

**FEDERAL UNIVERSITY OF TECHNOLOGY, OWERRI**  
**SCHOOL OF HEALTH TECHNOLOGY**  
**DEPARTMENT OF OPTOMETRY**  
**2015/2016 RAIN SEMESTER EXAMINATION**  
**OPT 510 – VISUAL ANALYSIS - 3 UNITS**  
**TIME ALLOWED: 3 HRS**

**INSTRUCTION: Answer 5 questions, 2 from each section and any other.**

**SECTION A**

1. (a) Your patient who is a myope has an AC/A ratio of 5/1, capture your own findings that would yield that AC/A ratio using any 2 methods. (16 marks)  
(b) A patient has 2Δ right hyperphoria and the following vertical vergence findings:  
R:  $\frac{S}{I} \frac{4}{5} \frac{2}{1}$                       L:  $\frac{S}{I} \frac{5}{5} \frac{1}{1}$   
Determine the correcting prism(s). (4 marks)
2. Below are the readings on the phoropter for a 10 year old myope with subjective refraction of -2.00DS and fused cross cylinder finding of -1.00DS.  
Minus lens to blur Amplitude of Accommodation test: -10.00DS (reading on the phoropter)  
PRA test: -3.00DS (reading on the phoropter)  
NRA test: +0.50DS (reading on the phoropter)  
(a) Supply (with explanation) the: (i) Amplitude of Accommodation (ii) PRA (iii) NRA (6 marks)  
(b) (i) What will be this patient's response when presented with the duochrome chart at near and why? (ii) How would you remedy the situation? (6 marks)  
(c) (i) What would you do about this patient's distance prescription based on the amplitude of accommodation obtained using the phoropter and why? (6 marks)  
(ii) Write out your own final prescription after all adjustments. (2 marks)
3. A patient has the following findings:  
Subjective refraction: +1.00DS; Fused cross cylinder: +3.00DS; Ranges of accommodation at 40 cm test distance are 30 cm and 60 cm respectively.  
(a) What are the implications of these findings? (6 marks)  
(b) What adjustments (if any) would you make to the final prescription given to this patient and why? (6 marks)  
(c) Explain the response of this patient when presented with the duochrome chart at near. (8 marks)
4. (a) Use your own typical findings of a case of convergence insufficiency and calculate the AC/A ratio of a patient with an average IPD of 64 mm. (16 marks)  
(b) What approaches can be utilized in the management of convergence insufficiency? (4 marks)

**SECTION B**

5. Discuss the fusion problems a patient can experience at far and near according to Duane and White. (20 marks)
6. Differentiate:  
(a) Sensory Aniseikonia vs Motor Aniseikonia  
(b) Optically-induced Aniseikonia vs Retinal-induced Aniseikonia  
(c) Inertia of Accommodation vs Infacility of Accommodation  
(d) Fatigue of Accommodation vs Spasm of Accommodation (5 marks each)
7. (a) A patient's OEP data revealed 3Δ esophoria in test No. 8 and +0.75DS (OD & OS) in test No. 7; what forms of lateral imbalance can this patient experience during near work?  
(b) If the patient's findings for test nos 16a and 17a are 18 and 9 respectively, what prismatic correction would you give this patient using Percival's method? (5 marks)