PROPOSED MARKING GUIDE FOR BIOLOGY PAPER III (P530/3)

COHEA.

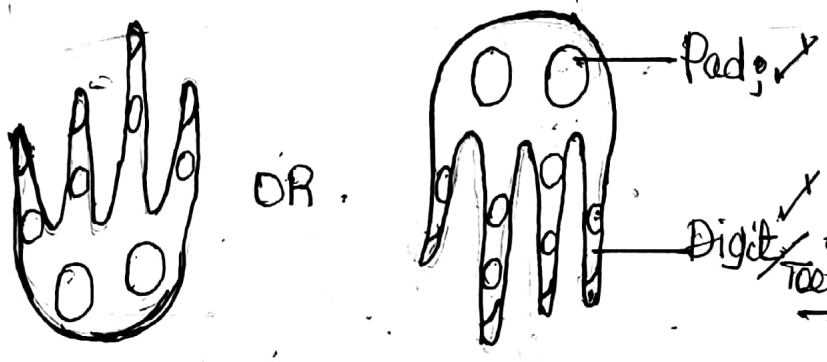
No.	Marks
1	39
2	32
3	29
Total	100

QUESTION 1:

R = The Toad

(a)(i).

A drawing of the ventral/lower side of the left fore foot of specimen R ;

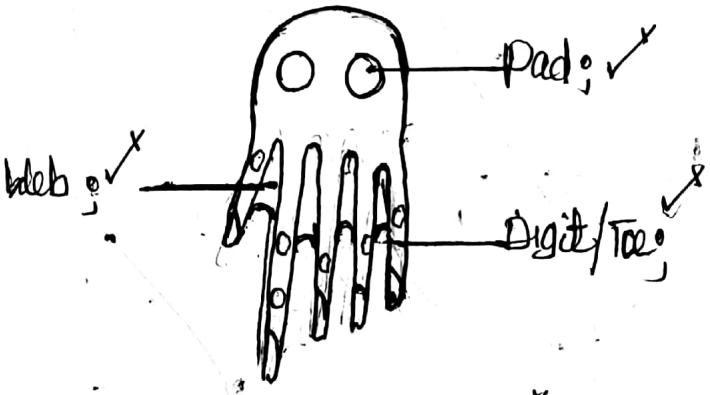


TT – 0½
D – 01
L – 01
M – 0½
N – 0½
A – 0½

04, max 03

x1 – x2;

(ii). A drawing of the ventral/ lower side of the left hind foot of specimen R ;

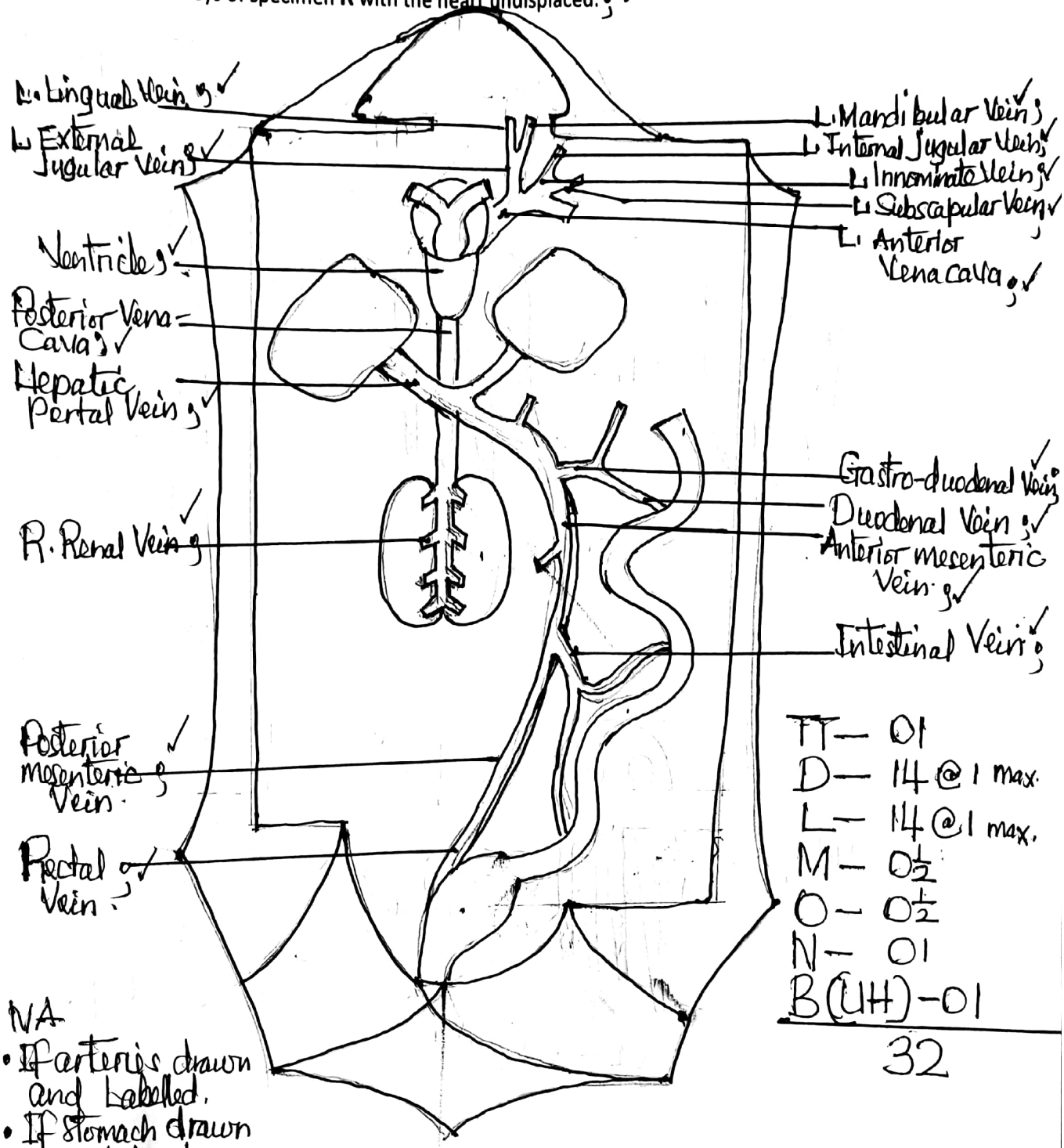


TT – 0½
D – 01½
L – 01½
M – 0½
N – 0½
A – 0½

05, Max 04.

x1 – x2;

(b). A drawing of the blood vessels that carry blood to the heart from the head region, intestines and kidneys of specimen **R** with the heart undisplaced. ;✓



TT— 01
D— 14 @ 1 max.
L— 14 @ 1 max.
M— 0½
O— 0½
N— 01
B(UH)-01
32

NA
- If arteries drawn and labelled.
- If stomach drawn and labelled.

X1 — X3 ;✓

QUESTION 2.(a)

(X = 2% PROTEIN SOLUTION, Y = 0.5% STARCH SOLUTION)

TEST	SOLUTION	OBSERVATION	DEDUCTION
STARCH TEST: To 1cm3 of solution X and Y, add 1/2/3 drops of iodine solution	X	Turbidsolution, turns yellow/pale brown solution	Starch is absent
	Y	Turbid solution turns to blue – black/ black solution	Much starch is present
REDUCING SUGAR TEST: To 1cm3 of solution X and Y, add 1cm3 of Benedict's solution, and boil	X	Turbid solution turns to pale blue solution which persists on boiling	Reducing sugars absent
	Y	Turbid solution turns to pale blue solution which persists on boiling	Reducing sugars absent
PROTTEIN TEST: To 1cm3 of solution X and Y, add 1cm3 of dilute sodium hydroxide, followed by 2 drops / 1cm3 of copper(II) sulphate solution	X	Turbid solution, turns to intense purple / violet solution	Much proteins present
	Y	Turbid solution turns to pale blue solution	Proteins absent

@ $\frac{1}{2}$ = 12 max. 10

(b)(i).

	OBSERVATION	DEDUCTION
Test tube 1	Clear solution / Less turbid	Breakdown/hydrolysis of X
Test tube 2	Remains cloudy/Turbid	No breakdown/ hydrolysis of X

02

(b)(ii).

TEST TUBE	TEST	OBSERVATION	DEDUCTION
3	Iodine test	Turbid solution, turns to blue – black/ black solution	Much starch is present
	Benedict's test	Turbid solution, turns to pale blue solution which persists on boiling.	Reducing sugars are absent
4	Iodine test	Turbid solution, turns to a blue – black/ black solution	Much starch present
	Benedict's test	Turbid solution, turns to a pale blue solution	Reducing sugars are absent

3 @ $\frac{1}{2}$ = 06

(b)(iii).

- It is specific in action ie breaks down proteins but not starch.
- Catalyses the breakdown of proteins in acidic medium.

01

(c)

TEST TUBE	OBSERVATION	DEDUCTION
1 + unboiled half bean seed	Less / moderate effervescence/ bubbles/ foam	Less / moderate breakdown of hydrogen peroxide
2 + boiled half bean seed	No effervescence/ bubbles/ foam	No decomposition/breakdown of hydrogen peroxide solution
3 + unboiled half of piece of liver	Rapid effervescence/ very many bubbles/too much foam	Rapid decomposition/ breakdown of hydrogen peroxide
4 + boiled half of piece of liver	No effervescence/ bubbles/foam	No decomposition/ breakdown of hydrogen peroxide
5+ piece of leg muscle	Moderate effervescence/ bubbles	Moderate decomposition of hydrogen peroxide

@ 1 = 10

(d).

- Catalase enzyme is found in both living plant and animal tissues.
- Catalase enzyme is in different amounts/ concentration in different tissues.
- Catalase enzyme is denatured by boiling/ high temperature.
- Catalase enzyme breaks down hydrogen peroxide into water and oxygen gas.

@ 1 Max. 03

QUESTION 3.

(a).

P = SPIROGYRA

Q = BREAD MOULD/ RHIZOPUS

R = MOSS PLANT WITH A SPOROPHYTE

S = AMARANTHUS PLANT WITH AN INFLORESCENCE/FLOWERS.

SPECIMEN	PYLUM	REASON
P/ Spirogyra	Chlorophyta	Septate/cross walled filaments/ filamentous with a green pigment/ spiral chloroplast/ filamentous body
Q/ Bread mould	Zygomycota	Vertical hypha/ sporangiophore/ stalk with round sporangium/ network of branching hyphae/mycelium/ stolon/

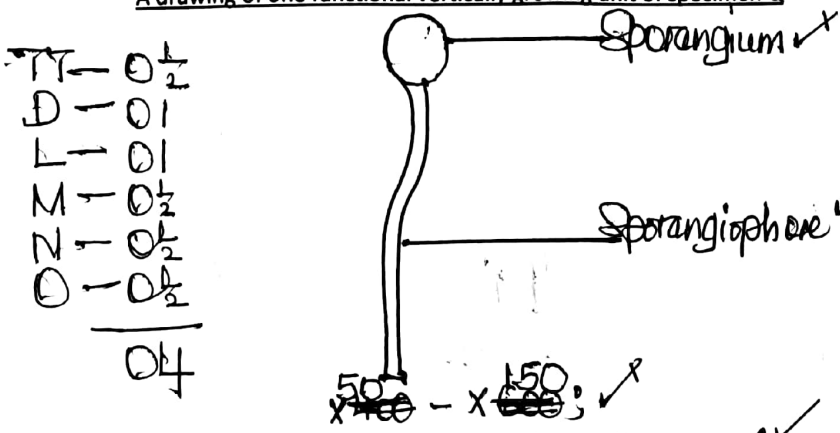
		horizontal and bent hyphae.
R/ Moss	Bryophyta ✓	Spirally arranged leaf – like structures/ simple leaves/false leaves/ body differentiated into simple leaves and stem attached to gametophyte anchored by rhizoids/ spore – bearing capsule/ sporangium at the apex/ end of the seta/ stalk.
S/ Amaranthus	Angiospermophyta/Tracheophyta/Spermatophyta ✓ @ ½ = 02	Body differentiated into roots, stem and leaves/ presence of an inflorescence/ group of flowers. ✓ @ 1 = 04.

(b).

- Spiral chloroplast to increase the surface area for absorption/ trapping of sunlight for photosynthesis ✓
- Green pigment in chloroplasts/ chlorophyll in chloroplasts for absorption of sunlight ✓
- Circular pyrenoids for food storage. ✓ @ ½ = 01 + ½, Max = 01

(c)(i).

A drawing of one functional vertically growing unit of specimen Q ✓



TT – 0½
D – 01
L – 01
M – 0½
N – 0½
O – 0½
04

(ii).

- Numerous to give rise to many offspring/ increase chances of propagation ✓
- Small in size and so are light to be blown around by wind to colonize a wide range of habitats ✓
- Smooth surface to be easily moved by wind to various places ✓
- Swollen/ large sporangia to store/ produce vast numbers of spores ✓ @ 1, Max 03
- Numerous sporangia to store many spores for propagation ✓

(d)(i)

Moist/damp/damp shaded terrestrial soil/tree trunks/walls of houses/ buildings/ verandah ✓ 01

(ii).

- Numerous rhizoids for anchorage and water absorption ✓

- Large spore capsule to produce many spore for fast propagation ✓
- Spirally arranged leaves to increase the surface area for absorption of sunlight for photosynthesis ✓
- Numerous leaves to increase surface area for light absorption ✓ @ 1, Max 04
- Thin rhizoids to reduce the diffuse distance for nutrients
- Erect stem to expose the leaves to sunlight for photosynthesis
- Thin seta to easily swing in wind for spore dispersal

(e)(i)

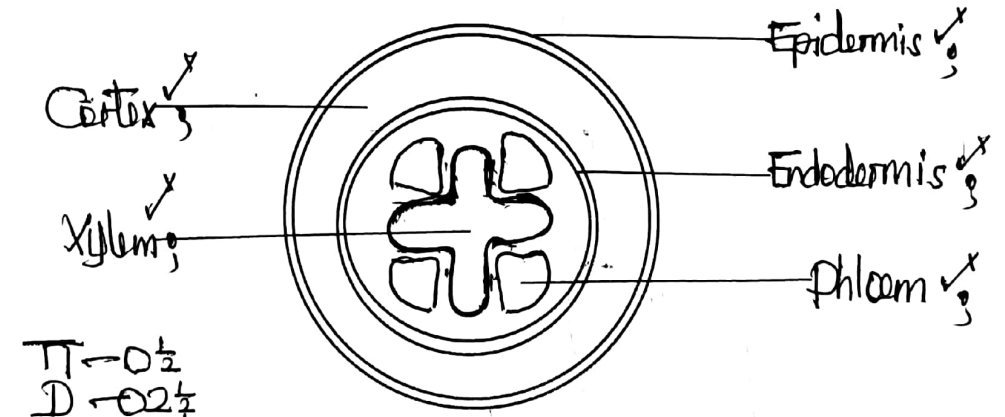
Class is Dicotyledoneae/ Angiospermae ✓ 01

(ii).

- Leaves with network venation ✓
- Presence of one main root with many lateral/side roots /Long main root which is tapering ✓
- Leaves with broad lamina/leaf blade ✓
- Leaves attached to stem by leaf stalk/petiole @ 1, Max 03.

(f)

A drawing of the tissue plan of the transverse section of the root of specimen S ✓



TT – 0½
D – 02½
L – 02½
N – 0½
M – 0½

06½, Max 06. ×40–×60; ✓

END.