

## INTERMEDIATE CERTIFICATE EXAMINATION, 1964.

## SCIENCE (Syllabus E).

Wednesday 10th June - Evening 3 to 5.30.

(Not more than six questions to be attempted. Illustrate your answers wherever possible.)

1. Explain what you understand by (i) a lever, (ii) a fulcrum, (iii) a force, (iv) a moment.  
State the law of the lever and describe an experiment in support of your answer.  
A metre-stick is in equilibrium when suspended from its 50 cm. mark. A 100 gm. weight, suspended from the 20 cm. mark, is balanced by two 50 gm. weights placed 10 cm. apart. Find the position of each of the 50 gm. weights.  
(66 marks.)
2. Describe, with the aid of a diagram, how a mercury barometer may be constructed. Show how you would use it to measure the pressure of the atmosphere. Give a brief description of an aneroid barometer and explain how it works.  
(66 marks.)
3. Define density.  
Describe how the density of a given liquid may be measured (i) using a density bottle, (ii) using a hydrometer, (iii) by comparison with a liquid of known density.  
(66 marks.)
4. Give a full account, with the aid of diagrams, of how the following occur:-  
(i) day and night, (ii) the seasons, (iii) an eclipse of the sun.  
(66 marks.)
5. Describe experiments, one in each case, to illustrate the physical effect of heat on  
(i) a solid, (ii) a liquid, (iii) a gas.  
Give an account of an alcohol thermometer and refer to its advantages and disadvantages.  
(66 marks.)
6. Write a note on the transmission of light. State what you understand by  
(i) reflection of light, (ii) refraction of light, and give an example in each case.  
Give an account of how the illuminating power of two lamps may be compared.  
(66 marks.)
7. Outline two different methods by which a musical sound may be produced. Describe how sound is propagated and refer in your answer to three different media. Give an account of a laboratory experiment to show that sound may be reflected.  
(67 marks.)
8. Write a short account of magnets and their properties.  
Give an account of a ship's compass.  
Show, with the aid of diagrams, how (i) a magnet may be used in producing an electric current, (ii) an electric current may be used to make a magnet.  
(67 marks.)
9. Describe, with the aid of a diagram, a simple cell which produces electricity and explain how it works.  
Give an account of an experiment in which electricity is produced by friction. Describe briefly how lightning occurs.  
(67 marks.)
10. What do you understand by (i) direct current, (ii) alternating current?  
Describe, with the aid of a diagram, (i) a dynamo which produces alternating current, (ii) a transformer.  
(67 marks.)