



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

Ans: Various routes by which transmission of human immunodeficiency virus takes place are (i) Illicit sexual contact.  
(ii) Sexual contact with multiple partners.  
(iii) Transfusion of the blood of infected person.  
(iv) Intravenous drug users that shares needles are at high risk of contracting AIDS.

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

Ans: HIV critically injures the immune system by infecting and eventually killing T-cells. Once the virus has infected a T cell, HIV copies its RNA into double stranded DNA copy by means of viral enzyme reverse transcriptase. This process is called reverse transcriptase because it violates the usual way in which genetic information is transcribed. Because reverse transcriptase lacks the proofreading function that most DNA synthesizing enzymes have, many mutations arise as the virus replicates, further hindering the ability of the immune system to combat the virus. These mutations allow the virus to evolve rapidly resulting in the loss of vital cells. As a result of progressive destruction of its T-cells, the body is easily ravaged by a number of common infectious agents. In many instances, these infections would have caused little injury if there were functional T-cells clones available.

Death ultimately results from the relentless attack of opportunistic pathogens or from the body's inability to fight off malignancies. These mutations allow the virus to evolve rapidly resulting in the loss of vital cells. As a result of progressive destruction of its T-cells, the body is easily ravaged by a number of common infectious agents. In many instances, these infections would have caused little injury if there were functional T-cells clones available. Death ultimately results from the relentless attack of opportunistic pathogens or from the body's inability to fight off malignancies.

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

Ans: Cancer is a disease characterized by the excessive and abnormal growth of certain cells. In a healthy individual, the growth of cells is balanced by the rate of cell loss. Thus, when one attains adult age, the size and cellular contents of various body organs remain constant. The balance between the growth of the cells and the rate of cell loss may be disrupted by certain chemicals, physical stresses and viral agents. As a result, the normal growth of the cells may be transformed into cancerous one. Cancerous cells acquire the ability to invade new sites, a phenomenon called metastasis. They exhibit a number of alterations on cell surface, in the cytoplasm, and in their genes. These features are used for the identification of cancers.

13. Explain what is meant by metastasis.

Ans: The non-regulated growth of the cells that accompanies cellular transformation produces tumours or neoplasms. Each tumour being the product of proliferation of a single abnormal cell. Malignant tumour cells are cancer cells that spread to reside in neighbouring tissues - a condition called metastasis.

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

Ans: Harmful effects caused by alcohol abuse are -

(i) Alcohol generates more energy mostly in the form of heat, but at the same time, it dilates the blood vessels. Consequently the 'heat generated is rapidly lost. Due to constant dilation, the arterial walls soon become brittle & rigid. Such a change in the property of blood vessels & deposition of alcoholic fat affect the working of heart.

(ii) Alcoholism leads to gastric ulcers & gastritis.

(iii) In chronic alcoholism, the axon of the nerve inflame thus causing neuritis.

(iv) Permanent damage to liver cells occur due to deposition of fats. The liver dries up & harden (cirrhosis).

Harmful effects caused by drug abuse are - (i) Excessive doses of drugs may lead to coma & death due to respiratory failure, heart failure & cerebral haemorrhage.

(ii) Lack of interest in personal hygiene, withdrawal, isolation, depression, fatigue aggressive & rebellious behaviour etc.

(iii) Acquire serious infections like AIDS & hepatitis B, who take drugs intravenously.

(iv) The adverse effects of drugs are manifested in the form of reckless behaviour, vandalism & violence.

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?

Ans: Yes, friends can influence one to take drugs. Following measures can be taken:

(i) Avoiding undue peer pressure.

(ii) Not taking undue pressure of failures beyond its threshold.

(iii) Getting counselling from some counsellor

(iv) Seeking help from parents and peers

(v) Seeking medical help

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.

Ans: Psychological & physiological dependence of an individual to the intake of certain kinds of drugs and alcohol is called addiction. Once a person start taking alcohol & drugs, it is very difficult to get rid this habit because addiction drive people to take them even when these are not needed or even when their use becomes self destructive. With repeated use of drugs, the tolerance level of the receptors present in the body increases, consequently the receptors responds only to higher doses of drugs or alcohol leading to greater intake & addiction. Thus, the addiction potential of drugs & alcohol, pull the user into a vicious circle leading to their regular use (abuse) from which he/she may not able to get out.

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

Ans: Human have probably been using mind - affecting drugs since time immemorial. The root cause of addiction of man to drugs, smoking and drinking has been due to his inability to make mental adjustments with stresses and strains, drudgery and extreme misery in daily life. As a temporary measure, to combat these adverse situations and to have a certain degree of mental relaxation, humans have been making an extensive use of stimulants, depressants and hallucinogens. Stimulants generally speed up body process, and depressants slow them. Hallucinogens can alter a person's thoughts, feelings, and perception.

In preventing drug abuse, the role of parents could be:

(i) Communicate openly with the children, listen to their problems patiently and teach them how to handle the problems.

(ii) Take interest in children's activities and their friends circle.

(iii) Set an example for children by not taking drugs or alcohol.

(iv) Keep track of prescribed drugs in home.

(v) Learn as much as possible about drugs.

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