

**U.G. 5th Semester Examination - 2021****BOTANY****[HONOURS]****Course Code : BOT(H)-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 ( $\sqrt{\quad}$ ) question specified by the examiner(s):  $7 \times 1 = 7$

A) Write down the principle for the experiment “Comparison of imbibitions of water.....”. The two seed samples (Sample A-proteinaceous and Sample B- fatty seeds) weighing 5 g each were soaked 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.  $3+2+2=7$

*[Turn over]*

SAMPLE	NO. OF OBSERVATION	INITIAL WEIGHT(g)	FINAL WEIGHT(g)
A	1.	10.38	18.13
	2.	16.25	24.56
	3.	12.24	19.43
B	1.	10.60	15.30
	2.	15.90	20.20
	3.	16.10	22.50

**OR**

B) Describe the procedure for determining the water potential of potato tubers by the weighing method. Submit the requisition for the experiment. From a previously performed experiment, the following observations were noted for sample “C”: The supplied sample was cut into 1 cm diameter and 3-4 cm long cylinders were soaked in 10 ml of 0.05M, 0.1M and 0.5 M sucrose solutions 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- 0.442g, Final- 0.520g;

II. Initial- 0.495g, Final- 0.567g

III. Initial- 0.467g, Final- 0.434g.

Represent the data and calculate the water potential of the sample. [Room temperature during the experiment was 20°C. Use the usual value of pressure constant (R)].

2+2+3=7

**OR**

- C) Submit the requisition for "Effect of light on the rate of transpiration in excised leaf". Briefly describe the procedure. The leaf specimen "D" was immersed in a setup for the above-mentioned experiment and kept for 2 hr in a well-illuminated area. While leaf specimen "E" was placed in a similar setup but kept at dark for the same duration. From the given data calculate and compare the transpiration rate of specimens "D" and "E".

For specimen D; Leaf area=44.6 cm<sup>2</sup>, Initial weight of the setup =100.15 g, Final weight of the setup= 98.29 g

For specimen E; Leaf area=36.34 cm<sup>2</sup>, Initial weight of the setup=100.39 g, Final weight of

the setup=99.25 g

3+4=7

2. Answer the following questions. 1×3=3
- a) Which test is useful for determining the viability of seeds?
- b) What is incipient plasmolysis?
- c) Name of the hormone used commercially for rooting.
3. Laboratory records. 5
4. Viva-voce. 5

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