Ahmedabad University

School of Arts and Sciences

STA330 Computational Population Genetics

BS
Mid Term Examination 2021-22 (Winter Semester)

Total Marks = 50 **Time – 2 hours**

Enrolment Number:.....
Date: 07-03-2022
No. of printed pages: 1

***Section - A** : Each question carries 05 marks.* **[20 Marks]**

Q1. Give two examples of evolutionary forces.

Q2. How migration patterns are captured through genetic markers?

Q3. Enumerate the genotypes of two linked loci with two alleles each.

Q4. What is incomplete dominance?

***Section - B** : Each question carries 10 marks.* **[30 Marks]**

Q6. Suppose that a random sample of 400 snapdragons from a population includes 185 red, 150 pink, and 65 white. Estimate the allele frequency p of I and q of i. Assuming random combinations of alleles in the genotypes, what are the expected numbers of the three genotypes? Do the observed data seem to fit the expectations? 5 + 5

Q7. Describe how models are used in population genetics. Suggest a simple mathematical model for population growth. 5 + 5

Q8. Describe the Hardy-Weinberg principle. If a gene in a diploid organism has m alternative alleles, show that the number of possible genotypes equals m(m + l)/2. 5 + 5