

SAT

TAO NAN SCHOOL
PRIMARY FOUR SCIENCE MID-YEAR EXAMINATION - 2004

Name : _____ ()

Date : 11 May 2004

Class : P4 _____

Time : 7.50 - 9.20 a.m.

Parent's signature : _____

Marks: _____ / 100

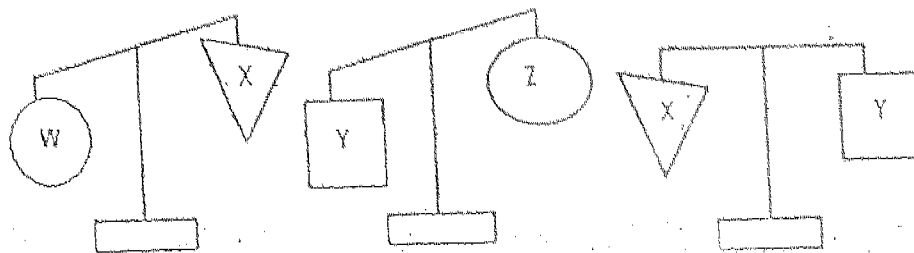
Section A (30 x 2 marks)

For each question from 1 to 30, four options are given. One of the four options is the correct answer. Select the correct answer and shade its corresponding oval (1, 2, 3 or 4) on the Optical Answer Sheet.

1) Which of the following is not matter?

- (1) Radio
- (2) Music
- (3) Battery
- (4) Television

2) A lever balance was used to compare the masses of objects W, X, Y and Z. The object with the smallest mass is _____.



- (1) W
- (2) X
- (3) Y
- (4) Z

3) For the water cycle to occur, there must be _____.

- (A) heat
- (B) light
- (C) changes in state of water
- (D) wind to help in the movement of water

- (1) A and B only
- (2) A and C only
- (3) B and C only
- (4) C and D only

4) Statements A to E describe the events that lead to the formation of rain. They are not in the correct order.

- (A) Rain falls.
- (B) Water evaporates.
- (C) Water vapour rises and cools.
- (D) The droplets of water form clouds.
- (E) The water droplets become bigger and heavier.

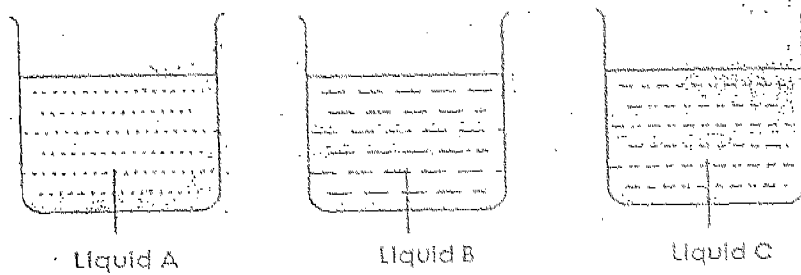
Which of the following options shows the correct order ?

- (1) A → C → B → E → D
- (2) B → D → C → E → A
- (3) D → A → C → E → B
- (4) B → C → D → E → A

5) Which process occurs at 0°C only ?

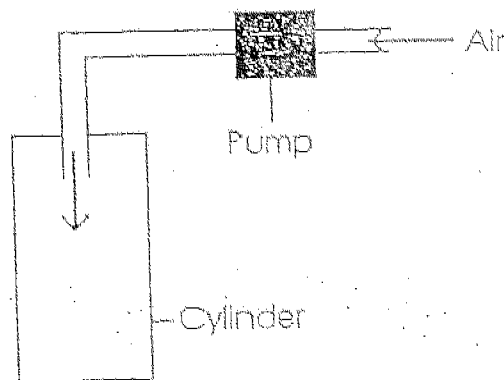
- (1) Boiling
- (2) Melting
- (3) Evaporation
- (4) Condensation

- 6) Three similar beakers are filled with an equal volume of liquid A, B and C as shown in the diagram. They are placed side by side in the open where it is windy and sunny.



After a few hours, the volume of liquid remaining in each of the three beakers is recorded. What can we find out from this experiment? We can find out whether the different liquids evaporate _____

- (1) at different rates
 - (2) slower in the open
 - (3) faster where it is windy
 - (4) faster where it is sunny
- 7) When more air is pumped into a cylinder, it does not get any bigger. This shows that air _____



- (1) has mass
- (2) has volume
- (3) occupies space
- (4) can be compressed

8) Study the table below. Which substance is *wrongly* described ?

| | Helium | Oil | Petrol | Jelly |
|-----------------------|--------|-----|--------|-------|
| Has mass | Yes | Yes | Yes | Yes |
| Occupies space | Yes | Yes | Yes | Yes |
| Has a definite shape | No | No | No | Yes |
| Has a definite volume | No | No | Yes | Yes |

- (1) Oil
- (2) Jelly
- (3) Petrol
- (4) Helium

9) What happens when a piece of ice is melting?

- (1) The ice loses heat
- (2) The ice absorbs heat
- (3) The ice changes colour
- (4) The ice changes into water vapour

10) An experiment is carried out to see if ice cubes melt faster in tap water or in cold water. Which of the following factors must be kept constant to make it a fair test ?

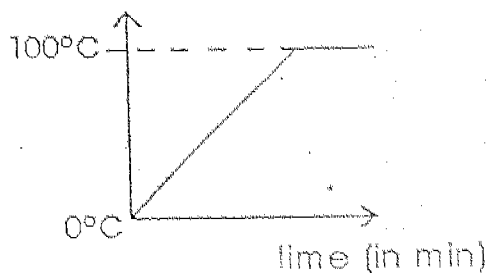
- (A) Number of ice cubes
- (B) Volume of tap water and volume of cold water
- (C) Temperature of tap water and temperature of cold water

- (1) A only
- (2) A and B only
- (3) B and C only
- (4) A, B and C

11) Some ice cubes were heated until they became steam. Which graph below shows the change in temperature of the ice cubes over time?

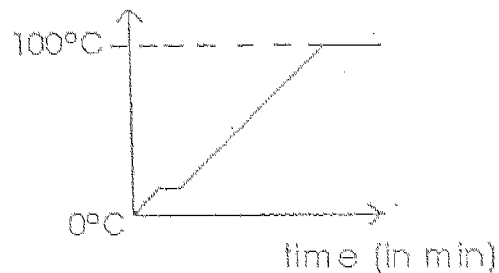
(1)

Temperature (in $^{\circ}\text{C}$)



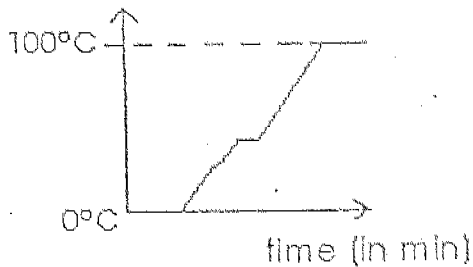
(2)

Temperature (in $^{\circ}\text{C}$)



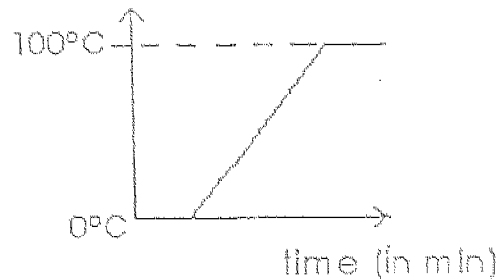
(3)

Temperature (in $^{\circ}\text{C}$)

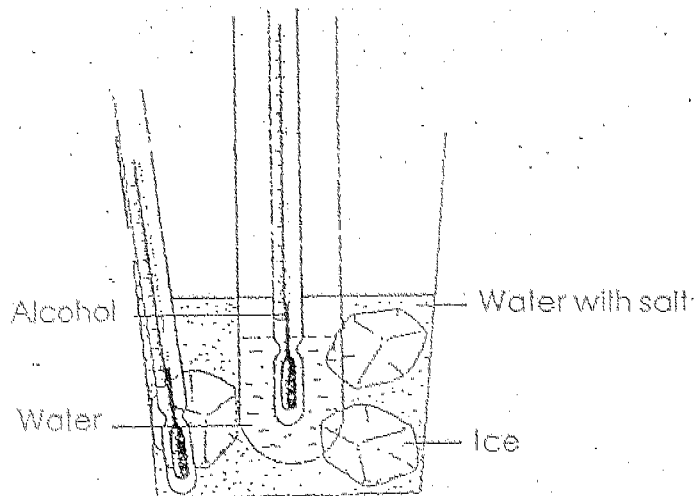


(4)

Temperature (in $^{\circ}\text{C}$)

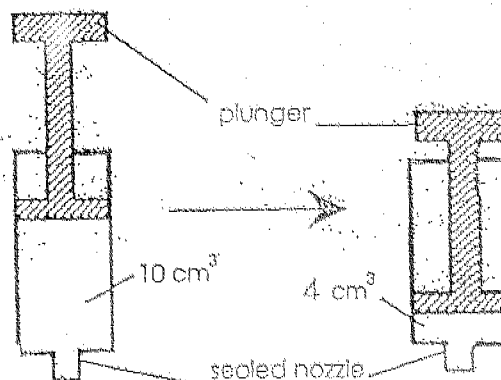


- 12) The diagram below shows a "freezer". Which of the following observations is correct ?



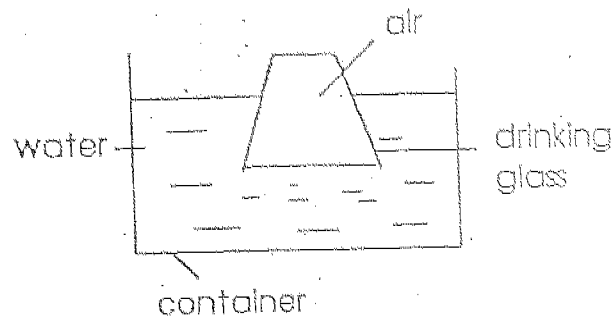
| | Water | Alcohol | Ice | Water with salt |
|-----|-----------|-----------|-----------|-----------------|
| (1) | Lost heat | Lost heat | Lost heat | Lost heat |
| (2) | Lost heat | Lost heat | Gain heat | Gain heat |
| (3) | Gain heat | Gain heat | Lost heat | Lost heat |
| (4) | Gain heat | Gain heat | Gain heat | Gain heat |

- 13) The plunger of a syringe is pushed as shown below. What could the substance in the syringe be ?



- (1) lime juice
- (2) cooking oil
- (3) water vapour
- (4) baking powder

- 14) In the diagram below, what will happen when the drinking glass is pushed further down into the container? The water level in the _____.



- (1) container will rise
- (2) container will fall
- (3) glass will fall
- (4) glass will remain the same

- 15) Based on the pictures below, which of the following statements is true?



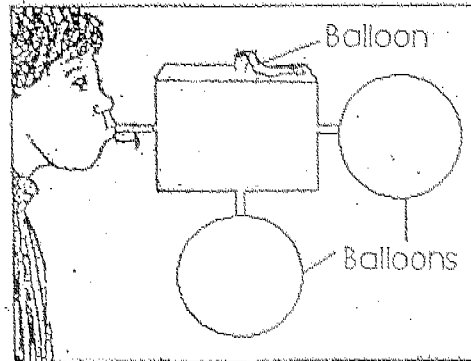
2 kg of cotton wool



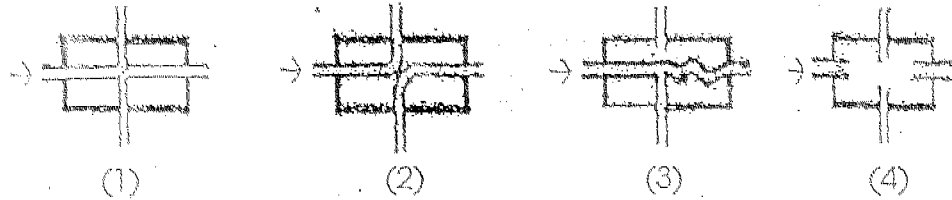
2 kg of gold bar

- (1) The cotton wool has a greater mass than the gold bar.
- (2) The cotton wool has a larger volume than the gold bar.
- (3) The gold bar has a greater mass than the cotton wool.
- (4) The gold bar has a greater volume than the cotton wool.

16)



The picture above shows a boy blowing air into a box. Which of the pictures below shows what the inside of the box looks like ?



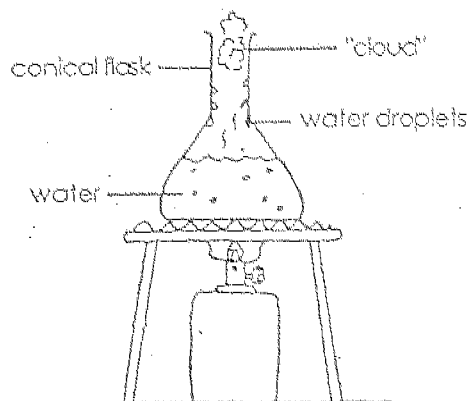
17) Alcohol evaporates easily because it has a _____.

- (1) high boiling point
- (2) low boiling point
- (3) high melting point
- (4) low melting point

18) Water In Singapore is an important resource because _____.

- (1) the water in Singapore is salty
- (2) the water in Singapore is polluted
- (3) there is no efficient way to purify water
- (4) there is insufficient natural water sources

19)



Look at the diagram above. After boiling the water for some time, the water droplets stopped forming on the inside of the flask. Why ?

- (1) The water droplets had dropped into the flask.
- (2) As the boiling continues, there was little water left in the flask.
- (3) The temperature of the flask became as high as the temperature of the rising water vapour.
- (4) The temperature of the water in the flask became so high that no water droplets could be formed.

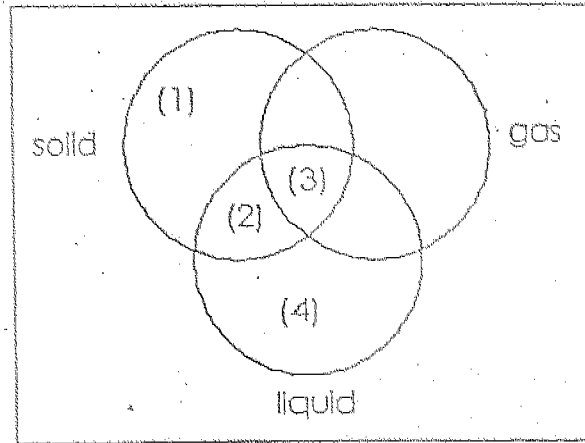
20) Which of the following is wrongly matched ?

| | Activity | State of water best used to carry out the activity |
|-----|------------------------------|--|
| (1) | Steaming vegetables | Gas |
| (2) | Keeping meat for a fortnight | Liquid |
| (3) | Skinning | Solid |
| (4) | Dissolving fruit salt | Liquid |

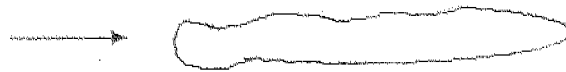
21) Animals like hippopotamus soak themselves in rivers to keep cool. How does it help them to keep cool ?

- (1) The muddy water will melt on their skin
- (2) Heat is gained from the muddy water
- (3) The water will take away the heat when it evaporates
- (4) Water vapour from the mud will condense on their skin

- 22) In the Venn diagram below, Which letter best represents the state(s) that wax can exist in ?

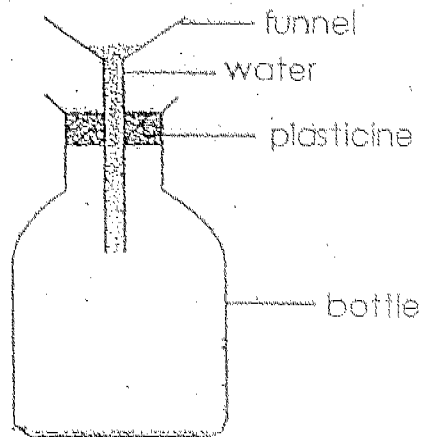


- 23) Kathy mixes some flour and water to make some dough. She then rolls the dough. If Kathy applies a force at one end of the dough as shown, which properties of the dough will change ?



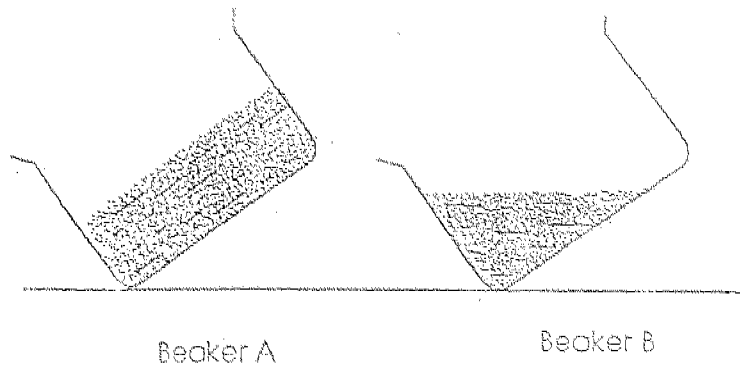
- (A) colour
(B) shape
(C) state
(D) volume
- (1) B only
(2) B and C only
(3) C and D only
(4) A, B, C and D
- 24) The water cycle gets its energy from the _____
- (1) Sun
(2) Earth
(3) Moon
(4) Planets

25) In the diagram below, the water cannot flow into the bottle because air _____



- (1) has weight
- (2) takes up space
- (3) is a mixture of gases
- (4) has no definite shape

26)



Jeremy filled two beakers with the same volume of water and then put each beaker in a different place. After eight hours, he took the two beakers and tilted them as shown below. Which of the following shows the correct place he has placed each of the two beakers?

| | Beaker A | Beaker B |
|-----|----------|----------|
| (1) | Field | Oven |
| (2) | Freezer | Cupboard |
| (3) | Cupboard | Freezer |
| (4) | Oven | Field |

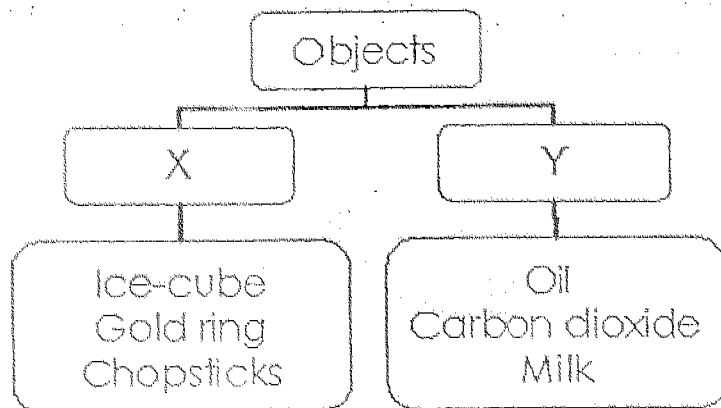
27) Penguins can freeze to death when oil spills happens because

- (1) oil stops them from swimming
- (2) air cannot be absorbed by their lungs
- (3) oil stops their bodies from producing heat
- (4) air cannot be trapped between their feathers

28) Which of the following does/ do not cause water pollution?

- (1) Oil spills and Dumping
- (2) Construction of buildings
- (3) Deforestation and Oil spills
- (4) Lack of natural water sources

29) Jennifer classified the objects below into two groups.



The headings X and Y should be _____

| | X | Y |
|-----|--------------------------|------------------------|
| (1) | Has definite volume | Has no definite volume |
| (2) | Has definite Shape | Has no definite shape |
| (3) | Cannot be compressed | Can be compressed |
| (4) | Cannot dissolve in water | Can dissolve in water |

30) Humidity is the amount of _____ in the air.

- (1) heat
- (2) matter
- (3) water vapour
- (4) smoke particles

Name : _____ ()

Class : P4 ()

SECTION B (40 marks)

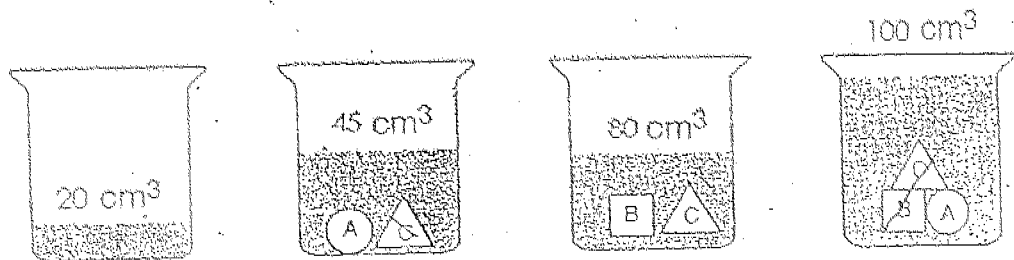
Fill in the blanks with the most suitable answers.

31) State the unit of measurement for the volumes of (2 marks)

a) solids : _____

b) liquids : _____

32)



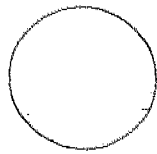
The above containers hold 20 cm³ of water. Objects A, B and C are then put into the containers and the water levels rise as shown in the above diagrams.

What is the volume of object C ? (2 marks)

33) Put a tick (✓) in the correct column for each of the four processes listed below. (2 marks)

| | Process | Water gains heat | Water loses heat |
|----|--------------|------------------|------------------|
| a) | Evaporation | | |
| b) | Condensation | | |
| c) | Freezing | | |
| d) | Melting | | |

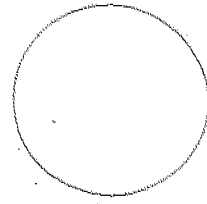
- 34) The pupils were given a polystyrene ball, an iron ball, a basketball and a lever balance.



polystyrene ball



iron ball



basketball

Their masses were compared and the results are given below.

| Compare | Which has bigger mass? |
|---------------------------------|------------------------|
| Polystyrene ball and iron ball | Iron ball |
| Iron ball and basketball | Iron ball |
| Polystyrene ball and basketball | Basketball |

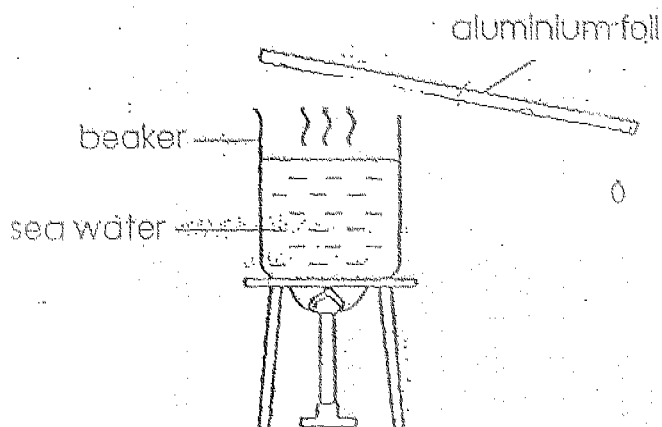
Use only the information given in the table and the diagrams above, decide if the statements below are "true", "false" or "not possible to tell" by putting a tick (✓) in the appropriate box.

(2 marks)

| | Statements | True | False | Not possible to tell |
|----|--|------|-------|----------------------|
| a) | The smaller the ball, the smaller the mass | | | |
| b) | The basketball has the biggest mass | | | |
| c) | The polystyrene ball occupies more space than the iron ball | | | |
| d) | If more air is pumped into the basketball, it will have a bigger mass than the iron ball | | | |

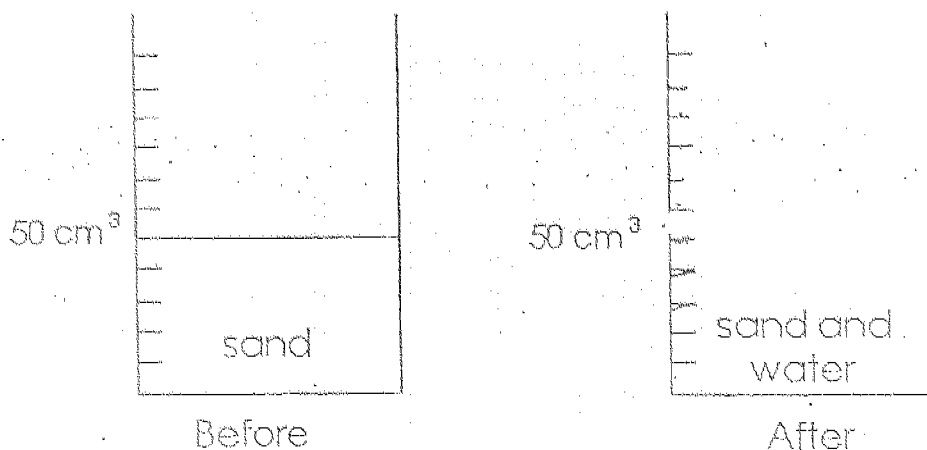
- 35) A beaker contained some sea water. The sea water was heated until it boiled. An aluminum foil was then placed above the beaker. Droplets of water were formed. (2 marks)

a) Draw and label in the diagram where the water droplets are formed quickly.

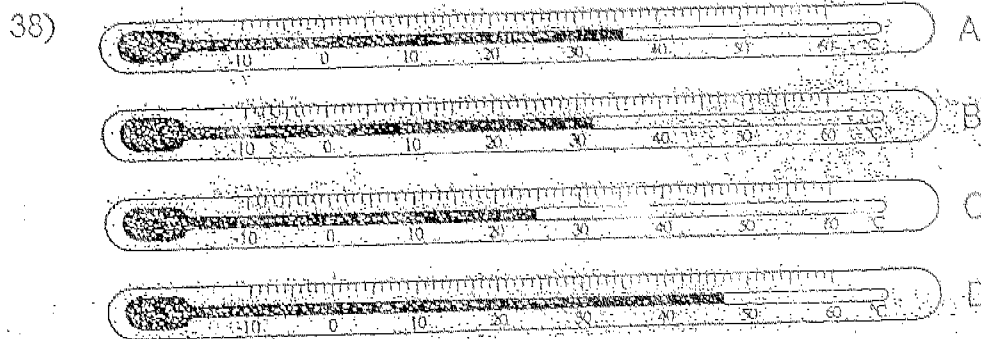
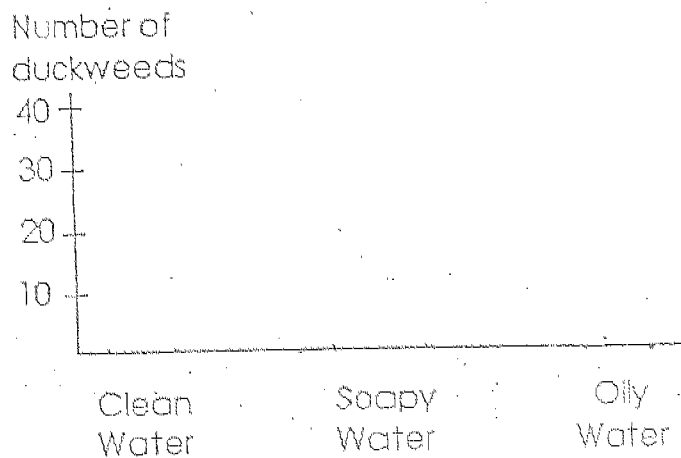
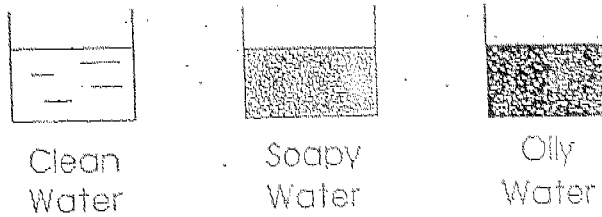


b) The heating was continued until the beaker became dry. What was the substance left in the beaker?

- 36) James filled a beaker with 50 cm^3 of sand. He poured 50 cm^3 of water into the same beaker. Show the water level in the beaker of sand and water. (2 marks)



- 37) John collected three different types of water in similar containers as shown below. He put 30 duckweeds in each of the containers. After 5 days, he recorded the number of duckweeds in the three containers. Draw a bar graph to show the number of duckweeds in each container after 5 days. (3 marks)



The diagrams above show 4 thermometers, A, B, C and D and their readings. Note their temperatures in the table below. (2 marks)

| Thermometer | Temperature |
|-------------|-------------|
| A | |
| B | |
| C | |
| D | |

39) The table below shows two rivers with different conditions.

| River A | River B |
|---|--|
| Water is cloudy | Water is clear |
| Few aquatic animals are living in the water | Many aquatic animals are living in the water |
| Scum on the surface of the water | No scum on the surface of the water. |

a) Which river is polluted? (1 mark)

b) List a sign to show the river in (a) is polluted? (1 mark)

c) Many trees were cut down along the rivers. How does deforestation pollute the waters in the rivers? (2 marks)

40) Water collected in _____ is sent to water treatment plants for _____ before it is sent to our homes. The water we get at home is safe and we can use it for _____ or _____. (2 marks)

- 41) The table below shows the time 3 similar handkerchiefs of the same size took to dry.

| Handkerchief | Description | Time |
|--------------|----------------------|------------|
| A | Not folded | 10 minutes |
| B | Folded into halves | 20 minutes |
| C | Folded into quarters | 30 minutes |

- a) What is the pattern observed in the above results between the number of folds and the time taken to dry? (2 marks)

- b) Explain why handkerchief A dried the fastest. (2 marks)

- 42) We can conserve water by practicing the 3 Rs. Fill in the blanks with "reduce", "reuse" or "recycle". (2 marks)

a) Mrs Li did her laundry in the washing machine only when she has a full load. _____

b) John used rainwater to wash the floors of his flat. _____

c) Jurong Industrial Waterworks treated waste water from the Ulu Pandan Sewage Treatment Works. _____

d) Rinse dishes in a basin of water instead of using running water. _____

43a) Tick (✓) the name of the person who made the correct observation and deduction. Cross (X) the name of the person who made an incorrect observation and deduction.

(1 mark)

| Name | Statement | Tick (✓) or Cross (X) |
|-------|--|-----------------------|
| Jack | I squeezed a sponge into a small container. Since, it can be compressed, I deduced solids can be compressed. | |
| Jason | I placed a syringe filled with air into a basin of water. Then I pushed the plunger of the syringe. There were bubbles in the water. This shows that air occupies space. | |

43b) For the name(s) that you crossed, explain what is incorrect about his/ their statements. (2 marks)

| Name(s) | Explain What Is Incorrect |
|---------|---------------------------|
| | |

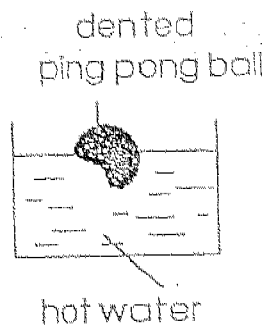
44) List three ways in which Singapore tries to increase her water supply. (3 marks)

- a) _____
- b) _____
- c) _____

45) Compare "Evaporation" and "Boiling" with regards to the change of state and the temperature at which they occur. (2 marks)

| Boiling | | Evaporation |
|--------------------------|--------------------------------|--------------------------|
| Changes _____ _____ | Change of State | Changes _____ _____ |
| Occurs at _____ _____ | Temperature at which it occurs | Occurs at _____ _____ |

46)



a) What happens when a dented ping pong ball is placed in a beaker of hot water? (1 mark)

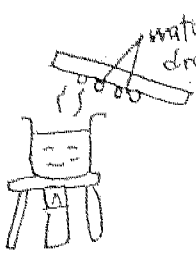
b) Why does it happen? (2 marks)

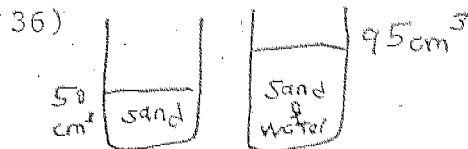
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TAO NAN SCHOOL
 PRIMARY FOUR SCIENCE
 MID YEAR EXAMINATION - 2004

SAM

- 1) 2
- 2) 4
- 3) 2
- 4) 4
- 5) 2
- 6) 1
- 7) 4
- 8) 1
- 9) 2
- 10) 2
- 11) 4
- 12) 1
- 13) 3
- 14) 1
- 15) 2
- 16) 3
- 17) 2
- 18) 4
- 19) 3
- 20) 2
- 21) 3
- 22) 2
- 23) 1
- 24) 1
- 25) 2
- 26) 2

- 28) 4
- 29) 2
- 30) 3
- 31) a) cm^3 ml
- 32) 5 cm
- 33) a) Water gains heat
 b) Water loses heat
 c) Water loses heat
 d) Water gains heat
- 34) a) False b) False c) True d) Not possible to tell.
- 35) a)  b) Salt was left in the beaker.



- 37) 36°
 32°
 25°
 47°
- 38) a) River A is polluted.
 b) Scum is on the surface of the water.
- 39) reservoirs
 purification
 bathing cooking
- 40) a) The more the number of folds, the longer it takes to dry.
 b) Handkerchief A had the largest exposed surface area.

- 42) a) reduce
b) reduce
c) recycle
d) reduce
- 43) a) Jack Cross
Jason Tick
b) Jack Sponges have air pockets which can be compressed.
- 44) a) Build more reservoirs
b) Desalinate sea water.
c) Set up more new water plants.
- 45) liquid to gas from liquid to gas
100°C any temperature
- 46) a) The ping pong ball will pop back to its normal shape.
b) The air inside the ping pong ball expands when exposed to hot water.