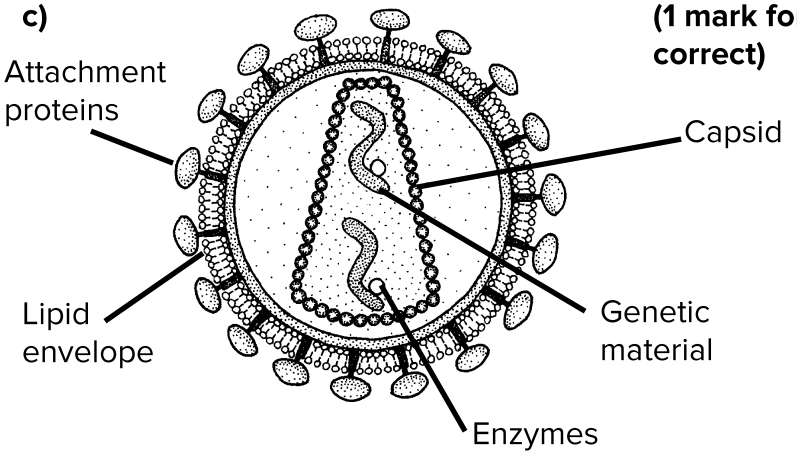
BIOLOGY Mark Scheme

LM14 - VIRUS STRUCTURE

Q1) a) A virus is a non-living acellular particle that infects host cells to replicate **(1)**

b) They cannot replicate on their own / they need the host cells to 'machinery' to replicate **(1)**

c) **(1 mark for each 2 correct, and 3 marks for all 5 correct)**



Q2) a)

Structure	Present in all viruses	Present in some viruses	Not present in viruses
Protein capsid	✓		
DNA		✓	
Reverse transcriptase		✓	
Lipid envelope		✓	
Cell wall			✓

(1 mark for each 2 correct, and 3 marks for all 5 correct)

b) By 'stealing' them from the host cells surface membrane when leaving **(1)**

c) Reverse transcriptase converts viral RNA to DNA **(1)** and integrase inserts the viral DNA into the host cell's genome **(1)** The host cell will be forced to make viral proteins due to the ex pression of the new viral genes **(1)** The viral proteins assemble to create a new virus particle which can leave the cell **(1)**

Q3) a) Attaching to the host cell surface membrane **(1)** and directly injecting the genetic material **(1)**

OR Entering the host cell via endocytosis **(1)** then breaking up the vesicle and viral capsid to release the genetic material**(1)**

b) Genetic material enters the host cell **(1)** The host cell is forced to produce viral proteins via protein synthesis **(1)** Viral proteins assemble into a new virus particle **(1)** and the new virus particles leave the host cell **(1)**

c) Viruses replicate inside the host's cells **(1)** So any attempt to disrupt the replication cycle risks damaging the hosts cells as well **(1)**