Biology Admissions Test Sample Questions

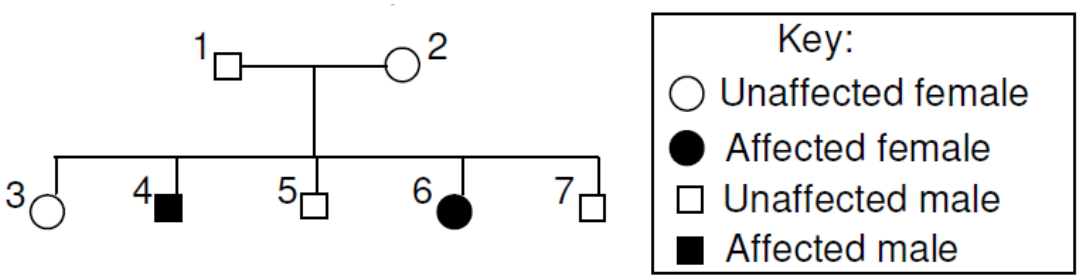
1. Which of the following shows a correct hierarchy of biological classification?

A) Species, Order, Class, Genus, Family
B) Kingdom, Phylum, Family, Species, Genus
C) Family, Phylum, Order, Genus, Species
D) Phylum, Class Family, Genus, Species
E) Order, Family, Class, Phylum, Genus

2. An individual produces 0.35 litres of urine in 12 hours. This urine contains 8g of urea. What is the concentration of urea in this urine?

A) 2.0 g/litre
B) 2.3 g/100 cm^3
C) 4.6 g/100 cm^3
D) 5.0 g/litre
E) 11.5g/100 cm^3

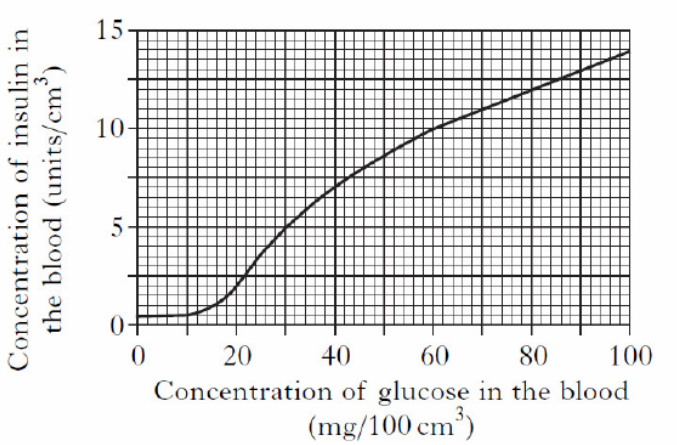
3. The diagram below is of a family tree showing affected individuals of an inherited condition caused by a recessive allele.



Which of the seven individuals shown in this family tree <u>MUST</u> be heterozygous?

A) 5 and 7
B) 2 and 3
C) 1 and 5
D) 1 and 3
E) 1 and 2

4. The concentration of insulin in the blood varies with the concentration of glucose in the blood, as shown in the graph below.



If a man with 4.5 litres of blood has an insulin concentration of 7 units/cm^3, what is the total mass of glucose in his blood?

A) 40 mg
B) 190 mg
C) 890 mg
D) 1800 mg
E) 4500 mg

5. A scientist establishes that the probability that any particular ant will leave a nest within 30 minutes is constant. She determines that after 30 minutes, 1/5 of the original number of ants have left the nest.
Assuming that the probability for any one remaining ant to leave the nest in subsequent 30 minute periods is the same as it was in the first 30 minutes, what fraction of the original number of ants will remain in the nest after a total of two hours (we assume that no ants return during the observation).

A) 1/125
B) 32/625
C) 4/5
D) 64/125
E) 256/625