

QP CODE: D3BBT2402

(Pages: 2)

Reg. No : .....

Name : .....

**THIRD SEMESTER FYUGP EXAMINATION, NOVEMBER 2025**

**Discipline Specific Core (DSC) Courses - Major**

**BOT3CJ202 : Plant Anatomy & Analytical techniques**

**(Credits: 4)**

**Time: 2 Hours**

**Maximum Marks: 70**

**Section A**

**Answer the following questions. Each carries 3 marks (Ceiling: 24 marks)**

1. What is a guard cell?	BL1	CO1, CO3, CO4, CO5
2. State the function of Velamen tissue.	BL1	CO1, CO3, CO4, CO5
3. List three limitations of using pH paper for pH measurement.	BL1	CO2, CO3, CO5
4. What is centrifugation.	BL1	CO2, CO3, CO5
5. What is shoot apex?	BL2	CO1, CO3, CO4, CO5
6. What are the main objectives of plant anatomy study?	BL2	CO1, CO3, CO4, CO5
7. List three common wood defects.	BL2	CO1, CO3, CO4, CO5
8. Define microscopy. What is the principle behind light microscopy?	BL2	CO2, CO3, CO5
9. State the principle of fluorescence spectroscopy.	BL2	CO2, CO3, CO5
10. Define Molarity and write its formula with units.	BL2	CO2, CO3, CO5

**(PTO)**

## Section B

Answer the following questions. Each carries 6 marks (Ceiling: 36 Marks)

11.	Discuss the industrial importance of plant inclusions like latex and tannins.	BL2	CO1, CO3, CO4, CO5
12.	Explain the preparation of a phosphate buffer and describe its importance in biological research.	BL2	CO2, CO3, CO5
13.	Discuss the use of UV-Visible spectroscopy in qualitative and quantitative analysis.	BL2	CO2, CO3, CO5
14.	Explain the principle of chromatography and its importance in separation techniques.	BL2	CO2, CO3, CO5
15.	Explain the principle and major uses of High Performance Liquid Chromatography (HPLC).	BL2	CO2, CO3, CO5
16.	Describe the physiological significance of secondary growth in plants.	BL2	CO1, CO3, CO4, CO5
17.	Describe anatomical techniques for wood identification.	BL2	CO1, CO3, CO4, CO5
18.	Explain density gradient centrifugation with suitable examples	BL1	CO2, CO3, CO5

## Section C

Answer any one question. Each carries 10 marks (1 x 10 = 10 Marks)

19.	Write an essay on the principle of mass spectrometry and explain its major applications in plant science, including metabolite profiling, secondary metabolite identification, and stress physiology studies.	BL2	CO2, CO3, CO5
20.	Write a detailed essay on electron microscopy, highlighting the principle, construction, working, differences between SEM and TEM, and their applications in biological research.	BL2	CO2, CO3, CO5

**CO : Course Outcome**

**BL : Bloom's Taxonomy Levels** (1 – Remember, 2 – Understand, 3 – Apply, 4 – Analyse, 5 – Evaluate, 6 – Create)