COMSATS University Islamabad, Lahore Campus

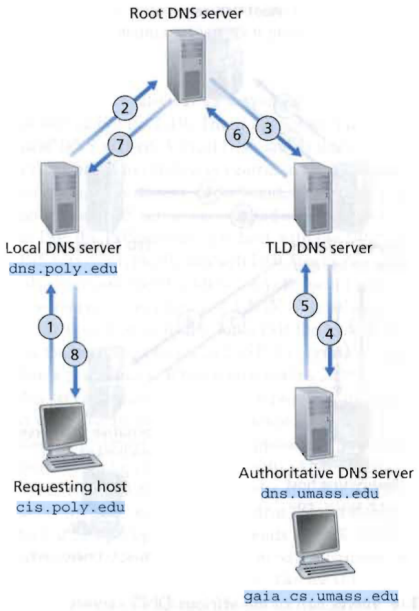
Sessional-I – Semester Spring 2021

Course Title:	Data Communications and Computer Networks				Course Code:	CSC339	Credit Hours: 3(2,1)
Course Instructor/s:	Mr. Imran Raza, Dr. Tariq Umer, Dr. Atif Saeed			Program Name:	BS Computer Science BS Software Engineering		
Semester:	5th	Batch:	SP19	Section:	All Sections	Date:	
Time Allowed:	**1 Hour**			**Maximum Marks:**	**20**		

1. Answer the following short questions: [10]

a. What do you think about the effectiveness of the ***If-Modified-Since header***? is it better or worse for images as compared to HTML? Think carefully about what ''effectiveness'' means and explain your answer.
b. Compare Simple Mail Transfer Protocol (SMTP) with HyperText Transfer Protocol (HTTP).
c. What is the difference between Host aliasing and Mail Server aliasing? Also, explain how ***MX record*** implements mail server aliasing.
d. What is the difference between OSI and TCP/IP Model? Also, explain data encapsulation process listing layer 5 to layer 1 PDUs.
e. In-band vs Out-of-band transfer of information

2. Discuss advantages and disadvantages of DNS query and response scenario given. Design an alternate implementation considering the disadvantages of the given scenario. [5]



3. Consider distributing a file of $F = 15$ Gbits to N peers. The server has an upload rate of $u_s = 30$ Mbps, and each peer has a download rate of $d_i = 2$ Mbps and an upload rate of u. For $N = 10$, 100, and 1,000 and $u = 300$ Kbps, 700 Kbps, and 2 Mbps, prepare a chart, similar to the one given below, giving the minimum distribution time for each of the combinations of N and u for both client-server distribution and P2P distribution. [5]