Subject: **BACHELOR OF COMPUTER APPLICATIONS**
Paper name: **COMPUTER NETWORKING**
Paper No: **BCA403**
Semester: **IV SEMESTER**

A. Multiple choice questions [75 (15 from each unit)]

Unit 1:

1. The method of communication in which transmission takes place in both directions,but only one direction at a time is called
    a) Simplex
    b) Multiplexing
    c) Full Duplex
    d) Half Duplex.

2. The topology with highest reliability
    a) Bus topology
    b) Star topology
    c) Mesh topology.
    d) Ring topology

3. OSI consists of _____ layers
    a) 6
    b) 7.
    c) 8
    d) 9

4. This OSI layer deals with Synchonization and Dialog control
    a) Data Link Layer
    b) Network Layer
    c) Session Layer.
    d) Presentation Layer

5. This Protocol handles the communication between a web server and a web browser.
    a) FTP
    b) SMTP
    c) NAT
    d) HTTP.

6. A repeater operates at which layer
    a) Network

    b) Physical.
    c) Application
    d) Transport

7. A Bridge can operate in both layers
    a) Physical and Data Link layer.
    b) Physical and Network layer
    c) Network and Data Link layer
    d) Transport and Network layer

8. Loss of energy/signal strength due to increasing distance
    a) Distortion
    b) Noise
    c) Bandwidth
    d) Attenuation.

9. IP Address is
    a) Logical Address.
    b) Physical Address
    c) Port Address
    d) None of the above

10. MAC Address is
    a) Logical Address
    b) Physical Address.
    c) Port Address
    d) None of the above

11. This type of noise is caused by electrical coupling in the near by twisted pair or by unwanted
    signal picked by microwave antennas.
    a) Thermal noise
    b) Intermodulation noise
    c) Impulse noise
    d) Cross talk.

12. Attenuation is measured in
    a) decibels(dB)
    b) Hertz (Hz)
    c) Scale
    d) Mbps

13. LANs can span over a limited range of
    a) 1 km.
    b) 2 km
    c) 3 km
    d) 4 km

14. This OSI layer represents the preparation or translation of application format to network
    format.
    a) Session layer
    b) Presentation layer.
    c) Datalink layer
    d) Network layer

15. A way to identify a specific process to which an Internet or other network message is to be
    forwarded when it arrives at a server
    a) MAC Address
    b) IP Address
    c) Port Number
    d) None of the above

Unit 2

16. Data transmission using copper wires, fibre optic wires,cables etc is an example of
    a) Guided Media.
    b) Unguided Media
    c) (a) and (b)
    d) None of the above

17. Which multiplexing technique is used to transmit digital signals?
    a) FDM
    b) TDM.
    c) WDM
    d) None of the above

18. This signal is characterised by being continuously variable along both amplitude and
    frequency
    a) Digital Signal
    b) Wave length
    c) Bandwidth
    d) Analog Signal.

19. Time separated signals which are generated using digital modulation.
    a) Digital Signal.
    b) Wave length
    c) Bandwidth
    d) Analog Signal.

20. A method that is used to convert an analog signal into a digital signal, so that modified analog signal can be transmitted through the digital communication network.
    a) Pulse Code Amplification
    b) Sampling
    c) Pulse Code Modulation.
    d) Amplitude shift keying

21. The process of measuring the instantaneous values of continuous-time signal in a discrete form.
    a) Bandwidth
    b) Sampling.
    c) Bit
    d) Edge

22. The sharing of a medium and its link by two or more devices is called _____
    a) Fully duplexing
    b) Multiplexing.
    c) Micropleixng
    d) Duplexing

23. Multiplexing is used in _____
    a) Packet switching
    b) Circuit switching.
    c) Data switching
    d) Packet & Circuit switching

24. If link transmits 4000frames per second, and each slot has 8 bits, the transmission rate of circuit this TDM is
    a) 32kbps.
    b) 500bps
    c) 500kbps
    d) 32bps

25. _____ is the multiplexing technique that shifts each signal to a different carrier frequency.
   a) FDM.
   b) TDM
   c) Both FDM & TDM
   d) PDM

26. WDM stands for?
   a) Wave division multiplexing
   b) Wavelength division multiplexing.
   c) Wavelength dependent multiplexing
   d) Wave dependent multiplexing

27. Which multiplexing technique transmits analog signals?
   a) FDM
   b) TDM
   c) WDM
   d) BOTH (a) and (b).

28. A type of network where the communications between end devices (nodes) must be set up
   before they can communicate
   a) Circuit Switching.
   b) Packet Switching
   c) Message Switching
   d) None of the Above

29. The type of network in which relatively small units of data called packets are routed through
   a network based on the destination address contained within each packet
   a) Circuit Switching
   b) Packet Switching.
   c) Message Switching
   d) None of the Above

30. Datagram Networks is a
   a) Connection-oriented Network
   b) Connectionless-oriented Network.
   c) Virtual Network
   d) ATM Network

Unit 3

31. This layer is responsible for converting data stream to signals bit by bit and to send that over the underlying hardware
    a) Neywork layer
    b) Session layer
    c) Data Link layer
    d) Transport layer

32. Hamming codes can detect up to _____ errors or correct one-bit errors without detection of uncorrected errors.
    a) two-bit.
    b) four-bit
    c) eight-bit
    d) sixteen-bit

33. Which of the following tasks is NOT done by data link layer?
    a) Framing
    b) Error Control
    c) Channel Coding.
    d) Flow Control

34. Stop-and-Wait is a _____ technque.
    a) Line discipline
    b) Flow control .
    c) Error control
    d) Session management

35. In Go-Back-N ARQ, if 5 is the number of bits for the sequence number, then the maximum size of the receive window must be _____.
    a)1.
    b) 15
    c) 30
    d) 12

36. The Stop-And-Wait ARQ, Go-Back-N ARQ, and the Selective Repeat ARQ are for _____ channels.
    a) noiseless
    b) noisy.
    c) either (a) or (b)
    d) neither (a) nor (b)

37. In Go-Back-N ARQ, if frames 4, 5, and 6 are received successfully, the receiver may send an ACK _____ to the sender.
    a) 7.
    b) 6
    c) 5
    d) Any of the above

38. _____ control refers to methods of error detection and correction.
    a) Flow
    b) Error.
    c) Transmission
    d) None

39. Byte stuffing means adding a special byte to the data section of the frame when there is a character with the same pattern as the _____.
    a) trailer
    b) header
    c) flag.
    d) none of the above

40. The _____ Protocol has both flow control and error control.
    a) Stop-and-Wait
    b) Selective-Repeat ARQ
    c) Go-Back-N ARQ
    d) both (b) and (c).

41. In PPP, the _____ is responsible for establishing, maintaining, configuring, and terminating links.
    a) Password Authentication Protocol (PAP)
    b) Challenge-Handshake Authentication Protocol(CHAP)
    c) Link Control Protocol (LCP).
    d) Network Control Protocol (NCP)

42. Data link control deals with the design and procedures for _____ communication.
    a) node-to-node.
    b) process-to-process
    c) host-to-host
    d) none of the above

43. The functon of Data Link control includes
    a) Framing
    b) Flow and Error Control
    c) Software implemented Protocols
    d) All of the above.

44. The data link layer in the IEEE standard is divided into two sub layers such as.
    a) MAC and ACKs
    b) LAN and MAC
    c) LLC and LNC
    d) LLC and MAC

45. In a real-life network, the data link protocols are implemeted as
    a) directional
    b) unidirectional
    c) bidirectional.
    d) omnidirectional

Unit 4

46. Which of the following is not applicable for IP
    a) Error reporting.
    b) Handle addressing conventions
    c) Datagram format
    d) Packet handling

47. Transmission control protocol _____
    a) is a connection-oriented protocol
    b) uses a three way handshake to establish a connection
    c) receives data from application as a single stream
    d) all of the mentioned.

48. User datagram protocol is called connectionless because _____
    a) all UDP packets are treated independently by transport layer.
    b) it sends data as a stream of related packets
    c) it is received in the same order as sent order
    d) it sends data very quickly

49. The size of an IP address in IPv6 is _____
    a) 4bytes
    b) 128bits.
    c) 8bytes
    d) 100bits

50. IPv6 does not use _____ type of address.
    a) Broadcast.
    b) Multicast
    c) Any cast
    d) Unicast

51. The technique used to insulate a private internal IP network and map these to a single external IP address.
    a) PAP
    b) CHAP
    c) NAT.
    d) PPP

52. Used by network devices, including routers, to send error messages and operational information indicating success or failure when communicating with another IP address
    a) ICMP.
    b) SMTP
    c) NAT
    d) PPP

53. A dynamic routing algorithm in which each router computes distance between itself and each possible destination i.e. its immediate neighbors.
    a) Link State Routing
    b) Distance Vector Routing.
    c) Flooding
    d) None of the Above

54. The data link layer is responsible for delivery of frames between two neighboring nodes over a link. This is called_____
    a) Process-to-Process Delivery
    b) Node-to-Node Delivery.
    c) Host-to-Host Delivery
    d) None of the above.

55. Link-State Routing makes use of
    a) Bellman Ford Algorithm
    b) Dijkastra's Algorithm.
    c) Bresenham Algorithm
    d) All of the above

56. Which layer is responsible for process to process delivery in a general network model?
    a) network layer
    b) transport layer.
    c) session layer
    d) data link layer

57. Which address is used to identify a process on a host by the transport layer?
    a) physical address
    b) logical address
    c) port address.
    d) specific address

58. The _____ layer lies between the network layer and the session layer.
    a) physical
    b) datalink
    c) transport.
    d) application

59. UDP operates at which layer?
    a) physical
    b) datalink
    c) transport.
    d) Network

60. The _____ layer oversees the delivery of a data unit between two systems on different
    networks.
    a) physical
    b) datalink
    c) transport
    d) Network.

Unit 5

61. A solution to map human readable names to corresponding IP Addresses (IPv4 or IPv6) and
    vice versa
    a) ICMP
    b) TCP
    c) DNS.
    d) NAT

62. File transfer, access, and management are handled by the _____ layer
    a) Application.
    b) Presentation
    c) Session
    d) Transport

63. The public Internet DNS infrastructure is managed and controlled by
    a) ICAAN
    b) IANA.
    c) ISP
    d) IETF

64. Which of the following is an application layer service?
    a) Remote login
    b) Mail service
    c) File transfer and access
    d) All the above.

65. A text-based network protocol that is used for accessing remote computers over TCP/IP
    networks like the Internet.
    a) Remote Server
    b) Telnet.
    c) FTP
    d) ICMP

66. The common protocol(s) used by Email is/are_____
    a) IMAP
    b) POP3
    c) SMTP
    d) All of the above.

67. A standard network protocol used for the transfer of computer files between a client and
    server on a computer network.
    a) TCP/IP
    b) FTP.
    c) TELNET
    d) UDP

68. Gigabit Ethernet provides a data rate of
    a) 1 Trillion Bits per Second
    b) 1 Billion Bits per Second.
    c) 1 Million Bits per Second
    d) None of the Above

69. Class 1 Bluetooth are the most powerful and can operate upto
    a) 300 mtr
    b) 200 mtr
    c) 100 mtr.
    d) 50 mtr

70. When Wi-Fi uses _____ to transmit information between your devices.
    a) Kinetic waves
    b) Radio waves.
    c) Analog Signal
    d) Electrical signal

71. A wireless computer network that links two or more devices using wireless communication
    to form a local area network within a limited area
    a) LAN
    b)WAN
    c) WLAN.
    d) MAN

72. SSID in Wifi stands for
    a) Service set identification
    b) Service set index
    c) Service set identifier.
    d) Service source ID

73. IEEE 802.11 was specifically developed for _____?
    a) Local Area Network (LAN)
    b) Personal Area Network (PAN)
    c) Wireless LAN.
    d) None of the Above

74. IEEE 802.11 only supported a maximum network bandwidth of _____?
    a) 1 Mbps
    b) 2 Mbps.
    c) 3 Mbps
    d) 4 Mbps

75. A Bluetooth network is called a _____
    a) Bluenet
    b) Blueshark
    c) Netspico
    d) Piconet.

....

B. Fill up the blanks [15 (3 from each unit)]

Unit 1:
1. Distortion means that the signal changes its _____
2. OSI Model was developed in the year _____
3. In _____ topology each device in the network is connected to a central device called hub.

Unit 2:
4. A type of Multiplexing which can carry digital signal is _____
5. A traditional television transmitter, which sends a number of channels through a single cable, uses _____multiplexing.
6. A connection-oriented network switching technique in which a dedicated route is established between the source and the destination is _____

Unit 3:
7. _____can detect up to two-bit errors or correct one-bit errors without detection of uncorrected errors.
8. _____ is a flow control protocol for non-noisy channels.
9. In Selective Repeat Protocol **,** the Sender's Window size is _____ the Receiver's Window size.

Unit 4:
10. _____Routing makes use of Bellman Ford Algorithm
11. The TCP/IP protocols were initially developed by the _____
12. ICMP (Internet Control Message Protocol) is located at the _____ layer of the OSI model.

Unit 5:
13. File Transfer Protocol(FTP) is an _____layer protocol.
14. _____is a network protocol for delivering audio and video over IP networks.
15. HTTP uses a _____model

Key Answers

A. Multiple choice questions:

1.d) Half Duplex.

2.c) Mesh topology.

3.b) 7.

4.c) Session Layer.

5.d) HTTP.

6.b) Physical.

7.a) Physical and Data Link layer.

8.d) Attenuation.

9.a) Logical Address.

10.b) Physical Address.

11.d) Cross talk.

12.a) decibels(dB)

13.a) 1 km.

14.b) Presentation layer.

15.c) Port Number

16.a) Guided Media.

17. b) TDM.

18. d) Analog Signal.

19. a) Digital Signal.

20.c) Pulse Code Modulation.

21.b) Sampling.

22.b) Multiplexing.

23.b) Circuit switching.

24.a) 32kbps.

25.a) FDM.

26.b) Wavelength division multiplexing.

27.d) BOTH (a) and (b).

28.a) Circuit Switching.

29.b) Packet Switching.

30.b) Connectionless-oriented Network.

31.c) Data Link layer

32.a) two-bit.

33.c) Channel Coding.

34.b) Flow control .

35.a)1.

36.b) noisy.

37.a) 7.

38.b) Error.

39.c) flag.

40.d) both (b) and (c).

41.c) Link Control Protocol (LCP).

42.a) node-to-node.

43.d) All of the above.

44.d) LLC and MAC

45.c) bidirectional.

46.a) Error reporting.

47.d) all of the mentioned.

48.a) all UDP packets are treated independently by transport layer.

49.b) 128bits.

50.a) Broadcast.

51.c) NAT.

52.a) ICMP.

53.b) Distance Vector Routing.

54.b) Node-to-Node Delivery.

55.b) Dijkastra's Algorithm.

56.b) transport layer.

57.c) port address.

58.c) transport.

59.c) transport.

60.d) Network.

61.c) DNS.

62.a) Application.

63.b) IANA.

64.d) All the above.

65.b) Telnet.

66.d) All of the above.

67.b) FTP.

68.b) 1 Billion Bits per Second.

69.c) 100 mtr.

70.b) Radio waves.

71.c) WLAN.

72.c) Service set identifier.

73.c) Wireless LAN.

74.b) 2 Mbps.

75.d) Piconet

.B. Fill up the blanks :

1. Shape
2. 1984
3. Star
4. Time Division Multiplexing
5. Frequency Division Multiplexing
6. Circuit switch network
7. Hamming codes
8. stop and wait,
9. equal to
10. Distance Vector
11. Defense Advanced Research Projects Agency (DARPA)
12. Network
13. application
14. Real-time Transport Protocol (RTP)
15. server-client