

U.G. 5th Semester Examination - 2021

ENVIRONMENTAL SCIENCE

[HONOURS]

Course Code : ENVS(H)CC-P-12/PR

[PRACTICAL]

(Evolutionary Biology)

Full Marks : 20

Time : 2 Hours

The figures in the right-hand margin indicate marks.

Candidates are required to give their answer in their own words as far as practicable.

Answer **any two** of the following : 10×2=20

1. State the Hardy-Weinberg principle. Show mathematically with an example how the genetic variation in a population remains constant from one generation to the succeeding generation. 2+8

OR

What is Hardy-Weinberg principle? Show mathematically how a genetic mutation disrupts the equilibrium of allele frequencies by introducing new alleles into a population. 2+8

2. In a population that is in Hardy-Weinberg equilibrium, 32 % of the individuals are recessive homozygotes for a certain trait. In a population of 14,500, calculate the percentage of homozygous dominant individuals and heterozygous individuals. 10

OR

In a study of mice, a researcher found 30 albino individuals in a total population of 8000. This form of albinism is controlled by a single gene with two alleles: albinism is recessive to normal skin coloration. Calculate the expected allele frequencies and genotype frequencies if the population were in Hardy-Weinberg equilibrium. 10
