**PART – A**

1. **Fill in the blanks:**

a) The term heterosis was given by………….in the year………….

1. The heterosis estimated over better parent is……………………
2. The synonym of heterosis is…………………………………….
3. The dominance hypothesis was given by………………………
4. Male sterility is characterized by……………………..pollen grains.
5. Two types of genetic male sterility are ……………………… and ……….. ……………………….
6. Source of male sterility in rice is…………………………………
7. B line is also called as the…………………….line
8. Self-incompatibility was first reported by……………………………
9. The cross between two facultative hybrids is called………………….
10. **Matching Table:**

a) Maize 1) Pigeon-pea

b) Pigeon-pea 2) Rice

c) Sugarcane 3) Sunflower

d) Gametophytic SI 4) Noblisation

e) Sporophytic SI 5) Deccan, Ranjit

f) Recurrent Apomixis 6) ICPH-8

g) Non-Recurrent Apomixis 7) haploid cells

h) Self-pollinated 8) diploid cells

i) Cross pollinated 9) East & Mangelsdorf

j) Often- cross pollinated 10) Hughes & Babcock

**PART – B**

1. **Choose the correct answer or True/ False statement:**

a) Development of embryo from the vegetative cells of the ovule (nucellus/ integument) is called adventive embryony

b) The first hybrid variety of sunflower was BSH 1

c) A line is also called a maintainer line

d) In primula three different types of flowers are produced

e) The self-pollinated species do not show inbreeding depression.

f) Specific combining ability is estimated from half-sib families

g) GCA variance is primarily the function of nonadditive genetic variance

h) The first artificial hybrid was produced by crossing sweet pea and carnation

i) Geitonogamy is equivalent to self-pollination

j) Complementary system of SI is also called stimulatory SI

1. **Abbreviations:** 
   1. CHA
   2. GMS
   3. PGMS
   4. CGMS

**Define:**

1. Apomixis
2. Self-incompatibility
3. Male sterility
4. Parthenogenesis
5. Obligate apomixis
6. Mid-parent heterosis

**PART – C (Answer any Four)**

1. What is apomixis? Write its applications in plant breeding.
2. Discuss the different types of male sterility in plants.
3. Describe the different types of heterosis and its applications.
4. Explain the different hypothesis that explains heterosis.
5. Write short notes on any **One**:

a) Hybrid seed production in Sunflower

b) Hybrid seed production in Rice