**6) Mutational changes were introduced in a single codon in the gene of T4 phage. The following amino acid substitutions were observed. By following the base changes in the codons determine the codon for each mutant. Assume each amino acid substitution resulted from a single base substitution. Codons for several amino acids are provided: UAG, UAA, and UGA are stop codons. No additional information is required to solve this problem.**

 **Normal:**

 **Mutant A: UGG**

 **Mutant B: UAG or UAA**

 **Mutant C: UGA**

 **Mutant D: UGG**

 **Mutant E: UGA**

**Mutant A Normal**

 **trp – UGG ser – UCC**

 **. AGU**

 **. UCU**

 **. AGC**

 **UCA**

 **. UCG**

 **.**

**Mutant C Mutant B**

 **arg – CGU leu -\_\_\_**

 **CGG**

 **AGA**

 **CGC**

 **AGG**

 **CGA**

**Mutant D Mutant E**

 **gly – GGU val - \_\_\_\_**

 **GGG**

 **GGA**

 **GGC**

**7) A red kernel wheat plant is crossed with a white kernelled plant yielding F1 plant all red kernels. A self cross yields a 15:1 red: white ratio. A testcross yields a 3:1 ratio red: white ratio. Explain the results. Draw Punnet Squares for both the self and the test cross.**