



2017 SCHOLARSHIP EXAMINATION

BIOLOGY

Time: 30 minutes

Name: _____

School: _____

INSTRUCTIONS

Complete **ALL** questions (**38 marks** in total)

Use separate sheets if more space is required.

Questions

Q1.

Living organisms share some basic characteristics.

Draw a straight line from each characteristic to its correct description.

The first has been done for you.

(4)

Characteristic

Description

sensitivity

production of new organisms

respiration

respond to the surroundings

excretion

taking in of food

reproduction

increase in number of cells

growth

release of energy in cells

nutrition

removal of metabolic waste

(Total for question = 4 marks)

Q2.

(a) The table shows some of the levels of organisation within an organism.

Complete the table by inserting a tick (✓) to show the level of organisation of each example. The first one has been done for you.

(4)

Example	Level of organisation		
	Organelle	Organ	System
nucleus	✓		
circulation			
chloroplast			
leaf			
bulb			

(b) Place the following human structures in order of size from the smallest to the largest.

liver	red blood cell	eye	white blood cell	kidney
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(2)

Order	Structure
smallest ↓ largest	

(Total for question = 6 marks)

(b) If a pregnant woman smokes cigarettes it will increase the risk of her producing a smaller baby. This is because cigarette smoke contains carbon monoxide.

Suggest how carbon monoxide will increase the risk of producing a smaller baby.

(3)

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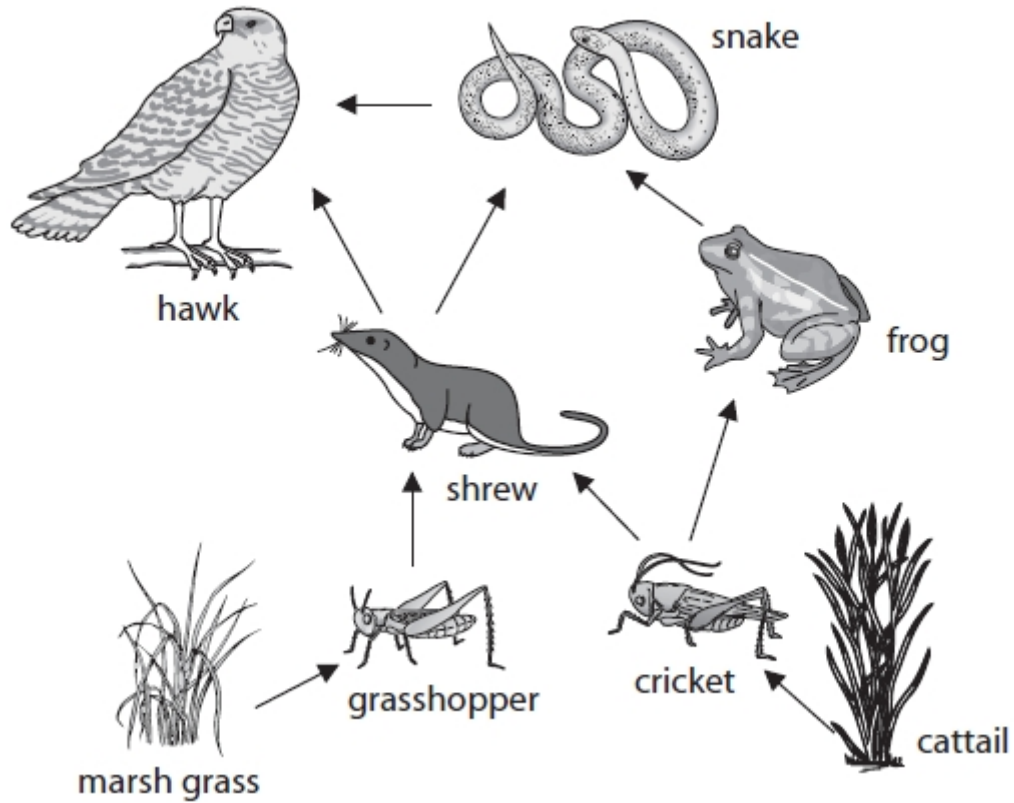
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(Total for question = 8 marks)

Q4.

The diagram shows a food web from a habitat.



(a) Use information in the food web to complete the table.

The first one has been done for you.

(4)

number of organisms	8
number of different types of plant	
number of animals	
number of primary consumers	
number of food chains	

(b) (i) The plants in this food web make the food for some of the animals to eat.

Give the name used to describe these plants.

(1)

.....

(ii) The hawk catches and eats its prey.

Give the name used to describe the hawk in this food web.

(1)

.....

(c) A pesticide can be used to kill the grasshoppers in this habitat.

(i) Describe the effect that killing grasshoppers would have on the number of shrews.

(1)

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(ii) Describe the effect that killing grasshoppers would have on the number of marsh grass plants.

(1)

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(Total for question = 8 marks)

Q5.

The table shows the percentage of protein, fat and minerals found in the same mass of meat from different animals.

Meat	Protein (%)	Fat (%)	Minerals (%)
beef	19.0	17.0	0.9
chicken	21.0	2.5	1.1
lamb	17.5	20.0	1.0
pork	16.0	25.0	0.9
rabbit	21.0	3.5	1.5

(a) (i) Which meat contains the least protein?

(1)

.....

(ii) Calculate how many grams of protein are present in one kilogram of rabbit meat. Show your working.

(2)

Answer g

(b) Which type of meat would provide the most energy?

(1)

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(c) Give **two** uses of fat in the human body.

(2)

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.....

(d) Name the mineral in meat that is needed to make haemoglobin.

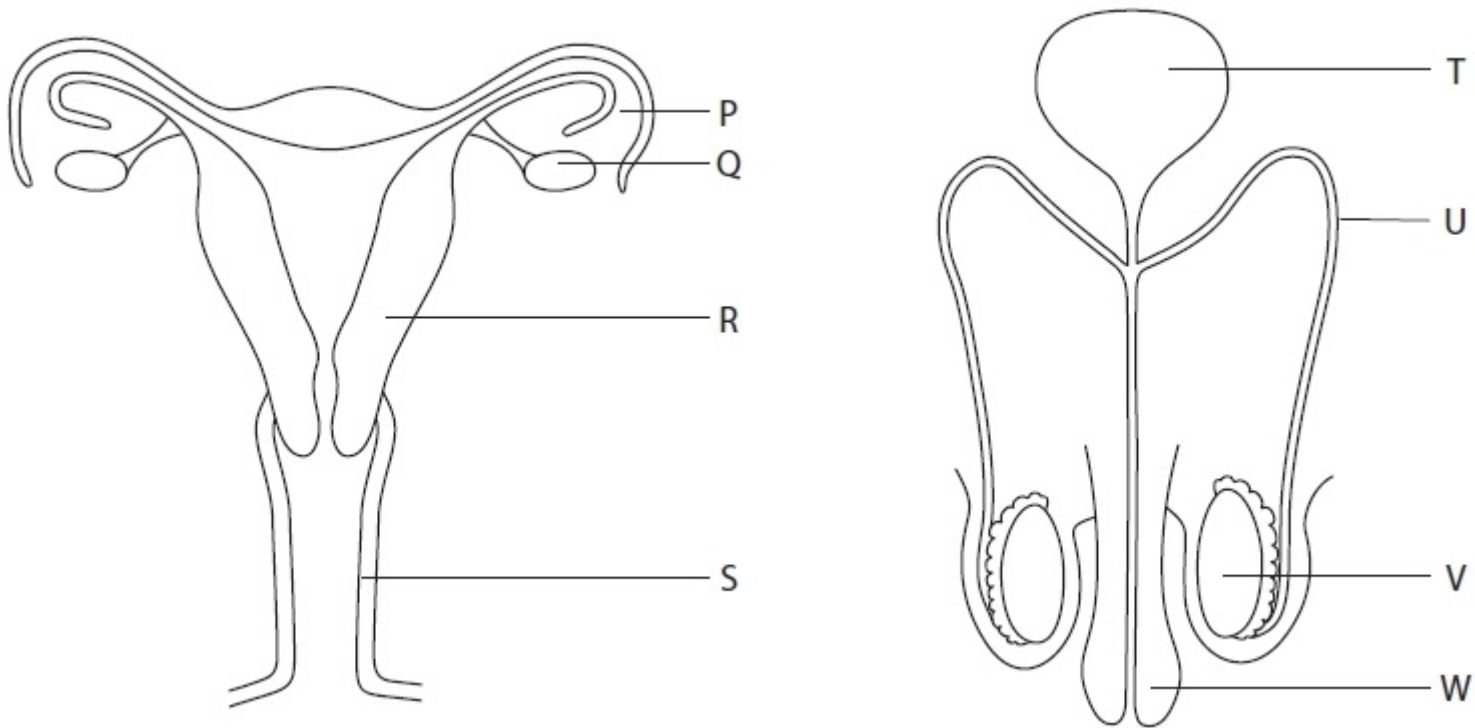
(1)

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(Total for question = 7 marks)

Q6.

The diagrams show the female and male reproductive systems.



The table lists some events that take place in the female reproductive system, some that take place in the male reproductive system, and some that take place in both.

Complete the table by giving the letter, or letters, to indicate where each event takes place. The first one has been done for you.

Event	Letter
fertilisation	P
release of oestrogen	
meiosis	
repair of the uterus lining	
implantation of an embryo	
formation of gametes	

(5)

(Total for question = 5 marks)

