

ITS 323 – QUIZ 6 (CSB) ANSWERS

First name: _____ Last name: _____

ID: _____

Total Marks: _____

out of 10

Question 1 [3 marks]

Assume Classful Addressing is used.

- a) Computer A has IP address 193.132.17.3. What class is it? _____
- b) What IP address identifies the network of Computer A? _____
- c) Is the computer with the following IP address on the same network as A? YES / NO
 11000001 10000100 00000011 00000000

Answers

- a. Class C – 201 in binary is 11000001, so the first three bits are 110 meaning Class C.
- b. 193.132.17.0
- c. No, the IP address begins with decimal 193.132.3, hence not the same network.

Question 2 [3 marks]

Assume Classless Addressing is used.

- a) What subnet mask should be used to create the same network size as that of Computer A in Question 1?

- b) Computer C has IP address 64.33.8.3. What is the network address for this computer if the subnet mask is 255.255.192.0?

- c) What is the broadcast address for computer C with subnet mask 255.255.192.0?

Answer

- a. 255.255.255.0 – With a Class C address, the split between network and host portion is after the first 24 bits.
- b. 64.33.0.0 – With this subnet mask the first 18 bits are the network portion
- c. 64.33.63.255 – Host bits all 1's

Question 3 [3 marks]

Multiple choice (circle the correct answer):

- a) Which protocol maps IP addresses into physical address (like IEEE MAC addresses):
- i. ICMP
 - ii. ARP
 - iii. DNS
 - iv. IP
- b) For a network with a maximum of 3000 hosts, which subnet mask is most appropriate?
- i. /12
 - ii. /20
 - iii. /10
 - iv. /11
- c) The purpose of the Protocol Number field in the IP header is:
- i. Indicate the lower layer (data link) protocol that the data is intended for
 - ii. Indicate the protocol options used by IP
 - iii. Indicate the next higher layer protocol that the data is intended for
 - iv. Indicate the version of IP being used
- d) For an IP datagram with destination address 150.102.12.10/24 at a router with the following routing table, what next router will the datagram be sent to:
- | Destination Network | Next Router |
|---------------------|-------------|
| 150.102.7.* /24 | A |
| 150.*.7.10/24 | B |
| 150.102.*.* /24 | C |
| * | D |
- i. A
 - ii. B
 - iii. C
 - iv. D

Answer

- a. ARP – Address Resolution Protocol
- b. /20 – This leaves 12 bits for the host portion, giving a possible 4096 addresses, which is enough for a network with 3000 hosts (11 bits, or 2048 is not enough).
- c. Indicate the next higher layer protocol that the data is intended for, e.g. 6 for TCP, 17 for UDP.
- d. C – This will be the first entry that matches (the entries are tested row by row).