

NAME:

SIGNATURE:

S.6 BIOLOGY P2 ASSESSMENT TEST THREE 2023

DURATION: 150 MINUTES

TOPIC: COORDINATION IN ANIMALS & GROWTH & DEVELOPMENT

INSTRUCTIONS: *Section A is compulsory and Attempt any three questions in section B.*

SECTION A (40 MARKS)

1. Figure 1 shows relative changes in dry mass of the endosperm and embryo during germination in a well illuminated environment. Figure 2 shows changes in content of lipids and sugar in castor oil seeds during germination in the dark.

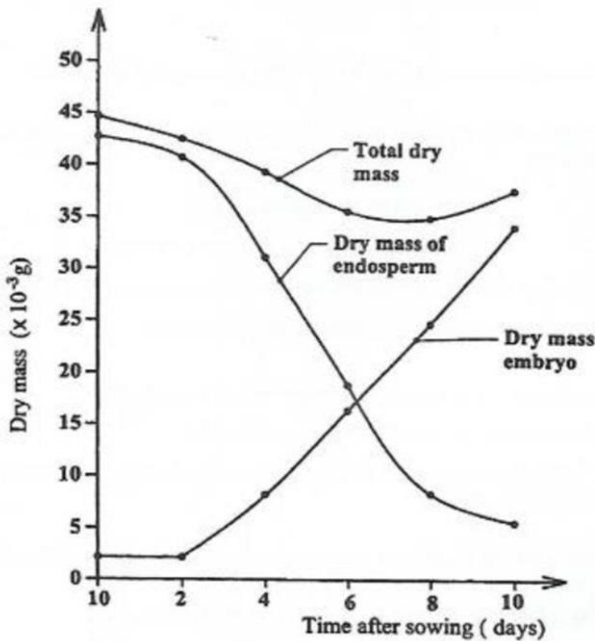
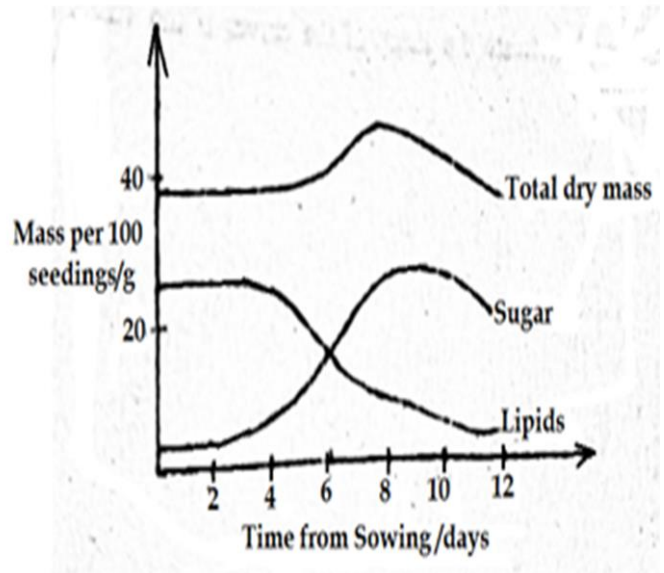


Fig. 1



- (a) Explain the changes in each of the following during germination of maize.
- Dry mass of endosperm (07 marks)
 - Dry mass of embryo (05 marks)
 - Total dry mass (05 marks)
- (b) Explain the changes in each of the following during germination of castor oil seeds.
- Lipid content (05 marks)
 - Sugar content (04 marks)
 - Total dry mass (03 marks)
- (c) When the respiratory quotient (RQ) of the castor oil seedling was measured on the fifth day, the embryo was found to have an RQ of about 1.0, while the cotyledons had an RQ of about 0.4 -0.5.
Suggest an explanation for these results. (05 marks)
- (d) Suggest differences in lipids, sugar and total dry mass of castor oil seedlings if they were introduced to a well illuminated environment on the sixth day. Explain each difference suggested. (06 marks)

SECTION B (60 MARKS)

Attempt any three questions from this section

2. (a) Giving suitable examples in each case, define the following terms.
- (i) Endocrine gland (03 marks)
 - (ii) Hormone (03 marks)
 - (b) Outline the characteristics of hormones (05 marks)
 - (c). Describe the factors that cause release of hormones in blood. (09 marks)
3. (a) Describe the structure and functioning of the autonomic nervous system. (08 marks)
- (b) Give six structural and six functional differences between the two branches of the autonomic nervous system. (12 marks)
4. (a) What is a target cell? (02 marks)
- (b) Explain the different ways by which hormones exert their effects on target cells. (18 marks)
5. (a) What is meant by the following terms;
- (i) Repolarization (04 marks)
 - (ii) Hyperpolarization (03 marks)
 - (b) Describe how
 - (i) The resting potential of a neurone is maintained (07 marks)
 - (ii) An action potential is generated in a neurone (06 marks)

End!!!

“Hard work pays!!”