

**CONFIDENTIAL**  
**THE UNITED REPUBLIC OF TANZANIA**  
**NATIONAL EXAMINATIONS COUNCIL OF TANZANIA**  
**CERTIFICATE OF SECONDARY EDUCATION EXAMINATION**  
**NOVEMBER 2019**

**031/2A**

**PHYSICS 2A**  
**ACTUAL PRACTICAL A**

**24 HOURS ADVANCE INSTRUCTIONS**

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**1.0 IMPORTANT**

- 1.1 GREAT CARE MUST BE TAKEN **NOT** TO DIVULGE THESE INSTRUCTIONS TO BOTH CANDIDATES AND UNAUTHORIZED PERSONS EITHER DIRECTLY OR INDIRECTLY.
- 1.2 PLEASE DO **NOT** OPEN THE ENVELOPE CONTAINING THE QUESTION PAPERS 24 HOURS BEFORE THE TIME OF COMMENCEMENT OF THE EXAMINATION.

**2.0** In addition to the normal fittings of a Physics laboratory **each candidate** will require the following:

- 2.1
  - Retort stand with its accessories
  - Spiral spring (which can be extended by 18 - 20 cm by a load of 100 g)
  - Metre rule
  - Five standard masses 50 g, 100 g, 150 g, 200 g, 250 g
  - 2 optical pins
  - Plasticine
  - Beam balance to be shared
  - Liquid (water, 100 ml) labelled L
  - Empty bottle of drinking water (500 ml) cut to a height of about 6 cm with two holes across its diameter labelled Q
  - Thread of about 10 cm.
- 2.2
  - A dry cell (ABC Supper Electric, size D, 1.5 V) labelled E
  - Resistance box, (0 - 10)  $\Omega$  labelled R
  - Key, labelled K
  - Centre-zero galvanometer, labelled G
  - A resistor of about 3.3  $\Omega$  should be covered and labelled X
  - A set of connecting wires and Jockey labelled J
  - Metre bridge
  - Metre rule
  - 5  $\Omega$  standard resistor.

Page 1 of 1  
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