Assignments for Week-12

Q1. Human serum albumin has binding sites for

a. Diazepam and fatty acids
b. Fatty acid and warfarin
c. Diazepam and warfarin
d. Fatty acids and cholesterol

Q2. Ketoprofen is an

a. Anti-bacterial drug
b. Anti-depressant drug
c. Anti-coagulatory drug
d. Anti-inflammatory drug

Q3. Enthalpy-entropy compensation can be correlated to

a. A higher negative value of enthalpy corresponding to a higher positive value of entropy
b. A higher positive value of enthalpy corresponding to higher positive value of entropy
c. A higher positive value of enthalpy corresponding to higher negative value of entropy
d. A higher negative value of enthalpy corresponding to higher negative value of entropy
e.

Q4. Thermal unfolding of proteins can be studied by

a. Fluorescence spectroscopy
b. Isothermal titration calorimetry
c. High performance liquid chromatography
d. UV spectroscopy

Q5. The heat flow (dQ/dt) is directly proportional to the

a. Rate of product formation (d[P]/dt)
b. Enthalpy (ΔH) of the reaction
c. Volume of the reactants used
d. Volume of the products formed

Q6. The rate of velocity of a reaction given by Michaelis-Menten relationship is:

a. $v = \frac{d[P]}{dt} = \frac{v_0[S]}{K_M + [S]}$

b. $v = \frac{d[P]}{dt} = \frac{v_{\max}[S]}{K_a + [S]}$

c. $v = \frac{d[P]}{dt} = \frac{v_{\max}[E]}{K_M + [E]}$

d. $v = \frac{d[P]}{dt} = \frac{v_{\max}[S]}{K_M + [S]}$

Q7. Enthalpy-entropy compensation can be observed due to the following reasons:

a. Hydrogen bond dissociation
b. Formation of new bonds
c. Solvent reorganization
d. Increase in Gibbs free energy

Q8. The common assumptions made in estimation of binding constant are

a. Binding is a two-state process
b. Activity coefficients are less than unity
c. Ligands bind to the folded form of the protein
d. All ΔC_p values are temperature-independent

Q9. Rational drug design can benefit from

a. Identification of nature of drug-protein interactions
b. Identification of functional groups responsible for binding
c. Understanding toxicity of the drug molecules
d. Understanding ability of the drug to destabilize protein

Q10. Enthalpy of binding of a ligand to protein can be determined by using

a. Differential Scanning Calorimetry
b. Isothermal titration Calorimetry
c. Fluorescence spectroscopy
d. pH measurements