 200

14. The MPEG-1 audio standard specifies _____ compression methods called layers. (1M)
    a. Two
    b. Four
    c. Three
    d. Five

15. Digital images are displayed as a discrete set of (1M)
    a. values
    b. numbers
    c. frequencies
    d. intensities

16. Down sampling is to make a digital image file smaller by (1M)
    a. Removing Pixels
    b. Adding Pixels
    c. Removing Noise
    d. Adding Noise

17. Digitizing the coordinates of image is called (1M)
    a. Sampling
    b. Quantization
    c. Framing
    d. Coding

18. Which of the following is not a compression technique? (1M)
    a. MPEG
    b. JPEG
    c. Supervised Coding
    d. Run Length Coding

19. The size of an image before compression is 2Mb and its size after compression is 500 Kb. The compression ratio of the said compression technique is (2M)
    a. 4:1
    b. 2:1
    c. 16:1
    d. 1:1

20. Information ignored by the human eye is (1M)
    a. Coding redundancy
    b. Spatial redundancy
    c. Temporal redundancy
    d. Irrelevant Information

21. Suppose we want to transmit a 256 x 256, 8-bits-per-pixel image over a 9600 bits per second line. How much time it takes to transmit the entire image? (2M)
    a. 55 sec
    b. 219 sec
    c. 110 sec
    d. 120 sec

22. An asymmetric-key (or public-key) cipher uses (1M)
    a. 1 key
    b. 2 keys
    c. 3 keys
    d. 4 keys

23. Man-in-the-middle attack can endanger security of Diffie-Hellman method if two parties are not (1M)
    a. Authenticated
    b. Confidential
    c. Joined
    d. Separate

24. We are provided the plain text “SUN”. You need to convert the given plain text into ciphertext under the Caesar cipher encryption technique. Which of the following options is the correct ciphertext for the given text if the key is 2? (2M)
    a. UWP
    b. VXQ
    c. TVO
    d. NUS

25. Shift cipher is sometimes referred to as the (1M)
    a. Asymmetric Cipher
    b. Substitution Cipher
    c. Block Cipher
    d. Caesar Cipher

26. DES stands for (1M)
    a. Data Encryption Subscription
    b. Data Encryption Solutions
    c. Data Encryption Standard
    d. Digital Encryption Standard

27. In Cryptography, original message, before being transformed, is called (1M)
    a. Simple Text
    b. Plain Text
    c. Cipher Text

d. Coded Text

28. In symmetric key cryptography, key used by sender and receiver is (1M)
    a. Shared between the sender and receiver
    b. Unique
    c. Different
    d. Shared publicly

29. The value of the following Euler's Totient function $\phi(231)$ is (2M)
    a. 60
    b. 213
    c. 230
    d. 123

30. Consider a function: f(n) = number of elements in the set {a: 0 <= a < n and gcd(a,n) = 1}. What is this function? (1M)
    a. Primitive
    b. Totient
    c. Primary
    d. Secondary

31. The inverse of 49 mod 37 is (2M)
    a. 31
    b. 23
    c. 22
    d. 34

32. In cryptography, the order of the letters in a message is rearranged by (1M)
    a. Transpositional Cipher
    b. Substitution Cipher
    c. Caesar Cipher
    d. Both Transpositional and Substitution Cipher

33. Which is the largest disadvantage of the symmetric Encryption? (1M)
    a. More complex and therefore more time-consuming calculations.
    b. Problem of the secure transmission of the Secret Key
    c. Less secure encryption function.
    d. Isn't used any more

34. Asymmetric Encryption: Why can a message encrypted with the Public Key only be decrypted with the receiver's appropriate Private Key? (1M)
    a. Not true, the message can also be decrypted with the Public Key
    b. A so called "one-way function with back door" is applied for the encryption
    c. The Public Key contains a special function which is used to encrypt the message, and which can only be reversed by the appropriate Private Key
    d. The encrypted message contains the function for decryption which identifies the Private Key

35. DES is a type of (1M)
    a. Caesar Cipher
    b. Block Cipher
    c. Stream Cipher
    d. Bit Cipher

36. Firewall examines each _____ that are entering or leaving the internal network. (1M)
    a. emails users
    b. updates
    c. connections
    d. data packets

37. Which of the following is not a type of virus? (1M)
    a. Boot sector
    b. Polymorphic
    c. Multipartite
    d. Trojans

38. _____ infects the master boot record and it is challenging and a complex task to remove this virus. (1M)
    a. Boot Sector Virus
    b. Polymorphic
    c. Multipartite
    d. Trojan

39. A biometric task where an unidentified individual is known to be in the database and the system attempts to determine his/her identity. (1M)
    a. Closed-set Identification
    b. Voice Verification
    c. Biometric Identification

d. Open-set Identification

40. What is the ethics behind training how to hack a system? (1M)
    a. To think like hackers and know how to defend such attacks
    b. To hack a system without the permission
    c. To hack a network that is vulnerable
    d. To corrupt software or service using malware