



ECE PARIS
ÉCOLE D'INGÉNIEURS

Prénom : Jeremy
NOM : Hobayen
Promotion :
Groupe :

ING 4
Réseaux informatiques 1 (SI)
Devoir surveillé

Int.

16 décembre 2016

10:30 - 12:30

Durée : 02:00

Sujet proposé par : HATOUM Abbas Antoun
Calculatrice autorisée : NON
Documents autorisés : NON
Ordinateur autorisé : NON

Les étudiants devront répondre sur la grille de réponse jointe au sujet. Il est impératif de noter le n° étudiant, en haut, à droite de celle-ci.

RAPPEL :

- ✦ NOM et Prénom de l'élève doivent être portés sur toutes les copies rendues.
- ✦ Les copies doivent être numérotées.
- ✦ Tous les appareils électroniques (téléphones portables, PDA, ordinateurs, montre connectée, etc.) doivent être éteints et rangés.
- ✦ **Toute erreur constatée sur le sujet doit être signalée sur la copie. Le correcteur en tiendra compte lors de la correction du devoir.**
- ✦ Il est interdit de communiquer.
- ✦ Toute fraude, ou tentative de fraude, qu'elle soit passive ou active, fera l'objet d'un rapport de la part du surveillant et sera sanctionnée par la note zéro, assortie d'une convocation devant le Conseil de discipline. Aucune contestation ne sera possible. Tous les documents et supports utilisés frauduleusement, devront être remis au surveillant.
- ✦ Les élèves ne sont pas autorisés à quitter la salle où se déroule l'épreuve moins de 45 minutes après le début de l'épreuve. Au-delà de ces 45 premières minutes, toute sortie est définitive (sauf dans le cas d'une épreuve durant plus de deux heures).

ING 4 – SI – 2016/2017
Computer Networks Exam

Documents (course notes, personal notes...) are NOT allowed.

Calculators are not allowed

Duration: 2 hours. Total points = 50 points

Choose one answer for each question.

A correct answer = **1 point**

A wrong/incomplete answer = **-0.5 point.**

No response = **0 point**

1. The OSI model has ____ layers.
a) 4
b) 5
c) 6
☒ d) 7
2. TCP/IP model does not have _____ layer(s).
a) session layer
b) presentation layer
c) application layer
☒ d) both (a) and (b)
3. Which layer is responsible for process to process delivery?
a) network layer
→ ☒ b) transport layer
c) session layer
d) data link layer
4. Which address identifies a process on a host?
a) physical address
b) logical address
→ ☒ c) port address
d) specific address
5. Application layer is implemented in
☒ a) End system
b) NIC
c) Ethernet
d) None of the mentioned
6. Transport layer is implemented in
☒ a) End system
b) NIC
c) Ethernet → NW Access (1 & 2)
→ d) Router → NW (3)

7. The physical layer concerns with
 - a) bit-by-bit delivery
 - b) process to process delivery
 - c) application to application delivery
 - d) none of the above
8. The physical layer is responsible for
 - a) line coding
 - b) channel coding
 - c) modulation
 - d) all of the mentioned
9. The physical layer translates logical communication requests from the _____ into hardware specific operations.
 - a) data link layer
 - b) network layer
 - c) transport layer
 - d) application layer
10. A single channel is shared by multiple signals by
 - a) analog modulation
 - b) digital modulation
 - c) multiplexing
 - d) none of the mentioned
11. The "Cutoff frequency" is the
 - a) frequency above which the signal is not detected at all
 - b) frequency below which the signal is attenuated
 - c) frequency below which the signal is received without attenuation
 - d) lowest frequency that can be transmitted
12. The bandwidth
 - a) is a physical property of the transmission medium
 - b) is dependent on the length of the medium
 - c) the width of the frequency range transmitted without being strongly attenuated
 - d) is all the above
13. RF Modulation is
 - a) the variation of one or more properties of an RF signal
 - b) the transmission of an RF signal on a lower frequency
 - c) only done on a wired medium
 - d) None of the above
14. A hub is a layer 2 device
 - a) True
 - b) False

15. A bridge is a layer 3 device
a) True
• ☒ b) False
16. A switch is a layer 2 device
• ☒ a) True
b) False
17. A router is a layer 3 device
• ☒ a) True
b) False
18. Which one(s) of the following task(s) is done by the data link layer?
a) Framing
b) Error control
c) Flow control
• ☒ d) All the above
19. The Medium Access Control protocol used by Ethernet (802.3) is
a) TDMA
b) FDMA
• ☒ c) CSMA/CD
d) CSMA/CA
20. The Medium Access Control protocol used by WiFi (802.11) is
a) TDMA
b) FDMA
• ☒ c) CSMA/CD
• ☒ d) CSMA/CA
21. Ethernet Physical address is made of
a) 4 bytes
• ☒ b) 6 bytes
c) 32 bytes
d) 48 bytes
22. The IP address consists of
a) network address
b) host address
c) both (a) and (b)
d) none of the mentioned
23. The IP V4 address consists of
• ☒ a) 4 bits
b) 16 bits
c) 32 bits
d) 48 bits

IP address 32 bit

24. How many subnets can be configured with the network address 12.48.12.0/22 knowing that each network shall support 16 hosts?
- a. 8 subnets
 - b. 16 subnets
 - c. 32 subnets
 - d. 64 subnets

25. How many subnets can be configured with the network address 126.5.25.0/22 knowing that each network shall support 13 hosts?
- a. 8 subnets
 - b. 16 subnets
 - c. 32 subnets
 - d. 64 subnets

26. How many subnets can be configured with the network address 126.5.25.0/22 knowing that each network shall support 26 hosts?
- a. 8 subnets
 - b. 16 subnets
 - c. 32 subnets
 - d. 64 subnets

27. What is the subnet address of the host 223.52.12.40/27?
- a. 223.52.12.0
 - b. 223.52.12.16
 - c. 223.52.12.32
 - d. 223.52.12.36

28. What is the subnet address of the host 223.52.12.40/28?
- a. 223.52.12.0
 - b. 223.52.12.16
 - c. 223.52.12.32
 - d. 223.52.12.48

What classes do the following network addresses belong to?

29. 192.25.97.39
- a) Class A
 - b) Class B
 - c) Class C
 - d) Class D

30. 138.97.64.15
- a) Class A
 - b) Class B
 - c) Class C
 - d) Class D

31. 18.181.5.31

- ☒ a) Class A
- b) Class B
- c) Class C
- d) Class D

32. 226.192.70.40

- a) Class A
- b) Class B
- c) Class C
- ☒ d) Class D

33. Transport layer aggregates data from different applications into a single stream before passing it to

- ☒ a) network layer
- b) data link layer
- c) application layer
- d) physical layer

34. A bridge is used to:

- ☒ a) Connect a LAN
- b) Separate LANS
- c) Isolate a LAN
- d) None of the above

35. TCP protocol provides logical communication between

- a) Applications
- b) Processes
- c) Hosts
- ☒ d) Network devices

36. Transport protocol is implemented in

- ☒ a) End hosts
- b) Network devices
- c) Both a) and b)
- d) Core network

37. Which of the following transport protocols is more suited for Multimedia application

- ☒ a) UDP
- b) TCP

38. Which of the following transport protocols is more suited for file transfer

- c) UDP
- ☒ d) TCP

39. UDP is a transport protocol that is

- ☒ a) Connection-less
- b) Uses handshaking
- c) Both a) and b)
- d) None of the above

40. TCP is a transport protocol that is
- a) Connection - oriented
 - b) Uses 3 way handshaking
 - c) Both a) and b)
 - d) None of the above

41. TCP handles
- a) Sequence numbers
 - b) Acknowledgment
 - c) Retransmission
 - d) All the above

42. During congestion in a network
- a) UDP reacts to it by decreasing its congestion window
 - b) TCP reacts to it by decreasing its congestion window
 - c) Both a) and b)
 - d) None of the above

43. TCP slow start mechanism consists of
- a) Multiplying congestion window size by 2 at each successfully received ACK
 - b) Increasing congestion window size by 1 MSS at each successfully received ACK
 - c) None of the above
 - d) Both a) and b)

44. TCP congestion avoidance is initiated in the following case
- a) A loss is detected after a time out
 - b) A loss is detected after duplicate Ack
 - c) Both a) and b)
 - d) A packet contains errors.

45. After a time out
- a) TCP Reno decrease the congestion window to 1 MSS
 - b) TCP Tahoe decrease the congestion window to half
 - c) TCP retransmits at a higher speed to compensate the loss
 - d) TCP stops retransmission for the network to resolve congestion

46. After a received duplicate Ack from the receiver
- a) Both TCP Reno and Tahoe decrease the congestion window to 1 MSS
 - b) Both TCP versions stop transmitting until congestion is over
 - c) TCP retransmits at a higher speed to compensate the loss
 - d) None of the above

47. In 802.11 WiFi standard

- a) A WiFi access point is a layer 3 device
- ☒ b) A WiFi access point bridges the traffic towards the gateway
- c) WiFi protocol uses CSMA/CD as a medium access control
- d) All the above

48. A 802.11 standard

- a) A user device sends DHCP request before associating with the Access Point
- b) A user device sends DHCP request after associating with the Access Point
- c) Both a) and b) can be implemented
- d) A user device does not require an IP if its associated with an Access Point

49. A VLAN

- a) Allows separation between networks
- b) Reduces broadcast storms
- c) Increases security
- ☒ d) All the above

50. NATTING is

- a) Translating a private IP address into another IP address
- b) Translating an IP address into a MAC address
- c) Translating a MAC address into an IP address
- d) None of the above

