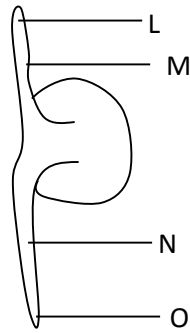


1. Figure 1 is a diagram of a seedling.



The region that elongates most rapidly during epigeal germination is indicated by letter

- A. L
 - B. M
 - C. N
 - D. O
1. Which one of the following statements describes hypogeal germination?
- A. Hypocotyl elongates, leaving cotyledons below the ground.
 - B. Epicotyl elongates, leaving cotyledons below the ground
 - C. Hypocotyl elongates, bringing cotyledons above the ground
 - D. Epicotyl elongates, bringing cotyledons above the ground.

P1/SECTION A/2011

1. Under which of the following sets of conditions indicated in table 2 will bean seeds germinate?

Table 2

	Temperature	Light	Water	Oxygen
A	20°C	Absent	Present	Present
B	20°C	Present	Absent	Present
C	0°C	Present	Present	Present
D	20°C	Present	Present	Absent

P1/SECTION A/2009

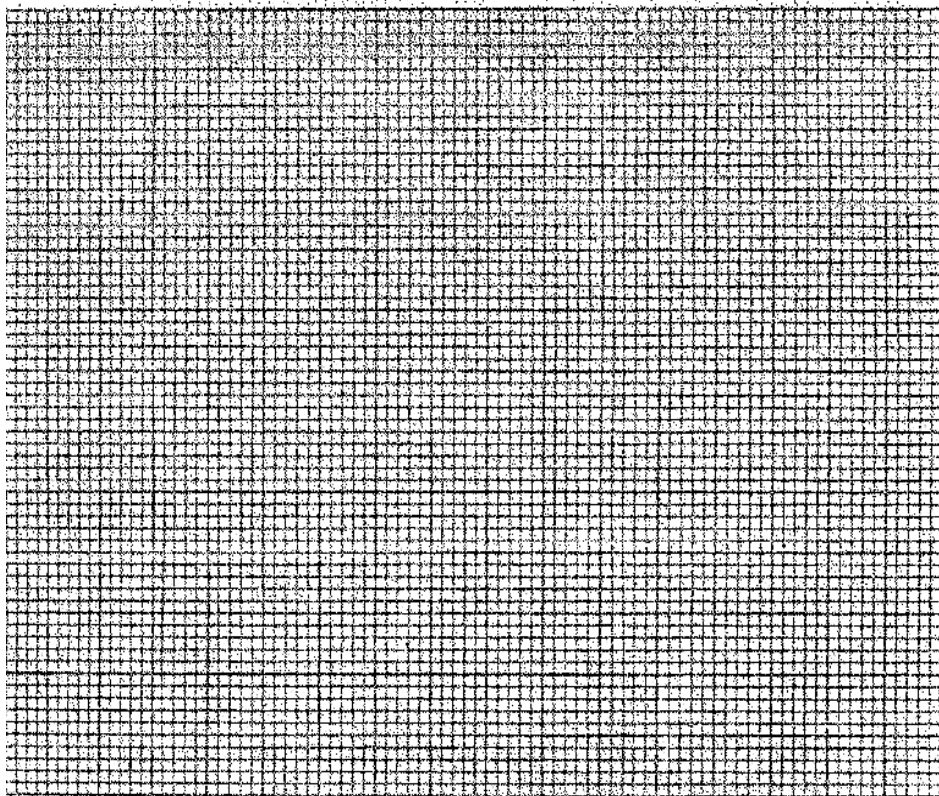
2. Table 3 shows the change in mass of starch and protein in a typical pea seed during the first 20 days of germination.

Table 3

Food Substances in the seed	Days of germination					
	0	4	8	12	16	20
Starch (mg)	60	56	32	8	5	4
Protein (mg)	28	21	11	5	3	2

- (a) Using the same axes, draw two graphs to show the change in mass of starch and protein during the first 20 days of germination of the seed in the space provided.

(08 marks)



- (b) How are the changes in mass of starch and protein

(i) Similar?

(02 marks)

.....

.....

.....

.....

(ii) Different?

(02 marks)

.....

.....

.....

.....

- (c) Explain why the mass of starch and proteins change in the germinating seed, in each case state the reactions that result into the changes. (04 marks)

.....

.....

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.....

- (d) Suggest two ways in which the products from each starch and proteins may be used in the germinating seed.

(i) Starch

(02 marks)

.....

.....

.....

.....

(ii) Proteins

.....

.....

.....

.....

(02 marks)

P1/SECTION B/2009

1. Which one of the following structures of a dicotyledonous seed is correctly matched with its function?

Structure	Function
A. Micropyle	protection
B. Radicle	develops into shoot
C. Testa	allows in air
D. Cotyledons	store food

P1/SECTION A/2007

1. Which one of the following tissues brings about an increase in width of a stem in a flowering plant?
- A. Xylem
 - B. Phloem
 - C. Cambium
 - D. Cortex

P1/SECTION A/2006

1. A cuticle may be regarded as a disadvantage to insects mainly because
- A. It does not allow rapid locomotion
 - B. It limits the size of insects
 - C. Does not prevent water loss
 - D. Does not allow gaseous exchange

P1/SECTION A/2005

2. Which one of the following is responsible for a decrease in dry weight of a seed during germination?
- A. The seed loses more water than it absorbs
 - B. Soluble food materials are converted to starch
 - C. Stored food is used up
 - D. Soluble food materials are lost into the soil

P1/SECTION A/2005

1. The following events occur during germination of a bean seed.
- (i) Development of lateral crops
 - (ii) Growth of radicle out of the testa
 - (iii) Hypocotyl pulls cotyledons out of soil
 - (iv) Growth of root hairs

Which one of the following gives the correct sequence of the events?

- A. (i), (ii), (iii) and (iv)
- B. (ii), (iii), (iv) and (iii)
- C. (ii), (iv), (i) and (iii)
- D. (ii), (i), (iii) and (iv)

2. (a) What factors are necessary for germination in seeds? (1 ½ marks)
- (b) Using labelled diagrams, describe experiments to show the necessity of each factor for germination. (13 ½ marks)

P1/SECTION C/2004

1. The following are conditions necessary for germination except
 - A. Oxygen
 - B. Moisture
 - C. Moderate temperature
 - D. Carbon dioxide

P1/SECTION A/2003

1. Using named examples, describe the methods of fruit and seed dispersal. (15 marks)

P1/SECTION C/2002

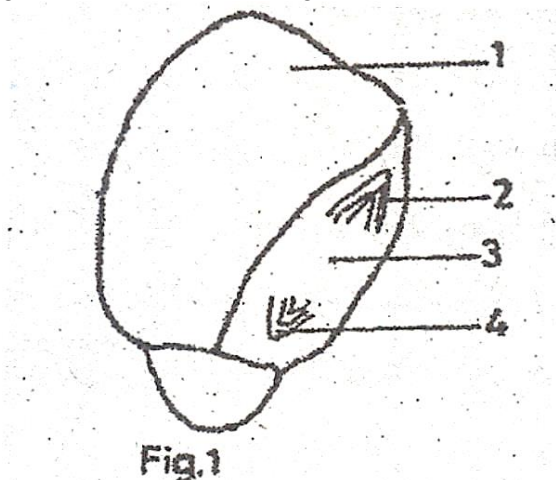
1. The rapid elongation of the hypocotyl during germination causes
 - A. Delay in emergence of photosynthesis leaves
 - B. Cotyledons to grow above the ground
 - C. Early emergence of photosynthetic leaves
 - D. Cotyledons to remain below the ground

P1/SECTION A/2001

2. (a) With the aid of well labeled diagrams explain the difference between hypogeal and epigeal germination. (7 marks)
- (b) Describe an experiment you would carry out to show that heat is liberated by germinating seeds. (8 marks)

P1/SECTION C/2001

1. Figure 1 below shows a longitudinal section through a maize grain.



Which of the parts 1 – 4 of the grain would you expect to decrease in weight during germination?

- A. 1
- B. 2
- C. 3
- D. 4

P1/SECTION A/1998

2. Which one of the organisms below has a growth curve represented by the graph in figure 2?

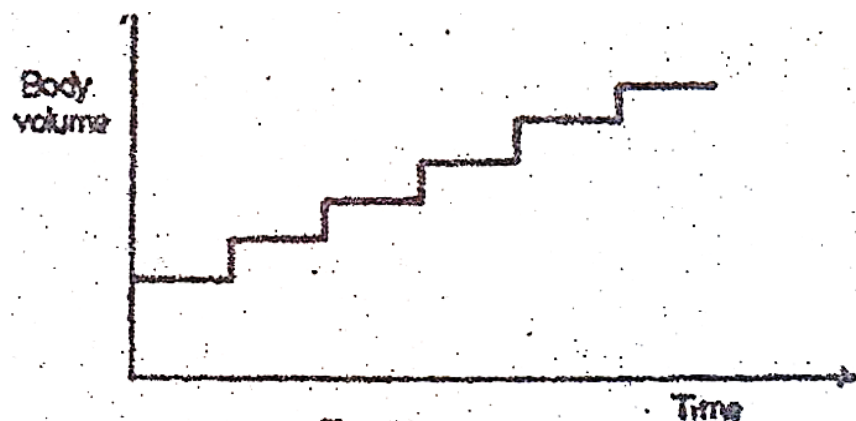


Fig.2

- A. A bacterium
- B. An insect
- C. A human being
- D. A bony fish

P1/SECTION A/1998

3. Figure 6 below shows the nitrogen cycle.

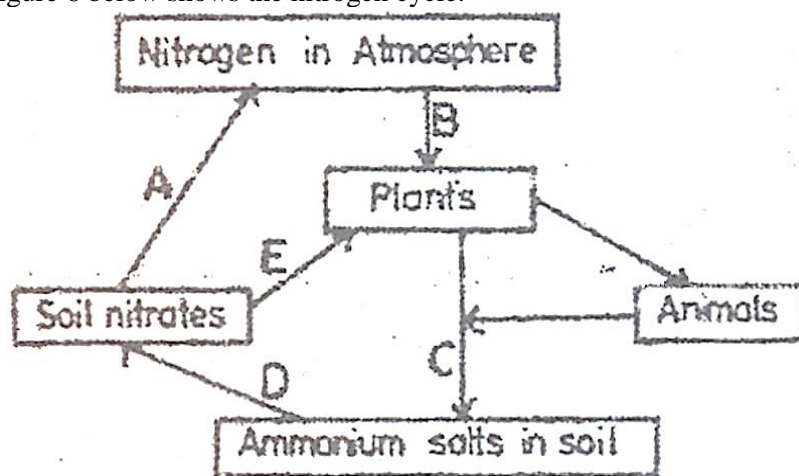


Fig.6

(a) Name the processes taking place at A, B, C, D and E.

- A
- B
- C
- D
- E

(b) (i) How is the process at B useful to plants?

(ii) What organisms are responsible for the process at C?

(c) State the importance of the process at A in the cycle.

P1/SECTION A/1998

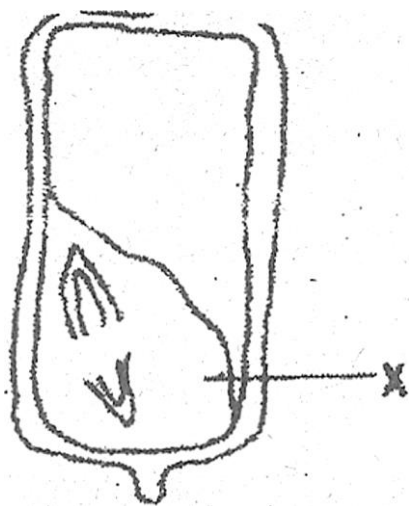
1. The best method of measuring the growth rate of a seedling is by

- A. Taking records of dry weight
- B. Measuring the fresh weight
- C. Observing the increase in volume
- D. Observing the increase in the size of the leaves

2. In a germinating grain, the function of X is to

- A. Absorb food from the endosperm
- B. Provide the first leaves
- C. Hydrolyze the food in the endosperm
- D. Protects the plum

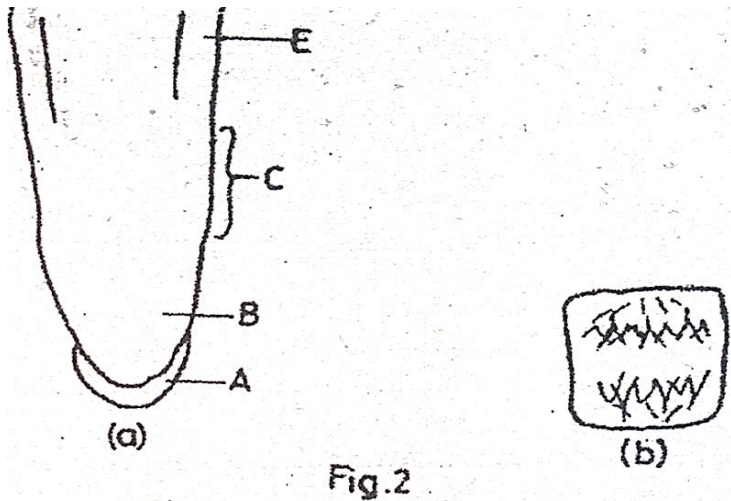
3.



In a germinating grain, the function of X is to

- E. Absorb food from the endosperm
- F. Provide the first leaves
- G. Hydrolyze the food in the endosperm
- H. Protects the plum

4. Figure 2 (a) shows a vertical section of the end region of a growing root and figure 2 (b) shows an enlargement of a cell from the root.



(a) (i) Name the region labelled A.

.....

(ii) How does growth occur in the region labelled B?

.....

.....

(iii) Describe briefly what happens to the cells in the region labelled C.

.....

.....

(iv) What structures might be expected to grow at the region marked D?

.....

(b) State the function of region marked A.

.....

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(c) Figure 2 (b) shows a cell from region B.

(i) Name the process taking place in this cell.

.....

(ii) Briefly describe what is happening at this particular stage of the process.

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A. P1/SECTION A/1995

1. During seed germination, the dry weight initially decreases because
 - B. Stored food is used up for growth and respiration
 - C. Soluble food materials diffuse out of the seedlings

- D. Rate of water absorption is low
- E. Rate of cell division is low

P1/SECTION A/1995

1. (a) What is growth?
- (b) Name the main parts responsible for producing growth in a shoot.
- (c) Describe an experiment you would perform to determine the region of most rapid elongation in the root of a bean seedling.

P1/SECTION C/2010