Printed Pages—3   MCA301

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 1429   Roll No. [   ]

M.C.A.

(SEM. III) ODD SEMESTER THEORY EXAMINATION
2010-11

COMPUTER NETWORKS

Time : 3 Hours   *Total Marks : 100*

Note :   (1) Attempt **all** questions.

(2) All questions carry equal marks.

1.   Attempt any **four** parts :   **(5×4=20)**

(a) What do you mean by channel capacity ? Discuss design issues for a physical layer.

(b) What are relationship between services, interfaces and protocols with respect to network's layered architecture.

(c) What are the channel types in ISDN to construct transmission structure of any access link ? Discuss.

(d) What are difference between message switching and packet switching ?

(e) Discuss different design issues for the layers in computer network ? Explain them with the help of a diagram.

(f) Describe the features of following :

(i)   Gateways

(ii) Bridges.

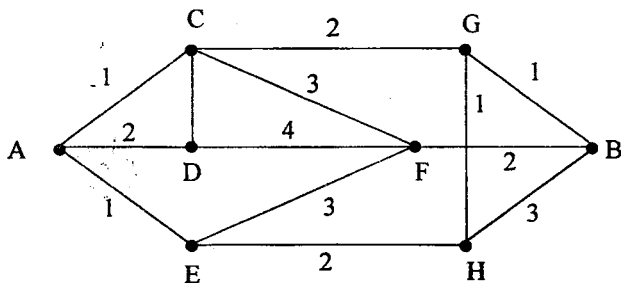2.   Attempt any **two** parts :   **(10×2=20)**

(a) What are hamming codes ? What will be the hamming code for the bit pattern 11001101. If during transmission

an error occurs at 7th bit, explain with reasons how this error will be detected.

(b) What is a slotted ring protocol ? Compare it with CSMA/CD protocol.

(c) Write a short note on pure ALOHA.

3. Attempt any two parts : (10×2=20)

(a) Discuss steps involved in finding shortest route between node A and B shown in the network below, using Dijikstra's Algorithm.

(b) What do you mean by routing algorithms ? Discuss their applications in computer network and explain one of them.

(c) Discuss the important aspects of TCP/IP.

4. Attempt any two parts : (10×2=20)

(a) What do you mean by public key cryptographic system ? Explain the role of public key and private key.

(b) State different protocols used for E-mails. Differentiate between IMAP, POP3 and SMTP protocol.

(c) Discuss the UDP operation in brief. How it is possible to execute several internet application over a single IP address ?

Attempt any **two** parts :   **(10×2=20)**

(a) Explain the role of domain name server and explain its functional parts. In DNS, why a hierarchical naming structure is used instead of a flat structure ?

(b) What are functions of SMTP ? Differentiate between a user agent and a mail transfer agent. How does MIME enhance SMTP ?

(c) Write short notes on following :

    (i) TELNET

    (ii) RSA Encryption Algorithm.