NAME: _____

Student ID: _____

MDSC308 – Biomedical Sciences Module
In-class Test
12 February 2017

Name: _____

Student ID#: _____

Total Marks: 50
Worth 10% of final grade

- Please write your name/student ID on each page of the test

NAME: _____

Student ID: _____

1. Draw a schematic of the HIV life cycle and provide a brief written description of each key step. (10 marks)

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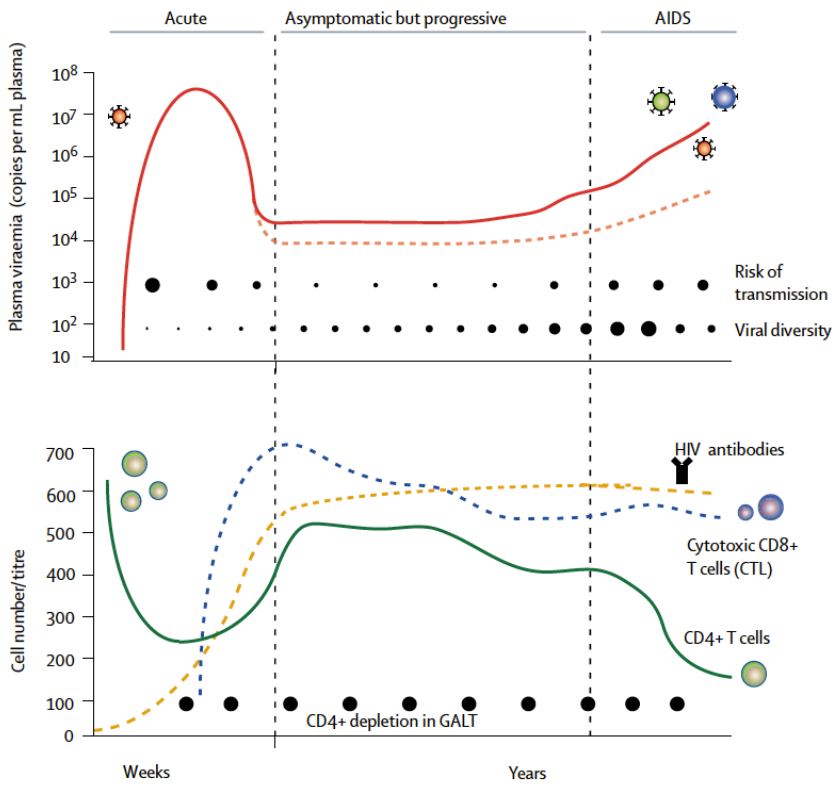

2. Using the data provided in these graphs (from Simon et al. 2006), explain the shape of the curves representing the HIV virus, $CD4^+$ T-cells, and HIV antibodies, and describe what happens to the levels of each over the course of an infection with HIV. (10 marks)

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3. Discuss the impact of HIV viral diversity on the development of diagnostics, emergence of drug resistance and vaccine design. (10 marks)

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4. Choose TWO of the following classes of anti-retroviral drugs used in the treatment of HIV infection and describe the mechanism of action for agents in each. (5 marks)

a) nucleoside reverse transcriptase inhibitors

b) protease inhibitors

c) fusion inhibitors

d) non-nucleoside reverse transcriptase inhibitors

5. Describe two different strategies for anti-viral vaccine development. (5 marks)

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6.

a) A rapid, stable, inexpensive, saliva-based test for the presence of HIV has been developed. Through extensive testing, it has been determined to have a sensitivity of 95% and a specificity of 85%.

Fill in the following table for 1 million people where 1% is infected. (3 marks)

		HIV status	
		Positive	Negative
Saliva Test	Positive		
	Negative		
	TOTAL		

b) Calculate the positive and negative predictive values for this population. (2 marks).

c) In areas of high HIV incidence, what is the value of a test with high negative predictive value? (5 marks)