

Question F:

sequenceprediction1.txt

i. max probability stat sequence:

77550-->22222

7224523677-->2222221000

505767442426747-->222100003310031

72134131645536112267-->10310310000310333100

4733667771450051060253041-->222100003222223103222223

ii. probability of emitting sequence:

$P(77550) = 0.00011810020361$

$P(7224523677) = 2.03268952868e-09$

$P(505767442426747) = 2.47736684344e-13$

$P(72134131645536112267) = 8.8711581199e-20$

$P(4733667771450051060253041) = 3.739956487e-24$

sequenceprediction2.txt

i. max probability stat sequence:

60622-->11111

4687981156-->2100202111

815833657775062-->021011111111111

21310222515963505015-->0202011111111111021

6503199452571274006320025-->1110202111111102021110211

ii. probability of emitting sequence:

$P(60622) = 2.0883778502e-05$

$P(4687981156) = 5.18099069122e-11$

$P(815833657775062) = 3.31515789374e-15$

$P(21310222515963505015) = 5.12595690734e-20$

$P(6503199452571274006320025) = 1.29696134676e-25$

sequenceprediction3.txt

i. max probability stat sequence:

13661-->00021

2102213421-->3131310213

166066262165133-->133333133133100

53164662112162634156-->20000021313131002133

1523541005123230226306256-->1310021333133133133133133

ii. probability of emitting sequence:

$P(13661) = 0.000173176766091$

$P(2102213421) = 8.28507920611e-09$

$P(166066262165133) = 1.64163879355e-12$

$P(53164662112162634156) = 1.06347342033e-16$

$P(1523541005123230226306256) = 4.53467046372e-22$

sequenceprediction4.txt

i. max probability stat sequence:

23664-->01124

3630535602-->0111201112

350201162150142-->011244012441112

00214005402015146362-->11201112412444011112

2111266524665143562534450-->2012012424124011112411124

ii. probability of emitting sequence:

$P(23664) = 0.000114136332244$

$P(3630535602) = 4.32621950202e-09$

$P(350201162150142) = 9.79337531929e-14$

$P(00214005402015146362) = 4.73993465995e-18$

$P(2111266524665143562534450) = 5.61795840291e-22$

sequenceprediction5.txt

i. max probability stat sequence:

68535-->10111

4546566636-->1111111111

638436858181213-->110111010000011

13240338308444514688-->00010000000111111100

0111664434441382533632626-->2111111111111100111110101

ii. probability of emitting sequence:

$P(68535) = 1.32174527463e-05$

$P(4546566636) = 2.86687793347e-09$

$P(638436858181213) = 4.32322750273e-14$

$P(13240338308444514688) = 4.62890402955e-18$

$P(0111664434441382533632626) = 1.43951249217e-22$