

## INTERMEDIATE CERTIFICATE EXAMINATION, 1965

## SCIENCE (Syllabus D)

Thursday, 24th June, - Afternoon, 3 to 5.30

(Not more than six questions to be attempted, of which three must be taken from Section I, and three from Section II. Illustrate your answers wherever possible.)

## SECTION I

1. What is meant by (i) a lever, (ii) a fulcrum ?  
State the law of the lever.  
Using a lever and a known weight, describe how you would find the weight of a given object.  
Describe, with the aid of a labelled diagram, one example of lever-action in the movements of the human body. (66 marks)
  2. State the law of flotation and give an account of an experiment in support of it.  
Describe a direct-reading hydrometer and explain how it is used to measure the density of a given liquid.  
A loaded test-tube floats vertically in water with 14.4 cm. of its length beneath the surface. What length of the test-tube will be beneath the surface when it floats in a liquid of density 0.8 gm. per c.c. ? (66 marks)
  3. (a) Describe how you would measure the boiling point of a given liquid.  
What is the effect of increased pressure on the boiling point of water ?  
What difficulty is encountered in cooking at high altitudes and how may the difficulty be overcome ?  
(b) Explain why water pipes sometimes burst in frosty weather. (66 marks)
  4. (a) Describe how you would construct a simple mercury barometer and how you would use it to measure the pressure of the atmosphere.  
(b) Draw a labelled sketch of a clinical thermometer and state how it is used to measure the temperature of the human body.  
What reading on a centigrade scale of temperature corresponds to 98°F. ? (67 marks)
  5. (a) Explain what is meant by (i) specific heat, (ii) latent heat.  
Describe a laboratory experiment to illustrate your explanation of latent heat.  
(b) State what you understand by convection and radiation of heat, and outline the part they play in heating a living room. (67 marks)
- SECTION II
6. Describe, with the aid of a diagram, how you would prepare and collect carbon dioxide, and give an account of its properties.  
Explain how carbon dioxide is produced in baking and state its function. (66 marks)
  7. (a) State briefly the conditions under which iron rusts.  
How may the rusting of iron be prevented ?  
(b) Explain the terms (i) acid, (ii) alkali, (iii) salt.  
Give an account of how you would prepare a reasonably pure sample of common salt using an acid and an alkali. (66 marks)
  8. Mention the causes of hardness in water.  
What happens when hard water is boiled ?  
Explain the action of (i) soap, (ii) lime, (iii) washing soda, on hard water. (66 marks)
  9. State the functions of the blood.  
Describe the changes the blood undergoes during circulation in the human body. How would you demonstrate in the laboratory any one of the changes mentioned in your answer ?  
Write a brief note on the importance of good circulation of the blood. (67 marks)
  10. (a) Discuss the importance of personal hygiene, with particular reference to (i) care of the skin, (ii) choice of clothing.  
(b) Describe the first-aid treatment you would give in the case of a severe scalding in the hand.  
(c) Write a brief note on the functions of the spinal cord. (67 marks)