JOHN GRAY HIGH SCHOOL

KS3 SCIENCE: YEAR 8

TERM 2 TEST

PHYSICS: PRESSURE AND ELECTROMAGNETS

PAPER 2

Time : 45 mins

READ THE FOLLOWING INSTRUCTIONS CAREFULLY.

1. This paper consists of **FOUR** questions.

2. Answer **ALL** questions.

3. Indictate your answers in the spaces provided.

4. Remember to read the questions properly before attempting to answer

5. You are permitted to use a calculator in this exam.

Name: _____

Teacher's Name: _____

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO.

1. Rafe was told to choose his punishment for a minor crime. He said that he would lie on a bed of nails for two hours. Answer the following questions.

a. In which direction is Rafe's weight acting? _____

b. Is Rafe's punishment doing him much harm?   YES   NO

c. Explain your answer from question b. above. _____

d. Officer Flo said that he two ideas for more suitable punishments. Circle what you think his ideas may have been.

Rafe Lies on a Single Nail	Rafe lies on a bed of nails packed closer together.
Rafe lies on a bed of nails with dull tips.	Rafe lies on a bed of nails of different heights.

e. What type of a surface are the large feet of camels and polar bears adapted for them to walk on?

Camel _____ Polar bear _____

f. What can persons walking on the sand wear to prevent them from sinking deep into the sand? Choose three answers.

2. a. Apart from engineers, name three other professions that may make use of the knowledge of calculating pressure.

_____ _____ _____

b. Calculate the pressure in the following systems. The equation is given.

i. Force = 50N and Area=10m^2 ii. Force = 24N and Area = 4m^2

P = $\dfrac{F}{A}$ = _____ = _____Pa   P = $\dfrac{F}{A}$ = _____ = _____Pa

c. Complete the table by calculating to find the missing values.

	FORCE (N)	AREA (m^2)	PRESSURE (Pa)
a	20	5	
b	100	20	
c	30		6
d		9	3

d. On the Moon, Fidellia's swimming pool is 10m deep (h) and is filled with honey. Calculate the pressure on her if she swims to the bottom of the pool. (**The density (ᴘ) of honey is 1,360 kg/m^3 and the gravitational field (g) on the Moon is 1.6 N/kg**).

$$P = h \times ᴘ \times g$$

P = ☐$_m$ X ☐$_{kg/m^3}$ X ☐$_{N/kg}$

P = ☐ Pa

3. a. Which of the following adjectives describe lodestone. Choose three.

Black	Red	Liquid	Gas	Solid	Attracted to Iron

b. From the list below, select the person(s) and nation(s) that have taken part in the History of Magnets. Select four.

Michael Faraday	Isaac Newton	Michael Jackson	Hans Oersted
Queen Elizabeth	The Chinese	Magnus	The Aztecs

c. Look at the table below and answer the following questions a- e below.

TABLE 2.6.4: Results of two different ways of comparing the strengths of magnets

	Number of paper clips held	Distance from which it attracts a paper clip (cm)
Magnet 1	100	20
Magnet 2	100	25
Magnet 3	100	28
Magnet 4	100	30

a. Based on the number of paper clips held, which magnet is the strongest?
_____

b. Each magnet was able to hold _____ paperclips.

c. Overall, Magnet _____ was strongest because it attracted paperclips from _____ cm.

d. Overall, Magnet _____ was weakest because it attracted paperclips from _____ cm.

e. In order from strongest to weakest Magnet are : _____, _____, _____, _____ .

4. Match the following terms with their meanings.

|	
Accuracy	Data points close to one another.
Repeatability	Getting the same values even when others perform the entire experiment.
Precision	Data close to true values.
Reproducibility	Getting very similar values on the same piece of equipment.

5. Read the following scenarios and determine which of the following terms is being described.

| Accuracy	Precision	Repeatability	Reproducibility

a. Rene took all the temperature with the same thermometer and found similar results at

all times. _____

b. Helen took the temperatures with her thermometer and got values of 34°C, 35°C and

34°C, while Bill used his thermometer and got 35°C, 34°C and 34°C. _____

c. The temperature that was expected from the textbook was 67°C and when Greg took

the temperature with his thermometer, he got 66.8°C. _____

d. The temperature that was expected was 67°C and when Jimin took the temperature

three times, he got 89°C, 89°C and 88.8°C. _____

e. Label the following diagram with the words below.

| Sun	Magnetic field	Earth	Magnetosphere	Solar wind
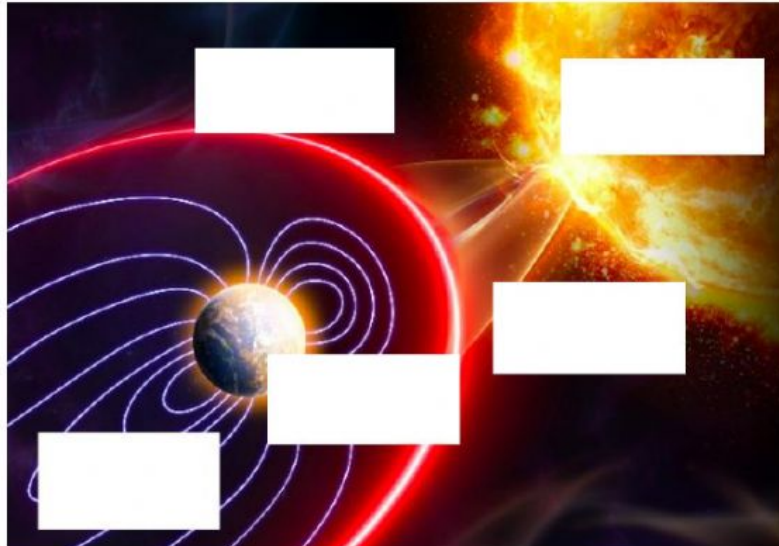
f. Label the diagram of the electric bell below.
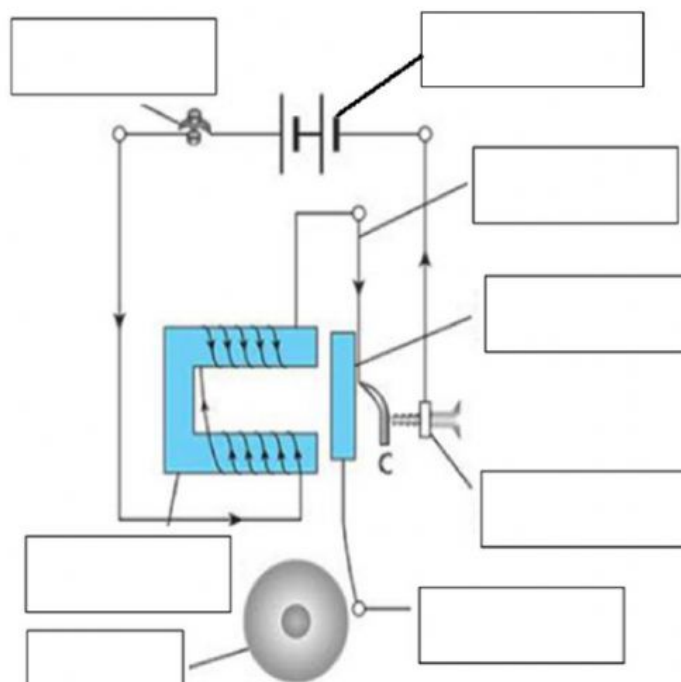
g. What three components make up an electromagnet?

_____   _____   _____

h. Select the actions that would make an electromagnet STRONGER.

Use a plastic central core	Use a central iron core.	Reduce the number of coils of the wire around the central core
Use less batteries for the power supply.	Add more loops of the wire around the core.	Increase the current through the wire.

i. Below are four electromagnets. Complete the sentences below.
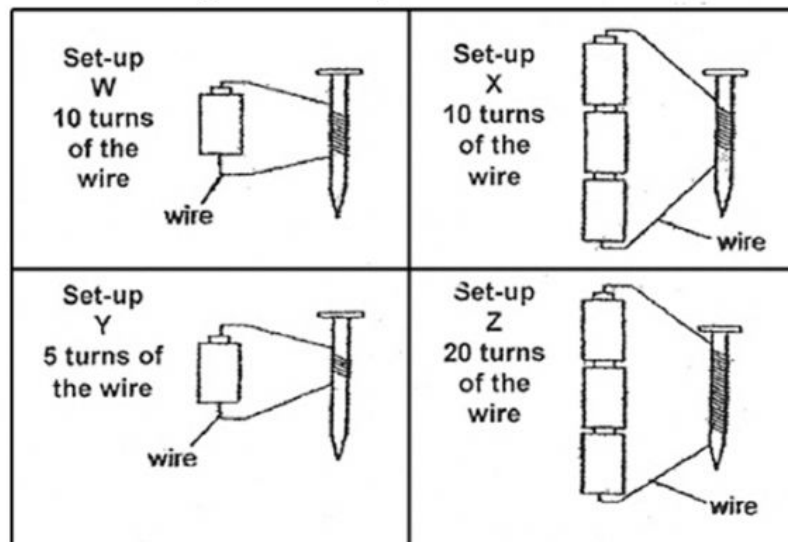
a. Set-up W is _____ than Set-up X because_____.

b. Set-up Z is _____ than Set-up W because _____.

c. Set-up Y is _____ than Set-up X because_____.

d. Set-up X is _____ than Set-up Z because _____.