Indian Institute of Science Education and Research, Kolkata.

Questions for Biochemistry Practical Examination : LS2102 ;   Date: 17/11/2018

Name:

Roll Number:

Total marks: 20.   Time: 1 hour (11.00 AM – 12.00 PM.); Venue: LHC 110, 111

Q1	2	3	4	5	6	7	8	9	Total

Please sign the sign-up sheet

Please remember to write your name and roll number on your answer sheet.

Cell phones and laptops must be turned off and placed in a backpack during the entire examination. The back pack must be placed at the front of the examination room for the entire examination. The last page you can use for rough calculation.

1.You are given a protein having 100 amino acids. Its UV spectrum shows a maxima at 220 nm having absorbance 0.8 and another maxima at 280 nm having absorbance 0.1. You are asked to comment about the UV spectrum in 220 nm, 280 nm and about its amino acid sequence. **[3]**

2. You have molar extinction coefficient of a protein at 280 nm and absorption value of the protein at 220 nm. Can you use this absorption value to determine the protein concentration at 220 nm? **[2]**

3. Which of the following concentrations can change with a change in

temperature ? (a) molality and (b) molarity **[2]**

4. Two test tubes have solutions A and B. Both give red color with Molisch's reagent, red ppt. with Fehling's reagent, red ppt. with Barfoed's reagent after 2-3 minutes heating. Solution A does not give any characteristic color with Seliwanoff's reagent, while solution B forms cherry red color. What are A and B?

[3]

A =   B=

5. What is the pH of 0.1 N HCl?   Which solution has more $[H]^+$ between pH 6 and pH 2?   **[2]**

6.   [0.5 X4=2]

(a). 1gm =   mg =   ug

(b) . 1 litre=   ml=   ul

7. Calculate the pH of 10^{-8} M HCl. [3]

8. Write down the structure of p-nitro phenyl phosphate and p-nitro phenol. **[1+1=2]**

9. Draw arginine in its predominant form at pH 10. **[1]**

pKa$_1$= α-carboxyl group (2.17), pK$_{a2}$ = α-ammonium ion (9.04), and pK$_{a3}$ = side chain group (12.48).