

P640/2
FOODS
AND
NUTRITION
Paper 2
31 July 2024
2 ½ hours



ENTEBBE JOINT EXAMINATION BUREAU

Uganda Advanced Certificate of Education

FOODS AND NUTRITION
(With Science in the Home)

Paper 2

(THEORY)

2 hours 30 minutes

INSTRUCTIONS TO CANDIDATES:

*Attempt any **four** questions from this paper.*

Any extra question attempted will not be marked.

You may work out your answers using any units, but imperial units must not be mixed with metric ones.

1. (a) (i) What is **capillarity**? (02 marks)
- (ii) Explain the different applications of capillarity in the home. (05 marks)
- (b) Describe an experiment to show how temperature and moving wind can affect the rate of evaporation. (07 marks)
- (c) How can the boiling point of water be affected by the change in air pressure? (04 marks)
- (d) Explain the use and storage of the following:
- (i) Salt. (04 marks)
- (ii) Turpentine. (03 marks)
2. (a) What is meant by the term **atmospheric pressure**? (02 marks)
- (b) Illustrate the law that pressure varies with depth. (07 marks)
- (c) Describe how a centrifuge can be used to analyze blood samples. (08 marks)
- (d) Explain why a bubble of air at the bottom of the jar increases in size as it raises to the top? (03 marks)
- (e) Explain how insulation of sound is achieved in modern buildings? (05 marks)
3. (a) (i) What is meant by the term **heating effect** of an electric appliance? (02 marks)
- (ii) Describe how heating effect is applied in a local room storage heater. (08 marks)
- (b) Explain the operation and working mechanism of a clinical thermometer. (06 marks)
- (c) State the merits and demerits of using water as a thermometric liquid. (04 marks)
- (d) Suggest points to consider when buying and choosing electric kettles. (05 marks)

4. (a) Discuss how the following are used in **ventilation**?
- (i) Cooker hoods (04 marks)
 - (ii) Coopers disc. (04 marks)
- (b) Describe the working principle of a toilet flushing system. (10 marks)
- (c) Why should water be aided in laundry? (03 marks)
- (d) Explain the following as related to **water treatment** processes:
- (i) Coagulation. (02 marks)
 - (ii) Permutit water softeni (02 marks)
5. (a) Describe the working principle and mechanism of a hair dryer. (07 marks)
- (b) (i) Discuss the energy changes that lead to production of Hydro electric power. (04 marks)
- (ii) Explain the dangers of relying on liquid fuels in the home. (05 marks)
- (c) What care can you give to a kitchen wooden chopping board? (05 marks)
- (d) Describe any four applications of relative density in the home. (04 marks)
6. (a) (i) What is meant by **magnetic** force? (02 marks)
- (ii) How are magnetic forces applied in our daily life? (04 marks)
- (b) The heating element of a coffee percolator is immersed in 1.5kg of water at 20°C. The element is then connected to a 240V supply and switched on and water boiled to 100°C when a current of 10A flows in it for 5 minutes. (*Specific Heat capacity of water = 4200J/kg/k*)
- Calculate the:
- (i) resistance of the element. (03 marks)
 - (ii) power used by the percolator. (04 marks)
 - (iii) weekly cost of using the percolator if it's used twice every day assuming electrical energy is rated at 680 shillings per unit. (05 marks)
- (c) Describe the working mechanism of a twin immersion water heater. (07 marks)