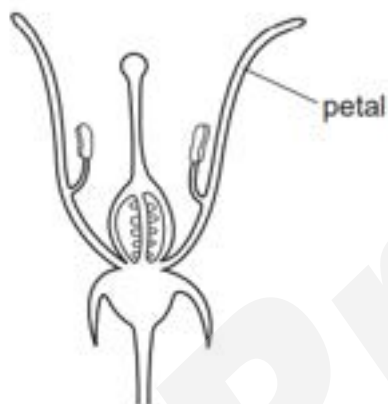


## 16. Reproduction

(Past Year Topical Questions 2010-2015)

May/June 2010 (11)

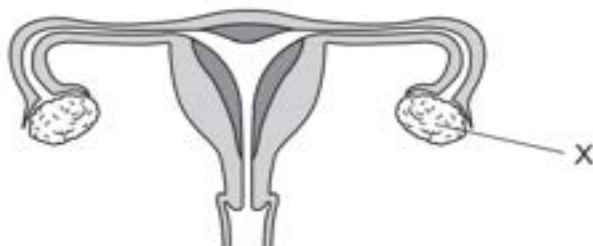
- 3 The diagram shows a section through a flower.



Using the key, identify this flower.

- 1 sepals present ..... go to 2  
sepals absent ..... go to 3
- 2 stamens attached to petals ..... **A**  
stamens not attached to petals ..... **B**
- 3 stigma above anthers ..... **C**  
stigma below anthers ..... **D**

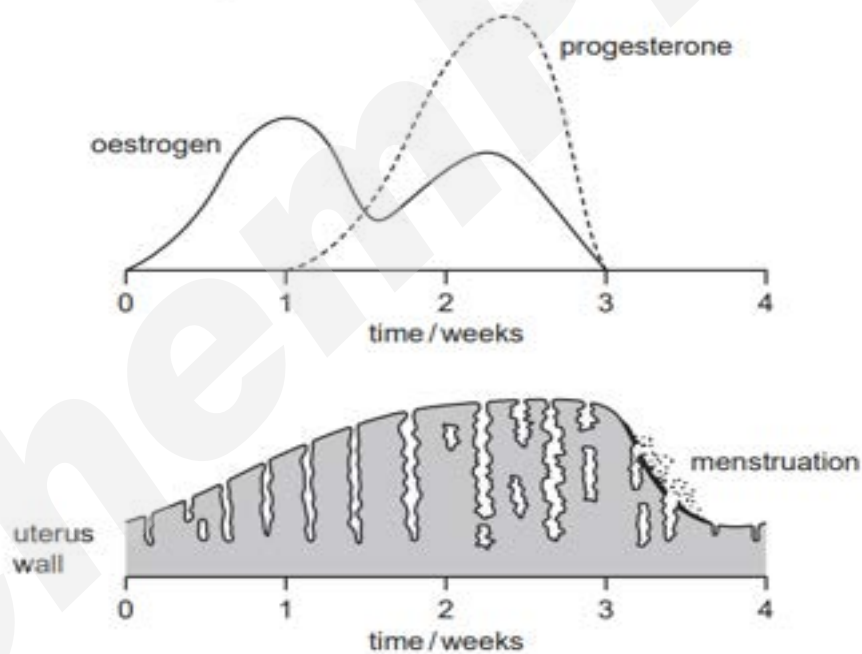
25 The diagram shows the female reproductive system.



What is the function of the part labelled X?

- A gamete production and hormone secretion
- B gamete production only
- C hormone secretion only
- D zygote production and hormone secretion

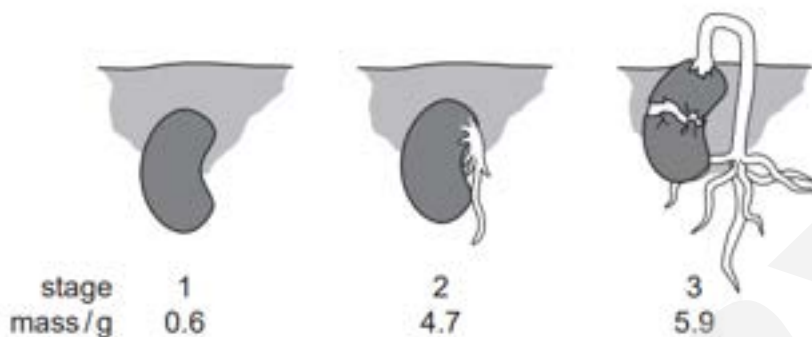
26 The diagram shows the changes which take place during a woman's menstrual cycle.



What is occurring at the time of ovulation?

- A a fall in the levels of oestrogen and progesterone
- B a fall in the level of progesterone only
- C a rise in the levels of oestrogen and progesterone
- D a rise in the level of oestrogen only

**28** The diagram shows some of the stages in the germination of a seed. The figures show the total mass at each stage.



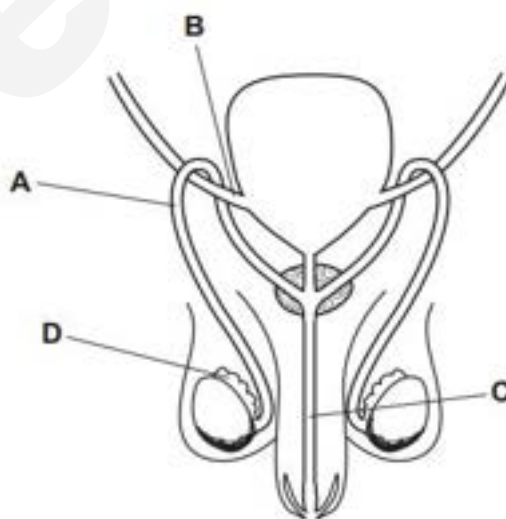
Which process causes the increase in mass between stage 1 and stage 2?

- A absorption of water
- B enzyme action on starch
- C photosynthesis
- D respiration

Oct/Nov 2010 (11)

**26** The diagram shows some parts of the male reproductive system.


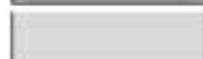
Which part is cut during a vasectomy?



27 The calendar shows the menstrual cycle of a woman in September 2008.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

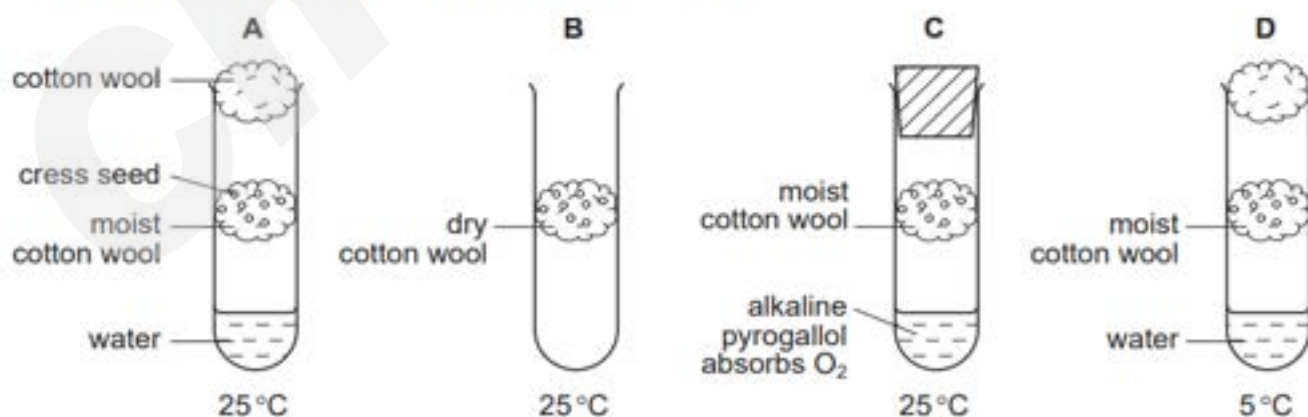
key

	= ovulation
	= menstruation

Why could fertilisation **not** take place if sperms are released into the vagina on 8th September?

- A Sperms are washed out of the female uterus by the menstrual flow.
  - B Sperms can survive in the female reproductive system only for 3 or 4 days.
  - C Sperms must be released after ovulation for fertilisation to take place.
  - D The uterus lining is washed out of the female body during menstruation.
- 28 In an experiment to investigate the effects of various environmental factors on germination, four boiling tubes were set up as shown.

In which tube would the seeds germinate most quickly?



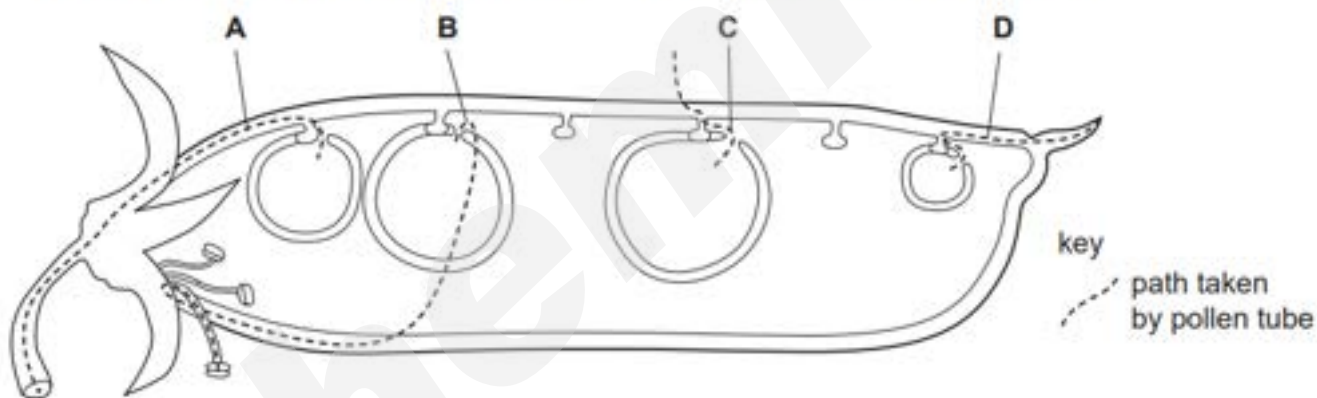
31 Which type of reproduction and which type of cell division produces nuclei with half the number of chromosomes?

	type of reproduction	type of cell division
<b>A</b>	asexual	meiosis
<b>B</b>	asexual	mitosis
<b>C</b>	sexual	meiosis
<b>D</b>	sexual	mitosis

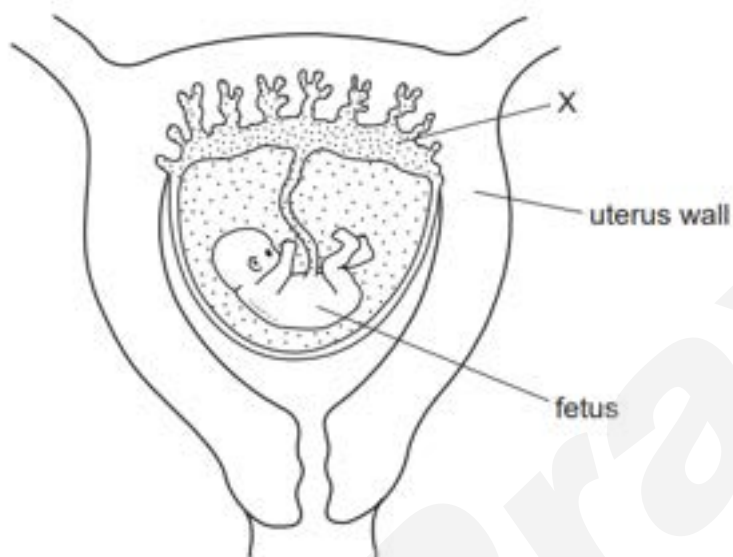
May/June 2011 (11)

26 The diagram shows a pod from a pea plant.

Which line correctly shows the path that was taken by a pollen tube to an ovule?



27 The diagram shows a developing human fetus within the uterus.

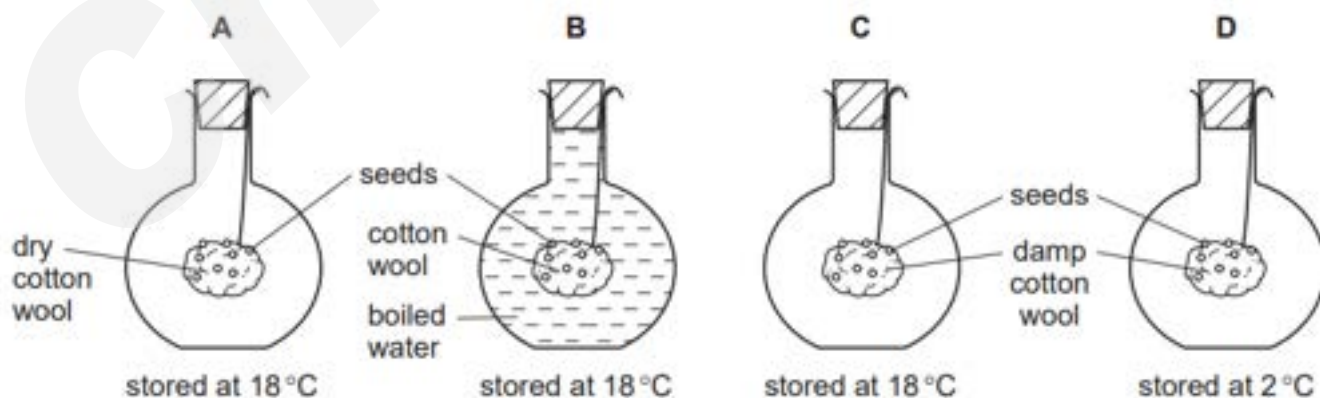


What is a main function of X?

- A passing faeces to the mother
- B passing oxygen to the fetus
- C passing the mother's blood to the fetus
- D protecting the fetus from knocks

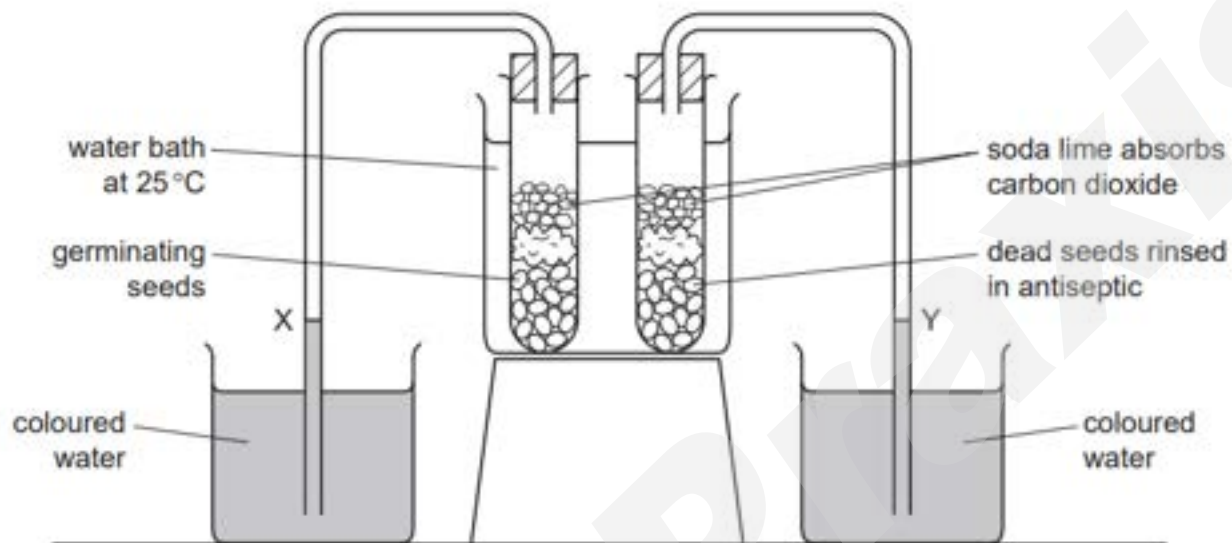
29 The diagram shows four flasks which were set up to investigate the conditions needed for germination.

In which experiment will the seeds germinate most quickly?



Oct/Nov 2011 (11)

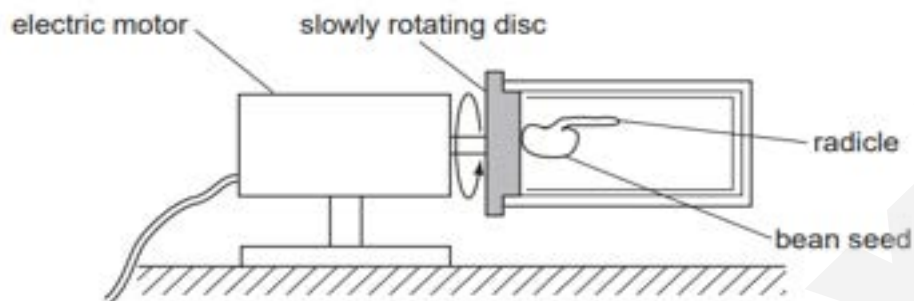
19 An experiment is set up to investigate the uptake of oxygen by germinating seeds.



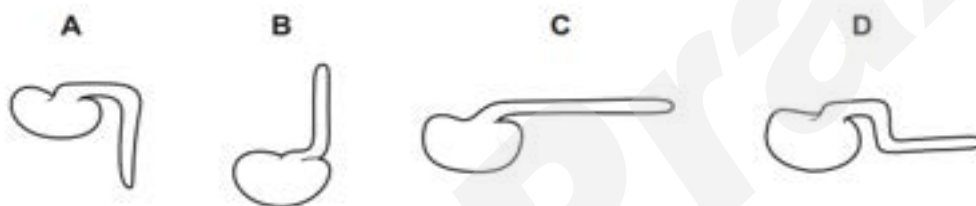
What happens to the levels at X and Y?

	X	Y
<b>A</b>	falls	rises
<b>B</b>	falls	unchanged
<b>C</b>	rises	falls
<b>D</b>	rises	unchanged

- 24** The diagram shows a germinated bean seed with a horizontal radicle. This is placed on a slowly rotating disc and is left for three days.



Which diagram shows the appearance of the radicle after three days?



- 29** The diagram shows the male reproductive system.



What is the tube labelled X?

- A** rectum
- B** sperm duct (vas deferens)
- C** ureter
- D** urethra



30 Which is **not** growth of an organism?

- A increase in dry mass
- B increase in the number of cells
- C permanent increase in size
- D swelling by absorbing water

May/June 2012 (11)

25 What special dietary advice should be given to a pregnant woman?

- A Eat less fibre (roughage).
- B Eat less protein.
- C Eat plenty of fat.
- D Eat plenty of iron.

26 A natural method of birth control assumes that sperms live for three days after intercourse, ovulation occurs between days 13-15 of the menstrual cycle and released ova live for 36 hours.

On which day of the cycle should intercourse **not** result in pregnancy?

- A day 7      B day 10      C day 12      D day 16

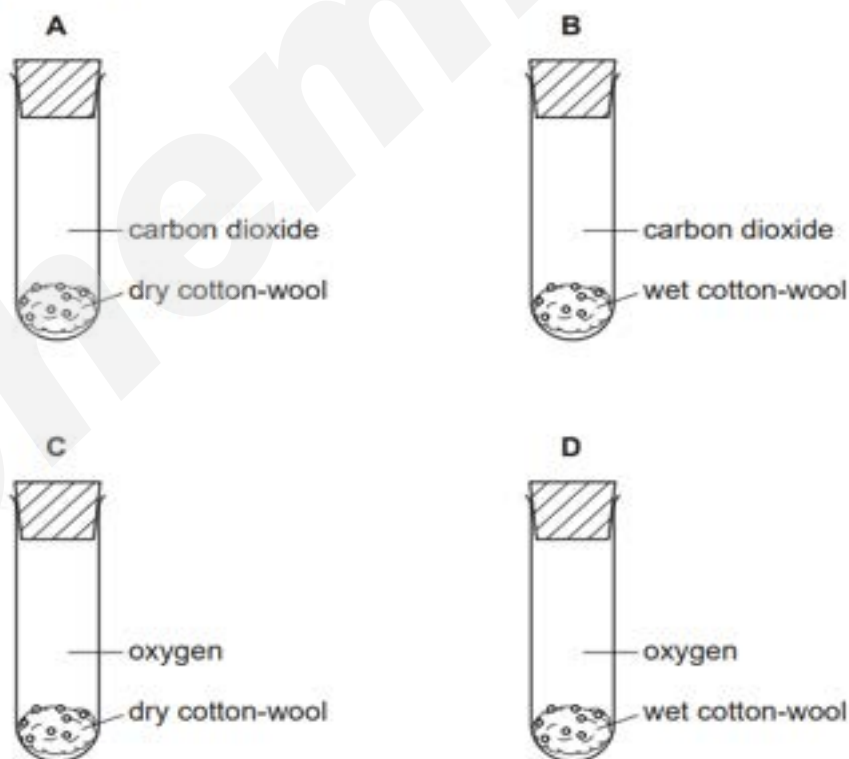
27 In addition to a suitable temperature, what else is necessary for seed germination?

- A carbon dioxide and sunlight
- B mineral ions only
- C sunlight only
- D water and oxygen

May/June 2012 (12)

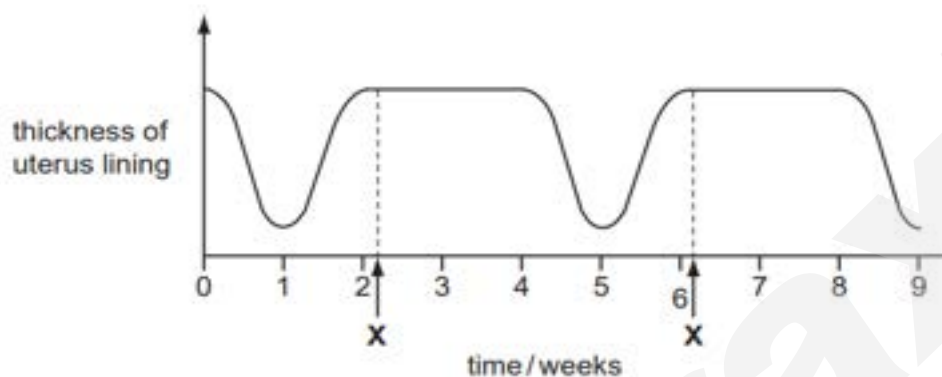
- 26 Which combination of structural features is found in a wind-pollinated flower?
- A anthers inside flower, smooth pollen, no scent
  - B coloured petals, sticky pollen, strong scent
  - C large flowers, nectaries present, light pollen
  - D no petals, anthers outside flower, no nectaries
- 28 How is development of an organism defined?
- A increase in complexity
  - B increase in the number of cells in the organism
  - C increase in the size of cells
  - D permanent increase in the organism's dry mass
- 29 An experiment is set up at 20°C to investigate some conditions necessary for the germination of seeds.

In which apparatus will germination occur?



Oct/Nov 2012 (11)

27 The graph shows changes in the thickness of the uterus lining of a woman.



What happens each time at X?

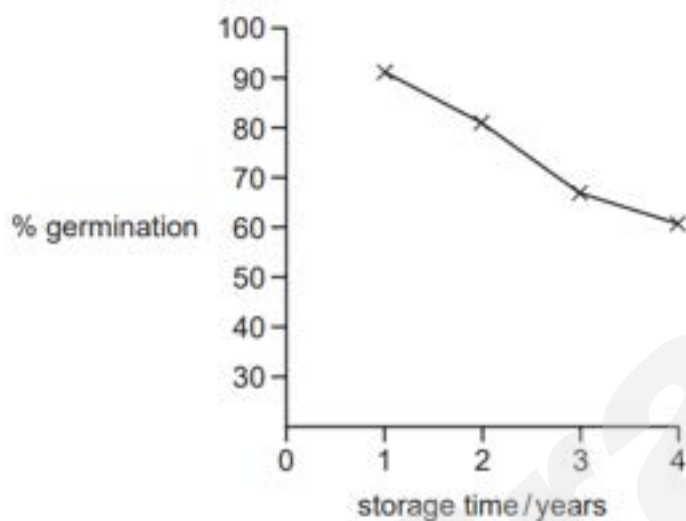
- A fertilisation
- B implantation
- C menstruation
- D ovulation

28 The table lists some processes which take place during reproduction in flowering plants and mammals.

Which row is correct?

	fertilisation needed	implantation needed	pollination needed
<b>A</b>	flowering plants and mammals	mammals only	flowering plants only
<b>B</b>	flowering plants and mammals	flowering plants and mammals	mammals only
<b>C</b>	mammals only	mammals only	flowering plants only
<b>D</b>	flowering plants and mammals	mammals only	flowering plants and mammals

29 The graph shows the effect of storage time on the germination of some seeds.



What can be concluded from this graph?

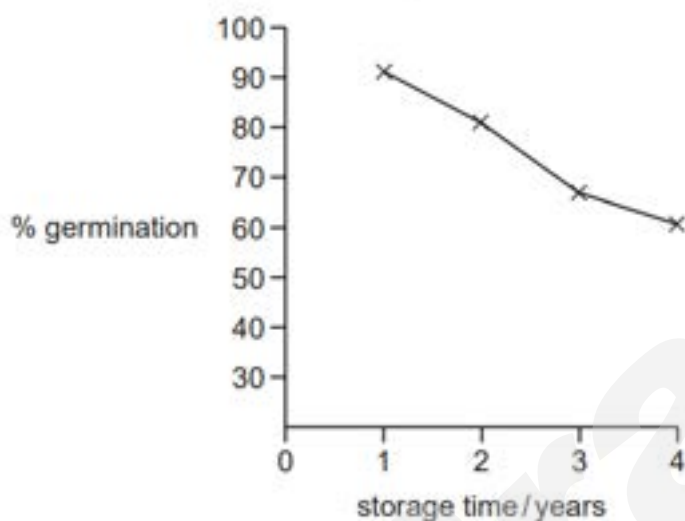
- A Older seeds do not germinate.
- B Older seeds germinate better than younger seeds.
- C Younger seeds always germinate.
- D Younger seeds germinate better than older seeds.

Oct/Nov 2012 (13)

27 Which method of birth control is based on knowing the stage a woman is at in her menstrual cycle?

- A chemical
- B mechanical
- C natural
- D surgical

29 The graph shows the effect of storage time on the germination of some seeds.



What can be concluded from this graph?

- A Older seeds do not germinate.
- B Older seeds germinate better than younger seeds.
- C Younger seeds always germinate.
- D Younger seeds germinate better than older seeds.

May/June 2013 (11)

27 Which row shows how one type of gamete is transported so that fertilisation can occur in a flowering plant?

	type of gamete	how transported
A	female	in a pollen grain
B	female	in a seed
C	male	in a pollen grain
D	male	in a seed

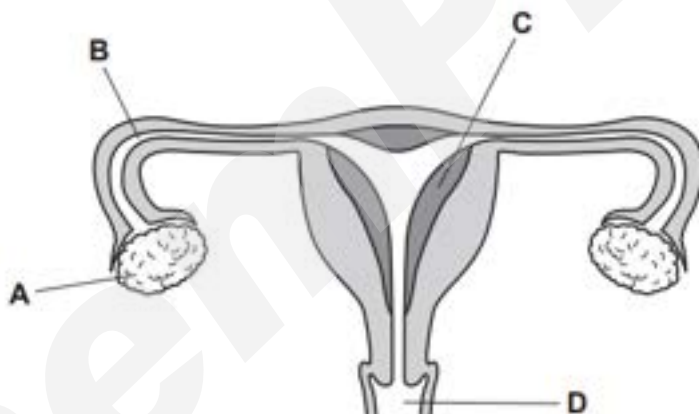
28 In which conditions will seeds germinate?

	temperature / °C	the only gas present	water
<b>A</b>	20	carbon dioxide	water present
<b>B</b>	20	oxygen	water present
<b>C</b>	0	carbon dioxide	water absent
<b>D</b>	0	oxygen	water absent

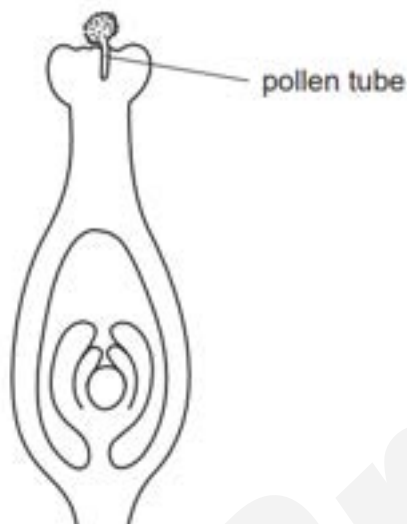
May/June 2013 (12)

26 The diagram shows the female reproductive system.

Where does implantation normally occur?



27 The diagram shows a vertical section through the carpel of a flower that has been pollinated.



What is the correct order of structures through which the pollen tube must grow in order to bring about fertilisation?

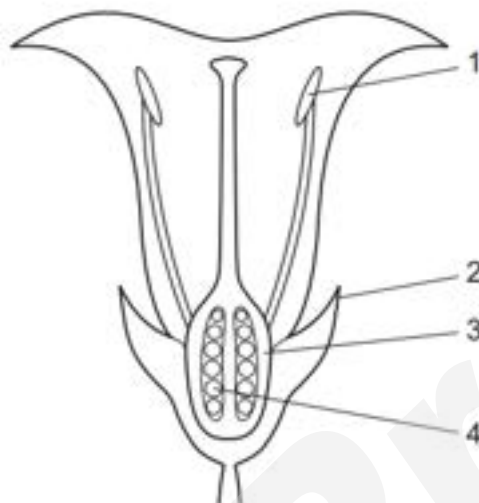
	first	→		last
<b>A</b>	micropyle	stigma	style	ovary wall
<b>B</b>	ovary wall	micropyle	stigma	style
<b>C</b>	stigma	style	ovary wall	micropyle
<b>D</b>	style	ovary wall	micropyle	stigma

28 Which environmental condition is **not** needed for the germination of seeds?

- A** carbon dioxide
- B** oxygen
- C** warmth
- D** water

Oct/Nov 2013 (11)

28 The diagram shows a section through a flower.



After the flower is fertilised, which parts will develop into the fruit and the seed?

	fruit	seed
<b>A</b>	1	2
<b>B</b>	1	4
<b>C</b>	2	3
<b>D</b>	3	4

30 Which environmental factor is **not** always a requirement for seed germination?

- A light
- B oxygen
- C suitable temperature
- D water



Oct/Nov 2013 (13)

26 Which method of birth control works by preventing an egg from being released?

- A condom
- B contraceptive pill
- C rhythm method
- D vasectomy

27 The diagram shows the human female reproductive system.



Sometimes a woman may be unable to have a baby because the tube at X becomes blocked.

Which processes are prevented?

	fertilisation	implantation	ovulation
<b>A</b>	✓	✓	✓
<b>B</b>	✓	✓	x
<b>C</b>	x	✓	✓
<b>D</b>	✓	x	✓

key

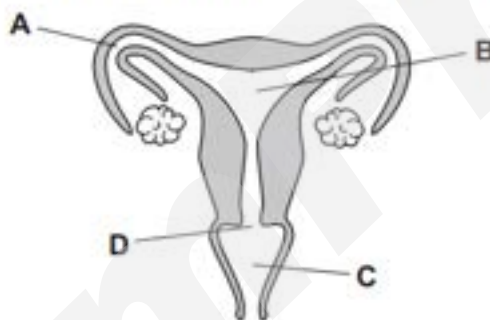
✓ = prevented

x = not prevented

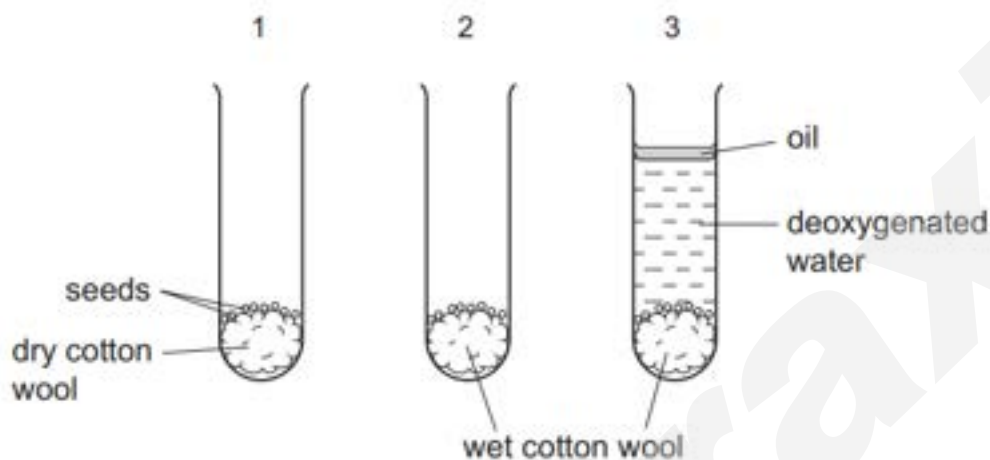
May/June 2014 (11)

- 24 What are involved in reproduction in **both** animals and plants?
- A ovary and embryo
  - B ovary and testes
  - C ovule and stigma
  - D uterus and embryo
- 25 The diagram shows different parts of the female reproductive organs where different methods of birth control can be used.

Where should a diaphragm be placed before intercourse if a couple do **not** want a baby?



- 26 The diagram shows an experiment on germination. Groups of test-tubes were set up as shown. The groups were placed in different conditions.



Which table shows the results?

<b>A</b>	condition	1	2	3
	in the dark	x	✓	x
	in the light	x	✓	x

<b>B</b>	condition	1	2	3
	in the dark	x	✓	✓
	in the light	x	x	✓

<b>C</b>	condition	1	2	3
	in the dark	✓	✓	x
	in the light	x	✓	x

<b>D</b>	condition	1	2	3
	in the dark	✓	✓	✓
	in the light	✓	x	x

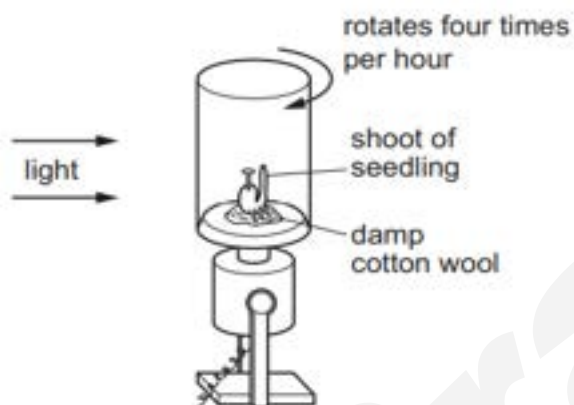
key

✓ = seeds germinate

x = seeds do not germinate

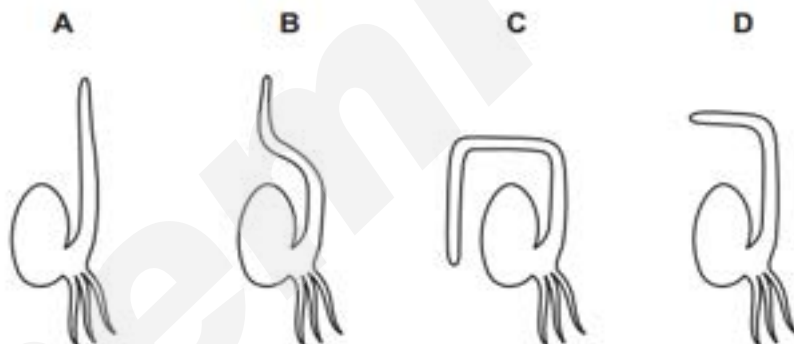
May/June 2014 (12)

- 24 The diagram shows the shoot of a seedling, fixed to a rotating platform that is being lit from one side only.



The platform was allowed to rotate for two days, then it was left stationary for a further two days.

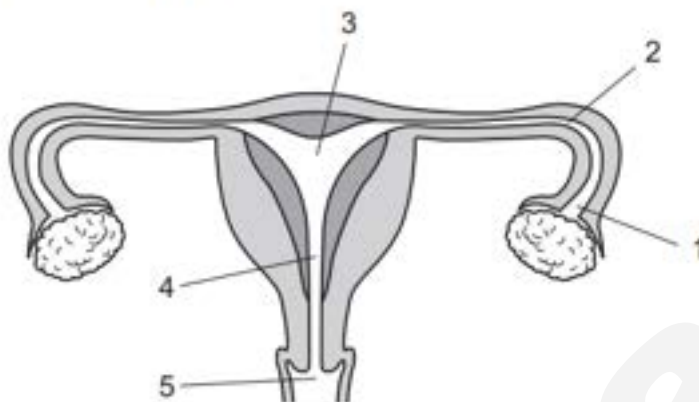
Which diagram shows the appearance of the seedling after this four-day period?



- 25 How will the composition of a pregnant woman's blood change as it passes through the placenta?

	concentration of dissolved nutrients	concentration of urea
A	decreases	decreases
B	decreases	increases
C	increases	decreases
D	increases	increases

26 The diagram shows the female reproductive system.



At which labelled points are sperms and ova released?

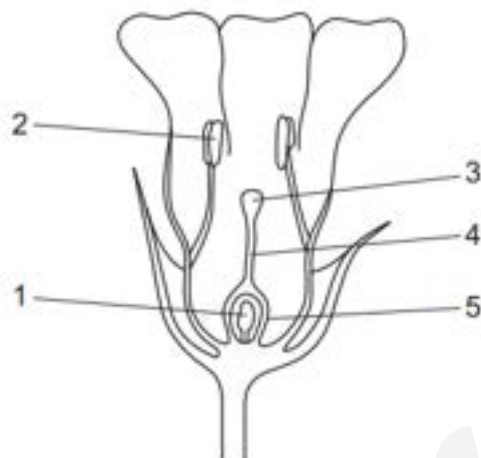
	sperms	ova
<b>A</b>	3	2
<b>B</b>	4	2
<b>C</b>	5	1
<b>D</b>	5	3

Oct/Nov 2014 (11)

24 Which response is a result of geotropism?

- A flowers being produced
- B growing bigger leaves
- C roots growing downwards
- D seeds germinating

25 The diagram shows a flower in vertical section.



Which numbered parts of the flower continue to develop after fertilisation?

- A** 1 and 5      **B** 2 and 4      **C** 3 and 5      **D** 4 and 5
- 27 To avoid extinction of a rare plant species, a botanical garden keeps a collection of seeds, known as a seed bank.
- Which condition will prevent these seeds germinating whilst in storage?
- A** high humidity  
**B** high oxygen levels  
**C** low light intensity  
**D** low temperature

Oct/Nov 2014 (13)

24 Which responses are shown by the shoot of a plant?

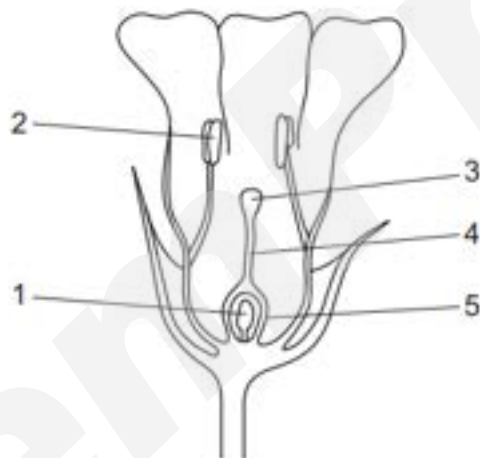
	geotropism	phototropism
<b>A</b>	–	–
<b>B</b>	–	+
<b>C</b>	+	–
<b>D</b>	+	+

key

+ grows towards the stimulus

– grows away from the stimulus

25 The diagram shows a flower in vertical section.



Which numbered parts of the flower continue to develop after fertilisation?

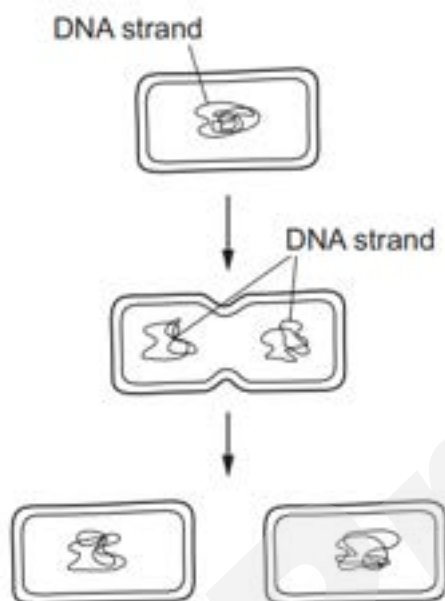
**A** 1 and 5

**B** 2 and 4

**C** 3 and 5

**D** 4 and 5

26 The diagram shows a cell dividing into two.



Which process is shown in the diagram?

- A asexual reproduction in a bacterium
  - B asexual reproduction in a potato plant
  - C meiosis in a woman's ovary
  - D mitosis in the root of a plant
- 27 Some bean seeds are planted 2 cm below the surface of some soil in a tray.
- Which process will not occur as the seeds start to germinate?
- A growth
  - B osmosis
  - C photosynthesis
  - D respiration

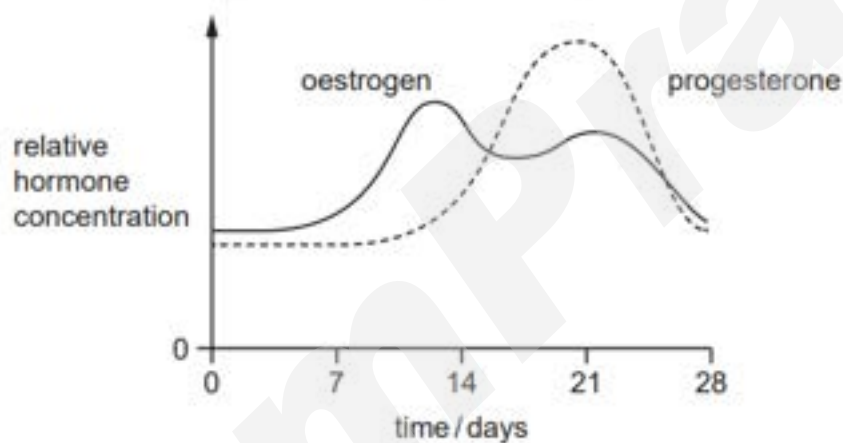


May/June 2015 (11)

27 Which method of birth control is based on knowing the stage of a woman's menstrual cycle?

- A condom
- B contraceptive pill
- C diaphragm
- D rhythm method

28 The diagram shows some changes which take place during a woman's menstrual cycle.



Assuming ovulation occurs on day 14, what is occurring at the time of ovulation?

- A a fall in the levels of oestrogen and progesterone
- B a fall in the level of progesterone only
- C a rise in the level of oestrogen
- D a rise in the level of progesterone and fall in the level of oestrogen

**29** Development is defined as an increase in

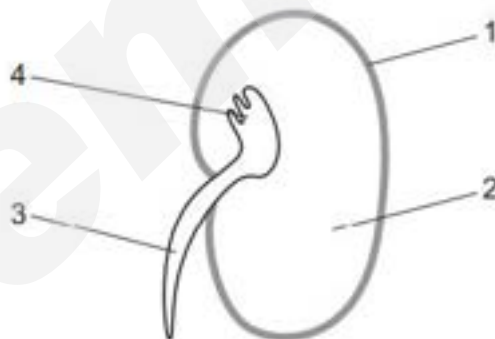
- A complexity.
- B dry mass.
- C number of cells.
- D size.

**30** In addition to a suitable temperature, what else is always necessary for seed germination?

- A carbon dioxide and sunlight
- B mineral ions
- C sunlight and water
- D water and oxygen

May/June 2015 (12)

**26** The diagram shows a germinating broad bean seed which has been cut in half.

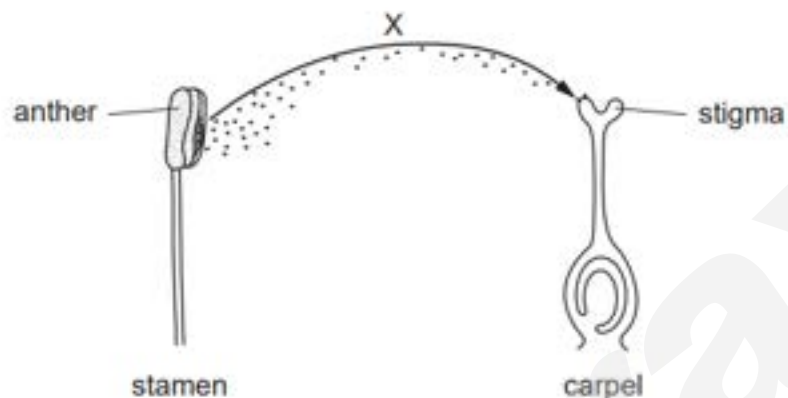


Which labels show the cotyledon and the plumule?

	cotyledon	plumule
<b>A</b>	1	3
<b>B</b>	1	4
<b>C</b>	2	3
<b>D</b>	2	4

May/June 2015 (13)

27 The diagram shows a process in plant reproduction.



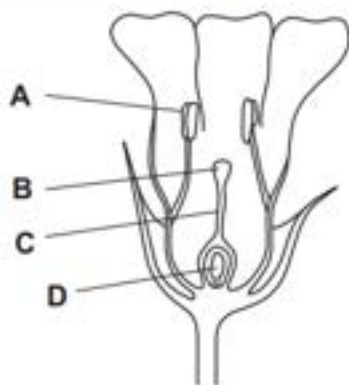
Which process is represented by arrow X?

- A fertilisation
- B pollen tube growth
- C pollination
- D seed dispersal

Oct/Nov 2015 (11)

23 The diagram shows half a flower.

On which structure would pollen be deposited in pollination?



24 In which region does diffusion of materials take place between mother and fetus?

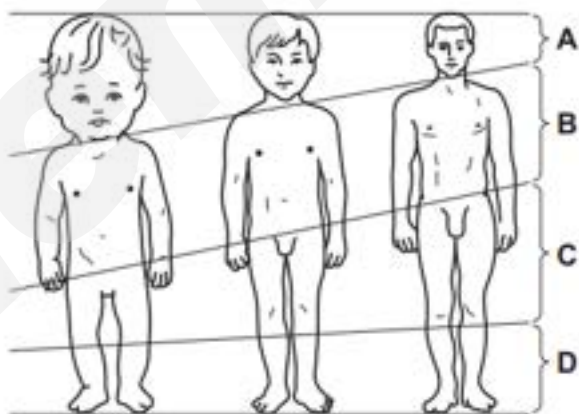
- A amniotic sac
- B ovary
- C placenta
- D umbilical cord

25 During childbirth, what must happen to the cervix and the uterus wall?

	cervix	uterus wall
<b>A</b>	contracts	contracts and relaxes
<b>B</b>	contracts	relaxes
<b>C</b>	dilates	contracts and relaxes
<b>D</b>	dilates	relaxes

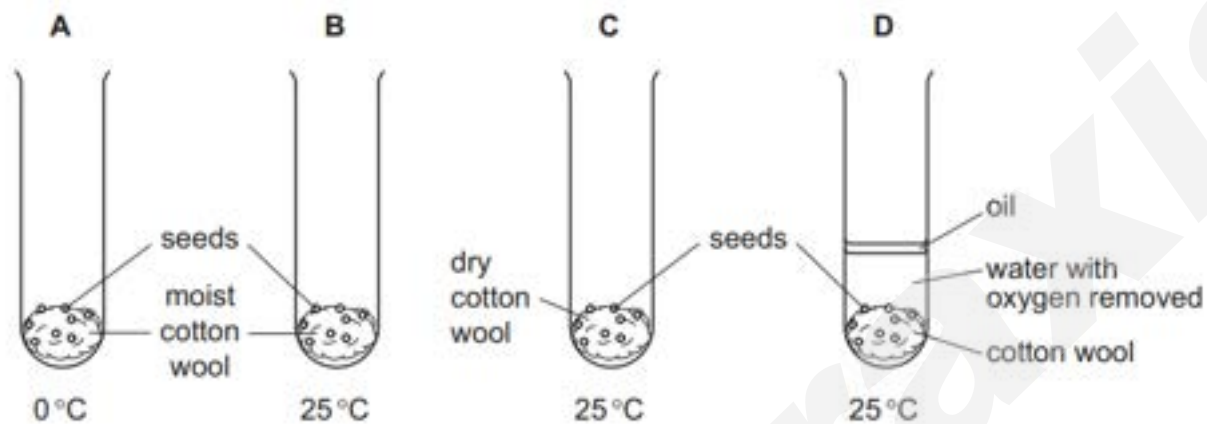
26 The diagram shows a baby, a child and an adult (not drawn to the same scale).

As a baby grows into an adult, which labelled region grows the **most**?



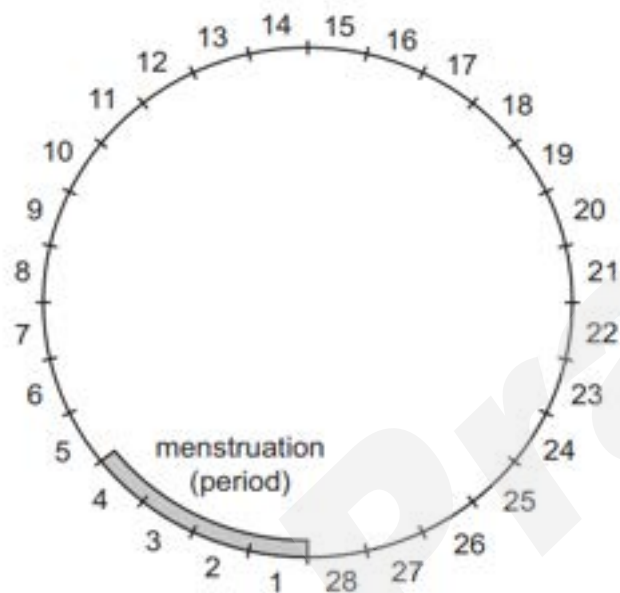
27 Four tubes were set up as shown and placed in the dark.

In which tube would the seeds germinate first?



Oct/Nov 2015 (12)

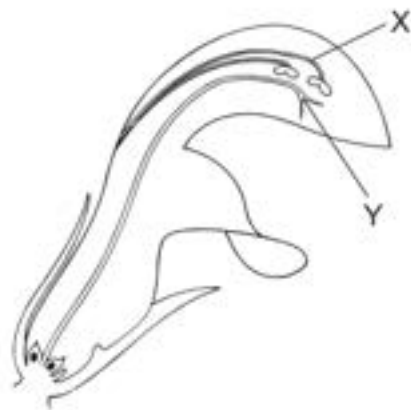
25 The diagram shows a timeline of a woman's menstrual cycle, which lasts for 28 days.



On which days of the menstrual cycle is a woman most likely to become pregnant?

- A days 1 - 4
- B days 7 - 10
- C days 13 - 16
- D days 20 - 23

26 The diagram shows a vertical section through a flower.



What are X and Y?

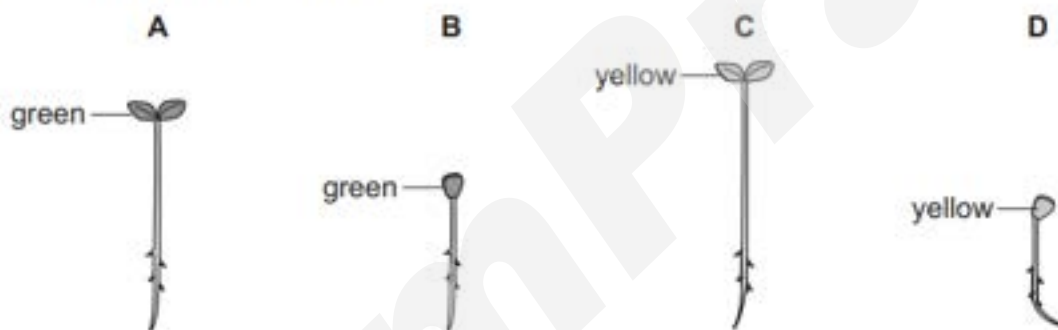
	X	Y
<b>A</b>	anther	stigma
<b>B</b>	anther	style
<b>C</b>	stamen	stigma
<b>D</b>	stamen	style

- 28** Four samples of seeds germinated in different conditions of temperature and light, as shown in the table.

sample	temperature / °C	light
1	20	absent
2	20	present
3	5	absent
4	5	present

A typical seedling from each sample was removed after seven days.

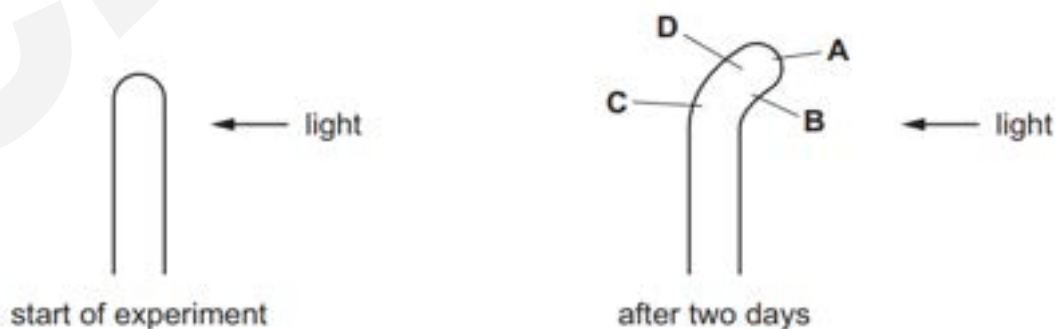
Which seedling was from sample 2?



Oct/Nov 2015 (13)

- 24** In an experiment to investigate phototropism, a plant shoot is grown with light coming from one side only.

After two days, in which region has the greatest rate of growth occurred?

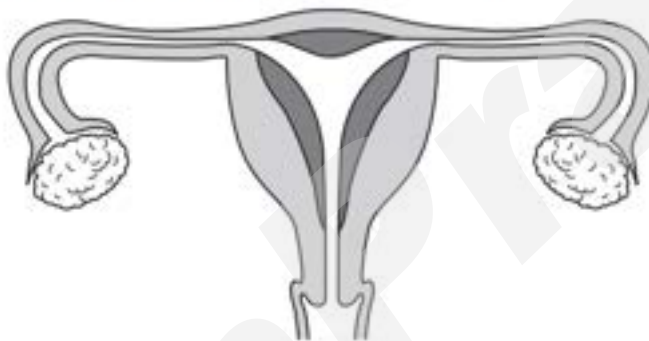




25 Which structure is involved in the transfer of dissolved nutrients from the mother to the fetus?

- A kidney
- B liver
- C placenta
- D stomach

26 The diagram shows the human female reproductive system.



After ejaculation, along which route does a male gamete travel to fuse with an egg?

- A ovary → oviduct → uterus → cervix
- B ovary → uterus → cervix → vagina
- C vagina → cervix → uterus → oviduct
- D vagina → uterus → cervix → oviduct

27 Which set of conditions is required for seed germination?

	oxygen	warmth	water
A	✓	x	✓
B	✓	✓	x
C	x	✓	✓
D	✓	✓	✓