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**R—73—2017**

**FACULTY OF SCIENCE**

**B.Sc. (First Year) (Second Semester) EXAMINATION**

**MARCH/APRIL, 2017**

**(CBCS/CGPA)**

**BOTANY**

**Paper IV**

**(Genetics and Plant Breeding)**

**(MCQ+Theory)**

**(Monday, 3-4-2017)**

**Time : 10.00 a.m. to 12.00 noon**

*Time—2 Hours*

*Maximum Marks—40*

- N.B. :—*
- (i) Attempt All questions.
  - (ii) All questions carry equal marks.
  - (iii) Choose the correct option for MCQ.
  - (iv) Draw well labelled diagrams wherever necessary.

**(MCQs)**

1. (i) ..... is also known as law of purity of gametes.
  - (a) Law of independent assortment
  - (b) Law of dominance
  - (c) Law of segregation
  - (d) All of the above
- (ii) Mendel's work was rediscovered by .....
  - (a) Hugo de Vries
  - (b) Carl Correns
  - (c) Eric Von Tschermak
  - (d) All of these
- (iii) Mendel's monohybrid ratio is .....
  - (a) 1 : 1
  - (b) 3 : 1
  - (c) 1 : 2 : 1
  - (d) 9 : 3 : 3 : 1

P.T.O.

- (iv) Duplicate gene action ratio is .....
- (a) 9 : 3 : 4 (b) 9 : 7  
(c) 15 : 1 (d) 12 : 3 : 1
- (v) Hypertrichosis is ..... linked character.
- (a) X (b) Y  
(c) XY (d) Autosomes
- (vi) Webbed neck is the symptom of ..... syndrome.
- (a) Klinefelter (b) Down  
(c) Turner (d) Patau
- (vii) Removal of anther from female parent is called as .....
- (a) Emasculation (b) Crossing over  
(c) Selection (d) Bagging
- (viii) The superiority of hybrids over parent is called .....
- (a) Heterosis (b) Hybrid vigour  
(c) Both (a) and (b) (d) None of these
- (ix) The term mutation was coined by .....
- (a) Morgan (b) Shull  
(c) Mendel (d) Hugo de Vries
- (x) The Groundnut variety developed by mutational breeding is .....
- (a) Sonora 64 (b) HD-2189  
(c) NHH-44 (d) TAG-24

**(Theory)**

2. Describe in detail complementary action with suitable example.

Or

Write notes on :

- (a) Sex determination in insects  
(b) Genetic male sterility.

3. Describe in detail allopolyploidy with reference to Hexaploid wheat.

*Or*

Write notes on :

- (a) Klinefelter syndrome
- (b) Natural mutations.

4. Describe the steps involved in hybridization for plant breeding.

*Or*

Write notes on :

- (a) Heterosis
- (b) Objectives of mutational breeding.