Computer Network/IT-3001/B.Tech/ 5th/2018

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|  | **AUTUMN MID SEMESTER EXAMINATION-2018**  **School of Computer Engineering**  KALINGA INSTITUTE OF INDUSTRIAL TECHNOLOGY  DEEMED TO BE UNIVERSITY, BHUBANESWAR-24 |

**COMPUTER NETWORK**

[IT-3001]

**Time:1.5 Hours Full Marks: 20**

***Answer any four questions including question No.1 which is compulsory. The figures in the margin indicate full marks. Candidates are required to give their answers in their own words as far as practicable and all parts of a question should be answered at one place only.***

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| Q1. |  | | [1×5] | |
| a) | With nonpersistent connection between browser and origin server, is it possible for a single TCP segment to carry two distinct HTTP request message? Explain your answer. | | | |
|  | **Scheme:**  **Answer:** | | | |
| b) | Why do HTTP, FTP and SMTP protocols runs on the top of TCP rather than on UDP? | | | |
|  | **Scheme:**  **Answer:**   * The HTTP, FTP and SMTP need reliability data transfer. * The file sizes of HTTP, FTP and SMTP are larger. | | | |
| c) | What would be the type for the Resource Record (RR) that contains the host-name of the mail server? | | | |
|  | **Scheme:**  **Answer:**   * MX | | | |
| d) | Is it possible for an application to enjoy reliable data transfer even when the application runs over UDP? If so how? (Be brief in your answer) | | | |
|  | **Scheme:**  **Answer:**  Yes. An application developer may not want its application to use TCP’s congestion control, which can throttle the application’s sending rate at times of congestion. Often, designers of IP telephony and IP videoconference applications choose to run their applications over UDP because they want to avoid TCP’s congestion control. Also, some applications do not need the reliable data transfer provided by TCP. If these applications require reliable data transfer, then the application layer protocol will have to provide for reliability. | | | |
| e) | In our reliable data transfer protocol (rdt), why did we need to introduce sequence numbers? | | | |
|  | **Scheme:**  **Answer:** | | |  |
| Q2. |  | | |  |
| a) | Consider sending a packet from a source host to a destination host over a fixed route. List and explain the delay components in the end-to-end delay. Which of this delays are constant and which are variable? | | | [3] |
|  | **Scheme:**  **Answer:** | | |  |
| b) | Explain why the size of the sender window must be less than 2m for Go-Back-N ARQ. | | | [2] |
|  | **Scheme:**  **Answer:** | | |  |
| Q3. |  | | |  |
| a) | Suppose Alice, with a web-based e-mail account send a message to Bob, who accesses his mail from his mail server using POP3. Discuss how the message gets from Alice's host to Bob's host. | | | [3] |
|  | **Scheme:**  **Answer:** | | |  |
| b) | In SMTP, a sender sends unformatted text. Write and explain the MIME header for his message. | | | [2] |
|  | **Scheme:**  **Answer:** | | |  |
| Q4. |  | | |  |
| a) | The distance from earth to a distant planet is approximately 9×1010 m. What is the channel utilization if a stop-and-wait protocol is used for frame transmission on a 64 Mbps point-to-point link? Assume that the frame size is 32 KB and the speed of light is 3×108 m/s. | | | [3] |
|  | **Scheme:**  **Answer:** | | |  |
| b) | What is the difference between centralized P2P network and de centralized P2P network? | | | [2] |
|  | **Scheme:**  **Answer:** |  | | |
| Q5. | Write short note on any two. | [2.5 x 2] | | |
| a) | Conditional-GET | | |  |
|  | **Scheme:**  **Answer:** | | |  |
| b) | Connection establishment of TCP protocol. | | |  |
|  | **Scheme:**  **Answer:** | | |  |
| c) | TCP Congestion Control. | | |  |
|  | **Scheme:**  **Answer:** | | |  |

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