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( July )

COMPUTER SCIENCE

( Elective/Honours )

( Data Communication and Computer Networks )

( CS-401T )

Marks : 75

Time : 3 hours

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

Answer **one** question from each Unit

UNIT—I

1. (a) With a neat diagram, depict and label the ISO/OSI reference model. Also, write a short note on any two layers of this model. 2+3+3=8
- (b) With the help of an example, explain the difference between the sliding window protocols—go back N and selective repeat protocols. 5+5=10

2. (a) Explain the different layers and their functionalities in the TCP/IP reference model. 8
- (b) Discuss two framing methods in data link layer. 3+3=6
- (c) Write a short note on connection oriented service. 4

UNIT—II

3. (a) Discuss the token bucket algorithm for traffic shaping. 5
- (b) With a suitable example, work out the distance vector routing algorithm. 2+8=10
4. (a) What is the purpose of subnetting? 3
- (b) Define the flooding routing algorithm. Discuss its merits and demerits. 3+4=7
- (c) List out the steps involved in link state routing algorithm. 5

UNIT—III

5. (a) In transport layer, what are the strategies used by the sender and the receiver to ensure crash recovery. 6
- (b) With the help of a suitable diagram, explain the remote procedure call (RPC). Discuss any two problems faced by RPC. 1+5+2=8

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6. (a) Define the following terms :  $2 \times 2 = 4$   
(i) Jitter  
(ii) Socket
- (b) With the help of diagrams, explain TCP connection establishment. 5
- (c) Describe the Silly Window Syndrome in the transmission control protocol (TCP). 5

UNIT—IV

7. (a) Describe the working of domain name system (DNS). Further, discuss five different principal DNS resource record types.  $5 + 5 = 10$
- (b) Write a short note on the file transfer protocol (FTP). 4
8. (a) Write short notes on the following :  $5 \times 2 = 10$   
(i) TELNET  
(ii) HTTP
- (b) Why do we need POP3 or IMAP for electronic mail? 4

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UNIT—V

9. (a) How did the Internet evolve? 4  
(b) Explain the general server characteristics. 10
10. (a) Write short notes on the following :  $5 \times 2 = 10$   
(i) WWW  
(ii) URL
- (b) Differentiate between apache and Internet information services (IIS). 4

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