**10 SCIENCE GENETICS REVISION**

**SC1 Define the following terms:**

DNA

Chromosome

Gene

Trait

Heredity

Karyotype

**SC2 Explain the double helical structure of DNA**

**SC3 Describe the role of DNA in living things**

**SC4 Define the following:**

Punnet square

Genotype

Phenotype

Recessive allele

Dominant allele

Offspring

Homozygous

Purebred

Heterozygous

Monohybrid

**SC5 Use punnet squares for monohybrid crosses to predict genotypes and phenotypes of offspring**

Practice Question: Dark hair is dominant over light hair in pigs. Cross a Homozygous dark haired male with a heterozygous female to find their genotype and phenotype.

**SC6 Use punnet squares for sex-linked crosses to predict genotypes and phenotypes of offspring**

Practice question: In humans, diabetes is a sex-linked recessive trait. If a homozygous normal woman and a diabetic man have children, predict the phenotypes and genotypes of their children.

**SC7 Use a pedigree chart to represent patterns of inheritance**

**SC8 Analyse inheritance patterns to predict genotypes and phenotypes of parents and offspring**



1. State how many generations are shown in the pedigree
2. Identify the phenotype of individual II2, II4 and II8
3. Identify the relationship between individual II5 and III7
4. Write down the genotypes for all individuals shown.
5. Identify if this a dominant or a recessive disorder, and explain how you know this.
6. Does individual I1 have a heterozygous or a homozygous genotype? Justify your answer.



Colour blindness is a sex linked trait in humans.

Predict the Genotype and phenotype of individuals in this pedigree

Infer if colour blindness is a dominant or recessive trait – justify your response

**SC9 Explain the types of mutations and how they occur**

**SC10 Outline at least 2 factors that cause mutations and the effect these may have on living things**

**SC11 Define the following:**

Evolution

Natural selection

Species

Variation

Isolation

Biodiversity

**SC12 Outline the processes involved in natural selection including**

Variation

Isolation

Selection

**SC13 Describe biodiversity as a function of evolution**

**SC15 Explain how genetic characteristics relate to survival and reproductive rates**

**SC16 Define the following:**

Evidence

Fossil Record

Homologous Structures

Geographical distribution

**SC17 Explain how the following provide evidence for evolution:**

Fossil record

DNA profile

embryonic and anatomical similarities

geographical distribution of species