

5. Application architecture and infrastructure strategy can have serious implications on the performance of Web Applications.
- (a) The Domain Name System (DNS) is an essential component of the Internet.
 - i. Explain how the domain `www.wikipedia.com` is resolved. [4]
 - ii. To prevent overloading of the system, various DNS caches exist. Describe which caches may be used when looking up a domain. [4]
 - iii. How does the time-to-live (TTL) affect caching of DNS entries? [2]
 - (b) Define the terms **response time** and **perceived response time**. [2]
 - (c) Asynchronous JavaScript and XML (AJAX) techniques can improve the perceived response time of an application. Explain how this works with the aid of an example. [4]
 - (d) Sketch a graph of throughput against concurrent requests, and describe the distinct regions. [3]
 - (e) Scaling out and scaling up are two strategies for increasing the service capacity of web applications. Define each of these terms, and give advantages and disadvantages of each. [6]