Practice Question Set For A-Level
Subject : Biology
Paper-1 Topic: 4 Genetic Info and Variation and Relationships

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Name of the Student:_____
Max. Marks : 25 Marks **Time : 25 Minutes**

Q1.

(a) Describe the role of haemoglobin (Hb) in the loading, transport and unloading of oxygen.

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(5)

(b) Describe how a polypeptide is produced by translation of mRNA.

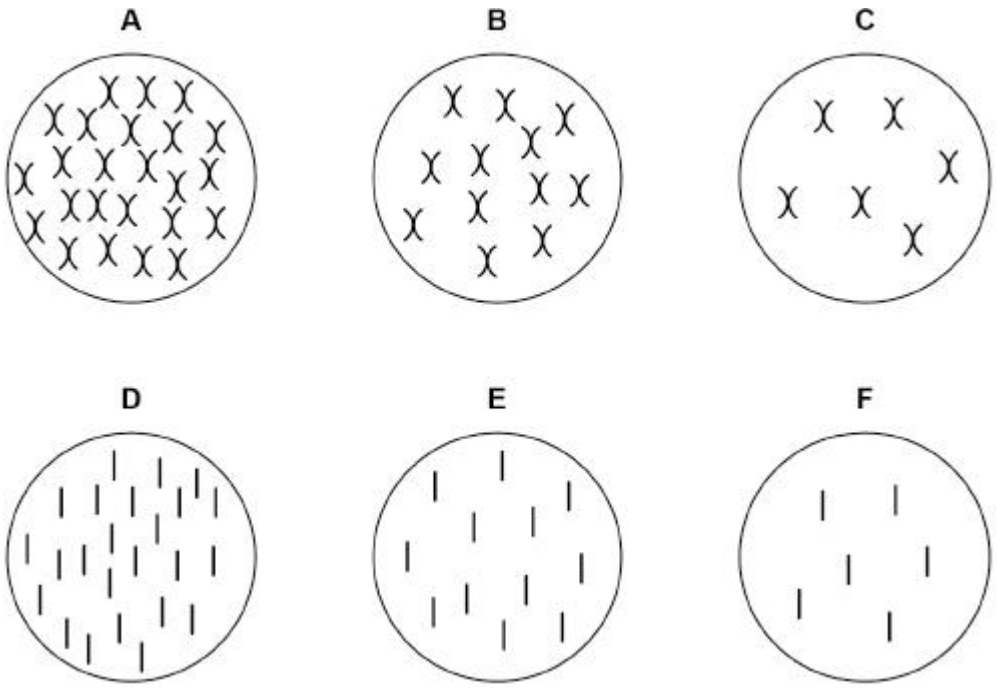
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(Total 10 marks)

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Q2.

(a) The figure below shows diagrams of six possible arrangements of chromosomes in cells.



Before meiosis, a cell of a rice plant has 12 pairs of homologous chromosomes (24 chromosomes in total).

Give the letter of the diagram from the figure above that correctly shows the chromosome content of rice cells after the first meiotic division and after the second meiotic division.

After first meiotic division _____

After second meiotic division _____

(2)

(b) Scientists have produced a mutated rice variety in which there is **no** crossing over.

A population of the mutant rice variety produced by sexual reproduction shows genetic variation. Populations of non-mutant rice varieties also show genetic variation.

Suggest and explain the similarities and differences in the causes of genetic variation within these rice populations.

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(3)
(Total 5 marks)

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Q3.

(a) Outline the similarities in, and the differences between, the structures of DNA and RNA molecules.

(6)

(b) Outline the similarities in, and the differences between, the structures of chloroplasts and mitochondria.

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(4)

(Total 10 marks)

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