



[4658] – 157

Seat No.	
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T.E. (Computer) (Semester – II) Examination, 2014
COMPUTER NETWORKS
(2008 Pattern)

Time : 3 Hours

Max. Marks : 100

- Instructions :**
- 1) Answer **any 3** questions from **each** Section.
 - 2) Answer to the **two** Sections should be written in **separate** books.
 - 3) **Neat** diagrams must be drawn **wherever** necessary.
 - 4) **Black** figures to the **right** indicate **full** marks.
 - 5) **Use** of logarithmic tables slide rule, Mollier charts, electronic pocket calculator and steam tables is **allowed**.
 - 6) Assume suitable data, if **necessary**.

SECTION – I

1. a) What are the two types of transport services that the Internet provides to its applications ?
What are some characteristics of each of these services ? 6
- b) It has been said that flow control and congestion control are equivalent. Is this true for the Internet's connection oriented service ? Are the objectives of flow control and congestion control same. 6
- c) Explain different application layer architectures. 4
- OR
2. a) What is the difference between persistent HTTP with pipelining and persistent HTTP without pipelining ? Which of the two is used by HTTP/1.1 ? 5
- b) When web pages are sent out, they are prefixed by MIME headers. Why ? 5
- c) List and explain services provided by DNS. 6
3. a) Write a pseudo-code for client and server to setup a connection-oriented service between them. 8
- b) Explain TCP header in short. 4
- c) Explain TCP connection release process. 4
- OR
4. a) What are the approaches toward congestion control ? 8
- b) How TCP, a connection-oriented reliable protocol provides reliable service on top of IP, a connectionless unreliable protocol ? 8
5. a) What is class based QoS ? Explain. 8
- b) List and explain the techniques for achieving good QoS. 10

OR

P.T.O.



6. a) How TCP estimates RTT and timeout ? 6
 b) Consider sending a packet from a sending host to a receiving host over a fixed route. List the delay components in the end-to-end delay. Which of these delays are constant and which are variable ? 6
 c) Explain the methods to resolve DNS query. 6

SECTION – II

7. a) Compare link state and distance vector routing algorithms. 4
 b) Explain distance vector routing algorithm with example. What is count to infinity problem ? 8
 c) What are components of a router ? What is the difference between routing and forwarding ? 4

OR

8. a) Compare and contrast the IPv4 and IPv6 header fields. Do they have any fields in common ? 8
 b) Consider sending a 3000 byte datagram into a link that has an MTU of 500 bytes. Suppose the original datagram is stamped with identification number 422. How many fragments are generated ? What are their characteristics ? 8
 9. a) Give taxonomy of routing protocol. 4
 b) What is jumbogram ? What is the maximum size of jumbogram ? Explain the extension header for this option. 4
 c) Suppose an ISP owns the block of addresses of the form 101.101.128.0/17. Suppose it wants to create four subnets of this block with each block having the same number of IP addresses. What are the prefixes for the four subnets ? What are the starting and last addresses for each of the subnet ? What are the broadcast addresses for each subnet ? 8

OR

10. a) What is multicasting ? Explain multicasting routing algorithm. 8
 b) Suppose an application generates chunks of 40 bytes of data every 20 m sec. and each chunk gets encapsulated in a TCP segment and then an IP datagram. What percentage of each datagram will be overhead, and what percentage will be application data ? 6
 c) Why are different inter-As and intra-As routing protocols used in the Internet ? 2
 11. a) Write short note on PPP ? 6
 b) List and explain internetworking devices. 6
 c) What are some of the possible services that a link layer protocol can offer to the n/w layer ? Which of these link layer services have corresponding services in IP ? In TCP ? 6

OR

12. Write short note on : 18
 a) ATM
 b) MPLS
 c) HDLC.