CHEMISTRY ONLINE
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BIOLOGY

FOUNDATIONS IN BIOLOGY

Level & Board	OCR (A-LEVEL)
TOPIC:	BIOLOGICAL MOLECULES - WATER
PAPER TYPE:	QUESTION PAPER - 1
TOTAL QUESTIONS	07
TOTAL MARKS	/27

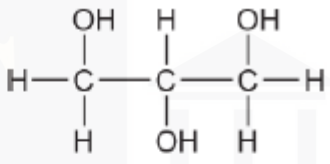
Biological Molecules – Water - 1

1.

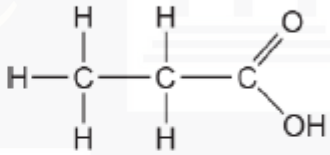
(a) Water's polarity allows it to dissolve a wide range of ionic and covalent molecules, earning it the moniker "universal solvent."

Which of the following three-carbon compounds won't dissolve in water by forming hydrogen bonds with it? (1)

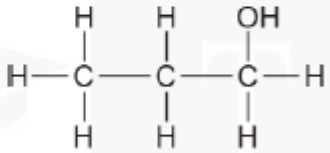
A glycerol



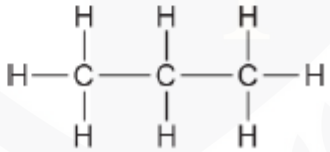
B propanoic acid



C propanol



D propane



2.

Water plays a variety of crucial functions in living things.

(a) Name the chemical bond that binds molecules of water together. **(2)**

(b) One of the numerous materials that dissolves in water is DNA. Describe the benefits of water as a solvent. (2)

(c) A student looked at the "plant food" bag that came with some cut flowers. Among the ions on the list were sodium and hydrogen.

Indicate what functions these might have in extending the vase life of the cut flowers.

hydrogen. **(2)**

3.

Numerous qualities of water are necessary for the survival of living things.

(a) Describe the ways in which characteristics of water's density aid in the survival of living things. **(3)**

4.

(a) Describe the characteristics of water that make it the perfect environment for amphibians. **(2)**

(b) What kind of biomolecule is water? **(2)**

5.

(a) What does water do with biological molecules? **(2)**

(b) What are two biological functions of water? **(2)**

(c) State the type of chemical bonding that exists within single water molecule. **(2)**

6.

(a) Describe the change in density of water as its change to ice.

State an observation that confirm your answer. **(2)**

(b) Fig. 1 show three molecules of water.

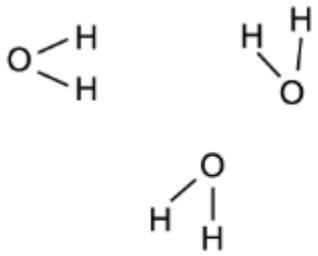


Fig.1

On Fig.1 draw the position of one hydrogen bond, using a dotted line. **(2)**

7.

Water is described as water molecule.

(a) Define the term polar in this context. **(2)**

(b) Water is highly important for living organism.

State the nature of the interaction between water molecule that are used to explain this**. (2)**

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