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Name.....

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Reg. No.....

FOURTH SEMESTER M.Sc. DEGREE EXAMINATION, JUNE 2019

(CUCSS—PG)

Botany

BO 04ET 14 07—GENETICS AND CROP IMPROVEMENT

(2010 Admissions)

Time : Three Hours

Maximum : 36 Weightage

I. Answer *all* questions. Each question carries 1 weightage :

- 1 What is genetic erosion ?
- 2 Describe the floral morphology of Jowar.
- 3 Discuss the significance of acclimatization.
- 4 What are the advantages of distant hybridization ?
- 5 Explain seed certification.
- 6 Enlist major achievements in breeding for drought resistance.
- 7 Distinguish between autogamy and allogamy.
- 8 What are the problems encountered while breeding Oil Palm.
- 9 Discuss the significance of anther culture.
- 10 Explain *Bt* crops.
- 11 What is emasculation ?
- 12 What is the role of *Agrobacterium tumefaciens* in development of transgenic plants ?
- 13 Distinguish between autoploidy and allopolyploidy.
- 14 What are the propagation methods adopted in coffee ?

(14 × 1 = 14 weightage)

II. Answer any *seven* questions. Each question carries 2 weightage :

- 15 Explain the role of nitrogen fixation in crop productivity. Add a note on the genetics of nitrogen fixation.
- 16 What are the strategies to be adopted for breeding and propagation of Vanilla ?

Turn over

- 17 Give a detailed account on the aims and objectives of ICAR and add a list of institutes under it.
- 18 Discuss, with examples, the role of gene banks in conservation and utilization of crop genetic resources.
- 19 Describe various methods of selection employed in conventional plant breeding.
- 20 What is PBR ? Explain its significance in patenting of life forms.
- 21 Discuss the merits and demerits of promoting GM crops.
- 22 What are the steps involved in the production of an improved seed variety ?
- 23 Give an account on mutation breeding and enlist its major achievements.
- 24 What are the breeding techniques employed for Cocoa ?

(7 × 2 = 14 weightage)

III. Answer any *two* questions. Each question carries 4 weightage :

- 25 List out the modern plant breeding techniques. Discuss the role of biotechnology in crop improvement.
- 26 Describe the various farming systems employed for sustainable agriculture.
- 27 Explain the methods employed for germplasm conservation and utilization. List a few National and International gene banks.
- 28 Give an account on the various methods adopted for breeding and crop management of Ginger and Turmeric. Discuss the major difficulties encountered in the breeding process.

(2 × 4 = 8 weightage)