1. What are the various public health measures, which you would suggest as safeguard against infectious diseases?
Ans: The various public health measures against infectious diseases includes the following -
1. Education - People should be educated about the infectious diseases so that they may protect themselves against the infections.
2. A people suffering from any infections should be isolated to avoid its transmission to any other person.
3. Vaccination - People should get vaccination to avoid infection. Vaccination is available against cholera, typhoid, TB etc.
4. Sanitation - Sanitary surroundings can prevent spread of diseases. Public hygiene includes - suitable disposal of waste & human excreta; periodic cleaning and disinfection of water sources; observing normal practices of hygiene in public catering. Personal hygiene includes keeping the body clean, intake of clean drinking water, vegetables, fruits etc.
5. Eradication of vectors - The breeding places of vectors should be destroyed & adult vectors killed by appropriate methods.

2. In which way has the study of biology helped us to control infectious diseases?
Ans: The science that makes a study of diseases is called pathology, though in a broad sense it includes diagnostic, prophylactic and curative measures too. Pathology is a study of diseases of all kinds though we will confine ourselves to the diseases caused by a pathogenic organism, the reaction of the host as shown in the form of symptoms, the diagnosis made through a study of their symptoms, etiology of the pathogenic organism and finally steps undertaken to cure the host of its diseases, by eradicating and if it is not possible, by controlling the pathogen. In this way the study of biology helped us to control infectious diseases.

3. Hovy does the transmission of each of the following diseases take place?
(a) Amoebiasis
(b) Malaria
(c) Ascariasis
(d) Pneumonia
Ans:
(a) Amoebiasis - It is usually contracted by ingesting water or food contaminated by amoebic cysts.
(b) Malaria - It is transmitted from one person to another by the female Anopheles mosquito. The mosquito picks up the parasite along with the blood when it bites an infected person. When this mosquito bites an other healthy person, the parasites migrate into his blood with the saliva, which the mosquito injects before sucking up blood to prevent its clotting.
(c) Ascariasis - Transmitted through water, vegetables, fruits etc. contaminated with the eggs of the parasites.
(d) Pneumonia - Spreads by cough & sneezes, by sharing drinking glass & eating utensils with an infected person.

4. What measures would you take to prevent water borne diseases?
Ans: Water borne diseases can be prevented by -

(i) Oral dehydration
(ii) Health education
(iii) Control of reservoirs
(iv) Immunization
(v) General hygiene, pure water

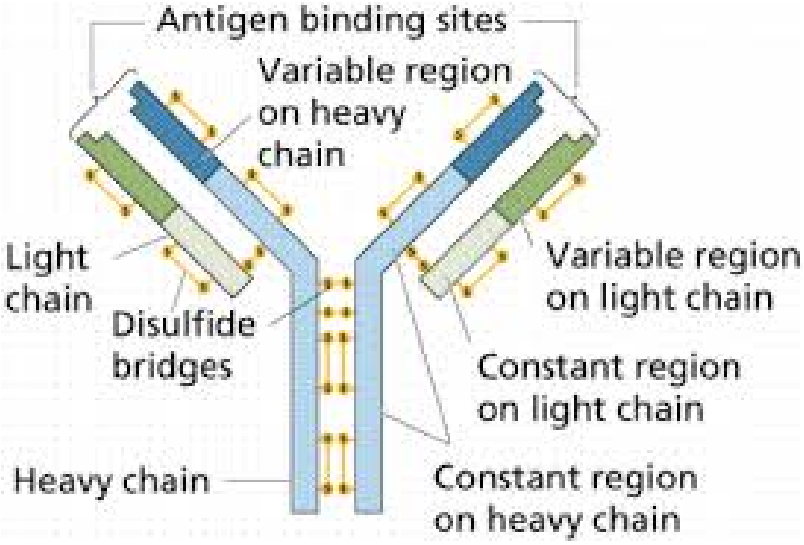
5. Discuss with your teacher what does 'a suitable gene' means, in the context of DNA vaccines.
Ans: Suitable genes refers to that gene (specific segment of DNA), encoding a protein associated with the target infectious organism, is spliced into plasmid, which is then copied & formulated as a vaccine.

6. Name the primary and secondary lymphoid organs.
Ans: Primary lymphoid organs - Bone marrow and thymils.
Secondary lymhoid organs - Spleen, lymph nodes, tonsils.

7. The following are some well-known abbreviations, which have been used in this chapter. Expand each one to its fall form:
(a) MALT
(b) CMI
(c) AIDS
(d) NACO
(e) HIV
Ans:
(a) MALT - Mucosal Associated Lymphoid Tissue
(b) CMI-Cell-Mediated Immunity
(c) AIDS - Acquired Immuno Deficiency syndrome
(d) NACO - National AIDS Control Organization
(e) HIV - Human Immuno Deficiency Virus

8. Differentiate the following and give examples of each
(a) Innate and acquired immunity
(b) Active and passive immunity
Ans:
(a) Innate & acquired immunity
Innate immunity, also called inherent, natural, non specific immunity, comprises all those defence elements with which an individual is bom & which are always available to protect a living body. It acts on many organisms and does not show specificity, e.g. Lysozyme present in secretions such as tears, catalyzes the hydrolysis of molecules in the cell walls of bacteria & interferon induces antiviral state in non infected cells. They act as physiological barriers & check the growth of many pathogenic micro-organisms. Acquired immunity, also called adaptive or specific immunity, is the immunity obtained either from the development of antibodies in .response to exposure to an antigen, as from vaccination or an attack of an infectious diseases or from the transmission of antibodies as from mother to foetus through the placenta.
(b) Active & passive immunity
Active immunity is acquired by catching & surviving an infectious disease or by vaccination with a weakened form of the diseases which makes the body to form antibodies. Whereas passive immunity is conferred by transfer of immune products like antibodies etc. from other individual

9. Draw a well-labelled diagram of an antibody
Ans:


Antigen binding sites
Variable region on heavy chain
Light chain
Disulfide bridges
Variable region on light chain
Constant region on light chain
Heavy chain
Constant region on heavy chain

********** END **********