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GIET UNIVERSITY, GUNUPUR – 765022
B. Sc. (Ag.) (Fifth Semester) Examinations, January – 2023
PBG 314 – Crop Improvement I (*Kharif* crops)

Time: 2 hrs

Maximum : 50 Marks

The figures in the right hand margin indicate marks.

PART – A

Q.1. Fill in the blanks with suitable word / figure. (0.5 x 10 = 5 Marks)

- a. Law of homologous series of variation is given by_____.
- b. *Parviglumis* is a progenitor of _____.
- c. Improved and cultivated varieties of recent past are known as _____.
- d. Loss of vigour in cross pollinated crop plants is known as _____.
- e. Father of hybrid rice is _____.
- f. Multiple factor hypothesis was given by _____.
- g. Gradual loss of genetic variability in a crop species is called _____.
- h. Centre of origin of groundnut is _____.
- i. Chromosome number of *Arachis hypogea* is _____.
- j. Nilsson-Ehle gave the hypothesis _____.

Q. 2. Define (or) Explain the following in one or two sentences. (1 x 5 = 5 Marks)

- a. Modern cultivars
- b. Cryopreservation
- c. Base collection
- d. Ideotype
- e. Climate resilient variety

Q3. Match the following (0.5 x 10 = 5 Marks)

Column – A

Column – B

- | | |
|------------------------------|---|
| (a) Pusa RH-10 | (i) GCA |
| (b) Golden Rice | (ii) Hopkins |
| (c) Girnar 4 | (iii) HYV |
| (d) F ₁ hybrid | (iv) SCA |
| (e) Soybean | (v) Hybrid |
| (f) 1 ⁰ gene pool | (vi) Heterozygous homogenous population |
| (g) Ear to row method | (vii) Vitamin A |
| (h) Synthetic Varieties | (viii) Oleic acid |
| (i) Hybrids | (ix) Related species |
| (j) Pusa Basmati-1 | (x) China |

Q4. Write True or False against each statement

(0.5 x 10 = 5 Marks)

- a. Girnar 5 is a Chickpea hybrid variety.
- b. Prabhat is an early maturity variety of pigeonpea.
- c. Oils having low oleic:linoleic acid ratio are of good quality.
- d. Gujarat 67 x American nectariless cross hybrid H4 is an intra hirsutum hybrid of cotton.
- e. Ernst Berliner is the father of hybrid rice.
- f. Primitive cultivated varieties are known as obsolete cultivars.
- g. NBPGR head office is situated in Odisha.
- h. Orthodox seeds can be stored under 5% moisture.
- i. Gradual loss of genetic variability in a crop species is called genetic erosion.
- j. Centre of origin of pearl millet is Brazil.

PART – B

Attempt ANY FIVE questions. All question carries equal marks

(6 x 5 = 30 Marks)

- 5. Explain centre of diversity concept and its importance.
- 6. Describe male sterility of rice hybrid seed production in detail.
- 7. What is significance of biotechnology in cotton improvement?
- 8. What is hybrid? Classify different types of hybrids with details..
- 9. Differentiate between synthetic and composite varieties.
- 10. Describe reciprocal recurrent selection for improvement of maize.

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