BIOLOGY 1 2006 - NECTA FORM FOUR

Solutions from: Maktaba by TETEA

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

2.

i	ii	iii	iv	v	vi	vii	viii	ix	x
G	T	C	E	Q	P	N	J	L	A

3.(a)(i) elbow,knee and toes

(ii)shoulder and hip

(iii)neck and wrist

(iv)between scapula and clavicle

(b)(i)hinge joint

(ii)A sponge bone, B articulating cartilage, C synovial membrane, D compact bone E articulating cartilage, F synovial fluid.

(iii)E function is to provide a smooth, lubricated surface for articulation and to facilitate the transmission of loads with a low frictional coefficient.

4.(a)(i)Mitosis, a process of cell duplication, or reproduction, during which one cell gives rise to two genetically identical daughter cells.

(ii) significances of mitosis.

-Mitosis produces 2 genetically identical cells, so mitosis maintains the genetic stability of organisms.

-DNA remains constant, so mitosis keeps the chromosomes number constant in a species.

-Mitosis helps in the development of multicellular organism.

-Mitosis helps to replacement of old, dead or damaged cells by new one.

-It helps in the recovery of wounds and injury of the body by formation of new cells.

-In unicellular organisms like Yeast, Paramecium , mitosis is a means of asexual reproduction.

(b)(i) complete Metamorphosis is a biological process by which an animal physically develops after birth or hatching, involving four stages of egg, larvae, pupa and complete organism. For example butterfly.

(ii) incomplete metomorphosis involve only three stages of egg,nymph and complete organism. Eggrasshopper

(iii)Ecdysis is the process of an arthropod moulting its exoskeleton. Moulting is necessary as the arthropod exoskeleton is inflexible and so, to grow larger, arthropods must moult.

(c)-Diffuse growth- this is type of growth whereby growth occurs all over the body of the organism. KINGDOM PLANTAE

- Localized growth- this is a type of growth whereby growth occurs in certain regions only.

5.(a)-they give the lungs a really big surface area

-they have moist, thin walls (just one cell thick)

-they have a lot of tiny blood vessels called capillaries.

(b)Shivering is muscle activity that generates heat and warms the body. Similarly, some insects vibrate their wings for a while before flight, heating the muscles to the temperature at which they work best.

(c)tissues to transfer food throughout the plant are removed.

6.(a)(i)

Mineral elements	Phosphorus	Nitrogen	Calcium	Iron
source	Manure	leguminous.	greens and bean	silicate minerals
roles	Transfer of genetic character	energy availability	produce plant tissues	DNA synthesis and photosynthesis
deficiency symptoms.	dark green and delayed growth	Reduced chlorophyll.	necrotic leaf margins, less gro	yellow leaf,dark green veins

(b)-pepsin, gastric juice from stomach lining, peptides

-trypsine,small intestine,amino acids.

7(a)(i)A sperm duct, B seminal vessels, C prostate gland, D bulbourethral gland, E epididymis, F tetis, G scrotum, H urethra, Foreskin/prepuce

(ii)F produce testosterone hormones and sperms.

H ejaculating sperms

(b)male reproductive organ.

8(a)-omnivores

-canivores

-herbivores

-decomposers

(b)(i)A argae, B zooplankton, C small fish, D large fish, E human being

(ii) tertiary consumer.

9.(a)-FGM_ infection of HIV/AIDS

_excessive bleeding.

-Early marriage_ death due to immature reproductive organs during derivery.

(b)-pelvic inflammation disease

-gonorrhea.

(c)-abstain from sex

-stay single

-used condom

-be faithful to your partner.

10(a)Mendel's First Law, also called The Law of Equal Segregation, which states: during gamete formation, the two alleles at a gene locus segregate from each other; each gamete has an equal probability of containing either allele.

(b)-heterozygous, -homozygous dominant, -homozygous recessive.

(C)-sex limited character are the characters that appear to only one sex.

-Sex linked is a trait in which a gene is located on a sex chromosome. In humans, the term generally refers to traits that are influenced by genes on the X chromosome.

-A sex-determination system is a biological system that determines the development of sexual characteristics in an organism.

(d)No

11.(a)Delaying sexual activity can allow you and your partner to get to know one another before moving forward with sex. Choosing to abstain or delaying sexual activities can give you time to share feelings and fears and to talk about where your relationship is going.

(b)There are other benefits of abstinence. People choose abstinence to:

-wait until they feel ready for a sexual relationship

-wait to find the right partner

-enjoy their partner's company without having to deal with a sexual relationship

-focus on school, their job, or hobbies

-follow their personal, moral, or religious beliefs and values

get over a breakup

-heal from the death of a partner

-follow their doctor's advice during or after a sickness, infection, or medical procedure

(c) assertiveness behavior way of articulating your feelings in a calm and positive way so that they are listened to, respected and appreciated by others.

Advantages of assertiveness behavior

-Improves communication – Assertiveness leads to the development of mutual understanding with each other.

-Assertiveness boosts self – esteem – "Self – esteem" is how we value ourselves. It affects every part of our lives.

-Less stress – Aggressive communication is stressful as one of the people involved might end up feeling humiliated.

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-Assertiveness enables us to make decisions – An assertive person stands up for his views and doesn't bother much what others have to say.

(d)There are many things that you can do to help a friend or loved one who has been recently diagnosed with HIV:

-Talk. Be available to have open, honest conversations about HIV. Follow the lead of the person who is diagnosed with HIV.

-Listen. Being diagnosed with HIV is life-changing news. Listen to your loved one and offer your support. Reassure them that HIV is a manageable health condition.

-Learn. Educate yourself about HIV: what it is, how it is transmitted, how it is treated, and how people can stay healthy while living with HIV.

-Encourage treatment. Some people who are recently diagnosed may find it hard to take that first step to HIV treatment. Your support and assistance may be helpful.

-Support medication adherence. It is important for people living with HIV to take their HIV medication every day, exactly as prescribed.

12.Blood Basics

Blood is a specialized body fluid. It has four main components: plasma, red blood cells, white blood cells, and platelets.

Plasma

The liquid component of blood is called plasma, a mixture of water, sugar, fat, protein, and salts. The main job of the plasma is to transport blood cells throughout your body along with nutrients, waste products, antibodies, clotting proteins, chemical messengers such as hormones, and proteins that help maintain the body's fluid balance.

Red Blood Cells (also called erythrocytes or RBCs)

Known for their bright red color, red cells are the most abundant cell in the blood, accounting for about 40 to 45 percent of its volume. The shape of a red blood cell is a biconcave disk with a flattened center - in other words, both faces of the disc have shallow bowl-like indentations (a red blood cell looks like a donut).

White Blood Cells (also called leukocytes)

White blood cells protect the body from infection. They are much fewer in number than red blood cells, accounting for about 1 percent of your blood.

Platelets (also called thrombocytes)

Unlike red and white blood cells, platelets are not actually cells but rather small fragments of cells. Platelets help the blood clotting process (or coagulation) by gathering at the site of an injury, sticking to the lining of the injured blood vessel, and forming a platform on which blood coagulation can occur. This

results in the formation of a fibrin clot, which covers the wound and prevents blood from leaking out. Fibrin also forms the initial scaffolding upon which new tissue forms, thus promoting healing.

Blood has many different functions, including:

-transporting oxygen and nutrients to the lungs and tissues

-forming blood clots to prevent excess blood loss

-carrying cells and antibodies that fight infection

-bringing waste products to the kidneys and liver, which filter and clean the blood

-regulating body temperature.

13. skin prevents invasion by microorganisms unless it is damaged (for example, by an injury, insect bite, or burn).

Mucous membranes, such as the lining of the mouth, nose, and eyelids, are also effective barriers. Typically, mucous membranes are coated with secretions that fight microorganisms. For example, the mucous membranes of the eyes are bathed in tears, which contain an enzyme called lysozyme that attacks bacteria and helps protect the eyes from infection.

The airways filter out particles that are present in the air that is inhaled. The walls of the passages in the nose and airways are coated with mucus. Microorganisms in the air become stuck to the mucus, which is coughed up or blown out of the nose. Mucus removal is aided by the coordinated beating of tiny hairlike projections (cilia) that line the airways. The cilia sweep the mucus up the airways, away from the lungs.

The digestive tract has a series of effective barriers, including stomach acid, pancreatic enzymes, bile, and intestinal secretions. These substances can kill bacteria or prevent them from multiplying.

immune system uses white blood cells and antibodies to identify and eliminate organism.

(b)Malaria is a life-threatening disease caused by parasites that are transmitted to people through the bites of infected female Anopheles mosquitoes. It is preventable and curable.

-Malaria is caused by Plasmodium parasites. The parasites are spread to people through the bites of infected female Anopheles mosquitoes, called "malaria vectors."

Transmission

In most cases, malaria is transmitted through the bites of female Anopheles mosquitoes.

PREVENTION.

Wear full sleeve protective clothing.

Spray insect repellants on your exposed skin. The recommended repellent contains 20-35% N N, N-Diethyl-meta-toluamide (DEET).

Use a mosquito net over the bed if your bedroom isn't air-conditioned or screened. For additional safety, you can treat the mosquito net with the insecticide permethrin.

When you go out, in addition to spraying insect repellants on your exposed skin, you can also spray on your clothing. Mosquitoes find it easy to bite through thin clothing.

Keep your home and surroundings clean without any junks or wastes.

When it comes to controlling the disease, keep an eye out for the symptoms like fever with high temperature. As soon as you find any possible signs of malaria, consult your doctor immediately.