

SECTION B : ANSWER ANY TWO QUESTIONS

QUESTION TWO (20 MARKS)

Discuss in a stepwise process the construction of cDNA libraries using EcoR1 linkers.

QUESTION THREE (20 MARKS)

Discuss by deducing the open reading frame, the tRNA sequence and the amino-acid sequence of the following gene sequence which has been extracted from the segment of the genome coding for hemoglobin:

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5'GTGAACGTGGATGAAGTTGGTGGTGAGGCCCTGGGCAGGCTGCTGGTGGTCTACTAC
ATGGTGCATCTGACTCCTGAGGAGAAGTCTGCCGTTACTGCCCTGTGGGGCAAGGTGAA
CGTGGATGAAGTTGGTGGTGAGGCCCTGGGCAGGCTGCTGGTGGTCTACCCTTGGACCC
AGAGGTTCTTTGAGTCCTTTGGGGATCTGTCCACTCCTGATGCTGTTATGGGCAACCCTA
AGGTGAAGGCTCATGGCAAGAAAGTGCTCGGTGCCTTTAGTGATGGCCTGGCTCACCTG
GACAACCTCAAGGGCACCTTTGCCCACTGAGTGAGCTGCACTGTGACAAGCTGCACG
TGGATCCTGAGAACTTCAGGCTCCTGGGCAACGTGCTGGTCTGTGTGCTGGCCCATCAC
TTTGGCAAAGAATTCACCCACCAAGTGCAGGCTGCCTATCAGAAAGTGGTGGCTGGTGT
GGCTAATGCCCTGGCCCACAAGTATCACTAATATCAGAAAGTGGTGGCTGGTGTGGCTA
ATGCCCTGGCCCACAA-3'
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QUESTION FOUR (20 MARKS)

Describe the mechanisms and control of Transpositions.

QUESTION FIVE (20 MARKS)

- a) Describe the steps involved in the use of *Agrobacterium tumefaciens* in biotechnology (10 marks)
- b) Discuss the integration of IS element in chromosomal DNA (10 marks)