QUESTIONSHEET 1

Do not write in margin

(a) (i) Distinguish asexual reproduction from sexual reproduction.

.....

.....

.....

.....

[3]

(ii) State two methods of asexual reproduction which occur in flowering plants.

1: .....

2: .....

[2]

(iii) State two methods of asexual reproduction which occur in animals.

1: .....

2: .....

[2]

(b) (i) Define the term 'pollination'.

.....

.....

[1]

(ii) How is pollination usually achieved?

.....

[1]

(iii) Why is cross pollination preferable to self pollination?

.....

.....

.....

[2]

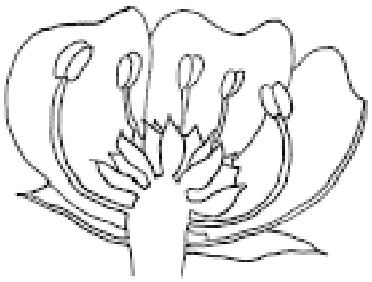
TOTAL / 11

A2.16 ASEXUAL/SEXUAL REPRODUCTION IN PLANTS AND ANIMALS

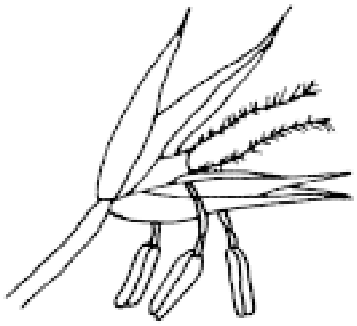
QUESTIONSHEET 2

Do not write in margin

The drawings below show two different types of flower.



Flower A (half flower diagram)



Flower B (entire flower)

(a) (i) State two differences, visible on the drawings, between the male parts of flowers A and B.

1. .....

2. ..... [2]

(ii) State two differences, visible on the drawings, between the female parts of flowers A and B.

1. .....

2. ..... [2]

(b) (i) Flower A is radially symmetrical (actinomorphic). What does this mean and why is it of value to the flower?

meaning: ..... [1]

value: .....

..... [2]

(ii) What method of pollination is used by flower B?

..... [1]

(iii) State three features of flower B which help it to achieve cross pollination;

1. .....

2. .....

3. ..... [3]

TOTAL / 11

A2.16 ASEXUAL/SEXUAL REPRODUCTION IN PLANTS AND ANIMALS

QUESTIONSHEET 3

Do not write in margin

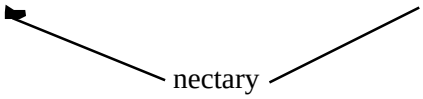
The table below refers to various features of asexual and sexual reproduction. If a feature is correct place a tick (✓) in the appropriate box and if it is incorrect place a cross (✗) in the appropriate box.

Feature	Asexual reproduction	Sexual reproduction
Involves cell division by mitosis		
Involves cell division by meiosis		
Carried out by flowering plants and mammals		
Genetic variation may be introduced by random assortment		
Genetic variation may be introduced by mutation		
May produce a cloned population		
Always involves two individuals		
Usually produces sterile offspring		
Introduces hybrid vigour		

TOTAL / 9

Do not write in margin

The drawings below show two different insect pollinated flowers cut in half-flower section.



Flower A Flower B

(a) Define the terms:

(i) cross pollination. .....

..... [2]

(ii) double fertilisation. .....

..... [2]

(b) Flower B has a more specialised method of insect pollination than flower A. With reference to differences in the following floral features suggest how this is shown by flowers A and B. Only refer to features visible in the drawings.

(i) the petals. .....

.....

..... [3]

(ii) the stamens. .....

.....

..... [3]

(iii) the styles and stigmas. .....

.....

..... [3]

(iv) the overall floral symmetry. .....

.....

..... [3]

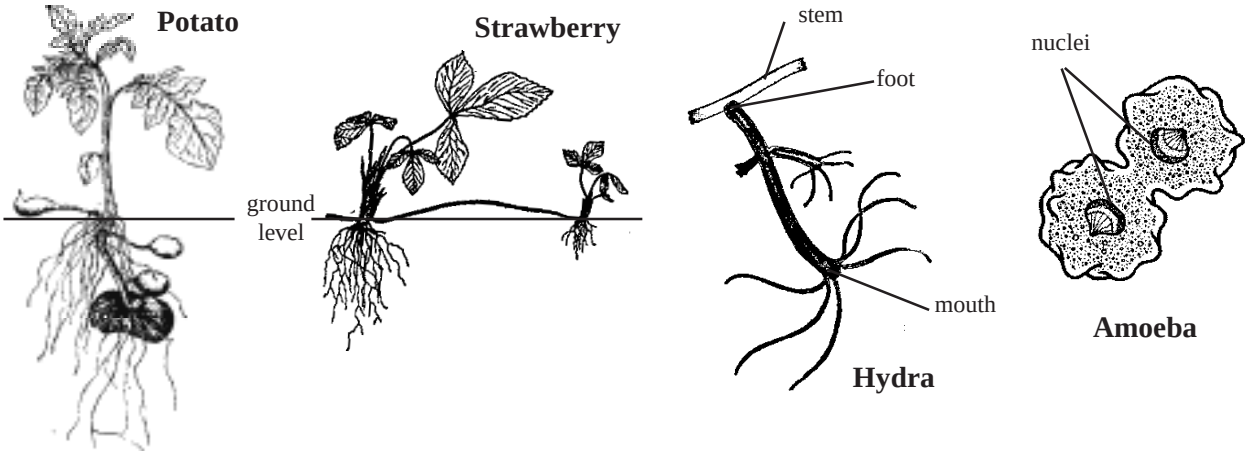
TOTAL / 16

A2.16 ASEXUAL/SEXUAL REPRODUCTION IN PLANTS AND ANIMALS

QUESTIONSHEET 5

Do not write in margin

The drawings show certain organisms which are undergoing asexual reproduction.



Briefly describe the methods of asexual reproduction, shown in the drawings, of:

(a) the potato plant.

.....

.....

.....

.....

..... [4]

(b) the strawberry plant.

.....

.....

.....

..... [4]

(c) Hydra.

.....

.....

..... [3]

(d) Amoeba.

.....

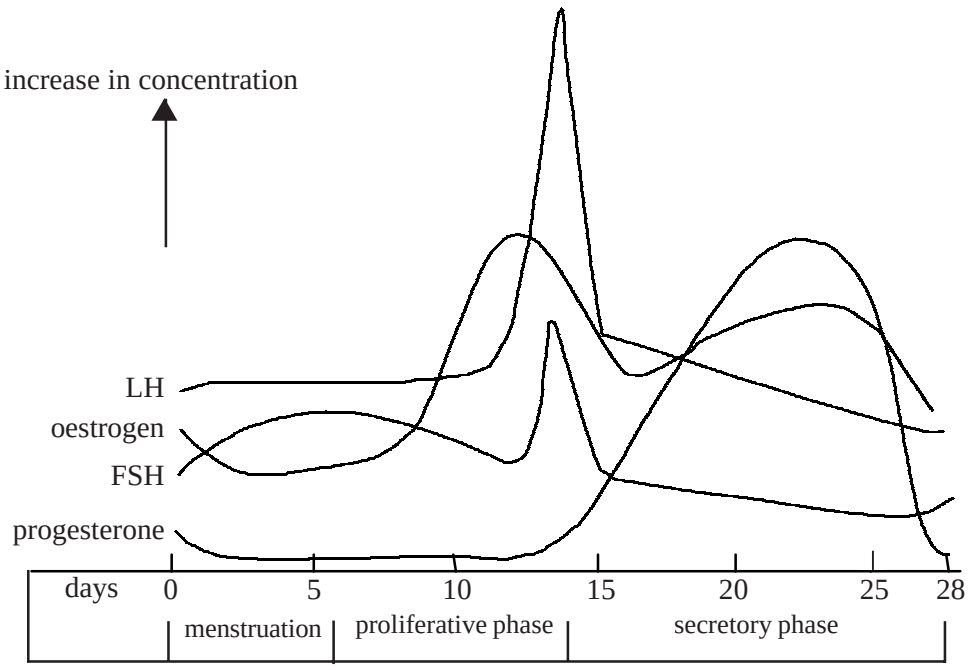
.....

..... [3]

TOTAL / 14

Do not write in margin

The graph shows changes in hormone concentrations during the menstrual cycle.



(a) Name the structures which during the menstrual cycle, secrete:

(i) FSH and LH. ..... [1]

(ii) oestrogen. ..... [1]

(iii) progesterone. ..... [1]

(b) Briefly describe the role of the hypothalamus in the control of the menstrual cycle.

.....

..... [2]

(c) With reference to the hormonal patterns shown in the graph, describe the main roles of the following hormones in the menstrual cycle:

(i) FSH.

.....

.....

.....

..... [3]

(*Continued...*)

Do not write in margin

(ii) oestrogen.

.....

.....

.....

..... [3]

(iii) LH.

.....

.....

.....

..... [3]

(iv) progesterone.

.....

.....

..... [3]

TOTAL / 17

QUESTIONSHEET 7

Do not write in margin

Indicate whether the following statements about reproduction in animals and plants are **true** or **false**. In each case explain your answer.

(a) Asexual reproduction always produces genetically identical offspring.

.....

.....

.....

.....

..... [4]

(b) Alternation of generations with a sexual gametophyte and asexual sporophyte is found in ferns and sea anemones.

.....

.....

.....

..... [3]

(c) Although earthworms are hermaphrodite, cross-fertilisation occurs since self-fertilisation is impossible.

.....

.....

.....

..... [3]

(d) Tapeworms (Taenia) are usually self-fertilised.

.....

.....

.....

..... [3]

TOTAL / 13

A2.16 ASEXUAL/SEXUAL REPRODUCTION IN PLANTS AND ANIMALS

Do not write in margin

QUESTIONSHEET 8

Read through the paragraph below, which refers to the processes of spermatogenesis and oogenesis in humans, then complete it by filling in the spaces with the most appropriate word or words.

Spermatogenesis takes place in the walls of the ..... of the..... .

In the phase of multiplication the outer epithelial cells give rise to millions of ..... by

..... division. These cells pass through a short growth phase to become .....

which then enter the phase of maturation to become ..... and then

..... by .....division. The developing sperm then complete their

development while attached to cells of ..... . Spermatogenesis is a continuous process that occurs from puberty until death.

In oogenesis the phase of multiplication occurs in the fetal ..... producing several thousand

..... which lie in primary follicles. These undergo no further development until puberty when menstrual cycles commence. Each month, during the phase of growth, one or two primary follicles develop into ovarian follicles. This phase is much more marked than in spermatogenesis so that the potential gametes accumulate a lot of ..... and ..... . At ..... the mature ovarian follicle ruptures releasing the ..... into the ovarian funnel and oviduct. This triggers completion of the first ..... division forming a ..... . This will only become a haploid ovum if the vitelline membrane is pierced by a ..... . The process of oogenesis in women ceases after the ..... .

TOTAL / 19

QUESTIONSHEET 9

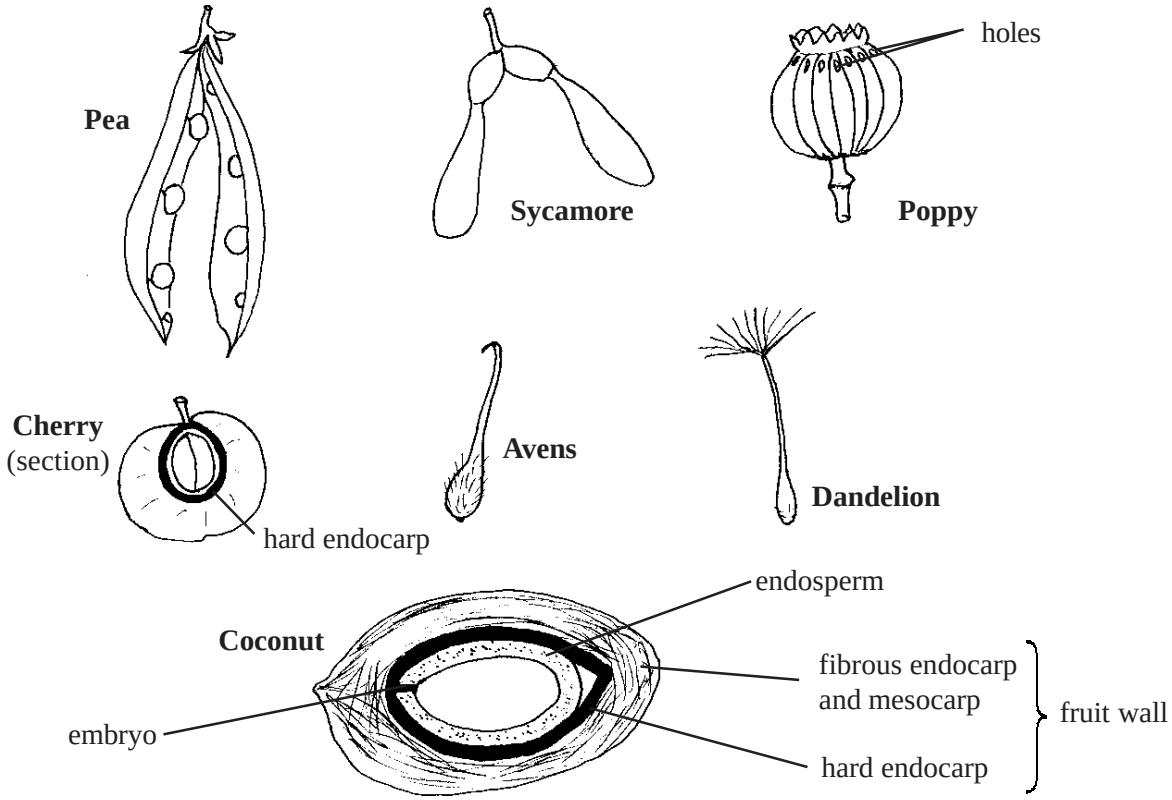
The table below refers to actions of various hormones involved in reproduction. Complete the table by writing appropriate information in the empty boxes.

Hormones	Action
Gibberellins in seeds	
	Stimulates development of male secondary sexual characteristics
Oxytocin during birth	
	Regulates production of milk in mammary glands
Gonadotropin releasing factor	
Progesterone in the menstrual cycle	
Progesterone in pregnancy	
Oestrogen before puberty	
Ethene in plants	
Chorionic gonadotropin	

TOTAL / 10

QUESTIONSHEET 10

The drawings below show fruits of several different species of flowering plant.



(a) Why is it important for fruits and seeds to be widely dispersed?

.....

.....

..... [3]

(b) For each of the above fruits suggest its method of dispersal and describe how the fruit is adapted to the dispersal method you have suggested.

(i) pea: .....

.....

..... [2]

(ii) sycamore: .....

.....

..... [2]

(iii) poppy: .....

.....

..... [2]

(*Continued*...)

(iv) cherry: .....

.....

..... [2]

(v) avens: .....

.....

..... [2]

(vi) dandelion: .....

.....

..... [2]

(vii) coconut: .....

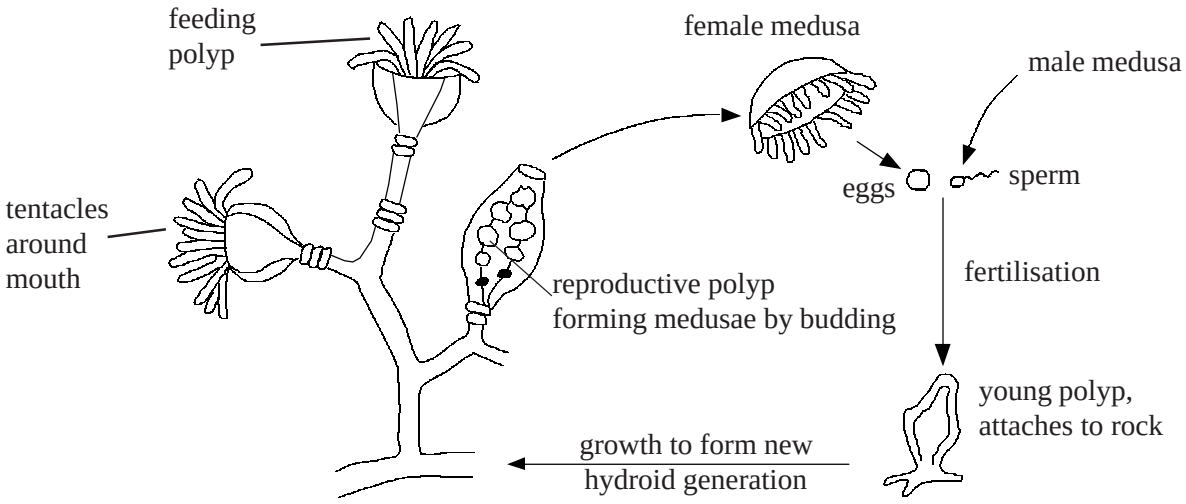
.....

..... [2]

TOTAL / 17

QUESTIONSHEET 11

The drawing shows the life cycle of a marine cnidarian, Obelia. Obelia shows alternation of generations between a fixed hydroid generation which reproduces asexually to produce the free swimming medusa generation. This reproduces sexually to produce a new hydroid generation. The hydroid generation can reproduce asexually by budding, either to produce new feeding polyps or to produce reproductive polyps which then bud off medusae.



The hypothesis has been suggested that in cool sea temperatures the hydroid generation tends to bud off and differentiate mainly feeding polyps whereas in warm sea temperatures the polyps budded off and differentiated are mainly reproductive ones.

(a) Describe an experiment, which you could perform, to test whether this hypothesis is true or false.

.....

.....

.....

.....

.....

.....

.....

.....

..... [7]

(b) Supposing that your experiment in (a) finds that the hypothesis is true, describe how you could modify your experiment to determine whether the fate of new, but undifferentiated, polyps can be modified by temperature change.

.....

.....

.....

.....

..... [3]

TOTAL / 10

QUESTIONSHEET 12

Comment about the following statements which refer to pregnant mothers or young babies.

(a) During pregnancy a mother should increase her daily intake of calcium salts.

.....

.....

.....

..... [3]

(b) During pregnancy a mother should increase her daily intake of iron.

.....

.....

.....

..... [3]

(c) New born babies frequently become jaundiced for a few days.

.....

.....

.....

..... [3]

(d) It is important that the baby is fed the first breast milk produced by the mother.

.....

.....

.....

..... [3]

(e) Mother should try to avoid drinking alcohol or smoking during pregnancy.

.....

.....

.....

..... [3]

TOTAL / 15