

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, MARCH/APRIL 2016

(UG-CCSS)

Elective Course – Botany

BO 6B 11 (E02) – GENETICS AND CROP IMPROVEMENT

(2012 Admissions)

Time : Three Hours

Maximum : 30 Weightage

I. Answer *all* questions :

Choose the correct answer :

- The breeding of plants and animals for particular traits by humans is called _____
(a) Natural selection. (b) Sexual recombination.
(c) Founder effect. _____ (d) Artificial selection.
- The greatest source of genetic variation in plant and animal populations is from :
(a) Mutations. (b) Sexual reproduction.
(c) Selection. (d) Geographic variation.
- The centre of origin of pepper is :
(a) Peru. (b) Brazil.
(c) China. (d) India.
- The institute involved in the conservation of plant genetic resource is :
(a) CCMB. (b) IISc.
(c) BARC. (d) RRII.

Fill in the blanks :

- The acronym CIMMYT stands for _____
- An example of a heterozygous but homogenous population is _____
- _____ type of photosynthesis is more susceptible to chilling stress
- _____ is an example of biofertilizer.

Answer in a single word :

- Name a **mutagenic** agent.
- Name an improved **cultivar** of rice.

11. Name the pigment present in the roots of host leguminous plants to remove excess oxygen from the vicinity of *Rhizobium*.
12. Name a triploid crop.

(12 x 3 = 36 weightage)

II. Answer all questions. Short Answer

13. Differentiate between heterosis and inbreeding depression
14. Write a brief account on the plant introduction.
15. Mention the any *four* abiotic stresses on crop plants
16. Briefly explain the procedure inducing polyploidy.
17. Describe floral biology of coconut.
18. Mention a few instances of the achievements of mutation breeding in India.
19. Explain Heterobeltiosis.
20. Write a brief account on cytoplasmic inheritance.
21. Write a brief account on KFRI.

(9 x 1 = 9 weightage)

Part C

III. Answer any five questions. Short Essay :

22. Describe the means of managing saline soils.
23. Describe the effect of chilling on photosynthesis.
24. Differentiate between horizontal and vertical resistance.
25. Explain the problems of breeding for mineral deficiency.
26. Explain the various mating systems in crop plants.
27. Differentiate mass selection and clonal selection.
28. Describe the classes of plant genetic resources.

(5 x 2 = 10 weightage)

IV. Answer any two questions. Essay :

29. Explain why back cross breeding is the preferred tool in resistance breeding
30. Explain the origin, breeding techniques and achievements in coconut.
31. Describe the aims and objectives of plant crop improvement.

(2 x 4 = 8 weightage)