BOT–551

Cell Biology, Genetics, Biostatistics and Ecology

M. Sc. BOTANY (MSCBOT–12/13/16)

Second Year, Examination, 2017

Time : 3 Hours   **Max. Marks : 80**

Note : This paper is of **eighty (80)** marks containing **three (03)** Sections A, B and C. Attempt the questions contained in these Sections according to the detailed instructions given therein.

Section–A

(Long Answer Type Questions)

Note : Section 'A' contains four (04) long answer type questions of nineteen (19) marks each. Learners are required to answer *two* (02) questions only.

1. Describe the structure of chromosomes in detail.

2. Describe applications of computers in Biology.

3. Define biodiversity and describe its types with examples in detail.

4. Write detailed notes on any *two* of the following :

    (a) Mendelian inheritance

    (b) Nitrogen cycle

    (c) Greenhouse gases

Section–B

(Short Answer Type Questions)

Note : Section 'B' contains eight (08) short answer type questions of eight (08) marks each. Learners are required to answer *four* (04) questions only.

1. Describe the function of mitochondria.

2. Describe the principle of fluorescence microscopy.

3. Explain base pairing in DNA.

4. Describe the effect of chemical mutagens on nucleotide sequence.

5. Give method of calculation used in χ^2-test.

6. Describe energy flow in an ecosystem in brief.

7. Describe synthetic characters of plant community in brief.

8. Describe soil profile.

Section–C

(Objective Type Questions)

Note : Section 'C' contains ten (10) objective type questions of one (01) mark each. All the questions of this Section are compulsory.

Choose the correct option for each of the following questions :

1. Microsomes are formed from :

    (a) Ribosomes

    (b) Endoplasmic reticulum

    (c) Mitochondria

    (d) Golgi complex

2. Which of the following terms means a pair of contrasting characters ?

(a) Allele

(b) Phenotype

(c) Homozygous

(d) Genotype

3. Which is the most commonly used level of significance ?

(a) 10% (0.1)

(b) 8% (0.08)

(c) 6% (0.06)

(d) 5% (0.05)

4. Predation and parasitism are which types of interactions ?

(a) (+, +)

(b) (+, 0)

(c) (–, –)

(d) (+, –)

5. *Nitrobacter* converts :

(a) Nitrite into nitrogen

(b) Ammonia into nitrite

(c) Nitrite into nitrate

(d) Ammonia into nitrate

Indicate whether the following statements are True *or* False :

6. The golgi complex plays a major role in glycosylation of lipids and proteins.

7. An exception to Mendel's law is purity of gametes.

8. The test of hypothesis (test of significance) discloses the fact whether the difference between the computed statistic and the hypothetical parameter is significant or otherwise.

9. Pyramid of energy is always upright for all ecosystems.

10. Increase in the concentration of pollutants in higher trophic level is called recycling.

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