Topic: AIDS

Class: B.Sc Part –III (Hons.)

Paper- VII

Group – A

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The life-cycle of HIV

- **1. Attachment and entry**
- The process of producing new viruses begins when HIV gains entry to a cell.
- This process happens in two stages, attachment and fusion.
- HIV infects immune system cells which have a CD4 receptor on the surface.
- These cells include T-lymphocytes (also known as t cells), monocytes, macrophages and dendritic cells.
- The CD4 receptor is used by the cell to signal to other parts of the immune system the presence of antigens.

- When HIV makes contact with a CD4 cell,
- the gp120 spikes on the surface of HIV lock onto the CD4 receptor and another co-receptor, either CCR5 or CXCR4.
- The gp41 protein is used to fuse the HIV envelope with the cell wall.
- This process of fusion allows the HIV capsid to enter the CD4 cell.
- Several types of antiretroviral drug have been developed to block different stages of the processes of attachment and entry:

- CCR5 inhibitor
- Attachment inhibitor
- Fusion inhibitor
- The gp41 and gp120 proteins on the surface of the virus are also targets for vaccines
- That are designed to produce antibody responses.

Attachment and Fusing