Jahangirnagar University
Institute of Information Technology
Assignment 2
Course No. ICT 1007, Course Title: Physics
Full Marks: 20, **Last Date of Submission: 12/01/2021**

Answer the Following Questions

Important notes: Please read these carefully*
-Only clear handwritten answers will be accepted, for submission please use single pdf file with multiple pages.
- Scan the answers using a scanner or your phone.
- In the cover page of your assignment, please write up your full name, student ID, and course No etc clearly.
-This not a group assignment but individual assignment and you must write it up with honesty and integrity.
-You should not share your answers with others, at any stage either before or after the submission of the assignment.
-Submit the assignment soon once you complete it. Please submit the completed assignment through Google Classroom Drive Folder.
-It may go through 'plagiarism test' on your assignment, significant similarity (**copying from others and/or copying from the internet**) would severely reduce marks from both. All forms of plagiarism, cheating, and unauthorized collusion are regarded seriously by the University and could result in penalties including failure in the course and possible exclusion from the University. So please be careful about copying from anywhere either from internet or from your friend.

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1. State and explain the Huygens principle of secondary waves or secondary wavefronts with necessary diagrams.

2. Show that the distance between two consecutive bright or dark fringes is constant and is independent of the fringe number with necessary diagrams.

3. How Newton's rings are formed? Describe the experimental features of Newton's rings. Describe the method of calculations of unknown wavelength of a monochromatic light and refractive index of a liquid using the Newton's rings experiment. (Please include all the necessary and clear diagrams).

4. Distinguish between Fraunhoffer and Fresnel class of diffractions. Describe the Fraunhoffer diffraction pattern produced by a single slit illuminated by monochromatic

light. Draw the intensity distribution curves for the diffraction pattern. (Please include all the necessary and clear diagrams).

5. In the case of Fraunhoffer diffraction pattern show that the intensity of the first secondary maxima is roughly 4.96% of that of the principal maxima.

6. State and explain Brewster's law. Show that at the polarizing angle of incidence, the reflected and refracted rays are mutually perpendicular to each other.

7. What do you mean by polarization of light? Distinguish between the ordinary and polarized light. State and explain Malus' law.