



EXAMINATIONS COUNCIL OF SWAZILAND

CONFIDENTIAL
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JUNIOR CERTIFICATE EXAMINATION

SCIENCE PAPER 2

414/02

MARKING SCHEME

MAXIMUM MARK 80

- 1 (a) $V = lbh/5 \times 4 \times 3$; [1]
 $= 60 \text{ cm}^3$; [1]
- (b) (i) $d = m/v$; [1]
 $= 70/60$; [1]
 $= 1.17 \text{ g/cm}^3$; [1]
- (ii) sank; [1]
its density is higher than that of water; [1]
- 2 (a) spring balance; [1]
- (b) friction/air resistance/gravitational force/contact force; Any two [2]
- (c) weight varies from planet to planet while mass is constant; [1]
weight measured in Newton while mass is measured in kilograms; [1]
- 3 (a) friction; [1]
- (b) arrow in opposite direction of motion (anywhere); [1]
- (c) gravitational force; [1]
air resistance; [2]
- (d) changes shape (and/or size);
changes speed;
direction; max [2]
- 4 (a) xylem; [1]
- (b) osmosis; [1]
higher water concentration in the soil than the plant; [1]
water moves through the semi-permeable membrane of the plant; [1]
- (c) rate of transpiration will be slow; [1]
diffusion slow as there will be high humidity; [1]
- (d) can make their own food through the process of photosynthesis; [1]
- (e) (i) energy transfer;
(ii) lion – it gets what remains from rabbit [2]
- 5 (a) that is where the embryo is implanted; [1]
- (b) X on the oviducts; [1]
- (c) (i) fusion of the sperm/nuclei/male gamete with the female to form a
gamete/nuclei/ovum;
zygote;
in the oviduct; [3]

- (ii) 16/17 July; [1]
- (d) lump/ulcer/chancere;
skin rash; high temperature;
swollen lymph nodes;
inflammation of body organs at later stages;
damage to blood vessels;
heart or brain leading to paralysis and insanity;
- Any two
- (e) liver damage; [1]
- 6 air-mixture ; [1]
carbon dioxide – compound ; [1]
oxygen – element; [1]
- 7 (a) water: particles in contact and irregularly arranged; [1]
water vapour: not more than 5 particles in the box wide apart; [1]
- (b) evaporation; [1]
- (c) drops of water/drops of water fall back into beaker; [1]
particles lose kinetic energy come into contact (and irregularly arranged); [1]
- 8 (a) (i) blue; [1]
(ii) 14; [1]
- (b) (i) green; [1]
(ii) 7; [1]
- (c) (i) sodium chloride; [1]
(ii) dissolves in water; [1]
- (d) neutralisation reaction; [1]
- 9 (a) bauxite; [1]
aluminium oxide; [1]
haematite; [1]
iron(III) oxide; [1]

- (b) (i) can conduct electricity; [1]
 can conduct heat; [1]
 (ii) brass; [1]
- 10 (a) $V_1 = 2\text{ V}$; [1]
 $V_2 = 2.5\text{ V}$; [1]
 (b) correct symbol; [1]
 in correct position; [1]
 (c) $R_1 = 2/0.3 = 6.7$; [1]
 $R_2 = 2.5/0.3 = 8.3\ \Omega$; [2]
 (d) (i) V – eye piece; [1]
 (ii) V – look thru [1]
 X – light the stage [1]
 (e) -boil leaf in water; to break membrane;
 -dip in boiling alcohol;
 -rinse in water to soften cells; max 3
 (f) (i) A 3.5°C
 B 28.2
 C 20.5 max 1
 (ii) metal particle size;
 Concentration of acid; any 1
 (iii) metal C; [1]
 1. higher temperature charge; [1]
 2. bubbles produced more rapidly; [1]
 (iv) invert test tubes; over reaction mixture; [2]