Introduction

One of the objectives of the International Council of Ophthalmology (ICO) is to promote the excellence of eye care worldwide by encouraging individuals to acquire and maintain the highest standard of knowledge for the practice of Ophthalmology. The Advanced exam is part of that initiative.

The Objectives of the International Advanced Examination (115)

The Advanced Examination is designed for candidates who have already passed the Visual Sciences, Optics, Refraction & Instruments and the Clinical Ophthalmology.

It is not intended to be the sole tool for individual certification and does not by itself constitute a licence to practise: that responsibility lies within the country in which the candidate is to practise. Either the Ophthalmological Society, the Government’s Ministry of Health or other appropriate body, may organise a face-to-face examination. If the OS or MoH agreed it might be possible for the ICO advanced exam to act as the written paper qualification to allow access to the local face to face examination.

A successful candidate will be someone who has the knowledge to act, or continue to act, as an independent consultant. Success in the examination will result from the candidate having done several (we recommend 5) years of clinical work in a busy teaching environment. The candidate will have supported the clinical work with assiduous study of texts, journals, websites (see downloads on www.icoph.org) and by attending academic meetings.

A successful candidate will be someone who has the knowledge base to act, or continue to act, as an independent general consultant. The Advanced Examination is of a higher standard than most other comparable written exams and, following a decision by the Board of Trustees of the International Council of Ophthalmology in October 2009, success in the examination will confer the right to use the post nominal acronym FICO once the candidate has achieved a license to practise (or equivalent) issued by the Ophthalmological Society, the Ministry of Health or other official body in the country where the candidate will work.

If desired, the successful candidate may use an attachment to show in which country the face-to-face examination was passed, i.e. FICO (Columbia) or FICO (Egypt).

Success allows the use of the post-nominal Acronym FICO (Fellow of the International Council of Ophthalmology), once the candidate has achieved a license to practise (or equivalent) It does not confer the right to an ICO fellowship which has to be applied for separately: http://www.icoph.org/refocusing_education/fellowship.html
The benefits of passing the Advanced Examination

The existence of an international examination allows eye departments with senior residents in training, or ophthalmologists who will soon become independent consultants, to assess their performance in relation to an international standard. Successful candidates have a qualification which has an international standard, known throughout the world which may be part of a license to practise ophthalmology. This qualification will have a positive effect on promotion.

Structure of the Examination

The Advanced Examination is offered to ophthalmologists who have passed the Visual Sciences, Optics, Refraction & Instruments and the Clinical Ophthalmology.

Exemption from passing the Visual Sciences and Optics, Refraction & Instruments (Basic Science & Optics and Refraction prior to 2019) will be given to those holding a valid current certificate for the following examinations. FRCS (Edinburgh), FRCS (Glasgow).

Other qualifications may be considered on application to the Examinations Executive Committee. From 2019 the exemptions policy will be reviewed.

a) The Examination will be held twice a year in April and October. The Examination, which is in English, will normally be held in the candidate’s own country.

b) The Examination will focus on ten major subspecialities of Ophthalmology (see below) together with sections on low vision rehabilitation, ethics and professionalism within ophthalmology and community eye health.

c) The Examination will comprise 10 Extended matching-type of questions and 75 context setting descriptions (written, visual or graphical) each with 4 associated statements which require a single best answer response.

d) The candidate will enter their answers on the ‘Answer Paper’ which will be computer marked. A positive mark will be awarded for each correct answer. There is no negative marking. The computerised results will then be analysed by the Examiners.
### Subjects

<table>
<thead>
<tr>
<th>Elements</th>
<th>Number of Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Extended matching questions</td>
<td>10</td>
</tr>
<tr>
<td>2. Lens and Cataract</td>
<td>8</td>
</tr>
<tr>
<td>3. Cornea and External Diseases / Refractive Surgery</td>
<td>7</td>
</tr>
<tr>
<td>4. Glaucoma</td>
<td>8</td>
</tr>
<tr>
<td>5. Neuro-ophthalmology</td>
<td>7</td>
</tr>
<tr>
<td>6. Ophthalmic Pathology</td>
<td>3</td>
</tr>
<tr>
<td>7. Oculoplastic Surgery and Orbit</td>
<td>7</td>
</tr>
<tr>
<td>8. Paediatric Ophthalmology and Strabismus</td>
<td>8</td>
</tr>
<tr>
<td>9. Vitreo-retinal Diseases</td>
<td>8</td>
</tr>
<tr>
<td>10. Uveitis Ocular Inflammation</td>
<td>7</td>
</tr>
<tr>
<td>11. Ocular Oncology</td>
<td>4</td>
</tr>
<tr>
<td>12. Low Vision Rehabilitation</td>
<td>2</td>
</tr>
<tr>
<td>13. Ethics and Professionalism in Ophthalmology</td>
<td>2</td>
</tr>
<tr>
<td>14. Community Eye Health</td>
<td>4</td>
</tr>
</tbody>
</table>

The papers are not available to candidates after the Examination: they will be handed in to the co-ordinator who will return them to the ICO Examinations office.

e) The candidates will be informed if they have failed or passed. The marks for each section will be given to each candidate to enable them to assess their strengths and weaknesses.

f) To aid the examiners and to ensure the quality of the questions, the answers to each part of each question are also analysed. This information is used to identify the core knowledge questions and those which can compare different groups of candidates in different years. This information is used to determine the pass mark which ensures that the results of the Examination are comparable from year to year.

g) Visual Acuities will be given in LogMAR with, in brackets, the Metric Snellen, the Imperial Snellen and the Decimal notations. For example, “Visual Acuity was LogMAR 0.48 (6/18, 20/60, 0.33).
Answering all the questions accurately is the best way of obtaining a pass grade but because accuracy of answers is very important and takes time, **it is still possible to pass the examination without completing all the questions.**

The question bank is large and questions are not exactly repeated from year to year. Candidates are warned that, although good for practice, using books of questions and answers may be misleading.

**Certificates**

A successful candidate will be given a certificate signed by the President of the ICO and the Chair of the examinations committee. This certificate will include a security strip, watermark, photograph and it will be embossed with the ICO logo. It will have on it the URL of a website where anyone can check the current validity of the certificate.

**Examination Regulations**

1) The structure of the examination is described in this document.

2) The certificate will be presented to those who have achieved the appropriate level in the Examination and who have complied with the regulations.

3) The fees and dates of the Examination are obtainable from:
The Examination Office, International Council of Ophthalmology
Unit 2, Forest Industrial Park, Forest Road, London IG6 3HL
E-mail: assess@icoph.org  Tel: +44 (0)208 500 9091

4) Application forms must reach the Examination Office before the closing date. Applications received after the closing date will not be processed.

5) The appropriate fee must be paid and cleared before the closing date.

6) Applications for admission to the Examination must be accompanied by a photocopy of the candidate's Visual Science Examination, or equivalent recognised certificate and Clinical Ophthalmology Examination, or equivalent recognised certificate.

7) Candidates wishing to withdraw their applications must do so in writing. For withdrawals received before closing date a refund will be given, but there will be a 50% deduction to cover administrative charges. No fee refund will be given to candidates wishing to withdraw after the closing date.
8) A candidate withdrawing an application on or after the closing date for applications – as shown in the Examination for which his entry fee has been accepted, will not be entitled to any refund or transfer of the fee.

9) A candidate who wants to make representations about the conduct of their examination, must address them to the Examination Executive and not, in any circumstance, to an Examiner.

10) The Examination Committee may refuse to admit to an Examination, or to proceed with the Examination or process the results of any candidate who infringes any of the regulations, or who is considered by the Examiners to be guilty of behaviour prejudicial to the proper management and conduct of the Examination.

11) The above conditions may be modified at the discretion of the Examination Committee.

12) By taking the examination, a successful candidate agrees to the International Council of Ophthalmology putting their name on the ICO Examinations website. Unsuccessful candidates will not appear on the website until they have passed the examination. The ICO may supply a photograph of the candidate to any person legitimately seeking to verify the identity of a candidate.

13) If a candidate is determined by the Examinations Committee to have cheated in the examination, he or she will not have their answer sheet marked and they will be determined as having failed the examination. She/he may not be allowed to re-sit the examination for a period of 1 to 5 years and they may be reported to their local Ophthalmological Society and/or Ministry of Health.

On the day of the Examinations candidates must provide their own pencils, a sharpener and erasers. The answer papers cannot be marked with a pen or biro.
Guide to Candidates

Curriculum
For Curriculum details see: http://www.icoph.org/pdf/icocurricres.pdf

ICO Guidelines
Please visit http://www.icoph.org/enhancing_eyecare/international_clinical_guidelines.html

Syllabus
For the Advanced ICO Examination, a syllabus is a guide to the range of topics likely to be tested in the Examination, however, it cannot be complete because of the rapid advances in knowledge and the nature of the practice of medicine. The questions will mainly be based on the areas covered by the ICO Standard examinations syllabus for both Visual and Clinical Ophthalmology. It is expected that candidates continue to make themselves aware of recent advances in ophthalmology and related subjects as these will be an important part of the Advanced Examination. This exam is also designed to test knowledge of up to date literature including important trials and systematic reviews.

Guidance on Multiple Choice Questions
These instructions must be followed exactly

1) Documents
   On your desk you will find the following:
   (a) an ANSWER PAPER (response sheet)
   (b) a QUESTION BOOK

2) DO NOT USE PEN OR BIRO – USE ONLY A PENCIL
   Use a high quality eraser which does not smudge and bring 2 pencils, and a pencil sharpener to the examination. You MUST bring these yourself as they will not be supplied or loaned during the examination. Do not fold or crease the Answer Paper

3) Identification
   Please check that the Name and Centre on your Answer Paper are correct before answering the questions.
   Please check your name and number on the front cover of the question book.

4) Method of answering
   The examination will comprise 10 EMQs and 75 context-setting descriptions (written, visual or graphical) each with four associated statements (1), (2), (3) and (4). On the ANSWER PAPER there are corresponding boxes for each statement. Place a horizontal line in the box which, in your opinion, contains the correct answer. Only one box must be marked within each question, otherwise the answer will be marked as wrong. IT IS ESSENTIAL THAT YOU MARK EACH ANSWER CLEARLY.
There are 2 types of question requiring 2 types of answer on the Optical Mark Reader (OMR) computer form

I. KNOWLEDGE AND HIGHER COGNITIVE FUNCTION TESTING QUESTIONS: EXTENDED MATCHING TYPE 1 QUESTIONS (EMQs)

It is best to read the whole question before answering

Clinical Sciences (Neuro-Ophthalmology)

In the clinical history below, about a patient with Trigeminal Neuralgia, some words or parts of sentences (–1—, –2—, –3—, –4—) are missing. Match the missing words or sentences with the most appropriate word or sentence in box below. You may use each word or sentence once.

A 62 year old –1—, in previously good health, presents with a three year history of a severe pain on the middle part of the right side of the patient’s face –2— times a day. The pain is like a ‘prolonged electric shock’, lasting –3—, making the patient groan out loud, grimace (‘clench’ the face) and it is often triggered by –4— on an area of the right cheek. The symptoms were absent on five occasions for about 2-4 weeks. Neuro-ophthalmology examination of the motor and sensory systems of the head and neck were completely normal.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Person with cancer</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>2 more than 20</td>
<td>up to 20</td>
<td>several</td>
</tr>
<tr>
<td>3 2 hours</td>
<td>½ hour</td>
<td>up to 20 seconds</td>
</tr>
<tr>
<td>4 rubbing</td>
<td>a light touch or breeze</td>
<td>scratching</td>
</tr>
</tbody>
</table>

Correct answers
1 C
2 C
3 C
4 B
The candidate will mark this question on the OMR sheet thus:

<table>
<thead>
<tr>
<th>Context</th>
<th>Question</th>
<th>Your Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>1</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>2</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>3</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>4</td>
<td>[ ]</td>
<td>[ —— ]</td>
</tr>
</tbody>
</table>

It is vital to use only horizontal, clear line. If any line is other than horizontal, the whole question will not be marked and will not score.

2a. QUESTIONS CONCERNING AN AREA OF KNOWLEDGE:
A CONTEXTUALISING STATEMENT: Basic Sciences

Applied Basic Sciences (Embryology and Development)

Regarding Retinal Ganglion Cell (RGC) development:

a) RGCs are the first retinal cells to appear in development. (True)
b) RGCs first appear anteriorly.
c) RGC axons are about 50% crossed in the chiasm from the beginning.
d) By birth, up to 90% of all Retinal Ganglion cells are subject to apoptosis.

The candidate will mark this question on the OMR sheet thus:

<table>
<thead>
<tr>
<th>Context Number</th>
<th>Question</th>
<th>Your Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>2a.</td>
<td>1</td>
<td>[ —— ]</td>
</tr>
</tbody>
</table>
A 40 year old diabetic lady comes to your clinic with a history of diminishing vision for 3 months. She had had refractive surgery 5 years previously for myopia but no details are known. You determine that the cause of her current visual problem is cataracts and that she is emmetropic. After the cataract removal and IOL (based on the standard SRK/T formula) implantation she complains on the 3rd post-operative day that her vision is blurred for near and distance. The eye is not inflamed.

Mark which of the following statements are most likely to be TRUE

- a A standard SRK/T formula was used. (True)
- b She probably has a retinal detachment.
- c She has fibrinous uveitis.
- d The lens has become dislocated.

The candidate will mark this question on the OMR sheet thus:-
2c. PHOTOGRAPH AND DIAGRAM QUESTIONS

Clinical Sciences (Paediatric Ophthalmology and Strabismus or Retina)

A 5 year old boy presented with a history of Right Esotropia (Manifest Right convergent squint). His acuity in the right eye was 0.4 LogMAR (6/15, 20/50, 0.40). There was no afferent pupil defect. His cycloplegic retinoscopy at 1 meter was +4.0 in both eyes. The right fundus is shown in Figure 1: there is a lesion adjacent to the macula. Ultrasound B-scan suggested some calcification of the lesion. There was no family history of eye disease. The patient failed to attend for 8 months at which time the visual acuity and the fundus appearance were unchanged.

Mark which of the following statements is most likely to be TRUE

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>There is likely to be mutation of both alleles of the RB1 gene. (True)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>His left eye is likely to be affected.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>It is the result of a single mutation in a retinal cell.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>His children will carry no risk of retinoblastoma and do not require mutation analysis.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The candidate will mark this question on the OMR sheet thus:-

<table>
<thead>
<tr>
<th>Context Number</th>
<th>Question</th>
<th>Your Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>A   B   C   D</td>
</tr>
<tr>
<td>1</td>
<td>[-]</td>
<td>[ ] [ ] [ ] [ ]</td>
</tr>
</tbody>
</table>
VERY IMPORTANT!!
You are advised initially to mark your answers in the QUESTION BOOK. When you are satisfied with your answers, you MUST transfer them to the Answer Paper. The transfer of the answers MUST be made within the period allotted for the examination. Disqualification will occur if the candidate does not stop writing when instructed by the invigilator.

If you decide to change a response, careful rubbing out is essential before entering the new mark as smudge marks may be misread as a response. Should your ANSWER PAPER be spoilt, a spare paper can be obtained from the invigilator.

Confidentiality

THE QUESTION BOOK MUST NOT BE REMOVED NOR MAY ANY PARTS OF IT BE COPIED. IT WILL BE COLLECTED FROM YOU BY THE INVIGILATORS, TOGETHER WITH THE ANSWER PAPER.
Examinations for Ophthalmologists

The International Council of Ophthalmology

Design and production James Butler, Saffron Walden, Essex 01799 523438 (November 2019)