

1. Characteristics and classification of living organisms

1.2 Concept and uses of classification systems

Paper 1 and 2

Question Paper

Paper 1

Questions are applicable for both core and extended candidates

- 1 Which description of a species is correct?
- A a group of organisms that can reproduce to produce fertile offspring
 - B a group of animals that can produce genetically different offspring
 - C a group of organisms living in the same area at the same time
 - D all of the populations in an ecosystem

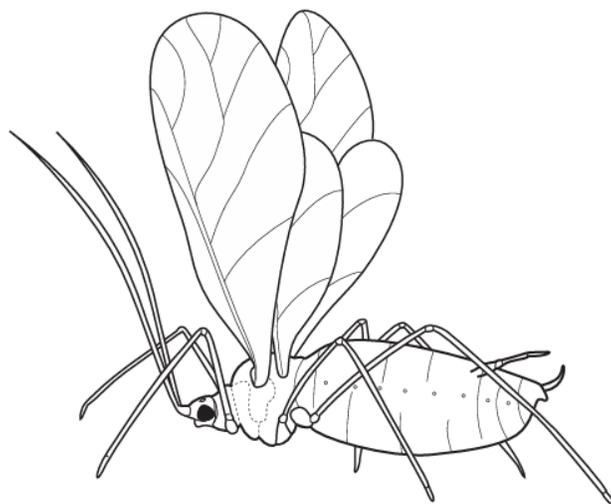
- 2 The table shows the scientific names and the common names of four plants.

scientific name	common name
<i>Althaea officinalis</i>	marsh mallow
<i>Hottonia palustris</i>	water violet
<i>Viola palustris</i>	marsh violet
<i>Viola tricolor</i>	wild pansy

Which word is a genus name?

- A marsh
 - B *palustris*
 - C *Viola*
 - D violet
- 3 What does the term species mean?
- A a group of animals that reproduce asexually
 - B a group of organisms that can reproduce to produce fertile offspring
 - C all the plants that live in the same area at the same time
 - D a group of vertebrates that reproduce sexually

- 4 The diagram shows an animal.



Use the key to identify the animal.

1	has two wings	go to 2
	has four wings	go to 3
2	has antennae much shorter than legs	A
	has antennae about the same length as legs	B
3	has feathery antennae	C
	has smooth antennae	D

- 5 Donkeys and zebras are different species. They can breed to produce an animal called a zedonk.

Zedonks are not fertile.

Which statement is correct?

- A** Zedonks and donkeys are the same species.
- B** Zedonks and zebras are the same species.
- C** Zedonks are a species.
- D** Zedonks are **not** a species.

6 The scientific name for humans is *Homo sapiens*.

What does *Homo* refer to?

- A mammal
- B genus
- C kingdom
- D species

7 Using the binomial system, the Arctic fox is called *Vulpes lagopus*.

Which row is correct?

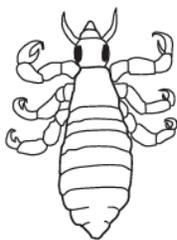
	<i>Vulpes</i>	<i>lagopus</i>
A	genus	kingdom
B	genus	species
C	species	genus
D	species	kingdom

8 The scientific name for the golden eagle is *Aquila chrysaetos*.

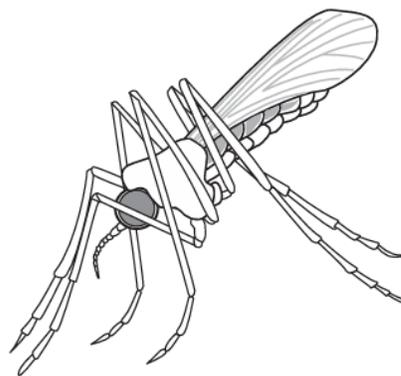
What is the genus of the golden eagle?

- A *Aquila*
- B *chrysaetos*
- C eagle
- D golden

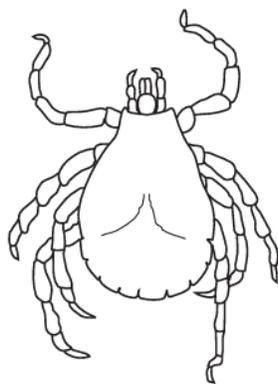
9 The diagram shows four arthropods.



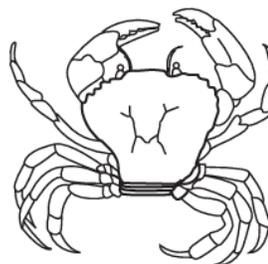
Pediculus $\times 20$



Anopheles $\times 10$



Dermacentor $\times 7$



Carcinus $\times 0.5$

How many of these arthropods are insects?

A 1

B 2

C 3

D 4

- 10 Some statements about species are given.
- 1 Members of a species all look identical.
 - 2 Members of a species belong to the same genus.
 - 3 Members of a species can produce fertile offspring.
 - 4 Species are named using an international system.

Which statements are correct?

- A** 1, 2, 3 and 4
- B** 1, 2 and 3 only
- C** 2 and 4 only
- D** 2, 3 and 4 only
-
- 11 Which name is given to a group of individuals that can reproduce to produce fertile offspring?
- A** a genus
- B** a kingdom
- C** a species
- D** an organ system
-
- 12 Which name is given to a group of individuals that can reproduce to produce fertile offspring?
- A** a genus
- B** a kingdom
- C** a species
- D** an organ system

- 13 The horse, *Equus ferus*, and the donkey, *Equus asinus*, are able to interbreed. The offspring they produce is called a mule.

Which statement is correct?

- A** The horse and the donkey are the same genus; the mule is infertile.
B The horse and the donkey are the same species; the mule is infertile.
C The horse and the donkey are the same genus; the mule is fertile.
D The horse and the donkey are the same species; the mule is fertile.
- 14 Which levels of classification are shown in the scientific name of an organism, using the binominal system?

	genus	kingdom	species
A	✓	✓	✓
B	✓	✓	x
C	✓	x	✓
D	x	✓	✓

key

✓ = yes

x = no

- 15 Which pair of organisms belong to the same genus?

- A** *Alderia modesta* and *Austrominius modestus*
B *Arenicola cristata* and *Arenicola marina*
C *Bittium reticulatum* and *Clypeostoma reticulatum*
D *Botryllus schlosseri* and *Botrylloides leachii*

16 The scientific names of some animals are listed.

- 1 *Camelus dromedarius*
- 2 *Camelus ferus*
- 3 *Equus ferus*
- 4 *Struthio camelus*

Which animals are in the same genus?

- A** 1, 2 and 3 **B** 1, 2 and 4 **C** 1 and 2 only **D** 2 and 3 only
- 17 Which term is used to describe a group of living things that can reproduce to produce fertile offspring?
- A** binomial
B genus
C organism
D species
- 18 According to the binomial system, how should a human be named?
- A** *Homo Sapiens*
B *Homo sapiens*
C *homo Sapiens*
D *homo sapiens*

19 A rat has the scientific name *Rattus rattus*.

What do the two parts of this name refer to?

- A** genus and species
B kingdom and genus
C kingdom and species
D variety and genus

20 Using the binomial system of naming organisms, the name of the lion is *Panthera leo*.

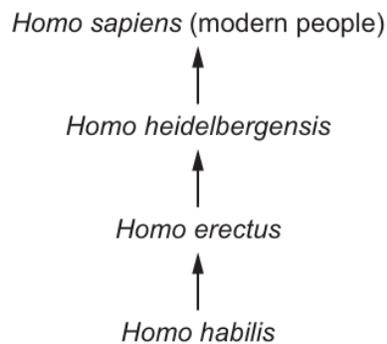
Which statement is correct?

- A The lion belongs to the kingdom *Panthera*.
- B The lion belongs to the genus *Panthera*.
- C The lion belongs to the species *Panthera*.
- D The lion belongs to the genus *leo*.

21 Which shows an organism that has been named using the binomial system?

- A *Brown seaweed*
- B *Polar bear*
- C *Red fox*
- D *Vulpes vulpes*

22 The diagram shows how *Homo sapiens* (modern people) could have evolved from earlier ancestors.



Which statement about modern people and their ancestors is correct?

- A They are in the same species and the same genus.
- B They are in the same species but not the same genus.
- C They are in the same genus but not the same species.
- D They are neither the same species nor the same genus.

23 The binomial name for humans is *Homo sapiens*.

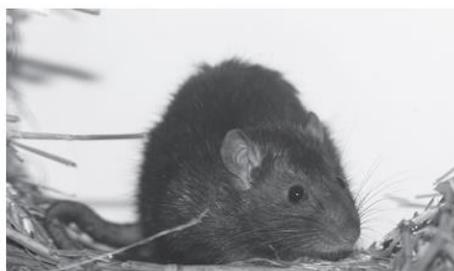
Which row is correct?

	<i>Homo</i>	<i>sapiens</i>
A	genus	kingdom
B	genus	species
C	species	genus
D	species	kingdom

24 The photographs show two different rats.



Rattus norvegicus

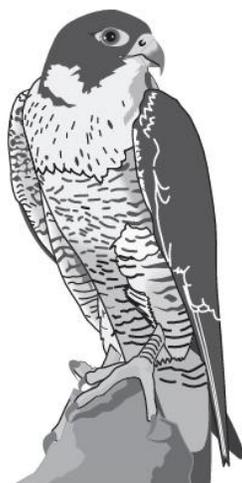


Rattus rattus

Which statement about the rats is correct?

- A** The rats are the same genus.
- B** The rats are the same species.
- C** The rats can breed together to produce fertile offspring.
- D** The rats do not share any of the same features.

25 The diagram shows an animal whose scientific name is *Falco peregrinus*.



To which species does it belong?

- A bird
- B *F. peregrinus*
- C *Falco*
- D vertebrate

Paper 2

Questions are applicable for both core and extended candidates unless indicated in the question

26 What is the first part of the scientific name of an organism, using the binomial system?

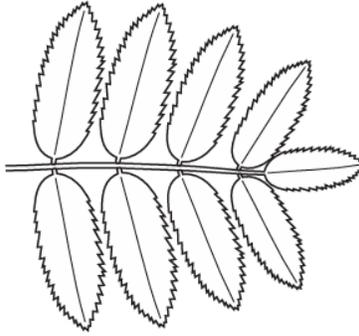
- A genus
- B group
- C kingdom
- D species

27 The chimpanzee belongs to the species *Pan troglodytes*.

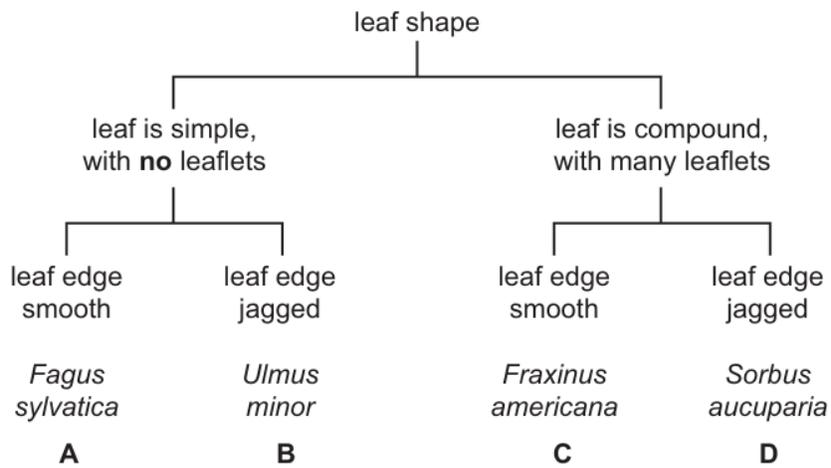
What is the genus of this species?

- A chimpanzee
- B *Pan*
- C *Pan troglodytes*
- D *troglodytes*

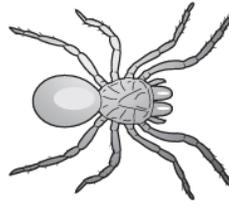
28 The diagram shows a tree leaf.



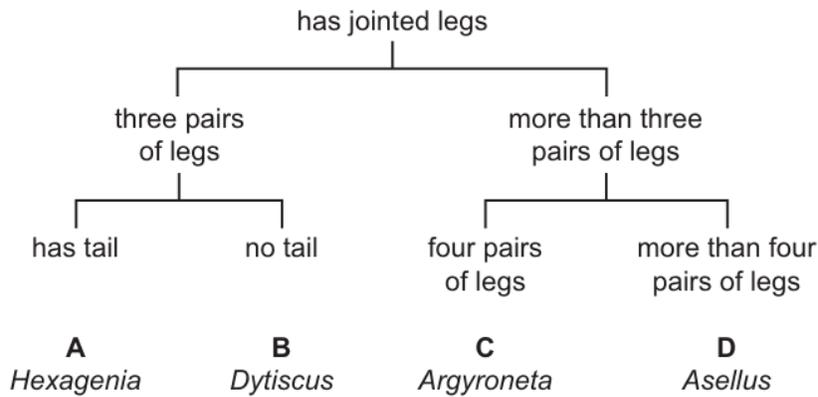
Use the key to identify the tree species to which the leaf belongs.



29 The diagram shows an animal.



Using the key, which genus does the animal belong to?



30 Which statement is true for all species of organisms?

- A** A species is a group of organisms that are genetically identical.
- B** A species is a group of organisms that produce fertile offspring.
- C** A species is a group of organisms that reproduce both asexually and sexually.
- D** A species is a group of organisms that reproduce by sexual means only.

31 The scientific name for humans is *Homo sapiens*.

What does *Homo* refer to?

- A** mammal
- B** genus
- C** kingdom
- D** species

32 Using the binomial system, the Arctic fox is called *Vulpes lagopus*.

Which row is correct?

	<i>Vulpes</i>	<i>lagopus</i>
A	genus	kingdom
B	genus	species
C	species	genus
D	species	kingdom

33 The scientific name for the golden eagle is *Aquila chrysaetos*.

What is the genus of the golden eagle?

- A** *Aquila*
- B** *chrysaetos*
- C** eagle
- D** golden

34 Some statements about species are given.

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Which statements are correct?

- A** 1, 2, 3 and 4
- B** 1, 2 and 3 only
- C** 2 and 4 only
- D** 2, 3 and 4 only

- 35 Two animals have an identical sequence of amino acids in one of the proteins found in their cells.

What does this indicate about these animals? **(extended only)**

- A They have been eating the same types of food.
- B They have not been exposed to substances that cause mutation.
- C They must be members of the same genus.
- D They share an ancestor.

- 36 The table shows a section of DNA taken from four different organisms.

organism	base sequence									
W	C	A	C	A	A	T	C	G	A	A
X	G	T	C	A	A	T	G	G	T	G
Y	C	T	C	A	A	T	C	G	T	A
Z	C	T	C	A	T	T	C	G	T	A

Which two organisms are the most distantly related to each other? **(extended only)**

- A W and X
 - B W and Z
 - C X and Y
 - D X and Z
- 37 The bonobo and the chimpanzee are two closely related species.

What is the **most** accurate method of deciding how closely related species are? **(extended only)**

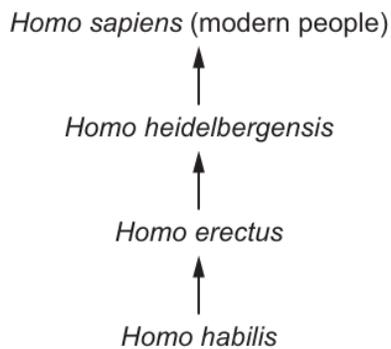
- A compare evolutionary relationships of other species
- B compare the base sequences of their DNA
- C compare their anatomy
- D compare their morphology

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What do the two parts of this name refer to?

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Which statement is correct?

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- B The lion belongs to the genus *Panthera*.
- C The lion belongs to the species *Panthera*.
- D The lion belongs to the genus *leo*.