



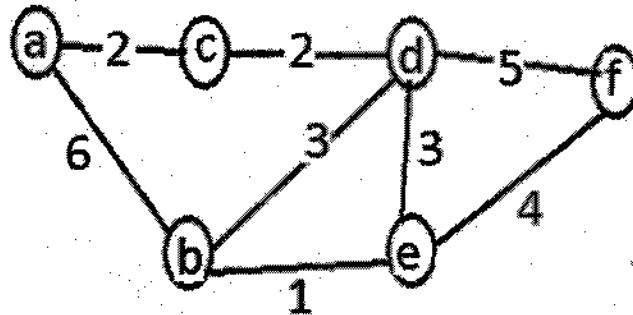
- كلية الهندسة  
الممتحن: د/علي صقر

جامعة كفر الشيخ

امتحان نهاية الفصل الدراسي الأول للعام الجامعي 2020-2019  
الفرقة الرابعة حاسب الدرجة من 90 درجة تاريخ الامتحان 2020/1 /16  
المادة: شبكات الحاسب الاختبار يتحقق من : ILOs : a2, a3,a8,a13,a16, b2,b6,b7, b17, c14,c16, d3

اجب علي التالي- كل سؤال 10 درجات

- 1- Discuss the activities of next internetworking elements: routers, firewalls, switches, hubs, tunnels, services provider, wireless access points, gateways, repeaters, and bridges.
- 2- Discuss the functions of each layer of OSI: physical , data link, network, transportation, session, presentation, and application layers.
- 3- a- Discuss the activities of next next servers: DNS servers, Email servers, web servers, DHCP servers, FTP servers,  
3-b- discuss activities of next protocols:  
RIP (routing Information protocol),  
DVRP (distance vector routing protocol),  
LSRP (link state routing protocol),  
HRP (Hierarchical Routing protocol),  
BRP (Broadcast Routing protocols)
- 4- For the next network , show how to generate the routing table, shortest routes, alternative routes, between nodes a, f. how loops are avoided using hop count. What is max. hop count. Generate the cost matrix between each 2 nodes as shown on link



- 5- a client requested a file package 10MB , the web server defined the address of destination after 1 sec. then client accessed the destination , he must wait in queue for 2 sec before downloading starts, then the package is segmented to be transmit for 1 sec. the package transmitted via a path

with average bandwidth= 2MB/ sec. the propagation time within the path is 1 sec. the assembly time in destination is 3 sec. compute the total time (time to be available at destination).if packet size =1kB, how many packets are delivered, if each packet has overhead (tail and head)=50B. what is the delivered volume. If erroneous packets are 2%. Who many dummy packets sent, if the re-sent traffic is the erroneous traffic only. what if it use (go back -n) and the percentage of correct re-sent traffic is 2%. , what is the total traffic, what is efficiency of transmission. Estimate the necessary time for transferring the correct file. What is the cost of transferring if tariff = 1cent\ Mb, 1 cent/ sec.

---

6- select the proper multiple choice (40M)

1=What are characteristics of clients in data networks?

- a) initiate data exchanges
- b) are repositories of data
- c) upload / download data to / from servers
- d) access for clients from servers

2- What are characteristics of peer-to-peer networks?

- a) scalable
- b) one way data flow
- c) decentralized resources
- d) centralized user accounts

3= Which protocols are used to control the transfer of web resources from a web server to a client browser?

- a) ASP
- b) FTP
- c) HTML
- d) HTTPS

4= Which email components are used to forward mail between servers?

- a) MDA
- b) IMAP
- c) MTA
- d) POP
- e) MUA

5=What is the protocol that is commonly used to support for file transfers between a client and a server?

- a) HTML
- b) HTTP
- c) FTP
- d) Telnet

3/

6= Which OSI model layer is responsible for regulating the flow of information from source to destination, reliably and accurately?

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

7= What is dynamically selected by the source host when forwarding data?

- a) destination logical address
- b) source physical address
- c) default gateway address
- d) source port

8= What type of routing uses information that is manually entered into the routing table?

- a) dynamic
- b) interior
- c) static
- d) standard

9= What are features of the User Datagram Protocol (UDP)?

- a) flow control
- b) connectionless
- c) connection-oriented
- d) sequence and acknowledgements

10= What mechanism is used by TCP to provide flow control as segments travel from source to destination?

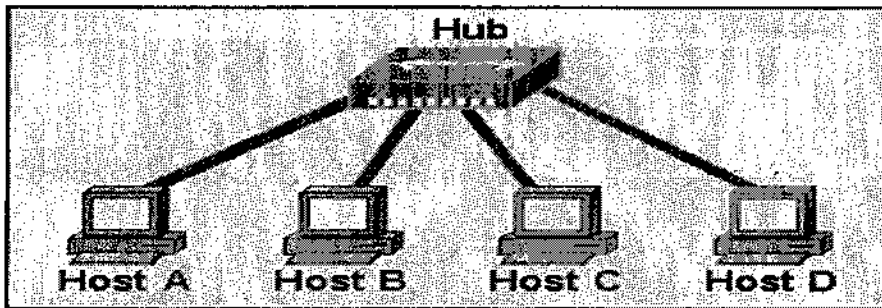
- a) sequence numbers
- b) session establishment
- c) window size

11= Which parameters can ACLs (access control list) use to filter traffic?

- a) packet size
- b) source address
- c) source router interface
- d) destination router interface

12= How many bits make up an IPv4 address?

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



13= In the graph, Host A has reached 50% completion in sending a 1 KB frame to Host D when Host B wishes to transmit its own frame to Host C. What must Host B do?

- a) Host B can transmit immediately since it is connected on its own cable segment.
- b) Host B must wait to receive a CSMA transmission from the hub, to signal its turn.
- c) Host B must send a request signal to Host A by transmitting an inter frame gap.
- d) Host B must wait until it is certain that Host A has completed sending its frame

14= Ethernet operates at which layers of the OSI model?

- a) Transport layer
- b) Physical layer
- c) Session layer
- d) Data-link layer

15= What does the term "attenuation" mean in data communication?

- a) loss of signal strength as distance increases
- b) time for a signal to reach its destination
- c) leakage of signals from one cable pair to another
- d) strengthening of a signal by a networking device

16= How many host addresses may be assigned on each subnetwork when using the 130.68.0.0 network address with a subnet mask of 255.255.248.0?

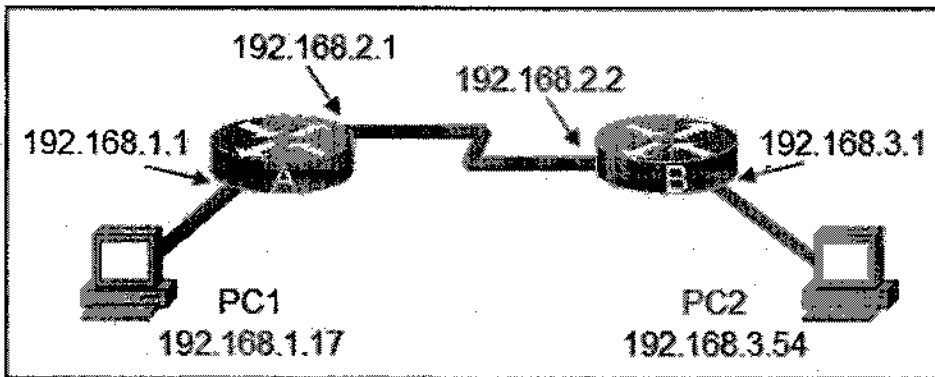
- a) 30
- b) 256
- c) 2046
- d) 2048

17= Which subnet mask would be assigned to the network address of 192.168.32.0 to provide 254 useable host addresses per sub-network?

- a) 255.255.0.0
- b) 255.255.255.0
- c) 255.255.254.0
- d) 255.255.248.0

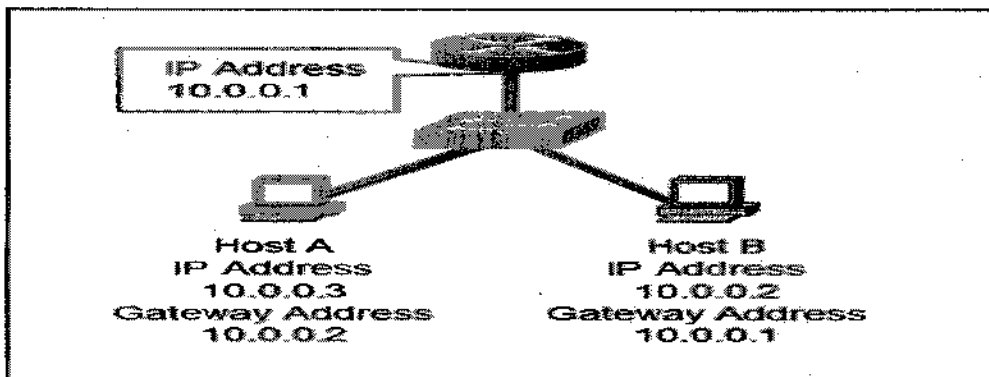
18= A company is planning to subnet its network for a maximum of 29 hosts. Which subnet mask would provide the needed hosts and leave the fewest unused addresses in each subnet?

- a) 255.255.255.0
- b) 255.255.255.192
- c) 255.255.255.224
- d) 255.255.255.240
- e) 255.255.255.248



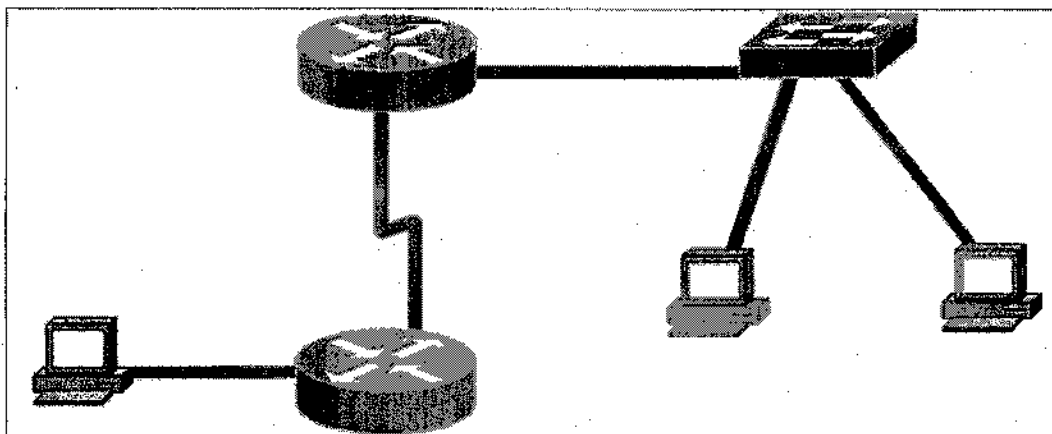
19= Refer to the exhibit. What destination IP address will PC1 place in the header for a packet destined for PC2?

- a) 192.168.1.1
- b) 192.168.2.1
- c) 192.168.2.2
- d) 192.168.3.1
- e) 192.168.3.54



20= Refer to the exhibit. Based on the IP configuration shown, what would be the result of Host A and Host B attempting to communicate outside the network segment?

- a) both host A and B would be successful
- b) host A would be successful, host B would fail
- c) host B would be successful, host A would fail
- d) both Host A and B would fail



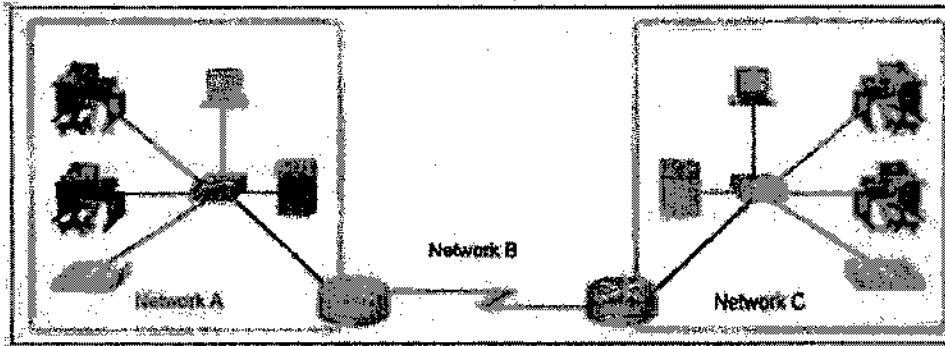
21=Refer to the exhibit. How many subnets are required to support the network that is shown?

- a) 2

- b) 3
- c) 4
- d) 5

**22=Which layers of the OSI model have the same functions as the TCP/IP model Network Access Layer?**

- a) Network
- b) transportation
- c) Data Link
- d) Session



**23=Refer to the exhibit. Which three statements correctly identify the network types for the network segments that are shown?**

- a) Network A — WAN, Network B — WAN, Network C — LAN
- b) Network A — WAN , Network B — MAN, Network c — WAN
- c) Network A — WAN , Network B — WAN, Network C — WAN
- d) Network A – LAN, Network B — WAN, Network C — LAN

**24= Which statements best describe a Local Area Network (LAN)?**

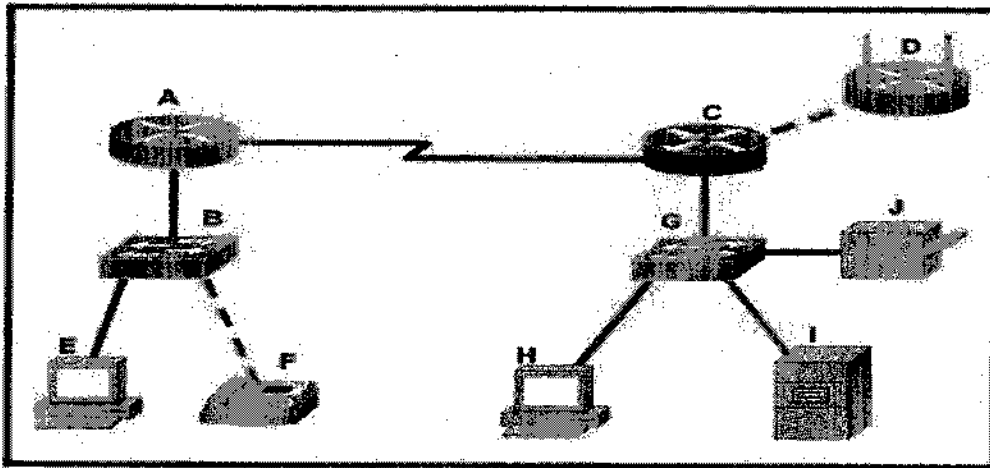
- a) A LAN is usually in a single geographical area.
- b) The connection between segments in the LAN is usually through a leased connection.
- c) The security and access control of the network are controlled by a service provider.

**25=What is the primary purpose of Layer 4 port assignment?**

- a) identify devices on the local media
- b) identify the hops between source and destination
- c) identify to the intermediary devices the best path through the network
- d) identify the source and destination end devices that are communicating
- e) identify the services that are communicating within the end devices

**26= Which layer encapsulates the segment into packets?**

- a) physical
- b) data link
- c) network
- d) transport



27= Refer to the exhibit. Which set of devices contains only end devices?

- a) A, C, D
- b) B, E, G, H
- c) C, D, G, H, I, J
- d) D, E, F, H, I, J
- e) E, F, H, I, J

28= During the encapsulation process, what occurs at the data link layer?

- a) No address is added.
- b) The logical address is added.
- c) The MAC address is added.
- d) The process port number is added.

29= What layer protocol is commonly used to segment and assemble file for transfers between a client and a server?

- a) HTML
- b) session
- c) transport
- d) network

30= Which email components are used to forward mail between servers?

- a) MDA Mail Delivery Agent
- b) IMAP Internet Message Access Protocol
- c) MTA Mail Transport Agent
- d) POP Post Office Protocol

31= What is a component of a routing table entry?

- a) the MAC address of the interface of the router
- b) the destination Layer 4 port number
- c) the destination host address
- d) the next-hop address

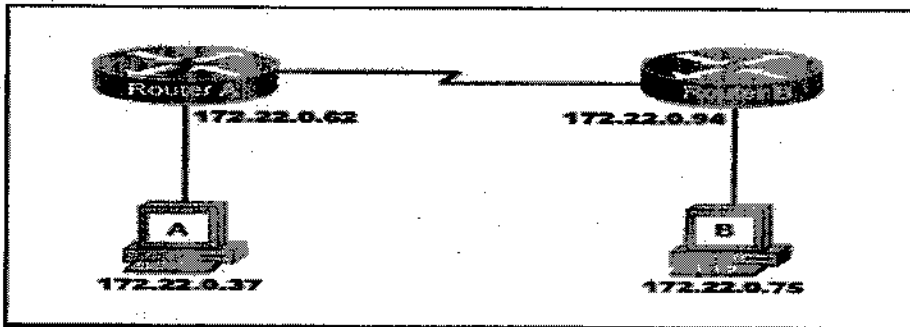
32= Which IP packet field will prevent endless loops?

- a) type-of-service
- b) identification

- c) flags
- d) time-to-live
- e) header checksum

**33= Which devices could be used to implement security between networks?**

- a) hub
- b) switch
- c) firewall
- d) access point
- e) bridge



**34=Refer to the exhibit. Which network prefix will implement the IP addressing scheme for the LANs shown in the graphic?**

- a) /24
- b) /20
- c) /27
- d) /25

**35= Which IPv4 sub-netted addresses represent valid host addresses?**

- a) 172.16.4.127 /26
- b) 172.16.4.155 /26
- c) 172.16.4.95 /27
- d) 172.16.4.159 /27

**36= What are common problems with a large network?**

- a) performance degradation
- b) security issues
- c) limited management responsibility
- d) host identification
- e) protocol incompatibility

**37= Which method of signal transmission uses radio waves to carry signals?**

- a) electrical
- b) optical
- c) wireless
- d) acoustic

**38= What statement describes the purpose of a default route?**



- a) A host uses a default route to forward data to the local switch as the next hop to all destinations.
- b) A host uses a default route to identify the Layer 2 address of an end device on the local network.
- c) A host uses a default route to transfer data to a host outside the local network when no other route to the destination exists
- d) A host uses a default route to transfer data to another host on the same network segment.

39- What is the purpose of a default gateway?

- a) provides a permanent address to a computer
- b) identifies the network to which a computer is connected
- c) identifies the logical address of a networked computer and uniquely identifies it to the rest of the network
- d) identifies the device that allows local network computers to communicate with devices on other networks

40= What is a major characteristic of a worm?

- malicious software that copies itself into other executable programs
- tricks users into running the infected software
- a set of computer instructions that lies dormant until triggered by a specific event
- **exploits vulnerabilities with the intent of propagating itself across a network**

**Good luck**