Science Lab II QUIZ-S-23

Max Marks: 65

Q1. What are the chemical compositions (two) of kidney stones? How does their solubility (at room temperature) compare with calcium chloride? 2+3

Q2. What do you mean by permanganometric titration? Is the reagent used in this titration is primary standard? 3+2

Q3. Mention one biological use of SDS (sodium dodecyl sulfate). Name the deproteinizing agent used during DNA extraction. 2+2

Q4. Why is it advised to work at cold temperatures for the isolation of DNA? 3

Q5. Briefly state the working principles of TLC. What are the stationary and mobile phases in TLC? 3+4

Q6. What is the isoelectric point of an amino acid? State how the pI's of amino acids with acidic sidechains and those with basic sidechains are determined/calculated. 3+4

Q7. State two uses of silver nanoparticles. What was the color of the aqueous dispersions of silver nanoparticles synthesized? Give the range of wavelengths of maximal absorbances of localized surface plasmon resonances of silver nanoparticles. 2+2+2

Q8. What is stopping or cut-off potential? Does it depend on the light intensity and the nature of the materials? Justify your answer. 2+3

Q9. What do you measure using Melde's Apparatus? What is the working principle used here? 2+3

Q10. What is the polarization of light? What are the effects of the variations of the Refractive Index and the light Wavelength on the Brewster Angle? 2+3

Q11. Which property did you use for the determination of the band gap of a semiconductor? Why? 2+2

Q12. Name two methods by which one can determine the refractive index of liquids. 3

Q13. What is a parallax error? 3

Q14. Write two precautions of one of the experiments that you have done. 3