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LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
EDUCATION

CAPRICORN SOUTH DISTRICT

SENIOR PHASE

GRADE 9

NATURAL SCIENCES
BASELINE TEST MEMORANDUM
TERM 3
2024

TOTAL MARKS: 50

QUESTION 1

1.1

- (a) Static electricity is a form electricity from the imbalance between positive and negative charges within or on the surface of a material or between materials. ✓ **OR** The build-up of electric charges on the surface of a material, which is usually an insulator or non-conductor of electricity. **(ANY ONE)** (1)
- (b) Positive or negative property of a particle. ✓ (1)
- (c) A device that is used to protect components of a circuit. ✓ (1)
- (d) An electric circuit that allows current to flow in an unintended circuit. ✓ **OR** an abnormal connection between two nodes of an electric circuit intended to be at different voltages. (1)

1.2

- (a) electrical charges.✓ (1)
- (b) negatively charged ✓ and positively charged.✓ (2)
- (c) attract✓ and repel.✓ (2)
- (d) shocks or sparks.✓ (1)

1.3

- (a) False. A parallel circuit provides two or more pathways for the current passing through it.✓ (1)
- (b) True ✓ (1)
- (c) False. Copper wire is an example of an excellent conductor✓. (1)
- (d) True ✓ (1)
- (e) True✓ (1)

[14]**QUESTION 2**

2.1

- 2.1.1 cloth✓, plastic ruler✓, pieces of paper✓ (3)
- 2.1.2 If you rub a plastic ruler with a cloth, the plastic 'pulls' electrons✓ from the cloth. The plastic ruler gains a negative charge and the cloth gains a positive charge✓. (2)
- 2.1.3 The pieces of paper are neutral or positively charged. Unlike charges attract each other✓. Since the plastic ruler is now negatively charged, it will attract the positively charged pieces of paper✓. (2)



2.2

2.2.1 Lightning is a form of natural static electric discharge.✓ (1)

2.2.2 Lightning is produced in thunderstorms✓ when liquid and ice particles collide,✓ and build up large electrical fields in the clouds.✓ (3)

2.2.3 Lightning causes the liquid in the tree to turn into gas,✓ drying the tree. (1)

2.2.4 Stay away from trees;✓ do not use water; do not run; ✓ do not use the telephone; do not use your cell phone (**ANY TWO**) (2)

[14]

QUESTION 3

3.1

3.1.1 Torch✓ (1)

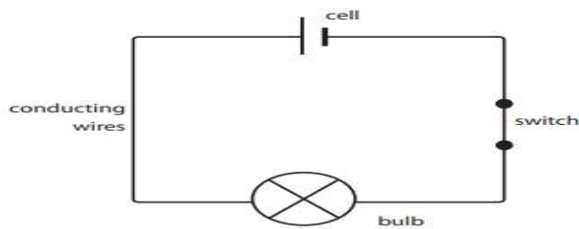
3.1.2 1: cell;✓ 2: battery;✓ 3: conducting wires;✓ 4: switch;✓ 5: bulb✓ (5)

3.1.3 2: provides the source of energy; ✓
3: provides the path through which electrons flow; ✓
4: controls the flow of electrons in the circuit; ✓
5: resists the flow of current by converting the electrical energy into heat and light in the bulb✓ (4)

3.1.4 Two or more cells connected together are called a battery.✓✓ (2)

3.1.5 The bulb✓ (1)

3.1.6

**Marking grid:****Complete circuit with all components: 1 mark****Cell: 1 mark****Conducting wires: 1 mark****Closed switch: 1 mark****Bulb: 1 mark****Total: 5 marks**

3.2

3.2.1 Circuit A ✓ (1)

3.2.2 Circuit B ✓ (1)

3.2.3 The bulbs will shine brighter. ✓ (1)

3.2.4 The bulbs will be dimmer. ✓ (1)

3.2.5 The bulbs will shine brighter. ✓ (1)

3.2.6 In a series circuit, there is only one pathway for the current to flow. ✓

In a parallel circuit, there is more than one pathway for the current to flow, so the current splits up. ✓ (2)

3.2.7 The other bulbs will not shine any longer. ✓ Circuit diagram A is connected in series, ✓ so the current has to flow through it. If it burns out, there is a gap in the circuit. ✓ (3)

3.2.8 The other bulbs will still shine, but they will be dimmer. ✓ Circuit diagram B is connected in parallel, so there is still another pathway for the current to flow. ✓ The current decreases if fewer resistors are connected in parallel. ✓ (3)

3.2.9 Parallel. ✓ (1)

[32]**TOTAL: 50**