

MARKING GUIDE

BIOLOGY PAPER 2

a)(i) Injection of saline reduced the rate of urine production to a minimum; but later the rate of urine production increased.

(ii) Injection of saline increased the concentration of urine upto a peak; and after the concentration of urine decreased.

b(i) Injection of saline into blood lowers the water content of blood ;and rises its pressure ;filtration rate in the glomerulus increases ;forming more glomerular filtrate from which large amounts of water are reabsorbed into blood; hence urine produced reduces; As more water is reabsorbed into blood its pressure reduced; in turn reduces the filtration in glomerulus with subsequent decrease in rate of urine production; *osmotic*

(ii) injection of saline increases the concentration of urine because the saline lowers the water content of blood ;stimulating the anterior pituitary gland to secrete large amounts of antidiuretic hormone; that increases permeability of renal tubules to water;

As more water is reabsorbed the secretion of antidiuretic hormone reduces ; decreasing the permeability of renal tubules to water;

c)(i) from 0 to 1 minute, the rate of urine production increased because drinking large amounts of water increased the blood volume and blood pressure in the glomerulus;this increased rate of filtration and rate of urine production;

(ii) Urine concentration remained fairly constant because drinking large amount of water reduced the osmotic pressure of the blood; The release of antidiuretic hormone caused loss of much water through urine with an equivalent amount of salts resulting from tubular secretion within proximal convoluted tubule and active pumping from blood into renal fluid within the distal convoluted tubule so that there was no significant change in urine concentration;

d)(i) Injection of saline into a vein would have no effect on the rate of urine production because once in the vein, the saline is transported first to the heart before it joins the systemic circulation and while in the heart its effect is cancelled out by respiration /metabolism of the heart; so that the osmotic pressure of blood remained constant/intact; hence as that in the glomerular capillaries,

63
 (ii) When the blood pressure falls the pressure in the glomerular capillaries also drops; when the glomerular capillary pressure drops below that of the osmotic pressure of the plasma proteins the plasma /water and soluble components is/are held back in the capillaries; This stops the formation of glomerular filtrate leading to no urine production;

2a) Action spectra is a graph showing rate of photosynthesis of each photosynthetic pigments with varying wavelengths of light; while absorption spectrum is the graph showing variation of percentage absorption of light by different photosynthetic pigments with varying wavelengths of light;

b) Chlorophyll molecules in both photosystems I and II absorb light energy; they become excited and emit electrons; electrons from PSI are accepted by electron acceptor ferredoxin while from PSII is accepted by electron plastoquinone; the electrons are then carried through chain electrons carriers from adenosine diphosphates (ADP) with a phosphate unit to form ATP molecules

Protons from photolysis of water molecules are actively pumped into the lumen of the thylakoid; until proton gradient exists; protons exit; proton begin to diffuse back into the stroma of the chloroplast; through the chemiosmotic channels; arranged from higher to lower energy levels and in the process some energy is emitted; these energy is used to combine ADP with phosphate unit to form ATP;

c) C₄ plants possess two different types of chloroplasts, the mesophyll and bundle sheath chloroplasts; within each there are different kinds of carbon dioxide acceptor molecules; stroma of mesophyll chloroplasts contain phosphoenol pyruvate carboxylase (PEP Carboxylase) whose active sites combine with only carbon dioxide; and does not combine with oxygen; PEP carboxylase catalyses reaction between carbon dioxide and PEP to form oxaloacetic acid (OAA) a stable product of photosynthesis even when oxygen, light intensities and temperatures are quite high;

C₄ plants store large amounts of carbon dioxide in form of malic acid; malic acid is constantly and actively pumped into the bundle sheath cells; where it undergoes decarboxylation to release large amounts of carbon dioxide much higher than that of (RuBP) carboxylase to more efficiently combine with only carbon dioxide; RuBP combines with carbon dioxide to form molecules of phosphoglyceric acid (PGA) the first stable product of photosynthesis;

Bundle sheath chloroplasts where RuBP carboxylase is present lack grana/thylakoids/no light reactions take place and no production of oxygen; there is no oxygen or its concentration kept very low that RuBP has no chance to combine with oxygen; RuBP is prevented from being oxidized to carbon dioxide and water.

- ire of the plasma
capillaries; This
- so drops; whe
- 3a).
- Untreated sewage decomposes; causing eutrophication /excessive enrichment of the river with nutrients like nitrates that lead to rapid algal growth; This makes the river water more turbid/less transparent ;the productivity of the river reduces death of aquatic species especially the aerobic ones occurs; Visibility of the aquatic organisms is impaired; exposing them to their predators; The process of decomposition depletes the water of oxygen; leading to Biochemical Oxygen Demand(BOD); Sewage contaminated water becomes unsuitable for drinking ;causes irritation on bathing ;causes cholera to humans ;Anaerobic activity and decomposition causes the water to become alkaline; due to high levels of ammonia;
- b).
- The hot water from the power station increases the temperature of the river water; so the river gets polluted ,the ability of the river water to take up oxygen reduces; dissolved oxygen also escapes ,and eventually the metabolic activity of the aerobic micro- organisms lowers; Metabolic rate of aquatic organisms increases due to increase in enzymatic activity .It also leads to migration of aquatic organisms like fish, Down stream uptake of oxygen increases because of reduced temperature, and decreased decomposition due to depletion of sewage content.
- c).
- Habitats for wild life is destroyed ;preys are exposed to predators ;leading to extinction of some species ;Soil is eroded because of its exposure to agents of soil erosion; Biodiversity of the environment is reduce; micro-climate of the area is altered ;leading to global warming; Herbivores are deprived of source of food ;while predator visibility for preys is increased ;
- 20

4a) Hormones influence behavior in the following ways;

- Motivate animals to respond appropriately. ✓
- Increase sensitivity of the effectors to stimulation hence causing appropriate responses.
- Prevent inappropriate responses to non-useful stimuli in the environment by causing degeneration of muscles. DS
- They end a behavioral activity. ✓
- Increases the level of awareness of an animal to danger for example adrenaline hormone.

b) Differences between instinctive and learned behaviors.

Instinctive behavior.	Learned behavior.
It is inborn/inherited.	Acquired during life time. ✓
It is permanent /stereotyped.	It is temporary. ✓

Is impulsive immediate
Independent of environment

Develops overtime
through experience
Influenced by environment

Same for all members of species.	Differs widely.
Stimulated by a specific stimulus.	Stimulated by various stimuli.

c) A releaser is either a simple stimulus/sequence of stimuli produced by a member of species which invokes a behavioral response in another member of the same species for example younger herring gull usually pecks at a red spot on the yellow lower mandible of parent bill to signal the parent to regurgitate fish which then they young swallows.

d) Functions of releasers.

- Initiate and end appropriate behaviors and interactions.
- In territorial behavior avoids open conflict /physical injuries.
- In courtship it leads to mating .
- It enables predators to identify preys for survival.
- Enables young ones to distinguish between their parents and predators to avoid predation.
- It enables animal that migrate to reach their destination and return to their original habitat.
- In sexual reproduction ,releasers change animal aggressive behavior to sexual behavior as in spiders.

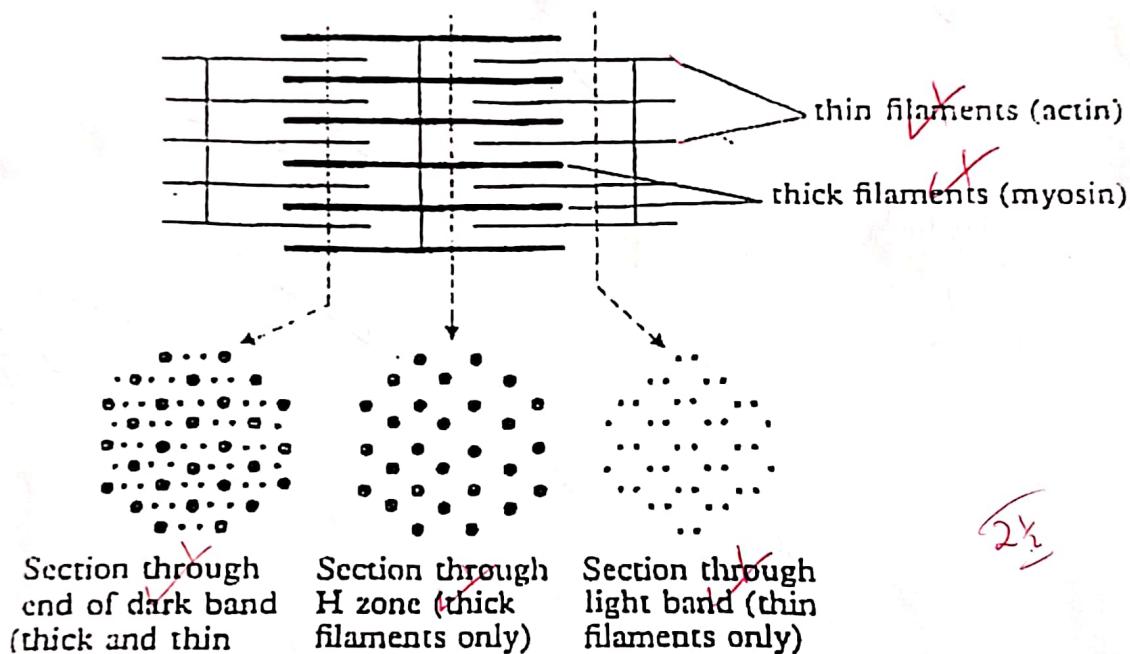
5a). Bone is a tough and strong fibrous connective tissue, that give it a protective function; It is made up of organic matrix; that contains collagen fibre; that gives it strength; It is impregnated with small needle shaped crystals of calcium phosphate; that give it great strength; It has osteoblast and osteoclast cells in the matrix; Osteoblasts secrete new matrix ;while the osteoclasts dissolve the bone matrix to enable further reconstruction of a bone during growth. Bone is made up of thin layers lamellae that are concentric , the hollow haversian canals; The canals run parallel to the length of bone; The haversian canals consist of nerve fibres and blood vessels; It has lacunae that represent the spaces occupied by the central region of the osteoblasts ;attached to them are double membranous canaliculi ; It has lamellae that contains numerous lacunae with living bone cells to allow synthetic activity; It contains an artery, vein and lymph vessels that bring in materials for the synthetic activity; Bone is covered with a layer of dense connective tissue called periosteum; for protection

b) Striated muscle consists of myofibrils ,each myofibril is divided into light and dark bands. The dark band has comparatively light region in the middle called H-zone, and it has a dark regions on either side .In the middle of the H-zone is a dark line called M-line. Running through the light bands in the middle is the Z-line. The dark and light bands are called A and I bands

stimulus.
environment
member of species
for example
ent bill to

respectively, I means isotropic because it allows light to pass through and so appears lighter. A means anisotropic since it does not allow light to pass through and so appears darker.

The region of a myofibril between two Z-lines is called sarcomere and is the basic functional unit of a myofibril. Alternating light and dark bands are due to thin actin and thick myosin protein filaments. The thick myosin filaments are confined to the dark band and the thin actin filaments occur in the light band but extend in between the thick myosin filaments within the dark band. The darker segments on either side of the H-zone are due to both thick myosin and thin actin filaments overlapping. The H-zone consists of only the thick myosin protein filaments.



6a) Paleontology being the study of fossils of organisms that lived long ago provides evidence for evolution through impression and imprints that oldest fossil bearing rocks possess simpler structures, while present day fossil rocks contain a variety of many complex organisms indicating a progressive change from simpler to complex forms; which suggest that present organisms could have evolved from earlier organisms

Evidence also shows that the climatic conditions have been varied through the earth crust, which explains the differences in the structure of fossil of common ancestry that are located in different parts of the world.

b) Organisms produce larger number of living off springs resulting into large population size, but their population remain relatively constant, due to competition causing struggle for existence, the large population can split into sub-populations which become isolated by either geographical/ecological/reproductive/behavioral isolation mechanisms, gene flow between sub-populations is prevented so that forms its own gene pool.

When sudden mutation occurs separately in each sub-population, it produces mutant and non-mutant individuals in these populations, leading to genetic variations, genetic variation can also arise from artificial selection and gene recombination, resulting into survival of the fittest by natural selection.

The mutant individuals may be polyloids/resistant to drugs used against them/ possess better features, skills and methods to escape predation, and better adapted to succeed in the struggle for existence, and survive, they breed off springs like themselves, and their mutant genes continue to be passed to the next generations, and such better adapted mutant survivors evolve to new distinct species over many generations, so new species are formed from pre-existing ones by natural selection of genetically determined characteristics.

13

UGANDA NATIONAL EXAMINATIONS BOARD
UGANDA CERTIFICATE OF EDUCATION
OCTOBER - NOVEMBER, 2022

Page 2 of 8

Do not
write
in this
margin

Candidate's Name ... BIOLOGY PAPER I (U)

Signature MARKING GUIDE

Subject 2023 Paper code/.....

Random No.			
Personal Number			

SECTION A

5

1. C 11. D 21. B 31. B

2. C 12. A 22. A 32. D

3. C 13. A 23. B 33. B

4. A 14. C 24. A 34. D

5. A 15. B 25. B 35. D

6. D 16. A 26. C 36. B

7. B 17. A 27. D 37. B

8. C 18. B 28. C 38. B

9. D 19. C 29. B 39. B

10. A 20. C 30. C 40. B

Do not
write
in this
marginDo
not
write
in this
margin

Candidate's Name

Signature

Subject Paper code /

Random No.				
------------	--	--	--	--

Personal Number			
-----------------	--	--	--

SECTION B

41 a (i)

A - Glycerol; ✓

b - fatty acid'; ✓

(ii) Triglycerol; ✓

(iii) Condensation reaction; ✓

b (i)

- Insulate body against heat loss; ✓

- Protect delicate body parts;
like heart; ✓

- When hydrolysed, releases a lot of energy; ✓

any 2
Allow any other
role of lipid;

(iii)

Fibrous

- Insoluble

- Support and structural functions

- Stable structure

- forms long parallel strands

- Has repetitive regular

Globular

- Soluble; ✓

- Metabolic functions; ✓

- Relatively unstable structure;

- forms spherical strands;

- Has irregular sequence

UGANDA NATIONAL EXAMINATIONS BOARD
UGANDA CERTIFICATE OF EDUCATION
OCTOBER - NOVEMBER, 2022

Page 4 of 8

Do not
write
in this
margin

Candidate's Name 2
Signature Random No. _____
Subject Paper code / Personal Number _____

42. (a)

(i) Natural active immunity;
Is a type of immunity which is obtained as a result of an infection; leading to antibody production;

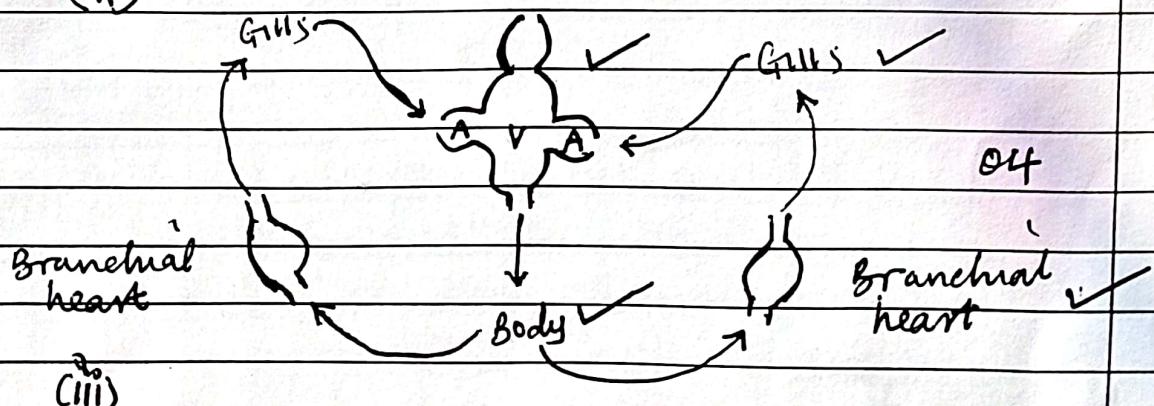
(ii) Natural passive;

This is a type of immunity that is gained naturally from mother across placenta;

(b) (i)

- By hydrostatic pressure; ✓
- By muscle contraction; ✓ 03
- By inspiratory movements; ✓

(ii)



(iii)

- Temperature control; ✓
- Medium for dispersion; ✓ 02 /
- Hearing and balance; ✓ 02



10

2022 Uganda National Examinations Board

Candidate's Name

Signature 4

Subject Paper code /.....

Random No.				
Personal Number				

45.

(a) Reciprocal innervation is a process that involves supplying 2 nerve impulses to muscles such that they operate antagonistically; ✓ 21

(b) (i) It allows greater movement; ✓ of calcium ions; needed for muscle contraction; ✓ 03

(ii)

Ostracion fish, eg tunny fish: has a small tail; with a massive anterior end; ✓

It locomotes by vigorously lashing the tail; ✓ so that much forward forces are produced; to push the fish forward; ✓ 04

(c) Calcium ions attach on troponin; ✓ displacing tropomyosin; ✓ from blocking the myosin binding site on actin; ✓ my 2 02

60

Candidate's Name

Signature

Subject Paper code /

Random No.					
Personal Number					

4b (a)

At 0 M, biomass of phytoplankton is high;

From 0 to 3 M, biomass of phytoplankton is relatively constant; ✓

From 3 to 4 M, biomass of photosynthetic phytoplankton decreases rapidly; ✓

Ref all marks if answer uses

From 2 - 6 instead of

From 2 to 6;

b (i) A

From 0 to 10/11/12 M, the biomass of photosynthetic phytoplankton decreases gradually // Accept rapid; because the lake has a few nutrients; as a result, a few algal blooms cover the surface; ✓ much light is present up to the Max 3 deeper layers; thus biomass decreasing gradually up to very deep layers; ✓

(ii) From 0 to 5 M, biomass of phytoplankton decreases gradually and then very rapidly, because the lake has lots of nutrients, thus algal blooms cover up the water surface limiting light penetration into water; Max 3 low photosynthesis! 

UGANDA NATIONAL EXAMINATIONS BOARD
UGANDA CERTIFICATE OF EDUCATION
OCTOBER - NOVEMBER, 2022

Page 4 of 8

Do not
write
in this
margin

Candidate's Name

Signature

Random No.				
Personal Number				

Subject Paper code /.....

(C) Antibiosis involves organisms producing chemicals that repel other organisms, for example pheromones used for marking territories. This settles disputes // reduces competition for resources // only 2

0.2

10

Signature

Random No. | | | |

Subject Paper code /

Personal Number | | | |

Do not
write
in this
margin

17

43

(a)

- Mitochondria have enzymes for Krebs cycle substrate; lack glycolytic enzymes for glucose
- Mitochondria have specialised channels for influx of these molecules but lack specialised transmembrane proteins for glucose influx

(b)

Inorganic phosphate; NAD; FAD¹

any one

(c)

(i)

Oxygen concentration decreased between A and B because; oxygen is the final hydrogen acceptor; at the end of the electron transport chain with itself reduced to water;

(ii) The shape at e is relatively flat // constant; because of saturation; most of the substrates have used up the oxygen;



UGANDA NATIONAL EXAMINATIONS BOARD
UGANDA CERTIFICATE OF EDUCATION
OCTOBER - NOVEMBER, 2022

Page 6 of 8

Candidate's Name

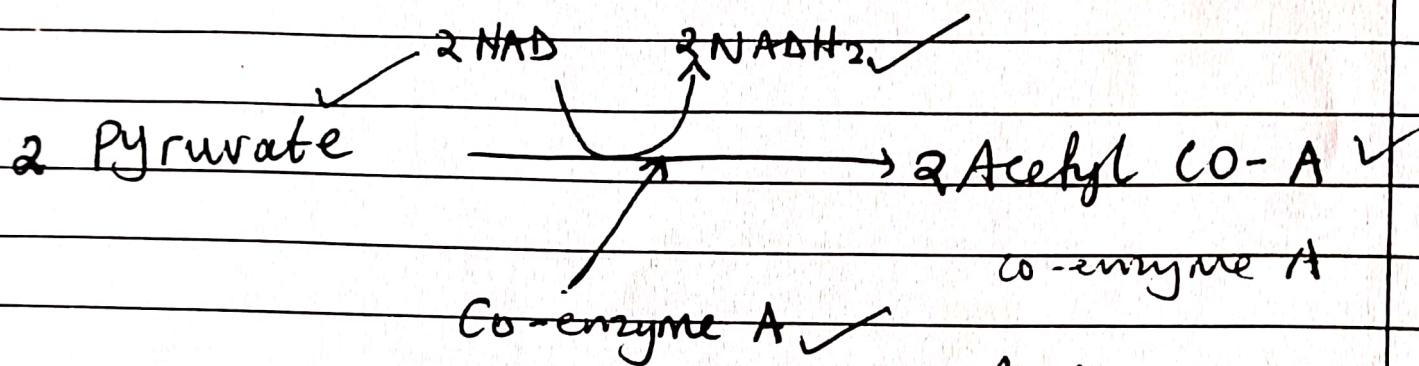
Signature

Subject Paper code/.....

Random No.				
Personal Number				

18

(d)



Candidate's Name

Signature

Subject Paper code /

Random No.				
Personal Number				

19

44

(a) Inner most layer of the eye; ✓
 Consists of light sensitive cells; ✓
 cones and Rods/ partially embedded in
 in the pigmented epithelial cells of
 choroid; ✓

The intermediate layer contains bipolar
 neurones with synapses connecting O4
 photoreceptor layer to the cells of the
 inner layer; ✓

(b) Light from an object falling
 onto several rods which are linked to
 the brain by separate neurones may not
 have sufficient energy to produce a
 propagated action potential; If the
 same light falls on 3 rods; ✓
 which are linked to same neurone ✓
 supplying the brain, separate generated
 potentials produced by the rods would
 summate and produce an action potential
 which is registered by the brain as
 light;



**UGANDA NATIONAL EXAMINATIONS COUNCIL
UGANDA CERTIFICATE OF EDUCATION
OCTOBER - NOVEMBER, 2022**

Page 8 of 8

Candidate's Name

Signature

Subject Paper code /

Random No.					
Personal Number					

UCE

Do not
write
in this
margin

10

(C) - It allows free movement of the rib cage of the mammals;

- ~~protects~~

- Allows animals to withstand the shock sustained by the fine limbs;
- To allow for activities like climbing, cleaning the face and manipulating food;

c2

My 2

(C)

P53013 Mammal Guide
PRACTICAL

Coordinated!

1. (a) Long and muscular; for faster moving to escape predators / enemies;
Flairless soles with swollen pads; to reduce noise during running / movement;
Jointed for flexibility during running;
Toes have many digits for firm grip on rough surfaces during locomotion;
Digits / toes end in pointed claws to easily dig burrows to hide to escape predation;

Note: must describe

- (b) Sharp pointed incisor teeth for cutting / biting food easily / for defence against predators;
Hard incisor teeth for firm grip of food / for biting hard food materials;
Broad surface of molar teeth to provide a large surface area for grinding / chewing food;
Enough working surface of molar teeth for easy crushing / grinding of food;
Presence of ridges and cusps to increase surface area for ~~biting~~ grinding / crushing for chewing food;
Curved incisor teeth for firm grip on food nibbling / gnawing food easily;

Teeth Adaptations

No.1 = 31

No.2 = 38

No.3 = 32

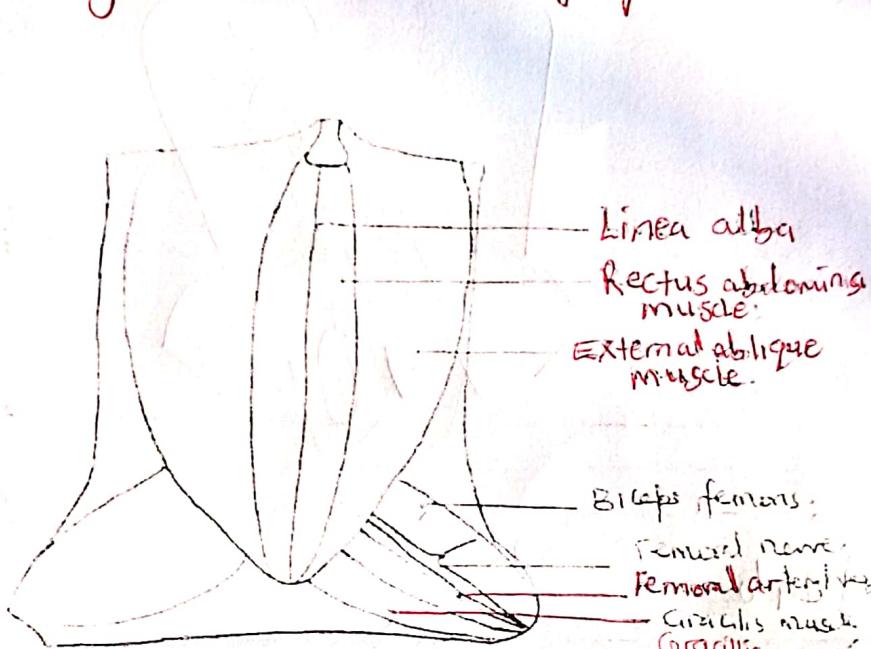
101

(2)

Drawing of superficial structures lying posterior to the thoracic region but anterior to the gastrocnemius muscles of specimen A.

NA 1f
 Any structure above abdomen drawn / labelled.
 Any structure below thigh drawn.

M = 01
 T = 01
 N = 01
 D = 03
 L = 03
 O = 01
 10

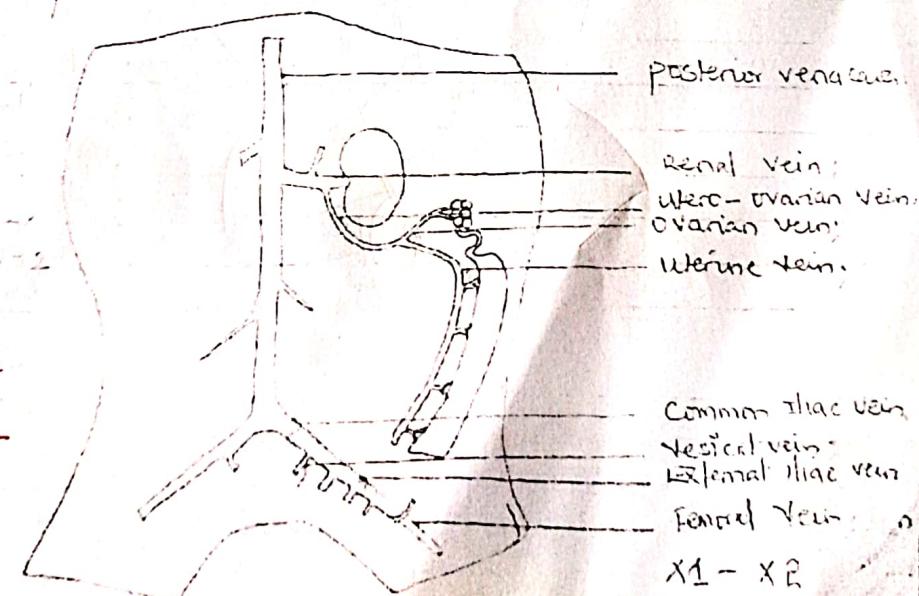


Rectus femoris
 Vastus medialis
 Adductor longus
 Gracilis

Drawing showing the blood vessels that drain the left hand limb, reproductive and urinary structures.

NA 1f
 - Arteries drawn
 - All other vessels in the pelvic region labelled apart from those needed

~~10~~
 M = 01
 T = 01
 N = 01
 D = 04½
 L = 04½
 O = 00
 14



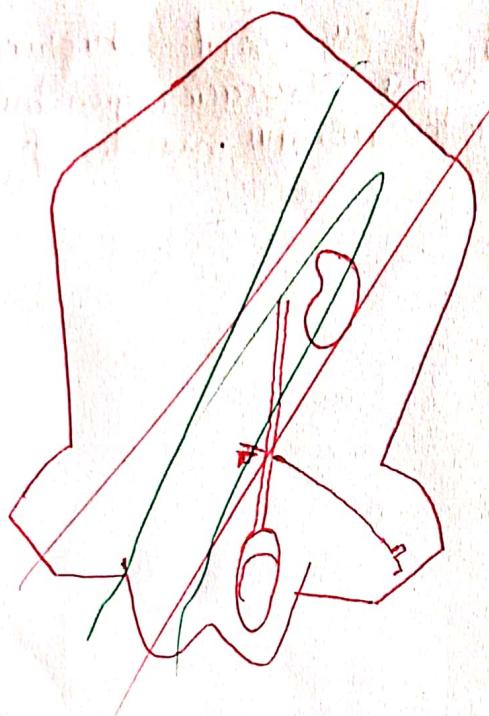
X1 - X2



AnyScanner

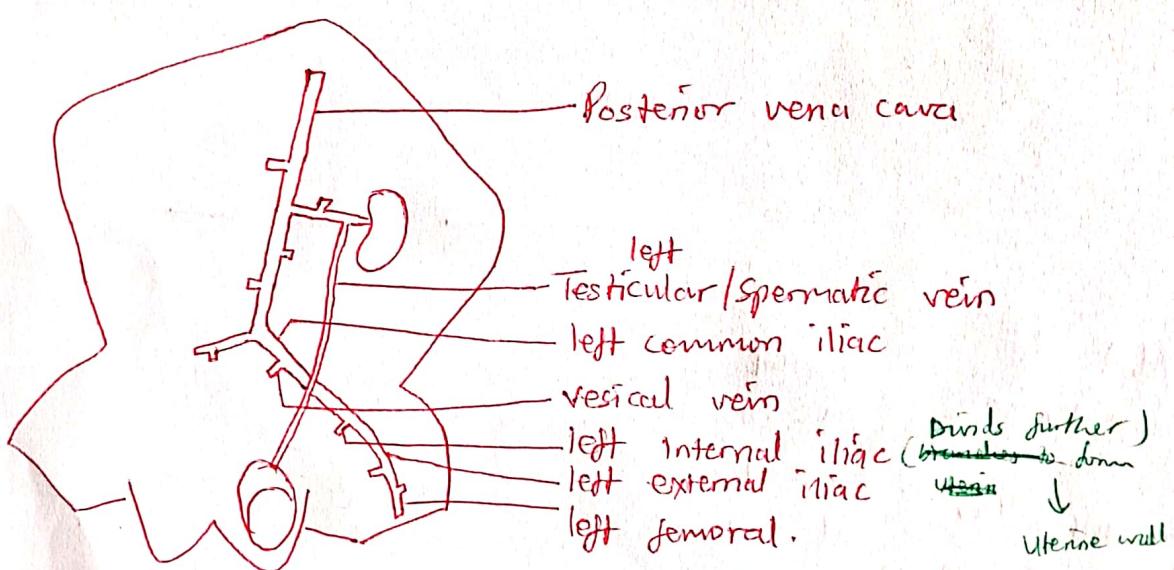


CamScanner



Male

OR



(a)

Test	Quesn observations	Deductions
Iodine test To 1cm^3 of solution add 3 drops of Iodine Solution, X reject iodine only alone	M Turbid solution, suspension turned to blue black solutions N Turbid / pale yellow Yellow solution turned pale brown / brown pale yellow solution, X turbent.	Much starch X Present.
Benedict's test To 1cm^3 of each solution, add 1cm^3 of Benedict's solution and boil.	M Turbid solution / suspension turned to pale blue solution / blue solution, N Yellow Turbid solution turned to pale blue solution, to green solution, to yellow precipitate, to an orange precipitate, to a brown precipitate	Reducing Sugars present.
award for answer each state colour & state		absent
Biuret test To 1cm^3 of each solution, add 1cm^3 of Sodium hydroxide solution, followed by $\frac{2}{3}$ drops of copper II sulphate solution.	M Turbid solution / suspension turned to intense purple solution, N yellow solution, turned to pale / faint purple solution.	Much proteins present.
		Q5 1
To 1cm^3 or 2cm^3 of DCPDP solution, add each solution separately dropwise until in excess.	M Blue DCPDP solution turned to pale / faint blue solution, N Blue DCPDP solution turned to pink solution, then colourless solution.	Vitamin C absent, 05 Moderate / much Vitamin C present
		(3)

Test	Sign Observations	Conclusions
Iodine test To 1cm^3 of solution added 3 drops of iodine solution; reject iodine only alone	M Turbid solution / Suspension turned to blue black solution. N Turbid / pale yellow / Yellow solution turned pale brown / brown / pale yellow solution.	Much starch present ✓ Starch $\frac{1}{2}$ absent ✓
Benedict's test To 1cm^3 of each solution, add 1cm^3 of Benedict's solution and boil;	M Turbid solution / Suspension turned to pale blue / blue solution. N Yellow / turbid solution turned to pale blue solution; to green solution, to yellow precipitate, to an orange precipitate, to a brown precipitate	Reducing sugars present ✓
Biuret test To 1cm^3 of each solution, add 1cm^3 of sodium hydroxide solution followed by $\frac{2}{3}$ drops of copper II sulphate solution.	M Turbid solution / Suspension turned to intense purple solution. N Yellow solution turned to pale / faint purple solution.	Much proteins present ✓
To 1cm^3 or 2cm^3 of DCPD solution, add each solution separately dropwise until in excess.	M Blue DCPD solution turned to pale / faint blue solution. N Blue DCPD solution turned to pink solution, then colourless solution.	Vitamin C absent; 05 Moderate / much Vitamin C present

Table 3: Results

Test	Observation	Conclusion
(i)	Turbid solution turned to pale blue / purple solution.	Moderately clean, present 1½
(ii)	Turbid solution turned to milky blue solution, the green colouring + yellow precipitate, orange precipitate; and finally brown precipitate.	Much reducing agent present. 6½
(iii)	Turbid solution turned to very pale / pale / faint purple solution;	Traceable protein present. 1½
(iv)	Blue Lecip. solution turned to pink solution / Coloured solution except turned to turbid solution	Moderately much Vitamin C present 1½
(v)	Turbid solution turned to pale / Faint purple solution;	Traceable little protein present 2 1½
(vi)	Turbid solution turned to pale blue solution to a very pale faint purple solution.	Traceable little protein present 1½
(vii)	Turbid solution turns to pale dark intense purple solution,	Much protein present 1½
(viii)	Blue Lecip. solution turns to pink coloured / Turbid solution;	Little / moderate! much Vitamin C present
	MAX 13 marks	

(5)

Enzymes | Active substance in solution N
partially catalyzed hydrolysis of breakdown of
starch and proteins and is more active in
acidic and alkaline media but less active
in neutral medium

03

03

ii) N contains Enzymes | active substances |
biological / organic catalysts that catalyzed
breakdown | hydrolyze proteins and slightly
break down starch ✓

07

02

$$T = \underline{\underline{38 \text{ min}}}$$

37

H^o 3 am Specimen

Seed arrangement

F₁ Numerous/plenty ^{invaluable}
Many seeds; attached by short funicle and radiating | arising from a central placental point pointing outwards; Seeds surrounded by succulent hairs ^X

F₂ Many seeds; attached by long funicle to 3/4 points /placenta; at the periphery pointing radiating inwards;

F₃ Many seeds; attached in a circular pattern on ^{central} point; by short funicle; radiating outwards into locule;

F₄ maize One seed; attached to a point at the base; of the specimen projecting inwards;

F₅ Desmodium Many seeds; attached ^{by short funicle} along the Marginal periphery; on one side projecting inwards;

Q7
Ans 3

It supports seed in position for better growth; A route for passage of nutrients needed by seed for metabolism;

Spines sticky mucus on surface, that attach on hair of fur clothes of a moving animal, that carries it to a new area and plucked / brushed off.

Spines easily stick on body of moving animal so it is very correct, but for F₄, chances of it not stick animal eats it and carries it for dispersal are minimal / few animals with intake of dispersion without eating. If F₄

(二八)

1

5

Many seeds ✓ divided endo carp / many leafy; Central, sponge
placenta; thick mesocarp; Juicy endo carp; many oval
shaped (bulky) hairs; hard; stony; oval shaped seeds;
thin endocarp; many scales ✓

三

orange
cucumber

一

Many seeds with long funicles; oval shaped seeds; Fleathly thick mesocarp; thick endocarp; placenta at periphery, has $\frac{3}{4}$ many depths; many locules / divided locules; avg $4 \times \frac{1}{2} - 2$

Crambe

3

Many; hard; rounded seeds; spongy central placenta
three (many locules; short fruitlets; 3 septa; thin endocarp;
dry endocarp; avg 4.12 = 02

Cornelii

F-1

Fused endocarp & mesocarp; one, oval shaped seed;
basal placenta; hard endosperm; stiff cotyledon;
pointed plumule & radicle. avg. 2.00

maize gr

F5

Many seeds; short funicle; many locules; seeds attached alongside | at margin | periphery; avg 4.5 ± 0.2

Demonstrator

The dichotomous key for specimens F₁, F₂, F₃, F₄ & F₅.

1(a) by Mesocarp - - - go to 2;

b) Fleshy mesocarp go to 3)

gas has softs

L Luck Septa - - - - - go to 4;

2. Central placenta ————— f₁
3. Peripheral placenta ————— f₂

(a) One Seed _____ Fig.

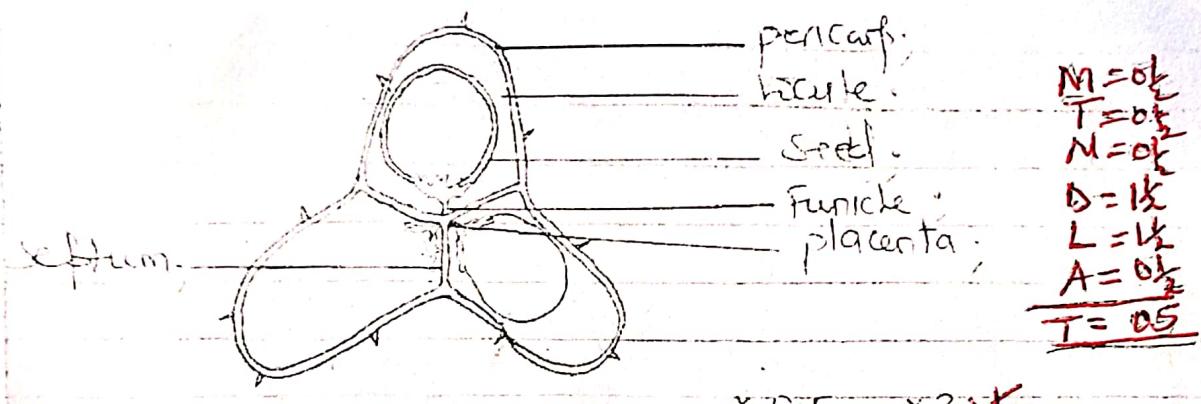
(b) Many seeds ————— FB.

(8)

(d)

Drawing of one section of Specimen F3 /
Drawing of transverse section of Specimen F3

reject diagram for drawing



$\times 0.5 - \times 3 \checkmark$

between point

- double lined pericarp
- rounded seeds,
- short funicle
- central placenta
- long linear septum

2nd stage - transverse section

Can't see left chorionated penis
need to draw outline