

B.Sc. (NEP) Semester-I  
**SEC11 - Biotechnology-Biotechnological Skills and Analytical Techniques**

P. Pages : 3

Time : Two Hours



**GUG/S/25/15901**

Max. Marks : 40

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- i) What is molarity?
  - ii) Define mass percent.
  - iii) What is the significance of pH meters in laboratories?
  - iv) Name the chemical safety protocol used for highly reactive chemicals.
  - v) What does SOP stand for in a laboratory environment?
  - vi) What is meant by reagent bottle label reading?
  - vii) Define stock solution.
  - viii) What is the standard decontamination method for biological materials?
  - ix) Which skill is essential for planning and organizing work in biotechnology?
  - x) Define biosafety cabinet.
  - xi) Name a common chemical used in media preparation.
  - xii) What is the purpose of a laminar flow hood?
  - xiii) Define risk assessment in laboratory practices.
  - xiv) What is the main purpose of record maintenance in research labs?
  - xv) What does the term "ppm" refer to?
  - xvi) Which method is used for sterilization in biotechnology labs?
  - xvii) What is the purpose of autoclaving in microbiology'?
  - xviii) Write down the parts of a microscope?
  - xix) What is the purpose of a colorimeter in the lab?
  - xx) Define normality.

Multiple-Choice Questions (MCQs).

- i) Which of the following defines molality?
  - a) Moles of solute per liter of solution
  - b) Moles of solute per kilogram of solvent
  - c) Grams of solute per liter of solvent
  - d) Moles of solute per milliliter of solvent
  
- ii) Which of the following is not a personal protective gear?
  - a) Lab coat
  - b) Gloves
  - c) Safety glasses
  - d) Backpack
  
- iii) What is the primary function of a laminar air flow hood?
  - a) Sterilization of glassware
  - b) Preventing contamination
  - c) Cleaning surfaces
  - d) Storing chemicals
  
- iv) Which of the following is a basic skill needed for biotechnology industry professionals?
  - a) MS PowerPoint
  - b) Artistic skills
  - c) Cooking skills
  - d) Sports management
  
- v) What is the primary use of an autoclave in the laboratory?
  - a) Sterilizing equipment
  - b) Mixing chemicals
  - c) Measuring pH
  - d) Filtering media
  
- vi) Which of the following represents normality?
  - a) Moles of solute per liter of solution
  - b) Equivalents of solute per liter of solution
  - c) Mass of solute per liter of solution
  - d) Moles of solute per milliliter of solvent
  
- vii) What does "MS Office" typically include?
  - a) PowerPoint, Word, and Excel
  - b) Photoshop, Excel, and Word
  - c) Paint, Excel, and PowerPoint
  - d) Notepad, Word, and Excel
  
- viii) What is the purpose of a spectrophotometer?
  - a) Measure concentration of solutions
  - b) Detect microorganisms
  - c) Monitor pH levels
  - d) Separate chemicals
  
- ix) What does "ppm" stand for?
  - a) Parts per milligram
  - b) Parts per molecule
  - c) Parts per million
  - d) Parts per month
  
- x) Which is a key skill for effective team management?
  - a) Conflict resolution
  - b) Critical thinking
  - c) Data entry
  - d) Reading manuals
  
- xi) Which material is used for preparing microbiological media?
  - a) Sodium chloride
  - b) Agar
  - c) Ethanol
  - d) Acetone

- xii) What is the correct storage method for hazardous chemicals?  
a) In direct sunlight                      b) In a locked, ventilated cabinet  
c) On open shelves                          d) Near heat sources
- xiii) What is the function of a homogenizer in the laboratory?  
a) Mix solutions                              b) Measure temperature  
c) Break down cells                          d) Clean glassware
- xiv) Which of the following is a common buffer preparation method?  
a) Diluting acids with water  
b) Mixing incompatible chemicals  
c) Stirring solutions with a spatula  
d) Measuring precise amounts of acid and base
- xv) Which of these is critical in troubleshooting workplace issues?  
a) Analytical thinking                      b) Conflict generation  
c) Avoiding teamwork                      d) Multitasking
- xvi) What is the function of the pH meter in laboratories?  
a) Measure temperature                      b) Measure pH levels of solutions  
c) Measure the mass of chemicals      d) Measure light intensity
- xvii) Which equipment is used for sterilizing media in biotechnology labs?  
a) pH meter                                      b) Stirrer  
c) UV spectrophotometer                  d) Autoclave
- xviii) What is the standard unit for molarity?  
a) Mole/L    b) Mole/kg  
c) Grams/L                                        d) Grams/mL
- xix) Which is a key feature of good record maintenance?  
a) Detailed labelling                          b) No documentation  
c) Mixing of data                              d) Data kept separate from experiments
- xx) Which of the following does "SOP" ensure?  
a) Lack of procedures                          b) Consistency in work processes  
c) Unplanned experiments                  d) Informal laboratory work

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