

COMPUTER NETWORKS

SURPRISE TEST

AMAN SIDDIQA - 2K18/MC/008

1. Dataword: $x^7 + x^5 + 1$

Polynomial: 10100001

1001) 10100001000 (1011011

1001 ↓ ↓
1100
1001 ↓
1010
1001 ↓

1110

1001

1110

1001

1110

1001

1110

1001

111 → CRC

Dataword: 10100001111

(2) 140.200.0.0

This belongs to Class B.

(a) No. of Networks = 2^{14}

No. of host = 2^{16} Used = $2^{16} - 2$

No. of Addresses = 2^{30}

(b) 2 bits already fixed

We will fix 4 more for 16 subnets

So Subnetwork mask = 255.255.240.0

(d) Maximum no. of host within each subnetwork

$$= 2^{12}$$

$$\text{Used} = 2^{12} - 2$$

(34)

A code with minimum hamming distance d between its codewords can detect at most $d-1$ errors and can correct $\lfloor (d-1)/2 \rfloor$ errors.

Minimum hamming distance = 7

$$\text{Detected} = 7 - 1 = 6$$

$$\text{Corrected} = \frac{7-1}{2} = 3$$

Aiman

⑤ Number of entries.

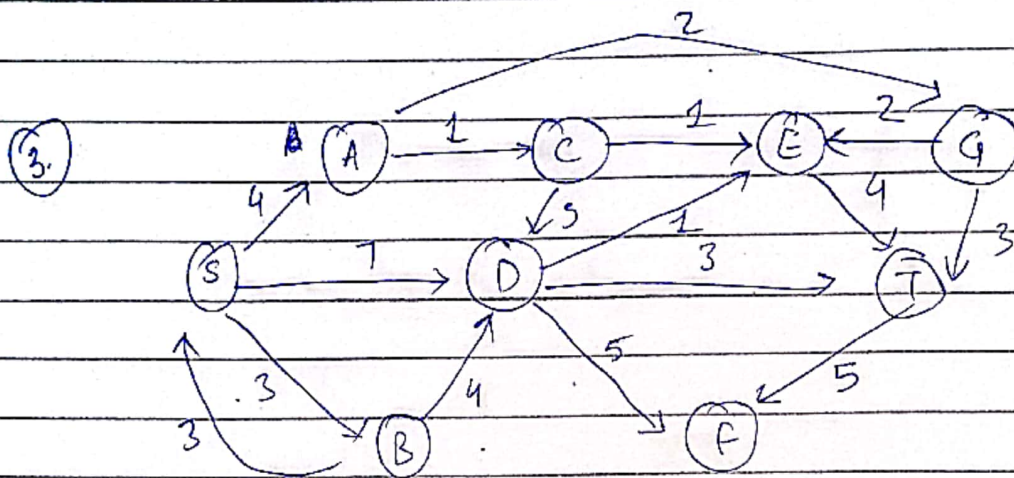
20 entries = Local

11 entries = Region with same clusters

14 entries = Region to different clusters

45 entries

Min. no. of entries \rightarrow 45.



| | A | B | C | D | E | F | G | T |
|---|------|---|----------|------|----------|----------|----------|----------|
| S | 4 | 3 | ∞ | 7 | ∞ | ∞ | ∞ | ∞ |
| B | 4(S) | | ∞ | 7(B) | ∞ | ∞ | ∞ | ∞ |
| A | | | 5(A) | 7(B) | ∞ | ∞ | 2(A) | ∞ |
| C | | | | 7(B) | 6(C) | ∞ | 5(A) | ∞ |
| E | | | | 7(B) | | ∞ | 6(A) | 10(C) |
| G | | | | 7(B) | | ∞ | | 9(G) |
| D | | | | | | | | |

$S \rightarrow B \rightarrow D$ or $S \rightarrow D$ (Shortest Path)
Cost : 7

Answer