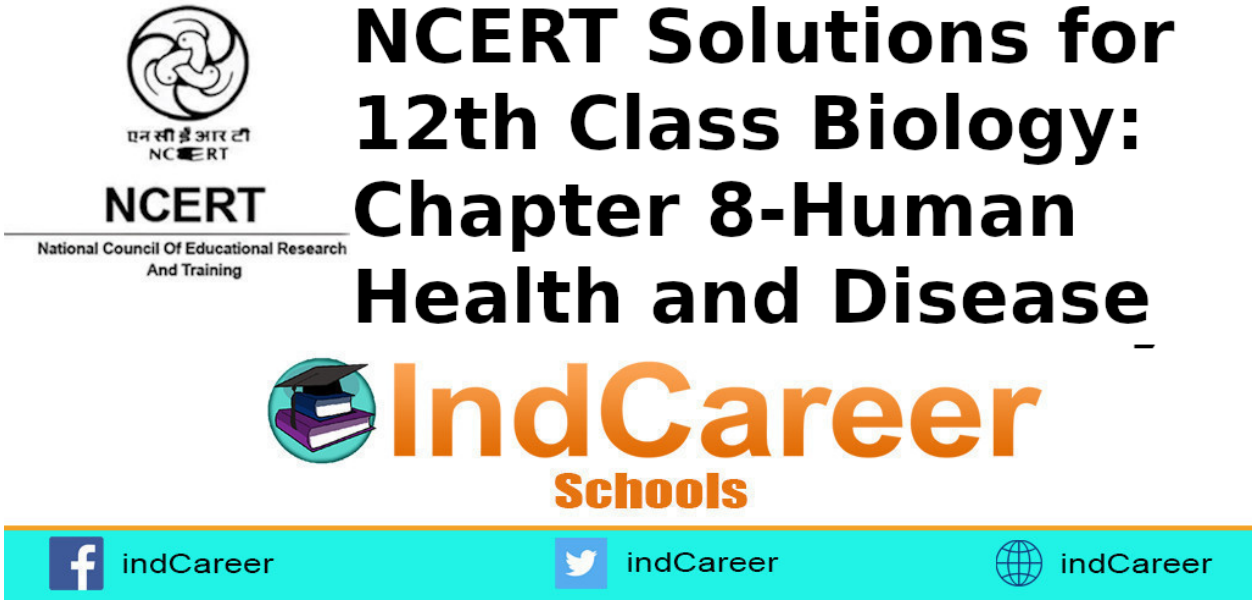

NCERT Solutions for 12th Class Biology: Chapter 8-Human Health and Disease

Class 12: Biology Chapter 8 solutions. Complete Class 12 Biology Chapter 8 Notes.

NCERT Solutions for 12th Class Biology: Chapter 8-Human Health and Disease

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Exercises (NCERT 12th Biology Chapter 8)

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

Answer

Public health measures which should be taken to afeguard against infectious diseases are:

(i) Maintenance of personal and public hygiene:It is one of the most important methods for prevention of various infectious diseases. This measure consists of maintaining a hygienic body, taking of healthy and nutritious food, drinking clean water, etc. In public hygiene their is proper disposal of garbage, excreta, periodic cleaning of society, and cleaning of water reservoirs.

(ii) Isolation: To prevent the spread of air-borne infectious diseases like pneumonia, chicken pox, tuberculosis, etc., it is essential measure to keep the infected person in isolation with others to reduce the chances of spreading these infectious diseases.

(iii) Vaccination: Vaccination is the protection of the body from communicable diseases by injecting some agent that makes copy of the microbe inside the body. It helps in providing passive immunity to the body. Several vaccines are available against many diseases such as tetanus, polio, measles, mumps, etc.

(iv) Vector Eradication: Various diseases such as malaria, filariasis, dengue, and chikungunya spread through vectors. Thus, these diseases can be prevented by providing a clean environment and by the prevention of breeding of mosquitoes. This can be achieved by not allowing water to stagnate around public areas. Also, measures like

periodic cleaning of coolers, use of mosquito nets and spreading of insecticides in drains, ponds, etc. can be undertaken to ensure a healthy environment. Introducing fish such as Gambusia in ponds also controls the breeding of mosquito larvae in still water against diseases.

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

Answer

→ Various advancements that have occurred in the field of biology have helped us gain a better understanding to fight against various infectious diseases.

→ Biology has developed as we have come to know about the life cycle of various parasites, pathogens, and vectors along with the modes of transmission of various diseases and the measures for controlling them.

→ Vaccination programmes against several infectious diseases such as small pox, chicken pox, tuberculosis, etc. have helps us to eradicate these diseases.

→ Biotechnology has helped in the preparation of developed and safe drugs and vaccines.

→ Antibiotics have also played a major role in the treatment of various infectious diseases.

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

(a) Amoebiasis (b) Malaria (c) Ascariasis (d) Pneumonia

Answer

(a) Amoebiasis: It is a vector transmitted disease that spreads by the means of contaminated food and water. The vector involved in the transmission of this disease is the housefly. Its mode of transmission is Entamoeba histolytica.

(b) Malaria: It is a vector transmitted disease that spreads by the biting of the female Anopheles mosquito. Its mode of transmission is Ascaris lumbricoides.

(c) Ascariasis: It spreads through contaminated food and water. Its mode of transmission is Ascaris lumbricoides

(d) Pneumonia: It spreads by the sputum of a diseased person. Its mode of transmission is Streptococcus pneumoniae,

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

Answer

Water-borne diseases such as cholera, typhoid, hepatitis B, etc. spread by drinking contaminated water.

→ These water-borne diseases can be prevented by proper disposal of garbage, excreta, regular cleaning.

→ Speading insecticide in community water reservoirs, boiling drinking water, etc

5. Discuss with your teacher what does 'a suitable gene' means, in the context of DNA vaccines.

Answer

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A suitable gene of specific dna segment when inserted in the the body of host to produce specific type of protein which gives passive immunity to the organism and helps to fight with foreign organism.

6. Name the primary and secondary lymphoid organs.

Answer

(i) Primary lymphoid organs include the thymus and bone marr

(ii) Secondary lymphoid organs are the 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

(a) MALT- Mucosa-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

Answer

(a) Innate and acquired immunity

Innate immunity	Acquired immunity
(i) It is a non-pathogen specific type of defense mechanism.	(i) It is a pathogen specific type of defense mechanism.
(ii) It is inherited from parents and protects the individual since birth.	(ii) It is acquired after the birth of an individual.
(iii) It operates by providing barriers against the entry of pathogenic agents.	(iii) It produces primary and secondary responses, which are mediated by B-lymphocytes and T-lymphocytes.
(iv) It does not specific memory.	(iv) It is observed by an immunological memory.

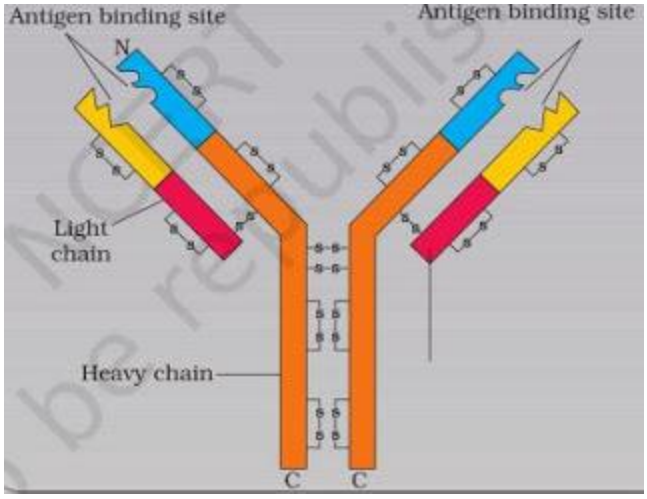
(b) Active and passive immunity

Active immunity	Passive immunity

(i) It is a type of acquired immunity in which the body produces its own antibodies against disease-causing antigens.	(i) It is a type of acquired immunity in which readymade antibodies are transferred from one person to another.
(ii) It shows long lasting effect.	(ii) It does not have long lasting effect.
(iii)It is slow. It takes time in producing antibodies and giving responses.	(iii) It is fast. It provides immediate respose.
(iv) Injecting microbes through vaccination inside the body is an example of active immunity.	(iv) Transfer of antibodies present in the mother's milk to the infant is an example of passive immunity.

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

Answer



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

Answer

AIDS (Acquired Immuno Deficiency Syndrome) is caused by the Human immunodeficiency virus (HIV).

This is transmitted by following modes -

(a) Unprotected sexual contact with a diseased person.

(b) Transfusion of blood from a healthy to a diseased person.

(c) Sharing infected needles or syringes.

(d) infected mother to a child through the placental connection.

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

Answer

→ AIDS (Acquired Immuno Deficiency Syndrome) is caused by the Human immunodeficiency virus (HIV) via sexual or blood to blood contact.

→ After entering the human body, the HIV virus attacks and enters into the macrophages. Inside the macrophages, the RNA of the virus replicates with the help of enzyme reverse transcriptase and gives rise to viral DNA copy.

→ Then, this viral DNA incorporates into the host DNA and directs the synthesis of virus particles. → At the same time, HIV enters helper T-lymphocytes. It replicates and produces viral progeny.

→ These newly formed progeny viruses get released into the blood, attacking other healthy helper T-lymphocytes in the body.

→ As a result, the number of T-lymphocytes in the body of an infected person decreases in number, which causes decrease in immunity of person.

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

Answer

Normal cell	Cancerous cell
(i) Normal cells show the property of contact inhibition. Therefore, when these cells come into contact with other cells, they stop dividing.	(i) Cancerous cells lack the property of contact inhibition. Therefore, they continue to divide, thereby forming a mass of cells called tumor.

(ii) They undergo differentiation after attaining a specific growth.	(ii) They do not undergo differentiation.
(iii) These cells remain confined at a particular location.	(iii) These cells do not remain confined at a particular location. They move into neighboring tissues and disturbs the functioning.

13. Explain what is meant by metastasis.

Answer

The property of metastasis is perfomed by malignant tumors. These melingnent cells moves through different part of body by a pathological process. These cells divide uncontrollably, forming a mass of cells called tumor. From the tumor, some cells get shed off and enter into the blood stream. From the blood stream, these cells reach distant parts of the body and therefore, start the formation of new tumors by dividing actively.

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

Answer

Alcohol and drugs have several adverse effects on the individual, his family, and the society.

(i) Effects of alcohol:

→ Effects on the individual: Alcohol is injurious to the health of the individual. When an individual consumes excess alcohol, it causes damage to the liver and the central nervous system. As a result, other symptoms such as depression, fatigue, aggression, loss of weight and appetite may also be observed in the individual. Sometimes, extreme levels of alcohol consumption may also lead to heart failure, resulting coma and death. The immediate adverse effects of alcohol abuse are manifested in form of reckless bhehaviour, vandalism and voilence,Also, it is advisable for pregnant women to avoid alcohol as it may inhibit normal growth of the baby.

→ Effects on the family: Consumption of excess alcohol by any family member can have devastating effects on the family. It leads to several domestic problems such as quarrels, frustrations, insecurity, etc.

Effects of alcohol on society-

(a) Rash behaviour

(b) Malicious mischief and violence

(c) Disturbing social network

(d) Loss of interest in social activities, loss of interests in hobbies,change in eating and sleeping habites etc.

(ii) Effects of drugs: An individual who is addicted to drugs creates problems not only for himself but also for his family.

→ Effects on the addited individual: Drugs have an adverse effect on the central nervous system of an individual. This leads to the malfunctioning of several other organs of the body such as the kidney, liver, etc. The spread of HIV is most common in these individuals as

they share common needles while injecting drugs in their body. Drugs have long-term side effects on both males and females. These side effects include increased aggressiveness, mood swings, and depression

→ Effects on the family and society: A person addicted to drugs creates problems for his family and society. A person dependant on drugs becomes frustrated, irritated, and anti-social.At the time of drug addicted becomes mental and financial distress.

15. Do you think that friends can influence one to take alcohol/drugs? If yes, how may one protect himself/herself from such an influence?

Answer

Yes, friends can influence one to take drugs and alcohol. A person can take the following steps for the prevention of themself against drug abuse:

→ by avoiding undue peer pressur as everyone has theire own field of interest which shouid be respected by theire teachers and family. One should not experiment with alcohol for curiosity and fun.

→ Avoid the company of friends who take drugs.

→ Seek help from parents and peers.a child should not pushed beyond his/her threshold limits.

→ Take proper knowledge and counseling about drug abuse. Devote your energy in other extra-curricular activities.

→ Seek immediate professional and medical help from psychologists and psychiatrists if symptoms of depression and frustration become apparent.

→ Get rid of the problems completely and lead a perfectly normal life by increasing their will power.

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

This question should be discussed with your subject teacher.

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

Answer

→ Various factors are responsible for motivating youngsters towards alcohol or drugs. Curiosity, need for adventure and excitement, experimentation for fun are the initial causes for motivating youngsters.

→ Some youngsters start consuming drugs and alcohol in order to overcome negative emotions (such as stress, pressure, depression, frustration) and to excel in various fields..such youngsters use to abuse alcohol due to their family pressure for academics .

→ Several mediums like television, internet, newspaper, movies promote various brend by the brand ambassadors like celebrities . Celebrities are also ideal of youngsters so the get much infiuenced by them.

→ Amongst these factors, reasons such as unstable and unsupportive family structures and peer pressure can also lead an individual to be dependant on drugs and alcohol.

Preventive measures against addiction of alcohol and drugs:

(i) Parents should motivate and try to increase the will power of their child.

(ii) Parents should educate their children about the ill-effects of alcohol. They should provide them with proper knowledge and counselling regarding the consequences of addiction to alcohol.

(iii) It is the responsibility of the parent to discourage a child from experimenting with alcohol. Youngsters should be kept away from the company of friends who consume drugs.

(iv) Children should be encouraged to devote their energy in other extra- curricular and recreational activities.

(v) Proper professional and medical help should be provided to a child if sudden symptoms of depression and frustration are observed.

Chapterwise NCERT Solutions for Class 12 Biology:

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