CSE-320

Assignment-4

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Sec: 08

Ans: to que: no: 1

div = n-k+1

code word n = 25

data word k = 20

r = n - k

= 5

Redundant bits = 5

Ans: to que: no: 2

data word → 5 bits

code → 8 bits

Zeros we need to add with data word is r = n - k

= 8 - 5

= 3

Remainder size will be also 3

divison " div = n - k + 1

= 8 - 5 + 1

= 4

Ans: to: que: no: 3

div = n - k + 1

=> 5 = n - 11 + 1

∴ n = 15

∴ Devident = 15 - 11 = 4

```
                 10001101010010
        _______________________
  10101 ) 101001101010100000
          10101
          -----
              11101
              10101
              -----
               10000
               10101
               -----
                10110
                10101
                -----
                  11000
                  10101
                  -----
                   1101
                   0000
                   ----
Remainder ->       1101
```

∴ code word = 10100110101011101

For polynomials

Divisor = $x^4 + x^2 + 1$

Dataword = $x^{10} + x^8 + x^5 + x^3 + 1$

$$x^{10} + x^6 + x^5 + x^3 + 1$$

$$x^4+x^2+1 \;\Big|\; x^{14} + x^{12} + x^9 + x^8 + x^6 + x^4$$

$$x^{14} + x^{12} + x^{10}$$

$$x^{10} + x^9 + x^8 + x^6 + x^4$$

$$x^{10} + x^8 + x^6$$

$$x^9 + x^4$$

$$x^9 + x^7 + x^5$$

$$x^7 + x^5 + x^4$$

$$x^7 + x^5 + x^3$$

$$x^4 + x^3$$

$$x^4 + x^2 + 1$$

Remainde $\longrightarrow$ $x^3 + x^2 + 1$

$\therefore$ Codeword $= x^{14} + x^{12} + x^9 + x^8 + x^6 + x^4 + x^3 + x^2 + 1$

Ans: for que: no: 4

Sender

466F
726F
757A
016E

12FC6
1

2FC7 → wrapsum

D038 → checksum

Receiver

466F
726F
757A
016E
D038

1FFFE
1

FFFF ← wrapsum

0000 ← checksum

Ans: to: que: no: 5

a] Ans: the function of twisting cable eliminates or minimizing noise, and cross talk while transmitting data over the twisted pain cable. we know that, when electron is flowing throught a wire, it creates magnetic fields around it and their different directions increase the possibilty of losing data, in this situation, the twisting functionality increases the possibility of losing noise and secures data, so the cables are twisted because of it.

b] Ans: There are three usage of coaxial cables -

(i) In cable TV networks.

(ii) In digital telephone network

(iii) In Ethernet LANs because of its high bandwidth and consequently high data rate.

c] Ans: The purpose of cladding is to enable the effective transmission of light signals through the fiber. Because cladding is the outer layer that surrounds the core

and as the reflective index of the cladding is lower than the core, it enables total internal reflection, prevents signal leakage.