

IF LOCAL STUDIES OPTION
IS BEING TAKEN,
PLEASE PUT A TICK IN BOX

EXAMINATION NUMBER

S36A

AN ROINN OIDEACHAIS
JUNIOR CERTIFICATE EXAMINATION, 1992

SCIENCE - ORDINARY LEVEL

35261

TUESDAY, JUNE 16

TIME: CANDIDATES TAKING LOCAL STUDIES: 2.00 - 4.00 pm.
OTHER CANDIDATES: 2.00 - 4.30 pm.

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 questions from this section.
Return this Section of the examination paper in your answer book.

1. Give one use for each of the following pieces of apparatus:

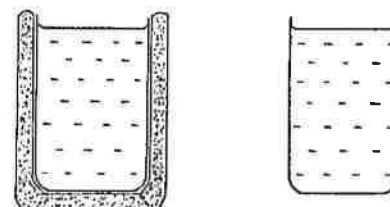
- (I) Graduated cylinder _____

- (II) Balance _____

- (III) Retort stand _____

2. Two metal cans of equal size were filled with water at 100 °C. Can A was wrapped with cotton wool and can B was not. After ten minutes which can had the lower temperature?

Why did the temperature fall more quickly in this can?



A

B

3. (a) What is energy? _____

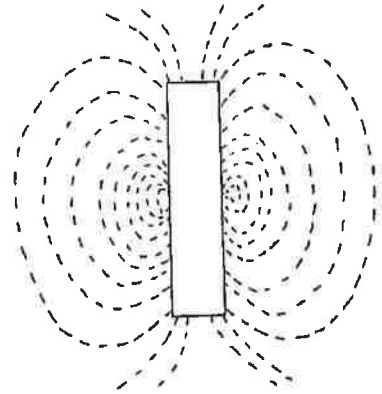
- (b) Name two types of energy. _____

OVER →

4. (I) Name a metal that is attracted by a magnet.

(II) What is the name given to the area around the magnet shown in the diagram? _____

(III) Give one use of a magnet. _____



5. Nuclear power stations are used to generate electricity.

A metal used as fuel in such a station is _____

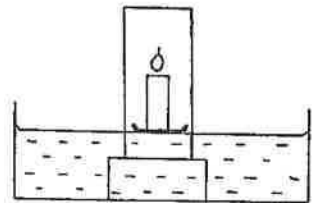
One *advantage* of using nuclear energy is _____

One *disadvantage* of using nuclear energy is _____

6. The candle in the diagram burned for a short time and then went out.

(I) Why did the candle go out? _____

(II) What happened to the water in the basin? _____



7. (a) Fill in the table using words from the list below:

SOLID LIQUID GAS

| NAME | STATE at NORMAL TEMPERATURE |
|-----------|-----------------------------|
| Oxygen | |
| Magnesium | |
| Water | |

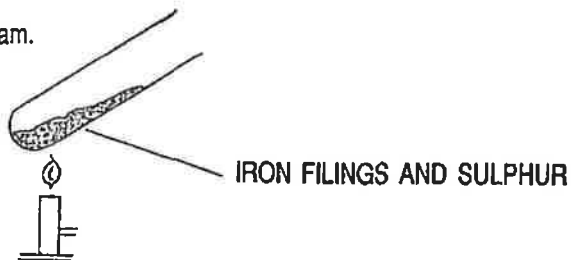
(b) Fill in the table using words from the list below:

ELEMENT COMPOUND MIXTURE

| NAME | DESCRIPTION |
|----------------|-------------|
| Carbon dioxide | |
| Iron | |
| Sea water | |

8. A mixture of iron filings and sulphur were heated as shown in diagram. What is the name and formula of the compound formed?

What type of change has taken place?



9. Litmus is used to test for acids and bases.

(i) What colour is litmus when it is in acid solution?

(ii) What colour is litmus when it is in basic solution?

(iii) Name an everyday acid.

10. A fuel is a substance that produces heat when it burns.

(i) Name *two* fuels?

(ii) What gas is needed for burning to take place?

(iii) Name a gas that is used in fire extinguishers.

11. (a) Give *two* examples of how plants are important to man.

(i) _____

(ii) _____

(b) Give *two* examples of how animals are important to man.

(i) _____

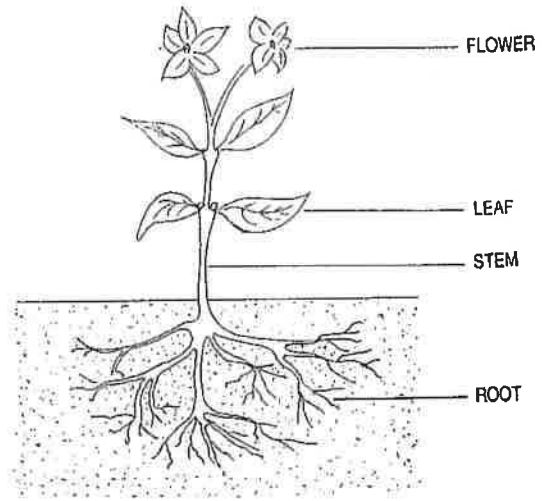
(ii) _____

12. The diagram shows a plant.

(I) Give one function of the roots.

(II) Give one function of the leaves.

(III) Give one function of the flower.



13. Fill in the spaces below using words from this list:

FERTILISATION OVARY MENSTRUAL TESTICLE.

An egg cell is produced every month in a woman's body.
This occurs during the _____ cycle.

The egg cell is made in the _____.

The sperm cell is made in the _____.

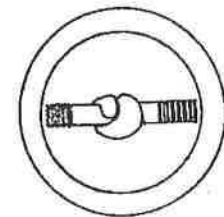
When an egg cell and a sperm cell join together _____ takes place.

14. Smoking is a harmful habit.
Give *one* example of how smoking can affect your health.

Many people in Ireland die from heart disease.
Name *two* things a person may do to help to prevent getting heart disease.

(I) _____

(II) _____



15. The *caterpillar*, the *thrush* and the *ash* tree are all found in a woodland.

(I) Which of these three is a *producer*? _____

(II) Which of these three is a *herbivore*? _____

(III) Arrange the three as a food chain.

(12 x 12)

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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.

If Local Studies option is taken, choose any **two** sections from B, C, D, E.
If Local Studies is not taken, choose any **three** sections from B, C, D, E.
Answer **two** questions from each section. All questions carry equal marks.

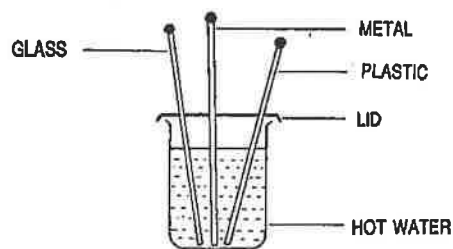
SECTION B PHYSICS (72 marks)

Answer any **two** questions



16. (a) The diagram shows a laboratory thermometer.
- (I) Name *two* liquids which could be used in the bulb of the thermometer. (6)
 - (II) Name the type of thermometer used to measure *human body temperature*. (6)
- (b)
- (i) At what temperature does ice melt? (3)
 - (ii) At what temperature does water boil? (3)
 - (iii) What is the normal temperature of the human body? (6)

- (c) In the diagram, there are three rods, one plastic, one glass and one metal. There is wax at the top of each rod.
- (I) How does the heat travel along the rods? (6)
 - (II) On which rod will the wax first melt? (6)



OVER →

17. (a) (I) What is an *electric current*? (6)

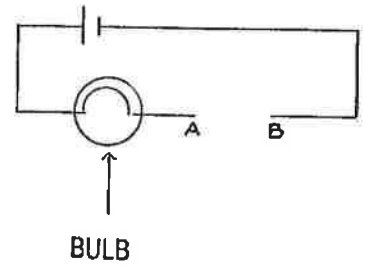
(II) What units are used to measure electric current? (3)

(b) The diagram shows a simple circuit with a battery and a bulb.

(I) What result would you get when A is joined to B by:

(a) wood, (b) metal, (c) rubber? (9)

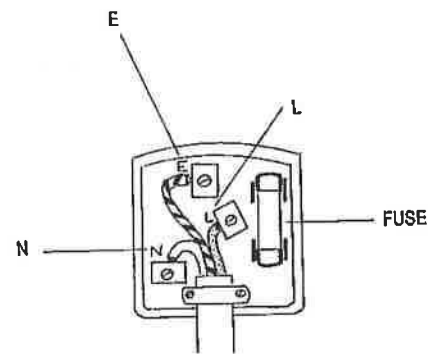
(II) Which of the materials (wood/metal/rubber) is the best conductor of electricity? (3)



(c) The diagram shows the inside of an electric plug.

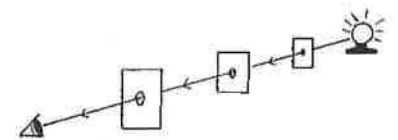
(I) Name the wires E, N, and L. (9)

(II) Why is there a fuse in the plug? (6)

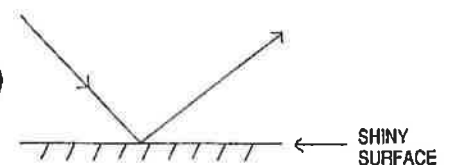


18. (a) Describe an experiment to show that light is a form of energy. (12)

(b) (I) The diagram shows a ray of light passing through holes in three sheets of cardboard. What does this experiment show about light? (6)

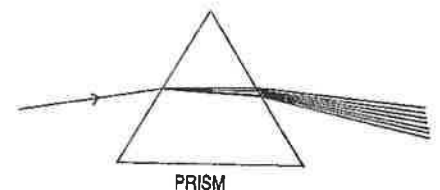


(II) The diagram shows a ray of light hitting a shiny surface and bouncing back. What word describes the ray of light bouncing back from the surface? (6)



(c) (I) Name the *primary colours* of light. (6)

(II) The diagram shows a beam of white light passing through a prism and breaking up into a band of colours. What is the name for this band of colours? (6)



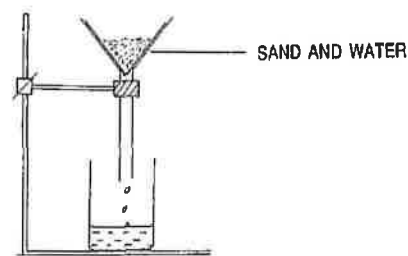
SECTION C CHEMISTRY (72 marks)

Answer any **two** questions.

19. (a) Very often mixtures need to be separated.

(i) What method of separation is shown in the diagram? (3)

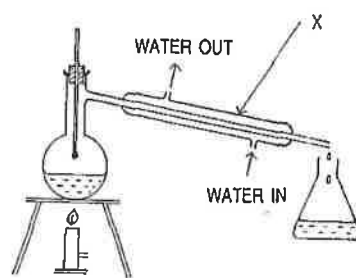
(ii) Why does the sand not pass into the beaker? (6)



(b) (i) Name the piece of apparatus marked X. (6)

(ii) What method of separation is shown in the diagram? (3)

(iii) Why can this method of separation be used to separate alcohol and water? (6)

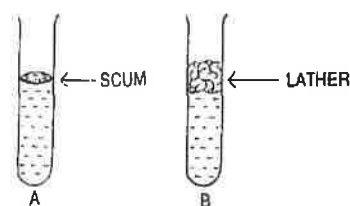


(c) Give an everyday example of where *each* of the types of separation, shown in the diagrams above, may be used. (12)

20. (a) A few soap flakes were added to two test tubes of water. On shaking, a scum was found in A and a lather in B.

(i) Which test tube contained hard water? (3)

(ii) How can temporary hardness be removed? (3)



(b) The treatment of drinking water involves SETTLING, FILTRATION, CHLORINATION and FLUORIDATION.

(i) What is meant by *settling* (sedimentation)? (6)

(ii) Why is the water *filtered*? (6)

(iii) Why is *chlorine* added to the water? (6)

(iv) Why is *fluorine* added to the water? (6)

(c) Name one substance which causes acid rain. (6)

OVER →

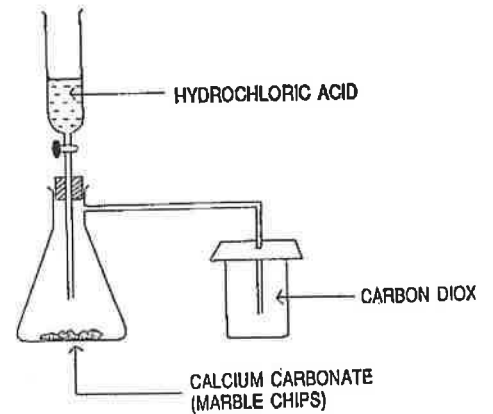
21. (a) Air is a mixture of gases.

- (i) How much nitrogen is found in air? (3)
- (ii) In the diagram a glowing splint is put into a test tube of gas. The splint relights. What gas is in the test tube? (6)



(b) Describe an experiment to show that there is water vapour present in air. (12)

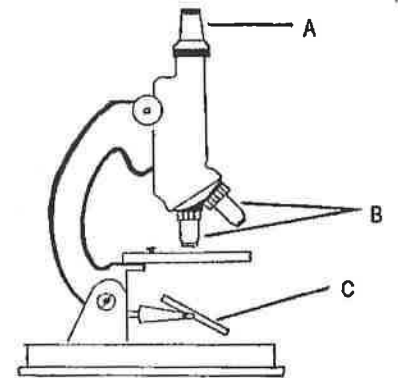
- (c) (i) The apparatus shown can be used to make carbon dioxide. Write an equation, in words, for the reaction producing carbon dioxide. (9)
- (ii) How would you test the gas for carbon dioxide? (6)



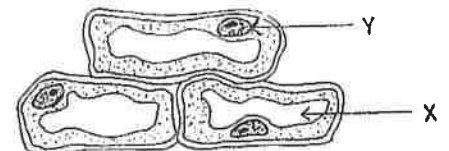
SECTION D BIOLOGY (72 marks)

Answer any two questions.

22. (a) (i) The diagram shows a microscope. Name the parts marked A, B, and C. (9)



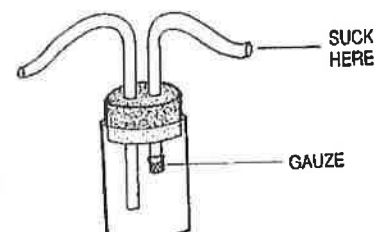
- (ii) The diagram shows plant cells under a microscope. Name the parts X and Y. (6)



- (b) (i) Name a habitat you have studied. Name an animal you found in the habitat and explain how the animal is adapted. (6)

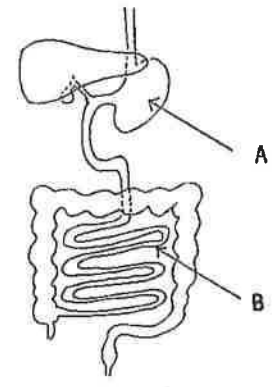
- (ii) Give an example of competition between plants in the habitat you have studied. (3)

- (c) (i) In the study of a habitat, for what purpose would you use the pooter shown in the diagram? (6)

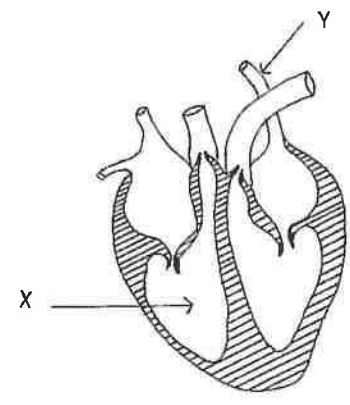


- (ii) Choose *three* living things from a habitat *you* studied and show how they form a food chain. (6)

23. (a) (i) What is *plaque*? (6)
 (ii) Give *two* ways to prevent tooth decay. (6)
 (iii) Name the parts of the digestive system marked **A** and **B** in the diagram. (6)



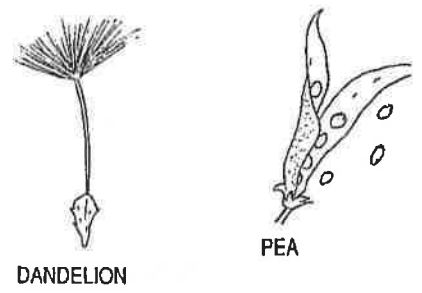
- (b) (i) What is the function of the heart? (3)
 (ii) Name the parts of the heart marked **X** and **Y** in the diagram. (6)



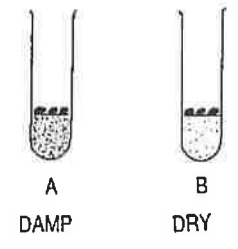
- (c) Describe how you would measure your pulse rate. (9)

24. (a) Photosynthesis is the making of food by plants.
 (i) Write an equation in words to describe how plants make food. (6)
 (ii) Describe an experiment to test a leaf for starch. (12)

- (b) How are the seeds of the plants shown in the diagram scattered? (6)



- (c) The experiment shown in the diagram was set up. Test tube **A** has damp cotton wool and seeds. Test tube **B** has dry cotton wool and seeds. Only the seeds in test tube **A** germinate.



- (i) Why do the seeds in **A** germinate and not in **B**? (6)
 (ii) What gas do seeds need when germinating? (6)

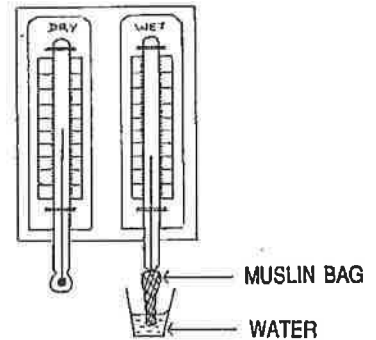
SECTION E APPLIED SCIENCE (72 marks)

Answer any **two** questions

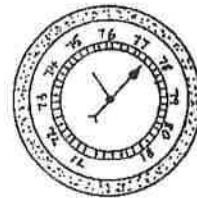
25. EARTH SCIENCE

- (a) (I) What is the *solar system*? (6)
(II) Explain why we have seasons on earth? (6)
(III) How long does it take the earth to orbit the sun? (3)
(IV) How long does it take the moon to orbit the earth? (3)

- (b) (I) What is meant by the *humidity of air*? (6)
(II) The apparatus shown in the diagram can be used to measure (relative) humidity. What is the name of the apparatus? (3)



- (III) The diagram shows a barometer. What does a barometer measure? What units are used? (6)



- (IV) If the barometer was brought to the top of a mountain how would the reading change? (3)

26. HORTICULTURE

- (a) Pick out *one* annual and *one* perennial plant from the following list:
CROCUS FORGET-ME-NOT OAK HONEYSUCKLE (6)
- (b) (I) Give the names of *two* bedding plants. (3)
(II) Name *two* things you would need to know about bedding plants? (6)
(III) Name *one* plant you have grown from a hardwood cutting and *one* from a softwood cutting. (6)
- (c) (I) Name *two* substances that the soil supplies to plants. (6)
(II) Potting compost, bought in garden shops, may contain soil, sand and peat. Why is there sand in the compost? (3)
(III) What is *hydroponics*? (6)

27. MATERIAL SCIENCE

(a) Use words from the list below to answer this question.

METAL PLASTIC TEXTILE TIMBER

(I) What type of material is chipboard?

(II) What type of material is polystyrene?

(III) What type of material is cotton?

(IV) What type of material is copper? (4 x 3)

(b) (I) Name a natural material from the list below. (3)

POLYTHENE WOOL NYLON

(II) Choose a synthetic (manmade) material from the list below. (3)

SILK LEATHER POLYESTER

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

A: PLASTICS

(I) From what are most plastics made? (6)

(II) Describe a simple experiment to compare the transparency of two plastics. (12)

OR

B: TEXTILES

(I) Give two everyday uses of textiles. (6)

(II) Describe a simple experiment to compare the absorbency of two textiles. (12)

OR

C: METALS

(I) What is an *ore*? (6)

(II) Describe a laboratory experiment to extract a metal from a chemical compound. (12)

OR

D: TIMBER

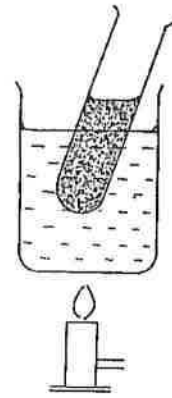
(I) Name a tree from which we get *hardwood*. (3)

(II) Name a tree from which we get *softwood*. (3)

(III) Describe an experiment to compare the hardness of *two* woods. (12)

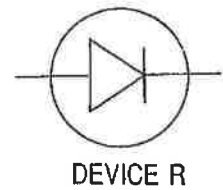
28. FOOD

- (a) Milk and Benedict's (Fehling's) solution are heated in a test tube, as shown in the diagram. The liquid turns to a red-orange colour.
- (I) What does the red-orange colour tell you about the food type in milk? (3)
 - (II) What food type is used by the body for growth and repair? (3)
 - (III) Name two everyday foods that have a lot of fat in them? (6)
- (b) Describe a simple experiment to make cheese. (12)
- (c) Yeast is very important in the food industry. Give two examples of the uses of yeast. (12)

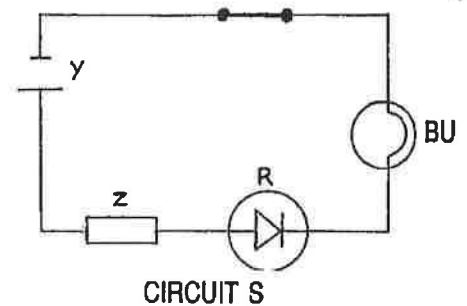


29. ELECTRONICS

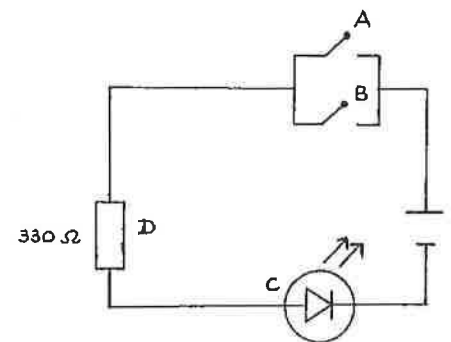
- (a) What is the device **R** called? (3)



- (b) The circuit **S** contains device **R**.
- (I) Name the two parts marked **Y** and **Z** in the circuit. (6)
 - (II) Does the bulb light up? Give a reason for your answer. (6)



- (c)
- (I) Name the device **C** in the circuit **T**. (3)
 - (II) Will the device **C** work if switch **A** is closed and switch **B** is open? (3)
 - (III) Will it work if **B** is closed and **A** is open? (3)
 - (IV) What will happen at **C** when a current flows? (3)
 - (V) What is device **D**? Why is it in the circuit? (9)



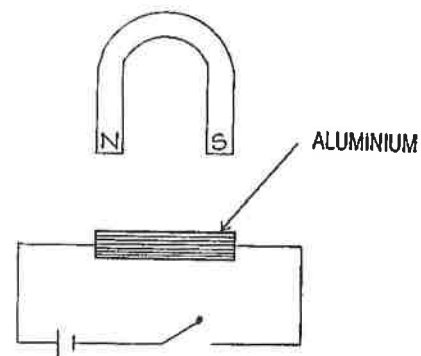
30. ENERGY CONVERSIONS

(a) What type of energy conversions happen when:

- (I) You rub your hands together? (3)
 (II) You dive into a swimming pool? (3)
 (III) A match burns? (3)

(b) A magnet and an electrical circuit are drawn in the diagrams.

- (I) What type of magnet is shown? (3)
 (II) What happens if the strip of aluminium is placed between N and S and the switch is closed? (6)
 (III) What happens if the current is made to flow in the opposite direction? (6)
 (IV) Name a piece of equipment that makes use of this effect? (6)



(c) How is sunlight converted into chemical energy? (6)