

八十八學年度 資訊工程研究所 (所) 21 組碩士班研究生招生考試

科目 計算機網路概論 科號 4303 共 2 頁第 1 頁 *請在試卷【答案卷】內作答

(14%) 1. What is OSI network reference model? Please describe briefly the major functions of each of the seven layers.

(6%) 2. Please describe the collision handling scheme in the CSMA/CD protocol (Ethernet).

(10%) 3. Let a denote the propagation delay between the farthest two nodes of an Ethernet and L denote the minimum transmission time of a frame. Which of the following is correct for an Ethernet? Why?

- (a) $L = a$,
- (b) $L \geq 2a$,
- (c) $L \leq 2a$,
- (d) $L = 4a$.

(10%) 4. What are the major characteristics of IP (Internet Protocol)?

(5%) 5. What is *routing protocol*? Which of the following are routing protocols?

- (a) IP,
- (b) RIP,
- (c) IPX,
- (d) OSPF.

(10%) 6. Please describe the flow control mechanism (sliding window) employed in the TCP (Transmission Control Protocol).

(8%) 7. What are *carrier extension* and *frame bursting* techniques employed in the Gigabit Ethernet?

(9%) 8. Please describe the characteristics of the following services provided by ATM (Asynchronous Transfer Mode) networks:

- (a) CBR (Constant Bit Rate),
- (b) VBR (Variable Bit Rate),
- (c) ABR (Available Bit Rate).

八十八學年度 通訊工程研究所 (所) 乙 組碩士班研究生招生考試

科目 計算機網路概論 科號 4303 共 2 頁第 2 頁 *請在試卷【答案卷】內作答

(10%) 9. Please describe the CSMA/CA (Carrier Sense Multiple Access with Collision Avoidance) protocol employed in the IEEE 802.11 wireless LANs. What is the major difference between CSMA/CD and CSMA/CA protocols?

(10%) 10. What problems may occur if *loops* exist in a bridged LANs (BLANs)? How to solve these problems?

(8%) 11. Please describe the major features of the following inter-networking devices:

- (a) Repeaters,
- (b) Hubs,
- (c) Bridges,
- (d) Routers.