

B.Sc. (Ag.) Honours Semester-III Examination, 2016
Course No.: GPB-511
(Breeding Cereals, Forage & Sugarcane)
(New Syllabus)

Signature of Centre Superintendent

Roll No.: (in figure)_____ (in words)_____
Student Index No. _____ Regn. No. _____ of _____

Time: Two Hours

Full Marks: 40

Questions are of value as indicated in the margin

Part-I
(Objective and Short Answer Type)
(Use only ball point pen)

Time: 20 minutes

Full Marks: 10

Note: 1. Answer in question paper itself.

2. Striking, rewriting or overwriting are not allowed in the objective type questions.

A. Tick (4) mark the appropriate answer (any ten):

1.0×10=10.0

- The whose genome of which the following crop is not completely sequenced?
A. Rice B. Maize C. Sorghum D. Wheat
- Which of following is a cross-pollinated crop?
A. Rice B. Wheat C. Ragi D. Alfalfa
- Which of the following species of rice (*Oryza*) other than *O. Sativa* is cultivated?
A. *O. rufipogon* B. *O. glaberrima*
C. *O. rhizomatis* D. *Oryza brachyantha*
- The gametes of one of the following are polyploids
A. *Oryza nivara* B. *Agegilops squarrosa*
C. *Hordeum vulgare* D. *Triticum aestivam*
- The center of origin of Sorghum is
A. S.E. Africa B. India C. China D. Mexico
- The chromosome number (2n) of *Oryza sativa* is
A. 20 B. 24 C. 42 D. None
- The key chemical responsible for aroma in rice is
A. 2-acetyl-1-pyrroline B. 1-acetyl-2-pyrroline
C. 2-amino-1- pyrroline D. None
- The inflorescence of sugarcane is known as
A. Arrow B. Panicle C. Raceme D. None

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9. The chromosome number (2n) of pearl millet (*Penisetum americanum*) is
A. 24 B. 14 C. 42 D. 32
10. Paras is a variety of
A. Maize B. Sorghum C. Bajra D. Ragi
11. Monosomic analysis have been extensively used for gene mapping and substitution line production in
A. Barley B. Soybean C. Ragi D. Wheat
12. Sugarcane Breeding Institute is situated at
A. Lucknow B. Coimbatore C. New Delhi D. Hyderabad
13. In wheat, maize and rice
A. Perisperm is fused with seed coat B. Pericarp is fused with seed coat
C. Perisperm and seed coat are separate D. Pericarp and seed coat are separate
14. Tifton is a male sterile cytoplasm of
A. Jowar B. Bajra C. Rice D. Alfalfa

M.Sc. (Ag.) Examination, 2016
Semester-III
Subject: Genetics and Plant Breeding
Course No.: GPB-511
(Breeding Cereals, Forage & Sugarcane)

Time: Three Hours

Full Marks: 50

Questions are of value or as indicated in the margin

A. Tick (4) mark the appropriate answer (any ten):

1.0×10=10.0

1. Genome of which of the following crop is not completely sequenced?
A. Rice B. Maize C. Sorghum D. Wheat
2. Which of the following is a cross-pollinated crop?
A. Rice B. Wheat C. Ragi D. Alfalfa
3. Which of the following species of rice (*Oryza*) other than *O. sativa* is cultivated?
A. *O. rufipogon* B. *O. glaberrima*
C. *O. rhizomatis* D. *Oryza brachyantha*
4. The gametes of one of the following are polyploids
A. *Oryza nivara* B. *Aegilops squarrosa*
C. *Hordeum vulgare* D. *Triticum aestivum*
5. The center of origin of Sorghum is
A. S.E. Africa B. India C. China D. Mexico
6. The chromosome number (2n) of *Oryza sativa* is
A. 20 B. 24 C. 42 D. None
7. The key chemical responsible for aroma in rice is
A. 2-acetyl-1-pyrroline B. 1-acetyl-2-pyrroline
C. 2-amino-1-pyrroline D. None
8. The inflorescence of sugarcane is known as
A. Arrow B. Panicle C. Raceme D. None
9. The chromosome number (2n) of pearl millet (*Penisetum americanum*) is
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13. In wheat, maize and rice

- A. Perisperm is fused with seed coat B. Pericarp is fused with seed coat
 C. Perisperm and seed coat are separate D. Pericarp and seed coat are separate

14. Tifton is a male sterile cytoplasm of

- A. Jowar B. Bajra C. Rice D. Alfalfa

B. Answer any four questions.

10×4=40

1. What are the important quality traits of bread wheat? 5
Write down a short note on origin of bread wheat. 5
2. Discuss breeding for abiotic stress tolerance in rice. 5
Write down a short note on important quality traits of rice. 5
3. Discuss major breeding procedures for development of maize hybrids. 6
Briefly discuss breeding for stress tolerance in maize 4
4. Briefly discuss objectives and challenges for sugarcane breeding. 5
Write in short the characteristics of important species of sugarcane. 5
5. Briefly discuss the use of male sterility in pearl millet breeding programmes. 5
Write down the major breeding objectives of sorghum. 5
6. Briefly discuss : (*any four*) 2.5×4=10
 - I. Problems in forage breeding
 - II. Pollination behaviour in forage legumes
 - III. Origin of cultivated rice
 - IV. Noblisation of sugarcanes
 - V. Evolution of maize
 - VI. Marcotting in sugarcanes
 - VII. New plant type in rice
7. Write down short note on the followings : (*any four*) 2.5×4=10
 - I. Golden rice
 - II. Quality Protein Maize
 - III. Ph locus
 - IV. Bt-maize
 - V. Gametocides in wheat
 - VI. Wheat genome diversity