8 SCIENCE 2014

SCIENTIFIC METHOD TEST

ANSWER KEY

Name: _____ **Teacher:** _____ **Mark:** /45

Percentage: %

SECTION A: **MULTIPLE CHOICE** **(5 marks)**

Select the most correct answer for each question below.

1. A description of the steps taken in an experiment is called the:

(a) discussion.
(b) aim.
(c) method.
(d) hypothesis.

2. The correct prefix symbol for milli is:

(a) m
(b) M
(c) μ
(d) n

3. Which of the following is not an example of second-hand data?

(a) Data written in a science journal.
(b) Data written in textbooks.
(c) Data on the internet.
(d) Data you took from an experiment.

4. An error due to guessing a measurement between an instruments markings would be:

(a) a human-reflex error.
(b) a zero-error.
(c) an instrumental error.
(d) a reading error.

5. Whether or not the hypothesis in an experiment was proved or disproved is written in the:

(a) method.
(b) discussion.
(c) conclusion.
(d) aim.

ANSWER KEY

SECTION B: **SHORT ANSWER** **(40 marks)**

1. State the difference between a mistake and an error. (2 marks)

Mistakes can be avoided if more care is taken but errors can not be avoided. (1) (1)

2. Read the experiment below then answer the questions.

One tank of gold fish is fed the normal amount of food once a day, gold fish in a second tank is fed twice a day and gold fish in a third tank are fed three times a day during a six week study. The fish's' weight are recorded daily.

a) What is the aim of the experiment? (1 mark)

To see whether goldfish grow quicker when they are fed more.

b) Write down a hypothesis for the experiment. (2 marks)

If goldfish are fed more then they will grow quicker than goldfish fed a smaller amount. (1) (1)

c) State the dependent variable in the experiment. (1 mark)

The weight of the goldfish

d) State the independent variable in the experiment. (1 mark)

The amount of food

e) List two variables that would stay the same throughout the experiment (controlled variables).

(2 marks)

The type of fish

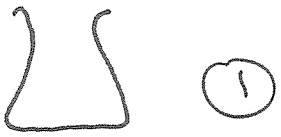
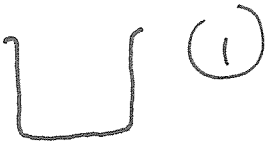
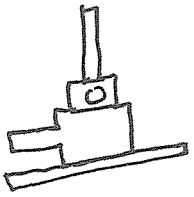
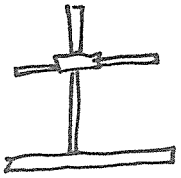
The period of the study

The number of times the fish are fed each day.

The type of food.

Any two 1 mark each

3. Fill in the table below (12 marks)

Equipment name	Purpose	Scientific diagram
conical flask (1)	A more stable way of storing and heating liquids, can close with a stopper.	 (1)
Beaker	To store & heat liquid (1) (must have both)	 (1)
Tripod and gauze mat	To hold beakers above a flame (or bunsen burner) (1)	
Bunsen burner (1)	Used to produce a flame for heating.	
Retort stand, bosshead and clamp	used to hold other equipment (1)	 (1)
Filter paper and funnel	To separate solids from liquids in a suspension.	 (1)
Test tube (1)	For holding and heating substances (1) (must have both)	

4. Write definitions for the terms below. (4 marks)

Mistake: Events that can be avoided with care. (1) (1)

Error: small changes to measurements that cannot be avoided. (1) (1)

5. Fill in the missing words. (3 marks)

The line of best fit (0.5) is a line drawn through the 'centre' of points (0.5) on a graph. (0.5)

Interpolation involves finding data on a graph (0.5) using known (existing) (0.5) data points.

Extrapolation (0.5) involves extending a line on a graph by following the given data.

6. State which kind of data is shown below, qualitative data or quantitative data. (1 ~~2~~ marks)

Quantitative

Year	Total world population (mid-year figures)	Ten-year growth rate (%)
1950	2,556,000,053	18.9
1960	3,039,451,023	22.0
1970	3,706,618,163	20.2
1980	4,453,831,714	18.5
1990	5,278,639,789	15.2
2000	6,082,966,429	12.6
2010	6,848,932,929	10.7
2020	7,584,821,144	8.7
2030	8,246,619,341	7.3
2040	8,850,045,889	5.6
2050	9,346,399,468	–

b) Explain why you chose your answer. (1 mark)

Numbers are used.

7. Write the term next to its matching definition below. (5 marks)

Data, second-hand data, quantitative data, first-hand data, qualitative data

a) Observations that use descriptions.

Qualitative data (1)

b) Data not taken from an experiment.

second-hand data (1)

c) Measurements that use numbers.

Quantitative data (1)

d) Measurements and observations about something.

Data (1)

e) Data you collect from an experiment yourself.

first-hand data (1)

Spelling must be perfect or no mark

8. Use the information in the table below to draw a line graph. (5 marks)

Height of plant (cm)	Week
7	1
9	2
10	3
13	4
17	5
22	6

Take mark away for
- incorrect title
- not using ruler/pencil
- headings on wrong axis
- incorrect scale
- missing unit of measurement