

CfE Higher Human Biology
Unit 4: **Non Specific Immune System**
Homework Booklet

Section A

1.

Which of the following is a cell that engulfs bacteria?

- A B-lymphocyte
- B T-lymphocyte
- C Lysosome
- D Macrophage

2.

Lysosomes are abundant in

- A enzyme secreting cells
- B muscle cells
- C cells involved in protein synthesis
- D phagocytic cells.

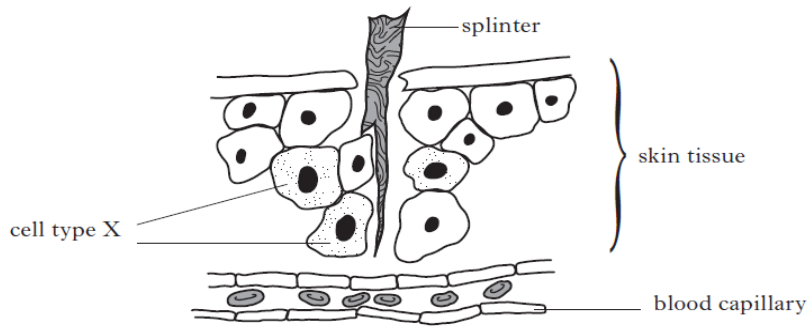
3. Which of the following types of white blood cell is involved in a non-specific immune response which causes apoptosis in invading pathogens?

- A Phagocytes
- B B lymphocytes
- C T lymphocytes
- D Natural killer cells

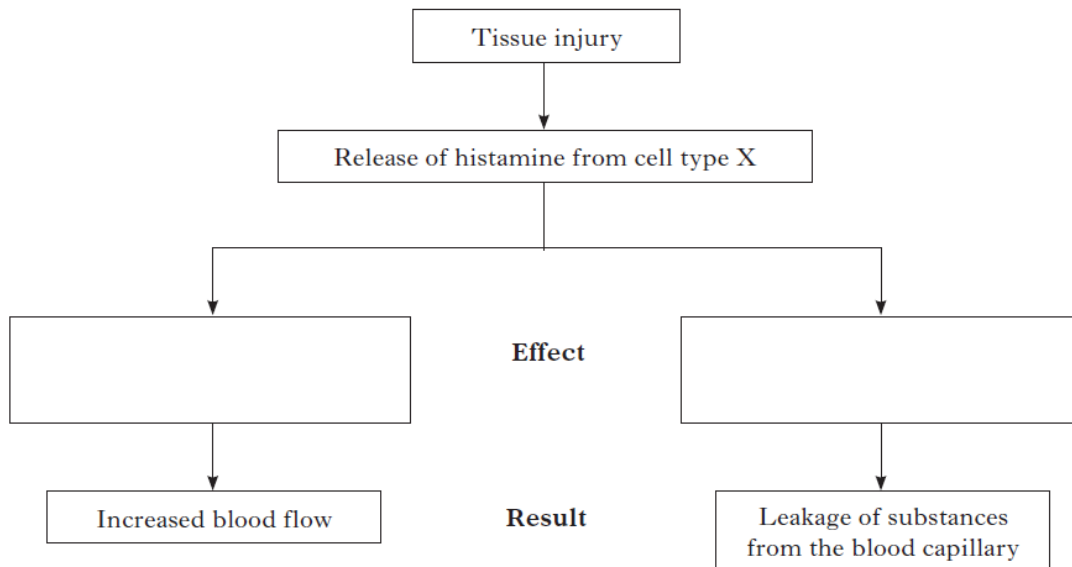
Section B – Original homework

1. The following shows the response to tissue injury caused by the skin being pierced by a splinter

The diagram below shows an injury in which skin is pierced by a splinter.



The flow diagram shows some of the events which result from this injury.



- (a) Identify cell type X.

1

- (b) Complete the flow diagram to show the effects of histamine release.

2

- (c) Name **one** substance which leaks from the blood capillary and describe how it protects against infection.

Substance _____

1

Description _____

1

2. Various types of white blood cell are involved in the non-specific immune response.

(a) Describe the role of each of the following cells in the non-specific defence of the body.

(i) Mast Cells

2

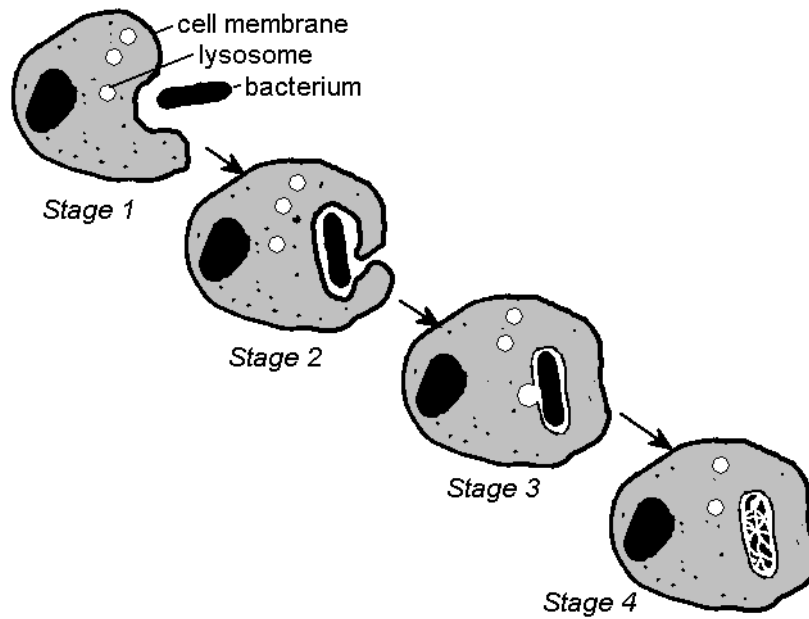
(ii) Natural killer (NK) Cells

1

(b) Explain how the presence of phagocytes is important in the activation of the next level of defence by the immune system

2

3. The diagram below shows a non specific response to an invading bacterium.



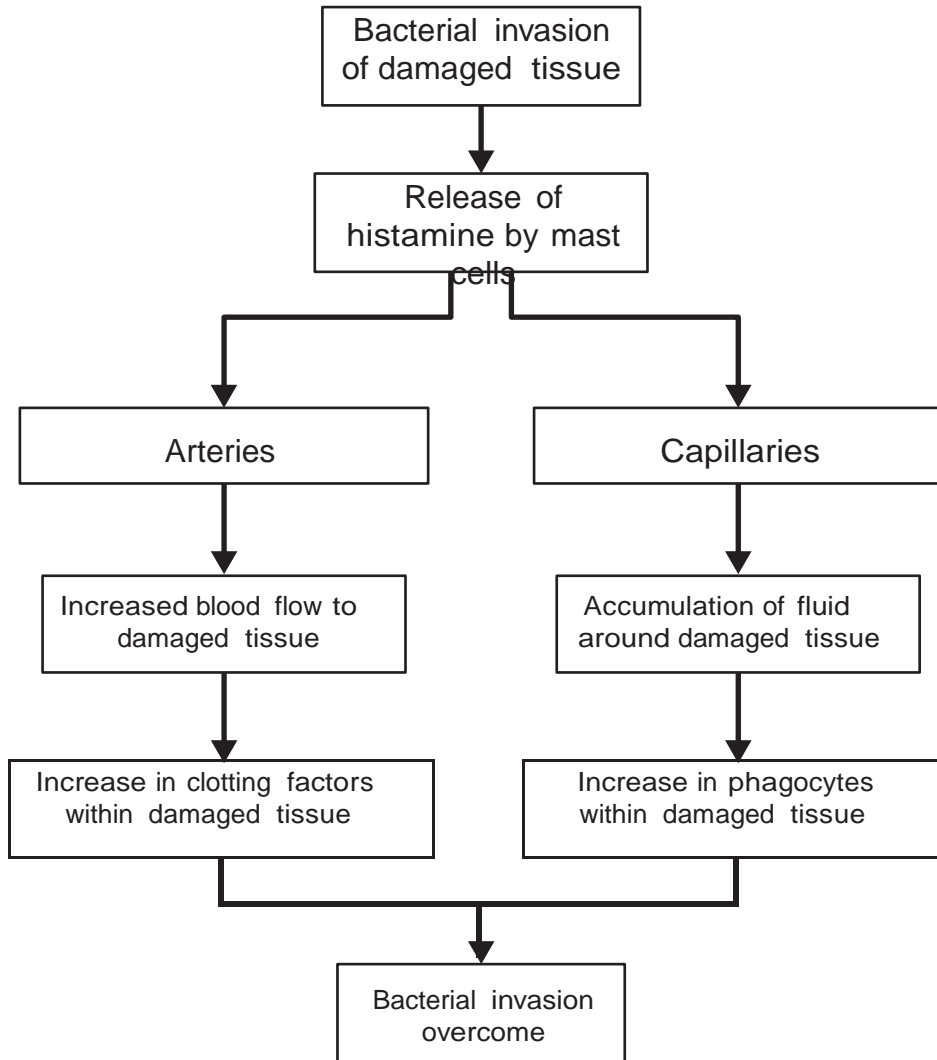
(a) (i) Name the process shown in the diagram.

1

(ii) Once the invading bacterium has been engulfed, the cell releases cytokines. What is the function of cytokines?

1

4. The flow chart below outlines some non-specific defence responses which occur when tissue is damaged and invaded by bacteria.



(a) Describe how histamine changes the arteries and capillaries to bring about the effects shown in the flow chart.

Arteries _____

Capillaries _____

2

(b) Name the active enzyme that is produced by the action of clotting factors.

1

4. (continued)

(c) Describe the role of phagocytes in overcoming bacterial invasion.

2

Essay 1

Describe the action of a natural killer cell when it encounters a cell which has been invaded by a virus.

Essay 2

Describe non-specific defences that the body uses to protect itself from pathogens.