



BRAINWARE UNIVERSITY

Term End Examination 2020 - 21

Programme – Bachelor of Science (Honours) in Computer Science

Course Name – Computer Networks

Course Code - BCS301

Semester / Year - Semester III

Time allotted : 85 Minutes

Full Marks : 70

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 70=70

1. (Answer any Seventy)

(i) For n devices in a network and duplex mode transmission facility, the number of cable links required for a mesh topology is –

- | | |
|---------------|-------------|
| a) n^2 | b) $2n$ |
| c) $n(n-1)/2$ | d) $n(n-1)$ |

(ii) The layer responsible for encryption technique in OSI model is –

- | | |
|--------------|-----------------|
| a) network | b) presentation |
| c) data link | d) session |

(iii) Switches function in which layer(s) of OSI model?

- | | |
|-------------|---------------------------|
| a) physical | b) data link |
| c) network | d) physical and data link |

(iv) The dedicated physical layer devices are –

- | | |
|---------------------|----------------------|
| a) Hub & Switch | b) Hub & multiplexer |
| c) ATM switch & MUX | d) Repeater & Router |

(v) A network which is used for sharing data, software and hardware among small number of users owning microcomputers is called

- | | |
|--------|--------|
| a) WAN | b) LAN |
|--------|--------|

c) MAN

d) VAN

(vi) Flow control in OSI reference model is performed in –

a) Data link layer

b) Network layer

c) Session layer

d) Application layer

(vii) Open Source Interconnection is developed by..... and has..... layers.

a) IEEE, 7

b) ISI, 5

c) ISO, 7

d) ISI, 7

(viii) Communication between a computer and a keyboard involves –

a) Simplex

b) Half-duplex

c) Duplex

d) Automatic

(ix) The key elements of a protocol are –

a) syntax

b) semantics

c) timing

d) all of these

(x) A router works in

a) Physical Layer

b) Data Link Layer

c) Network Layer

d) Transport Layer

(xi) Which of the following is a transport layer protocol?

a) SMTP

b) UDP

c) ICMP

d) SSH

(xii) Which of the following network device filters network traffic based on the MAC addresses?

a) Bridge

b) Router

c) Repeater

d) Hub

(xiii) A file of 'x bits' is sent from host A to host B over a circuit switched network that uses TDM with 'h slots' and have a bit rate of 'R Mbps'. The circuit establish time is k seconds. Find the total time.

- a) $(x \cdot h)/R$ secs
- b) $((x \cdot h)/R + k)$ secs
- c) $(x)/R$ secs
- d) $((x/R + k)$ secs

(xiv) Which protocol is used to acquire the MAC address of a host whose IP address is known?

- a) Dynamic Host Control Protocol
- b) Address Resolution Protocol
- c) User Datagram Protocol
- d) Reverse Address Resolution Protocol

(xv) Which of the following is a remote login application?

- a) telnet
- b) HTTP
- c) DNS
- d) FTP

(xvi) Which of the following network management command is used for querying the DNS?

- a) netstat
- b) nslookup
- c) whois
- d) None of these

(xvii) FTP control connection is initiated on port number

- a) 20
- b) 21
- c) 80
- d) 143

(xviii) As per 802.3 standard, what is the length of MAC address?

- a) 128 bits
- b) 32 bits
- c) 48 bits
- d) 64 bits

(xix) Repeaters function in which layer(s)?

- a) physical
- b) data link
- c) network
- d) Physical and data link

(xx) Gateways in OSI model can function all the way up to –

- a) transport layer
- b) session layer
- c) presentation layer
- d) application layer

(xxi) Protection of data from a natural disaster such as a tornado belongs to which of

- a) performance
- b) reliability
- c) security
- d) management

(xxii) Which of the following allows devices on one network to communicate with devices on another network?

- a) Multiplexer
- b) Gateway
- c) Switch
- d) Modem

(xxiii) Different computers are connected to a LAN by a cable and –

- a) Modem
- b) NIC
- c) special wires
- d) telephone lines

(xxiv) Manchester code is a–

- a) Non-return to zero code
- b) Polar code
- c) Bipolar code
- d) Non-return to zero code and bipolar code

(xxv) If the maximum value of a signal is 31 and minimum value is -32, how many bits are used for coding?

- a) 4
- b) 5
- c) 6
- d) 8

(xxvi) What does preamble do in an ethernet frame?

- a) Provides packet-level synchronization
- b) Provides frame-level synchronization
- c) Provides byte-level synchronization
- d) Provides bit-level synchronization

(xxvii) What is the purpose of random exponential backoff?

- a) It guaranteed that collision will not happen on next try
- b) It decreases the chance of collision during next try
- c) It increases congestion in the network
- d) It decreases latency in packets

(xxviii) Which of the following is true for Time-Division multiple access (TDMA)?

- a) Provides different frequency bands to different data streams
- b) Provides different code to different spreading code radios
- c) Provides different time slots to different transmitters.
- d) None of these

(xxix) In networking terminology UTP means–

- a) Unshielded twisted pair
- b) Ubiquitous Teflon port
- c) Uniformly terminating port
- d) Unshielded T-connector port

(xxx) The RJ45 is a connector used in case of

- a) 10Base2
- b) 10Base5
- c) 10BaseT
- d) 10BaseF

(xxxi) The Hamming code is used for -

- a) Error Detection
- b) Error Correction
- c) Error Encapsulation
- d) Error Detection and Error Correction

(xxxii) For Stop-and-Wait ARQ, for n data packets sentacknowledgements are needed.

- a) n
- b) 2n
- c) n(n-1)
- d) n-1

(xxxiii) The 1-persistent CSMA / CD is a special case of the p-persistent approach with p =

- a) 0.5
- b) 0.1

c) 1

d) 100

(xxxiv) How much channel throughput of Slotted ALOHA will be in comparison to Pure ALOHA?

a) Same

b) Double

c) Three times

d) None of these

(xxxv) Blue-tooth uses..... to communicate between two devices

a) Radio wave

b) Microwave

c) Infrared

d) Satellite

(xxxvi) An Ethernet has 38 bytes of data. How many bytes padding should be added?

a) 12

b) 8

c) 26

d) 46

(xxxvii) An IPv6 address consists of bits.

a) 48

b) 16

c) 32

d) 128

(xxxviii) Routers function in which layer(s)?

a) physical

b) data link

c) network

d) all of these

(xxxix) Find the channel capacity if the SNR of a telephone line with bandwidth of 3000 Hz is 1023?

a) 3 Kbps

b) 3 bps

c) 30 bps

d) 30 Kbps

(xl) Which type of firewall is used to prevent direct TCP connection between the hosts?

- a) Proxy Server
- b) Circuit-level gateways
- c) Packet filters
- d) Application-level gateways

(xli) Sender and receiver needs to dynamically adjust buffer allocations for

- a) flow control
- b) congestion control
- c) reliability
- d) connection establishment

(xlii) In order to avoid congestion, the sending rate should be

- a) \leq receiver rate
- b) $\text{minimum}(\text{network rate}, \text{receiver rate})$
- c) \leq network rate
- d) $\text{maximum}(\text{network rate}, \text{receiver rate})$

(xliii) A station in a network forward incoming packets by placing them on its shortest output queue. What routing algorithm is being used?

- a) Distance vector routing
- b) Flooding
- c) Static routing
- d) Delta routing

(xliv) A subnet mask in class A has fourteen 1s. How many subnets does it define?

- a) 32
- b) 8
- c) 64
- d) 128

(xlv) What is the hostid of the IP address 114.34.2.8

- a) 114.34
- b) 114.34.2
- c) 2.8
- d) 34.2.8

(xlvi) Jacobson's algorithm is used to

- a) solve silly window syndrome problem
- b) handle out of order data problem
- c) calculate dynamic time out timer
- d) None of these

(xlvii) Which of the following protocol is used by the routers to send error messages when

- a) IP
- b) ICMP
- c) ARP
- d) MQTT

(xlviii) The address of a class B host is to be split into subnets with a 6-bit subnet number. What is the maximum number of subnets and the maximum number of hosts in each subnet?

- a) 62 subnets and 262142 hosts
- b) 64 subnets and 262142 hosts
- c) 62 subnets and 1022 hosts
- d) 64 subnets and 1024 hosts

(xlix) End-to-end connectivity is provided from host-to-host in the

- a) network layer
- b) transport layer
- c) session layer
- d) application layer

(l) Viruses belongs to which network issue

- a) Performance
- b) reliability
- c) security
- d) all of these

(li) In Ethernet network, if the Optical fiber cable is used, the performance will

- a) Increase
- b) Decrease
- c) Remain same
- d) Increase in the beginning then decrease

(lii) Before data can be transmitted, they must be transformed into

- a) low frequency sine wave
- b) electromagnetic signals
- c) aperiodic signals
- d) None of these

(liii) UDP is

- a) reliable and connection oriented
- b) unreliable and connection oriented
- c) unreliable and connectionless
- d) reliable and connectionless

(liv) What is the bandwidth of a signal whose lower frequency is 20 KHz and upper frequency is 60 KHz?

- a) 80 KHz
- b) 3 KHz
- c) 1200 KHz
- d) 40 KHz

(lv) A DNS server reduces the search time by using a mechanism called

- a) recursive
- b) iterative
- c) caching
- d) none of these

(lvi) All the packets of a message follow the same channels of a path in

- a) packet switching
- b) circuit switching
- c) message switching
- d) virtual circuit

(lvii) Which of the following is an application layer service?

- a) FTP
- b) Remote login
- c) Mail service
- d) All of these

(lviii) Flow control is used to prevent

- a) overflow of sender buffer
- b) overflow of receiver
- c) collision between sender and receiver
- d) underflow of sender and receiver

(lix) Which topology technique is NOT a point to point configuration?

- a) Star
- b) Mesh
- c) Bus
- d) Ring

(lx) Which one among the following is a loopback address ?

- a) 127.0.0.1
- b) 255.0.0.0
- c) 255.255.255.0
- d) 255.255.0.0

(lxi) Which topology provide the most flexibility?

- a) star
- b) bus
- c) ring
- d) mesh

(lxii) In cyclic redundancy check what is the CRC?

- a) divisor
- b) dividend
- c) quotient
- d) remainder

(lxiii) Which is NOT an application layer protocol?

- a) HTTP
- b) SMTP
- c) FTP
- d) TCP

(lxiv) Electronic mail uses which Application layer protocol?

- a) SMTP
- b) HTTP
- c) FTP
- d) SHTTP

(lxv) The functionalities of presentation layer include

- a) Data compression
- b) Data encryption
- c) Data description
- d) All of these

(lxvi) Which layer provides the services to user?

- a) Application layer
- b) presentation layer
- c) transport layer
- d) physical layer

(lxvii) In asymmetric key cryptography, the private key is kept by

- a) sender
- b) receiver
- c) sender and receiver
- d) public

(lxviii) In cryptography, the order of the letters in a message is rearranged by

- a) transposition ciphers
- b) substitution ciphers
- c) both transposition ciphers and substitution ciphers
- d) none of the mentioned

(lxix) Which of these is NOT applicable for IP protocol?

- a) Connectionless
- b) Offer reliable service

c) Offer unreliable service

d) None of the mentioned

(lxx) First address in a block is used as network address that represents the

a) Class Network

b) Entity

c) Organization

d) Codes