REV-01
MCA/01/05

2024/07

SET A

MASTER OF COMPUTER APPLICATION
SECOND SEMESTER [SPECIAL REPEAT]
DATA COMMUNICATION
MCA-202
[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 3 hrs. **Full Marks: 70**

Objective

Time: 30 mins. **Marks: 20**

Choose the correct answer from the following: ***1×20=20***

1. The _____layer defines the interface between user and the system.
   a. Application b. Transport
   c. Data link d. Physical

2. The _____refers to the transferring data between two devices.
   a. Line configuration b. Topology
   c. Transmission mode d. Modulation mode

3. Which of the following cannot determine the category of a network?
   a. Size b. The logical architecture
   c. Ownership d. All of the above

4. The _____describes an interruption of transmitting signals that cause an unclear reception.
   a. Attenuation b. Distortion
   c. Noise d. None of the above

5. Which factor makes fiber-optic cable inferior to the twisted-pair cable?
   a. Signal attenuation b. Noise resistance
   c. Bandwidth range d. Cost

6. Which type of switching network involves the transfer of small pieces across the various networks?
   a. Packet b. Circuit
   c. Message d. Manual

7. Modulation is defined as the process of superimposing a_____ signal on a _____carrier signal.
   a. Low-frequency; high-frequency b. High-frequency; low-frequency
   c. Encrypts; decrypts d. Separates; Combines

8. In _____, time-slots are not pre-defined.
   a. Synchronous TDM b. Asynchronous TDM
   c. FDM d. WDM

9. The_____ comes under 802.4 standard of IEEE 802 standards.
   a. CSMA/CD b. Token Bus
   c. Token ring d. MAN

10. The IPV6 protocol provides:
    a. 128 bits address
    b. 256 bits address
    c. Unique, numerical IP address
    d. All of these

11. The _____is a function in data link layer.
    a. Congestion control
    b. Routing
    c. Framing
    d. Noiseless channel control

12. The _____reduces the number of collisions to half.
    a. Pure ALOHA
    b. SLOTTED ALOHA
    c. ALOHA
    d. Token Bus

13. The _____is the process of detecting and correcting data frames that are corrupted or lost during transmission.
    a. Congestion control algorithms
    b. Routing
    c. Error control techniques
    d. Gateways

14. The binary notation & dotted decimal notation methods are used in:
    a. IPv4
    b. IPv6
    c. Both a, b
    d. None of the above

15. In Selective Repeat ARQ sliding window, if m is the number of bits for the sequence number, then the size of the send and receive window must less than or equal to _____.
    a. 2^m-1
    b. One half of 2^m
    c. 2^{m-1}
    d. 2^m +2

16. The_____ is a critical process initiated after the deadlock is detected.
    a. Deadlock prevention
    b. Deadlock recovery
    c. Deadlock avoidance
    d. All of the above

17. The_____ is a client/server application, initiated by the client, which sends a request message to a known remote server to execute a specified procedure with supplied parameters.
    a. Network file system
    b. Remote login
    c. Cryptography
    d. Remote procedure call

18. In_____ mathematical technique, it is used to validate the authenticity and integrity of a digital document, message or software.
    a. Symmetric key
    b. Asymmetric key
    c. Digital signature
    d. Public key

19. The_____ is the ability of users to access a device or a network from any location.
    a. Network file system
    b. Remote login
    c. Telnet
    d. Remote procedure call

20. The_____ is a push protocol and is used to send the mail.
    a. DNS
    b. FTP
    c. SMTP
    d. HTTP

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(Descriptive)

Time : 2 hr. 30 mins. **Marks : 50**

[Answer question no.1 & any four (4) from the rest]

1. How a client/server model can create a mechanism that allows a user to establish a session on the remote machine and then run its applications? Explain all the protocols used in this mechanism. 10

2. a) What are the functions of Physical Layer? 2+2+6= 10
   b) Differentiate between guided and unguided media.
   c) Write down the techniques used for wired network.

3. a) Explain the MAC Sublayer and how it is used in OSI Reference Model. 5+5=10
   b) How the functions of MAC Sublayer help in Data Communication?

4. a) Why Error Control Techniques are used? 4+6=10
   b) Explain the types of error control techniques.

5. Explain the advantages and disadvantages of TCP/IP reference model. Write down the similarities between TCP/IP and OSI reference model. 10

6. "When a device has multiple paths to reach a destination, it always selects one path by preferring it over others"- identify the process & write down its types along with diagram. 10

7. Write short notes on: 5×2=10
   a) RPC
   b) Digital certificate

8. a) What is framing? Differentiate between the types of framing. (2+2)+6= 10
   b) Explain how the send sliding window works if m=3, where the $S_{size}=2^m-1$.

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