

**HILLCREST HIGH SCHOOL**  
**NATURAL SCIENCE EXAM**

**MEMO**

**GRADE 9**

**TIME : 2 HRS**

**EXAMINERS: MRS KNOX-WHITEHEAD / MRS SMITH**

**JUNE 2022**

**TOTAL : 120**

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**SECTION A : LIFE AND LIVING (20)**

**QUESTION 1: MULTIPLE CHOICE QUESTIONS (10)**

1.1 C

1.2 D

1.3 A

1.4 D

1.5 B

1.6 D

1.7 C

1.8 A

1.9 D

1.10 A

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**QUESTION 2 :**

**2.1 MATCHING COLUMNS (5)**

2.1 H cell

2.2 G red

2.3 E gall bladder

2.4 D oesophagus

2.5 B white

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**2.2 TERMINOLOGY (5)**

Give one word / term that best describes the following statements.

2.2.1 cell membrane

2.2.2 circumcision

2.2.3 hydrochloric acid / HCl

2.2.4 contraception

2.2.5 foetal alcohol syndrome .

**TOTAL SECTION A : (20)**

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**SECTION B : LIFE AND LIVING (40)**

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**QUESTION 3 (6)**

3.1 consisting of ONE cell (1)

3.2 cell wall and chloroplast (2)

3.3 cell wall because it lives in water which support it / it hunts so it needs to be able move around  
Chloroplast – because it hunts for food and can't make its own (2)

3.4 nucleus (1)

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**QUESTION 4 (5)**

4.1 lungs (1)

4.2.1 alveoli (1)

4.2.2 capillaries (1)

4.2.3 bronchiole (1)

4.3 gaseous exchange (1)

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**QUESTION 5** (9)

- 5.1.1 **A** valve / tricuspid valve (1)
  - 5.1.2 **B** vein from lower body / inferior vena cava (1)
  - 5.1.3 **C** pulmonary veins (1)
  - 5.1.4 **E** left ventricle (1)
  
  - 5.2.1 J (1)
  - 5.2.2 H (1)
  
  - 5.3 high (1)
  
  - 5.4.1 deoxygenated (1)
  - 5.4.2 lungs (1)
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**QUESTION 6** (8)

- 6.1.1 7 (1)
  - 6.1.2 3 (1)
  
  - 6.2 To break down fats / lipids (1)
  
  - 6.3.1 2 (1)
  - 6.3.2 4 (1)
  
  - 6.4.1 colon / large intestines (1)
  - 6.4.2 anus (1)
  - 6.4.3 rectum (1)
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**QUESTION 7** (7)

- 7.1 33 (1)
- 7.2 2016 and 2018 (both answers) (1)
- 7.3.1 2020 (1)
- 7.3.2  $11 / 303 \times 100/1$  ✓ = 3,63% ✓ (2)
- 7.4 they drop out of school and don't complete their education (1)
- 7.5 Covid isolation Schools were closed. Teenagers were unsupervised

increase in lack of morals due to media  
govt grant making it seem attractive to girls to fall pregnant to get money  
(any one answer) (1)

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**QUESTION 8 (5)**

8.1 28 (1)

8.2 14 (1)

8.3 ovary ✓ – produce eggs (ova)  
- make female sex hormone / oestrogen ✓ (either one) (2)

8.4 6 (1)

**TOTAL SECTION B : [39]**  
**TOTAL SECTION A & B : [59]**

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**SECTION C : MATTER AND MATERIALS (20)**

**INSTRUCTIONS**

1. Start this section at the top of a new page.
  2. Leave a line between each sub question for example, between **QUESTION 8.1 and QUESTION 8.2.**
  3. Rule off after each question for example between **QUESTION 8 and QUESTION 9.**
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**QUESTION 9: MULTIPLE CHOICE QUESTIONS (10)**

Four options are provided as possible answers to the following questions.

Each question has only one correct answer.

Write only the letter (A-D) next to the question number (9.1 – 9.10) in the answer book.

9.1 B

9.2 A

9.3 A

9.4 C

- 9.5 A  
 9.6 C  
 9.7 A  
 9.8 B  
 9.9 D  
 9.10 C

**QUESTION 10 :**

**10.1 MATCHING COLUMNS**

**(5)**

COLUMN A		COLUMN B
10.1.1	The colour of litmus paper in acid <b>B</b>	A orange
10.1.2	The flame colour observed when carbon burns in oxygen <b>A</b>	B red
10.1.3	The gas formed when sulfur burns in oxygen <b>E</b>	C blue
10.1.4	A gas that causes metals to rust <b>F</b>	D white
10.1.5	The colour of blue litmus paper in distilled water <b>C</b>	E SO <sub>2</sub>
		F O <sub>2</sub>
		G CO <sub>2</sub>

**10.2 TERMINOLOGY**

**(5)**

- 10.2.1 nucleons  
 10.2.2 periods  
 10.2.3 atomic number  
 10.2.4 indicator  
 10.2.5 alkali

**TOTAL SECTION C : (20)**

## SECTION D : MATTER AND MATERIALS

(40)

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### QUESTION 11

(8)

11.1 calcium

11.2 20

11.3 20

11.4 15

11.5 16

11.6  $^{12}\text{C}$

11.7 carbon

11.8 12

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### QUESTION 12

(10)



12.1.1 metal

12.1.2 white

12.1.3 magnesium

(3)

12.2.1 3

(1)

12.2.2 alkali/alkaline earth metals

(1)

12.2.3 24

(1)

12.2.4  $24 - 12 \checkmark = 12 \checkmark$

(2)

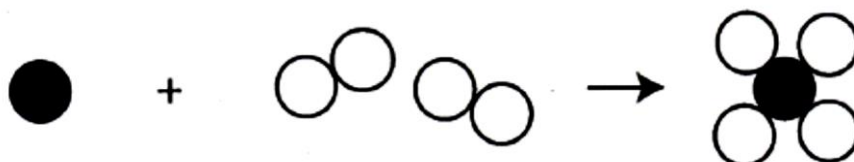
12.3.1  $\text{MgCl}_2$  (1)

12.3.2  $\text{MgO}$  (1)

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**QUESTION 13** (4)

In the diagram below the black circles represent carbon atoms and the white circles represent hydrogen atoms.



13.1  $\text{C} + 2\text{H}_2 \rightarrow \text{CH}_4$  (3)

13.2 carbon tetrahydride / methane (either answer) (1)

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**QUESTION 14** (9)

14.1.1 sodium sulfate

14.1.2 hydrogen monofluoride

14.1.3 zinc hydroxide (-1 if they put stock notation) (6)

14.2.1  $\text{Li}_2\text{CO}_3$

14.2.2  $\text{Al}_2\text{O}_3$

14.2.3  $\text{H}_2\text{S}$  (3)

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**QUESTION 15** (5)

15.1.1  $2\text{Na} + 2\text{HCl} \rightarrow 2\text{NaCl} + \text{H}_2$  (1)

15.1.2  $\text{N}_2 + 3\text{H}_2 \rightarrow 2\text{NH}_3$  (1)

15.2  $\text{S} + \text{O}_2 \rightarrow \text{SO}_2$  (3)

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**QUESTION 16****(4)**

- 16.1 *Rusting* is the chemical reaction of iron with oxygen in the air ✓ in the presence of water. ✓ (2)
- 16.2 Galvanising ✓ – cover with a layer of a more reactive metal ✓  
Electroplating – cover with a layer of another metal  
Painting – the iron is protected from exposure to oxygen and water in the air  
Oiling – prevents water from getting to the iron (any one example) (2)

**TOTAL SECTION D : [40]****TOTAL SECTION C & D : [60]****GRAND TOTAL : [120]**

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