

FEDERAL UNIVERSITY OF TECHNOLOGY OWERRI
SCHOOL OF HEALTH TECHNOLOGY
DEPARTMENT OF OPTOMETRY

HARMATTAN SEMESTER 2011/2012 EXAMINATION
OPT 311: PHYSIOLOGICAL OPTICS - 3 UNITS

INSTRUCTION: ANSWER 5 QUESTIONS, ONE FROM EACH SECTION AND ANY OTHER TWO
TIME ALLOWED: 3HRS

SECTION A

- (a) Why does refraction by the eye effectively take place at two structures
(b) What are the importance of the comparatively greater refractive strength of the nucleus of the lens
- (a) Illustrate the cardinal points of the eye (b) Highlight the changes seen in the accommodated schematic eye

SECTION B

- (a) (i) Determine the minimum, average and maximum amplitude of accommodation of a 12 year old boy. (ii) State three methods of measuring amplitude of accommodation in the clinic and explain one
(b) Calculate the image height (size) and image distance of an object that is 2.00cm high and 3.50m away from the observer. Assume that the focal length of corne-lens system is 1.80cm
(c) What are the factors that enable the brain to determine the distance of an object whose image is focused on the retina?
- (a) What is Visual angle? (b) Diagrammatically show visual angle (c) List and explain the different types of acuity you know

SECTION C

- (a) Differentiate between (i) Emmetropia and Ametropia. What factors can make an eye ametropic (ii) Hyperopia and Simple Hyperopic Astigmatism
(b) A reduced eye has a power of 59D in the vertical meridian and 60D in the horizontal meridian, with the aid of a diagram(s), show the placement of the image of a cross as seen by the eye and the type and magnitude of ametropia induced
- With aid of a diagram(s), discuss Spherical Ametropia
- Write notes on the following (a) Globe length and its effect on ametropia (b) Circle of least confusion (c) Mixed Astigmatism (d) Compound Myopic Astigmatism