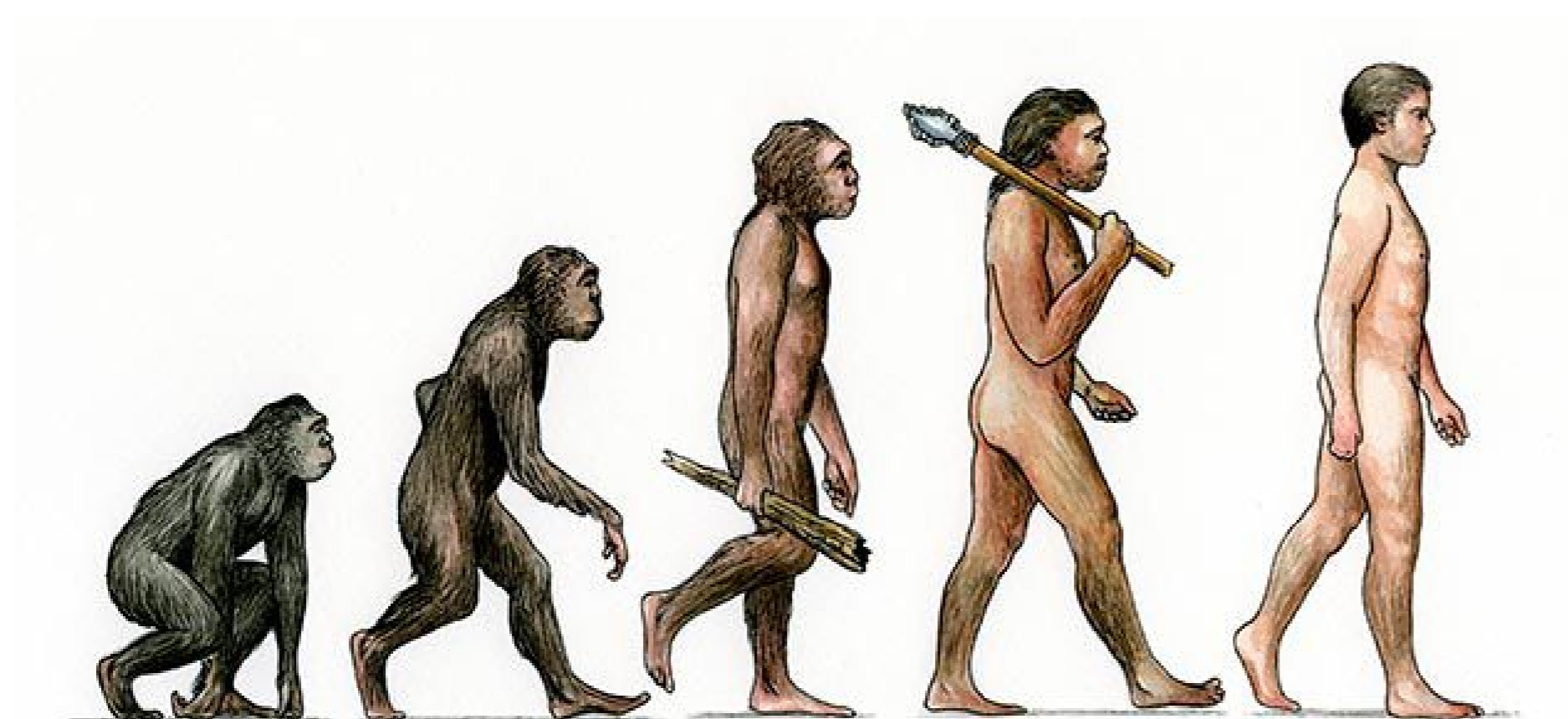


Case study based questions  
10th Science

## Heridity and Evolution

Passage - 1

5 Marks



Riya showed a picture to Priya and claimed that men were initially monkeys. Riya was astonished to hear this and asked Priya some questions

Q 1. State TRUE or FALSE: The human ancestors gradually migrated from Africa to various parts of the world such as Asia, Europe, Australia and America.

- (1) TRUE
- (2) FALSE

Q 2. All human beings belong to the species

- (1) Homo erectus
- (2) Homo sapiens

Q 3. Does evolution produce progressive higher forms from lower ones ?

- (1) YES
- (2) NO

Q 4. Is the disappearance of the existing species a requirement for formation of new species ?

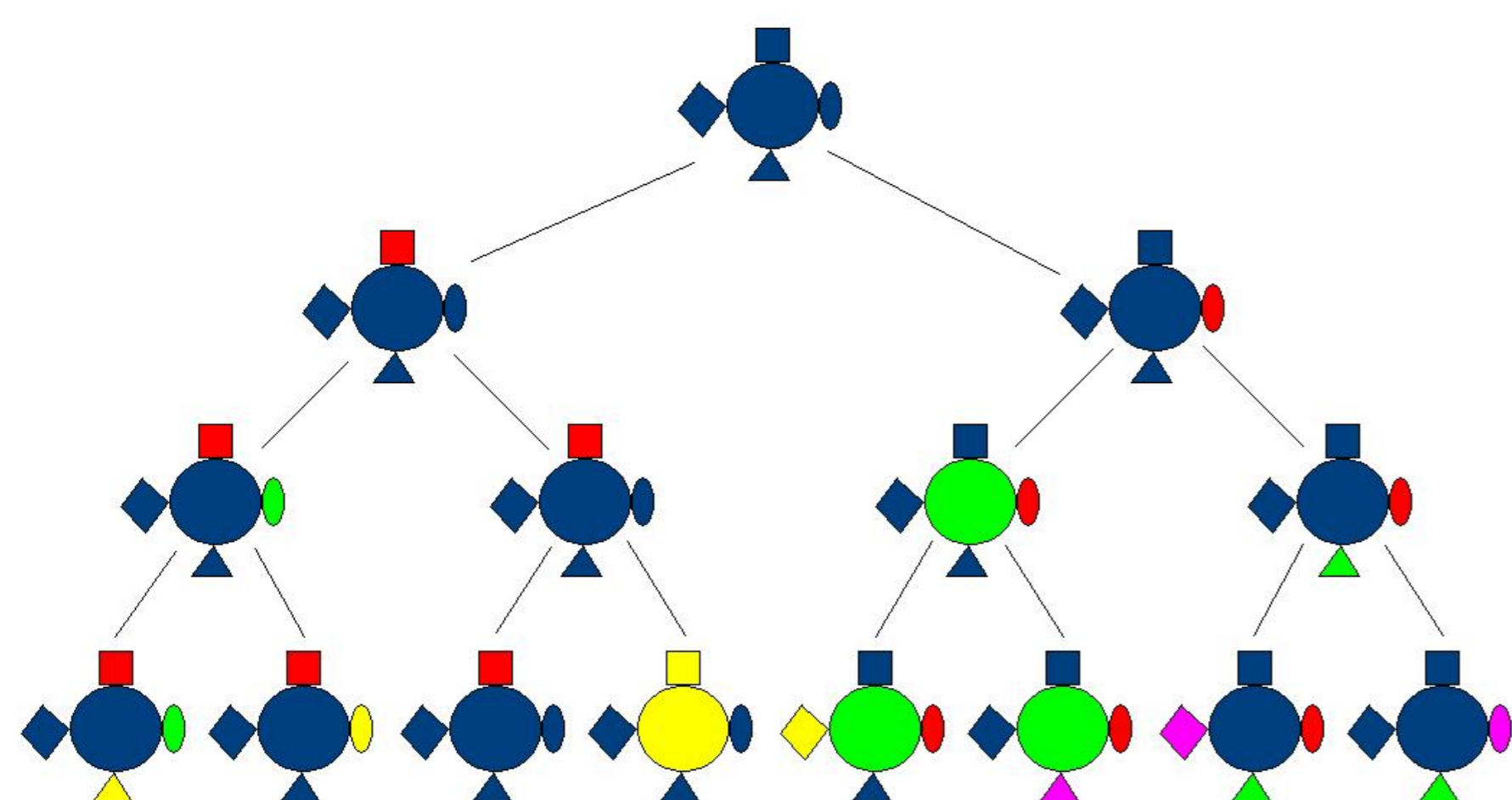
- (1) YES
- (2) NO

Q 5. State TRUE or FALSE: The common ancestor of humans and chimpanzees evolved in different ways to produce the present forms.

- (1) TRUE
- (2) FALSE

Passage - 2

5 Marks



From the chapter Heridity and Evolution, Raju was given some questions to solve. Help Raju solve these questions.

Q 1. Cell that has only one complete set of chromosomes are called

- (1) Haploid cells
- (2) Diploid cells

Q 2. Cell that has two sets of chromosomes, one of paternal origin, the other form of maternal origin called

- (1) Haploid cells
- (2) Diploid cells

Q 3. The process of formation of a new species is called

- (1) Speciation
- (2) Species
- (3) Specification
- (4) None of these

Q 4. The use of a gene's molecular characteristics to trace the evolutionary history of organisms is called

- (1) Atomic phylogeny
- (2) Molecular phylogeny

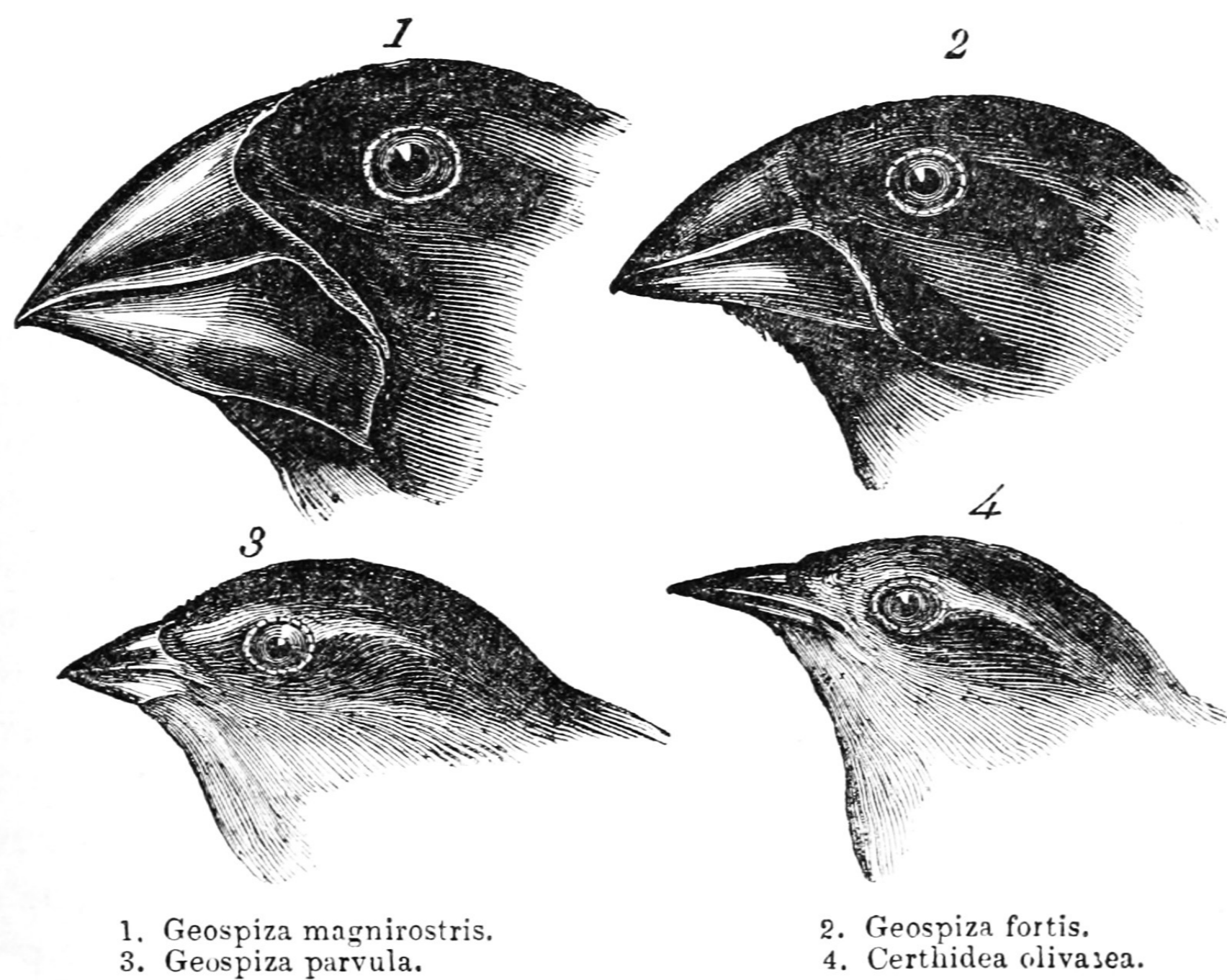
Q 5. A distinct variant of a phenotypic character of an organism that may be inherited or environmentally determined is called

- (1) Gene
- (2) Trait
- (3) DNA
- (4) RNA

Passage - 3

5 Marks

---



Rita's teacher told her that the beaks of birds changed over a long period of time. She was told to study about them after which her teacher asked her some questions.

Q 1. Which phenomenon is indicated by this image ?

- (1) Evolution
- (2) Isolation
- (3) Speciation
- (4) None of these

Q 2. Who said that new organ develops in an organism due to its special needs ?

- (1) Darwin
- (2) Mendel
- (3) Lamarck
- (4) None of these

Q 3. Whose theory is based on natural selection?

- (1) Darwin

- (2) Mendel
- (3) Lamarck
- (4) None of these

Q 4. Fill in the blank: \_\_\_\_\_ refers to the sudden change in the genetic material of an organism and their inheritance to the next generation, resulting in a new species.

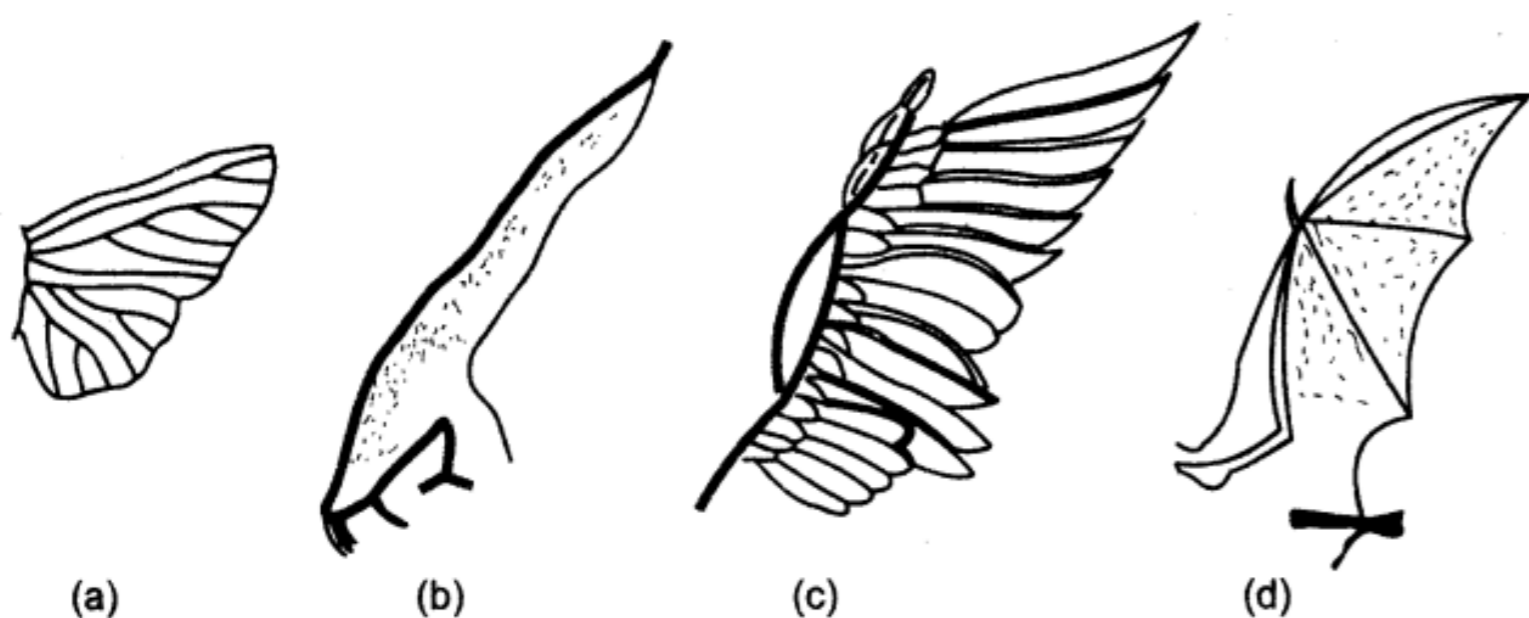
- (1) Evolution
- (2) Mutation
- (3) Speciation
- (4) Isolation

Q 5. Fill in the blank: \_\_\_\_\_ of groups of same animals by physical barriers or reproductive barrier developed new species.

- (1) Evolution
- (2) Mutation
- (3) Speciation
- (4) Isolation

## Passage - 4

5 Marks



Analogous organs (a) Wing of insect (b) Wing of *Pterodactyl* (c) Wing of bird (d) Wing of bat

A group of students went to a zoo for excursion. On their return, their teacher asked them to fill up a survey to make sure the students gained knowledge from the visit.

Q 1. The given organs are

- (1) Analogous
- (2) Homologous

Q 2. Analogy refers to similarity in

- (1) Morphology
- (2) Origin
- (3) Function
- (4) Size

Q 3. Tendrils of Pisum and spines of Opuntia are

- (1) Analogous
- (2) Homologous

Q 4. Spines of cactus and thorns of Euphorbia are

- (1) Analogous
- (2) Homologous

Q 5. Organs having different basic structure but similar appearance and functions are called

- (1) Analogous organs
- (2) Homologous organs

**Passage - 5**

**5 Marks**

---



A group of students were given to interpret the above picture. They made a questionnaire to made the process of interpretation easy.

Q 1. The chromosomes in the picture are

- (1) Autosomes
- (2) Sex chromosomes

Q 2. Exchange of genetic material takes place in

- (1) Vegetative reproduction
- (2) Asexual reproduction
- (3) Sexual reproduction
- (4) Budding

Q 3. Which chromosome is not paired in human males ?

- (1) Large chromosome
- (2) Small chromosome
- (3) Y-chromosome
- (4) X-chromosome

Q 4. The maleness of a child is determined by the X chromosome in the zygote.  
Is the statement TRUE or FALSE ?

---

- (1) TRUE
- (2) FALSE

Q 5. The two versions of a trait which are brought in by the male and female gametes are situated on

- (1) Copies of the same chromosome
  - (2) Two different chromosome
  - (3) Sex chromosomes
  - (4) Any chromosome
-

Case study based questions  
10th Science

## Heridity and Evolution

Passage - 1

5 Marks



Rhea was given to fill up a chart. Help her to do the same.

Q 1. Riding a skateboard is

- (1) Acquired trait
- (2) Inherited trait

Q 2. Speaking English is

- (1) Acquired trait
- (2) Inherited trait

Q 3. Hair Colour is

- (1) Acquired trait
- (2) Inherited trait

Q 4. Eye colour is

- (1) Acquired trait
- (2) Inherited trait

Q 5. The colour of a dog's fur is

- (1) Acquired trait
- (2) Inherited trait

Passage - 2

5 Marks



Ron went to their home garden with his mother. On seeing the plant as above, Ron's mother gave him a hint that this plant was used for a very famous experiment.

---

Q 1. Identify the plant.

- (1) Pea
- (2) Bean
- (3) Lettuce
- (4) Oak

Q 2. Name the scientist who conducted the experiment.

- (1) Newton
- (2) Mendel
- (3) Lamarck
- (4) Darwin

Q 3. What experiment was conducted on the plant ?

- (1) Interdependence
- (2) Reproduction
- (3) Inheritance
- (4) None of these

Q 4. How many traits of the plant were taken into account during the experiment ?

- (1) 2
- (2) 3
- (3) 4
- (4) 7

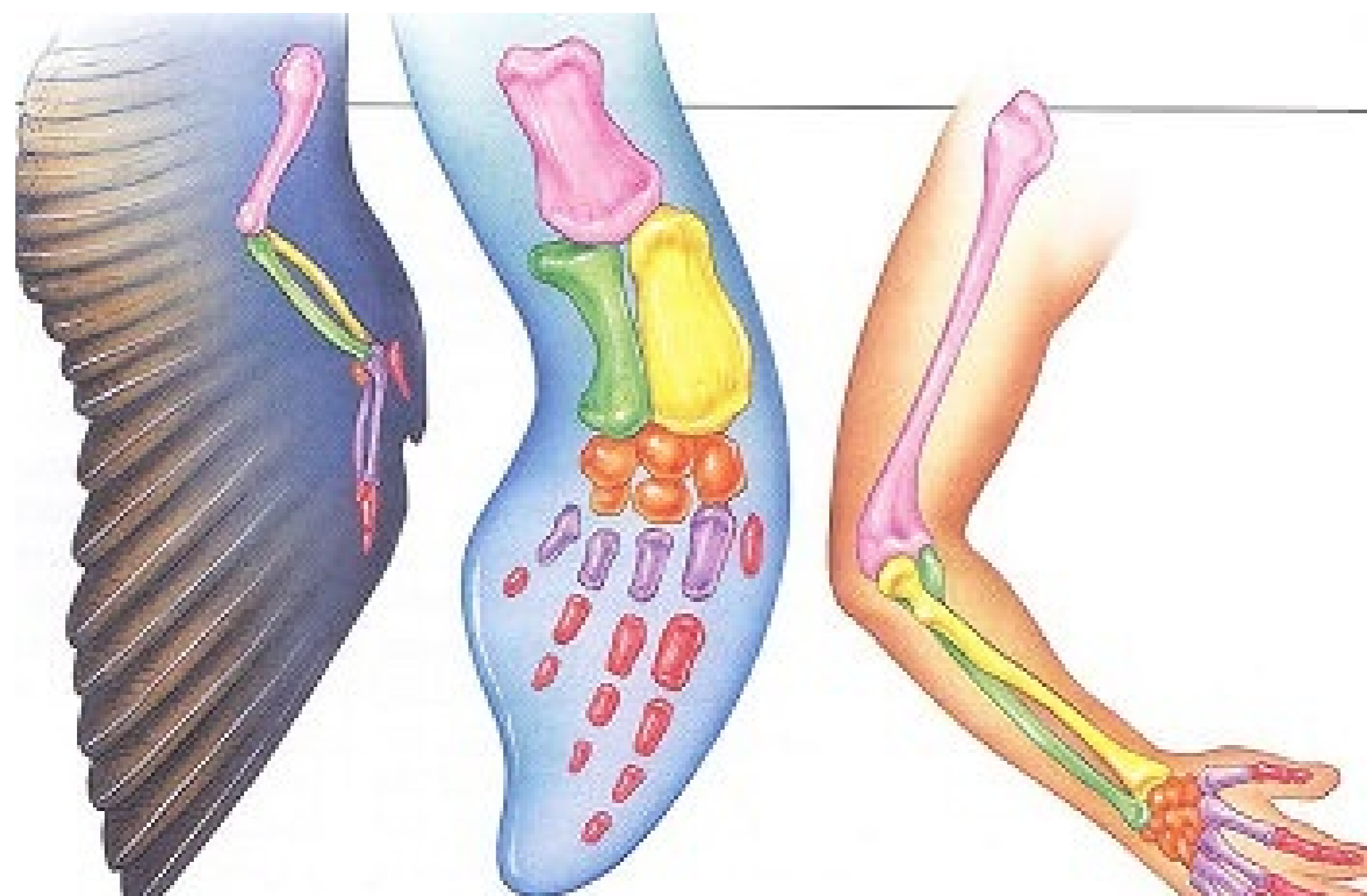
Q 5. Which breed of the plant was used in the experiment ?

---

- (1) Garden
- (2) Wild

## Passage - 3

5 Marks



The teacher gave the class an assignment to write certain points about the given picture and complete the quiz. Assist them with the process.

Q 1. The given organs are

- (1) Analogous
- (2) Homologous

Q 2. Homology and analogy are helpful in studying and interpreting

- (1) Commercial uses of structures
- (2) Structural relationship
- (3) Functional relationship
- (4) Evolutionary relationship

Q 3. Are wings of birds and forelimbs of horse a correct match ?

- (1) YES
- (2) NO

Q 4. Are flippers of penguin and human hand a correct match ?

- (1) YES
- (2) NO

Q 5. Archaeopteryx is a

- (1) Fossil
- (2) Living bird
- (3) Dinosaur
- (4) None of these

Passage - 4

5 Marks



The class was asked a few questions regarding the given picture in a survey.

Q 1. What does this image represent ?

- (1) DNA
  - (2) RNA
  - (3) Protein
  - (4) Vitamin
-

Q 2. Which phenomenon does the red part of the picture denote ?

- (1) Evolution
- (2) Mutation
- (3) Isolation
- (4) None of these

Q 3. Are mutations always good ?

- (1) YES
- (2) NO

Q 4. State TRUE or FALSE: Mutations lead to variations in organisms.

- (1) TRUE
- (2) FALSE

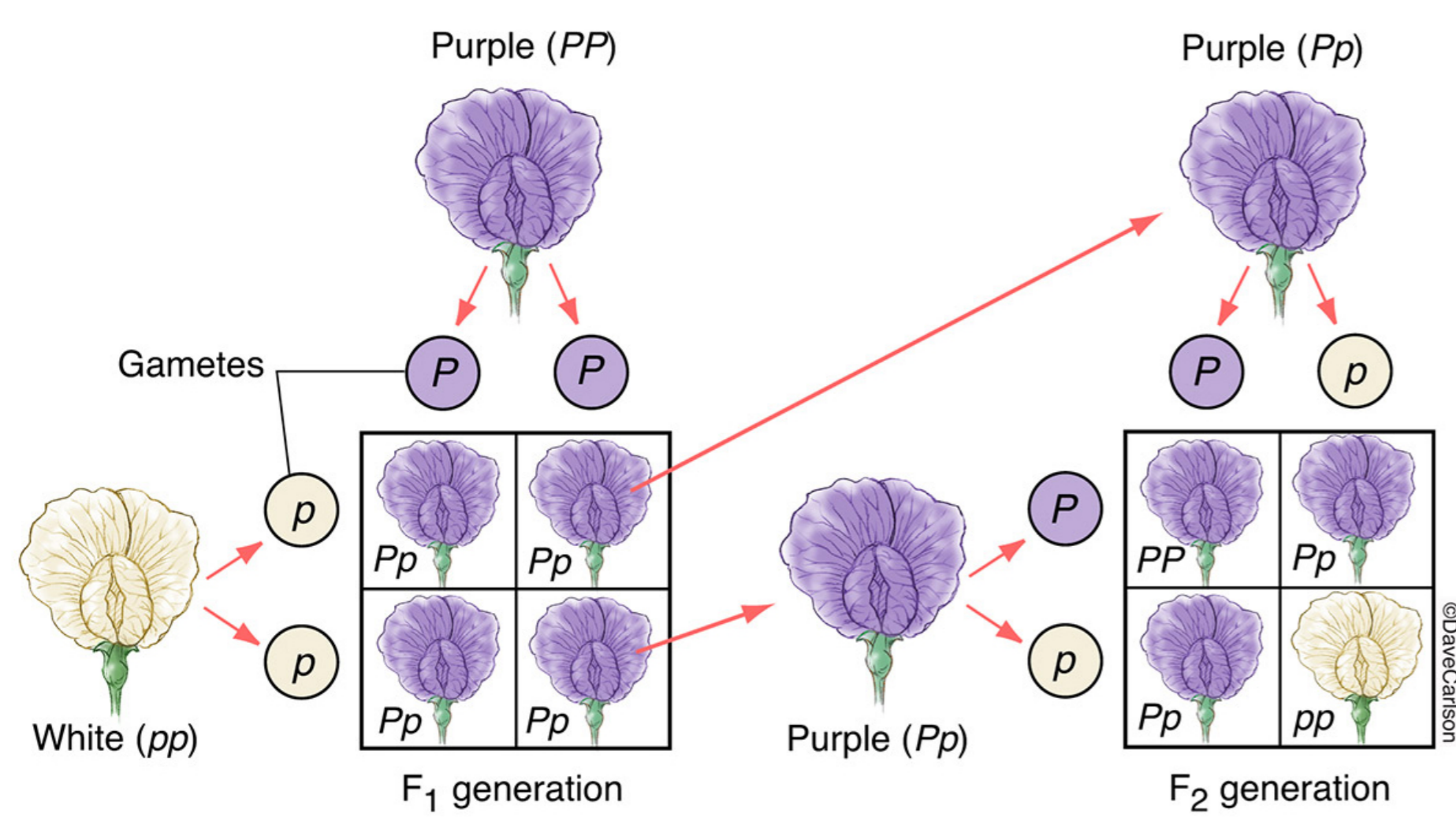
Q 5. Mutations occur due to various biological factors only. Is this statement true ?

- (1) TRUE
- (2) FALSE

**Passage - 5**

**5 Marks**

---



Rita was given to identify the characteristics of the given figure by her teacher.

Q 1. Which type of cross is indicated in the given figure ?

- (1) Monohybrid cross
- (2) Dihybrid cross

Q 2. What is the genotypic ratio in the F<sub>1</sub> generation when  $PP$  is crossed with  $pp$ ?

- (1) 1:2
- (2) 2:3
- (3) 2:1
- (4) All have the same genotype

Q 3. What is the phenotypic ratio in the F<sub>1</sub> generation when  $PP$  is crossed with  $pp$ ?

- (1) 1:1
- (2) 1:2
- (3) 2:1

(4) All have the same phenotype

Q 4. What is the genotypic ratio in the F1 generation when Pp is crossed with Pp?

- (1) 1:1
- (2) 1:02:01
- (3) 2:1
- (4) 1:2

Q 5. What is the phenotypic ratio in the F1 generation when Pp is crossed with Pp?

- (1) 1:1
  - (2) 2:1
  - (3) 3:1
  - (4) 4:1
-