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(4th Semester)

BOTANY

FOURTH PAPER

(Microbiology, Cytology, etc.)

Full Marks : 55

Time : 2½ hours

(PART : B—DESCRIPTIVE)

(Marks : 35)

*The figures in the margin indicate full marks
for the questions*

1. Write a note on bacterial transformation with labelled diagram. 7

Or

Briefly describe the following : 3½+3½=7

- (a) Structure of bacteriophage
(b) History of microbiology

2. What are microbes? Describe the microbial production of enzymes. 7

Or

Write short notes on the following : 3½+3½=7

- (a) Fixation of nitrogen by microbes
(b) Microbes in water

3. Describe the structure of nucleus with illustrations. 7

Or

Give brief accounts on the following : 7

- (a) Heterochromatin
(b) Epistatic genes

4. Define crossing-over. Write a detailed account on cytological basis of crossing-over. 7

Or

Briefly describe the following : 3½+3½=7

- (a) Coupling and repulsion linkage
(b) Sex determination

5. Explain Lamarck's 'theory of inheritance of acquired characters'. 7

Or

Write short notes on the following : 3½+3½=7

- (a) Natural selection
(b) de Vries mutation theory

★★★

Subject Code : BOT/IV/04

Booklet No. **A**

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Date Stamp

To be filled in by the Candidate

DEGREE 4th Semester
(Arts / Science / Commerce /
.....) Exam., **2016**
Subject
Paper

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To be filled in by the Candidate

DEGREE 4th Semester
(Arts / Science / Commerce /
.....) Exam., **2016**

Roll No.

Regn. No.

Subject

Paper

Descriptive Type

Booklet No. B

INSTRUCTIONS TO CANDIDATES

1. The Booklet No. of this script should be quoted in the answer script meant for descriptive type questions and vice versa.
2. This paper should be ANSWERED FIRST and submitted within 45 minutes of the commencement of the Examination.
3. While answering the questions of this booklet, any cutting, erasing, overwriting or furnishing more than one answer is prohibited. Any rough work, if required, should be done only on the main Answer Book. Instructions given in each question should be followed for answering that question only.

Signature of
Scrutiniser(s)

Signature of
Examiner(s)

Signature of
Invigilator(s)

BOT/IV/04

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(4th Semester)

BOTANY

FOURTH PAPER

(Microbiology, Cytology, etc.)

(PART : A—OBJECTIVE)

(Marks : 20)

The figures in the margin indicate full marks for the questions

SECTION—I

(Marks : 5)

Select the correct answer by putting a Tick (✓) mark in the brackets provided : 1×5=5

1. Gram-positive bacteria differ from Gram-negative bacteria in having

(a) high peptidoglycans in the cell wall ()

(b) chromosome number ()

(c) tinsel type flagella ()

(d) membrane bound organelles ()

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(2)

2. Which one of the following bacteria does not cause water-borne disease in human?

(a) *Salmonella typhi* ()

(b) *Vibrio cholerae* ()

(c) *Mycobacterium bovis* ()

(d) *Shigella dysenteriae* ()

3. In which of the following gene interactions the phenotypic ratio 9 : 7 is obtained in the F₂ progeny?

(a) Epistasis (epistatic genes) ()

(b) Complementation (complementary genes) ()

(c) Duplication (duplicate genes) ()

(d) Lethality (lethal genes) ()

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(3)

4. The strength of linkage between two genes is determined by

(a) the number of chromosomes in a cell ()

(b) the distance between them ()

(c) the position of centromere ()

(d) the frequency of crossing-over ()

5. The theory of pangenesis (all organs of an individual produce a minute hereditary particle called pangenes/gemmules, transported through blood-stream to the sex organ) was proposed by

(a) Jean-Baptiste Lamarck ()

(b) Hugo de Vries ()

(c) G. L. Stebbins ()

(d) Charles Robert Darwin ()

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(4)

SECTION—II

(Marks : 15)

Write short notes on the following :

3×5=15

1. Lysogenic cycle of bacteriophage

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(5)

2. Ammonification by ammonifying bacteria (with examples of bacteria)

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(6)

3. Intermediate filaments of cytoskeleton

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(7)

4. Linkage map

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(8)

5. Importance of mutation in evolution

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