亞洲大學

97學年度碩士班入學招生考試試題紙

學系別	考試科目	考試日期	時　間
資訊與通訊學系碩士班	網路概論(A)	97.4.26	18:10-19:50

Multiple Choice Questions (選擇題) 30%

1. Which of the following network components belongs to the data link layer of the Open Systems Interconnection (OSI) model? (a) Switch (b) Router (c) Repeater (d) Hub.
2. Which of the following standard is **NOT** designed for wireless communications? (a) IEEE 802.11 (b) IEEE 802.15 (c) IEEE 802.3 (d) IEEE802.16.
3. How many bps can a modem achieve at 1200 baud with Quadrature Phase Shift Keying (QPSK) technique? (a) 2400 bps (b) 4800 bps (c) 9600 bps (d)14400 bps
4. An 8-bit byte with binary value 1010111 is to be encoded using an even-parity Hamming code. What is the binary value after encoding? (a) 101011110001 (b) 110011110011 (c) 101011101010 (d) 101001001111
5. If a transmission line (or channel) is with higher error rate, which of the following data link protocol is preferred? (a) stop-and-wait protocol (b) one-bit sliding window protocol (c) selective repeat (d) go back N.
6. In many companies, organizational changes all the time. To avoid spending much time to rearrange the twisted pair lines, they need (a) virtual LAN (VLAN) (b) more routers (c) more hubs (d) more repeaters.
7. IEEE 802.16 supports four service classes. Which service class is the best choice for sending uncompressed video? (a) constant bit rate service (b) real-time variable bit rate service (c) non-real-time variable bit rate service (d) best-effort service.
8. In wireless LAN, the problem of a station not being able to detect a potential competitor for the medium because the competitor is too far away is called (a) exposed station problem (b) collision (c) hidden station problem (d) CSMA/CA.
9. The maximum size of an Ethernet frame is (a) 1024 bytes (b) 1518 bytes (c) 512 bytes (d) 1596 bytes.
10. Which description of the Ethernet cable, 10Base-T, is **NOT** correct? (a) It can support segments of up to100 meters. (b) It operates at 100Mbps. (c) It is the cheapest system in contrast to other Ethernet cables. (d) It supports up to 1024 nodes per segment.

※ 試題請隨卷繳回

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11. Some applications require that widely-separated processes work together in groups. Sending a message to such a group is called (a) broadcast (b) flooding (c) unicast (d) multicast.
12. What is the default subnet mask for a class B network? (a) 255.0.0.0 (b) 127.0.0.1 (c) 255.255.255.0 (d) 255.255.0.0.
13. Which one is applied to deal with the problem of the insufficient addresses of IPv4? (a) Network Address Translation (NAT) (b) Dynamic Host Configuration Protocol (DHCP) (c) Domain Name System (DNS) (d)Point to Point Protocol (PPP).
14. Which protocol is suitable for developing Voice over IP (VoIP) technology? (a) POP3 (b) SMTP (c) SIP (d) SSH
15. Which of following descriptions is correct? (a) In general, RSA is faster than DES. (b) DES is a public-key algorithm. (c) RSA can be used in digital signatures. (d) RSA is a symmetric-key algorithm.

Essay Questions (申論與計算) 70%

I. Briefly explain Address Resolution Protocol (ARP) and RARP. (10%)
II. Explain (a) binary exponential backoff algorithm (b) symmetric-key and public-key algorithms. (10%)
III. Draw figures to explain and compare distance vector routing algorithm and link state routing algorithm. (15%)
IV. A large number of consecutive IP address are available starting at 198.16.0.0. Suppose that four organizations, A, B, C, and D, request 4000, 2000, 4000, and 8000 addresses, respectively, and in that order. For each of these, give the first IP address assigned, the last IP address assigned, and the mask in the $w.x.y.z/s$ notation. (20%)
V. Compare and describe each layer of the OSI and TCP/IP reference models. (15%)

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