

Chapter.8

Human Health and Disease

Class – XII

Subject –Biology

- 1. What are the various public health measures, which you would suggest as safeguard against infectious diseases?**

Answer.1

To check the transmission of infectious diseases preventive steps are taken. Some common preventive measures are education, isolation, vaccination, sanitation, eradication of vectors and sterilization.

- 2. In which way has the study of biology helped us to control infectious diseases?**

Answer.2

Biological research and tools has helped a lot to control and eradicate communicable diseases. It helps us in various ways, some of them are:

- a) To know the nature of disease.
- b) To find out the mode of transmission of disease.
- c) To provide treatment and cure the infected person by medicines.
- d) Provide vaccines and immunization treatment for preventing the further spread of disease.

3. How does the transmission of each of the following diseases take place?

Answer.3

Disease	Caused by	Medium required
Amoebiasis	Entamoeba histalytica	Contaminated food and water
Malaria	Plasmodium falciparum	Female Anopheles mosquito is its vector
Ascariasis	Ascaris lumbricoides	Contaminated food and water
Pneumonia	Strptococcus pneumoniae	Sputum of infected person

4. What measure would you take to prevent water-borne diseases?

Answer 4.

Drinking contaminated water is one of the main reason of water born diseases such as typhoid, cholera etc. To prevent from these

diseases we should dispose sewage, excreta etc. properly. We should check our water reservoirs regularly and drink water after boiling it.

- 5. Discuss with your teacher what does ‘a suitable gene’ means, in the context of DNA vaccines.**

Answer.5

A suitable gene means, that special DNA segment which can be injected into host body to produce specific proteins. These produced proteins can kill the particular disease causing organism present in host body.

- 6. Name the primary and secondary lymphoid organs.**

Answer 6.

Primary lymphoid organs: Bone marrow and thymus.

Secondary lymphoid organ: Spleen, lymph nodes, tonsils, peyer's patches of small intestine and appendix.

- 7. The following are some well-known abbreviations, which have been used in this chapter. Expand each one to its full form:**
- a) MALT
 - b) CMI

- c) **AIDS**
- d) **NACO**
- e) **HIV**

Answer 7.

- a) **MALT**- Mucosa-Associated Lymphoid Tissue
- b) **CMI**- Cell-Mediated Immunity
- c) **AIDS**- Acquired Immune Deficiency Syndrome
- d) **NACO**- National AIDS Control Organization
- e) **HIV**- Human Immune Deficiency virus

8. Differentiate the following and give examples of each:

- a) **Innate and acquired immunity**
- b) **Active and passive immunity**

Answer.8

a) **Innate and acquired immunity**

Innate Immunity	Acquired immunity
Present from the child's birth	Developed after birth of child during one's own life

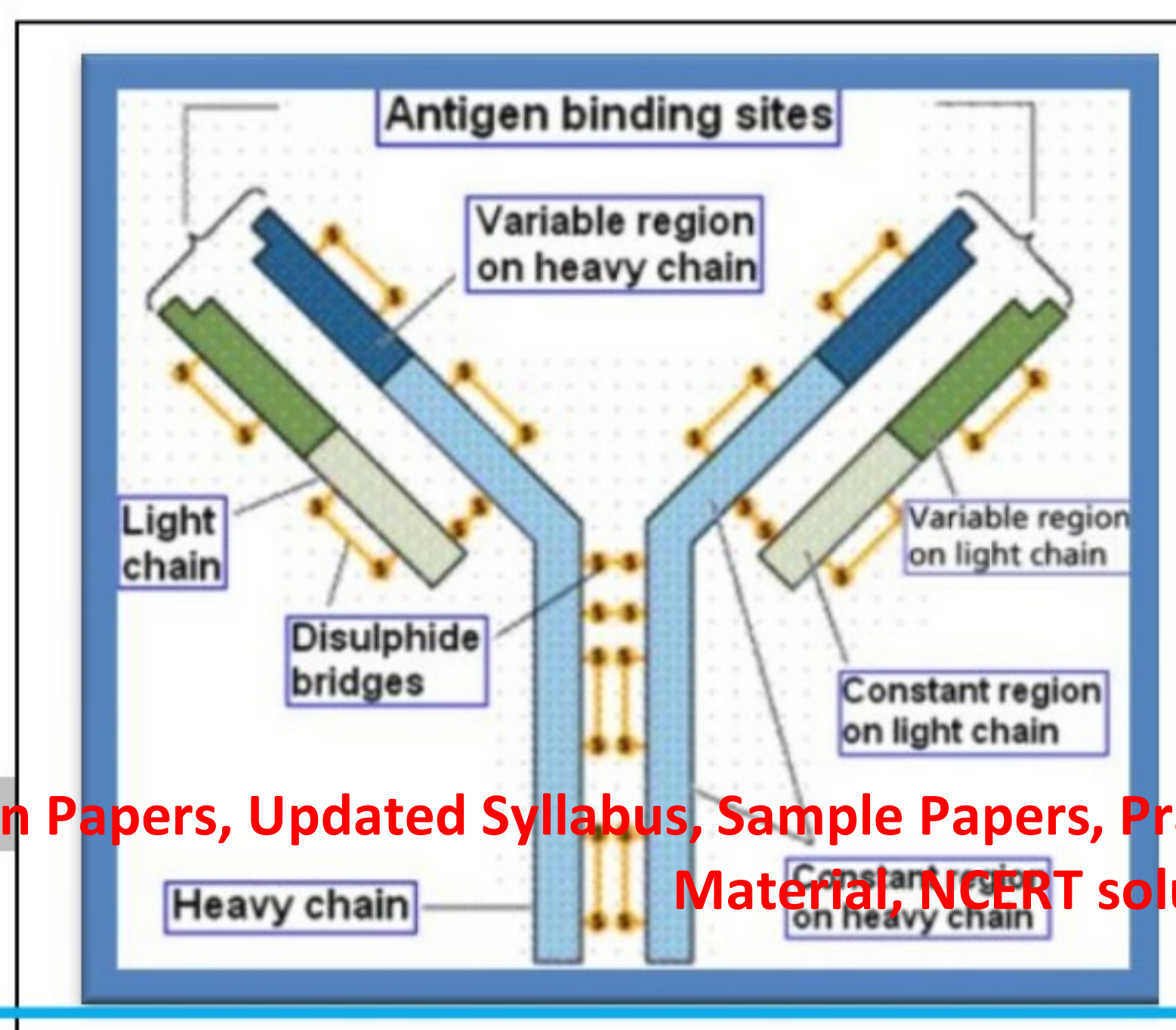
It is inherited from parents	Not inherited from parents
Innate immunity is not acquired from any previous attack of disease.	Acquired in response to a disease or after being vaccinated

b) Active and passive immunity

Active immunity	Passive immunity
It is developed in person's own body in response to any infection or any disease	It is developed when antibodies from outside is injected in the body
It doesn't have any side effects	It may have side effects
Long lasting	Have a short span
It takes a long period to provide relief	It immediately provide relief

9. Draw a well-labelled diagram of an antibody molecule.

Answer.9



10. What are the various routes by which transmission of human immunodeficiency virus takes place?

Answer.10

AIDS is caused by HIV virus. The various routes by which transmission of human immunodeficiency virus takes place are:

- a. Injected by infected needles.
- b. Having sex with infected person without using condoms.
- c. Infected mother to baby through placenta.
- d. Transfer of blood from infected person to normal.

11. What is the mechanism by which the AIDS virus causes deficiency of immune system of the infected person?

Answer.11

AIDS is caused by HIV virus. This virus binds itself to surface receptor on helper T-cell and introduces its RNA and reverse transcriptase enzyme into cells. After this, it produces copy of DNA itself through reverse transcription. This copy of DNA incorporates into the genome of host cell. This is the provirus form, which directs the viral genome for the production of new virus particles. The formation and release of daughter cells destroys the host cell. AIDS occurs when the count of helper T-cells falls very much and the body is unable to fight against diseases.

12. How is a cancerous cell different from a normal cell?

Answer.12

Normal cell	Cancerous cell
They divide at a normal rate	They divide continuously and form mass of cells called tumor
They get differentiated after attaining a specific growth	They did not get differentiated
They are restricted at a particular location	They are not restricted at a particular location and move to neighbouring tissues and affects their normal function

13.Explain what is meant by metastasis.

Answer.13

In the matter of malignant tumor, first stage is very slow and mostly remains unnoticeable. But as the time passes, tumor grows at a faster rate and competes for nutrients with normal cells and kills them. This causes overcrowding and destruction of normal cells and this process extends to neighbouring cells. In the last stage, small pieces of primary tumor carried to different parts of body by the blood to form secondary tumors. This process is termed metastasis.

14.List the harmful effects caused by alcohol/drug abuse.

Answer.14

There are many harmful effects of alcohols/drugs. Some of them are mentioned below:

- a. These reduce the efficiency of every body tissues of our body. Long time use of theses can cause many mental and physical diseases.
- b. These dilate the blood vessels and affect the working of heart.
- c. They can cause cirrhosis in liver.
- d. They increase the workload of kidneys and causes kidney failure.
- e. Long time use of alcohols /drugs can cause impotency.
- f. User becomes lesser resisistant to infections.
- g. Alcoholics lose their image in society because of their nature created under the influence of alcohols.
- h. This increases family violence which affects their family and social life.

15. Do you think that friends can influence one to take alcohol/drugs?

Answer.15

Yes, friends can influence one to take alcohol/drugs. But we can avoid those conditions by following ways:

- a. We should avoid company of those friends who take drugs or alcohols.
- b. We should increase our will power to stay away from these things.
- c. We should have knowledge about bad results of taking alcohols or drugs.
- d. We should take help of our parents if any question arises in our mind regarding this.
- e. We should immediately consult a doctor if any symptoms like depression or frustration felt.

16. Why is that once a person starts taking alcohol or drugs, it is difficult to get rid of this habit? Discuss it with your teacher.

Answer. 16

Once a person starts intake of alcohols or drug, it is very difficult to get rid of this habit. He thinks alcohol is the only way to attain normal state. There are also physical and physiological reasons which create resistant to quit this activity. Prolonged use of alcohol makes a person so addicted

that his nervous system works normally only in the presence of alcohol or drugs and he feels hard to live a normal life without consuming alcohol.

17. In your view what motivates youngsters to take to alcohol or drugs and how can this be avoided?

Answer.17

There are several reasons which motivate the youngsters to take alcohol. Some of them are listed below:

- a. Appreciation from friends on the use of such things.
- b. Sometime just for fun and pleasure, youngsters start taking these things.
- c. To get rid of depression and frustration.
- d. In movies, taking alcohols are represented as a sign of being cool and royal.
- e. Some times in the company of wrong friends makes us alcoholic.

This can be avoided by sharing our problems with our parents. We should understand the bad effects of alcohols and should not look at alcohols as a sign of royalty or greatness. There are many other ways to solve our problems other than alcoholic intake. Youngsters should be taught about the moral values.