

*You have 15 minutes to complete this quiz.*

Name: \_\_\_\_\_ **Grading Key**

RIT Username: \_\_\_\_\_

Problem	Possible	Score
1	10	
2	10	
3	10	
Total	30	

1. A client may cache the content fetched from servers so that it can reuse the cached content without re-requesting them from the same server. When the client revisits the same web server again, however, it also needs to check if the cached content is still valid or expired. Explain how this process works by using the exact header name in the HTTP request and HTTP response. (10 pts)

*A server returns the content with Etag (identifier) header; a client can supply this header information when requesting the content again with If-Modified-Since header, which is the time when the content was cached; the server first checks if the etag exists; if it does then the server checks if the content has been modified since the date in If-Modified-Since; if there has not any changes yet, the server simply returns the 304 Not Modified response code.*

2. Suppose that example.com would like to use Akamai CDN to let them serve the content of example.com. Explain all possible methods that example.com can choose to let users fetch the example.com's content from the CDN. (10 pts)

*(1) switch all resource URL to Akamai's URL, (2) let Akamai manage the authoritative DNS server of example.com, (3) create CNAME records, which directs to the Akamai's server.*

3. Suppose that example.com would like to use Akamai CDN to let them serve the content of example.com. Akamai CDN requires the example.com owner to set the example.com's authoritative name server to one of the nameservers managed by Akamai. In such case, how Akamai finds the nearest server to incoming users so that they can serve the content with better performance (e.g., low latency)? Explain all the possible approaches and discuss their pros and cons. (10 pts)

*(1) inferring the location from the IP address of the incoming DNS request, (2) EDNS extension, (3) Anycast*