

9th BIOLOGY SECOND TERM MODEL QUESTION PAPER 2

Answer key

Section A: Answer any 5 questions

(Each question carries 1 mark)

1. Chlorophyll
 2. Urea
 3. Epiglottis
 4. b) Anaerobic respiration
 5. Proximal convoluted tubule
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Section B: Answer any 6 questions

(Each question carries 2 marks)

6. Differences between inspiration and expiration:
 - Inspiration: Air moves into the lungs; lung pressure decreases.
 - Expiration: Air moves out of the lungs; lung pressure increases.
7. Role of the Diaphragm:
 - The diaphragm contracts and flattens during inhalation, increasing thoracic cavity volume.
 - It relaxes and moves upward during exhalation, reducing thoracic cavity volume.
8. Importance of Lenticels:
 - Lenticels allow gaseous exchange in woody stems by providing pores for oxygen entry and carbon dioxide release.
9. Functions of Haemoglobin:
 - Binds oxygen in the lungs to form oxyhaemoglobin.
 - Transports carbon dioxide from tissues to the lungs.
10. Stomatal Regulation:
 - Stomata open during the day to allow carbon dioxide intake for photosynthesis.
 - They close to minimize water loss during excessive heat or drought.
11. Differences between Aerobic and Anaerobic Respiration:
 - Aerobic: Requires oxygen; produces CO₂, water, and 30 ATP per glucose.
 - Anaerobic: No oxygen required; produces lactic acid/alcohol and 2 ATP per glucose.

12. Role of Surfactant:

- Reduces surface tension in the alveoli, preventing collapse during exhalation.
 - Ensures smooth expansion and contraction of alveoli during breathing.
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Section C: Answer any 5 questions

(Each question carries 3 marks)

13. Completion of Table:

Plant Movement	Stimulus	Example
Phototropism	Light	Shoot bends toward light
Geotropism	Gravity	Roots grow downward
Chemotropism	Chemicals	Growth of pollen tube
Hydrotropism	Water	Roots growing toward water

14. Differences between Smooth and Skeletal Muscles:

Smooth Muscle	Skeletal Muscle
Involuntary, found in internal organs	Voluntary, attached to bones
Spindle-shaped cells	Long, cylindrical cells
No striations	Striated

15. Alveolar Gaseous Exchange:

- Oxygen diffuses from alveoli (high concentration) to blood (low concentration).
- Carbon dioxide diffuses from blood (high concentration) to alveoli (low concentration).
- Thin walls and rich capillary supply aid efficient diffusion.

16. Excretion in Humans vs. Plants:

- Humans: Excrete urea through kidneys; remove CO₂ via lungs.
- Plants: Excrete oxygen through stomata; expel waste as resins or gums.

17. Roles of Kidney and Liver:

- Kidney: Filters blood, removes urea, regulates water and ion balance.
 - Liver: Converts ammonia to urea; detoxifies harmful substances.
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Section D: Answer any 2 questions

(Each question carries 4 marks)

18. Nephron Diagram and Reabsorption:

- Labels:
 - Glomerulus: Initial filtration site.
 - Proximal tubule: Reabsorbs glucose, ions, water.
 - Loop of Henle: Concentrates urine by reabsorbing water.
 - Collecting duct: Transports urine to renal pelvis.
- Reabsorption Process:
Essential substances (glucose, water, ions) are reabsorbed from the filtrate back into the blood through the renal tubules.

19. Voluntary vs. Involuntary Muscles:

Voluntary Muscles	Involuntary Muscles
Controlled consciously	Not under conscious control
Examples: Skeletal muscles (arms, legs)	Examples: Smooth muscles (stomach, intestines)
Striated appearance	Non-striated appearance

20. Anaerobic Respiration in Yeast:

- Byproducts: Alcohol and CO₂.
- Significance:
 - Baking: CO₂ causes bread to rise.
 - Brewing: Alcohol is used in beer and wine production.