BERGVLIET HIGH SCHOOL

Grade 8 Technology Electrical Systems and Control

Informal Test 1 | 30 marks | Suggested working time 40 minutes

Name: _____ Class: _____ Date: _____

Answer all questions in the spaces provided. Use a pencil and ruler for drawings. Show working and units in calculations. This is preparation for the November examination.

Question 1 Multiple Choice

1.1 What is the useful output of an electric motor turning a model wheel? **(1)**

- **A.** Movement
- **B.** Chemical energy
- **C.** Light only
- **D.** Stored water

Answer: _____

1.2 Which device converts light directly into electrical energy? **(1)**

- **A.** Transformer
- **B.** Photovoltaic cell
- **C.** Solar geyser
- **D.** Generator driven by steam

Answer: _____

1.3 When do two series switches using AND logic allow a lamp to light? **(1)**

- **A.** Either switch alone is closed
- **B.** Both switches are closed
- **C.** Both are open
- **D.** Only the first is closed

Answer: _____

1.4 Which component opposes the flow of current? **(1)**

- **A.** Connecting wire only
- **B.** Generator
- **C.** Resistor
- **D.** Closed switch

Answer: _____

1.5 Which supply should be used for a classroom model circuit? **(1)**

- **A.** Exposed mains wiring
- **B.** A damaged extension lead
- **C.** Low-voltage cells in a holder
- **D.** A wall socket without a plug

Answer: _____

Question 2 Electrical Terms

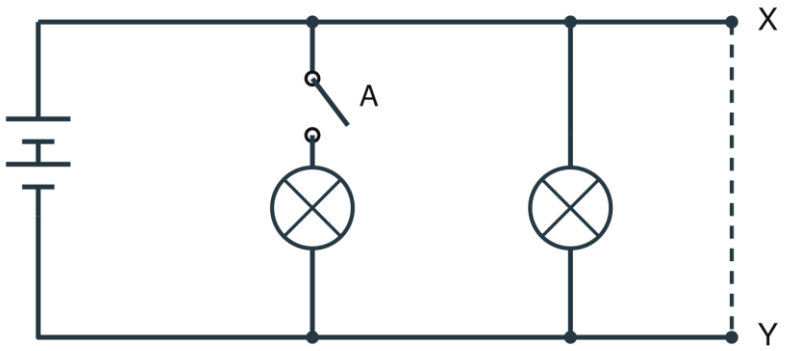
Match each term with one description. Write only the letter. Use each letter once.

No.	Term	Description
2.1	Electrode	A Changes AC supply voltage.
2.2	National grid	B Converts movement into electrical energy.
2.3	Generator	C Conducting liquid or paste containing mobile ions.
2.4	Transformer	D Conducting part of a cell in contact with electrolyte.
2.5	Electrolyte	E Network distributing electrical energy.

2 Write the five matching letters in order. **(5)**

Question 3 Parallel Circuit

Switch A is open. The dashed line between X and Y is a proposed extra wire; it is not connected.



3.1 Name the fault that would occur if the extra wire were connected. **(1)**

3.2 Explain why the cells or wires could become hot. **(1)**

3.3 State how the proposed circuit should be corrected. **(1)**

Question 4 Voltage and Electricity Supply

4.1 A fixed resistor is supplied by one cell. An identical second cell is added in series with the correct polarity. Explain how the current changes if the resistance stays constant. Do not calculate. **(2)**

4.2 Define alternating current. **(2)**

4.3 Explain what is stored in a pumped-storage scheme. **(2)**

Question 5 Transformers

5.1 A learner says a step-up transformer can be removed because it does not generate electricity. Give a reason why this would weaken the transmission system. **(1)**

5.2 Why is a step-down transformer needed before electricity is supplied to users? **(1)**

Question 6 OR Circuit

A model emergency buzzer must sound when button A OR button B is pressed, including when both are pressed. The normally open buttons close only while pressed. Use two cells in series, two switches and one buzzer.

6.1 Draw a circuit diagram that meets the requirements. Label A and B and show junctions clearly. **(5)**

6.2 Complete the truth table. Use 0 for open/silent and 1 for closed/sounding. **(4)**

A	B	Buzzer
0	0	
0	1	
1	0	
1	1	

TOTAL **30 MARKS**