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EXERCICES OF BIOLOGY S2A,B,C

1. The animal kingdom is divided into taxa such as order, family, class, species, phylum and genus. Rewrite these categories in the descending order starting with phylum.

2. Identify an echinoderm from the following?

A. Starfish

B. Roundworm

C. Sponge

D. Elephant

3. Among mammals, man is considered to be superior. This is because:

A. Man has sense organs, which are more efficient.

B. Man is born with the ability to speak.

C. Man has a well developed brain.

D. Man possesses hands, which are more skilled than forelimbs of other mammals.

4. When trying to determine whether two birds (male and female) belong to the same species, the most certain method would be.

A. Mate the two birds.

B. Compare their feathers.

C. Mate the two birds and see if they produce fertile offspring.

D. Compare the colour of their feathers.

5. Which of the following statement is correct?

A. Grasshopper, mosquito, cockroach and spider are all insects.

B. Crab, scorpion, millipede and centipede are all arachnids.

C. Centipede, crab, spider and mosquitoes are all crustaceans.

D. Crab, cockroach, mosquito and spider are all arthropods.

6. Name the phylum to which all vertebrates belong.

7. Below is a list of important characteristics of different phyla belonging to the animal kingdom.

Write the name of the phylum against each characteristic.

(a) Moves by means of a muscular foot .

(b) Posses a notochord and a tubular dorsal nerve chord .

(c) Segmented animals with jointed limbs and an exoskeleton of chitin .

(d) Unsegmented soft bodied animals with a hard calcareous protective shell .

8. Insects are both useful and harmful explain.

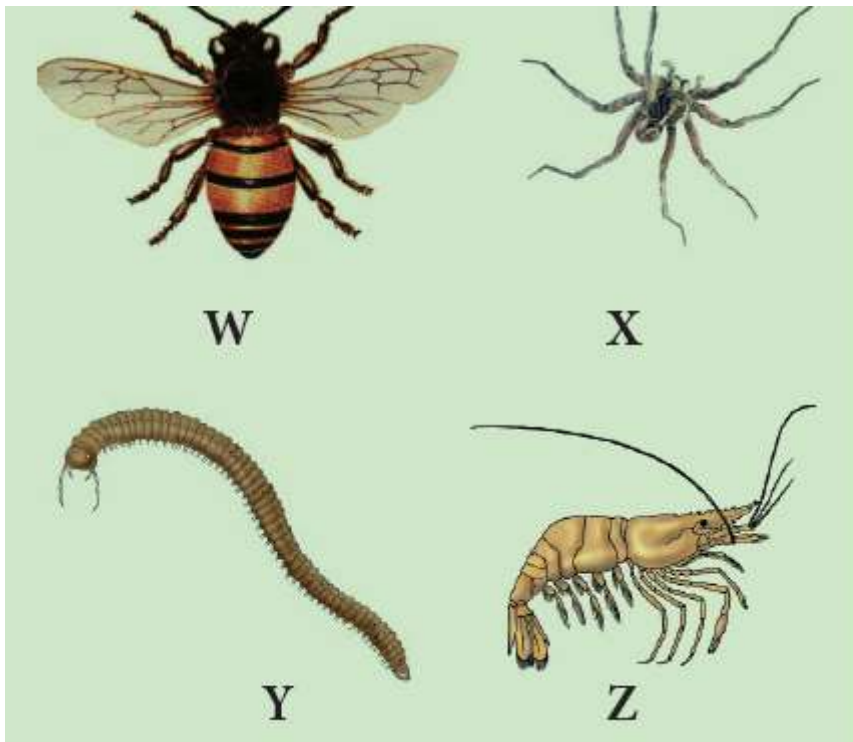
9. Name the characteristic that is common to:

(a) Fish, amphibians, and reptiles.

(b) Amphibians and reptiles but not to fish.

(c) Birds and mammals, but not to reptiles.

10. Study the following diagrams representing organisms in a given phylum.



a) To which phylum do the above organisms belong? Give reasons for your answer.
b) How does animal **Z** protect itself from enemies?
c) Which animal above belong to a class that lacks antennae? Name the class.

11. During an ecological tour of Lake Muhazi, a group of students from Kagarama Secondary school recorded the following observations.
    (i) Tilapia feeds on mosquitoes larvae.
    (ii) Mosquito larvae feed on plank tonic algae.
    (iii) Plank tonic crustaceans feed on plank tonic algae.
    (iv) Hawks feed on tilapia, worms and plank tonic crustaceans.

(a) From this record of observations, construct a food web.

(b) From the food web you have constructed in (a) above, isolate and write down a food chain that ends with
    (i) Hawk as a secondary consumer
    (ii) Hawk as a tertiary consumer

(c) (i) Which group of organisms in this lake are the producers?
    (ii) The biomass of the producers in this lake was found to be greater than that of the primary consumers. Give an explanation for this observation.

(d) Using the food web you constructed in (a) above, name
    (i) Two organisms that compete for food in the lake?
    (ii) The source of food the organisms in (d) (i) above compete for.

(e) State ways by which human beings may interfere with this lake ecosystem.

12. Consider the food chain below

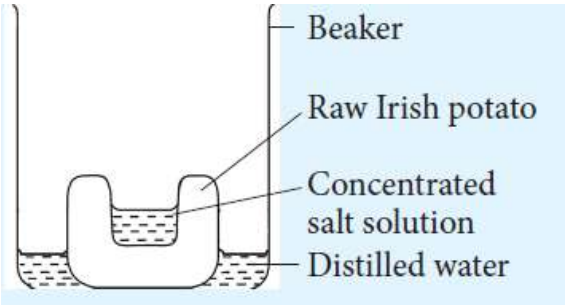
A → B → C → D → E

Organism E gets energy from D, D from C, C from B and B from A. where does A get its energy from?

13. Construct a food web that is found within your home environment

14. Diffusion is a passive process, explain.

15.Place the potato in a petri -dish containing distilled water. Let it stand for several hours then note the level of solution in potato.



16. Repeat the experiment with boiled pieces of Irish potato, sweet potato, cassava or arrow roots.

Study questions

(a) Draw a diagram to represent the results of the experiment.

(b) Is the level of the salt solution still the same at the end of the experiment?

(c) Explain what brings about the change in level of the salt solution.

(d) Compare these results with those when boiled Irish potato is used

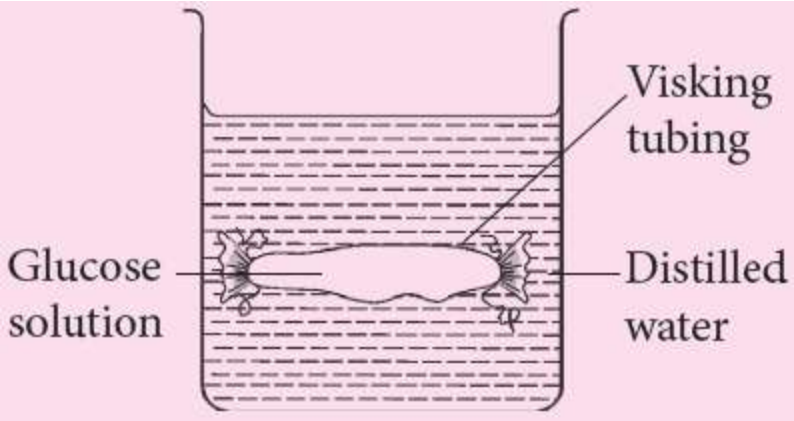
17.a . Which one of the following describes osmosis.

A. Movement of sugar molecules.
B. Movement of water molecules,
C. Movement of sugar and salt molecules.
D. Evaporation of water.

b. What will happen to an animal cell when it is placed in an isotonic solution?
A. Shrink
B. Burst
C. Remain the same
D. Expand

c. What kind of a membrane is partially permeable?
A. A membrane made of plant tissue.
B. A membrane that is made up of water molecules.
C. A membrane that allows certain substances to go into and out of cells.
D. A membrane that surrounds a food vacuole.

18. A learner set-up an experiment shown below to investigate osmosis.



a) Draw the diagram to show the results of this experiment.

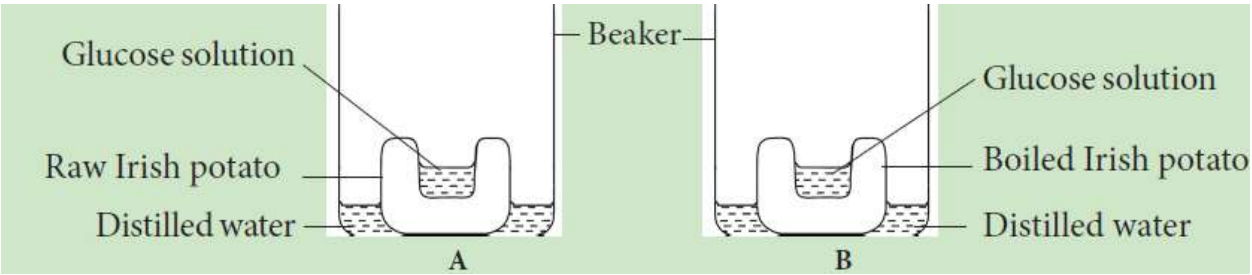
b) Account for observations you made in (a) above.

c) What does the visking tubing represent in a plant cell?

19. An animal cell bursts when placed in water but a plant cell does not. Explain

20. Using your knowledge of plant and animal cell structure. Explain why plant cells have regular shape

21.Two potatoes were peeled. One of them was boiled. A cavity was made in each of the potatoes and the experiment was set up as shown below. The experiment was left undisturbed for 24 hours.



(a) Draw a diagram to illustrate the result in each figure.
(b) Give reasons to support your answer in (a) above.

22. What would happen if osmosis was not available in plants?

23. What is turgidity and mention its importance in plants?

24.Define the following terms:

a) Population

b)Community

c) Habit

d) Ecological niche

e) Biotic factors

f) Abiotic factor

g) Ecosystem

GOOD LUCKY……