

CSE421 / EEE465 : Computer Networks

Answer **ALL** the following questions. (Pages: 2)

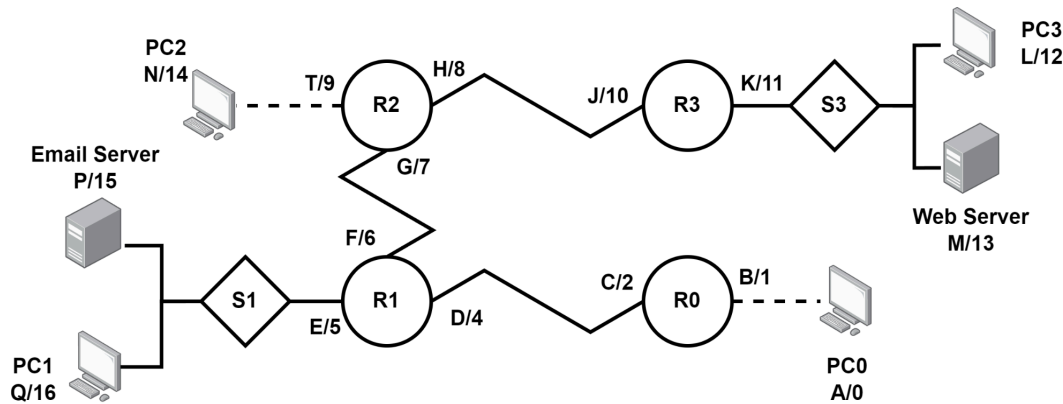
Figures in the right margin indicate marks.

Name:

ID:

Section:

- Q1. a) Identify** the source and destination IP, Port and MAC addresses when the packet is leaving Router R2 and going towards PC3. PC1 initially sent the packet. Consider the alphabets as MAC addresses and numbers as IP addresses (given beside the figures). You need to figure out the port numbers yourself. **3**
- [CO1] **+**
- 2**



- [CO1] **b) Identify** the destination port type in (a).

- Q2. Describe** how web cookies contribute to enhancing user experience on websites. **5**
- [CO2]

- Q3. John** uses an email client to access his emails. He notices that after downloading his emails to his computer, they disappear from the server, leaving him unable to access them from other devices or webmail. **Deduce** why such a thing happened. **5**
- [CO2]

- Q4. People** may make mistakes, such as writing “www.gogle.com” instead of “www.google.com”. **Explain** how, in DNS, writing “www.gogle.com” will point towards the IP address of “www.google.com”. **5**
- [CO2]

- Q5. State** how flow control in the transport layer prevents the receiver from dropping data segments. **5**
- [CO2]

- Q6. Calculate** the network address, broadcast address, and the subnet mask for a host with the IP Address 173.192.221.54/19. **6**
- [CO3]

- Q7.** The total RTT required to fetch all the objects from the website abcd.net is 480 ms. Given, it takes 15 ms for a small packet to be sent from the client to the server. Each object size is 10MB
- [CO3] **a)** If a persistent HTTP connection was used, **calculate** the number of objects that were requested.
- [CO3] **b)** If the web server speed is 80Mbps, **compute** the file transmission time.

Q8. At a given moment of data transferring, the client sent the C1 segment with sequence number 1024 and acknowledgment number 5044. The data sent through C1, C2, S1, S2, S3, S4 are 125, 244, 399, 120, 410 and 350 bytes respectively.

- [CO3] **a)** **Calculate** the sequence and acknowledgment number of the S3 segment.
- [CO3] **b)** **Calculate** the acknowledgment number of the ACK-1 segment.
- [CO3] **c)** **Calculate** the acknowledgment number of the ACK-3 segment if the selective repeat sliding window protocol is used.

