

SCIENCE – SYLLABUS A

A

WEDNESDAY, 16 JUNE – MORNING, 9.30 to 12

Examination Number

SECTION A (See separate sheet for Sections B, C, D.)

Thirty items to be answered. All items carry the same marks.

Write your answers in the spaces provided.

Section A carries half the total marks for the paper.

Be sure to return this Section of the examination paper: enclose it in the answer-book you use in answering Sections B, C, D.

1. What is meant by the volume of an object?

The amount of space
taken up by an object.

2. A car travelling due east changed its velocity uniformly from 8 metres per second to 28 metres per second in 5 seconds. What is the acceleration of the car?

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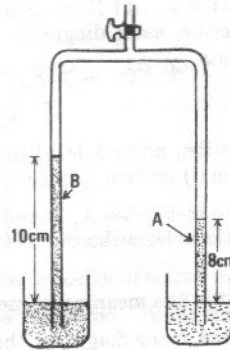
3. Explain the term elastic limit.

 4. Define centre of gravity.

 5. What is static electricity?

 Give an everyday example of the occurrence of static electricity.

6. The diagram shows Hare's apparatus for comparing the relative densities of two liquids. If the column of water A is 8 cm high and the column of liquid B is 10 cm high, calculate the relative density of B.



7. Give an example to show that light travels faster than sound.

 8. What is meant by diffusion of gases?

 9. Explain the term energy.

 Name any *one* form of energy.

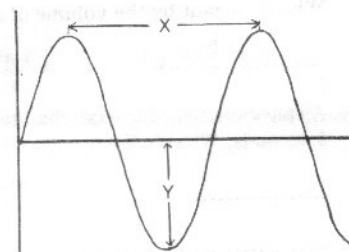
 10. (a) What are complementary colours? (b) Name any *two* complementary colours?
 (a)

 (b)

11. Calculate the cost of using a 2 kW electric fire for four hours a day for five days at 4p per kilowatt-hour.

12. The diagram represents a wave. What does (i) X represent, (ii) Y represent?

X
 Y



13. Salt is poured into warm water and stirred until the solution becomes saturated. What is meant by the underlined word?

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14. What does Brownian movement demonstrate?

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15. What is meant by a linear molecule?

.....

Give an example of a linear molecule

16. Define a Bronsted-Lowry acid.

.....

17. What are isotopes?

.....

18. Arrange the following elements in decreasing order of activity:
 calcium potassium copper zinc

(i) (ii)

(iii) (iv)

19. What is meant by heat of solution?

.....

20. Name *two* gases which are lighter than air.

(i) (ii)

21. Complete the following:



22. (a) Name a gas which is readily soluble in water giving an alkaline solution.

(b) How would you test to make sure that the solution was alkaline?

.....

23. Name *two* elements that exist in allotropic form.

(i) (ii)

24. If you were given two test tubes (i) tube **A** containing carbon dioxide and (ii) tube **B** containing hydrogen, how would you test that tube **A** did contain carbon dioxide and tube **B** did contain hydrogen?

A

B

25. What is meant by the term tissue?

26. A deficiency of vitamin B in humans causes
scurvy rickets beri-beri nightblindness
Underline the correct answer.

27. Saliva contains ptyalin (amylase) which is an that breaks down starch to

28. A tall plant, genotype **TT**, is crossed with a dwarf plant, genotype **tt**. What will the genotype of the offspring?
.....

29. Complete the following sentence.
Transpiration is the loss of through the in the leaves.

30. The diagram shows some of the main structures of the human ear.

Name the structure A.

A

Give the function of structure B

B

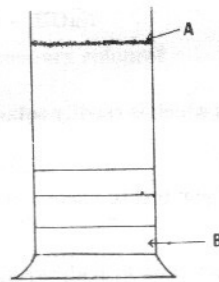
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31. Some soil from the garden was put into a cylinder of water and was shaken up and then allowed to settle. It settled out in different layers as shown in the diagram. Label the layers A and B.

A

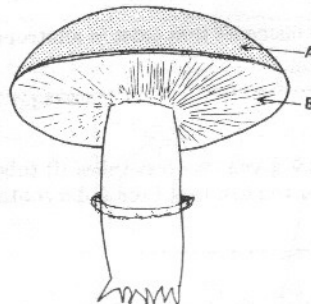
B



32. Label the parts A and B

A

B



33. Explain the terms

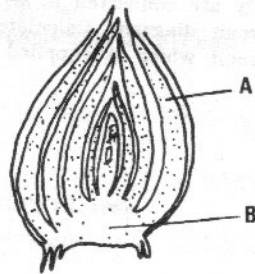
- (i) herbivore
-
- (ii) carnivore
-

34. Give (i) one transport function, (ii) one body defence function of the lymphatic system.

- (i)
-
- (ii)
-

35. Label the parts A and B in the section of the bulb shown.

- A
- B



36. A green plant is illuminated on one side. What effect would this have on the growth of the shoot?

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INTERMEDIATE CERTIFICATE EXAMINATION, 1982

SCIENCE—SYLLABUS A

A

WEDNESDAY, 16 JUNE—MORNING, 9.30 to 12.00

Answer Section A and one question from each of the Sections B, C, D.

SECTION A

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

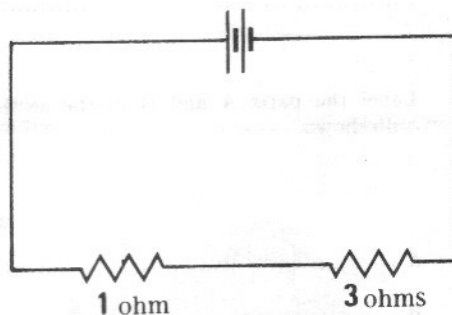
SECTION B, C, D

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

Answer one question from each Section. All questions carry the same marks.

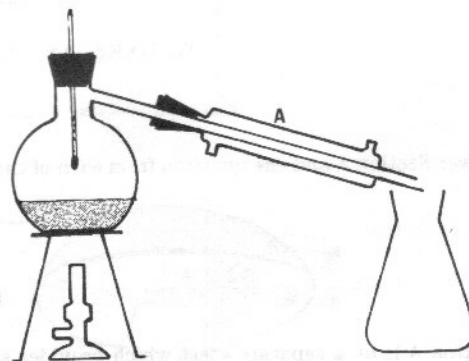
SECTION B

- 1) Describe an experiment to show that the atmosphere exerts a pressure.
 Show, with the aid of a diagram, how you would construct a mercury barometer and state how you would use it to measure the pressure of the atmosphere.
 If a gas has a volume of 50 cm^3 at a pressure of 700 mm mercury, what volume will it occupy at 350 mm mercury if the temperature remains constant?
2. (a) Name *three* methods by which heat is transferred from one place to another and give an everyday example of each.
- (b) Define specific heat capacity.
 Describe an experiment to measure the specific heat capacity of a metal.
- (c) The temperature of a substance is normally found by using a mercury thermometer.
 Suggest *three* reasons why mercury is a good liquid to use in a thermometer.
3. (a) Outline a method by which a steel bar may be magnetised.
 Describe, using a diagram, how you would show the magnetic field around a bar magnet.
- (b) What is the relationship between electric current, potential difference and resistance?
 Two resistances of 1 ohm and 3 ohms respectively are connected in series as shown in the circuit diagram. Calculate the current in the circuit which is supplied by a 2 volt battery.



SECTION C

4. Describe an experiment to show that about 20% of the air is made up of oxygen.
 Name any *two* other gases found in air.
 What is an oxide?
 Give an example of (i) an acidic oxide, (ii) a basic oxide, (iii) an amphoteric oxide.
 State where oxidation and reduction take place in the electrolysis of acidulated water using a platinum anode and a platinum cathode. Explain your answer in terms of electron transfer.
5. (i) Draw a labelled diagram to show how you would prepare and collect dry chlorine.
- (ii) Chlorine, bromine and iodine all form part of the same family of elements. Name that family.
 Indicate how *one* of these elements will react with (a) a metal, (b) a non-metal. Describe in each case how the bond is formed and name the type of bond.



6. (a) Name the part of the apparatus labelled **A** and state its function.
 Describe an experiment in which the apparatus shown is normally used in the laboratory.

- (b) What is meant by the terms (i) ion, (ii) hard water.
 Outline how hardness in water can be removed by ion-exchange.
 Give *one* advantage and *one* disadvantage of hard water.

SECTION D

- 7 (a) Draw a diagram of the reproductive system of the female mammal. Label the positions of the ovaries, the fallopian tubes and the uterus. Indicate clearly on the diagram where the following occur (i) ovulation (ii) fertilization and (iii) insemination.
- (b) List *three* conditions necessary for germination. Describe an experiment to demonstrate that any *one* of these conditions is necessary.
- 8 (a) Describe, with the aid of a labelled diagram, an experiment to show that an animal respire.
Give an equation for respiration.
Mention *two* ways in which energy is used in the body.
- (b) Name *two* functions of the skeleton in animals.
The movement of joints is brought about by the antagonistic movement of muscles. Explain what this means, giving an example.
9. (i) Green plants are producers of food. What does this mean?
- (ii) Describe a test you could carry out to show that a green leaf had produced food, i.e. starch.
- (iii) Name the ecosystem you have studied and give an example of a food web from this ecosystem.
Give an example of a pyramid of numbers from the ecosystem.
Suggest an explanation for the different numbers of organisms in the pyramid.
- (iv) Some fungi are saprophytes. What does this mean?
State why saprophytes are of benefit in the ecosystem.