

P530/2
Biology
Paper 2
July/August 2024
2½ Hours



UNNASE MOCK EXAMINATIONS 2024

UGANDA ADVANCED CERTIFICATE OF EDUCATION

BIOLOGY PAPER 2

(Theory)

2 Hours 30 Minutes

Instructions to candidates:

- ❖ *This paper consists of Sections **A** and **B***
- ❖ *Answer question one in **Section A** plus three others from **Section B***
- ❖ *Candidates are advised to read the questions carefully, organize their answers and present them precisely and logically, illustrating with well labeled diagrams wherever necessary.*

SECTION A (40 Marks)

1. An investigation was carried out on the role of pigments known as phytochromes in control of flowering. Phytochromes PR and phytochrome PFR were exposed to light of different wavelengths. Their absorbance was determined and recorded in Figure 1. The action of inhibition of flowering was determined for one of the pigments in soya beans and in cocklebur as represented in Figure 2. Use them to answer the questions that follow.

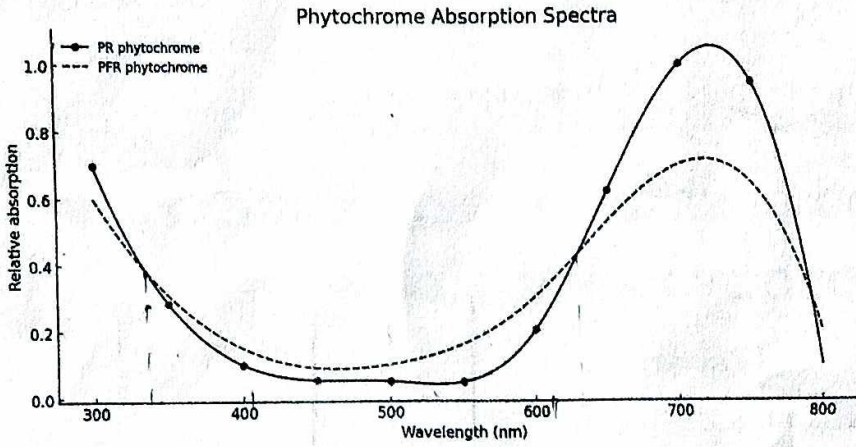


Figure 1

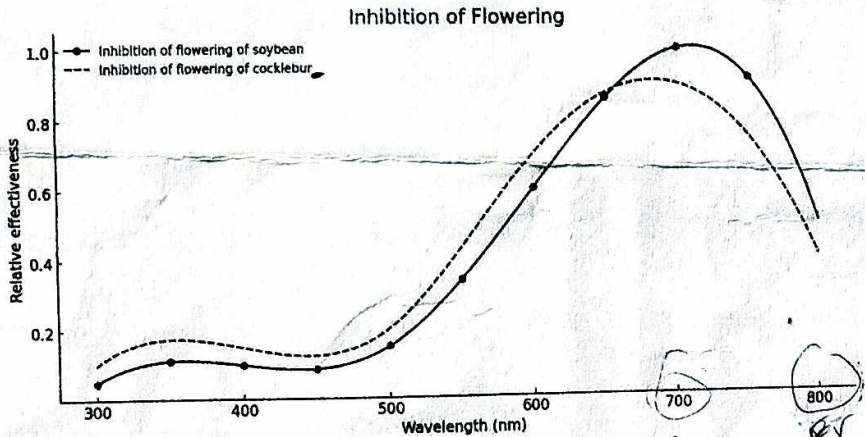


Figure 2

a) Compare:

i) absorption of light by the phytochromes. (06mks)

ii) action of the phytochrome on flowering in soyabean and cocklebur. (05mks)

b) Explain the observed absorption by the pigments of light of wavelength from 450nm to 550nm. (04mks)

c) Explain the similarities between absorption of light by phytochromes and their action on soyabean and cocklebur. (05mks)

d) From figures 1 and 2, if red light has a wave length of around 700nm and far red light of around 800nm, suggest the phytochromes responsible for inhibiting flowering. Explain your answer. (07mks)

e) Explain how the pigment named in (d) above could affect flowering in other types of plants. (08mks)

f) Give an account of phototropism in plants? (05mks)

SECTION B (60 marks)

2. a) What is meant by alkalaemia? **(02mks)**
 b) Describe the nervous control of heart rate in man. **(13mks)**
 c) Why does the teleost fish gill extract more oxygen from the flowing water than the dogfish gill? **(05mks)**

3. a) Show how the variation of glomeruli in teleost fish reflects the level of water retention in their bodies in relation to their habitat. **(10mks)**
 b) Describe the osmoregulatory survival of migratory fish. **(10mks)**

4. a) Give an account of the; *pancreatic juice - with many enzymes, substances*
 i) role of the pancreas in the digestion of ingested food in humans. **(09mks)**

- ii) control of digestive juices secretion along the alimentary canal in humans. **(08mks)**
both controlled by nervous (due to smell, sight + taste)
- hormonal control (secretin, CCK, pancreaticozymin, gastrin, histamine)

- b) Why should release of digestive secretions be controlled? **(03mks)**
- bile produced
- release bile from gallbladder
- Maltose

5. a) Describe the properties of receptors. **(08mks)**
 b) What role is played by the organ of corti in the mammalian ear. **(07mks)**
 c) An individual who has been spinning for quite long feels dizzy one suddenly stopping. Explain why this is so. **(05mks)**

6. a) Explain why the use of DDT to control pests results in pest resurgence. **(10mks)**

- b) Describe the causes of deviation from Mendel's guidelines of inheritance. **(10mks)**
misconceptions

****END****

