

### Question 1

(a) What is linkage? Mention difference between complete linkage and incomplete linkage. [2]

(b) Why man is unable to pass X-linked gene to his son? [1]

(c) Explain :

(i) Phenyl ketonuria

(ii) Laws of independent assortment. [2]

### Question 2

(a) Mention the contribution of following scientists :

(i) Sutton and Boveri

(ii) Morgan. [1]

(b) Define :

(i) reciprocal cross

(ii) Pleiotrophy. [1]

(c) If father is heterozygous for blood group A and mother is heterozygous for blood group B. Draw a Punnet square to find the possibility of Blood groups in the

offspring.

### Question 3

(a) Explain complete linkage with a cross between *Drosophilla* with Grey body colour and longwinged into cross Black body vestigial wing ( $BV/BV \times bv/bv$ )

(b) What is a syndrome? Explain what is Down's syndrome causes and symptoms?  
[5]