

**GANPAT UNIVERSITY**  
**B. Tech SEMESTER-V Computer Engineering/Information Technology**  
**REGULAR EXAMINATION NOV-DEC 2011**  
**CE/IT 504: Computer Networks**

**Time: 3 Hours]**

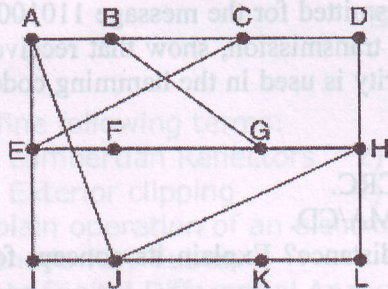
**[Total Marks: 70**

**Instructions:**

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** 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 8,5,7 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. (06)



**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

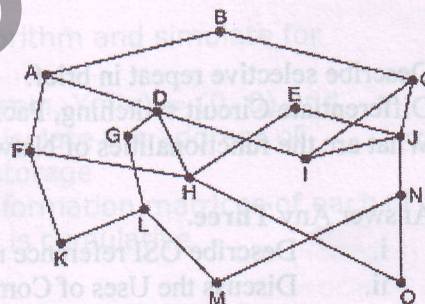
**Figure 2**

**Q.1-B** Explain TCP header in detail. (06)

**OR**

**Q.1-A** Looking at the subnet of figure 3, how many packets are generated by a broadcast from B, Using (06)

1. reverse path forwarding
2. the sink tree



**Figure 3**

**Q.1-B** Describe Connection establishment mechanism in brief. How connection gets established in TCP? (04)

**Q.1-C** Explain Hierarchical Routing. (02)

**Q.2 A** Define Congestion. Explain Congestion Control mechanisms in brief. (05)

**Q.2 B** Explain Shortest path routing algorithm with an example. (04)

**Q.2 C** Describe the count to infinity problem. (02)

**OR**

**Q.2 A** List out different congestion control mechanisms. Describe Hop-By-Hop Choke packets with an example. (05)

**Q.2 B** Write a short note on classful addressing architecture. (04)

**Q.2 C** Discuss silly window syndrome. (02)

**[PTO]**

- Q.3 Answer Any Three (12)**
- i. An organization is granted the block 16.0.0.0/8. The administrator wants to create 500 fixed length subnets:
    - a. Find the subnet mask
    - b. Find the number of addresses in each subnet
  - ii. Explain IP header in brief.
  - iii. Write short note on DNS.
  - iv. Discuss link state routing algorithm in brief.

**SECTION-II**

**Q.4-A** A bit Stream 1010101111000110011 is transmitted using CRC method. The generator polynomial is  $X^4 + X^2 + 1$ . Find the CRC and show the actual bit string transmitted. (04)

**Q.4-B** Write short note on CSMA (04)

**Q.4-C** Seven-bit messages are transmitted using a Hamming code. How many check bits are needed to ensure that the receiver can detect and correct single bit errors? Show the bit pattern transmitted for the message 1101001. If 3<sup>rd</sup> bit from the right is in error during transmission, show that receiver can correct the error. Assume that odd parity is used in the hamming code. Show all the calculations. (04)

**OR**

**Q.4-A** Explain Error detection mechanism using CRC. (04)

**Q.4-B** Why MAC layer is required? Describe CSMA/CD. (04)

**Q.4-C** What you mean by minimum hamming distance? Explain its concept for error detection and error correction. (04)

**Q.5-A** Explain Go-Back-N in brief. (04)

**Q.5-B** Describe Framing techniques. (04)

**Q.5-C** What are the functionalities of Physical & Data link layer? (03)

**OR**

**Q.5-A** Describe selective repeat in brief. (04)

**Q.5-B** Differentiate Circuit switching, Packet switching and Message switching. (04)

**Q.5-C** What are the functionalities of Networks & Transport layer? (03)

**Q.6** Answer Any Three. (12)

- i. Describe OSI reference model in detail.
- ii. Discuss the Uses of Computer networks in detail.
- iii. Explain Fragmentation with an example.
- iv. Differentiate:
  - a. Aloha & Slotted Aloha.
  - b. Go-Back-N & Selective Repeat.

**END OF PAPER**