MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester	: **III (New)**	**Term**	: **I**	**Academic Year**	: **2012-13**
Course No.	: BOT 233	**Title**	: **Principles of Plant Breeding**		
Credits	: 3(2+1)				
Day & Date	: Tuesday, 23.10.2012	**Time**	: 9.00 to 12.00	**Total Marks**	: **80**

Note :
1. Solve **ANY EIGHT** questions from **SECTION "A".**
2. All questions from **SECTION "B"** are compulsory.
3. All questions carry equal marks.
4. Draw neat diagrams wherever necessary.

SECTION "A"

Q.1 Define heterosis. Explain dominance hypothesis of heterosis. Explain different methods of estimation of heterosis.

Q.2 What is wide hybridization? Explain its different types in short and give role of wide hybridization in crop improvement.

Q.3 Define mutation. State different types of mutation and explain procedure of mutation breeding.

Q.4 What is pollination? Explain different types of pollination with examples and explain different mechanisms responsible for cross pollination in crop plant.

Q.5 Write down the information about botanical name, chromosome number, mode of pollination and mode of reproduction and family of following crops.

1) Sorghum
2) Sugarcane
3) American Cotton
4) Potato

Q.6 Define emasculation. Enlist different methods of emasculation and give procedure for emasculation and pollination of pigeonpea.

Q.7 Define pureline. Explain procedure for pureline selection method with its merits and demerits.

Q.8 Define synthetic varieties and composite varieties. Elaborate procedure for development of synthetic varieties.

Q.9 Differentiate between (Any Two)

1) Gametophytic and Sporophytic system of incompatibility
2) Pedigree method and Backcross breeding method
3) Pureline and Clone

Q.10 Write short notes (Any Four)

1) Physical mutagens
2) Male sterility
3) Apomixis
4) Types of introduction
5) General objectives of plant breeding

(P.T.O.)

SECTION "B"

Q.11 Define the following terms.

1) Adaptability
2) Parthenogenesis
3) Dichogamy
4) Hybridization
5) Mutagen
6) Recipient parent
7) Diplodization
8) Single cross

Q.12 a) Give the contribution of following scientists.

1) Barber C.A.
2) Hughes and Babcock
3) Rimpu
4) Athwal D.S.

b) State true or false if false correct it.

1) Gynodioecy is coexistence of female (male sterile) and harmophrodite individual in a population.
2) In monocious plant male and female flowers are present on different plants
3) Ethyl methane sulphonate is a example of chemical mutagen.
4) Heterobeltiosis is the superiority of F_1 hybrid over check variety.