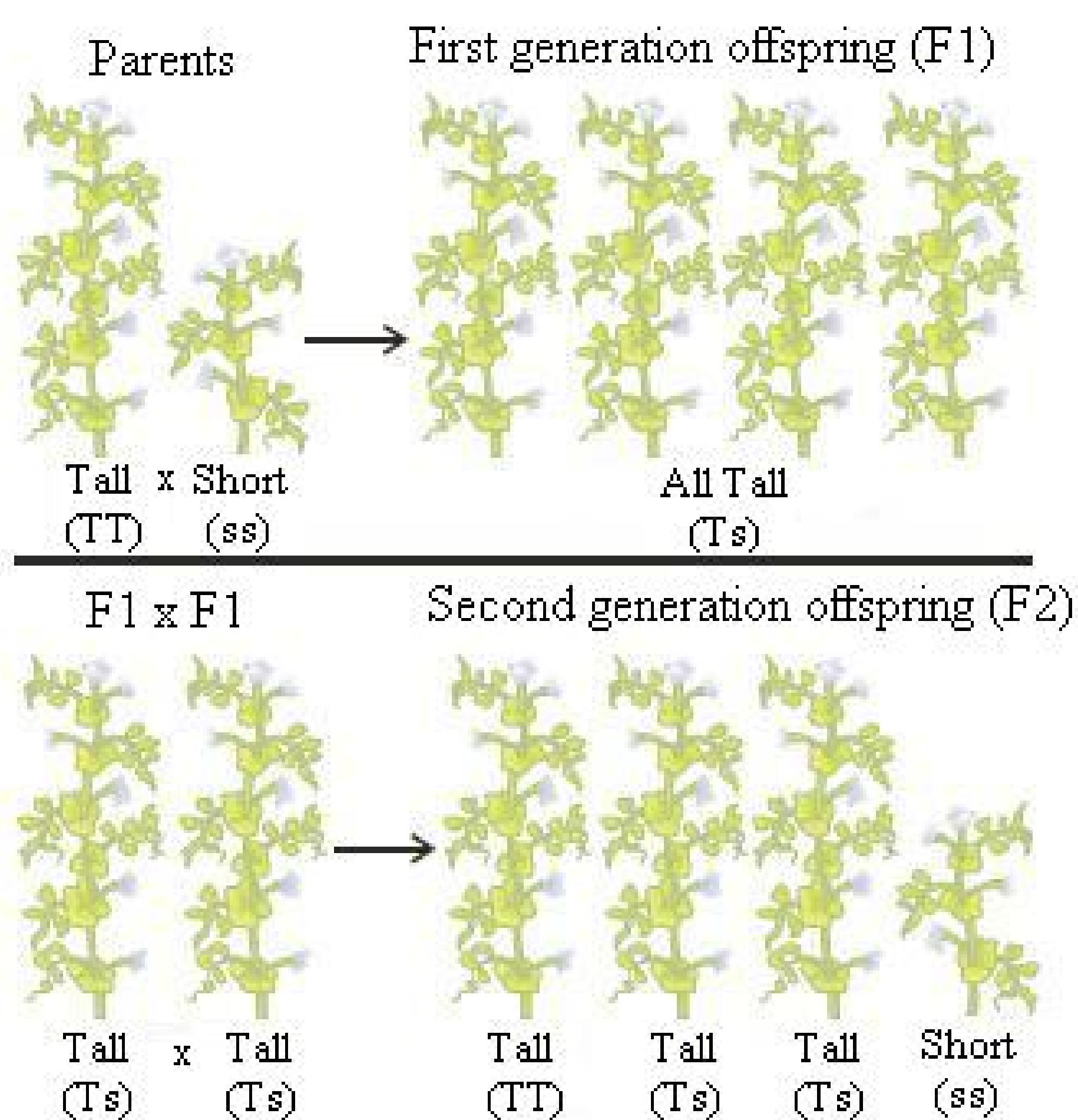


Case study based questions
10th Science

Heridity and Evolution

Passage - 1

5 Marks



Raju's teacher was teaching the chapter "Heridity and Evolution" in class. While teaching, she showed the above chart to the students and asked them a few questions.

Q 1. Who is known as the Father of Heridity ?

- (1) Einstein
- (2) Mendel
- (3) Ross
- (4) Darwin

Q 2. Which plants were first used to study inheritance?

- (1) Pea
- (2) Neem
- (3) Marigold
- (4) Banyan

Q 3. Which of the following is a dominant genotype ?

- (1) TT
- (2) tt

Q 4. How many factors of the plant which was used to study inheritance were considered during experimentation ?

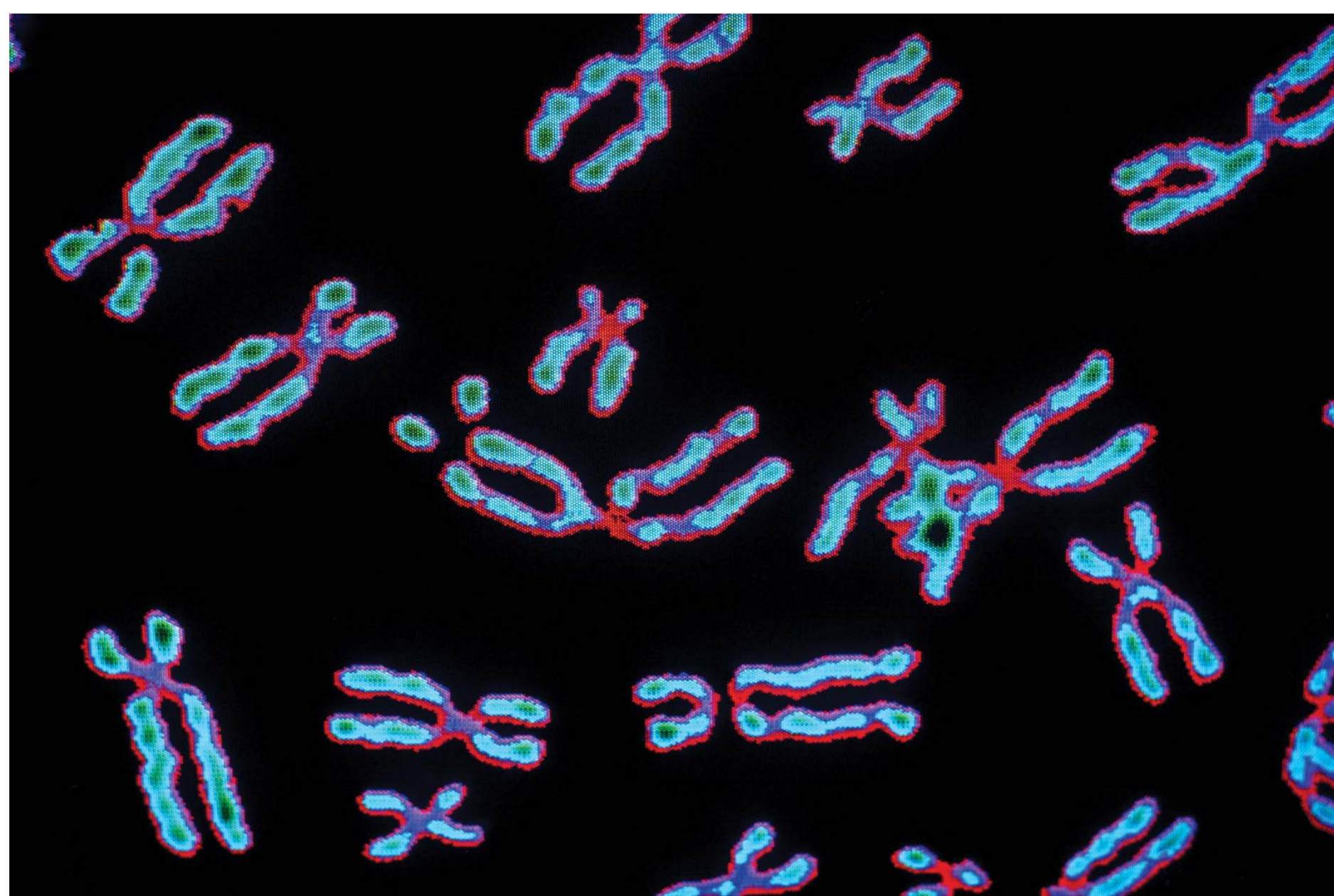
- (1) 2
- (2) 4
- (3) 7
- (4) 9

Q 5. What is the genotype of a short plant ?

- (1) TT
- (2) tt

Passage - 2

5 Marks



On a visit to a biology lab, Paheli and her friends notice a chart having the above image. Everyone gave their opinion and they came to certain conclusions.

Q 1. What are the objects in the picture known as ?

- (1) Chromosomes
- (2) Nucleus
- (3) Cell
- (4) Genes

Q 2. Where are these objects found in a cell ?

- (1) Cytoplasm
- (2) Nucleus
- (3) Cell membrane
- (4) Organelles

Q 3. Are these objects somehow related with inheritance?

- (1) YES
 - (2) NO
-

Q 4. What is the centre of where the arms of a particular object are joined called ?



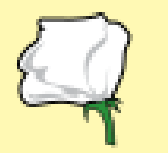











- (1) Centromere
- (2) Centrosome
- (3) Centimetre
- (4) Centre

Q 5. What are the areas of the object known as ?

- (1) Centromere
- (2) Centrosome
- (3) Chromatids
- (4) None of these

Passage - 3

5 Marks

Seed		Flower	Pod		Stem	
Form	Cotyledons	Color	Form	Color	Place	Size
						
Grey & Round	Yellow	White	Full	Yellow	Axial pods, Flowers along	Long (6-7ft)
						
White & Wrinkled	Green	Violet	Constricted	Green	Terminal pods, Flowers top	Short (1ft)
1	2	3	4	5	6	7

On a visit to a garden, a group of students were handed a leaflet containing the above picture. The owner of the garden organised a quiz and asked the students certain questions.

Q 1. The characteristics of which plant is shown in the figure ?

- (1) Potato
- (2) Pea
- (3) Bean
- (4) Maize

Q 2. Which one of the following is the dominant characteristic of the plant in the picture ?

- (1) Round seed
- (2) Wrinkled seed

Q 3. Which one of the following is the dominant characteristic of the plant in the picture ?

- (1) Green cotyledons
- (2) Yellow cotyledons

Q 4. Which one of the following is the dominant characteristic of the plant in the picture ?

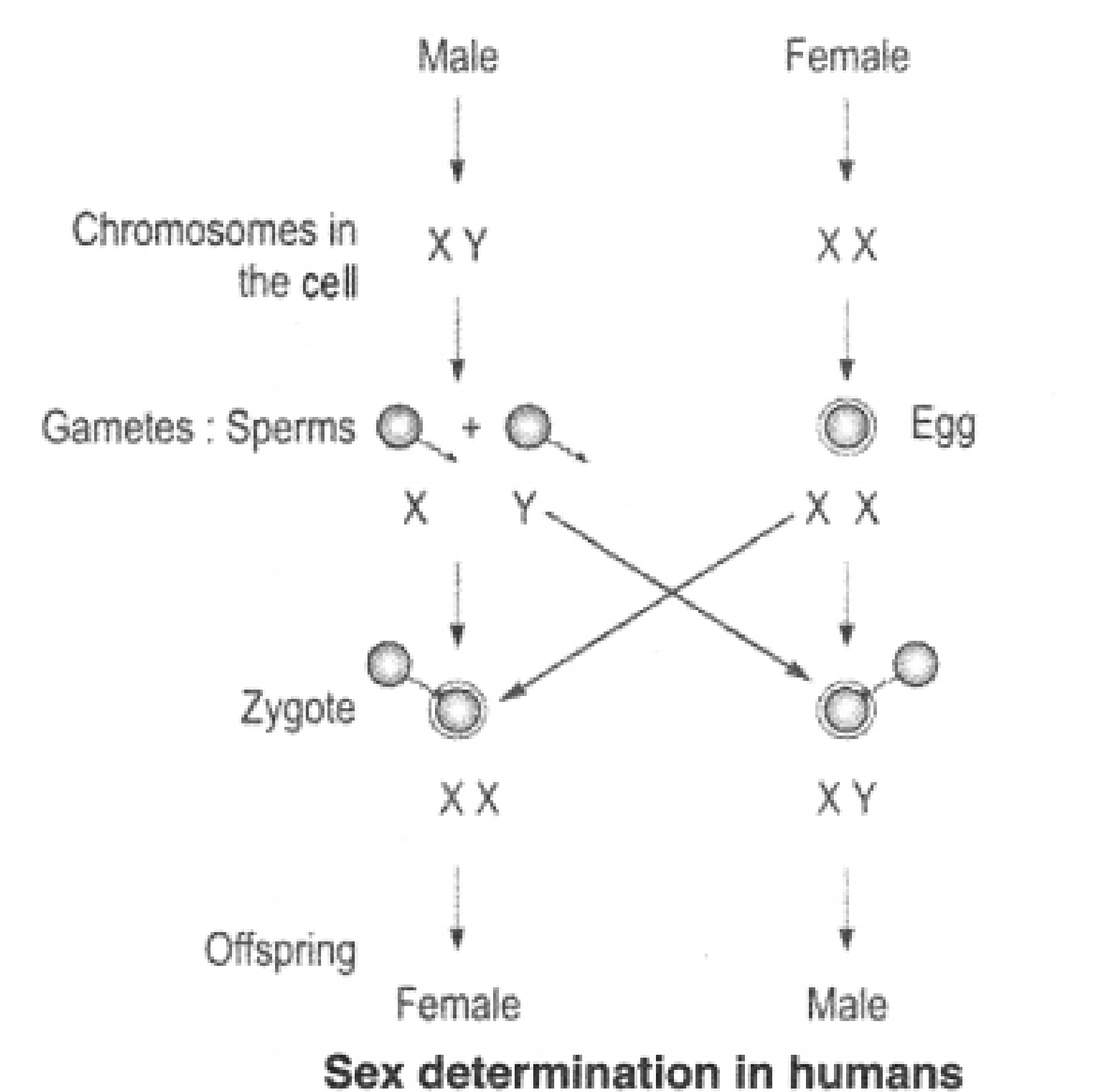
- (1) Full pod
- (2) Constricted pod

Q 5. Which one of the following is the dominant characteristic of the plant in the picture ?

- (1) Terminal pods
- (2) Axial pods

Passage - 4

5 Marks



A birth campaign was held in a village by an NGO where the above chart was displayed. The villages had certain questions in their mind.

Q 1. How is the sex of a newborn individual determined ?

- (1) Genetically determined
- (2) Somatically determined

Q 2. Does the sex of the newborn baby depend solely on the mother ?

- (1) YES
- (2) NO

Q 3. What is the genotype of a male child ?

- (1) XX
- (2) XY

Q 4. What is the genotype of a female child ?

- (1) XX
- (2) XY

Q 5. Which of the two chromosomes of a child come from the mother ?

- (1) X
- (2) Y

Passage - 5

5 Marks



Renu was going through a science magazine when she came across this picture. She got very excited and asked her mother about the picture.

Q 1. What does the picture show ?

- (1) DNA
- (2) RNA
- (3) Chromosomes
- (4) None of these

Q 2. The units of heredity are called

- (1) Nucleus
- (2) Genes
- (3) Reproduction
- (4) Gametes

Q 3. The entities through which characters are passed on from one generation to the other are called

- (1) Nucleus
- (2) Genes
- (3) Reproduction
- (4) Gametes

Q 4. How many types of bases is the object in the given picture made of ?

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

Q 5. How many strands is the object in the given picture made of ?

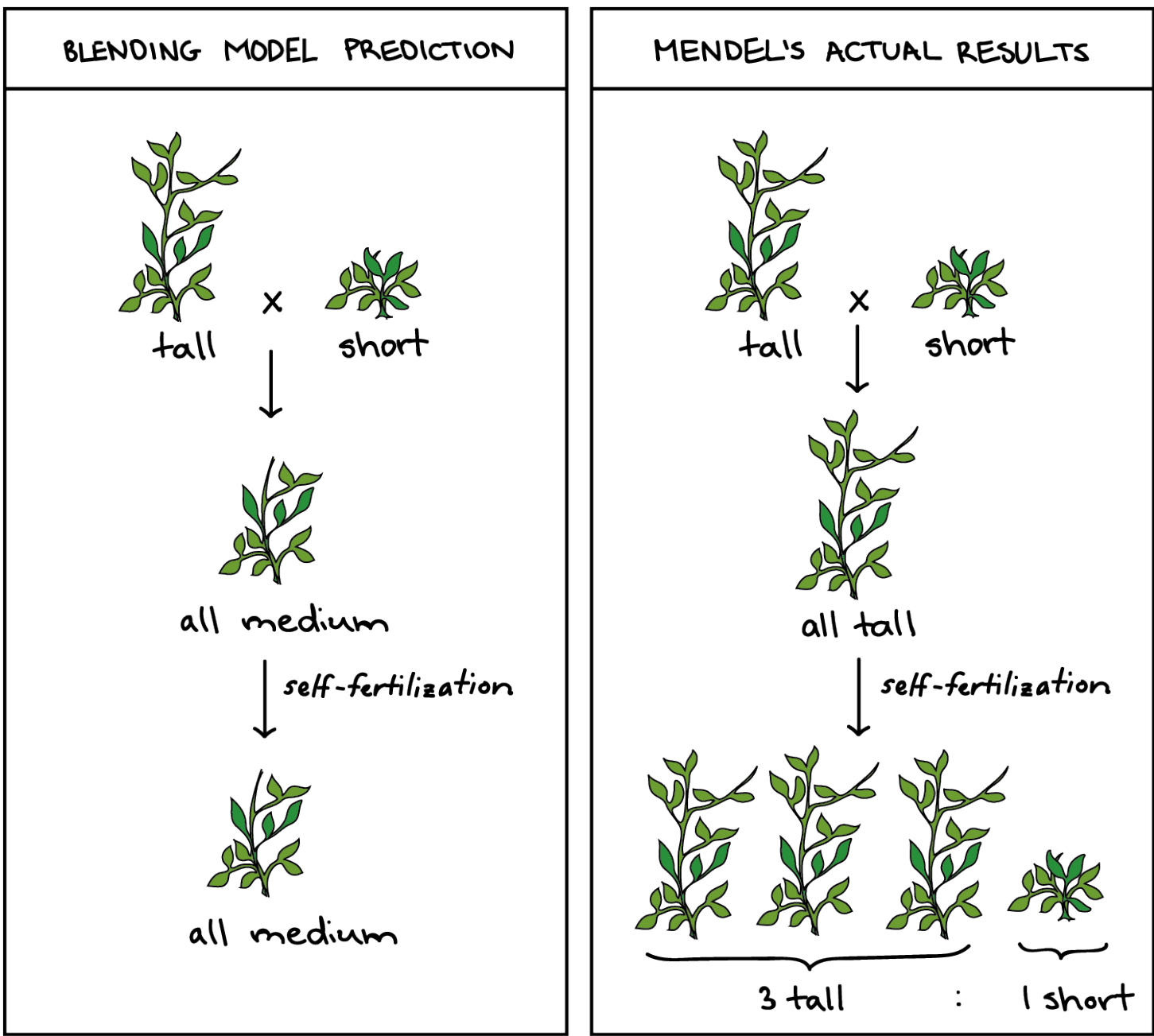
- (1) 1
 - (2) 2
 - (3) 3
 - (4) 4
-

Case study based questions
10th Science

Heridity and Evolution

Passage - 1

5 Marks



After being taught about heridity in a biology class, the students of St. Mary’s school were given an assignment, which consisted of the following five ques-tions based on the given figure.

Q 1. Which plant was used by Mendel to conduct experiments on heridity ?

- (1) Pea
- (2) Neem
- (3) Bamboo
- (4) Banyan

Q 2. Which fertilisation occurs at first ?

- (1) Self fertilisation
- (2) Cross fertilisation

Q 3. What is the genotypic ratio of the plants of the F1 generation ?

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

Q 4. What is the phenotypic ratio of the plants of the F1 generation ?

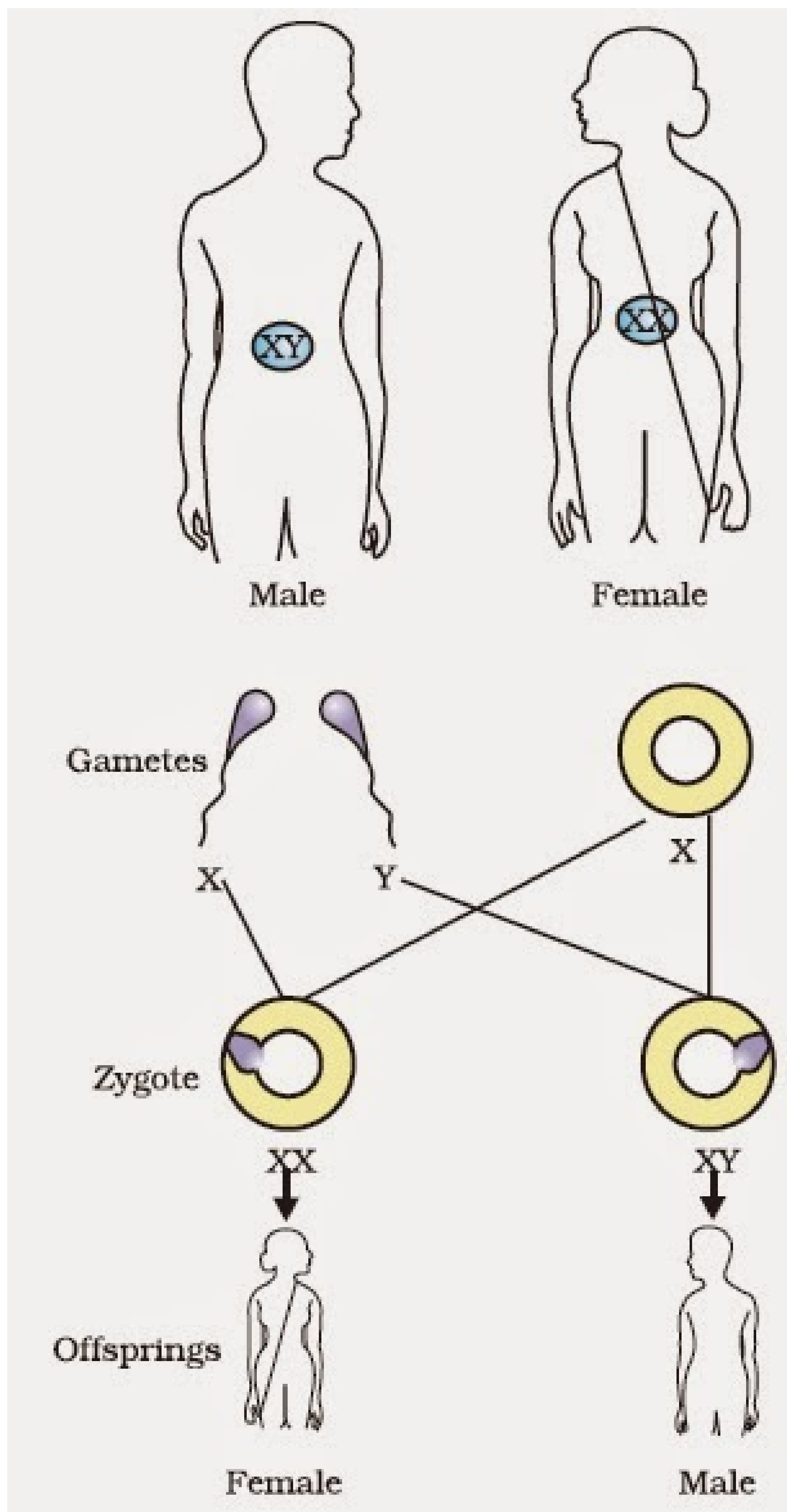
- (1) 9:3:3:1
- (2) 9:6:3:1
- (3) 1:3:5:9
- (4) None of these

Q 5. Which characteristics is denoted by the genotype RRYy ?

- (1) Round and Yellow seeds
- (2) Green and Wrinkled seeds

Passage - 2

5 Marks



While studying about heridity in plants, Ava was curious to know about heridity in humans too. She asked her teacher about the same to which the teacher gave her the above picture to study .

Q 1. Fill in the blank : _____ carry hereditary characters from one generation to the other.

(1) Gametes

- (2) Cells
- (3) Hair
- (4) None of these

Q 2. The male gamete is known as

- (1) Ovum
- (2) Sperm

Q 3. The female gamete is known as

- (1) Ovum
- (2) Sperm

Q 4. The initial stage of the offspring formed after fusion of the gametes from the parents is known as

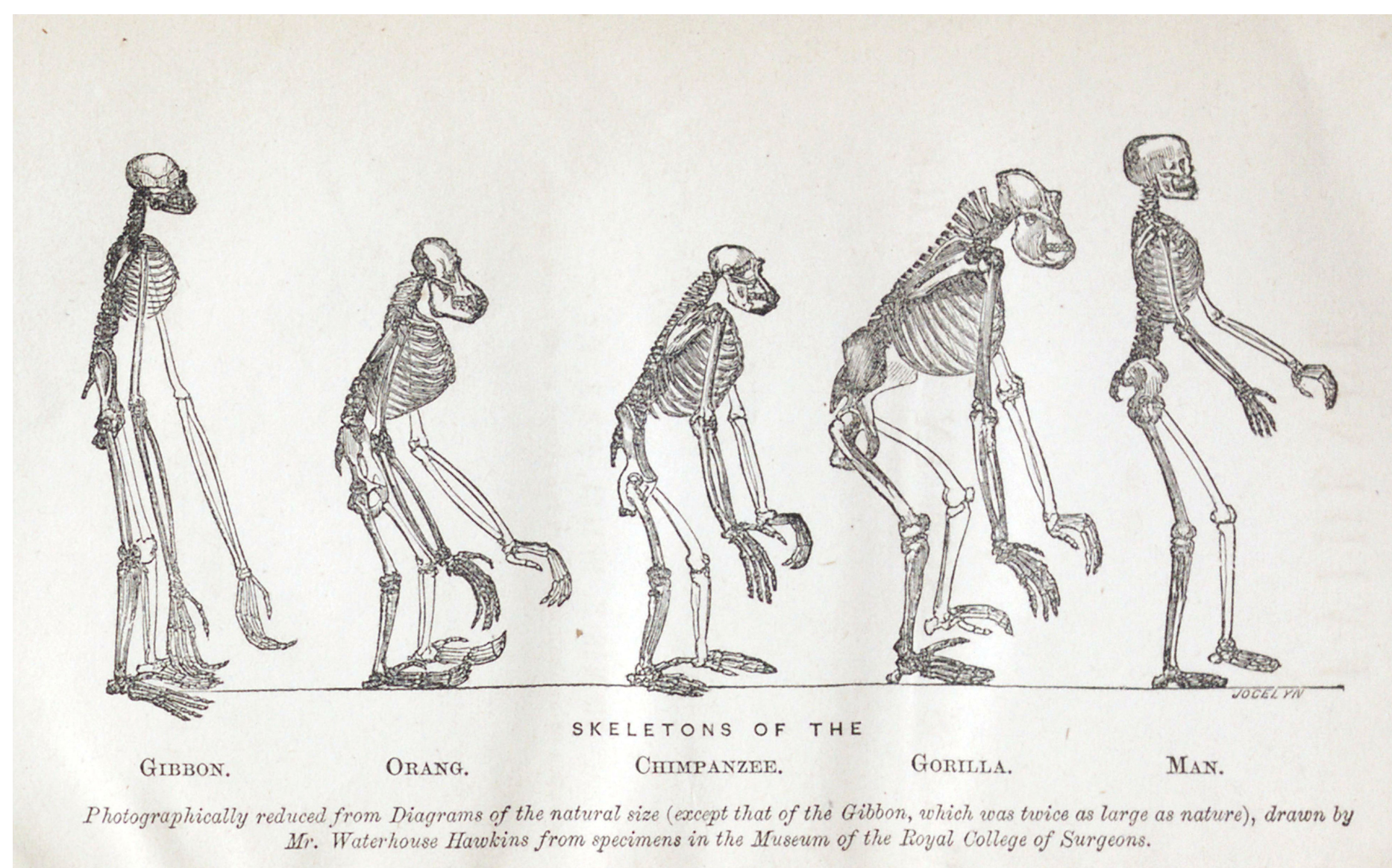
- (1) Genes
- (2) Baby
- (3) Zygote
- (4) Embryo

Q 5. Fill in the blank : During gamete formation, _____ occurs.

- (1) Mitosis
- (2) Meiosis

Passage - 3

5 Marks



Riya went to a museum with her family and saw a huge painting of the above picture. She had few questions in her mind. The next day she went to her school and asked her teacher about her queries.

Q 1. Which phenomenon is indicated in the painting ?

- (1) Evolution
- (2) Inheritance
- (3) Growth
- (4) Death

Q 2. Who is known as the Father of Evolution ?

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

Q 3. Who is more evolved : Man or Chimpanzee ?

- (1) Man
- (2) Chimpanzee

Q 4. What are the earliest members of human species called ?

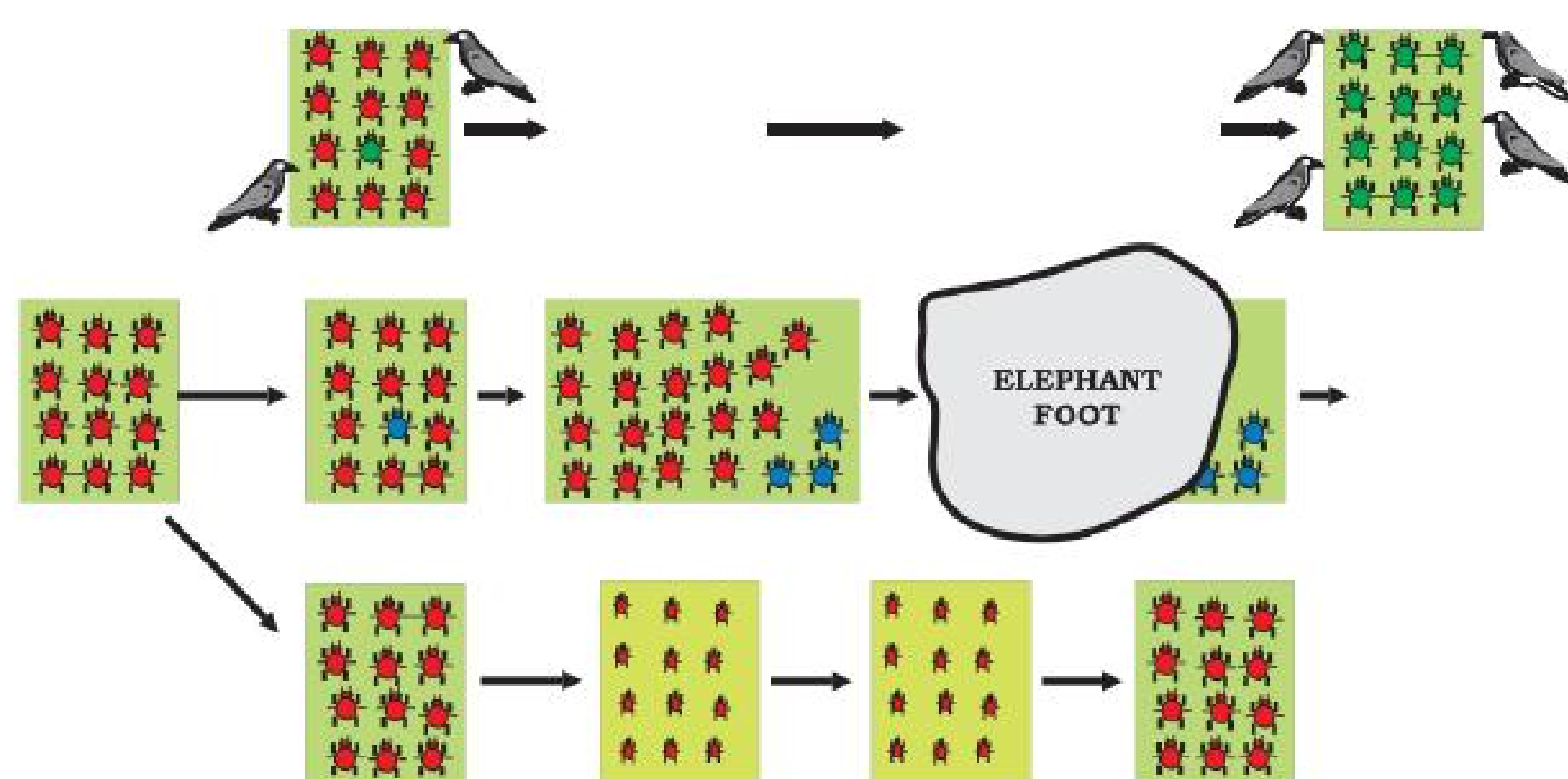
- (1) Homo sapiens
- (2) Homo erectus

Q 5. Has man evolved over the ages ?

- (1) YES
- (2) NO

Passage - 4

5 Marks



Rahul did a case study on a group of red beetles. To confirm that Rahul has done the whole work by himself, his teacher asked him a few questions.

Q 1. How does the population of the beetles increase ?

- (1) By asexual reproduction
- (2) By sexual reproduction

Q 2. State TRUE or FALSE : The beetles evolved from being green coloured to red coloured so that crows could not identify them.

- (1) TRUE
- (2) FALSE

Q 3. What is the term related to the change of colour of the beetles ?

- (1) Variation
- (2) Constancy

Q 4. What is the actual reason behind the evolution of the beetles ?

- (1) Survival advantage
- (2) Survival Disadvantage

Q 5. Can the weight of the beetles change as a result of some kind of evolution ?

- (1) YES
- (2) NO

Passage - 5

5 Marks



Suraj was given a chart containing the above images and was asked certain questions based on it.

Q 1. The type of hair in human beings is an

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

Q 2. Weight of an animal is an

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

Q 3. The type of ear lobes in an human is an

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

Q 4. Colour of eyes in humans is an

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

Q 5. Skin colour in humans is an

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