DIVISION OF VISION SCIENCES

SESSION: 2007/2008

ANOMALIES OF BINOCULAR VISION
& VISUAL DEVELOPMENT

VISP461

LEVEL: 4

MODULE LEADER: PROF G HERON

B.S.c./B.Sc. (HONS) OPTOMETRY

JANUARY 2008

DURATION: 3 HOURS

CANDIDATES SHOULD ATTEMPT FIVE QUESTIONS ONLY
PLEASE READ THE QUESTIONS CAREFULLY

Students for whom English is not their first language are permitted to use a Standard English/Foreign Language dictionary, e.g. French/English/English/French. Please ensure that the dictionary does not contain any notes or other materials and note that electronic dictionaries are not permissible

MATERIALS TO BE SUPPLIED(ALLOWED):

Question Paper (Supplied) }
Lined Examination Script (Supplied) }
Calculator (Allowed) }

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1. a) State Hering’s Law of Equal Innervation. (2)
   b) Show how this operates for eye movements during the cover test in heterophoria. (8)
   c) Show how eye dominance can alter eye movements on the cover test in cases of heterophoria. (10)

2. a) What is meant by the term “motor fields” with reference to ocular motility? (4)
   b) Describe one method showing how motor fields can be determined. (4)
   c) What information do the motor fields provide in the assessment of ocular motility? Illustrate your answer with reference to a right superior oblique palsy. (6)
   d) Show how the fields described in c) change with time. (6)

3. a) What are the clinical features of convergence insufficiency? (5)
   b) What are the typical symptoms? (3)
   c) How may the condition be managed? (5)
   d) A modern view of the origin of convergence insufficiency is that it is caused by an imbalance of CA/C and AC/A ratios. What is the basis for this suggestion? (7)
4. a) Show how the developments in foveal cone outer segment length and foveal cone spacing in early life contribute to the maturation of the visual process. (8)

b) Review the evidence which shows that binocular vision emerges at about three months of age, but develops rapidly thereafter. (6)

c) Review the evidence from studies in infantile esotropia showing that if orthotropia is not achieved by 30 months of age, it is lost forever. (6)

5. a) Define microtropia. (5)

b) How may microtropia be identified in the clinic? (5)

c) What evidence is there to support the view that microtropia is a complete and successful adaptation to strabismus? You may find diagrams useful in your answer. (10)

6. Write short notes on:

   a) Electromyography. (5)
   b) The Pulfrich effect. (5)
   c) The 4Δ Base Out Test. (5)
   d) Spatial and temporal contrast sensitivity in dyslexia. (5)

END OF PAPER
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