

Q.1.

D.P. Cat-39075

Q.No (a)

| Input | IP     | Current st | Sum of | Final | Ans   |
|-------|--------|------------|--------|-------|-------|
| a     | a      | a          | N      | -     | -     |
| b     | ab     | [a]b       | N      | 1     | ab-6  |
| a     | aba    | [b]a       | N      | 2     | ab-7  |
| a     | abaa   | [a]a       | N      | 5     | ab-8  |
| c     | abac   | [a]c       | N      | 1     | ac-9  |
| a     | abaca  | [c]a       | N      | 3     | ca-10 |
| d     | abacad | [a]d       | N      | 1     | ad-11 |
| a     | da     | [d]a       | N      | 4     | da-12 |
| b     | dab    | ab         | N      | -     | -     |
| a     | daba   | [a]b a     | N      | 6     | ab-13 |

Encoded O/p is

1 2 5 13 14 6

09

Solution

J.T.C

May - June - 2018

Sem : IV

Branch : I.T.C

Sub : J.T.C

Q.No 3(a) :

$$P_1 = P_4 = 1/8$$

$$P_2 = P_3 = 3/8$$

$$H = P_1 \log_2 1/P_1 + P_2 \log_2 1/P_2 + P_3 \log_2 1/P_3 \\ + P_4 \log_2 1/P_4$$

$$= 1/8 \log_2 8 + 3/8 \log_2 8/3 + 3/8 \log_2 8/3 \\ + 1/8 \log_2 8$$

$$= 1.8 \text{ bits/msg}$$

$$\therefore R = LH$$

$$= 2 \times B \times 1.8$$

$$R = 3.6 B \text{ bits/sec}$$