



**Second Monthly Examination, First Semester - 2020-2021**

**Q1/ Answer these questions briefly.**

**(10 Marks)**

1. Population genetics is.....
2. How do you know if the flock is in Hardey-Weinberg equilibrium?
3. When do breeders use imported animal and selection to improve their flock?
4. Selection intensity is.....
5. Define Hardey-Weinberg Law.
6. What does the mutation rate of  $1 \times 10^{-6}$  mean?
7. What are evolutionary agents?
8. What are the differences between spontaneous and induced mutations?
9. The movement of individuals from one population to another is called.....
10. .....is the most important effective in changing GF, while ..... is considered to be a major force in changing G.F. of a population.

**Q2/ Answer these questions.**

**(8 Marks)**

A/ Suppose we have a flock consist of 16, 48, and 36 individuals with red (WW), reddish white (Ww), and white (ww) color, test if the flock is in H.W. equilibrium use  $\chi^2$  method?

B/ Suppose we have 10 animals from a population in the random mating with  $q_i = 0.8$  and then they added to another group containing 90 animals with  $q_A = 0.6$ . What will be the gene frequency if they matted randomly?

**Q3/ Answer these questions.**

**(12 Marks)**

A/ If we have a flock consists of the following genotype array:

Genotype	BB	Bb	bb
Performance	2.5	2.5	2.0
Frequency	720	960	320

A new disease targets and kills only those individuals who are homozygous recessive, all individuals homozygous recessive genotype do not survive. **What is the frequency of the allele A after two selections (generation)**, if this generation of the population reproduces by random mating?

B/ Suppose that  $q_A = 0.8$  in a population under H.W. equilibrium. What will be the mutation rate from A to A', if the opposite mutation rate from A' to A is  $3 \times 10^{-6}$ .

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