**Cell Biology**

**NAME THE FOLLOWING**

1. The structural & functional unit of life.

2. Site of cellular respiration.

3. Control centre of the cell.

4.The irregular network of tubules which act as transport system of a cell.

5.Energy currency o f a cell.

6.Protein factory of a cell.

7.An organelle that converts light energy to chemical energy.

8.Suicidal bags of a cell.

9. Dark,condensed,rod shaped bodies carrying hereditary information.

10.The membrane surrounding vacuole.

11. Porous,selectively permeable living membrane.

12. Non living rigid part of a plant cell made up of cellulose.

13.Collective term for cytoplasm and nucleus.

14.The chemical substance constituting genes.

15.Heriditary units present in chromosomes.

16.The cell organelle initiating cell division in an animal cell.

17.Organelle secreting enzymes and hormones.

18.Digestive enzymes present in lysosomes.

19.The largest cell organelle.

20.Plastids found in green leaves.

**GENETICS**

Name the following.

1. The fundamental unit of heredity.
2. The biological model used by Mendel for experiments of genetics.
3. Small differences among individuals in a population.
4. The generation produced by crossing two homozygous parents.
5. A cross between two parents having a pair of contrasting traits.
6. A cross between two parents taking into consideration alternative traits of two different characters.
7. The super ruling allele of a gene.
8. The suppressed allele of a gene.
9. A condition in which both the alleles controlling a character are similar.
10. A condition in which both the alleles controlling a character are dissimilar.
11. The physical expression of character of an individual controlled by the genetic constitution.
12. The genetic constitution of an organism.
13. Sudden changes in one or more genes or in the number and structure of chromosomes which may be inherited.
14. A pair of corresponding chromosomes of the same shape and size, having centromere in the same location, one from each parent.
15. A pair of chromosomes that determine sex of an individual.
16. Chromosomes that determine bodily characters.
17. Father of genetics.
18. The phenotypic ratio in monohybrid cross.
19. The genotypic ratio in monohybrid cross.
20. The phenotypic ratio in dihybrid cross.
21. A condition in which certain characters are controlled by a single gene.
22. The chemicals that make up a chromosome.

23.A genetic disease with a tendency to bleed profusely from even a slight wound.

24. Tendency of all genes present on a chromosome to pass on together

from parent to offspring.

25.Alternative form of a gene on a pair of homologous chromosome

26. Pair of genes responsible for a particular characteristic in an individual.

27. Transmits characteristics from parent to offspring.

**A homozygous Tall plant (T) bearing red coloured (R) flowers iscrossed with a homozygous Dwarf plant (t) bearing white flowers (r):-**

(1) Give the genotype and phenotype of the F1 generation.

(2) Give the possible combinations of the gametes that can beobtained from the F1 hybrid.

(3) Give the dihybrid ratio and the phenotype of the offsprings ofthe F2 generation when two plants of the F1 generation aboveare crossed.

**In a certain species of animals black fur (B) is dominant over brown fur(b). Predict a genotype and phenotype of the offspring when both parents are Bb or have heterozygous black fur.**

**What is a dihybrid ratio?**

**State Mendel’s law of Independent Assortment.**

**State Mendel's law of dominance.**

**State Law of unit character.**

**State Mendel’s Law of Segregation.**

**Given below is a schematic diagram showing Mendel’s experiment on sweet pea plants with yellow round (YYRR) seeds and green wrinkled(yyrr) seeds. Answer the questions that follow.**

Yellow Round seeds Green wrinkled seeds

(YYRR) (yyrr)

i. Complete the details by filling in the blanks 1 to 4.

ii. Give the phenotype of F 1 progeny.

iii. Give the phenotypic ratio and phenotype of F 2 progeny.

**Differentiate between the following.**

i. Homozygous and heterozygous alleles.

ii. Diploid and haploid.

iii. Monohybrid and dihybrid cross

iv. Phenotype and genotype

v. Homozygous and hemizygous condition

vi. Autosomes and allosomes

vii. Hemizygous condition and holandric genes

**A homozygous tall plant (T) bearing red coloured flowers (R) is crossed with a homozygous dwarf plant (t) bearing white flowers (r).**

i. Give the possible combinations of the gametes that can be obtained from F1 hybrid.

ii. Give the dihybrid ratio and the phenotype of the offspring of the F2 generation when two plants of the F1 generation are crossed