MASTER OF COMPUTER APPLICATION
SECOND SEMESTER
DATA COMMUNICATION & COMPUTER NETWORKS
MCA – 205
(Use Separate Answer Scripts for Objective & Descriptive)

Duration: 3 hrs.   Full Marks: 70

(PART-A: Objective)

Time: 20 min.   Marks: 20

Choose the correct answer from the following: **1X20=20**

1. The _____ is a network that spread over an area such as a city or its suburbs.
   - a. LAN
   - b. WAN
   - c. MAN
   - d. All of them

2. _____ refers to the way a network is laid out, either physically or logically
   - a. Line configuration
   - b. Topology
   - c. Transmission mode
   - d. Modulation mode

3. Which of the following can determine the category of a network?
   - a. Size
   - b. The physical architecture
   - c. Ownership
   - d. All of the above

4. When a signal loses energy in overcoming the resistance of a medium, this is called _____
   - a. Attenuation
   - b. Distortion
   - c. Noise
   - d. None of the above

5. In _____ transmission, each character is transmitted separately, one character at a time.
   - a. Parallel
   - b. Synchronous
   - c. Serial
   - d. Asynchronous

6. Which type of switching network involves the establishment of a dedicated path between two stations? .
   - a. Packet
   - b. Circuit
   - c. Message
   - d. Manual

7. A multiplexer _____ several transmission streams while a demultiplexer _____ them.
   - a. Combines; separates
   - b. Compress; decompresses
   - c. Encrypts; decrypts
   - d. Separates; Combines

8. In _____, if a device has no data to send, its time slot remains empty.
   - a. Synchronous TDM
   - b. Asynchronous TDM
   - c. FDM
   - d. WDM

[1]

9. The _____ comes under 802.5 standard of IEEE 802 standards.
   a. CSMA/CD   b. Token Bus
   c. Token ring   d. MAN

10. In _____, there is a logical ring along with the physical ring to pass the information.
    a. CSMA/CD   b. Token ring
    c. Token bus   d. MAN

11. In _____, there is no need for defining the boundaries of the frames.
    a. Framing   b. Fixed size framing
    c. Variable size framing   d. Noiseless channel

12. The _____ was designed for a radio or wireless LAN, but it can be used on any shared medium.
    a. Pure ALOHA   b. SLOTTED ALOHA
    c. ALOHA   d. Token Bus

13. _____ of packets across the subnet is considered to be the most important function of the network layer.
    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. IP
    c. Both a, b   d. Packet Switching

15. In sliding window protocol, the size is determined by-
    a. 2^m b. One half of 2^m
    c. 2^{m+1} d. $2^m +1$

16. All the routing algorithms use _____techniques to handle deadlocks restricting routing.
    a. deadlock prevention   b. deadlock recovery
    c. deadlock avoidance   d. all of the above

17. The _____is a stateless protocol where the client machine at user end initiates a TCP connection to server on port 80.
    a. DNS   b. FTP
    c. SMTP   d. HTTP

18. In _____ encryption method, every user has the same encryption key.
    a. Symmetric key   b. Asymmetric key
    c. digital signature   d. public key

19. The _____ is a protocol that one program can use to request a service from a program located in another computer on a network without the knowledge of network's detail.
   a. Network file system
   c. Telnet
   b. Remote login
   d. Remote procedure call

20. The _____ is a client/server application that lets a computer user view, store and update files on a remote computer as though they were on the user's own computer.
   a. Network file system
   c. Cryptography
   b. Remote login
   d. Remote procedure call

-- --- --

PART-B: Descriptive

Time : 2 hrs. 40 min.   Marks : 50

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

1. a. Why OSI reference model is necessary? Explain diagrammatically the
        layer wise protocols used in the OSI reference model.   7+3=10

    b. How it is different from TCP/IP reference model?

2. a. What do you mean by Communication Media?   1+6+3
                                                                                  =10
    b. Explain the wired media along with suitable diagrams.

    c. Mention the advantages and disadvantages for the wired media.

3. a. What do you mean by ALOHA? Explain the concepts of Pure Aloha   5+5=10
        and Slotted Aloha along with specifying the differences among them.

    b. What is ARQ? How it is useful in the noisy channel of DLL protocols

4. a. What are the standards used in IEEE 802.X? Explain diagrammatically.   4+6=10

    b. Why framing is used in Computer Network? Explain the different
        methods of framing along with the examples.

5. a. Why congestion should be avoided in a network?   3+7=10

    b. What are the different types of congestion, explain each of the types
        with their sub-types.

6. a. How sliding window protocol differs from other data link protocols?   4+6=10

    b. How many types of sliding window protocols are available? Explain
        with examples.

7. a. How a client/server model can create a mechanism that allows a user   6+4=10
        to establish a session on the remote machine and then run its
        applications?

    b. Explain all the protocols used in this mechanism.

8. a. What is the significance of using Data Encryption? Explain all types of   6+4=10
        data encryption techniques.

    b. What is the concept of RPC? How it works in a network explain with
        proper diagram.

= = *** = =

[4]