Total No. of Questions : 10] **SEAT No. :**

P3983 **[Total No. of Pages : 3**

[5353]-585
T.E. (Computer) (End Semester)
COMPUTER NETWORKS
(2015 Pattern)

Time : 2½ Hours] ***[Max. Marks : 70***

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right side indicate full marks.***
3) ***Calculator is allowed.***
4) ***Assume Suitable data if necessary***

Q1) a) Define TCP/IP reference model. **[4]**

b) A line has a signal-to-noise ratio of 1000 and a bandwidth of 4000khz. What is the maximum data rate supported by this line. **[3]**

c) Write a short note on CSMA/CD. **[3]**

OR

Q2) a) Explain in brief: FHSS and DHSS. **[6]**

b) Explain PPP frame format. **[4]**

Q3) a) Explain control field of HDLC w.r.t I-frame, S-frame and U-frame. **[6]**

b) Calculate the throughput for stop-and wait protocol,if the frame size is 4800 bits,bit rate is 9600 bps,within distance 2000 km with speed of propagation 200000 km/s. **[4]**

OR

Q4) a) Explain GO Back N ARQ in detail. **[5]**

b) Explain Bluetooth 802.15 frame format in detail. **[5]**

P.T.O.

Q5) a) A small organization is given a block with the beginning address and the prefix length 205.16.37.24/29 (in slash notation). What is the range of the block. **[4]**

b) What are general techniques to improve quality of service ? Explain any one in detail. **[8]**

c) Draw and Explain IPV4 header. **[4]**

OR

Q6) a) Write a short note on **[12]**

i) Address Resolution Protocol (ARP)

ii) Network Address Translation (NAT)

iii) Internet Control Message Protocol (ICMP)

b) Explain Link State Routing Algorithm with example? **[4]**

Q7) a) What causes Silly Window syndrome? How it is avoided? **[6]**

b) In a Stop-and-Wait system, the bandwidth of the line is 2 Mbps, and 1 bit takes 20 milliseconds to make a round trip. What is the bandwidth-delay product? If the system data packets are 2,000 bits in length, what is the utilization percentage of the link? **[6]**

c) Explain TCP header in detail. **[6]**

OR

Q8) a) What are the types of socket? Explain various socket primitives used in connection oriented client server approach. **[10]**

b) Explain UDP Header ?Below is an Hexadecimal dump of an UDP datagram captured. **[8]**

06 32 00 0D 00 1C E2 17

i) What is source port number?

ii) What is destination port number?

iii) What is the length of the data?

iv) Is packet directed from a client to server or vice versa?

Q9) a) Explain HTTP request and reply message format with example. **[6]**

b) Write short notes on **[6]**

i) DHCP

ii) SMTP

c) Explain DNS message format? **[4]**

OR

Q10) a) Explain FTP in detail? Explain any four FTP commands. **[8]**

b) Browsers have a in-built caching mechanism for a better user experience. How do websites indicate if a web resource needs to be cached or not? Show HTTP messages in transit for both scenarios. **[8]**