

2010 年软件学院计算机网络期末试题

Name: _____ No. _____

Note: Answers to Question one and two MUST be written DIRECTLY ON THE PAGES. Answers in other places are INVALID and will NOT be scored.

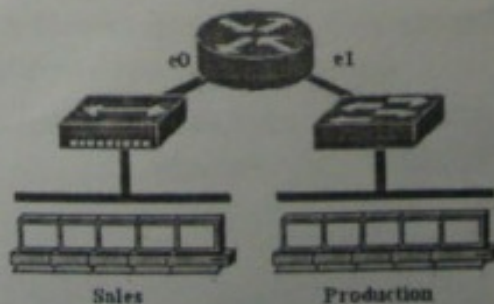
1. Single selection (16 marks)

- (1) Which protocol is NOT a network layer protocol?
A. IP B. RIP C. OSPF D. POP
- (2) Which protocol is a routed protocol?
A. RIP B. IP C. OSPF D. ICMP
- (3) Which protocol is a link-state routing protocol?
A. PPP B. RIP C. OSPF D. TCP E. IP
- (4) Assuming no subnet, what information can be derived from the IP address 132.11.5.11?
A. It is a class C address
B. The network ID is 132.11.5.0
C. It is a 48 bit address
D. The host ID is 5.11
- (5) What information can we derived from the name '100BASETX'?
A. It is a token ring.
B. It works on the twisted-pair cable.
C. It is a broadband network standard.
D. It is an optical network.
- (6) Which of following protocol is a protocol of transport layer?
A. ICMP B. SMTP C. TCP D. ARP E. PPP F. IP
- (7) Which protocol is the core protocol of Ethernet?
A. 802.1q B. 802.2 C. 802.3 D. 802.5 E. 802.11
- (8) Which statement is NOT true?
A. Router is a layer 3 device
B. Transceiver is a layer 1 device
C. Layer 2 switch can provide routing
D. Hub can not support segmentation
- (9) What is a feature of CIDR?
A. No supernetting
B. Classful routing
C. More entries in routing table
D. Route aggregation
- (10) 62.33.17.23 is a:
A. class A address B. class B address C. class C address D. class D address
- (11) On root bridge, all ports are:
A. Root ports B. Blocked ports C. Designated ports D. Nondesignated ports
- (12) Which statement is true?
A. 802.11a works on 2.4GHz.
B. 802.11b is faster than 802.11a.
C. Wireless LAN must work with a cabling Ethernet.

- D. The basic media access control mechanism of 802.11b is CSMA/CA
- (13) Refer to the figure below. What address will be assigned to workstation A?



- A. 192.168.1.143/28
 B. 192.168.1.144/28
 C. 192.168.1.145/28
 D. 192.168.1.159/28
 E. 192.168.1.160/28
- (14) On point-to-point network, OSPF hello packets are addressed to which address?
 A. 127.0.0.1 B. 224.0.0.5 C. 224.0.0.6 D. 255.255.255.255
- (15) If an Ethernet port on a router is addressed 172.16.112.1/20. What is the maximum number of hosts allowed on the subnet?
 A. 1024 B. 2048 C. 4094 D. 4096 E. 8190
- (16) The MAC mechanism of Ethernet is:
 A. CSMA/CA B. CSMA/CD C. Pure ALOHA D. Time-division Multiplexing
2. Single or Multi-selection (20 marks)
- (1) Which protocol are routed protocols?
 A. ICMP B. IP C. OSPF D. SMTP E. RIP F. IPX
- (2) Which statements about switches and routers are true?
 A. Routers can prevent the broadcasts from one interface to another.
 B. Switches can prevent the broadcasts from one interface to another without using VLAN.
 C. Routers can isolate the collision.
 D. Switches can isolate the collision without using VLAN.
 E. Routers can't provide routing between different VLANs
- (3) Refer to the figure below. Which statements are true?



- A. There are two broadcast domains in the network.
 B. There are four broadcast domains in the network.
 C. There are six broadcast domains in the network.
 D. There are four collision domains in the network.
 E. There are five collision domains in the network.
 F. There are seven collision domains in the network.
- (4) Which statements are true?
 A. In order to find correct path, routers must know the whole topology.
 B. A single MAC address is assigned to each interface of the router.

- C. A single MAC address is assigned to each interface of the switch.
- D. In Ethernet, switches must be configured manually, or they will not be able to know which MAC address is belonged to each host.

(5) Which statements about ACL are true?

- A. If no ACL found, all traffics are permitted
- B. If we apply "access-list 1 deny host 192.168.10.1" at "in" direction of the interface S1(configured with the subnet mask 255.255.255.0), then all traffics from the subnet 192.168.10.0/24 at "in" direction will not be permitted.
- C. If we apply "access-list 1 deny host 192.168.10.1" at "in" direction of the interface S1(configured with the subnet mask 255.255.255.0), then all traffics from the subnet 192.168.10.0/24 at "in" direction will be permitted, except traffics from 192.168.10.1.
- D. If ACL list number is 50, then it should be put near to the destination
- E. If ACL list number is 1, then it should be put near to the source

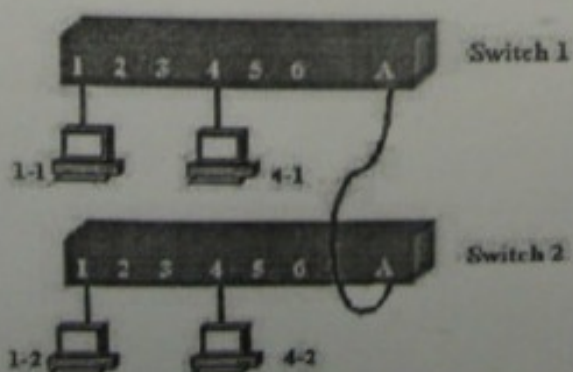
(6) Which following statements are true?

- A. MAC address is a 48 bit digit.
- B. Ethernet Switches use MAC addresses to filter the traffic
- C. IP addresses can be found in the header of an Ethernet frame
- D. Port numbers can be found in both headers of TCP segments and UDP segments.

(7) Which statements about routers are true?

- A. A simplified copy of IOS is stored in ROM
- B. As default, startup configurations is stored in FLASH
- C. NVRAM is a kind of volatile RAM
- D. Setup mode will work if startup configuration can not be found at any places.

(8) Given the network diagram, assume the port1 through port 3 are assigned to VLAN1, and port 4 through port 6 are assigned to VLAN2 on each switch. The switches are



connected through a trunk link. Which of the following operations are true?

- A. host 1-1 can ping host 1-2
- B. host 1-1 can ping host 4-2
- C. host 1-1 can not ping host 4-2
- D. host 4-1 can not ping host 1-2
- E. host 4-1 can ping host 4-2

(9) If we divide a network 77.78.79.0/255.255.255.0 into several subnets, which division is possible?

- A. 2 subnets with 128 hosts each
- B. 4 subnets with 64 hosts each
- C. 6 subnets with 30 hosts each
- D. 14 subnets with 14 hosts each

(10) Which statement is NOT true?

- A. Router is a layer 2 device
- B. Transceiver is a layer 1 device
- C. Layer 2 switch can provide routing
- D. Hub can not support segmentation

3. Interpret these terms **IN DETAIL**: (24 marks)

(1) IEEE MAC Sub-layer

(2) Split Horizon

(3) Flow Control

(4) Socket

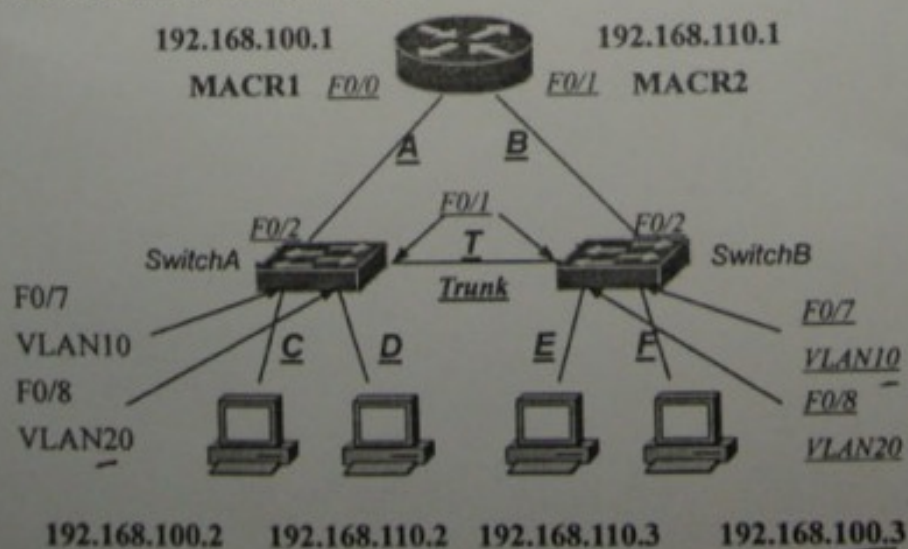
(5) DNS

(6) Time Division Multiplexing

(7) ADSL

(8) Computer Virus

4. Please give the order of links the packets passed when ping 192.168.100.3 from 192.168.110.2 (5 marks), and why? (5 marks). These links are labeled as 'A', 'B', and so on. Please give the Source MAC, Destination MAC, Source IP, and Destination IP of data frames transferred on each link. (10 marks)



5. Please give the encoding result of '01001110111' by using Manchester (6 marks)

6. As we known, routing protocols supporting CIDR can aggregate the routes and send the optimized route to the next hop. What are the best aggregated routes sent on the link A, B, C, D, E? And why?(14 marks)

