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VCE Biology ¾
Introduction to Immunity [3.1]
Test Solutions

11 Marks. 1 Minute Reading. 9 Minutes Writing.

Results:

Test Questions	/11	





Section A: Test Questions (11 Marks)

	equestion 1 (5 marks) sick whether the following statements are true or false .				
	Statement	True	False		
a.	Diseases can only be caused by pathogenic agents.		✓		
H_I	alse (Diseases can also be non-pathogenic, such as genetic or autoimmune disease	es.)			
b.	Viruses are considered living organisms.		✓		
	False (Viruses are non-cellular and considered non-living because they require a host cell to replicate.)				
c.	Bacteria cause disease primarily by releasing toxins and enzymes.	✓			
d.	Protozoa are single-celled prokaryotes that cause disease. False (Protozoa are single-celled eukary	otes.)	✓		
e.	Major Histocompatibility Complex (MHC) Class I proteins are only found in specialised immune cells.		✓		
	False (MHC Class I proteins are found on all nucleated cells.)				
f.	Allergies occur when the immune system mistakenly identifies non-pathogenic substances as threats.	✓			
g.	Prion diseases result from genetic mutations rather than misfolded proteins. False (Prion diseases result from misfolded proteins.)		✓		
h.	Plants have microbiological barriers involving beneficial microbes to protect against pathogens.	~			
i.	Antigens are molecules that cannot be recognised by the immune system. False (Antigens are specifically recognised by the immune system.)		✓		
j.	Stomach acid acts as a chemical barrier in animals by creating an environment that destroys pathogens.	✓			



Question 2 (1 mark)

An individual accidentally ingests contaminated food with harmful bacteria. Despite exposure, no illness occurs because bacteria fail to survive a particular body barrier. Which animal chemical barrier is primarily responsible for preventing this infection?

- **A.** Lysozyme enzymes found in tears and saliva, dissolving bacterial cell walls.
- **B.** Stomach acid creating a low pH environment, destroying ingested bacteria.
- **C.** Antimicrobial peptides on skin surfaces neutralising pathogens.
- **D.** Cilia present in respiratory pathways sweeping away pathogens.

Question 3 (1 mark)

Healthy human skin is colonised by normal flora, significantly reducing pathogen infections through competitive exclusion. If antibiotics eliminate these normal florae, which of the following is most likely to occur?

- **A.** Increased pathogen colonisation due to reduced microbial competition.
- **B.** Increased physical damage to the epidermis.
- C. Enhanced chemical barrier effectiveness of sweat.
- **D.** Improved physical barrier protection through thicker keratin layers.

Question 4 (1 mark)

An allergen like pollen typically triggers immune reactions in some individuals but not others. The fundamental immunological error responsible for allergic reactions occurs because:

- **A.** Self-antigens are incorrectly recognised as harmful.
- **B.** The immune system mistakes harmless non-self-antigens as threatening.
- C. Non-self-antigens fail to stimulate an immune response.
- **D.** Non-cellular pathogens like pollen replicate uncontrollably within host cells.

Space for Personal Notes





Question 5 (1 mark)

A person suffers from a prion disease after consuming contaminated meat. The infectious nature of prions is explained best by:

- **A.** Their ability to integrate genetic material into host DNA, causing persistent replication.
- **B.** The production of toxins damaging host neural tissue.
- C. Their ability to induce normal host proteins to misfold, spreading cellular dysfunction.
- **D.** A rapid replication cycle causing cell lysis in neural tissue.

Question 6 (1 mark)

A plant pathogen successfully infects and begins spreading within leaf tissues. In response, the plant rapidly initiates localised cell death around the infection site, forming a protective structure. What physical barrier mechanism is this describing?

- **A.** Formation of a waxy cuticle to block water penetration.
- **B.** Formation of galls to isolate and restrict pathogen spread.
- C. Rapid closure of stomata to limit pathogen entry.
- **D.** Orientation of leaves to minimise surface moisture accumulation.

Question 7 (1 mark)

"A toxin or other foreign substance which induces an immune response in the body."

The definition above refers to:

A. Antigen

Explanation: Option B is usually an organism or non-cellular agent. Option C is the result of an immune response. Option D is a chemical which inhibits bacterial reproduction.

- B. Pathogen
- C. Antibody
- D. Antibiotic

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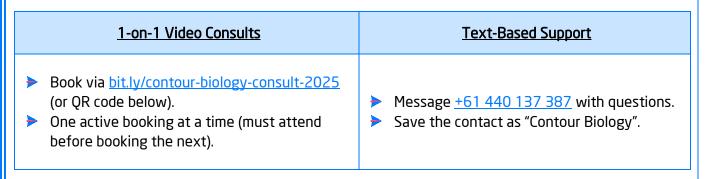
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