10. Reproduction in (a) plants (b) animals

1. a) Name the part of an ovule that develops into each of the following parts of a seed after fertilization
   i) Testa
   ii) Endosperm

   b) What is parthenocarpy?

2. State **three** roles of placenta during pregnancy.

3. Name **three main** methods through which HIV/AIDS is transmitted

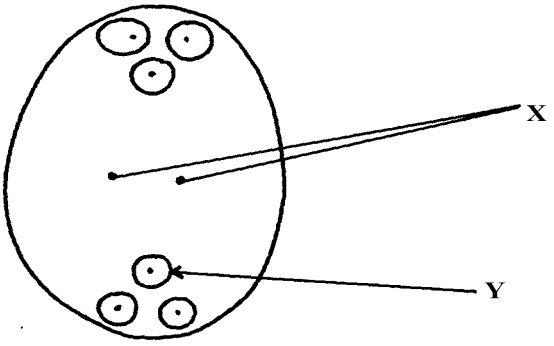
4. (a) Name the processes that lead to fruit formation without fertilization

   (b) Name the hormone that causes leaf, flowers and fruit abscission

   (c) What is the role of ecdysone hormone in insects

5. State the roles of oviduct in female reproductive system

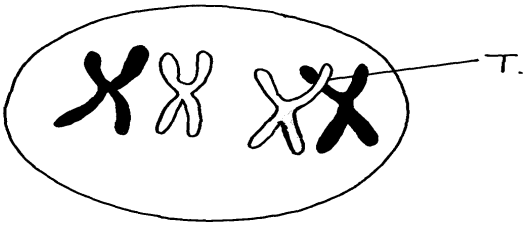
6. The diagram below represents a mature embryo sac. Study it carefully and answer the questions that follow:



   (a) Identify structures **X** and **Y**

   (b) Why is cross pollination more advantageous to a plant species than self pollination?

7. The diagram below shows a phenomenon which occurs during cell division.



(a) Name the part labeled **T**.

(b) (i) State the biological importance of the part labelled **T**.

(ii) Identify the type of cell division in which this phenomenon occurs.

8. (a) When are the **two** organisms considered to belong to the same species.

(b) Explain the term **alternation of generations.**

9. (a) Explain why Larmack's Theory of evolution is not accepted by biologists today.

(b) State the significance of mutation in evolution.

10. (a) Give **two** roles of the placenta.

(b) Explain why hormone testosterone still exerts its influence even when vas deferens have been cut.

11. Name **two** mechanisms that hinder self fertilization in flowering plants

12. State **three** ways in which plants compensate for lack of movement

13. (a) What do you understand by the term double fertilization?

(b) State **two** adaptations of animal dispersed fruits

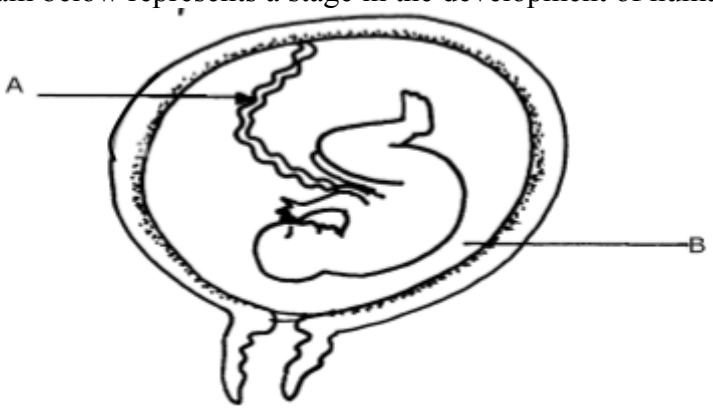
14. Name the hormone that;

(a) Stimulate the contraction of uterus during birth

(b) Stimulates the disintegration of the corpus inteum when fertilization fails to take place

15. State **three** ways in which flowers parent self pollination

16. The diagram below represents a stage in the development of human foetus



(a) State **one** function of each of the structures labelled **A** and **B**

(b) Apart from the size of the foetus what else from the diagram illustrates that birth was going to
occur in the near future

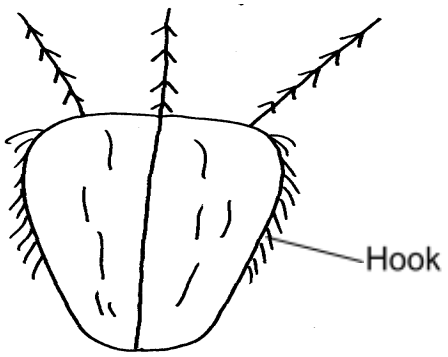
(c) Explain why a pregnant woman is supplied with doses of iron tablets regularly

17. Name the type of placentation where;

(i) Placenta appears as one ridge on the ovary wall

(ii) Placenta appears at the centre of the ovary with ovules on it and the dividing walls of carpels
disappear

18. The diagram below represents a mature fruit from a dicotyledonous plant, observe it and answer questions that follow



a) To what group of fruits does the specimen belong?

b) Suggest the possible agent of dispersal of the fruit

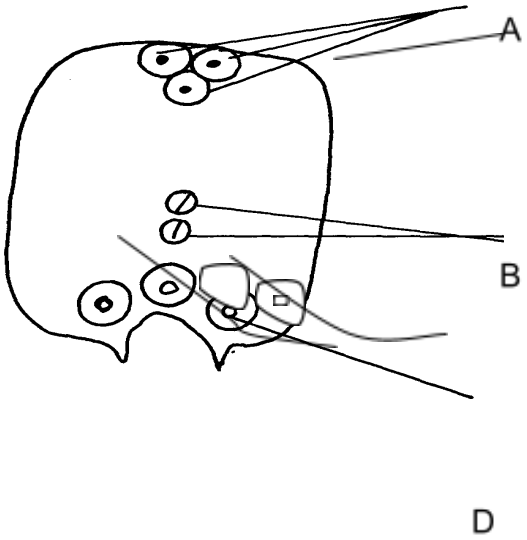
19. Explain why menstrual periods stop immediately after conception?

20. a) Why is sexual reproduction important in evolution of plants and animals

b) The calyx cells of a certain plant has 22 chromosomes. State the number of chromosomes present in the plant's

i) Endosperm
ii) Ovule cell

21. The diagram below shows a pollen – tube entering the ovule of a flowering plant



a) Name the parts labeled **A, B** and **D**

b) Name the kind of fertilization exhibited by the above flowering plant.

22. Donkey and zebra are closely related yet not of the same species. Explain

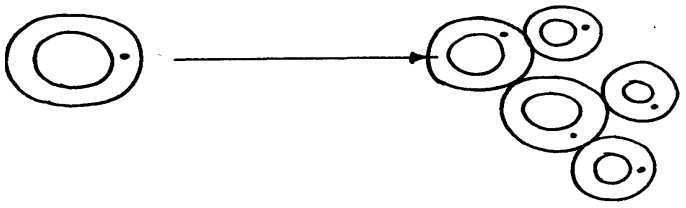
23. Name **two** factors in the environment which organisms respond to

24. What is meant by the terms:- a) i) Epigynous flower

ii) Staminate flower

b) Name the protective membranes surrounding the brain

25. The diagram below illustrate a process in a given species of organism



a) Name the organism that undergoes the process above

b) Identify the process shown to be taking place

26. State **two** ways by which HIV/AIDS is transmitted from mother to child

27. (a) State the role of centrioles during cell division

(b) (i) Explain the role of chlorophyll in photosynthesis

(ii) What is the **main** product of the dark stage of photosynthesis?

28. (a) At what stage of meiosis is the chiasmata formed?

(b) (i) What is the significance of the above part in living organisms?

(ii) State **two** importance of meiosis in living organisms?

29. (a) State **two** ways in which the male parts of a wind pollinated flower are adapted to
their mode of pollination
(b) Differentiate between monoecious and dioecious plants

30. (a) What is seed dormancy?

(b) State **two** ways in which seed dormancy can be broken

31. (a) Explain **two** importance of the adult stage in metamorphosis in insects

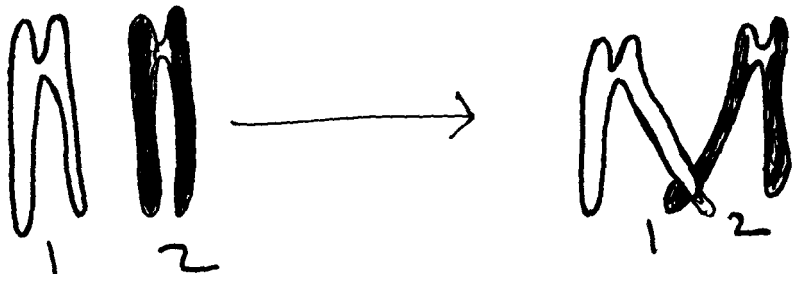
(b) What is the importance of the juvenile hormone in insects?

32. Describe the possible effects of discharging hot effluent from a factory into a slow flowing river

33. State **two** disadvantages of external fertilization in animals

34. State **three** roles of placenta in mammals

35. (a) The diagram below shows a stage during cell division



(i) Name the stage of cell division

(ii) Give a reason for your answer

(b) Name **two** structures in plants where male and female gametes are produced

36. State **two** advantages of metamorphosis to the life of insects

37. List **four** differences between Mitosis and Meiosis

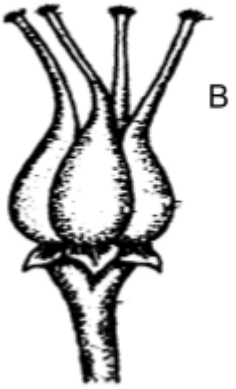
38. Give a reason why two species in an ecosystem cannot occupy the same niche

39. State the functions of the following hormones in the menstrual cycle :
(i) oestrogen

(ii) luteinizing hormone (L.H)

(iii) Follicle stimulating hormone (FSH)

40. The diagrams below represent two gynoecia **A** and **B** obtained from two different plants



(a) What name is given to; Gynoecium **A?**
Gynoecium **B?**

(b) State the observable difference between the gnoecia **A** and **B**

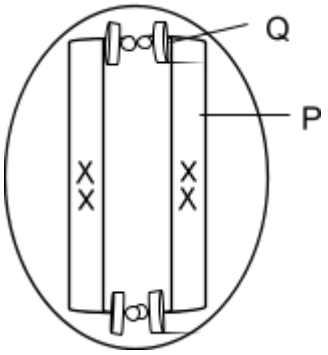
(c) State the role played by Heterostyly in plants.

41. State the difference between the sperm cell and the ovum.

42. (a) Name the parts of the flower in which pollen grains area formed.

(b) Name **two** nuclei found in pollen grains.

43. The diagram below represents a stage in cell division.



(a) Name the stage of all division shown in the diagram above.

(b) Give reasons for your answer.

44. Name the hormone that:

(a) Stimulate the contraction of uterus during birth.

(b) Stimulate the disintegration of corpus luteum when fertilization fails to take place.

45. State t**hree** ways in which seed dormancy benefits a plant

46. (i) State **two** major structural differences between fruit and a seed

(ii) Why is it advisable to use biological control of pests?

47. State the functions of the following parts in the male reproductive system

(a) Somniferous tubules
(b) Sertoli cells

48. (a) Name the parts of a flower responsible for gamete formation

(b) State **one** feature of pollen grains from a wind pollinated flower

49. Name the mechanisms that hinder self-fertilization in flowering plants

50. The eggs of birds are relatively much larger than those of mammals. Explain

51. Distinguish between the following terms:

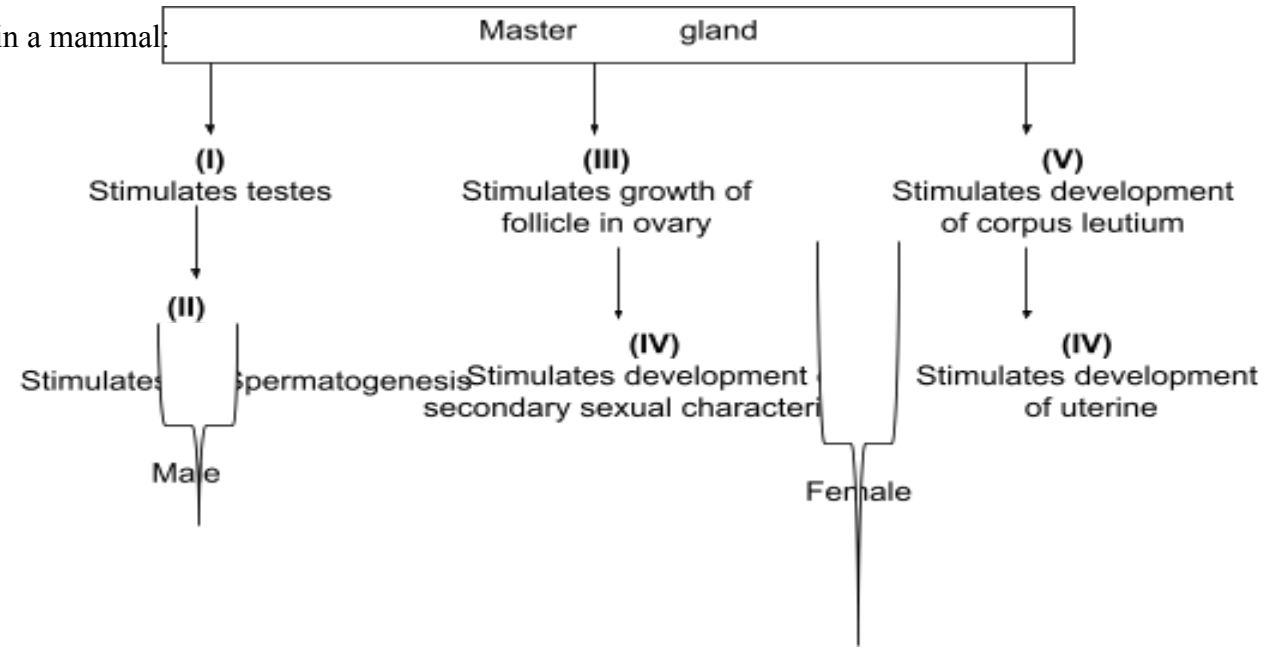
Pollination and **fertilization**

52. a) Describe the various mechanisms of fruit and seed dispersal.

b) Describe the varying events that follow a flower after fertilization.

53. Describe how fruits and seeds are suited to their mode of dispersal

54. The diagram below represents some hormones, their sources and functions in a mammal:



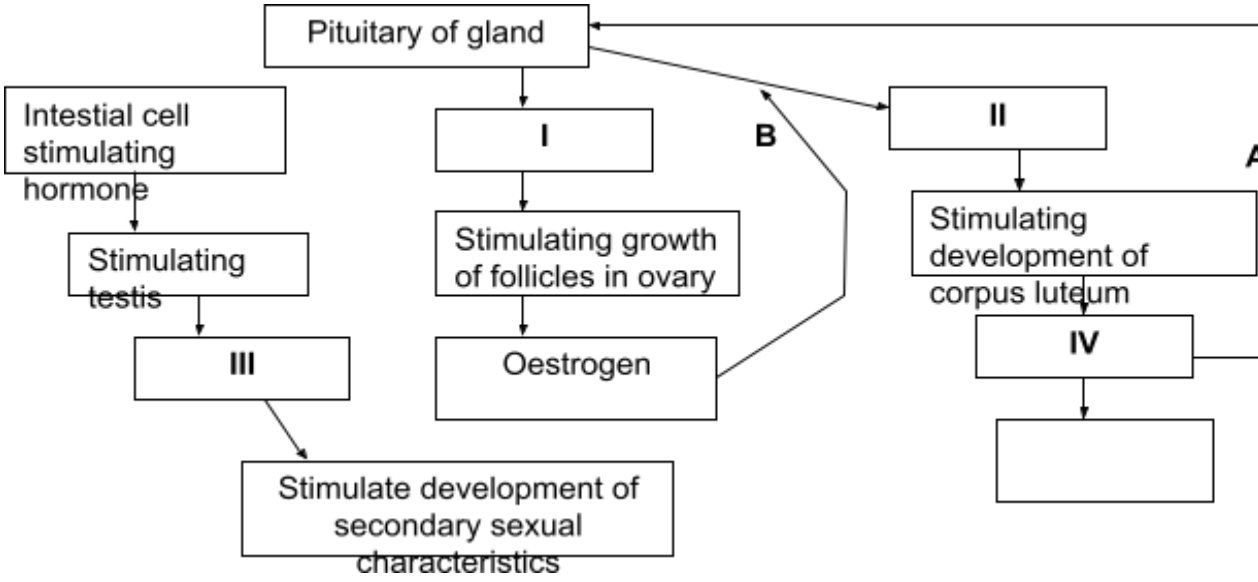
(a) Identify the master gland described above

(b) Name hormones **(ii), (iii), (v)** and (**iv)**

(c) Explain the consequences of deficiencies of hormone **(ii)** in man

(d) Other than stimulating the development of uterine wall, suggest one other function
of hormone **(vi)**

55. The diagram below represents some hormones, their sources and functions in mammals.



a) Name the hormones **I, II** and **III**

b) Name hormones **IV** and state its function

c) Name the control labelled **A & B**

d) Name **one** secondary sexual characteristic common to both males and females

56. (a) State the role of spleen in human defense mechanism

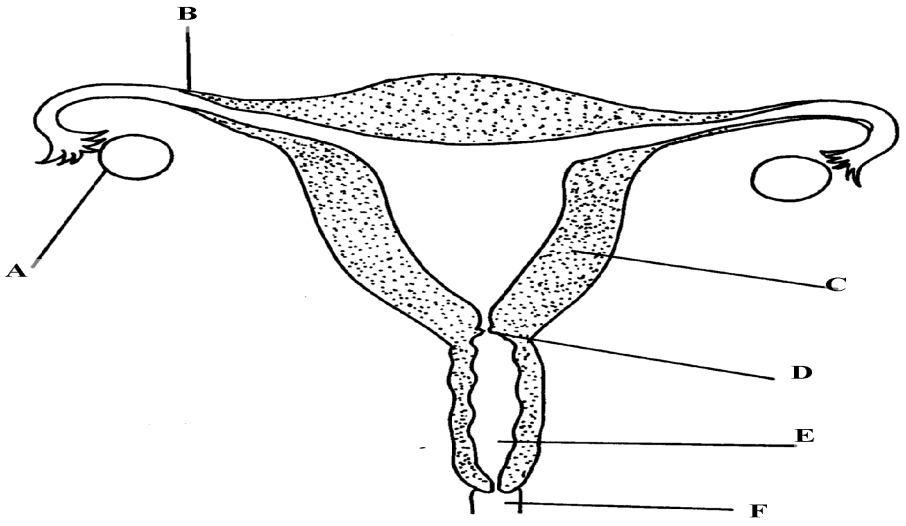
(b) State **two** ways by which the HIV spread may be controlled through patients in hospitals

(c) What do you understand by the word Acquired Immunity Deficiency Syndrome (AIDS)

(d) Why is immunization against diseases encouraged by the government

(e) State how natural active acquired immunity is attained by an individual

57. Explain how seeds and fruits are adapted to the various methods of dispersal



58. The diagram below represents female reproductive system;

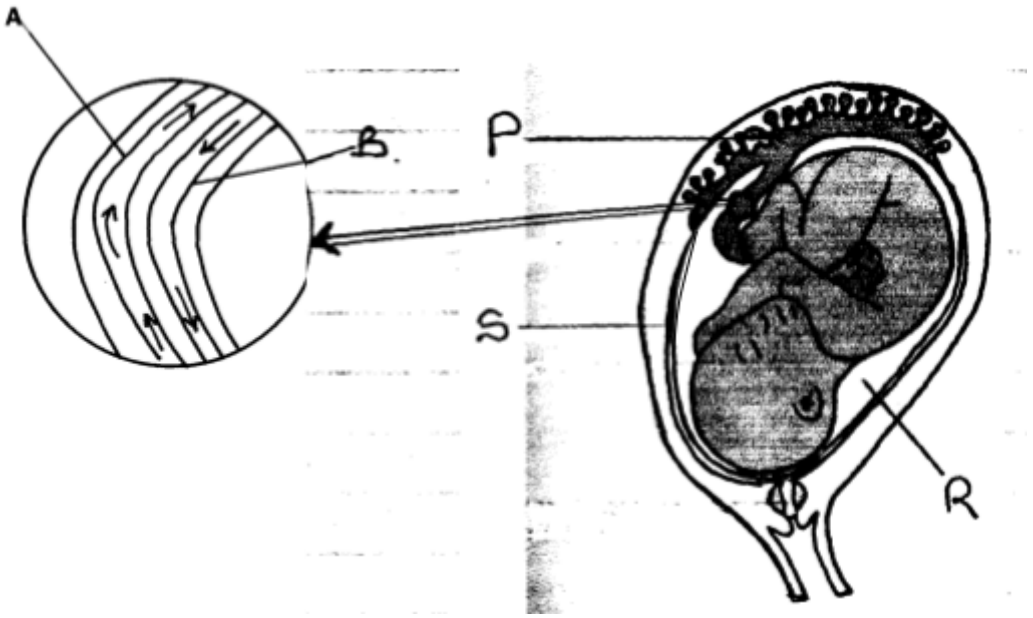
a) Name the part labeled; A, B, C and D

b) State **two** functions of structure **A**

c) How is part **C** adapted to its function?

d) Of what significance is part **E** to reproduction?

59. The diagram below represents a human foetus in a uterus



(a) Name the part labelled **S**

(b) (i) Name the blood vessels labelled **A** and **B**

(ii) State the difference in composition of blood found in vessels **A** and **B**

(c) Name **two** features that enable the structure labelled **P** carry out its function

(d) State the role of the part labelled **R**

60. An experiment was carried out to investigate the rate of growth of pollen tube against time.

The results are shown in the table below:

Time in minutes	**Growth of pollen tube in millimeters**
0	0
30	4.0
60	9.8
90	15.2
120	20.0
150	21.6
180	22.4

(a) (i) On the grid provided draw a graph of the pollen tube growth against time.

(b) (i) At what intervals was the growth of the pollen tube measured?

(ii) What was the length of pollen tube at; 130 minutes

(iii) At what time was the length of the pollen tube 18mm?

(iv) With reasons, describe the growth pattern of the pollen tube between:

- 0 to 120minutes
- Reason
- 120 to 180 minutes
- Reason

(v) State the importance of the growth of pollen tube to the plant

(c) State the changes that take place in a flower after fertilization