

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



**FORM FOURPRE – NATIONAL EXAMINATION AUGUST 2025**

**133/1**

**BIOLOGY 1**

**MARKING SCHEME**

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**SECTION A (16 MARKS)**

1. Answer

I	ii	Iii	iv	V	vi	Vii	viii	ix	x
D	B	E	C	E	D	E	C	C	D

1Mark @ = 10 Marks

2.

<b>LIST A</b>	i	Ii	Iii	Iv	V	vi
<b>LIST B</b>	H	B	A	C	H	F

1Mark @ = 06 Marks

SECTION B.

3. (i) Skin– Acts as physical barrier prevents entry of microbes also sweats/oil antimicrobial substances 02 marks  
(ii) Eyes - Protects by tears which contain Lysosomes which kills bacteria 02 marks  
(iii) Digestive system - It secretes digestive juices contain HCl acid which kill germs 02 marks  
(iv) Respiratory system - secretes mucus traps pathogens also have hairs like structure which trap dust particles and expel out 02 marks  
(v) Blood tissue - Contain white blood cells which detect and destroy pathogens 01 mark
4. (a) (i) Testosterone hormone  
(ii) Oestrogen hormone  
(iii) Glucagon hormone  
(iv) Oxytocin hormone @1mark =04marks

(b)

<b>Nervous coordination</b>	<b>Hormonal coordination</b>
It use nerves to transmit impulse	It use nerves to transmit impulse
It is very fast	It is slow
Have short lived effects	Have longlived effects
Controlled by brain and spinal cord	Controlled by endocrine system
Are specific to muscles / glands	Affects many organs

5. (a) Problems which can arise if pancreas is removed
- A lot of sugar of sugar can accumulate in blood, since there will be no insulin secreted to lower it
  - Lack of energy, as the stored glycogen will not be used, due to lack of glucagon hormone.
  - There will be no digestion of carbohydrate and lipids in small intestine. Since there will be no secretion of pancreatic juice. (@1 = 3 marks)

(b). (i) Excretory wastes of one process can be used as raw material of another process. e.g. oxygen gas which is by product of photosynthesis, is used as raw material of respiration process.

(ii) left ventricle has thicker wall so that oxygenated blood can be pumped to all over the body parts by high pressure.

- (iii) breathing rate increases to ensure the increase of the intake of oxygen gas in the body for effective aerobic respiration in the muscles, so that energy is produced maximumly.
- (iv) camels can survive in deserts for a long time without drinking water because they have long Loop of Henle, which retains water in their body by osmoregulation process.
- (v) concentrated urine is produced in hot conditions because there is maximum reabsorption of little water in the kidney. Most of water content is lost as sweat through the skin.
- (vi) humans are the most intelligent animals because they the well-developed cerebrum compared to the cerebrum of other animals. (@1 = 6 arks)

6. (a) (i) Alcohol is made from barleys which contain chemical substance called lupulin. Lupulin causes impermeability in the Loop of Henle and Distal convoluted tubule.

This makes re-absorption of water difficult, and therefore, most of water content passes out with urine. (@1.5 marks)

- (ii) Anti diuretic hormone/vasopressin is greatly affected by alcoholic drinks. (@1.5 arks)

(b). Adaptations of muscles to their functions

i. Muscles are made up of contractile muscle fibres, for contraction and relaxation

ii. They have multiple nuclei for carrying out their functions effectively

iii. They have a number of mitochondria for production of energy which help them to contract and relax

Nerve responsiveness when they are required to move. (@1 = 3 arks)

(c) Types of movable joints

Type of joint	Location
Ball and socket joint	Shoulder/hip
Pivot joint	Neck
Hinge joint	Elbow / knee

(0.5@ = 3 arks)

7. (a) The difference between plant and animal cells

Plant cell /cassava	Animal cell /egg
(i) They have cell wall made up of cellulose	-They lack cell wall
(ii) They have large and permanent vacuole	-They have small and temporary vacuole
(iii) They have irregular shape	-They have regular shape
(iv) They have chloroplast	-They lack chloroplast

Any 4points @1mark= 4marks

(b)

(i) The cell wall

(ii) Cell membrane

(iv) Nucleus

(iii) Cytoplasm

(v) Chloroplast

5 points @1mark= 5 marks

8. Solution:

(a)(i) Continuous variation shows intermediate form between any two extremes, i.e. there is no clear cut distinction between two extremes. Examples of continuous variation are height and weight. While discontinuous variation shows a clear cut distinction from one form to another form.

Examples of discontinuous variation are ability to roll the tongue, albinism, and blood group.

(02 marks)

(ii). Homologous structures share an ancestor but serve a different function while Vestigial structures are traits that our ancestors needed but no longer serve a purpose in our environment.

(02 marks)

(b)

208(b) JOHN FAMILY:

John blood group A ( $I^A I^O$ ) and ( $I^A I^A$ )

John wife blood group B ( $I^B I^O$ ) and ( $I^B I^B$ ).

First cross (Homozygous blood group (A and B))

P. Phenotypes Blood group A x Blood group B.

P. Genotypes  $I^A I^A$   $I^B I^B$ .

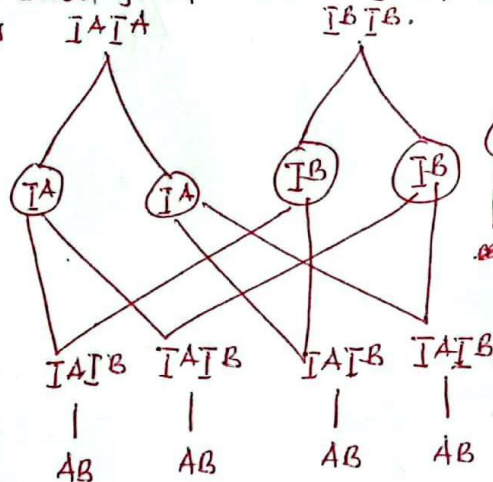
Meiosis

Gametes

Fertilisation

offspring

Blood groups



Third cross

P. Phenotypes Blood group A x Blood group B.

P. Genotypes  $I^A I^O$  x  $I^B I^B$

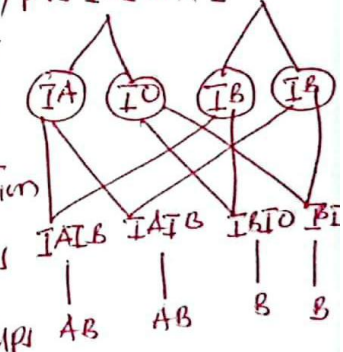
Meiosis

Gametes

Fertilisation

offspring

Blood groups



second cross (Heterozygous blood group (A and B))

P. Phenotypes Blood group A x Blood group B.

P. Genotypes  $I^A I^O$  x  $I^B I^O$ .

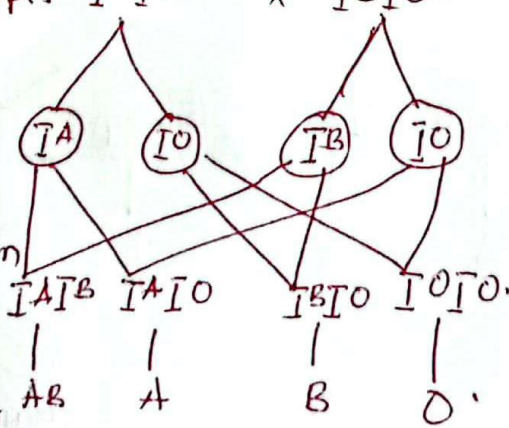
Meiosis

Gametes

Fertilisation

offspring

Blood groups



Fourth cross.

P. Phenotypes Blood group A x Blood group B.

P. Genotypes  $I^A I^A$  x  $I^B I^O$

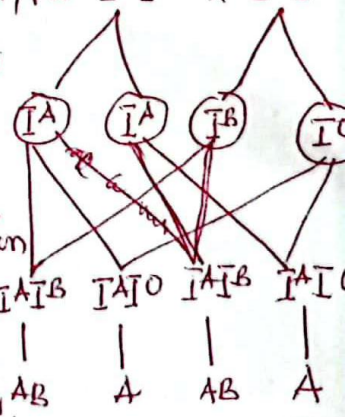
Meiosis

Gametes

Fertilisation

offspring

Blood groups



Q8(b) PALM FAMILY.

Palm blood group A ( $I^A I^A$  and  $I^A I^O$ ).

Palm wife blood group (O) ( $I^O I^O$ ).

Q1) Parental phenotype Blood group A x Blood group O.  
Parental Genotypes  $I^A I^A$   $I^O I^O$

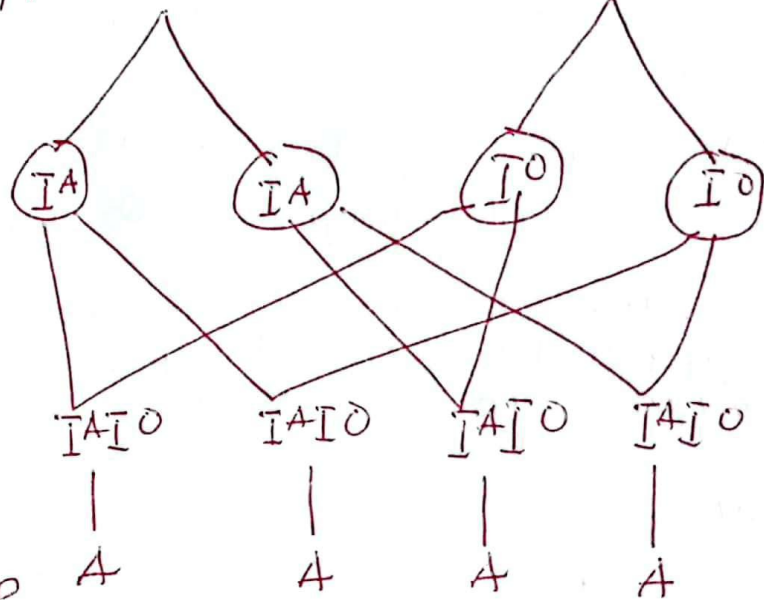
MEIOSIS.

Gametes

Fertilization

Offsprings

Blood group



01 mark

Q2) Parental phenotype Blood group A x Blood group O.  
Parental Genotypes  $I^A I^O$   $I^O I^O$ .

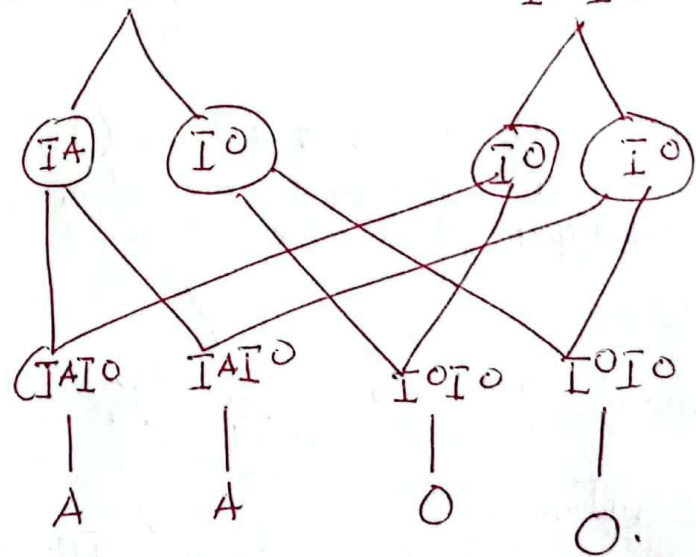
MEIOSIS

Gametes

Fertilization

Offsprings

Blood group.



01 mark

Both crosses of between palm and wife has blood group (A and O)



## SECTION C

9.

Introduction: Rape is an illicit sexual intercourse against one's consent... (1.5 marks)

Causes of rape:

- Drug abuse
- Wrong beliefs (some people are instructed by witchdoctors to rape old women or children, or close relatives in order to become wealthy)... (Any three, 1.5 @ = 4.5 marks)
- Mental /psychological disorders (such as pedophilia and sadistic rapist, the sadistic rapist draws pleasure or attain sexual gratification by inflicting pain and suffering to the person their forcefully having sex with )/ abnormal sexual behaviors/sexual deviation. - Anger/vengeance (the rapist rape the victim as a punishment/getting even with...)

Effects of rape

- Extremely difficult and painful emotions/trauma - Physical injury
- Sexual transmitted diseases
- Unwanted pregnancies (Any three, 1.5 @ = 4.5 marks) –

Controlling/preventing rape:

- Avoid drug abuse (Any three, 01@ = 03 marks)
- Fight against wrong beliefs
- Severely punishing rapists

Conclusion: The whole society is responsible in preventing rape by..(or any other relevant = ( 1.5 marks)

10. INTRODUCTION

Organic evolution- is the gradual change in the heritable characteristics of biological populations over successive generations 2marks

MAIN BODY

Evidence of organic evolution

- Evidence from fossil records (paleontological evidence)
- Evidence from comparative embryology
- Evidence from comparative anatomy
- Evidence from comparative physiology
- Evidence from cell biology
- Evidence from biogeography
- Genetic variation

Any 4 points@3marks=12 marks

Conclusion 1mark

## 11. Introduction

Birth control- is the process whereby parent decides to arrange and choose the time to have children to what intervals for each child, how many children to have in order to provide good care for the children.

1 mark

Main body

(a) Methods which suppress the formation and release of gamete

- Implants
- Contraceptives pills
  - Inject able
  - Tubal liqation
- Vasectom

Any 3 points @2marks=6marks

(b) Method that prevent the union of gamete

- Condoms
- Diaphragm or cervical cap
- Spermical cream
- Rhythm method
- Withdraw method
- Natural calendar

Any 3 points @2marks=6marks

(c) The method that prevent implantation of fertilized egg.

- Intra-uterine device (IUD) 2 marks

Relevant conclusion 1 marks