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53 (CS 402) CPNT

2017

## COMPUTER NETWORK

Paper : CS 402

Full Marks : 100

Time : Three hours

**The figures in the margin indicate full marks for the questions.**

Answer **any five** questions.

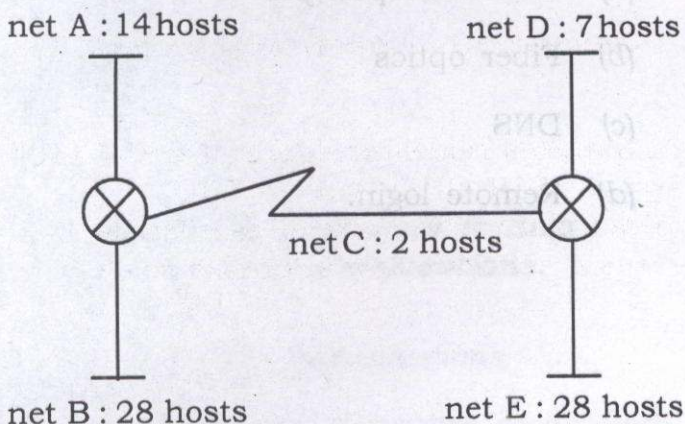
1. (a) Explain the OSI reference model with diagram.  
(b) Define the following :  
(i) Switch, (ii) Repeater, (iii) Bridge,  
(iv) Router, (v) Gateway.  
10+(5×2)
  
2. (a) Explain with the help of an example how error checking is done in a network using Cyclic Redundancy Check (CRC) technique.

Contd.

- (b) Explain how a stop-and-wait protocol differs for a noisy channel from that of a noiseless channel.
- (c) Discuss the sliding window protocol used in data link layer. 8+4+8
3. (a) Assume a Go-Back-N ARQ protocol is used with a window size of 4 and the ACK packet 2 gets lost. Show the events until packet 2 is acknowledged at the sender side.
- (b) When do collision occur? How does CSMA/CD detect and handle collision?
- (c) Explain CDMA with the help of an example. 4+(2+6)+8
4. (a) State the differences between a datagram network and a virtual-circuit network. 4
- (b) Define static and dynamic routing. 2+2
- (c) Explain the working of a link state routing protocol with the help of an example. State the advantages of link state routing over distance vector routing. 8+4

5. (a) What do you mean by subnetting? Given the class C network of 205.15.15.0/24, use variable length subnet masking in order to create the network in the figure below with the host requirements shown.

3+7



- (b) Discuss the various congestion control mechanisms. 10
6. (a) List out the various TCP services. 10
- (b) TCP is a reliable transport layer protocol but UDP is not. Still UDP is used sometimes, explain why. Also list out some examples where UDP is preferred to TCP. 5

(c) Explain in brief the client/server architecture for communication in a network. 5

7. Write short notes on : 4×5

(a) Network topologies

(b) Fiber optics

(c) DNS

(d) Remote login.