

OCR A Biology – Paper 1 (H420/01)

Top “Must-Write” Scoring Phrases (2017–2024)

Grouped by topic and based on repeated mark-scheme wording.

Biological Molecules

1. Condensation reaction
 2. Hydrolysis reaction
 3. Glycosidic bond
 4. Peptide bond
 5. Phosphodiester bond
 6. Hydrogen bonds between complementary bases
 7. Semi-conservative replication
 8. Complementary base pairing
 9. Antiparallel strands
 10. Degenerate genetic code
 11. Triplet code
 12. Primary structure
 13. Tertiary structure
 14. R group interactions
 15. Disulfide bridge
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Cell Structure & Microscopy

16. Resolution
17. Magnification
18. Stage micrometer
19. Ocular graticule
20. Larger surface area to volume ratio
21. Short diffusion distance
22. Partially permeable membrane
23. Fluid mosaic model
24. Phospholipid bilayer

- 25.Channel protein
 - 26.Carrier protein
 - 27.Facilitated diffusion
 - 28.Active transport
 - 29.ATP hydrolysis
 - 30.Sodium-potassium pump
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Enzymes & Biological Reactions

- 31.Enzyme–substrate complex
 - 32.Lowers activation energy
 - 33.Specific tertiary structure
 - 34.Complementary active site
 - 35.Induced fit
 - 36.Competitive inhibitor
 - 37.Non-competitive inhibitor
 - 38.Vmax
 - 39.Km value
 - 40.Denaturation disrupts hydrogen/ionic bonds
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Exchange & Transport

- 41.Diffusion down a concentration gradient
 - 42.Fick's law
 - 43.Surface area \times concentration difference \div diffusion distance
 - 44.Countercurrent flow
 - 45.Haemoglobin shows cooperative binding
 - 46.Oxyhaemoglobin dissociation curve
 - 47.Bohr effect
 - 48.Partial pressure of oxygen
 - 49.Bulk flow
 - 50.Mass flow
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Transport in Animals & Plants

- 51. Xylem transports water via cohesion-tension
 - 52. Transpiration pull
 - 53. Adhesion to xylem walls
 - 54. Phloem translocation
 - 55. Pressure (mass) flow hypothesis
 - 56. Companion cells provide ATP
 - 57. Source to sink movement
 - 58. Hydrostatic pressure gradient
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Paper 1 Non-Scoring → Scoring

Phrases

(What students write vs what earns marks)



Biological Molecules

- “It joins together.”
 - Forms a glycosidic / peptide / phosphodiester bond via condensation.
 - “It breaks apart.”
 - Hydrolysis breaks the bond by addition of water.
 - “The DNA splits.”
 - Hydrogen bonds between complementary bases break.
 - “It copies itself.”
 - DNA replication is semi-conservative.
 - “It changes shape.”
 - The tertiary structure is altered.
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Cell Membranes & Transport

- “Particles move across.”
- Diffusion down a concentration gradient.
- “Needs energy.”
- ATP is hydrolysed to provide energy.
- “Through a protein.”
- Through a channel/carrier protein via facilitated diffusion.

- ✗ “Pumps ions.”
 - ✓ Sodium-potassium pump uses active transport.
 - ✗ “More surface area means better.”
 - ✓ Larger surface area to volume ratio increases rate of diffusion.
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Enzymes

- ✗ “The enzyme works faster.”
 - ✓ Enzyme activity increases because more enzyme–substrate complexes form.
 - ✗ “It stops working.”
 - ✓ Denaturation disrupts hydrogen and ionic bonds, altering tertiary structure.
 - ✗ “The substrate fits.”
 - ✓ The active site is complementary to the substrate.
 - ✗ “It blocks the enzyme.”
 - ✓ Competitive inhibitor binds to the active site.
 - ✗ “It changes the enzyme.”
 - ✓ Non-competitive inhibitor binds to an allosteric site.
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Gas Exchange & Circulation

- ✗ “Oxygen binds easily.”
 - ✓ Haemoglobin shows cooperative binding.
 - ✗ “Oxygen moves into blood.”
 - ✓ Oxygen diffuses down its partial pressure gradient.
 - ✗ “Blood flows opposite.”
 - ✓ Countercurrent flow maintains a diffusion gradient.
 - ✗ “More CO₂ releases oxygen.”
 - ✓ Bohr effect shifts dissociation curve right.
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Plant Transport

- ✗ “Water moves up the plant.”
 - ✓ Water moves up xylem via cohesion-tension.
 - ✗ “Sugar moves around.”
 - ✓ Sucrose is transported by mass flow in the phloem.
 - ✗ “Pressure pushes it.”
 - ✓ Hydrostatic pressure gradient drives translocation.
 - ✗ “Cells help.”
 - ✓ Companion cells provide ATP for active loading.
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Paper 1 Examiner Pattern (2017–2024)

OCR consistently:

- Rewards named bonds and processes
- Requires structural level (primary/tertiary)
- Demands diffusion language precision
- Penalises vague “moves,” “joins,” “works”
- Requires mechanism, not description