

Model Question Paper
Heredity and Evolution (B) - Part II

10th Standard

Science

Reg.No. :

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I. Answer all the questions.

II. Use Blue pen only.

Time : 01:15:00 Hrs

Total Marks : 40

5 x 1 = 5

Section-A

- 1) In persons suffering from insulin-dependent diabetes, _____ the cells of pancreas are degenerated.
(a) Alpha (b) Beta (c) Gamma (d) Delta
- 2) Identical twins are born as a result of fertilization between _____.
(a) Two eggs and two sperms (b) Two eggs and one sperm (c) One egg and one sperm (d) One egg and two sperms
- 3) Identify the incorrect statement about identical twins.
(a) Developed from a single zygote (b) Always of the same sex (c) Look alike in many aspects (d) Differ in their blood groups
- 4) The correct statement about Neanderthal man is:
(a) The first human like hominid (b) Started agriculture (c) Ate meat and walked erectly (d) Buried the dead
- 5) The inheritance of characteristics through generation is called "heredity". In Mendel's *Pisum sativum* plant, the genetic material present is _____.
(a) DNA (b) RNA (c) Protein (d) Cytoplasm

Section-B

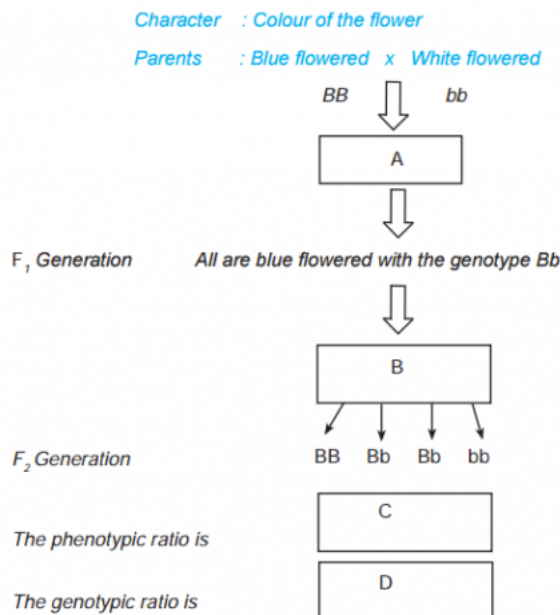
7 x 2 = 14

- 6) For the experimental research Dr. Ian Wilmut used the nucleus of the udder cell from a six year old finn dorset white sheep and preserved the diploid nucleus (2n). He took an ovum from the ovary of another sheep. The haploid ovum was removed. The diploid nucleus of the udder cell was injected into the cytoplasm of the enucleated ovum. Then the diploid nucleus ovum was implanted into the uterus of the surrogate mother sheep. The diploid ovum developed into a young one, named "Dolly". i) Why did Wilmut select the udder cell? ii) Define the terms haploid and diploid.
- 7) Match the following by identifying the pair: (medicines, fuel, microbes, metabolism, organic acids) i) vaccine ii) natural gas iii) citric acid iv) monoclonal antibodies v) vitamins
- 8) Mention the dominant and recessive traits observed by Mendel in the garden pea plant with respect to the seed and flower.
- 9) Monoclonal antibodies are the antibodies produced by _____. Monoclonal antibodies are now used for treatment of _____.
- 10) Correct the answer. (a) Primitive man evolved in Australia. (b) Theory of natural selection was proposed by Lamarck.
- 11) Consider the following statement: (a) Somatic variation pertains to body cells and it is inherited. (b) The genotype of a character is influenced by factors called chromosomes. Do you agree with the above statements? If not, give correct statements.
- 12) Do you agree with the following statements? If not, give correct statements: (a) Primitive man evolved in Australia. (b) Between 7500-1000 years the modern *Homo sapiens*.

Section-C

3 x 5 = 15

- 13) State whether true or false. Correct the statements that are false. i) Variations give the organisms an individuality of their own. ii) Charles Darwin postulated the use and disuse theory. iii) To understand evolution, a branching diagram or a tree diagram is used to show the inferred evolution and the relationship among various biological species. iv) Genetic engineering is the modification of the genetic information of living organisms by manipulation of DNA by adding, removing or repairing part of the DNA and changing the phenotype.
- 14) Observe the flow-chart of a monohybrid cross in a clitoria plant and write the answers for A, B, C, D:



- 15) Genetic engineering resulted to a new Branch of science. (a) Define genetic engineering. (b) What are the benefits of genetic engineering? (c) What are the uses of restriction endonucleases and DNA ligase?
