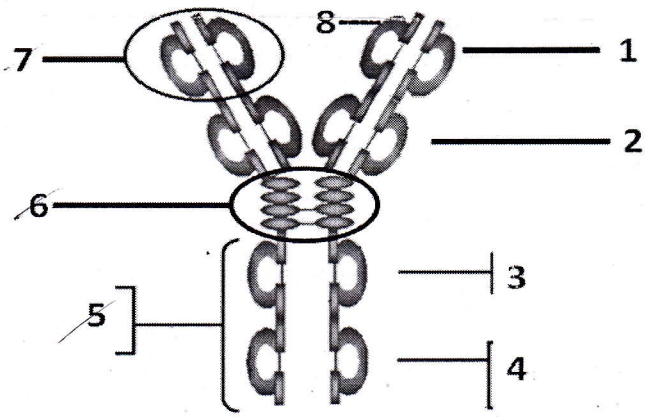
Shahjalal University of Science and Technology

Department of Biochemistry and Molecular Biology

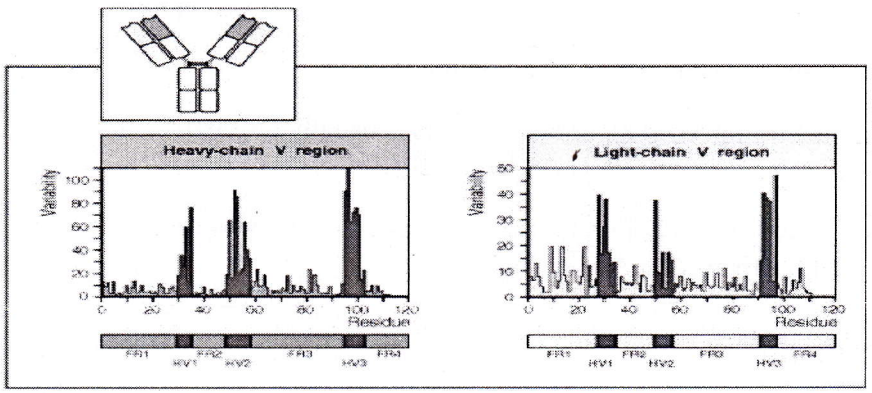
BMB 229 Basic Immunology **Midterm –II**

Full marks 10.0 **Time: 1 hr**



1. Write down the associated number indicated in the above figure that best corresponds with the information provided in the table **1.0**

a. VH	g. Fc 5
b. CH1	h. Complement binding site 7
c. CH2	i. Involve in placental transfer
d. CH3	j. Hinge region 6
e. VL	k. Intrachain disulfite bond
f. Fab	l. Interchain disulfite bond



2. Above figure shows the amino acid sequence variability in the Fab portion of antibody

a. what is the significance of this variation? **0.5+0.5+1.0= 2.0**

b. why do you think this variation is necessary?

c. Suppose there are two human, one shows significantly higher variation in those regions than other, i. which person do you think will provide immunity against broader spectrum of pathogens? What can be the reasons of such difference of variation in this region?

3. Influenza virus is the causative agent of flu which transmits via air. A new strain of influenza virus is supposed to emerge in 2015. You will design a vaccine against that strain. **1.0+1.0= 2.0**

a. What will be the appropriate route of immunization? Why?

b. Which particular antibody you would expect to play vital role? Why?

4. a. Haptens are antigen not immunogen, explain? **0.5+0.5= 1.0**

b. How you can produce antibody against hapten?

5. **"X"** is a weak immunogen. Your aim is to produce antibody against it by immunizing rabbit. What can you do to increase the production of antibody? **0.5**

6. Bovine Serum Albumin is a potent immunogen. When a goat and a chicken were immunized with BSA, the chicken produces more antibodies than goat, why? **0.5**

7. Explain the following statements- **0.5*4=2.0**

a. Polymer of d amino acids are poor immunogenic

b. Accessible, hydrophic residues of a immunogen are good B cell epitope

c. Internal linear sequence can act as T cell epitope

d. Repeated administration over a period of weeks is usually required to induce a strong immune response

8. You aim to produce antibody in rabbit. Design an experiment to determine the appropriate dose of an antigen for the production of high antibody? **1.0**