

U.G. 5th Semester Examination - 2020**BOTANY****[HONOURS]****Discipline Specific Elective (DSE)****Course Code : BOTH-DSE-P-01/PR****[PRACTICAL]****(Analytical Techniques in Plant Science)**

Full Marks : 20

Time : 2 Hours

The figures in the right-hand margin indicate marks.

1. Answer any **one** of the marked (\checkmark) question specified by the examiner(s): $7 \times 1 = 7$
- a) Describe the principle of "Protein estimation assay by Lowry method". Using the following data determine the protein concentration of unknown sample (Sample- A and Sample-B). Give an inference. $2+4+1=7$

| Serial No. | Concentration of standard protein solution ($\mu\text{g/ml}$) | Absorbance at 650 nm |
|------------|---|----------------------|
| 1 | 10 | 0.034 |
| 2 | 25 | 0.091 |
| 3 | 50 | 0.181 |
| 4 | 80 | 0.270 |
| 5 | 100 | 0.350 |
| 6 | 120 | 0.448 |
| 7 | 150 | 0.570 |
| Sample-A | | 0.138 |
| Sample-B | | 0.330 |

- b) Mention the name and function of two dyes which are used for double staining method. Describe the procedure for staining a thin section of *Helianthus* stem. Draw a labelled diagram of it. $2+3+2=7$
- c) State the principle for the experiment 'Column chromatography of pigment separation'. Write down the requisitions and procedure for the experiment. $2+2+3=7$

[Turn over]

d) State the principle for the experiment 'Paper chromatography of amino acids'. Write down the requisitions. In a chromatographic experiment, four (4) samples (C-F) were spotted and separated on a paper, using suitable mobile phase. After visualization, following data were obtained –

I. Distance travelled by mobile phase – 22 cm

II. Distance travelled by amino acid (C) – 12.5 cm

III. Distance travelled by amino acid (D) – 14.7 cm

IV. Distance travelled by amino acid (E) – 9.2 cm

V. Distance travelled by amino acid (F) – 16.4 cm

Represent your result with suitable tables/ sketches. $2+2+3=7$

2. Answer the following questions. $3 \times 1 = 3$

a) State the use of probe in Southern blotting technique.

b) State the usual denaturation temperature of DNA in a PCR reaction.

c) Name one membrane type used in blotting technique.

3. Laboratory records. 5

4. Viva-voce. 5