

Q1. A linear piece of DNA that is 30 kb long is first cut with BamHI, then with HpaII and finally with both BamHI and HpaII together. Fragments of the following sizes were obtained from this reaction:

BamHI : 20, 6, 4

HpaII : 21, 9

BamHI & HpaII : 20, 5, 4, 1

Draw a restriction map indicating the locations of BamHI and HpaII

Q2. A plasmid pRTIII was digested with restriction enzymes BamHI and XmaI separately and simultaneously. From the data given below, determine the restriction map.

BamHI : 5.1, 5.4, 3.5

XmaI : 6.5, 1.8, 5.7

BamHI & XmaI : 1.9, 4.6, 0.8, 1, 3.2, 2.5

Q3. A plasmid DNA of size 10.5 kb was digested with BamHI and HindIII separately and simultaneously. From the data given below, draw a restriction map.

BamHI : 7.3, 3.2

HindIII : 5.1, 3.4, 2.0

BamHI & HindIII : 4.6, 2.7, 2.0, 0.7, 0.5

Q4. How are restriction endonucleases used in recombinant DNA technology? Explain with suitable diagram.