

END TERM 3 2026
GRADE 10
GENERAL SCIENCE
MARKING SCHEME & TEACHER'S GUIDE
TOTAL: 100 MARKS

MARKING CODES: M = Method/Formula mark; A = Accuracy/Correct answer; C = Concept/Curriculum point.
Award equivalent marks for scientifically correct alternative wording.

1. Any two: helps understand biological, physical and chemical phenomena; supports functional investigation/application; supports problem solving; informs health/environmental decisions; supports technology and daily-life applications. (2 × 1) **(2 marks)**
2. Light microscope uses visible light and glass lenses; electron microscope uses electrons and electromagnetic lenses. Accept any two clear differences. (2 × 1) **(2 marks)**
3. Any two: large surface area; villi/microvilli; thin walls; rich blood supply; specialized regions/enzymes; muscular movement aiding mixing; suitable pH conditions. (2 × 1) **(2 marks)**
4. Aerobic respiration uses oxygen and releases more energy; anaerobic respiration occurs without oxygen and releases less energy. (2 × 1) **(2 marks)**
5. Any two: water, oxygen/air, suitable temperature. (2 × 1) **(2 marks)**
6. Any two valid methods: hand washing, safe food/water, sanitation, vaccination where appropriate, covering coughs/sneezes, disinfection, avoiding contaminated materials, vector control. (2 × 1) **(2 marks)**
7. Na = 2,8,1; Cl = 2,8,7. (1 + 1) **(2 marks)**
8. Any two paired differences: ionic involves transfer of electrons and attraction of ions; covalent involves sharing of electrons; ionic commonly forms giant lattices; covalent forms molecules/network structures depending on substance. (2 × 1) **(2 marks)**
9. Any two: temperature, concentration, pressure for gases, surface area, catalyst, nature of reactants, light where applicable. (2 × 1) **(2 marks)**
10. Moment = turning effect of a force about a point, equal to force × perpendicular distance from pivot. Wavelength = distance between corresponding points on successive waves, e.g. crest to crest. (1 + 1) **(2 marks)**
11. (a) Award 1 mark each for three correctly identified cell structures corresponding to the labels in the supplied diagram. Accept nucleus, cell membrane, cytoplasm, cell wall, vacuole, chloroplast where the label placement supports it. (3)
(b) One correct function for each named structure, 1 mark each. (3)
(c) Cell is a basic unit; organ systems consist of organs/tissues working together. Any clear structural/organizational distinction. (2)
(d) All living organisms are made of cells and life processes occur within cells. (2) **(10 marks)**
12. (a) Benedict's positive result indicates reducing sugar; Biuret positive result indicates protein. (2)
(b) Enzymes are biological catalysts that speed up digestion by breaking large food molecules into smaller soluble molecules; award any three valid points. (3)
(c) Small intestine is long; has many villi/microvilli giving large surface area; thin epithelium; rich capillary supply; lacteals for absorbed fats; movements maintain gradients. Any three. (3) **(8 marks)**
13. (a) Transpiration. (1)
(b) Moving air increases water loss by removing moist air around leaves and maintaining a steep diffusion gradient. (2)
(c) Any two: temperature, humidity, light intensity, wind/air movement, leaf area, stomatal opening. (2)
(d) Water and mineral salts are transported to sites of growth/photosynthesis and support turgidity, metabolism and development. Any three valid points. (3) **(8 marks)**
14. (a) Electron arrangement 2,8,1 = Group I (Group 1), Period 3. (2)
(b) Same group elements have the same number of outer-shell electrons/related valence arrangement, producing similar chemical behaviour. (2)
(c) Aluminium oxide = Al₂O₃. (2)

(d) Any two valid uses, e.g. sodium chloride in food, aluminium in utensils, chlorine in water treatment, noble gases in lighting, etc. (2) **(8 marks)**

15. (a) Independent variable = temperature; controlled variable may be mass/surface area of solid, acid concentration, acid volume, etc. (2)

(b) Increasing temperature generally increases rate because particles have more kinetic energy and more successful collisions. (2)

(c) Any two: concentration, pressure for gases, surface area, catalyst, nature of reactants, light where applicable. (2)

(d) Any two reasons: corrosive/hot substances, risk of burns/splashes, safe handling prevents injury and unreliable results. (2) **(8 marks)**

16. (a) M1: moment = force $\times$ perpendicular distance. M1/A1: $4 \times 0.50 = 2.0$ N m. (3)

(b) M1: balancing moments, $4 \times 0.50 = F \times 0.25$. M1/A1: $F = 8$ N. (3)

(c) Any two: opening doors, using spanners, wheelbarrow, scissors, levers, balancing a beam, etc. (2)

(d) Longer distance from pivot produces a greater moment for the same force; therefore less force is needed for the same turning effect. (2) **(10 marks)**

17. (a) Acceleration is rate of change of velocity; freely falling body accelerates downward towards Earth (ignoring air resistance). (2)

(b) M1: $v = u + at$. M1: $v = 0 + (2 \times 5)$. A1: $v = 10$ m/s. (3)

(c) Any two: guard rails, safe footwear, keeping walkways clear, harnesses where needed, safe storage of objects, warning signs, etc. (2)

(d) Distance is total path length; displacement is straight-line change in position in a specified direction. (2)

(e) Any valid example such as freely falling body near Earth or uniformly accelerated vehicle. (1) **(10 marks)**

18. (a) M1: $v = f\lambda$. M1: substitution 5×0.8 . A1: 4 m/s. (3)

(b) Any two: amplitude, wavelength, frequency, period, wave speed. (2)

(c) One correct application with explanation, e.g. reflection in sonar/echoes, refraction in lenses, diffraction in radio/sound or wave openings. (2)

(d) Any three valid points linking waves to environmental effects and a mitigation measure, e.g. noise pollution affects humans/wildlife; coastal/sea waves affect infrastructure; mitigation by barriers, zoning, sound control, ecosystem protection, etc. (3) **(10 marks)**

19. (a) Galvanometer shows a deflection/current when the conductor moves relative to the magnetic field; direction reverses when motion reverses. (2)

(b) Increase speed of movement, use a stronger magnet, increase number of turns/length of conductor cutting field, or otherwise increase rate of change of magnetic flux. Any three. (3)

(c) Increase current/number of turns, use a soft iron core, wind turns closely where appropriate. Any two. (2)

(d) Any two: generators, transformers, induction cookers, microphones, bicycle dynamos, etc. (2)

(e) Any valid safety/responsibility point: handle apparatus carefully, avoid short circuits, follow procedure, protect equipment, work cooperatively. (1) **(10 marks)**

CURRICULUM TRACEABILITY — The paper is cumulative across all 16 Grade 10 sub-strands in the supplied KICD General Science Curriculum Design.

Question	Main strand/sub-strand coverage	Cognitive emphasis	Marks
1	1.1 Introduction to General Science	Understand	2
2	1.2 The Cell	Understand/Analyse	2
3	1.3 Nutrition in Animals	Apply/Understand	2
4	1.5 Respiration	Understand	2
5	1.6 Plant Growth and Development	Recall/Understand	2
6	1.7 Microorganisms	Apply	2
7	2.1 The Periodic Table	Apply	2
8	2.3 Chemical Bonding	Analyse	2
9	2.5 Rates of Reactions	Understand	2
10	3.1 Turning Effect of Force; 3.3 Waves	Understand	2
11	1.2 The Cell	Apply/Analyse	10
12	1.3 Nutrition in Animals	Apply/Analyse	8
13	1.4 Transport in Plants	Analyse/Apply	8
14	2.1 Periodic Table; 2.2 Chemical Families	Apply/Analyse	8
15	2.5 Rates of Reactions	Apply/Analyse	8
16	3.1 Turning Effect of Force	Apply	10
17	3.2 Linear Motion	Apply/Analyse	10

18	3.3 Waves	Apply/Analyse/Evaluate	10
19	3.4 Magnetism and Electromagnetic Induction	Apply/Analyse	10

COVERAGE VERIFICATION

Strand	Sub-strands considered
1.0 Life Science	1.1 Introduction to General Science; 1.2 The Cell; 1.3 Nutrition in Animals; 1.4 Transport in Plants; 1.5 Respiration; 1.6 Plant Growth and Development; 1.7 Microorganisms
2.0 Matter and Chemical Reactions	2.1 The Periodic Table; 2.2 Chemical Families; 2.3 Chemical Bonding; 2.4 Acids, Bases and Salts; 2.5 Rates of Reactions
3.0 Natural Physical Science	3.1 Turning Effect of Force; 3.2 Linear Motion; 3.3 Waves; 3.4 Magnetism and Electromagnetic Induction

TEACHER/EXAMINER GUIDANCE

- Award marks only for work relevant to the question, but accept equivalent scientifically correct expressions.
- Do not penalise grammatical differences where the scientific meaning is correct.
- For calculations, award method marks where the correct relationship/formula is shown even if an arithmetic error occurs later.
- Units should be included for physical quantities unless the question specifically does not require them.
- For diagram-based responses, accept equivalent labels where the indicated structure is unambiguous and scientifically correct.
- The Question Paper is a cumulative Grade 10 End Term 3 assessment based on the complete supplied Curriculum Design, rather than Term 3 content only.
- The curriculum design includes practical investigation, experimentation, data interpretation, diagrams and applications; these are reflected in the assessment.

