

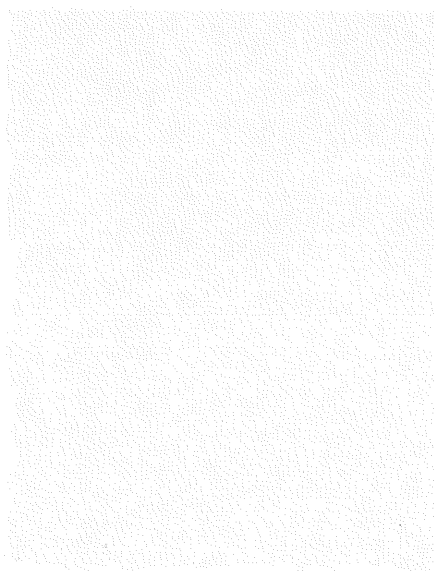
Plant Prac.

Question 1.

If there is not two digits after decimal point, a maximum of 50% of the point is achievable.

If less than two digits after decimal points, remaining digits are considered 0.

(3 -> 3.00 , 3.1 -> 3.10) Table 1.



Question 1: Table 1: Indicate presence of anthocyanins or betalians in plants A-E with a "✓". Also write related Rf-values (two decimals). (0.5 point for determination of anthocyanins/betalians- 2 point for each Rf-(3.5 points for TLC plates, 0.35 points for each band)) (total of 26 points)

Plant extract	Rf1 (The highest)	Rf2	Rf3	Antho- cyanins	Beta- lians
PA	Full mark: 0.95 ± 0.04 Upper range: [0.99: full, 1.00: 50%] Lower range: [0.91: full, 0.87: 0 points]				✓
PB	Full mark: 0.93 ± 0.05 Upper range: [0.99: full, 1.00: 50%] Lower range: [0.88: full, 0.84: 0 points]	Full mark: 0.83 ± 0.06 Upper range: [0.89: full, 0.92: 0%] Lower range: [0.77: full, 0.74: 0 points]	Full mark: 0.79 ± 0.06 Upper range: [0.85: full, 0.88: 0%] Lower range: [0.73: full, 0.70: 0 points]		✓
PC	Full mark: 0.57 ± 0.08 Upper range:			✓	

**Question
2:**

	<p>[0.65: full, 0.69: 0 points]</p> <p>Lower range:</p> <p>[0.49: full, 0.44: 0 points]</p>				
PD	<p>Full mark: 0.57±0.08</p> <p>Upper range:</p> <p>[0.65: full, 0.69: 0 points]</p> <p>Lower range:</p> <p>[0.49: full, 0.44: 0 points]</p>		<p>Full mark: 0.10±0.04</p> <p>Upper range:</p> <p>[0.14: full, 0.18: 50%]</p> <p>Lower range:</p> <p>[0.06: full, 0.04: 0 points]</p>	✓	
PE	<p>Full mark: 0.93±0.05</p> <p>Upper range:</p> <p>[0.99: full, 1.00: 50%]</p> <p>Lower range:</p> <p>[0.88: full, 0.84: 0 points]</p>		<p>Full mark: 0.83±0.06</p> <p>Upper range:</p> <p>[0.89: full, 0.92: 0%]</p> <p>Lower range:</p> <p>[0.77: full, 0.74: 0 points]</p>	<p>Full mark: 0.79±0.06</p> <p>Upper range:</p> <p>[0.85: full, 0.88: 0%]</p> <p>Lower range:</p> <p>[0.73: full, 0.70: 0 points]</p>	✓
Sample	Soil sample				Leaf extracts
	CaCO ₃		Nitrate content (mg/L)	pH 0.25 points for each box	pH 0.25 points for each box
	Volume of solution 2 (mL ± 0.1)	(mg/L of Ca) (two decimals)			

	2.5 points for each box	0.5 points for each box	1.5 points for each box		
1	Full mark: [5.18, 5.52] 50%: [5.00, 5.18) and (5.52, 5.69]	Based on the data obtained in adjacent	Full mark: 15 50%: 25	7, 8 and 7.5	7, 8 and 7.5
2	Full mark: [1.01, 1.15] 50%: [0.94, 1.01) and (1.15, 1.22]		5	7, 6 and 6.5	7, 6 and 6.5
3	Full mark: [2.70, 2.88] 50%: [2.61, 2.70) and (2.88, 2.97]		Full mark: 15 50%: 25	7, 6 and 6.5	7, 6 and 6.5
4	Full mark: [3.07, 3.37] 50%: [2.92, 3.07) and (3.37, 3.52]		15 and 25	7	3, 4 and 3.5
5	Full mark: [2.11, 2.33] 50%: [2.00, 2.11) and (2.33, 2.44]		25	7, 8 and 7.5	7, 6 and 6.5

Question 2: Table 2

According to results, indicate which soil washout-leaf extract pair (1-5) is related to a halophytic plant and which is related to a carnivorous plant with a tick "✓". (2 points for each column) (4 points)

Washout and leaf extract	Carnivorous	Halophyte

A		
B		
C	✓	
D		
E		✓

Question 3: Table 1

Indicate photosynthetic type of each plant indicate with a "✓". (1.5 each, total of 7.5 points)

Plants	Photosynthetic type		
	C3	C4	CAM
A			✓
B	✓		
C	✓		
D	✓		
E		✓	

Question 4:

Table1: Indicate presence or absence of each crystal in plants A-E with "+" and "-", respectively. Do not leave any cell blank). (17.5 points) (for each row: (3.5 points if completely correct, 1.75 points if one fault, and 2.25 if two fault)

Crystal types	1	2	3	4
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	(in figure 4)				
Plants					
A		-	-	-	+
B		-	+	-	+
C		-	-	-	-
D		+	-	+/-	-
E		+	-	+/-	-

Question 4:

Table 2: Identify each soil (S1-S5) belongs to which plant (A-E) and fill the Table 2. (10 points; 2.5 points for each)

plant	Soil
A	S4
B	S5
C	S2
D	S3
E	S1

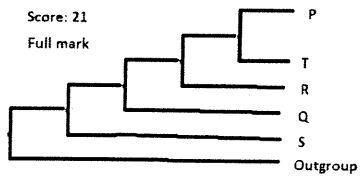
Question 5: Based on traits in the table, draw a maximum parsimony tree and calculate its score. (8 points for clustering, 4 points for calculation of score, total of 12 points)

Note: No point is considered for replacement of apomorphies on the trees.

If the tree lacks outgroup, -1 points.

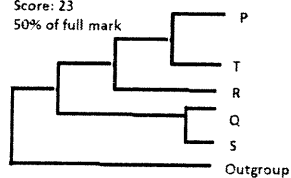
Score: 21

Full mark



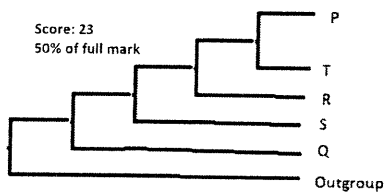
Score: 23

50% of full mark



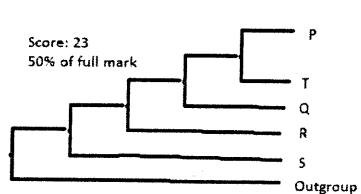
Score: 23

50% of full mark



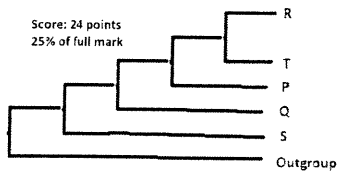
Score: 23

50% of full mark



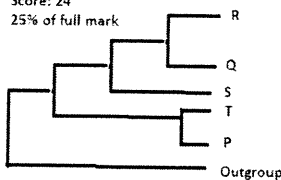
Score: 24 points

25% of full mark



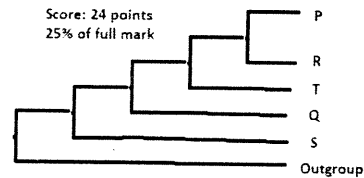
Score: 24

25% of full mark



Score: 24 points

25% of full mark



Score:

