# Chapter 1: Organisms and Life Processes – Answers

1.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Kingdom** | **Single / multi cellular** | **Chloroplasts present** | **Cell wall** | **Carbohydrates** | **Nutrition** |
| animal | multicellular | no | no | glycogen | (heterotrophic) consume other organisms |
| plant | multicellular  and  single-celled | yes | yes (cellulose) | starch/ sucrose | photosynthesis |
| fungi | multicellular  and  single-celled | no | yes (chitin) | glycogen | saprotrophic (or parasitic) |
| protoctists | multicellular  and  single-celled | some | yes (*peptidoglycan*/ not cellulose or chitin) | starch/ sucrose/ glycogen | consume other organisms and/or photosynthesis |

2. (a) Order of words: moulds; yeast; photosynthesise; hyphae; chitin; mycelium; nitrogen; enzymes; glucose; amino acids (previous two may be switched); saprotrophic

(b) Labels, clockwise from top right: cell surface membrane; cell wall; cytoplasm/glycogen/ribosome; nucleus; mitochondrion; vacuole; cytoplasm/glycogen/ribosome

3. (a) Micro-organisms that can cause infections

(b)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Protoctists** | | **Bacteria** | | **Viruses** | |
| **Organism** | **Disease** | **Organism** | **Disease** | **Organism** | **Disease** |
| *Plasmodium* | malaria | *Pneumococcus* | pneumonia | HIV | AIDS |
|  |  |  |  | TMV | tobacco mosaic disease |
|  |  |  |  | influenza | flu |

(c) Viruses are unable to reproduce, grow, gain nutrition, have sensitivity, coordinate, respire, excrete or move independently.

4. (a) Clockwise from top left: slime capsule; DNA/chromosome/nucleoid; cell wall; flagellum; plasmid; cytoplasm; cell surface membrane

(b)

|  |  |
| --- | --- |
| **Prokaryotic cell** | **Eukaryotic cell** |
| nucleoid  proteoglycan cell wall  flagellum  slime capsule  plasmid  ribosome  cytoplasm  cell membrane | nucleus  cellulose cell wall  chitin cell wall  (flagellum on sperm cells)  chloroplast  mitochondria  ribosome  cytoplasm  cell membrane |

5. In animals only: nervous system

In plants only: starch, sucrose, chloroplasts, cellulose, photosynthesis

In fungi only: single celled, saprophytes, chitin

In animals and fungi: glycogen

In plants and fungi: large vacuole

In all animals, plants and fungi: multicellular, nucleus, mitochondria

6. Movement – use of muscles in animals or slow growth in plants

Respiration – release of energy from food

Sensitivity – responding to stimuli

Growth – increasing in size and complexity

Reproduction – producing offspring

Excretion – getting rid of waste products

Nutrition – plants make food, animals eat other organisms

Control – maintaining steady internal state