

MENGO SENIOR SCHOOL
BEGINNING OF TERM 2 EXAMS 2003
S.5 PHYSICS P510/2
TIME: 2 HOURS

INSTRUCTIONS:

- Attempt any four questions
- All questions carry equal marks
- Assume where necessary
- Speed of light in a vacuum = 3×10^8 m/s
- $v = f\lambda$
- All symbols carry their usual meanings

- 1(a) Define the term refraction as used in optics.
- (b) Show how the index of refraction is related to the wave length of light in the media in contact.
- (c) A microscope is first focused on a scratch at the bottom of an empty glass dish. When the dish was filled with water, its found necessary to raise the microscope through 1.2cm to refocus the scratch.

Chalk dust is sprinkled on top of the water and is brought into focus when the microscope is raised through an additional 3.5cm. Calculate:

- (i) The real depth of this scratch.
- (ii) Its apparent depth
- (iii) The refractive index of the water.