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Roll No.

BOT-551

Cell Biology, Genetics, Biostatistics and Ecology

M. Sc. BOTANY (MSCBOT-12/13/16/17)

Second Year, Examination, 2018

Time : 3 Hours

Max. Marks : 80

Note : This paper is of **eighty (80)** marks containing **three (03)** Sections A, B, 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 ultrastructure of plant cell.
2. Write in detail on chromosomal aberrations.
3. Describe the characteristics of community.
4. Write detailed notes on any *two* of the following :
 - (a) Variance
 - (b) Carbon cycle
 - (c) Vegetation pattern in India

(B-3) P. T. O.

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 fluorescence microscopy in brief.
2. Describe special types of chromosomes.
3. Describe law of segregation with example.
4. Describe codons in genetic code.
5. Describe the effect of chemical mutagens.
6. Describe components of ecosystem.
7. Describe types of biodiversity.
8. Describe soil profile.

Section-C**(Objective Type Questions)**

Note : Section 'C' contains ten (10) objective type questions of one (1) mark each. All the questions of this Section are compulsory.

Choose the correct option for each of the following questions :

1. The chief role of nucleolus in a nucleus concerns :
 - (a) Organization of chromosomes
 - (b) DNA replication
 - (c) Ribosome biogenesis
 - (d) Chromatid separation

2. The resolving power of electron microscope is :
 - (a) 1 Å
 - (b) 10 Å
 - (c) 100 Å
 - (d) 1000 Å
3. Genetic code translates the language of :
 - (a) RNA into that of proteins
 - (b) Proteins into that of DNA
 - (c) Amino acid into that of RNA
 - (d) RNA into that of DNA
4. The organisms which live in the bottom of lake are called :
 - (a) Phytoplankton
 - (b) Zooplankton
 - (c) Nekton
 - (d) Benthos
5. The bacteria which convert nitrate into nitrogen molecules are called :
 - (a) Nitrifying bacteria
 - (b) Denitrifying bacteria
 - (c) Methanobacteria
 - (d) Diazotrophic bacteria

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

6. The number of hydrogen bonds between G and C is 2.

7. One gene one enzyme hypothesis was proposed by Beadle and Tatum.
8. Variance of a distribution is defined as the square of standard deviation.
9. Tropical rain forests have the highest density of organisms.
10. Photochemical smog is related to the pollution of water.