

Answer five of the following six questions (20% each).

1. Describe the mechanism of erection of penis. How does sildenafil citrate (viagra) work to cure male erectile dysfunction?
2. Describe the role of plasma membrane G proteins and at least four different signal pathways coupled to the G protein.
3. Describe the types of memory.
4. When there is a low oxygen supply to the tissues, erythrocyte will be produced to restore blood oxygen supply. Describe the sequential events of this homeostatic mechanism including organ/tissue and hormone involved.
5. Describe the effects of  $P_{CO_2}$ ,  $H^+$  concentration, 2,3-diphosphoglycerate (2,3-DPG) concentration and temperature on the binding affinity of oxygen to hemoglobin.
6. List the directional changes that occur during exercise for all relevant cardiovascular variables.