AQA, OCR

A Level

A Level Biology

Lung Function Answers

Name:

M M E

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Total Marks: /37

Answer	Marks
1. A) i) A) Bronchioles B) Trachea C) Bronchi D) Diaphragm E) Alveoli	5 marks
ii) –Millions of alveoli have a huge surface area for diffusion - each alveolus has its own blood supply = short diffusion pathway - alveoli membrane is very thin – short diffusion pathway -Steep concentration gradient maintained by constant ventilation and rapid blood flow. -moist for efficient diffusion	6 marks
b) i) – Facilitate breathing - Stretch during inhalation - Recoil to push air out in exhalation -Efficient ventilation	3 marks
2. a) i) – Internal intercostal muscles contract - Rib cage moves up/out - Diaphragm contracts - Diaphragm flattens, increasing the volume inside the lungs -This causes the pressure to decrease - Air moves in down pressure gradient - It is an active process that requires energy	6 marks
ii) Air that is not expelled from the lungs / air remaining in lungs following expiration.	1 mark

iii) – Volume of air an individual breathes in, in one minute - tidal volume (volume of air in each breath) - ventilation rate (number of breaths per minute)	3 marks
3. a) i) – infected person coughs or sneezes, transmitting mucus or saliva -bacteria in the mucus/saliva infects a healthy individual ii) – Fibrosis causes scar tissue which thickens the alveoli walls - Rate of diffusion is slowed so gas exchange is less efficient - Alveoli cannot expand properly tidal volume decreases and less oxygen gets to the respiring cells c) i) – smoking - exposure to air-pollution ii) – inflammation attracts phagocytes t lung tissue. - Phagocytes release an enzyme that breaks down elastin. iii) – increases mucus production - cilia are damaged in the trachea, cannot waft bacteria/ mucous -microbes accumulate in the mucus - causes infection and inflammation deep in the lungs. -tar damages cilia.	2 marks 3 marks 2 marks 2 marks 4 marks