

MIDTERM EXAMINATION #2 – NOV. 19, 2014
COMPUTER NETWORKS : 03-60-367-01
UNIVERSITY OF WINDSOR
SCHOOL OF COMPUTER SCIENCE
Fall 2014 - 75 minutes

This examination document contains all questions for the examination. Each student must surrender only their answer sheets. Each student may take this examination question paper for future reference. Although you may write on this document, it will not be graded if it is submitted. There is no need to place your name on this document.

PLEASE READ CAREFULLY BEFORE YOU START

1. This is a CLOSED book test; no notes, textbooks, calculators or computer aids are allowed.
2. You will be asked to sign your name once before leaving the exam room (sign-out) and after submitting your exam answer sheet (Scantron computer sheet).
3. PLACE YOUR NAME AND STUDENT ID NUMBER on the Scantron sheets provided – you must use a pencil (NO PENS). Your examination is Course/Section: 03-60-367-01
4. PLACE ANSWERS on the Scantron sheets provided – you must use a pencil (NO PENS).
5. You are not allowed to give or receive unauthorized help with your test. Any misconduct, as outlined by the Senate bylaw 31 article I, will be reported accordingly.
6. **You have 75 minutes to complete this test, starting from the time stated by the instructor.**
7. **When the instructor indicates that time has elapsed all students must stop writing answers and surrender their Scantron answer sheets immediately to the proctors.**
8. Photocopies of Scantron answer sheets will be returned to students after marking. Examination questions and answers will be provided using the course website.
9. The total (maximum possible) mark on this exam is **63**.

Good Luck!

All questions are either Multiple Choice or True-False. For each Multiple Choice question, you are to choose only one response which **best answers** the question. For True-False questions you may only choose one option (True or False). There may be up to five (5) response options for some questions. Place all answers on the Scantron sheet provided. The examination will be marked using the campus computer.

If an error is made you must carefully and completely erase your mistake and then indicate your choice of answer. Completely and carefully fill the circle that indicates your answer to each question. Make sure you have selected the correct question number on the Scantron sheet corresponding to the question on the examination question paper.

WARNING !

Read and think carefully about each question before answering.
Questions have been scrambled by topic. Keep your attention on your own test paper and answer sheet.

1. UDP provides unreliable transfer of datagrams between client and server.
 A) True
 B) False

2. Protocols are not required to govern communication activity in the Internet.
 A) True
 B) False

3. In circuit switching networks, which of the following options is true?
 A) Transmission rate cannot be guaranteed.
 B) The resources needed along a path are reserved.
 C) Uses the resources on demand.
 D) A and B responses are both correct.

4. _____ delay is the result when packets wait to be transmitted onto the next link.
 A) Queuing
 B) Transmission
 C) Propagation
 D) Nodal processing

5. Which option below keeps track of users?
 A) TCP
 B) Cookie
 C) Socket
 D) All of the responses above are correct.

6. Which of the following options show the correct name for a packet of information in each layer?
 A) application layer: frame, Transport layer: segment, Network layer: datagram, Link layer: message
 B) application layer: message, Transport layer: frame, Network layer: datagram, Link layer: segment
 C) application layer: message, Transport layer: segment, Network layer: datagram, Link layer: frame
 D) None of the responses above is correct.

7. Which one is correct about HTTP and SMTP?
 A) both transfer files
 B) both use UDP
 C) both use TCP
 D) A and C are both correct responses.

8. The type of domain that deals with *edu, com, net, org*, and other similar extensions, is called a _____.
A) Root DNS server
B) Top-level DNS server
C) Authoritative DNS server
D) Local DNS server
9. Which one is not a service provided by DNS?
A) translating host names
B) Mail server aliasing
C) load distribution
D) congestion control
10. Which of the options uses a P2P protocol?
A) POP3
B) DNS
C) HTTP
D) BitTorrent
11. Internet protocols define _____.
A) format of messages
B) actions taken on message transmission and receipt
C) order of messages sent and received among network entities
D) All of the responses above are correct
12. In packet switched networks, store and forward refers to: _____.
A) entire message must arrive at router before it can be transmitted on next link
B) scheduling of packets to avoid congestion
C) entire packet must arrive at router before it can be transmitted on next link
D) entire packet must be stored on router until acknowledgement received
13. Ethernet is _____.
A) One of the physical media
B) One of the LAN technologies
C) One of the WAN technologies
D) A client-server network

14. Which of the following is a proper layer of the TCP/IP stack?
A) Session
B) Network
C) Transport
D) Presentation
E) B and C are both correct.
15. Transport services and protocols provide logical communication between hosts.
A) True
B) False
16. SSL was added as an enhancement to TCP in order to provide process-to-process security.
A) True
B) False
17. Packet delay may be caused by _____.
A) time required for nodal processing requirements
B) time required for queueing
C) transmission and propagation times
D) All of these responses are correct.
18. The IETF is responsible for _____.
A) creating new Internet protocols
B) ensuring that the Internet is operating correctly
C) setting Internet standards
D) approving new Internet Service Providers
19. A network's speed is expressed in terms of _____.
A) Routing protocol
B) Round trip time
C) Bit rate and latency
D) I/O buffer response
E) Delay and Routing
20. Photonic (ie. optical) networks utilize _____ switches.
A) LAN
B) TCP/IP
C) CBR
D) analog
E) ATM

21. With download and delete, after a user retrieves its messages from a POP server _____ .
- A) The user may retrieve all their messages later on any machine
 - B) The user may retrieve only some of their messages later on any machine
 - C) The messages are deleted immediately after reading them
 - D) The messages are saved for only a limited period of time, then deleted
 - E) None of the responses above are correct.
22. Which layer is in charge of flow control?
- A) Application
 - B) Network
 - C) Physical
 - D) Transport
23. The time it takes for a small packet to travel from client to server and then back to the client is called _____ .
- A) Round-trip time
 - B) Propagation time
 - C) Transmission time
 - D) Delay time
24. Both UDP and TCP require that the applications recognize their own data formats.
- A) True
 - B) False
25. Which of the following options control the sending and receiving of information within the Internet?
- A) protocols
 - B) packets
 - C) ISP
 - D) RFC
26. HTTP response messages may have an empty message body.
- A) True
 - B) False
27. Packet switching in the network core inevitably leads to _____ .
- A) bandwidth subdivision
 - B) packet loss
 - C) shared circuit switching
 - D) resource contention

28. All datagrams contain 2 ports.
A) True
B) False
29. Message encapsulation refers to _____.
A) designating message contents with descriptive data
B) allowing for message content verification
C) reliance upon IP for transmitting messages
D) embedding payloads and protocol headers within logically layered packages
30. Transfer across TCP streams is _____.
A) half duplex
B) full duplex
C) best available duplex
D) None of the responses above is correct.
31. A DNS resource record is a tuple that contains _____.
A) Name, Value
B) Name, Value, Type
C) Name, Value, Time-to-live
D) Name, Type, Time-to-live
E) Name, Value, Type, Time-to-live
32. TCP abstracts data communication to appear as an apparent stream of flowing data.
A) True
B) False
33. Which option describes the server program in a connection-oriented transport service?
A) Create socket and then, in a loop, wait for incoming connection request, read request, write reply, then close
B) Create socket, send request, read reply, close
C) Create socket, read request, write reply
D) Create socket, send request, read reply, close
34. What is a Distributed Hash Table (DHT)?
A) A Server side searching table.
B) It is used in DNS.
C) An indexing and searching technique for a P2P network.
D) None of the responses above is correct.

35. The socket that represents a 'passive open' is a(n) _____ socket.
A) **Server**
B) Client
C) TCP
D) Application
36. Interconnected routers in the Internet exist _____.
A) within access networks
B) **in the network core, as a network of networks**
C) on the network edge
D) None of these responses is correct
37. Transport services and protocols _____.
A) provide communication between system processes running on different hosts
B) are provided in hosts and routers
C) **make more than one transport protocol available to applications**
D) All of the above responses are correct
38. Packet loss _____.
A) may be dealt with by retransmitting packets, or ignoring them completely
B) may be reduced or eliminated by expanding hardware buffers
C) is not a problem with current technologies
D) **Both A and B responses are correct.**
E) None of these responses is correct.
39. Switching may be accomplished using _____.
A) memory
B) bus
C) crossbar
D) **All of the above responses are correct**
40. With GoBackN, it is possible for the sender to receive an ACK for a packet that falls outside of its current window.
A) **True**
B) False
41. Head-of-the-line blocking occurs only at the input port.
A) **True**
B) False

42. The _____ is defined as the fraction of time the sender is actually busy sending bits into the channel.
A) utilization
B) capacity
C) efficiency
D) None of these responses is correct.
43. TCP strives to give each connection traversing a link an equal share of the link's bandwidth. This service by TCP is known as _____.
A) congestion control
B) bandwidth control
C) equal-opportunity
E) None of these responses is correct.
44. Port numbers in the range 0 - 1023 are known as _____.
A) small port numbers
B) destination port numbers
C) source port numbers
D) well-known port numbers
E) None of these responses is correct.
45. IP service model is a _____ delivery service.
A) guaranteed
B) reliable
C) best-effort
D) None of these responses is correct.
46. A transport layer protocol provides for logical communication between _____.
A) hosts
B) processes
C) routers
D) None of these responses is correct.
47. The maximum amount of data that can be placed in a segment is limited by the _____.
A) maximum bandwidth
B) protocol version used
C) maximum segment size
D) maximum transmission unit

48. As segments arrive from the network, a destination host directs each segment to the appropriate socket by examining the destination port number. This process is known as _____ .
- A) multiplexing
 - B) demultiplexing
 - C) routing
 - D) segmentation
49. In a receiving host, data is delivered from the transport layer to processes through an intermediary _____ .
- A) port
 - B) socket
 - C) IP address
 - D) None of these responses is correct.
50. A checksum is used to provide _____ .
- A) error detection
 - B) error correction
 - C) error algorithm
 - D) None of these responses is correct.
51. To maintain the EstimatedRTT of the SampleRTT's, TCP uses the _____ of the SampleRTT's.
- A) weighted average
 - B) minimum
 - C) maximum
 - D) average of the maximum and minimum
52. The _____ imposes a constraint on the rate at which a TCP sender can send traffic into the network.
- A) congestion indicator
 - B) congestion window
 - C) transmission buffer
 - D) choke packet
53. Which of the following is not a component of a route?
- A) Input ports
 - B) Output ports
 - C) Switching ports
 - D) Switching fabric

54. To better manage the network, network administrators usually divide a single network into _____ by allocating ranges of IP addresses within the network.
- A) islands
 - B) subnets
 - C) groups
 - D) local area networks
55. In the datagram format for IPv4, the _____ field is included to ensure that datagrams do not circulate forever in the network.
- A) destination
 - B) options
 - C) protocol version
 - D) time-to-live
56. _____ is used to extend the use of the limited IPv4 address space.
- A) DHCP
 - B) NAT
 - C) DNS
 - D) TTL
 - E) IPv6
57. IPv6 has _____-bit addresses.
- A) 32
 - B) 64
 - C) 128
 - D) variable length
 - E) None of these responses is correct.
58. Slow start and congestion avoidance are mandatory in TCP congestion-control algorithm.
- A) True
 - B) False
59. The _____ protocol is used for error reporting in the network layer.
- A) TCP
 - B) checksum
 - C) SMTP
 - D) ICMP
 - E) IPsec

60. Window size in TCP is used to avoid congestion within the IP network
A) True
B) False
61. What is the TCP response to a timeout event?
A) sending the next packet
B) retransmitting the segment that caused the timeout
C) restarting the connection
D) None of these responses is correct.
62. Which of the following is correct about TCP?
A) provides full-duplex service
B) provides point-to-point connection
C) starts the connection using three-way handshake
D) All of the responses above are correct.
63. A(n) _____ is used to formulate routing problems.
A) algorithm
B) graph
C) routing table
D) All of the responses above are correct.

End of Examination.