U.G. 5th Semester Examination - 2020

BOTANY

[HONOURS]

Course Code : BOTH-CC-11/PR

[PRACTICAL]

(Plant Physiology)

Full Marks : 20 Time : 2 Hours

The figures in the right-hand margin indicate marks.

1. Answer any **one** of the marked (√) question specified by the examiner(s): 7

   a) Describe the procedure in brief for the experiment "Determination of Osmotic potential of plant cell sap by plasmolytic method" With the thin peeling of lower epidermal layer of sample "A" following data were obtained; Calculate the Osmotic potential [Room temperature during the experiment was 25°C. Use the usual value of pressure constant (R)] 3+4=7

SUCROSE CONC.(M)	NO.OF OBSERVATIONS	TOTAL NO. OF CELLS OBSERVED PER FIELD	TOTAL NO. OF PLASMOLYSED CELLS PER FIELD
0..5	1	50	12
	2	54	16
	3	64	20
1.0	1	52	18
	2	54	21
	3	63	26
2.0	1	51	28
	2	55	32
	3	63	37

OR

   b) Write down the principle and submit the requisition for determining water potential of potato tubers by weighing method.

   From a previously performed experiment the following observations were noted for sample "B":The supplied sample (potato tuber) was cut into 1 cm diameter and 3-4 cm long cylinders and were soaked in 10 ml of 0.05,0.1 and 0.5

M sucrose solution and kept for 1h. The initial and final weights of the plant tissues were taken for each concentration and their respective values are:

I. Initial- 0.681g, Final- 0.801g;

II. Initial- 0.762g, Final- 0.873g

III. Initial- 0.719g, Final- 0.668g.

Represent the data and calculate the water potential of the sample. [Room temperature during the experiment was 25°C. Use the usual value of pressure constant (R)]. (2+2+3=7)

OR

c) State the principle, requisition and procedure for "Determination of stomatal frequency and loss of water per stoma per hour". 2+3+2=7

OR

d) Describe the procedure for "Effect of light on rate of transpiration in excised leaf".

The leaf specimen "C" was immersed in a setup for the above mentioned experiment and kept for 2 hr in a well illuminated area. While leaf specimen "D" was placed in similar setup but

kept at dark for same duration. From the previously obtained data calculate and compare the transpiration rate of specimen "C" and "D".

For specimen C; Leaf area=34.6 cm^2, Initial weight of the setup =100.15 g, Final weight of the setup= 98.29 g

For specimen D; Leaf area=36.34 cm^2, Initial weight of the setup=100.39 g, Final weight of the setup=99.25 g 3+4=7

OR

e) Write down the procedure for comparison of imbibitions of water by two types of seeds. The two seed samples namely Sample E (Gram) and Sample F (Groundnut), weighing 5 g each, were taken and imbibed in 30 ml distilled water for 1 hr at room temperature. From the recorded data given below, determine the % of water absorption by two types of seeds and comment on the results. 3+2+2=7

SAMPLE	NO. OF OBSERVATION	INITIAL WEIGHT(g)	FINAL WEIGHT(g)
E	1.	10.25	18.56
	2.	12.24	19.43
	3.	10.38	18.13
F	1.	10.60	15.30
	2.	10.90	15.20
	3.	10.10	16.50

2. Answer the following questions: 1×3=3

   a) Give example of one photoblastic seed.

   b) Which hormone influences bolting?

   c) Write down the principle reagent for seed viability test.

3. Laboratory records. 5

4. Viva-voce. 5

———————