

INTERMEDIATE CERTIFICATE EXAMINATION, 1968

SCIENCE (Syllabus D)

WEDNESDAY, 19th JUNE, - Morning, 10 to 12.30

Six questions to be attempted, of which three must be taken from Section I, and and three from Section II. Illustrate your answers wherever possible.

SECTION I

1. Describe how you would measure each of the following:- (a) the length of a curved line, (b) the area of a flat irregular piece of cardboard, (c) the volume of a large pear.
(66 marks)
2. State the principle of Archimedes and describe an experiment to illustrate the principle. A piece of metal weighs 28 gm. in air, 17.5 gm. in water and 19.6 gm. in a certain liquid. Calculate the density of the liquid.
What factors cause a solid body to sink or float in a liquid?
(66 marks)
3. Describe how you would show by experiment (a) that air has weight, (b) that air expands on heating, (c) that the atmosphere exerts pressure.
Give an account of how you would construct a mercury barometer and explain how you would use it to measure the pressure of the atmosphere.
(66 marks)
4. State what you understand by latent heat and describe an experiment in support of your answer. How would you show (a) the effect of increased pressure on the boiling-point of water, (b) the cooling effect of evaporation?
Mention any domestic application of the phenomenon in (a) or (b).
(67 marks)
5. Distinguish between conduction, convection and radiation of heat.
What is meant by ventilation?
Describe any two methods (i) of heating, (ii) of ventilating, a living room. Refer in each case to the principle involved.
(67 marks)

SECTION II

6. Explain the following terms:- (i) sublimation, (ii) condensation, (iii) evaporation, (iv) distillation, (v) crystallisation.
Given a mixture of sal-ammoniac (ammonium chloride), common salt and sand describe how a reasonably pure sample of (a) sal-ammoniac, (b) common salt, may be obtained from the mixture.
(66 marks)
7. Describe briefly how you would prepare (i) oxygen, (ii) hydrogen, (iii) carbon dioxide and give a simple test by which you would recognise each of the three gases.
List the properties of any one of the above-mentioned gases.
(66 marks)
8. State what happens when each of the following is heated and name the products formed:-
(i) washing soda,
(ii) sugar,
(iii) magnesium in an open crucible,
(iv) coal or wood in the absence of air,
(v) a moist mixture of tartaric acid and baking soda.
(66 marks)
9. Show, with the aid of a labelled diagram, the internal structure of the heart. Explain how the circulation of the blood is maintained by the heart.
What do you understand by the pulse? How would you measure its rate?
(67 marks)
10. Write brief notes on each of the following:-
(a) the structure and use of a clinical thermometer,
(b) muscular movements and the functions of muscles,
(c) the first-aid treatment of a simple fracture of the ribs or a broken collar-bone.
(67 marks)