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**CLASS: XII CYCLE TEST- BIOLOGY MARKS : 20**

**DATE: 22.8.19 Time: 40min**

**I. Answer the following questions:**

1. State a difference between a gene and an allele. **(1)**

2. A garden pea plant (A) produced inflated yellow pod, and another plant (B) of the same species produced constricted green pods. Identify the dominant traits. **(1)**

3. With the help of a Punnett square, find the percentage of homozygous tall in a F2 population involving a true breeding tall and a true breeding dwarf pea plant. **(2)**

4. A cross was carried out between two tea plants showing the contrasting traits of height of the plant. The result of the cross showed 50% of parental characters.

 a. Work out the cross with the help of a Punnett square.

 b. Name the type of the cross carried out. **(2)**

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5. Distinguish between the homozygous and heterozygous in genetics. **(3)**

6. A pea plant with purple flowers was crossed with white flowers producing 50 plants wit h only purple flowers. On selfing, these plants produced 482 plants with purple purple flowers and 162 with white flowers. What genetic mechanism accounts for these results? Explain. **(3)**

7. State and explain about the following

 a. Law of segregation

 b. Law of dominance **(3)**

8. a. Explain a monohybrid cross taking seed coat colour as a trait in *Pisum sativum.* Work out the cross up to F2 generation.

 b. State the law of inheritance that can be derived from such a cross.

 c. How is the phenotypic ratio of F2 generation different in a dihybrid cross? **(5)**

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