BIOLOGY 1 2016 - NECTA FORM FOUR

Solutions from: Maktaba by TETEA

By Yohana Lazaro

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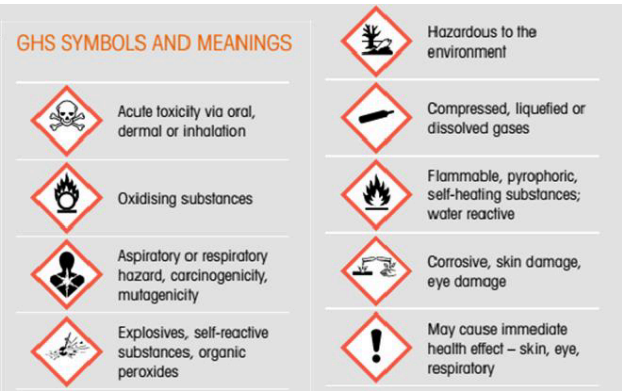
i	ii	iii	iv	v	vi	vii	viii	ix	x
B	A	B	C	A	D	C	E	B	C

2.

i	ii	iii	iv	v	vi	vii	viii	ix	x
G	J	A	B	E	D	H	N	C	F

3.(a) Laboratory is the special room where scientific experiments are done.

(b)warning signs found on containers are



4(a)basic principles of waste disposal are

-Reducing

-Re-using

-Recycling

(b) Effects of poor waste disposal.

1. Soil Contamination

Ideally, we would like our plastic, glass, metal and paper waste to end up at a recycling facility. It then returns to us as a renewable product. But the reality is entirely different

2. Water Contamination

Water is an excellent solvent; it can contain numerous dissolved chemicals. As a result, while moving through, water picks up pollution along the way. It often has dissolved substances like various chemicals and gases.

3. Extreme Weather Caused By Climate Change

Firstly, harmful greenhouse gases are created from decomposing waste. These rise up to the atmosphere and trap heat. This adversely causes extreme weather reactions in the form of storms and typhoons.

4. Air Contamination.

5. Harm Towards Animal and Marine Life.

6. Human Damage

Consider the majority of the human population where we do not see any scientific waste management system. Such places may possess a system, but there is no disposal area to be found.

5.(a)i) Food chain is the linear representation of flow of energy and nutrients in an ecosystem.

(ii)food web is the comprex inter-relationship between various organisms in an ecosystem.

(iii) level consists of groups of organisms with similar nutritional habits.

(b)-Predation is the feeding mechanism between organisms such that one organism kills(predator)the other organism(prey)

-Paratism is the nutritional mechanism such that one organism benefits the relation while the other is harmed.

6.(a)(i) Classification is the process of grouping organisms basing on their similarities and Differences.

(ii) Taxonomy is the branch of biology dealing with grouping and naming of organisms.

(b)

DIFFERENCES BETWEEN NATURAL CLASSIFICATION AND ARTIFICIAL CLASSIFICATION

Artificial classification	Natural classification
(i) Considers few features in common	Considers many features in common
(ii) Does not reflect on evolutionary relationships	Reflects on evolutionary relationships
(iii) It is easy to classify	It is difficult to classify
(iv) Not time consuming	It is time consuming
(v) Does not require expertise	Requires expertise
(vi) New information cannot be added	New information can be added.

7(a)(i)Types of muscles

-skeletal muscles

-cardiac muscles

-smooth muscles.

(ii) skeletal muscles are voluntary.

(b)-skull has function of protecting the brain.

-Ribs protect the heart,lungs and liver.

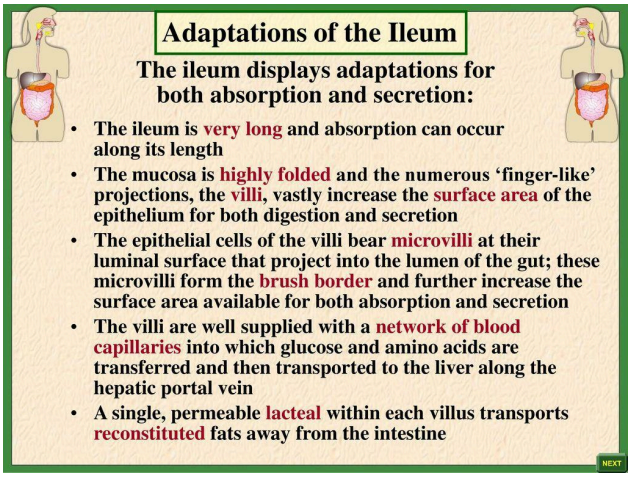
-vetebral column has function to protect the spinal cord.

-pelvix girdles is the site for attachment of limbs and abdomen muscles and supports the weight of the upper part of the body.

8(a)(i)raw material for photosynthesis are carbon dioxide and water.

(ii)products of photosynthesis are oxygen and glucose.

(b)



9(a)applications of anaerobic Respiration,

-during brewing.

-used in baking.

(b)(i)goat use lungs

(ii) grasshopper use spiracles

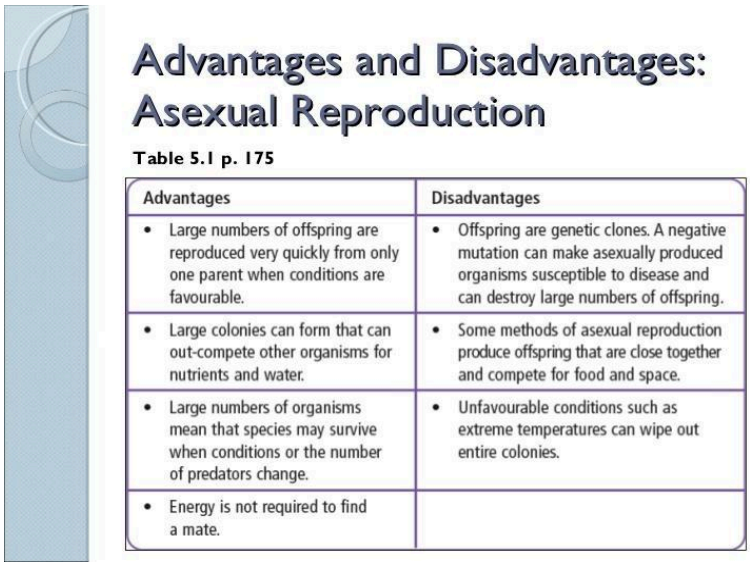
(iii)frog use skin and lungs

(iv)tilapia use gills.

10(a)(i)vegetative propagation is the reproduction of new organism using part of the body of the parental organism other than the reproductive cells.

(ii) gametes is the reproductive cells of an organism.

(b)



Advantages and Disadvantages: Asexual Reproduction

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Advantages	Disadvantages
• Large numbers of offspring are reproduced very quickly from only one parent when conditions are favourable.	• Offspring are genetic clones. A negative mutation can make asexually produced organisms susceptible to disease and can destroy large numbers of offspring.
• Large colonies can form that can out-compete other organisms for nutrients and water.	• Some methods of asexual reproduction produce offspring that are close together and compete for food and space.
• Large numbers of organisms mean that species may survive when conditions or the number of predators change.	• Unfavourable conditions such as extreme temperatures can wipe out entire colonies.
• Energy is not required to find a mate.	

11.ADAPTATIONS OF HUMAN HEART.

Muscular to pump blood over long distance;

- Myogenic cardiac muscles which contract and relax rhythmically without fatigue; hence heart continues pumping;

- Cardiac muscle fibres interconnected to form a network of fibre to ensure rapid and uniform spread of excitation throughout the walls of the heart;

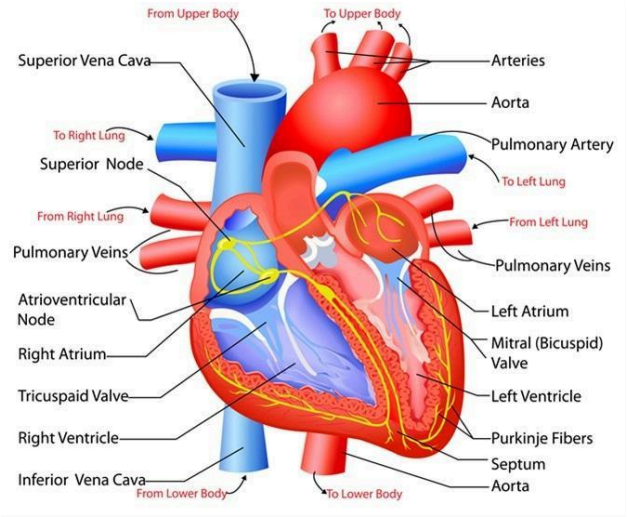
- Heart divided into 4 chambers which are hollow to accommodate more blood;

- Ventricles have thicker walls than auricles to generate higher pressure to drive blood over long distance into more elaborate circulation/to the lungs and to all body tissues;

- Walls of left ventricles are thicker than those of right ventricles to generate more pressure to pump blood to longer distance in the systemic circulation/rest of the body;

- Longitudinal septum which separates the heart into two halves to prevent mixing of oxygenated and deoxygenated blood;

- Valves to prevent back flow of blood;



- Valves have strands of connecting tissue (chordas tendinae) to prevent them from being pushed inside out when ventricles contract;

- Has coronary artery and coronary vein to supply myocardium with oxygen and nutrients; and remove waste products/carbon IV oxide and nitrogenous wastes;

- Fibrous layer of pericardium surrounds the heart to keep it in position; and prevent overdilation;

- Inner percadium secretes the pericardial fluid; which reduces friction between the two layers during contraction;

- outer pericardium surrounded by layer of fat which acts as shock absorber; protect it from mechanical damage

- Sino Atrial Node (S.A.N) acts a pacemaker regulating rate of beating and excitation of heart;

- Heart located in the thoracic cavity where it is protected from any external mechanical damage;

- Atrio Ventricular node (A.V.N) which delays depolarization wave from Sino Atrial Node to ensure that auricles empty completely before the ventricles contract.

12.Temperature regulation.

-FALL IN TEMPERATURE,

-sweat glands reduce the sweat production

-the hair erector pili muscles contract making hair on the skin to rise so trapping air which insulate the skin.

-vasoconstriction of blood vessels, allowing small amount of blood to pass onto contact with the skin, hence minimize loss of temperature.

-RISE IN TEMPERATURE.

-sweat glands produce more amount of sweat.

-hair erectile pili relaxes making hair on the skin to lie on the skin, allowing temperature to escape.

-vasodilation, allowing much blood to pass, hence temperature is lost.

-reduced body metabolic activities.

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13.MALARIA

Malaria is transmitted by infected mosquitoes. When you get bitten by a mosquito which carries the malaria parasite, the parasite enters your bloodstream. It is then carried to your liver, where it multiplies.

-Malaria spreads via mosquitoes. The only mosquito which can transmit the parasite is the anopheles mosquito. It feeds approximately every seven days and it carries the malaria parasite if it has previously bitten someone who had malaria.

Mosquitoes act as a carrier for the parasite and they are responsible for spreading the malaria parasite in risk areas. Therefore, mosquito bite avoidance is an important part of your prophylaxis.

SYMPTOMS.

Signs and symptoms of malaria may include:

Fever

Chills

General feeling of discomfort

Headache

Nausea and vomiting

Diarrhea

Abdominal pain

Muscle or joint pain

Fatigue

Rapid breathing

Rapid heart rate

Cough

Some people who have malaria experience cycles of malaria "attacks." An attack usually starts with shivering and chills, followed by a high fever, followed by sweating and a return to normal temperature.

Malaria signs and symptoms typically begin within a few weeks after being bitten by an infected mosquito. However, some types of malaria parasites can lie dormant in your body for up to a year.

PREVENTION

Malaria can often be avoided using the ABCD approach to prevention, which stands for:

Awareness of risk – find out whether you're at risk of getting malaria.

Bite prevention – avoid mosquito bites by using insect repellent, covering your arms and legs, and using a mosquito net.

Check whether you need to take malaria prevention tablets – if you do, make sure you take the right antimalarial tablets at the right dose, and finish the course.

Diagnosis – seek immediate medical advice if you have malaria symptoms, including up to a yet.