CHRISTIAN SOCIAL SERVICES COMMISSION (CSSC)
NORTHERN ZONE JOINT EXAMINATIONS SYNDICATE (NZ-JES)

FORM TWO PRE – NATIONAL EXAMINATION AUG 2025

BIOLOGY
MARKING SCHEME

SECTION A (15MARKS)

1.

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

01mark@ = 10 Marks

2.

i.	ii.	iii.	iv.	v.
E	C	A	G	D

01mark@ = 10 Marks

SECTION B(70 MARKS)

3. (a)(i)Laboratory is a special room where scientific experiments are conducted while biology laboratory is a special room for conducting biological experiments.01 Mark

(ii))First aid is an immediate help given to an accident victim before taken to hospital while first aid kit is a small box where equipment needed for first aid are kept.01 Mark

(b) (i) Pair of scissors: Used for cutting bandage

(ii)Pain killer: used for reducing pain

(iii)Petroleum jelly: used for applying on burns

(iv)Safety pins: Used for securing bandage Any 4 @2marks= 08Marks

4. (a)(i) The left ventricles are more muscular because they pump blood under high pressure to all parts of the body.

(ii) Arteries do not have valve because they carry blood under high pressure.

(iii) Blood group O is not necessarily a universal donor because there other factors which determine blood compatibility for example Rhesus factor. Therefore the blood may be O positive or negative.

2marks @ =06 Marks

(b)The organ responsible is heart. The following are the adaptations of the heart for pumping blood:

(i)The heart has cardiac muscles which do not get fatigue hence pump blood without stopping.

(ii))The cardiac muscle enables the heart to beat rhythmically.

(iii))It has pericardium which surrounds and protects the heart from physical damage.

(iv)It has pericardial fluid which prevents friction when the heart beats.

(v)The outer layer of the pericardium attaches to the breastbone and other structures in the chest cavity and thus helps to hold the heart in place.

(vi)t has the bicuspid and tricuspid valves between atria and ventricles which prevent the backflow of blood.

(vii)t has septum which prevents mixing of the deoxygenated blood in the left side with deoxygenated

Any4@1mark = 04 Marks

5. (a)(i)The human digestive system 01Mark

(ii)Part A is Oesophagus

Function: It allows passage of food from the mouth to the stomach Part B is stomach

Function: used for temporary storage of food

Part C is large intestine or colon

Function: It is a place where water is absorbed

@ part 01 mark & @ function 01 mark = 06 Marks

(b)(i)<u>Food production</u>

Food substances like glucose are formed. Plants and animals use these food substances.

(ii)<u>Energy conversion</u>

Light energy is converted into a form that can be used by all other organisms. This energy is known as ATP.

(iii)<u>Balancing atmospheric gases:</u>

Through photosynthesis the level of carbon dioxide and oxygen is balanced in the atmosphere.

1Mark @ = 03 Marks

6. (a) the disease is cholera 01 Mark

(b) The causative agent is *Vibrio cholera* 01 Mark

(c) The disease is transmitted through

(i)Contaminated food

(ii)Contaminated waterany 2 @1mark = 02 Marks

(iii)Vector i.e housefly

(d)Control of cholera:

(i))Observing Personal hygiene

(ii) Provision of health educationany 4@1.5 mark = 06 Marks

(iii) Use of antibiotics if sick

(iv) By Vaccination

7. (a)Importance of studying biology

(i)It helps a man to understand him/ herself better.

(ii)Biology helps us appreciate nature.

(iii)Biology helps us to understand how our body works.

(iv)Biology helps us to know proper nutrition for good health.

(v)It helps us in biological research.

(vi)t helps us in genetic engineering issues.

(vii)provides answers to fundamental questions.

(viii)Biology gives us knowledge about other living things example fungi, bacteria and plants.

(ix)Knowledge of biology enables human being to conserve the environments.

(x)Biology helps us to understand causes, symptoms, and methods of transmission, prevention, and treatments of diseases.

(xi)It helps us to enter in different careers such as biology teachers, doctors & agriculturists

Any 4 @ 1 Mark = 04 Marks

(b)

MANGO TREE	**CAT**
It has cell wall made of cellulose	Has no cell wall
Has chloroplast which contain chlorophyll	Lack chlorophyll
Has large permanent vacuole	Has small temporary vacuole

Any 3 @ 2 marks = 06 Marks

8. (a)The process is diffusion 02 Marks

(b)Diffusion is the process by which molecules move from the region of high concentration to a region of low concentration. Diffusion can be of gases or liquids e.g. scent of a flower.02 Marks

(c) (i). Size of molecules: Small and light molecules diffuse faster than large and heavy molecules.

(ii) Temperature: Increase in temperature increases the rate of diffusion. Decrease in temperature decreases the rate of diffusion.

(iii). Thickness of membranes and tissues: Thin membranes enhance higher rate of diffusion than thick membranes.

(iv). Concentration gradient (diffusion gradient). The greater the difference of the two concentration gradient the greater the rate of diffusion.Any 3 @ 02 Marks = 06 Marks

9. (a) (i)Producers are Microscopic algae 0.5 marks

(ii)Primary consumers are Mosquito larvae. 01 Mark

(iii)Consumers of the last order are Crocodiles. 01 Mark

(b) Adaptations of the lungs in human for gaseous exchange:

(i) They are well ventilated so that gases can pass through them easily.

(ii))They have moist surface for easy diffusion of gases since gases diffuse in solution form.

(iii) Are well supplied with blood capillaries for transport of diffused gases.

(iv)) Have thin surface or membrane so as to reduce the distance through which gases pass to the respiratory cells.

(v)) Are highly permeable to ensure easy diffusion of gases.

Any 5 @ 1.5 Marks = 07.5Marks

SECTION C (15 Marks)

10. Food preservation is the process of treating and handling food to prevent it from spoilage while maintaining their nutritional value, texture and flavour for a long time. This process prevents growth of microorganism including bacteria and fungi on food.**02 Marks**

Ways or methods of food preservation

i. **Curing**: involves the addition of substance to remove water from the food such as salts, sugar and vinegar to animal products example meat and fishes.

ii. Drying in the sun: this removes water from the food. This will help farmers to preserve their grains like maize, cloves, banana, peas, cassava and fishermen to preserve fish and hunters to preserve meat.

iii. Salting: addition of salt to removes water from the food. This method will help hunters and fishermen to preserve meat and fish respectively.

iv. Cooking: this includes boiling, steaming, roasting and baking in hot ashes to kill microorganisms soften food, improve flavour and preserve food. This method will help farmers to preserve potatoes, green bananas and maize before drying. Also, it will help hunters to grill, boil meat.

v. Smoking: this involves preserving food by exposing it to the smoke from burning materials to reduce moisture contents and prevent growth of microorganism. This will help fishermen, hunters and farmers to preserve fishes, meats and grains like maize, beans and millets respectively.

vi. Fermentation: This is the conversionof carbohydrates such as sugars into an alcohol or acid. Fermentation can occur naturally or can induced artificially. This will help farmers to preserve cucumber and mangoes can be put in salt water to produce lactic acid to give flavour and preserve it.

Any 6 points @02 = 12 Marks

Relevant conclusion…….01Marks (TOTAL 15 Marks)