BAL BHARATI PUBLIC SCHOOL, PITAMPURA, DELHI – 110034

SUBJECT: BIOLOGY

CLASS X: CHAPTER: HEREDITY & EVOLUTION

Week: 17th November to 27th November, 2020

No of blocks: 1 or 2

TOPIC: **Heredity (Revision Assignment)**

GUIDELINES FOR STUDENTS:

- Attempt the following questions in the practice notebook after the discussion in the online classes.

Heredity and Evolution- QUESTION BANK

1. Define heredity. Give examples of inherited traits.

2. Why do asexually reproducing organisms show very little variations?

3. How does the creation of variations in a species promote survival?

4. Why did Mendel select pea plant for his experiments?

5. Explain the result of Mendel's monohybrid cross.

6. What is dihybrid cross? What is the ratio of F2 hybrid?

7. How do traits get expressed?

8. Give examples of animals in which sex is not genetically determined.

9. What is the difference between dominant and recessive genes?

10. With the help of an example, show that genes control traits.

11. State some contrasting characters seen in pea plants.

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12. If a plant is heterozygous for tallness, the F2 generation has both tall and dwarf plants. Which principle does it prove?

13. State the ratio of plants produced in the monohybrid cross in the F1 and F2 generation.

14. Where are genes located? What is the chemical nature of genes?

15. How is the sex of a newborn child determined in humans?

MCQs

1. Which of the following is a totally impossible outcome of Mendel's Experiment?
a. 3 tall 1 short plant
b. 24 tall and 8 short plants
c. 8 tall and 0 short plants
d. 4 tall plants and 1 medium height plant

2. Which of the following is not a direct conclusion that can be drawn from Mendel's Experiment?
a. Only one parental trait is expressed
b. Two copies of each trait is inherited in sexually reproducing organism
c. For recessive trait to be expressed, both copies should be identical
d. Natural selection can alter the frequency of an inherited trait

3. Which one is a possible progeny in F2 generation of pure bred tall plant with round seed and short plant with wrinkled seeds?

a. Tall plant with round seeds
b. Tall plant with wrinkled seeds
c. Short plant with round seed
d. All of the above

4. Which section of DNA provides information for one protein?
a. Nucleus
b. Chromosomes
c. Trait
d. Gene

5. Which of the following is not controlled by genes?
1. Weight of a person
2. Height of a person

a. only 1
b. only 2

c. both 1 and 2
d. sometimes 1 and sometimes 2

6. What is the probability that the male progeny will be a boy?

a. 50%
b. 56%
c. 47.43%
d. It varies

7. A perfect pair of sex chromosomes is possessed by-

a. Girls only
b. Boys only
c. Both girls and boys
d. It depends on many other factors

8. With whom can you associate the theory of evolution?

a. Charles Darwin
b. Mendel
c. Stanley miller
d. Harold Urey

9. Which of the following can be called a characteristic?

a. Plants can do photosynthesis
b. We have 2 eyes
c. Mango tree is multicellular
d. All of these

10. Independent inheritance of two separate traits, shape and colour of seeds in Mendel's cross on pea plants resulted in an observable ratio of:

a. 3 : 1
b. 9 : 3 : 3 : 1
c. 1 : 1
d. 9 : 4 : 2 : 1

11. If a round, green seeded pea plant (RR yy) is crossed with wrinkled, yellow seeded pea plant (rr YY), the seeds produced in F1 generation are:

a. round and yellow
b. round and green
c. wrinkled and green
d. wrinkled and yellow

12. New species may be formed if:

(i) DNA undergoes significant changes in germ cells
(ii) the number of chromosomes change in the gamete
(iii) there is no change in the genetic material
(iv) mating does not take place

(a) (i) and (ii)
(b) (i) and (iii)
(c) (ii), (iii) and (iv)
(d) (i), (ii) and (iii)

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13. Two pea plants one with round green seeds (RRyy) and another with wrinkled yellow (rrYY) seeds produce F_1 progeny that have round, yellow (RrYy) seeds. When F_1 plants are selfed, the F_2 progeny will have new combination of characters. Choose the new combination from the following:

(i) Round, yellow
(ii) Round, green
(iii) Wrinkled, yellow
(iv) Wrinkled, green

(a) (i) and (ii)
(b) (i) and (iv)
(c) (ii) and (iii)
(d) (i) and (iii)

14. Select the statements that describe characteristics of genes

(i) genes are specific sequence of bases in a DNA molecule
(ii) a gene does not code for proteins
(iii) in individuals of a given species, a specific gene is located on a particular chromosome
(iv) each chromosome has only one gene

(a) (i) and (ii)
(b) (i) and (iii)
(c) (i) and (iv)
(d) (ii) and (iv)

GIVE A SUITABLE TERM FOR THE FOLLOWING:-

1. A term for group of interbreeding organisms

2. A segment of DNA which has information for a character
3. Traits gained during lifetime

4. Organisms do this to perpetuate their own kind
5. Traits like earlobe are its examples
6. The transmission of characters from parents to off springs
7. It is a nucleic acid
8. Alternative forms of the same character
9. Term used for the off springs of two plants or animals of different species

10. The germ cells combine to restore the normal number of …….. in the progeny.

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