

**GANPAT UNIVERSITY**  
**B. Tech SEMESTER-V Computer Engineering/Information Technology**  
**REGULAR/ATKT EXAMINATION DEC 2012**  
**2CE504/2IT504/CE504/IT504: Computer Networks**

Time: 3 Hours]

Instructions:

[Total Marks: 70]

1. Figures to the right indicate full marks
2. Each section should be written in a separate answer book
3. Be precise and to the point in your answer.

**SECTION-I**

- Q-1** [A] Explain OSI model in brief. [4]  
 [B] Find minimum Hamming distance for below given table. [2]

Dataword	Codeword
00	00000
01	01110
10	10011
11	11101

- [C] Describe Go-Back-N ARQ protocol in detail. [4]  
 [D] Explain Framing Techniques in brief. [2]

**OR**

- Q-1** [A] Explain TCP/IP model in brief. [4]  
 [B] A bit Stream 10101011110001001 is transmitted using CRC method. The generator polynomial is  $X^4 + X^2 + 1$ . Find the CRC and show the actual bit string transmitted. [4]  
 [C] Explain Selective Repeat in details. [4]

- Q-2** [A] Why we need MAC layer? Differentiate Pure ALOHA & Slotted ALOHA. [4]  
 [B] Explain the Hamming Code technique with an example. [3]  
 [C] Differentiate Circuit switching, Packet Switching & Message Switching. [4]

**OR**

- Q-2** [A] Describe CSMA/CD in details. [4]  
 [B] Determine the code word for the data word 1011011 using Hamming code technique. Assume that there is a 1 bit error (you can assume any bit) during transmission from sender to receiver. Show that receiver is able to correct the error. Assume the usage of odd parity in hamming code. [5]

- [C] What is piggybacking? How it affect the performance? [2]  
**Q-3** [A] An organization is granted the block 211.17.200.0/24. The administrator wants to create 32 subnets. [4]

- a. Find the subnet mask.
- b. Find the number of addresses in each subnet.
- c. Find the first and last addresses in subnet 1.

- [B] Explain the IPv4 header in brief. [4]

- [C] In Go Back N ARQ sender window size must be less than  $2^m$  and In selective repeat ARQ sender window size must be half of  $2^m$ . Explain why? [4]



## SECTION-II

- Q-4 [A] Consider The Subnet of Figure 1. Distance vector routing is used, and figure 2 shows vectors that just come in to router J from its neighbor A, I, H and K. The measured delays to A, I, H and K, are 4, 6, 8 and 6 respectively. What is J's new routing table? Give both the outgoing line to be used and the expected delay. Show all the calculations. [5]

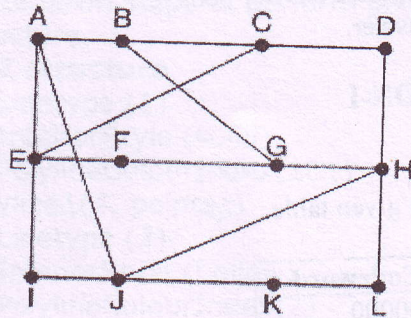


Figure 1

To	A	I	H	K
A	0	24	20	21
B	12	36	31	28
C	25	18	19	36
D	40	27	8	24
E	14	7	30	22
F	23	20	19	40
G	18	31	6	31
H	17	20	0	19
I	21	0	14	22
J	9	11	7	10
K	24	22	22	0
L	29	33	9	9

Figure 2

- [B] Explain Count to Infinity (or two node) problem. What is the solution for the same? [3]  
 [C] Discuss Hierarchical Routing algorithm. [4]
- OR
- Q-4 [A] Discuss Reverse Path Forwarding technique with an example. [4]  
 [B] Describe the Shortest Path (Dijkstra's) routing algorithm with an example. [4]  
 [C] Explain ARP & RARP in brief. [4]
- Q-5 [A] Explain connectionless and unreliable protocol of Transport layer. [3]  
 [B] Describe connection establishment mechanism in TCP. [4]  
 [C] Explain Fragmentation with an example. [4]
- OR
- Q-5 [A] Explain TCP header in details. [5]  
 [B] Describe DNS in brief. [4]  
 [C] Differentiate the connection oriented & Connection less approach. [2]
- Q-6 [A] Describe flooding in details. [4]  
 [B] Discuss Connection termination method in TCP. [4]  
 [C] Write a short note on classful addressing architecture. A network on the Internet has a subnet mask of 255.255.240.0. What is the maximum number of hosts it can handle? [4]

\*\*\*\*\* END OF PAPER \*\*\*\*\*