

MINISTRY OF EDUCATION, HERITAGE AND ARTS

YEAR 11 BIOLOGY

REVISION WORKSHEET 5

Write the answers to the following questions in your exercise/activity books.

Mendelian Genetics

1. Write definitions for the following terms giving examples where possible. **(10 marks)**
 - a. DNA
 - b. Chromosomes – including homologous chromosome pair and chromatids
 - c. Discontinuous and continuous variation
 - d. Mutation
 - e. Crossing over
 - f. Sex linked/sex linked traits
 - g. Back or test cross
 - h. Genotype and Phenotype
 - i. Monohybrid cross
 - j. Mendels Law of Segregation

2. Explain the following statements. **(4 marks)**
 - a. Crossing over causes genetic variation.
 - b. Environmental variation is not inheritable.

3. Solve the following monohybrid problems:
 - a. In cats, the Siamese coat pattern (s) is recessive to the ordinary solid coat colour (S). A male cat pure bred for the Siamese coat pattern is crossed with a pure bred cat with solid black coat. State/predict the phenotypes, genotypes of
 - i. Parents
 - ii. F1 offspring
 - iii. F2 offspring. **(3 marks)**

 - b. In a certain species of plant, one pure bred variety has hairy leaves and another pure bred variety has smooth leaves. A cross of the two varieties produces offspring that all have smooth leaves. Predict the phenotypic and genotypic ratio of the F2 generation. **(2 marks)**

 - c. In rabbits, the gene for Himalayan fur colour (H) is dominant to chinchilla fur. A farmer obtains a rabbit with Himalayan fur and wishes to know its genotype for breeding purposes.
Describe how the farmer could determine this – also explain the meaning of the results he would obtain. **(2 marks)**

The End