BIOLOGY 1 2004 - 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
C	E	A	D	E	C	B	D	B	B

2.

i	ii	iii	iv	v	vi	vii	viii	ix	x
Q	S	A	C	P	H	N	K	I	E

3.(a)

-Clean the microscope after each use.

with a cloth as the lenses are very fragile.

-Wipe the stage (the platform that holds the slides) down thoroughly

and disinfect the eyepiece with an alcohol-based wipe.

-Handle glass slides carefully. If a slide breaks, ensure that the contents

are properly disposed and report the incident in PeopleSoft if an injury

occurs.

-Turn off the light source when the microscope is not in use. This will improve lamp longevity and save energy.

-Be aware if your microscope has a mercury lamp. A broken mercury lamp may release toxic

equipment.

(b)In a controlled experiment, an independent variable (the cause) is systematically manipulated and the dependent variable (the effect) is measured; any extraneous variables are controlled,An experiment is a scientific test which is done in order to discover what happens to something in particular conditions.

4(a)(i)The three main/basic parts of the cell are:

- Cell Membrane (Plasma Membrane)

-Cytoplasm

-Nucleus

(ii)Explanation:

Each cell is surrounded by a lipid-rich Cell membrane (also called the Plasma Membrane) that forms a boundary between the cell and its environment.

-The membrane encloses the Cytoplasm, which includes all cell contents (except the Nucleus, in cells that have one). Cytosol is the fluid of Cytoplasm.

-Nucleus is the central part of an atom, and the process of milk production and secretion begins here; the organelle that contains DNA in eukaryotic cells.

(b)tropisim is the biological phenomenon indicating the growth or turning movement of plants, while reflax action is the suddenly response to external stimule, usually in animals.

5(a)(i) Advantages of placental development:-

-increased nutrient transfer rate.

-faster fetal growth rate.

(ii)Meiosis continually reshuffles the genes resulting in a great variety of offspring. Without meiosis we would all look exactly alike. Meiosis allows each offspring to be different, and so potentially better, than the parent. If a disease comes along, there is a good chance that some of the population won't get sick or die because everyone's DNA isn't exactly alike.

(b)alveolus helps the Gaseous exchange while villi are responsible for food absorption.

6(a)(i) pollution of water in the dum by pesticides used during farming when it rains.

(ii)will kill aquatic organism because the layer of oil will prevent oxygen in water.

(iii)will destroy the life of fishes because eggs will be taken out.

(b)-avoid overgrazing

-not burning bushes

-planting trees.

7(a)(i)A afferent arteole, B efferent arteole, C Bowman's capsule, D glomerular.

(ii)filtrate

(iii)blood cells and proteins

(iv)urea.

(b)-ultrafiltration.

-reabsorption

-secretion

-removal.

8(a)(i)Lymphocytes: Lymphocytes are small white blood cells that play a major role in the immunity.

Phagocytes: Phagocytes are cells that ingest and destroy foreign particles, pathogens,

and cell debris.

(ii)Plasma is designed to carry nutrients, hormones, and proteins to the different parts of the body. It also carries away the waste products of cell metabolism from various tissues to the organs responsible for detoxifying and/or excreting them. In addition, plasma is the vehicle for the transport of the blood cells through the blood vessels.

(b)(i)-Smoking

-Being overweight or obese

-Lack of physical activity

-Too much salt in the diet

-Too much alcohol consumption (more than 1 to 2 drinks per day)

-Stress

(ii)Person with blood group AB is considered a universal recipient because it has

A and B antigens on RBC but no antibodies in the plasma.

9(a) consequences of STDs

-Male and female sterility

-Blindness

-Damage to major organs (heart, kidney, brain, etc.)

-Cervical cancer

-Cancer of the vagina, penis, anus, or throat

-Pelvic inflammatory disease (PID), which can damage a woman's fallopian tubes, leading to pelvic pain and sterility

-Tubal pregnancy (where the fetus grows in the fallopian tube instead of the womb)

-Pain during urination or intercourse

-Blisters, sores, warts, rashes, or swelling in the genital, anal, or mouth areas

-Discharge from the penis, vagina, or rectum

-Persistent flu-like symptoms

-Birth defects, including mental retardation of a baby

-Death

(b)effects of Earl marriage,

-unmatured pregnancy

-poor parental care

-misunderstanding among couples.

10(a)(i)1. Meiosis form gametes that are required for sexual reproduction

2. Meiosis maintains the fixed number of chromosomes in sexually reproducing organisms by having the same during gametogenesis

3. In meiosis, paternal and maternal chromosomes assort independently. It causes a reshuffling of chromosomes and the traits controlled by them.

(ii)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.

11.CARBON CYCLE.

Carbon cycle is the process where carbon compounds are interchanged among the biosphere, geosphere, pedosphere, hydrosphere, and atmosphere of the earth.

Following are the major steps involved in the process of the carbon cycle:

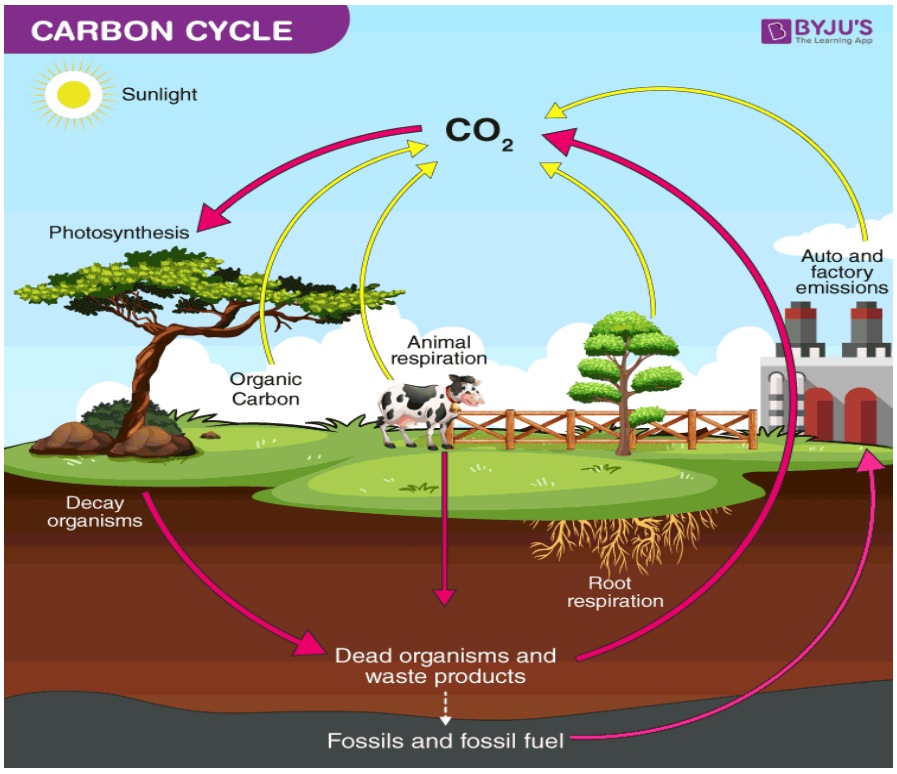
-Carbon present in the atmosphere is absorbed by plants for photosynthesis.

-These plants are then consumed by animals and carbon gets bioaccumulated into their bodies.

-These animals and plants eventually die, and upon decomposing, carbon is released back into the atmosphere.

-Some of the carbon that is not released back into the atmosphere eventually become fossil fuels.

-These fossil fuels are then used for man-made activities, which pumps more carbon back into the atmosphere.



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12.CHORELA

Cholera is an acute diarrhoeal infection caused by ingestion of food or water contaminated with the bacterium Vibrio cholerae.

Symptoms.

- severe watery diarrhea accompanied by vomiting, which can quickly lead to dehydration. Although many infected people may have minimal or no symptoms, they can still contribute to spread of the infection.

-Loss of skin elasticity (the ability to return to original position quickly if pinched)

-Dry mucous membranes, including the inside of the mouth, throat, nose, and eyelids

-Low blood pressure

-Thirst

- cramps

-If not treated, dehydration can lead to shock and death in a matter of hours.

PREVENTION.

-Brushing your teeth

-Washing your face and hands

-Washing dishes and utensils that you use to eat or prepare food

-Washing fruits and vegetables

A multifaceted approach is key to control cholera, and to reduce deaths. A combination of surveillance, water, sanitation and hygiene, social mobilisation, treatment, and oral cholera vaccines are used.

13.(a)(i) phenotype is the physical appearance of the organism.

(ii)Recessive is the gene which does not affect the phenotype of the organism.

(iii)heterozygous is used to describe a cell, a nucleus, or an individual organism that carries different or non-identical alleles for a particular trait at the same loci on homologous chromosomes. It means that the alleles that code for the same gene or trait are dissimilar, as opposed to homozygous wherein the alleles are identical.

(b)Let colour blindness gene be C, receive be c

(i) CC

(ii)not, because can be the carrier of this colour blindness.

(iii)5-Cc,. 9-CC

(iv)5 is the carrier of disorder bt 9 is the normal man.