Seat No. : _____

NQ-114

November-2025

B.Sc., Sem.-III

SEC-236 : Microbiology

(2. Preparation of Microbiology Laboratory Media)

(NEP)

Time : 1:00 Hour] **[Max. Marks : 25**

Instructions : (1) **All** questions are compulsory.
(2) Figure on the right indicates marks.
(3) Mention correct question number against the answer.
(4) Draw figures wherever necessary.

1. (A) Discuss components of media. **5**
   (B) Explain basic principles of media formulation. **5**

OR

1. (A) Describe dry heat as sterilization technique. **5**
   (B) Explain composition and function of MacConkey's agar. **5**

2. (A) Write an account on operating process of autoclaving. **5**
   (B) Explain pouring as a technique of aseptic operation. **5**

OR

2. (A) Discuss preparation of nutrient broth. **5**
   (B) Discuss preparation of thioglycolate agar medium. **5**

3. Attempt any **five** out of **six** : **5**
   (1) Name any component used as nitrogen source in media preparation.
   (2) The technique used to avoid all microorganisms is known as _____.
   (3) A culture medium, the exact composition of which is not known is called as _____.
   (4) On MacConkey's medium *E. coli* forms pink colour colonies. (True/False)
   (5) Name any indicator medium.
   (6) The medium in which any substance is used in excess other than nutrients is known as _____.

Seat No. : _____

NQ-114

November-2025

B.Sc., Sem.-III

SEC-236 : Microbiology

(1. Preparation of Microbiology Laboratory Solutions)

(NEP)

Time : 1:00 Hour] **[Max. Marks : 25**

Instructions : (1) **All** questions are compulsory.
(2) Figure on the right indicates marks.
(3) Mention correct question number against the answer.
(4) Draw figures wherever necessary.

1. (A) Discuss the significance of hydrogen bonds, hydrophilic and hydrophobic interactions and Van der Waals interactions in biological molecules. **5**

   (B) Define the following terms with suitable examples: Molarity, Normality, Molality, and pH. **5**

OR

1. (A) Explain normal solution, molar solution, percent solution (W/V and V/V), and describe serial dilution with an example. **5**

   (B) Describe the general guideline for preparation of solutions. **5**

2. (A) How much concentrated HC*l* (12 N) is required to prepare 100 mL of 0.1 N HC*l* solution ? **5**

   (B) How much 95% ethanol is needed to prepare 100 mL of 60% ethanol solution ? **5**

OR

2. (A) Calculate the weight of NaOH (M.W. = 40 g/mol) needed to prepare 100 mL of 2.5 M NaOH solution. **5**

   (B) You have 1% methylene blue solution. How will you prepare 10^{-2} (1/100) dilution from it using serial dilution method ? **5**

3. Answer in **1-2** lines : (any **five** out of **six**) **5**
   (1) Define isotope with one example.
   (2) What is the pH of a neutral solution at 25°C ?
   (3) Name any two-glassware used in the preparation of laboratory solutions.
   (4) Which formula is used to prepare solutions by dilution ?
   (5) Name the chemical required to prepare a phosphate buffer solution.
   (6) What is the concentration of normal saline solution commonly used in laboratories ?

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