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MCS-042

MCA (Revised)

Term-End Examination

December, 2012

08145

MCS-042 : DATA COMMUNICATION AND COMPUTER NETWORKS

Time : 3 hours *Maximum Marks : **100***

*Note : Question number **1** is **compulsory**. Attempt **any three** questions from the rest.*

1. (a) Differentiate between Parallel and Serial Transmission. **5**

(b) What is the essence of DNS (Domain Name system) ? How does it map to IP address ? **5**

(c) What is count to infinity problem in distance vector routing protocol ? How does it happen ? Explain with an example. **6**

(d) Explain the need of bit stuffing in data link protocols. Also give a example. **4**

(e) What are the problems with 2-way hardshake in a connection establishment and connection termination ? How does 3-way hardshake resolve them ? **5**

(f) An analog signal is limited to 4 kHz. It is converted to PCM signal using 8 bits/ sample. When is to bit rate on the transmission line ? 5

(g) Explain the following terms with respect to TCP : 10

(i) Stream data transfer
(ii) Reliable service
(iii) Window size
(iv) Vrgar pointer
(v) check sh

2. (a) What is the purpose of the following : IP datagram format fields; 5

(i) Fragmen offset
(ii) Time to live.

(b) Define multiplexing. Differentiate between upward and downward multiplexing. 5

(c) Differentiate between leakey Bucket and Token Bucket traffic shaper. Where are they used ? 10

3. (a) Compare Virtual Circuit and Datagram Subnet w.r.t. following : 6

(i) Router memory space and bandwidth
(ii) Setup time Vs address passing time
(iii) Table space required in router memory
(iv) Qos
(v) Vulnerability
(vi) Traffic Balance

(b) Describe the benefits of Secure Socket Layer. 4

(c) How does ADSL enable high speed data access through voice lines are so slow ? 4

(d) What is virtual circuit ? How does it differ from circuit smoothing ? 6

4. (a) How does return to zero encoding mechanism ensure synchronization irrespective of the data that is transmitted ? What is its disadvantage ? 6

(b) Illustrate frame format of Ethernet. 7

(c) Explain RSA public key algorithm with example. 7

5. (a) Explain the different services of PGP (Pretty Good Privacy). 5

(b) State Nagle's algorithm and explain how does it reduce the wastage of bandwith. 10

(c) Differentiate between Radio communication and Satellite communication. 5