

**B.Sc. BOTANY**  
**SECOND SEMESTER**  
**INSTRUMENTATION AND LABORATORY TECHNIQUES**  
**BSB-921 (IDMn)**

**SET**  
**A**

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 1hr. 30 mins.

Full Marks: 35

( Objective )

Time: 15 mins.

Marks: 10

*Choose the correct answer from the following:*

**1×10=10**

1. Sterilization is done by autoclave at:  
a. 120°C  
b. 170°C  
c. 121°C  
d. 140°C
2. Who introduced the sterilization technique?  
a. John Thomas  
b. Joseph Lister  
c. Louis Pasteur  
d. Robert Koch
3. Glassware are sterilized by:  
a. Autoclave  
b. Incineration  
c. Hot air oven  
d. All of the above
4. What will be the pH value of a very strong acid solution?  
a. Less than 7  
b. More than 5  
c. Less than zero  
d. Less than 5
5. The modern electric pH meter was introduced by:  
a. Arnold Beckman  
b. Fritz Harber  
c. Jack Thomas  
d. Joseph Lister
6. In an aqueous solution where the H<sup>+</sup> concentration is 1 × 10<sup>-6</sup> M, the OH<sup>-</sup> concentration must be:  
a. 14 × 10<sup>-6</sup> M  
b. 1 × 10<sup>-6</sup> M  
c. 1 × 10<sup>-7</sup> M  
d. 1 × 10<sup>-8</sup> M
7. Which is used as a general stain for plant tissues?  
a. Leishman's Stain  
b. Safranin  
c. Acetocarmine  
d. Methylene blue
8. The number of milligrams of solute per kg of solution is:  
a. 1ppm  
b. 1 mg  
c. 10<sup>-3</sup>g  
d. 10<sup>3</sup>g
9. Convert the 2.5 M HCl Molarity to Normality.  
a. 0.25  
b. 25  
c. 2.5  
d. 0.025

10. Buffer solutions resist any change in pH This is because.....
- a. Acids and alkalis in these solutions are shielded from attack by other ions
  - b. These give unionized acid or base on reaction with added acid or alkali
  - c. Fixed value of pH
  - d. Large excess of  $H^+$  or  $OH^-$  ions

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**(Descriptive)**

Time : 1 hr. 15 mins.

Marks : 25

[ Answer question no.1 & any two.(2) from the rest ]

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| 1. Write the principle & uses of Autoclave.  | 5      |
| 2. Briefly describe the principle, uses and precautions of Laminar air flow with suitable diagram.           | 10     |
| 3. Define Centrifuge. Write about the different types of centrifuges.  | 1+9=10 |
| 4. Write short notes on:<br>a) Fixatives<br>b) Buffer  | 5+5=10 |
| 5. Write short notes on:<br>a) Molarity, molality and normality<br>b) Discuss why the pH of pure water is 7. | 6+4=10 |

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