M.Sc. (Ag.) Examination, 2018
Semester-II
Genetics and Plant Breeding
Course- GPB-512
(Breeding Legumes, Oilseeds and Fibre Crops)

Time: Three Hours **Full Mark: 50**

Questions are of value as indicated in the margin

1. **Tick (√) mark the appropriate answer (*any ten*)** 1×10=10

(i) The center of origin of pigeonpea is

A. South America B. China C. India D. None

(ii) The first pigeon pea hybrid is

A. ICPH 11 B. ICPH 1 C. ICPH 8 D. ICPH 10

(iii) Pusa Jai Kishan is a variety of

A. Sunflower B. *B. Juncea* C. *B. Olereca* D. None

(iv) Which of following is often cross pollinated crop

A. Cotton B. Groundnut C. Sunflower D. Castor

(v) Cotton seed oil contains the anti-nutritional factor

A. Aflatoxin B. BOAA C. Gossypol D. None

(vi) Trypsin inhibitor is anti-nutritional factor of

A. Mung B. Soybean C. Groundnut D. Chickpea

(vii) First intra specific hybrid variety of cotton is

A. H-1 B. H-4 C. Jayalaxmi D. Varalaxmi

(viii) The Directorate of Rapeseed Mustard Research is situated at

A. Bharatpur B. New Delhi C. Ludhiana D. Bhopal

(ix) The chromosome number (2n) of Castor is

A. 20 B. 22 C. 40 D. None

(x) Castor belongs to which family?

A. Euphorbiaceae B. Asteraceae C. Fabaceae D. Malvaceae

(xi) Barnase-Barstar system is used to develop hybrid in

A. Mustard B. Mung C. Cotton D. Groundnut

(xii) Who is known as father of hybrid cotton?

A. C.T Patel B. Katarki C. T.S. Vankatramana D. G.S. Atwal

(xiii) Mung has how much protein content?

A. 20% B. 35% C. 25% D. 22%

(xiv) The center of origin of castor is

A. Ethiopia B. China C. India D. South America

P.T.O.

2. Answer ***any four*** questions: 4×10=40

   (i) What are the quality characters for jute fibre? Mention the two cultivated species of jute in India. How the two species can be differentiated physically? Briefly discuss the different techniques of hybrid seed production in cotton? 2+2+6=10

   (ii) Discuss breeding objectives for chickpea. Write down the origin and distribution of sunflower. 5+5=10

   (iii) How heterosis is exploited in pigeon pea breeding to break the yield barrier? Write down the major breeding objectives of pigeon pea. 5+5=10

   (iv) Write down a note on wild progenitors of groundnut. Discuss the sub-specific and varietal classification of groundnut. Briefly discuss the breeding objectives of groundnut. 2+4+4=10

   (v) What are the major challenges limiting the productivity of rapeseed-mustard crop; also suggests strategies to overcome such constraints. Discuss breeding objectives of sesame. 6+4=10

3. Briefly discuss (***any four***): 4×2.5=10

   (i) Quality characters of mustard

   (ii) Tailoring soybean for food and feed uses

   (iii) Introduction as a plant breeding method in sunflower

   (iv) Hybrid production in castor

   (v) Kabuli-desi gene introgression in chickpea improvement

   (vi) Anti-nutritional factors in lathyrus

   (vii) Genome diversity in cotton

4. Write down short note (***any four***) on the followings: 4×2.5=10

   (i) Bt-Cotton (ii) Capitulum

   (iii) Canola (iv) ICRISAT

   (v) Lint and fuzz (vi) Triangle of U
