Roll No. .....

41273

B. Sc. (Hons.) Physics 4th Semester Examination – May, 2019

VIBRATIONS AND WAVE OPTICS-I

Paper : Phy-403

Time : Three Hours] *[Maximum Marks : 40*

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt ***five*** questions in all, selecting at least ***two*** questions from each Unit.

UNIT – I

1. What are the Fresnel's integrals ? Derive them. 8

2. (a) Write short note on Kirchoffs integral theorem. 4

   (b) Discuss the application of Fresnel - Kirchhoff integral formula to diffraction problems. 4

3. (a) Write about the construction and theory of a plane diffraction grating of the transmission type and explanation the formation of spectra. 6

(b) Calculate the minimum number of lines in grating which will resolve the doublet of t sodium lines of wavelengths 5890 A and 5896 in the first order.

4. (a) Explain the Rayleigh's criterion of resoluti Define the limit of resolution and resolving pow

(b) Derive the intensity pattern of diffraction due double slit.

UNIT – II

5. (a) Explain the formation and properties of Cor spiral.

(b) Using Cornu's spiral, explain the Fre diffraction due to a straight edge.

6. Find the intensity distribution of diffraction pattern a slit using cornu's spiral.

7. Draw and explain the diffraction patterns due to a using cornu's spiral.

8. What is holography ? Describe its principle and process of recording and reconstruction of a hologr