

GOVERNMENT DEGREE COLLEGE GANDERBAL

Department of Physics

Question Paper/Assignment for B.Sc. 4th Semester

Regular (Batch2018)/Backlog

Course: Waves and Optics

Course Code: PHY420C

Marks: 60

Subject: Physics

Attempt any six questions. Each question carries equal weightage.

Q1. Using analytical method, discuss the superposition of two collinear harmonic oscillations (oscillations having equal frequencies).

Q2. What are Lissajous Figures? List some applications of Lissajous Figures.

Q3. Derive an expression for phase velocity (v_p).

Q4. Write short notes on (a) intensity levels and decibels, and (b) power gain.

Q5. What is meant by interference of light? How will you determine wavelength of light using Fresnel's biprism?

Q6. Discuss the displacement of fringes by the introduction of a thin lamina sheet in the path of one of the interfering beams.

Q7. Two monochromatic light waves of amplitude A and $2A$ interfering at a point have a phase difference of 60° . The intensity at that point will be proportional to:

Q8. Write short notes on (a) coherence length (b) coherence time (c) spatial coherence and (d) temporal coherence.

Q9. Two coherent light beams are made to interfere and produce interference fringes. If the intensity of one beam is double that of the other, what will be the visibility of fringes?

Q10. In Lloyd's single mirror experiment, the slit source is at a distance of 1 mm from the plane of the mirror. The screen is kept at a distance of 2.0 m from the source. Calculate the

fringe width. Wavelength of light = 5896Å.

Q11. Discuss the phase change on reflection using Stokes' treatment.

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Instructions:

1. The assignment is to be submitted through google class room having code [2iycqxa](#)
2. The students who have not joined the G-classroom can mail assignment on shifs237@gmail.com.
3. Last date of assignment submission is [26/06/20](#)
4. The assignment must be [handwritten](#).
5. Students must write page no., Roll No., Registration No. on the top right corner of each page.
6. A4 size ruled paper with not more than [10](#) pages converted into a single PDF file using [camscanner](#) will be only accepted.
7. Students are advised to preserve hard copy of Assignment.
8. Do not copy answers from other students.
9. Assignments should be scanned properly for clear visibility.

Title page of assignment must contain

- Name of the candidate
- Semester.....
- Category:Fresh/Backlog.....
- Batch:.....
- Roll No.....
- Regd no
- Subject
- Cell no
- e-mail address ...
- Date of Submission
- Signature of Candidate,