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Subject Biology

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Human Health and Diseases

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

Solution:

The various routes by which transmission of human immunodeficiency virus(HIV) takes place is as follows:

- ☐ Sexual relation with the person infected
- ☐ Organ transplantation from an infected person
- ☐ Transfusion of contaminated blood products and blood
- ☐ Transmitted from mother to the child through the placenta

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

Solution:

Upon managing to enter the body, this virus enters into macrophages where the RNA genome of the virus duplicates for the formation of viral DNA by the action of the reverse transcriptase enzyme. The viral DNA is then incorporated into the DNA of the cells of the host which targets the infected cells to synthesize virus particles. The macrophages continue to produce virus, serving as an HIV factory. On the other hand, HIV enters the helper T-lymphocytes, replicating and producing progeny viruses, which when released in the blood, target other helper T-lymphocytes which is reiterated causing a progressive decrease in the count of helper T-lymphocytes in the patient's body. In the long run, there is a significant

decline in the count of helper T-lymphocytes resulting in weakening of the defense mechanism of the boy. This is referred to as acquired immunodeficiency.

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

Solution:

The differences are as follows:

Cancerous cell	Normal cell
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As these cells do not possess the property of contact inhibition, they keep dividing forming a cluster of cells	
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As these cells possess the property of contact inhibition, they stop dividing once they come in touch with other cells	
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Do not experience differentiation	Experience differentiation after attaining growth
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Cells are not confined, they move to the adjacent tissues and interrupt their functioning	
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The cells are confined to a specific location	
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