

CAPS

GRADE 7

**Technology
Memo
End of the year Controlled Term Test
2021**

Marks: 60

Duration: 1 hour 30 min

This memorandum consists of 5 pages

Section A:

Question 1	1.1. A✓	1.2. B✓	1.3. B✓	1.4. B✓	1.5. B✓	05
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Question 2

- 2.1. False✓
 2.2. False✓
 2.3. True✓
 2.4. False✓
 2.5. False✓

[05]

Question 3	3.1. F✓	3.2. D✓	3.3. E✓	3.4. A✓	3.5. G✓	05
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Total Section A: 15**Section B:****Design skills and Graphic communication****Question 4**

Scenario
Mechanical System & Control

4.2. Design brief

I am going to design and make crane with a crank and pulley system. ✓ with an electromagnet to sort these metals. ✓ Scrap metal dealer will benefit as the crane must pivot or be able to raise and lower its arm. ✓The crane must be a frame structure that is strong and rigid.

(any three relevant answer)**4.3.**

- a. Boom✓
- b. Jib✓
- c. Counterweight✓
- d. Pulley✓
- e. Tension force✓

4.4.

Design Specification	
Criteria	Description
4.4.1. Fit for purpose	Cranes makes our lives easy as they are large machines✓ designed to lift and lower heavy materials, and for moving them either horizontal or vertical. ✓
4.4.2. Special features for the crane	Triangulation refers to arranging members in triangular shapes✓ in order to make frame ✓ structure stronger. ✓
4.4.3. Reinforcement technique	Tension ✓ – pulling/ stretching an object in opposite directions. ✓ Compression✓ – press/ squeeze / pushing an object together. ✓ Torsion – turning force makes an object twist. Shear – a force acting in a direction that's parallel to a surface or cross section of a body. (any three relevant answer)

4.5. Design constraints.

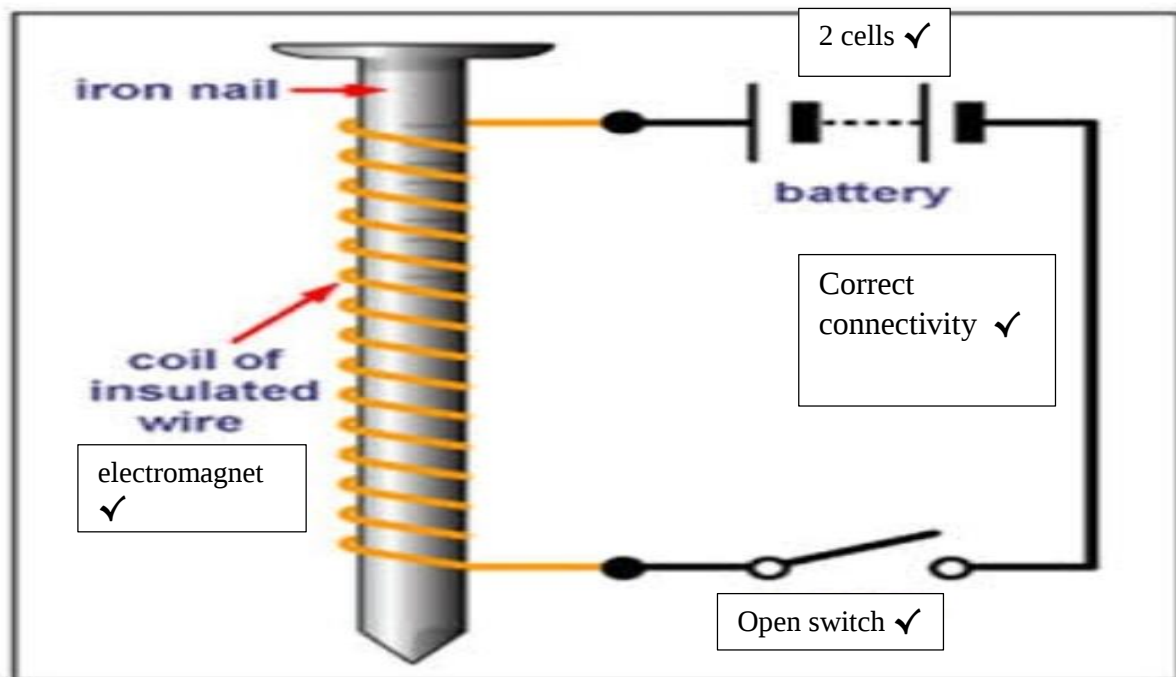
- 4.5.1. Electromagnet will be able to attract ferrous metal, due to the permanent magnet inducing magnetism within the ferrous material. Or due to the influence of their magnetic field upon the metal. Or ferrous metal ✓ is magnetic. ✓✓ (any two)

[20]

Question 5

Graphic communication

5.1.



5.2. To provide electrical energy. ✓✓

5.3.

5.3.1. Conductors – materials that can allow electricity to pass through them. ✓✓

5.3.2. Insulator – materials that electricity cannot pass through them. ✓✓

[10]

Total Section B: 30

Section C:
Question 6**Technology, Society & Environment**

6.1.

6.1.1. Converting used materials (waste) into new. ✓ ✓

6.1.2. To reduce waste and the burden on landfills. ✓ ✓

To save energy. ✓ ✓

Reduce carbon emissions. ✓ ✓

Reduce air pollution

Improve groundwater quality

To make money

To produce new product from recyclable product.

(any three)

6.2.

6.2. 1. A refugee is someone who flees their country ✓ to seek shelter in another country. ✓

6.2. 2. Natural disaster ✓

Environmental deterioration ✓

Poverty

War

(any two)

6.2. 3. They can dry meat ✓

Brining ✓

Curing

Smoking

(any two)

6.2. 4. Because refugees do not stay at the same place for a long time ✓

Total Section C: 15**Grand Total: 60 marks**