Primary 6 Science
Semester 1 Topical Test 1 Forces

Name : _____ **Marks** : _____ / 35
Class : _____ **Parent's Signature** : _____
Date : _____ **Duration** : 50 minutes

ESSAY

Read the questions carefully and write your answer in the space provided below!

1. Identify the forces applied at different actions on the table below. Put a tick (√) in the correct column. (5)

Action	Push	Pull	Push and Pull
1. Pressing a button			
2. Twisting a towel			
3. Lifting a box			
4. Walking			
5. Typing			

2. Observe and identify the effects of forces on objects shown below. (2)

a. 

_____

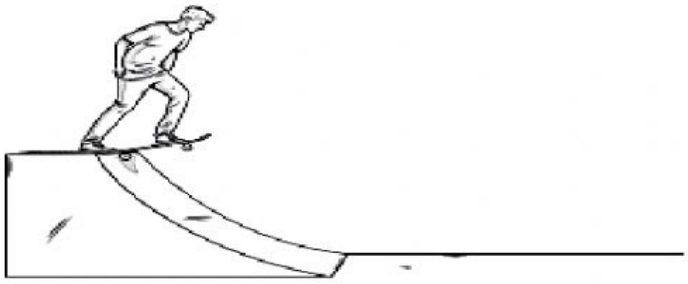
b. 

_____

3. Identify type of force (gravitational, magnetic, elastic, frictional) that allow things in the event column to be happened. Determine whether force is contact force or non-contact force. (8)

Events	Type of Force	Contact/ Non- contact
A dropped book that falls to the floor.		
A children bounce up on a spring bed.		
The refrigerator door remains closed.		
Applying brakes to stop a moving vehicle.		

4. A skateboarder is investigating the effect that different surfaces have on the motion of the skateboard. They move a ramp onto different surfaces and measure the distance that the skateboard travels from the bottom of the ramp.



The table shows the results.

Surface	Distance travelled (m)			
	Repeat 1	Repeat 2	Repeat 3	Mean
concrete path	8.1	8.5	8.0	8.2
wooden decking	6.7	7.3	7.0	7.0
grass	1.0	1.2	0.9	1.0
artificial grass	3.1	3.2	3.0	3.1
sand	0.5	0.4	0.4	0.4

a. Name a variable to be changed in this investigation. (1)

b. Name 2 variables to be keep the same to ensure a fair investigation. (2)

_____

c. Which surface produce the most frictional force? Explain your answer. (2)

_____

_____

d. How does the surface area affect the distance travelled by the skateboarder? (2)

_____

_____

e. Frictional force can be harmful and useful. State in what way frictional force can be useful and harmful. (2)

useful: _____

harmful: _____

5. Below is a table showing the gravitational field strength of the 8 planets in our Solar System

Planet	Gravitational field strength	Mass (Compared to Earth)
Mercury	4 N/kg	0.0553
Venus	9 N/kg	0.815
Earth	10 N/kg	1
Mars	4 N/kg	0.107
Jupiter	23 N/kg	317.8
Saturn	9 N/kg	95.2
Uranus	9 N/kg	14.5
Neptune	11 N/kg	17.1

a. How does the mass of the planet relate to its gravitational field? (1)

_____

_____

b. An astronaut travels to the planets shown in the table. In which planet will the weight of the astronaut be the biggest? Explain your answer. (2)

_____

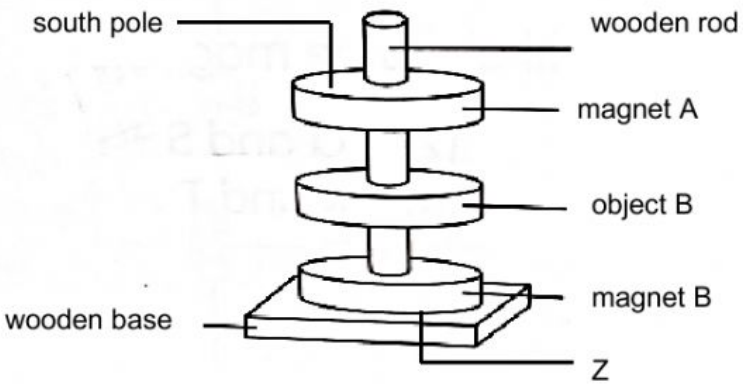
_____

c. Will the mass of the astronaut change when he/she travels from planet to planet? Explain your answer. (2)

_____

_____

6. Study the diagram below.



a. Identify the pole at Z. (1)

_____

b. Suggest what object B could be? Explain your answer. (2)

_____

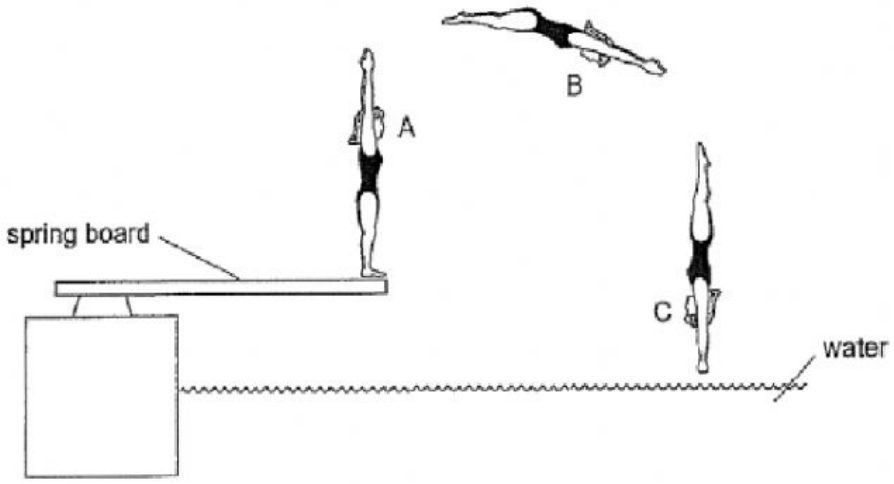
_____

c. What will be observed if object B is flipped around? Explain your reason. (1)

_____

_____

7. The diagram below shows a diver diving into a pool.



a. Identify the force which allow the diver to jump off at point A. (1)

_____

b. Without changing the spring board, what can the diver do if she wants to reach a point higher than B? (1)

_____

_____