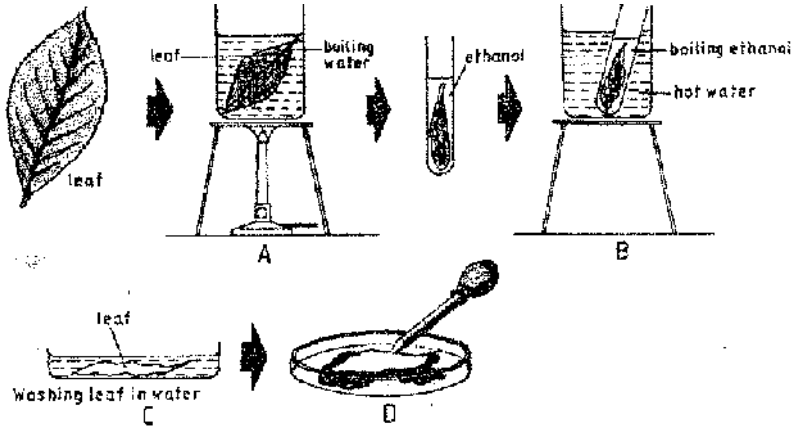
For More Free KCSE Past Papers & Answers Visit www.freekcsepastpapers.com

BIOLOGY PAPER 2
QUESTIONS

1. The set-up below illustrates a procedure that was carried out in the laboratory with a leaf plucked from a green plant that had been growing in sunlight.



(i) What was the purpose of the above procedure ?

1 (mark)

(ii) Give reasons for carrying out step A,B and C in this procedure.
(3marks)

(iii) Name the reagent that was used at the step labeled D .
(1mark)

(iv) State the expected result on the leaf after adding the reagent named in (iii) above.

Stain dark blue/ Blue dark

2. In humans,hairly ears is controlled by agene on the Y Chromosomes .

(a) Using letter Y^H to represents the chromosome carrying the gene for hairly ears, work out a cross between a hairy eared man and his wife.

(4 marks)

(b) (i) What is the probability of the girls having hairly ears? (1 mark)

For More Free KCSE Past Papers & Answers Visit www.freekcsepastpapers.com

(ii)Give reason for your answer in (b (i) above.
(1mark)

(c) Name two disorders in humans that are determined by sex linked genes
(2marks)

(d) Explain how comparative embryology is an evidence for organic evolution .
(2marks)

3. (a) Name the causative agent for the following respiratory diseases.
(2marks)

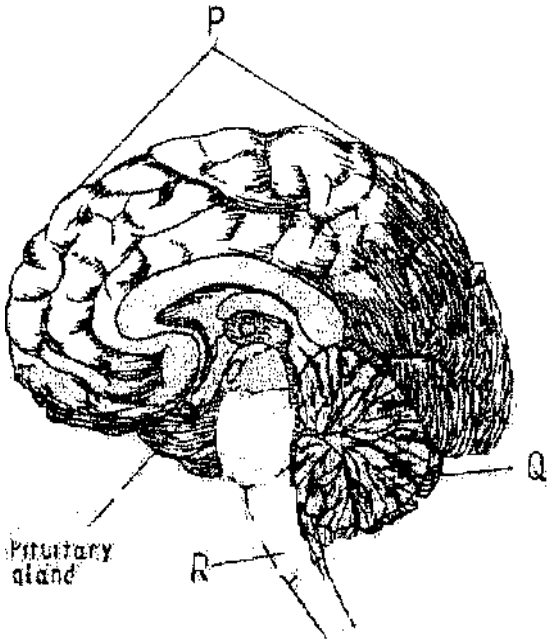
(i) whooping cough.

(ii) Pneumonia

(b) Describe how oxygen in the alveolus reaches the red blood cells .
(4marks)

(c) How are the pnematophores adapted to their function ?
(2marks)

4. (a) the diagram below represents a section of the human brain.



(i) Name the structure labeled Pand R.

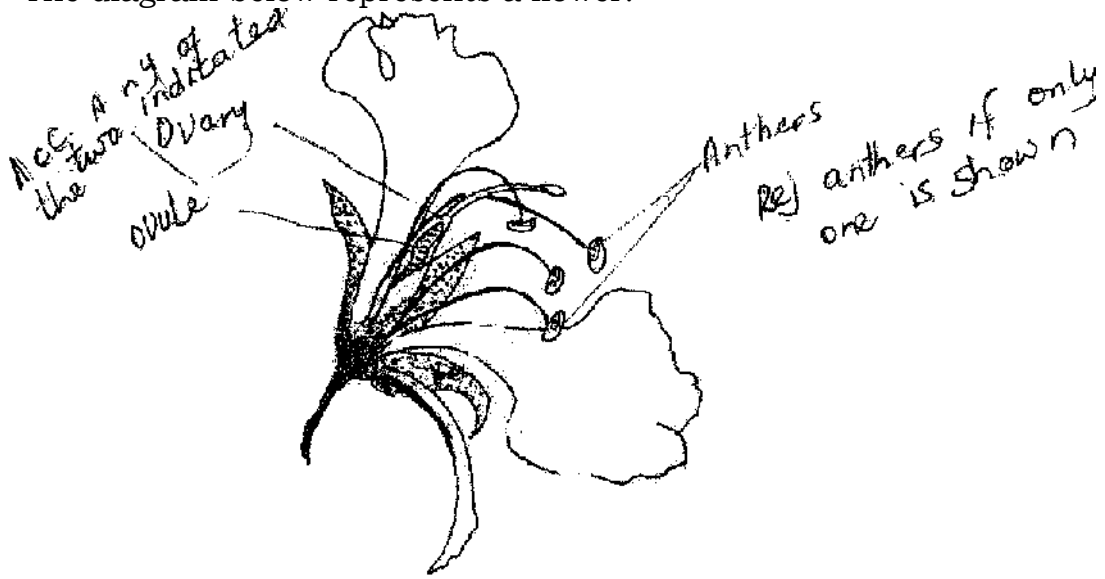
For More Free KCSE Past Papers & Answers Visit www.freekcsepastpapers.com

(ii) State two functions of the part labeled Q

(b) (i) Name two reproductive hormones secreted by the pituitary gland in women. (2marks)

(ii) State one function of each of the hormones named in (b)(i) above (2marks)

5.(a) The diagram below represents a flower.



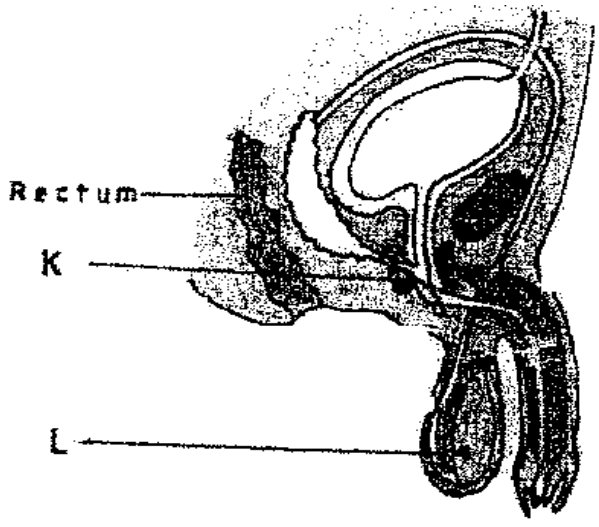
(i)On the diagram , name two structures where meosis occurs. (2 marks)

.....

.....

(ii) How is the flower adapted to prevent self-pollination?

(b)The diagram below represents a human reproductive organ.



For More Free KCSE Past Papers & Answers Visit www.freekcsepastpapers.com

(i)Explain two adaptations of the structure labeled L to its functions
(2 marks)

Explain the role of gland labeled K

SECTION B (40 MARKS)

*Answer **6(compulsory**) and either question 7 or 8 in the spaces provided after question 8.*

6. (a)An experiment was carried out to investigate the population of a certain micro-organism. Two petri-dishes were used . into the petri-dish labeled m ,60cm^{3}of a culture medium was placed while 30cm^3 of the same culture medium was placed in petri-dish labeled N.Equal numbers of the micro- organisms were introduced in both petri-dishes . The set-ups were then incubated at 35^{0}c. The number of micro-organisms in each petri-dish was determined at irregular intervals for a period of 60 hours . The results were as shown in the table below

Relative number of micri-organisms	M	40	40	180	280	1200	1720	1600	1840	1560	600
	N	40	40	120	200	680	560	560	600	600	400
Time in hours		0	5	10	15	23	30	35	42	45	60

(i) On the same axes , draw the graphs of relative number of micro-organisms against time on the grid provided.

(7 marks)

For More Free KCSE Past Papers & Answers Visit www.freekcsepastpapers.com

(ii)After how many hours was the difference between the two populations greatest ? (1 mark)

(iii)Work out the difference the two populations at 50 hours (2 marks)

(iii)

(iv) With a reason state the effect on the population of micro-organisms in petri-dish M if the temperature Was raised to 60^0c after 20 hours . (2marks)

(v)Account for the shape of the curve for population in petri-dish N between 46hours and 59 hours. (3marks)

(b) Explain how osmotic pressure in the human blood is maintained at normal level. (5marks)

When the osmotic pressure of the blood increases beyond the normal level (osmoreceptors)hypothalamus detects this and stimulates the pituitary gland to /secrets / release more ADH vasopressins which make kidney tubules more permeable to water ; and more water is reabsorbed into the blood ; reducing the osmotic pressure to the normal level ; Acc reverse

When osmotic presser falls below the nomal level the (osmoreptors) in the hypothalamus detect this the pitituary gland is less stimulated Non /little /less permeable to water hence less water is absorbed into the blood ; increasing the osmotic level

when op is high

when there is too much $Na^{+}_{(aq)}$ – the blood adrenal cortex responds by secreting less aldosterone; which causes less $Na^{+}_{(aq)}$ to be absorbed from the kidney tubules into the blood; lowering the sodium ions level

when op is low

when there is too low Na^{+} ions /or $Na^{+}_{(aq)}$ in the blood adrenal cortex responds by secreting more adolsterone which causes more Na^{+} to be reabsorbed from the kidney tubules into the blood ; raising the Na^{+} level

7.(a) Explain how structural features in terrestrial plants affect their rate of transpiration . (13 marks)

(b)Explain how the human skin brings about cooling of the body on a hot day . (7marks)

8.(a)Describe the exoskeleton and its functions in insects . (13marks)

(b) Describe how accommodation in the human eye is brought about when focusing on a near object . (7marks)