**Year 11 Biology Semester One, 2009 (answers)**

**Multiple Choice Section**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| C | C | C | B | A | A | D | A | C | C | D | A | D | B | B | A | A | C | C | D |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| B | A | B | D | C | C | B | D | D | B | D | A | B | A | D | C | C | C | A | A |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 41 | 42 | 43 | 44 | 45 |
| B | A | D | D | A |

**Short Answer Section**

**Question 1**

a.

1. Vacuole ( ½ ). Stores substances, such as water or food ( ½ ).
2. Endoplasmic Reticulum ( ½ ). Transports substances around the cell ( ½ ).
3. Mitochondrion ( ½). Provides energy in the form of ATP through aerobic respiration ( ½).
4. Cell Membrane ( ½ ). Controls what enters and leaves the cell ( ½).
5. Nucleus ( ½ ). Controls the activity of the cell ( ½).

b. Phospholipids ( ½ ) and protein ( ½).

c. Oxygen would be diffusing into Structure C ( ½ ) as the mitochondrion uses oxygen as a raw material for aerobic respiration ( ½ ).

**Question 2**

a. Yeast cells have a cell wall which plant cells have but animal cells lack (1).

b. Any two of the following (2).

\* Temperature

\* Amount of nutrients

\* Volume of liquid in each flask

c.

+ 36-38 ATP (2)



Two marks if fully balanced. One mark if correct but unbalanced.

d. There would be more yeast cells in Flask B compared to Flask A (1) since the cells in Flask B would grow and divide more quickly as aerobic respiration is more efficient at supplying energy than the anaerobic respiration that would be occurring in Flask A (1).

e. Alcohol or ethanol (1).

**Question 3**

a. Low solute concentration (1).

b. i. Osmosis (1).

ii. If the Paramecium died, the process of osmosis would still occur (1) as osmosis does not require

energy/is a passive process (1).

c. There would be no net movement of water ( ½ ) since water will only move by osmosis if there is a difference in concentration of ions ( ½ ).

d. The mitochondria would supply the energy in the form of ATP to pump water out of the cell (1).

e. The food vacuoles would form when a food particle enters the cytosome (oral groove) (1) and then is engulfed by endocytosis (1).

**Question 4**

a. Amino acids (1).

b. Nitrogen would be gained as ions from the soil (1).

c. Any one of the following (1).

\* Mammals have more enzymes that can digest proteins.

\* The enzymes in mammals operate at a higher temperature than those of sundews.

\* Mammals can control the pH of the external environment better than sundews.

**Question 5**

a. A diastema is a gap between the incisor and molar teeth (1).

b. The Sumatran rhinoceros is a herbivore ( ½ ) as it lacks canine teeth on its upper jaw or lacks incisor teeth on its lower jaw ( ½ ).

c. Since the Sumatran rhinoceros is a herbivore, it would be expected that it would have flattened molars (1) that are suitable for grinding plant matter (1).

d. 28 teeth (1).

e. The hyaena is a carnivore (1) as it has large canine teeth ( ½ ) and molar teeth suited to slicing food ( ½ ).

**Question 6**

a. i. Photosynthesis (1).

ii. Respiration (1).

b. i. Water ( ½ ).

ii. Glucose ( ½ ).

iii. Glucose ( ½ ).

iv. Water ( ½ ).

c. i. Palisade mesophyll cell/ Spongy mesophyll cell/ guard cell.

ii. Chloroplast (1).

d. Cells carry out Process 2 so they can release the energy in glucose (1) to form ATP for cell use (1).

**Question 7**

a. Villi (1).

b. Villi increase the surface area of the small intestine (1) to maximise the absorption of digested material (1).

c. Sufferers of Coeliac’s disease would be expected to have a reduced uptake of digested material from the small intestine OR be prone to weight loss (1).

**Question 8**

a. A monosaccharide is composed of one sugar unit ( ½ ) whereas a polysaccharide is composed of many sugar units ( ½ ).

b.

(1)

c. Any two of the following examples of polysaccharides (4 x ½ )

\* Starch …...acts as an energy storage molecule in some plant cells

\* Cellulose …… forms the major component of the cell walls of plant cells

\* Glycogen……acts as an energy storage molecule in some animal cells

\* Chitin…….forms the major component of the cell walls of fungal cells

d. Carbon, hydrogen and oxygen (1).