

WARNING

You must return this paper with your answerbook, otherwise marks will be lost.

EXAMINATION NUMBER

**AN ROINN OIDEACHAIS
JUNIOR CERTIFICATE EXAMINATION, 1994**

SCIENCE – ORDINARY LEVEL

TUESDAY, JUNE 14 – Afternoon 2.00 – 4.30

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SECTION A TO BE ANSWERED BY ALL CANDIDATES.
Sections B, C, D, E are on separate sheets.
Answer the questions in the spaces provided.

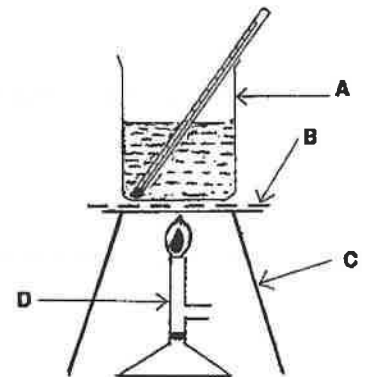
SECTION A – CORE (144 marks)

Answer any 12 parts (a), (b), (c) etc. from this Section.
Return this Section of the examination paper in your answer book.

1. (a) The drawing shows a liquid being heated.
Name the FOUR pieces of apparatus labelled.

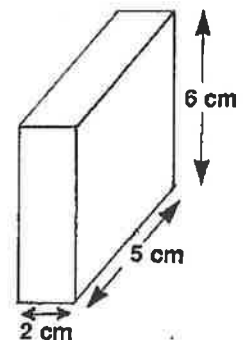
A _____ B _____

C _____ D _____



- (b) What is VOLUME?

What is the volume of the block of wood shown in the drawing?



- (c) What is ENERGY?

Name a RENEWABLE source of energy _____

Name a NON-RENEWABLE source of energy _____

(d) The drawing shows a bar magnet.



What are the two poles of the magnet called?

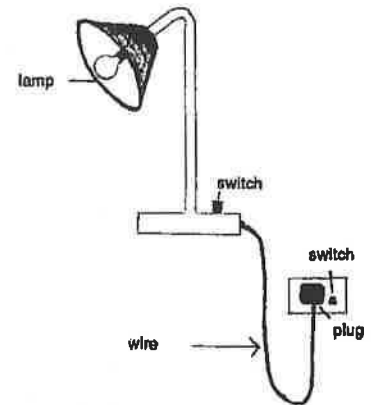
A _____ B _____

What would you notice when the like poles of two magnets are brought together?

Name the instrument which uses a magnet to find direction.

(e) The drawing shows a desk lamp.

Name the material in the wire that carries the current from the socket.



What material is used to insulate the wire?

How is the current prevented from becoming too large and damaging the lamp?

What colour is the cover of the wire connected to the earth pin of the plug?

(f) Fill in the table using words from the list below:

SOLID LIQUID GAS

DESCRIPTION	STATE of MATTER
Has a definite shape and a definite volume.	
Has no definite shape and has no definite volume.	

How does WATER VAPOUR get into the atmosphere?

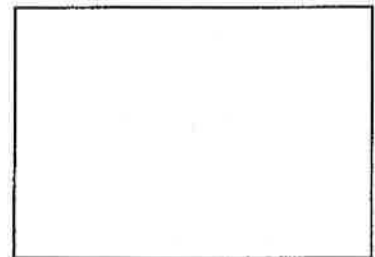
(g) Name a fuel and give a use for it.

Name _____

Use _____

Name ONE type of fire extinguisher _____

Sketch the warning symbol for an acid
(corrosive substance) in the box.



(h) Study the list of substances below and give ONE use for each.

SUBSTANCE	USE
aluminium	
carbon dioxide	
copper	
alcohol	

(i) What is a CHEMICAL change?

From the list below choose ONE chemical and ONE physical change:

MELTING of ICE, BURNING of PAPER, CUTTING of WOOD, RUSTING of IRON.

Chemical change _____

Physical change _____

(j) Name an acid _____

The pH scale is used to measure the strengths of acids and bases.

In what pH range are acids? _____

In what pH range are bases? _____

What is the pH of a neutral solution? _____

(k) Name a food we get from:

Animals _____

Plants _____

Name a useful material, which is not a food, that we get from:

An animal _____

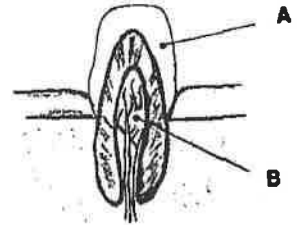
A plant _____

(l) Name the parts A and B of the tooth shown in the drawing.

A _____ B _____

Give one cause of tooth decay.

What substance is added to water to prevent tooth decay?



(m) Name an organ or part of the body which can:

Remove waste material _____

Make sperm cells _____

Make us aware of things _____

Carry blood around the body _____

(n) What is the function of the ROOTS of a plant?

In a plant, where is food stored? _____

Name a drug which is found in a plant _____

Give one example of animal dispersion of seeds.

(o) Give one characteristic which separates a plant from an animal.

Write down a food chain using the following organisms:

THRUSH FOX CABBAGE SNAIL

How would the chain be affected if all of the second organism in your chain died?

AN ROINN OIDEACHAIS
JUNIOR CERTIFICATE EXAMINATION, 1994

25744

SCIENCE – ORDINARY LEVEL
(N.B. Not for Science - Local Studies Candidates)

TUESDAY, JUNE 14

Section A is on a separate sheet which provides spaces for your answers.
The completed sheet should be enclosed in your answer-book.

SECTIONS B, C, D, E.

The questions from these sections should be answered in your answer-book.

Choose any **three sections** from **B, C, D, E.**

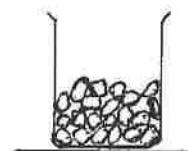
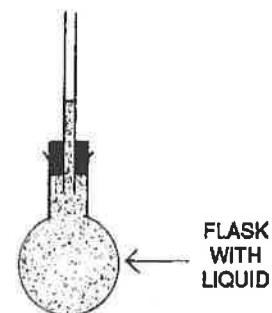
Answer **two** questions from each chosen section. All questions carry equal marks.

SECTION B PHYSICS (72 marks)

Answer any **two** questions

2. (a) (i) Name the apparatus you would use to measure temperature. (3)
- (ii) Name the unit of temperature. (3)
- (iii) At what temperature does water freeze? (3)
- (iv) What is the normal temperature of the human body? (3)

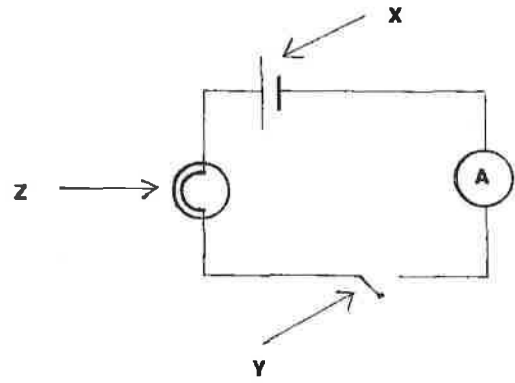
- (b) (i) What happens when the flask shown in the drawing is heated? (3)
- (ii) What do you learn about liquids from this experiment? (3)
- (iii) When the beaker of ice shown in the drawing, is heated the temperature does not change until all the ice has melted. Explain why this is so. (6)



- (c) Describe a simple experiment to show convection in a liquid. Use a diagram. (12)

3. (a) Study the circuit diagram

- (I) Name the devices marked X, Y and Z. (9)
- (II) What must be done to the circuit shown to allow current to flow? (3)



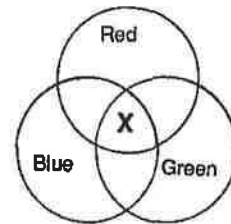
(b) The AMPERE and the VOLT are units used in electrical measurement.

- (I) What does the AMPERE measure? (3)
- (II) What does the VOLT measure? (3)
- (III) In what UNITS is electricity, used in your home, measured? (6)

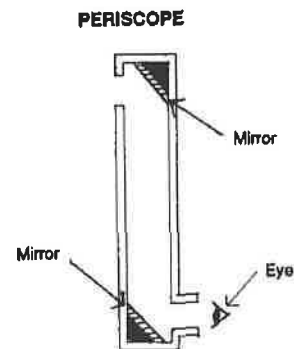
(c) Describe a simple experiment to show that a metal is a conductor of electricity. Use a diagram. (12)

4. (a) The drawing represents the mixing of light.

- (I) What is the name given to the RED, GREEN and BLUE light colours? (3)
- (II) What colour is seen at X in the diagram? (3)
- (III) What colour is formed when RED and GREEN light are added together? (6)



- (b) (I) Explain, using a diagram, how an eclipse of the Sun occurs. (9)
- (II) A PERISCOPE is an apparatus which uses mirrors and light. Give an example of where a periscope is used. (3)



(c) Describe a simple experiment to show that light travels in a straight line. Use a diagram. (12)

SECTION C CHEMISTRY (72 marks)

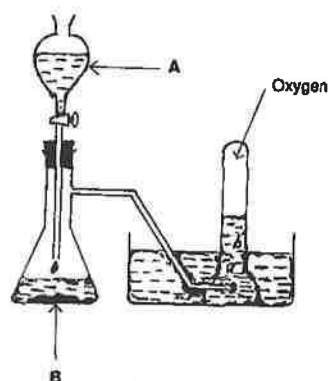
Answer any two questions.

5. (a) The apparatus shown in the drawing is used to make oxygen.

(I) Name the liquid **A** in the funnel. (3)

(II) Name the solid **B** in the flask. (3)

(III) **B** is a CATALYST. Why is a catalyst used? (6)



(b) (I) How would you show that the test tube is filled with oxygen? (6)

(II) Give TWO major uses of oxygen. (6)

(c) Describe a simple experiment to show that about 20 % (one fifth) of the air is oxygen. Use a diagram. (12)

6. (a) (I) Water is a compound. Name the elements which are joined together to make water. (6)

(II) If you were given a colourless liquid, what test would you carry out to check that it was water? (6)

(b) (I) What is HARD WATER? (3)

(II) What causes hardness in water? (6)

(III) Give ONE advantage of hard water. (3)

(c) Describe an experiment to show that water expands when it freezes. Use a diagram. (12)

7. (a) Atoms are made up of PROTONS, NEUTRONS and ELECTRONS.

(i) Where in the atom is the proton? (3)

(ii) What is the charge on the electron? (3)

(iii) What is the mass of the neutron? (3)

(b) The group of elements shown is called the ALKALI METALS.

(i) Name TWO of these metals. (6)

(ii) Choose one of these two metals and state what happens when it is added to water. (6)

Li
Na
K
Rb

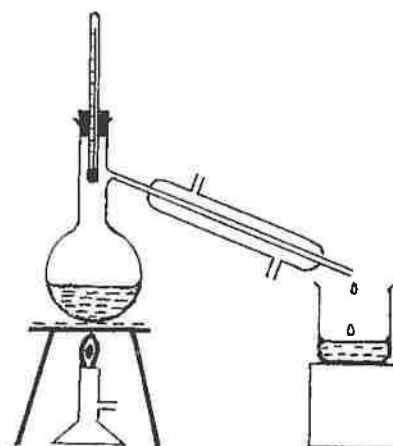
(c) Seawater is a MIXTURE.

(i) What is a MIXTURE? (6)

The DISTILLATION apparatus shown can be used to separate salt and water.

(ii) Explain what is meant by DISTILLATION. (6)

(iii) Where will the salt be when the distillation is finished? (3)

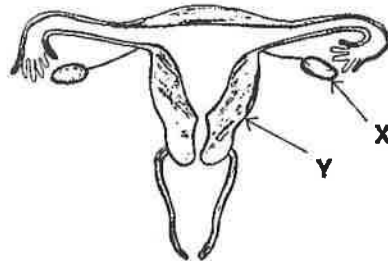


SECTION D BIOLOGY (72 marks)

Answer any two questions.

8. (a) The drawing shows the human female reproductive system.

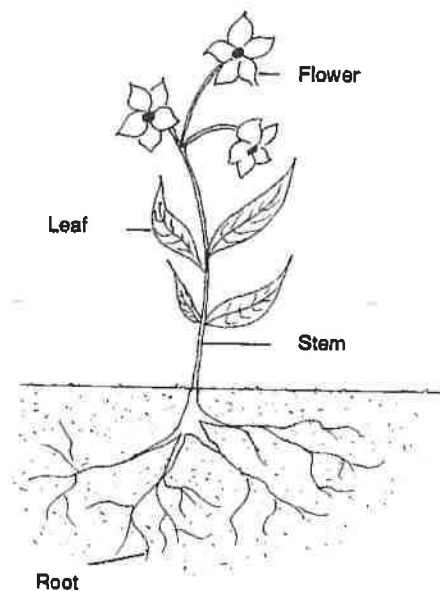
- (i) Name the parts marked X and Y. (6)
- (ii) Where is the egg cell made? (3)
- (iii) What is meant by FERTILISATION? (6)
- (iv) Where does fertilisation take place? (3)



- (b) (i) Name a MINERAL used in the human body. (3)
- (ii) What use does the mineral you have named have in the body? (3)
- (iii) What is a BALANCED diet? (6)
- (iv) Describe how you could test food such as bread, for starch. (6)

9. (a) The drawing shows a flowering plant.

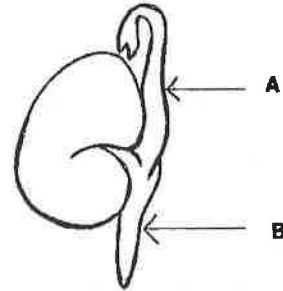
- (i) What part of the plant takes in water? (3)
- (ii) What happens when a pollen grain and an egg cell are joined together (fused)? (3)
- (iii) Where are the seeds formed? (3)



- (b) (I) What is PHOTOSYNTHESIS? (6)
- (II) Describe a simple experiment to show that plants give off oxygen during photosynthesis. Use a diagram. (12)

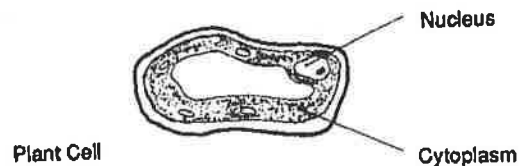
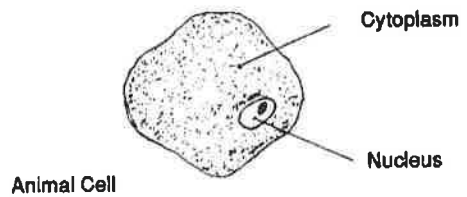
(c) The drawing shows a seed which has germinated.

- (I) Name the part marked A. (3)
- (II) Name the part marked B. (3)
- (III) Name ONE thing that a seed needs for germination. (3)



10. (a) The drawing shows an animal and a plant cell.

- (I) Give TWO differences between the animal and the plant cell. (6)
- (II) What is the function of the NUCLEUS in a cell? (6)



- (b) (I) What is POLLUTION? (6)
- (II) Name one cause of POLLUTION. (3)
- (III) Give ONE example of how this pollution could be reduced or prevented. (6)

- (c) (I) How is soil formed? (6)
- (II) Give ONE reason why earthworms are useful in the soil. (3)

SECTION E APPLIED SCIENCE (72 marks)

Answer any two questions.

11. EARTH SCIENCE

- (a) (I) Name one of the two gases that make up the Sun. (3)
- (II) Name two types of energy that the sun provides for Earth. (6)
- (III) How does the Sun make its energy? (6)
- (b) (I) Name TWO types of cloud. (6)
- (II) Describe the appearance of one of these cloud types which you have named. (3)
- (c) Describe an experiment to measure RELATIVE HUMIDITY. Use a diagram. (12)

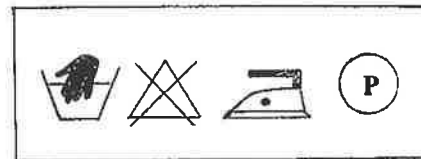
12. HORTICULTURE

- (a) (I) Name ONE plant which is commonly used to provide CUT FLOWERS. (3)
- (II) Give two ways of making sure that the CUT FLOWERS stay fresh. (6)
- (b) Draw a labelled diagram to show the life cycle on an aphid or cabbage white butterfly. (9)
- (c) (I) The water supply for plants can be controlled by IRRIGATION and DRAINAGE. Explain both terms. (6)
- (II) Water is needed for the healthy growth of plants. Name TWO other needs. (6)
- (d) Explain how you would encourage a plant to make bushy growth. (6)

13. MATERIAL SCIENCE

- (a) (I) What type of material is SILK? (3)
(II) What is meant by a SYNTHETIC MATERIAL? (3)
(III) What is the origin of oil which is found in rocks? (3)

- (b) The drawing shows a label from a dress.
Give THREE pieces of Information, from the label, about care of the dress. (9)



- (c) Answer one of the following questions: A, B, C or D.

A: PLASTICS

- (I) Plastics are made from POLYMERS.
What is a POLYMER? (6)
(II) Describe a simple experiment to decide which of two plastics is the better INSULATOR.
Use a diagram. (12)

OR

B: TEXTILES

- (I) Name a textile that can be made from a plant. (3)
(II) Name a textile that can be made from an animal. (3)
(III) Describe a simple experiment to compare the resistance to wear of two textiles. Use a diagram. (12)

OR

C: METALS

- (I) Name a place in Ireland where mining takes place. (3)
(II) Name a mineral mined in the place you have name in (i). (3)
(III) Describe an experiment to compare two metals as CONDUCTORS of heat. Use a diagram. (12)

OR

D: TIMBER

- (I) Name a tree from which you can get HARDWOOD. (3)
(II) Name a tree from which you can get SOFTWOOD. (3)
(III) Describe an experiment to measure the amount of MOISTURE in a large piece of wood.
Use a diagram. (12)

14. FOOD

- (a) (I) Name one crop which is used in BREWING? (3)
- (II) Name one product from brewing. (3)
- (III) What gas is released when yeast is added to a sugar solution? (3)

- (b) (I) Give TWO reasons why FOOD ADDITIVES are used? (6)
- (II) Give ONE disadvantage of FOOD ACTIVITIES. (3)
- (III) From the following list choose ONE sweetener and ONE colour additive: (6)

E150, E220, E300, E420.

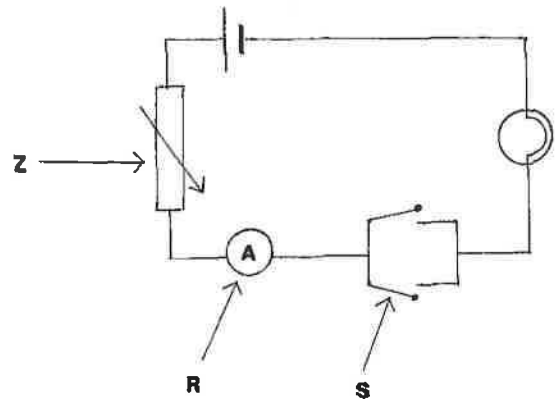
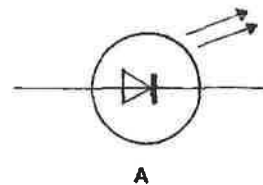
- (c) Describe an experiment to make YOGURT. (12)

15. ELECTRONICS

- (a) (I) Name device A. (3)
- (II) Give ONE example of where A is used. (6)

- (b) Study the circuit diagram shown.
 - (i) What is S? (6)
 - (ii) Give an everyday example of the use of S. (3)
 - (iii) What is meter R called? (3)
 - (iv) What is Z? (3)

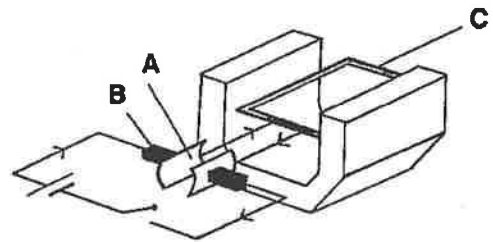
- (c) (I) Draw a circuit diagram with two diodes in parallel. Your circuit should have a battery (power supply) and switch. (9)
- (II) What is the usual voltage of a car battery? (3)



16. ENERGY CONVERSIONS

- (a) (I) What energy conversion happens at a waterfall? (3)
- (II) Name an energy conversion that occurs in a car using PETROL. (3)
- (III) What is NUCLEAR ENERGY? (6)

- (b) (I) Name the device or apparatus shown in the drawing. (3)
- (II) Name the parts A and B. (6)
- (III) What happens to C when the current is switched on? (3)
- (IV) Name a piece of equipment, in your home, which uses this type of device. (3)



- (c) Describe an experiment to show the release of energy from a fuel. Use a diagram. (9)