

BIOLOGY 1 2001 - NECTA FORM FOUR

Solutions from: [Maktaba by TETEA](https://maktaba.tetea.org)

By Yohana Lazaro

1

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

2.

i	ii	iii	iv	v	vi	vii	viii	ix	x
K	N	S	E	G	E	A	Q	I	M

3.(a)(i)lack of nitrogen in the soil

(ii)acidic rainfall due to excessive carbon dioxide.

(iii)soil erosion

(iv)soil erosion

(b)-planting leguminous plants like beans

-planting trees

-using contour on farming

-grazing balanced pastures.

4.(a)(i) females, secondary sex characteristics include **relative lack of body hair**, thicker hair on the head (in some cases), rounded hips/figure, a decreased ability to generate muscle mass at a fast rate, decreased upper body strength, breasts, ability to nurse children, a menstrual cycle, and increased body fat .

(ii) males, secondary characteristics include **facial and chest hair**, increased body hair, pelvic build (lack of rounded hips), upper body muscular build, and the ability to generate muscle mass at a faster rate than the female.

(b) Uterus

-Hosts the developing fetus

-Produces vaginal and uterine secretions

-Passes the anatomically male sperm through to the fallopian tubes

Ovaries

-Produce the anatomically female egg cells.

-Produce and secrete estrogen and progesterone

oviduct: A duct through which an ovum passes from an ovary to the uterus or to the exterior.

fallopian tubes: Also known as oviducts, uterine tubes, and salpinges (singular salpinx), two very fine tubes lined with ciliated epithelia, leading from the ovaries of female mammals into the uterus via the uterotubal junction.

ovarian follicle: The basic units of female reproductive biology, each composed of roughly spherical aggregations of cells found in the ovary.

5(a)(i) binomial Nomenclature is a system of nomenclature in which each species of animal or plant receives a name of two terms of which the first identifies the genus to which it belongs and the second the species itself.

(ii) advantages of scientific naming of organisms-

- It allows for the identification and comparison of organisms based on recognised characteristics.

- It allows all organisms to be named according to a globally recognised scheme.

- It can show how closely related organisms are, allowing for the prediction of evolutionary links.

(b)-both use sexual mode of reproduction

- both have ability to speak

- have four limbs, two modified for walking(legs) other as hands.

6.(a)(i) **Advantages of First Aid Training**

- First aid training saves lives

- Reduces repeat

- Increases confidence and safety

- People know how to use a first aid kit properly

- Keeps employees safe outside of work

- It's great for company morale and team-building

(ii) components of first aid kit

- bandage to cover wounds

- plaster to cover small wounds

- pair of scissors to cut dressing materials

- iodine tincture to clean the wounds

(b)(i) wash that area using a lot of water

(ii) avoid coming close with burning Bunsen burner or gas stove or any other source of fire

7.(a)(i) chemical compositions of DNA

- **phosphate, a**

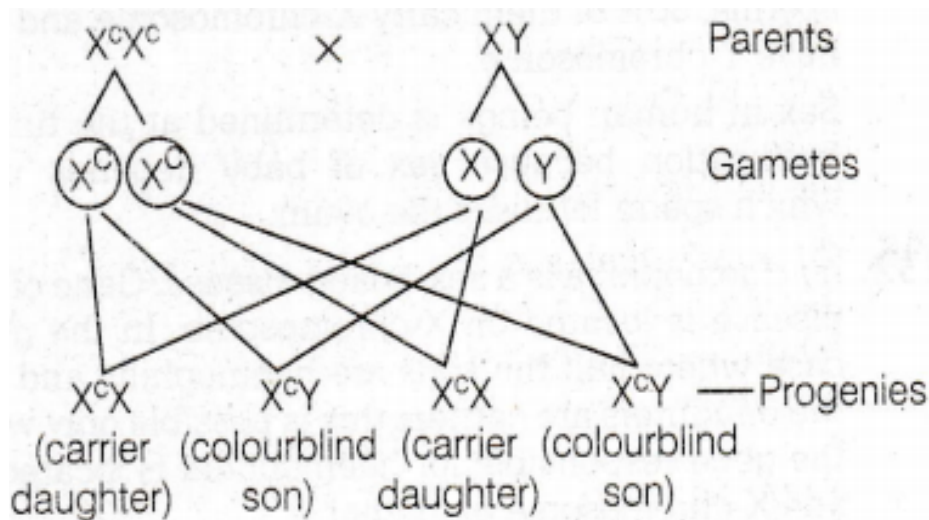
- sugar called deoxyribose,

- nitrogenous bases—adenine, guanine, cytosine, and thymine

(ii) (a) **RNA contains the sugar ribose**, while DNA contains the slightly different sugar deoxyribose (a type of ribose that lacks one oxygen atom), and (b) RNA has the nucleobase uracil while DNA contains thymine.

(b)

When a colour blind woman marries a normal visioned male, daughters will be carrier for this disease and all sons will be colour blind, this can be represented as follows:



www.toppr.com

total offspring= 4

-males suffering from colour blindness =2

Percentage = $\frac{2}{4} \times 100\%$

= 50%

8(a)(i) The release of water from plant leaves to the atmosphere.

(ii) Advantages of transpiration

-It **helps in the exchange of gases and provides coolness to the plant body**

-. It helps in sending out extremely absorbed water by plants and transport of mineral salts in plants.

- It helps in the development of the plant body by absorption and distribution of water in plants.

- (b) Factors affecting rate of transpiration

. Relative Humidity:

. Atmospheric Temperature:

Light:

Air Movements (Wind):

Atmospheric Pressure:

. Availability of Water:

Leaf Area (Transpiring Area):

Leaf Structure:

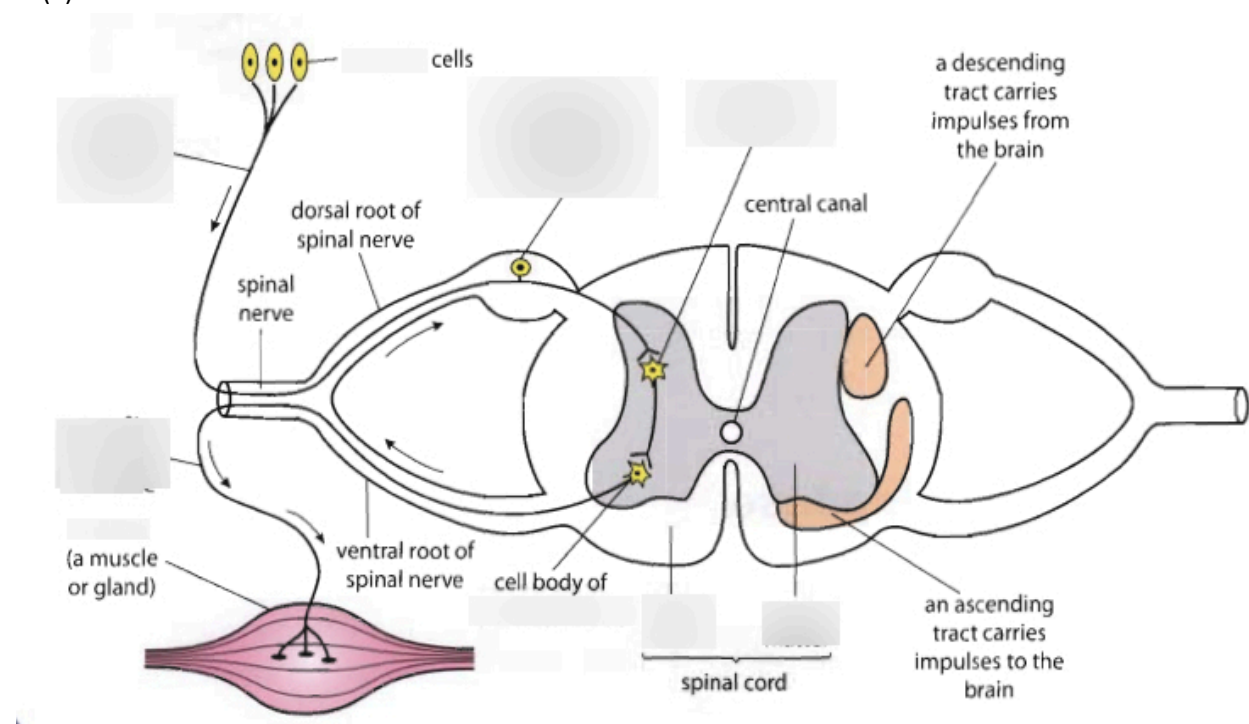
9(a)(i) evolution is **the change in the characteristics of a species over several generations** and relies on the process of natural selection.

(ii)-natural selection

-artificial selection

(ii) C → A → D → B

10(a)



- (i) A reflex action is an automatic (involuntary) and rapid response to a stimulus, which minimises any damage to the body from potentially harmful conditions, such as touching something hot.

an action is produced with the involvement of thoughts, they are called voluntary action. It involves actions like walking, eating, jumping and running.

- (ii) narcotics work by attaching themselves to **pain receptors** in your brain. Pain receptors receive chemical signals sent to your brain and help create the sensation of pain. When narcotics attach to pain receptors, the drug can block the feeling of pain.

11.

- **The skin acts as an external barrier to bacteria**, preventing infection and protecting the internal organs. The skin also protects the body from ultraviolet radiation using the pigment barrier formed from melanocyte cells found in the top of the papillary dermis and a protein layer found in the epidermis.

It has the sebaceous glands that secrete chemical called sebum that kills pathogens.

- **tears contain a substance called lysozyme**, which has an antibacterial action, and works to prevent invasion and infection by microbes. Tears contain components that heal damage to the surface of the eye.

Foreign bodies that enter the eye are washed out by tears.

- If a pathogen enters your body, **white blood cells** of your immune system quickly recognise its foreign antigens. This stimulates specific lymphocytes to grow, multiply and finally produce antibodies that will stick to the antigens on the invading pathogens and destroy them.

- **gastric juice** contains hydrochloric acid that kills the bacteria and other germs contained in the food.

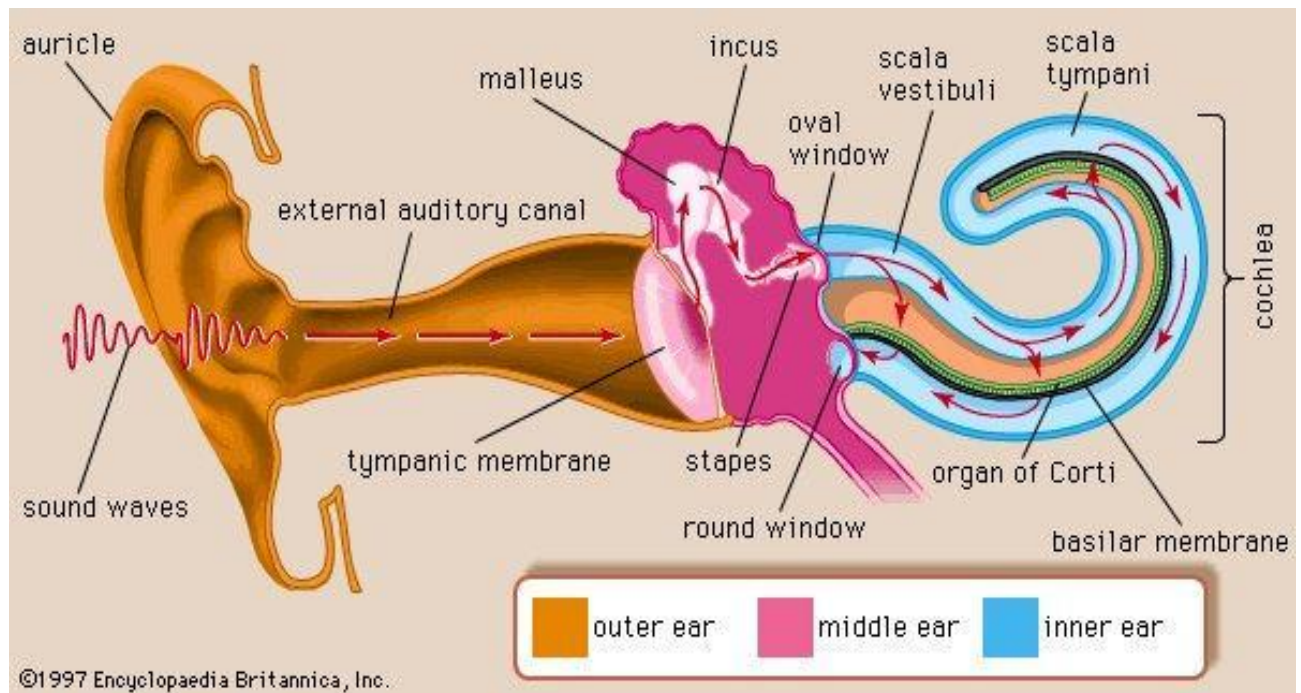
- **mucous membrane** secretes mucous that traps the pathogens and give out of the body.

12. MECHANISM OF HEARING.

- Hearing is the process by which the ear transforms sound vibrations in the external environment into nerve impulses that are conveyed to the brain, where they are interpreted as sounds.

Mechanism of hearing of human hear

The mechanism of hearing. Sound waves enter the outer ear and travel through the external auditory canal until they reach the tympanic membrane, causing the membrane and the attached chain of auditory ossicles to vibrate. The motion of the stapes against the oval window sets up waves in the fluids of the cochlea, causing the basilar membrane to vibrate. This stimulates the sensory cells of the organ of Corti, atop the basilar membrane, to send nerve impulses to the brain.



www.britannica.com/science/ear/The-physiology-of-hearing

13. *Rape* is a type of sexual assault usually involving sexual intercourse or other forms of sexual penetration carried out against a person without their consent.

Causes of rape

- lack of sexual education
- bad peer pressure
- bad wearing style can attract raping
- forced marriage

Consequences of rape

- transmission of STDs
- unwanted pregnant
- school drop
- increased street children

Avoiding rape

- avoid shaded areas
- avoid bad peer groups
- giving education to people

