Guidance for students

PQE Revision guide

In conjunction with the 2015 Level 6
Diploma in Ophthalmic Dispensing Syllabus

Association of British Dispensing Opticians

Preliminary Qualifying Examination

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Preliminary Qualifying Examination

Preface

This book is designed to familiarise you with your Preliminary Qualifying Examinations (PQE). The objectives for each section will be covered in detail along with hints and tips on the procedures you may wish to use. This guide is intended to compliment, but not replace the valuable practical teaching you will receive from your training institute.

Location and useful information

Exam Application Process
The exam application forms can be downloaded from the exams website. Please be aware that the deadline for entry is 1st March for the summer session and 1st October for the winter session.

Location of Theory Exams
The location of the theoretical exams is the The Doug Ellis Sports Centre, 150 Wellhead Lane Perry Barr, Birmingham B42 2SY. The Doug Ellis Sports Centre can be contacted via 0845 267 1192.

Please note this is a separate venue to the practical examinations at Aston Cross Business Village.

Location of Practical Exams
The practical examinations are held in the Aqueous II building at Aston Cross Business Village, Chester Street, Birmingham, B6 3RQ.

We require all candidates to be present at least 30 mins before their start time; we would recommend that you book accommodation as close to the venue as possible.

PLEASE NOTE: The nearest parking for the venue is Aston train station which is approximately 10 min walk from the venue. For the majority of students, you will need to be at the venue by 08.00am.

On entering the building proceed to the back of the entrance hall to the lift area and continue to the fourth floor where an ABDO representative will be there to welcome you, check your photographic ID, issue you with your examination timetable and direct you to your holding area for the rest of the day.

You will find toilets, a water dispenser and a drinks and snacks machine on this floor. For lunch options, there is a sandwich shop within walking distance in the business park where you will be able to purchase fresh lunches or if you prefer, please bring your own.

Please respect that your holding area is close to the examination rooms and we therefore ask for noise to be kept to a minimum, rubbish to be placed in the bins provided, the area kept clear and luggage stored away from exits (luggage left in this open area is at your own risk).

By presenting yourself at the venue you are deeming yourself fit to sit the examination. However we do appreciate that unforeseen circumstances can happen on the day and therefore there will be an ABDO representative contact number on your exam letter or you may leave a message with the ABDO Resource Centre - telephone 01217 527 500.

If you require reasonable adjustments to be made to your exam experience, please contact the exams department and complete the form on the website with as much notice as possible, so that the specified arrangements can be made.

Aqueous II building at Aston Cross Business Village

Reception area at the NRC Birmingham

Preparation

What to take with you on the day:

- Your ABDO examinations letter
- Photographic ID
- Pen and calculator if required

In terms of equipment, you will see from the photographs within this guide that fixed and rotating focimeters are provided for each student sitting the examinations in the UK. In terms of rulers and tools; we will endeavour to supply a wide range, but you are permitted to bring your own if preferred.

What to wear on the day:
You will be seeing real patients so we expect smart business attire to be worn, as you would in a real practice.

The practical skills of a dispensing optician can be taught with relative ease. To achieve the consistency and accuracy required we recommend you practice the acquired skill with a systematic approach on a regular basis in the months leading up to your professional examinations.

Preliminary Qualifying Examination

Sections

The examination is divided into the following sections:

A	**Single vision lenses**	**1 hour total**
	Candidates will be required to complete the following tasks and record:	
A1	Use a lens measure to find the base curve, cross curve and sphere curve of two uncut lenses.	**15 mins**
A2	Use a focimeter to find the powers of a pair of glazed toric lenses, locate the vertical position of the optical centres and the optical centre distance.	**15 mins**
A3	Hand neutralise a pair of spectacles glazed with toric lenses, locate the vertical position of the optical centres and the optical centre distance.	**30 mins**
B	**Frame measurements and materials**	**1 hour total**
	Candidates will be required to measure and record:	
B1	A range of measurements for a fixed pad bridge frame, regular bridge frame and a frame with pads on arms.	**30 mins**
B2	Identify and list types of frame construction and materials.	**30 mins**
C	**Spectacle fitting and facial measurements**	**1 hour total**
C1	Candidates will be required to demonstrate their ability to:	
	• Adjust a plastics material frame to fit a patient, and discuss tools used.	**10 mins**
	• Adjust a metal frame to fit a patient, and discuss tools used.	**10 mins**
	• Adjust a rimless frame to fit a patient, and discuss tools used.	**10 mins**
C2	Take a full set of facial measurements from a patient.	**30 mins**
D	**Single vision prescription analysis and lens description**	**30 mins total**
	Candidates will be required to demonstrate, at preliminary level, their ability to discuss and interpret a variety of single vision prescriptions and prescribers' comments as well as a verbal description of three lenses: • General type • Material • Form • Edge finish • Additional features	

Preliminary Qualifying Examination

Section A: Single vision lenses

Section A1: Use of lens measure

Objective: **15 minutes**
To find the base curve, cross curve and sphere curve on two uncut lenses using the lens measure provided.

Equipment provided: *see picture opposite*
- Lens measure
- Optical flat (mirror or glass plate)
- A fine-pointed lens marking pen
- Frame ruler
- Optical protractor
- A1 answer sheet
- Scrap paper

Method:
1. Clearly enter your candidate number and box set number on the answer form.
2. Select lens number 1.
3. Zero the lens measure using the optical flat, to ensure it reads zero. If the reading is not zero, you must adjust, or compensate. If there is a fault with the lens measure you can request for it to be changed.
4. Mark the optical centre of the lens using the focimeter or protractor provided.
5. Place the lens measure on the front surface of the lens. The central leg should coincide with the optical centre marking, and ensure that the lens measure is perpendicular to the lens surface. Gently rotate the lens, observing the lens measure scale for variation.
6. If there is no variation then this is the spherical surface and should be recorded as the sphere curve value.
7. If the reading varies with rotation, then this is the toroidal surface, and both the minimum and maximum values will need to be recorded. The lowest numerical value is the base curve and the highest is the cross curve.
8. Then repeat the above for the back surface.
9. Repeat this procedure for lens number 2.

Usually the front surface is convex and will be recorded as a positive value(s). The back surface will usually be concave and you should therefore be recording a negative value.

Do not assume the toroidal surface is always on the back surface.

Ensure that you have recorded the correct lens identification number on your answer sheet and that your values make sense in terms of the form of the lens.
Be aware that some lens measures may measure more than one index, which is clearly marked on the lens measure dial. All exam lens sets should be measured on the 1.523 lens scale.

Tolerances:
For the base, cross and sphere curve: +/-0.25 dioptres.

Tips:
- When practising this section aim for 5 mins per lens allowing 5 mins to double check your answers.
- Ensure the signs of the curves make sense to the form of the lens.
- All answers should be to two decimal places.
- Ensure this section is completed in the time allowed as it will be collected during the examination.

Suggested reading:
- Ophthalmic Lenses and Dispensing (M Jalie) Chapter 1
- Practical Ophthalmic Lenses (M Jalie and L Ray) Experiments 5, 19, 20

The next two pages show the form you will see in the examination. Following that, we have created a table for you to practice and record 24 toric lenses. We advise that you have your answers checked by your supervisor in practice.

Instructions to candidates

You are required to measure and record the following of two uncut lenses.

• base curve • cross curve • sphere curve

Please ensure your Candidate Number and Box Number are clearly written in the spaces provided.

Time allowed: 15 minutes

Preliminary Qualifying Examination

Section A1

Lens Measure

Candidate Number		Box Number	
Venue		Date	

Lens No. 1		
Base Curve	Cross Curve	Sphere Curve

Lens No. 2		
Base curve	Cross Curve	Sphere Curve

Please leave blank
(For Examiner's use only)

Lens No. 1		
Total		

Lens No.2		
Total		

Total A1	

Examiner's Signature	

PQE Section A1 Lens Measure 0815

SAMPLE PAPER

Preliminary Qualifying Examination

Section A: Single vision lenses

Section A1: Lens measure revision form

Lens number 1			Lens number 2			Checked
Base curve	Cross curve	Sphere curve	Base curve	Cross curve	Sphere curve	
Base curve	Cross curve	Sphere curve	Base curve	Cross curve	Sphere curve	
Base curve	Cross curve	Sphere curve	Base curve	Cross curve	Sphere curve	
Base curve	Cross curve	Sphere curve	Base curve	Cross curve	Sphere curve	
Base curve	Cross curve	Sphere curve	Base curve	Cross curve	Sphere curve	
Base curve	Cross curve	Sphere curve	Base curve	Cross curve	Sphere curve	
Base curve	Cross curve	Sphere curve	Base curve	Cross curve	Sphere curve	
Base curve	Cross curve	Sphere curve	Base curve	Cross curve	Sphere curve	
Base curve	Cross curve	Sphere curve	Base curve	Cross curve	Sphere curve	
Base curve	Cross curve	Sphere curve	Base curve	Cross curve	Sphere curve	
Base curve	Cross curve	Sphere curve	Base curve	Cross curve	Sphere curve	
Base curve	Cross curve	Sphere curve	Base curve	Cross curve	Sphere curve	

Preliminary Qualifying Examination

Section A1: Revision notes

Preliminary Qualifying Examination

Section A: Single vision lenses

Section A2: Toric lenses (Focimetry)

Objective: **15 minutes**
To measure and record the prescription of both lenses using a manual focimeter. To measure and record the vertical position of both optical centres and the optical centre distance.

Equipment provided: *see picture opposite*
- Manual focimeter
- A fine-pointed lens marking pen
- Frame ruler
- Lens cleaner
- Cleaning cloth
- A2 answer sheet
- Scrap paper

Method:
1. Clearly enter your candidate number and box set number on the answer form.
2. Clearly mark your lenses R and L to avoid confusion due to exam nerves.
3. If possible keep both eyes open when using the focimeter.
4. Set up the eyepiece of the focimeter:
   Rotate the eyepiece to its maximum; ensure the target is out of focus by setting the scale to a high positive or negative value. Now rotate the eyepiece inwards until the graticule is just in focus. Then set the power scale to zero. The resulting target and graticule should both be in focus.
5. Starting with the right lens, place into the focimeter and centre accordingly.
6. Record sphere and cylinder powers of the right lens and its axis.
7. You can record either the plus or minus cyl form, but be consistent in your cyl form and remain with this format throughout your revision and this section.
8. Record the right lens axis accurately, and using the focimeters marking device, dot the optical centre of the right lens.
9. If necessary you may enhance the central dot with your marker pen, but take care not to enlarge the dot which may cause inaccuracies in your measurements.
10. Repeat for the left lens.
11. Place the spectacles on your frame ruler using the vertical and horizontal scales to set each lens at the geometric centre.
12. Read the vertical position of the optical centres stating whether this falls above or below the horizontal centre line.
13. Repeat for the left lens.
14. Place one optical centre on the zero of the scale and read the exact distance to the second optical centre, to measure the horizontal distance between these two points.

It will help you to maintain a routine to measure the right lens first and then the left. Also note that the vertical position of the optical centres will vary in the examination sets.

Tolerances:
Sphere and Cyl measurements: +/-0.12 dipotre steps
Axis: measure to the nearest degree; do not round up
Vertical centres and optical centre distance: 1mm

Tips:
- When practising this section aim for 5 mins per lens allowing 5 mins to double check your answers.
- Ensure all signs are present and record prescriptions to two decimal places.
- Ensure this section is completed in the time allowed as it will be collected during the examination.
- Check on the exact meaning of horizontal centre line and geometric centre.

Suggested reading:
- Ophthalmic Lenses and Dispensing (M Jalie) Chapter 1
- Practical Ophthalmic Lenses (M Jalie and L Ray) Experiment 49
- Spectacle lenses Theory and Practice (Fowler and Petrie) Chapter 6

The next two pages show the form you will see in the examination. Following that, we have created a table for you to practice and record the parameters of 10 pairs of spectacles using a manual focimeter. We advise that you have your answers checked by your supervisor in practice; we also recommend, to help you with this revision, you do your practice spectacle checking on a manual focimeter as this skill can be easily forgotten.

Instructions to candidates

You are required to determine the prescription of the spectacles provided in the box using a manual focimeter.

Also required are the vertical positions of the optical centres in relation to the horizontal centre line, and the optical centre distance.

This information should be recorded in the table below.

Please ensure your Candidate Number and Box Number are clearly written in the spaces provided.

***NB:** The lenses must not be removed from the frame.*

Time allowed: 15 minutes

Preliminary Qualifying Examination

Section A2

Toric Lenses (Focimetry)

Candidate Number		Box Number	
Venue		Date	

	Right	Left	Leave Blank	
Sphere				
Cylinder				
Axis				
Vertical position of optical centre from HCL				
Optical Centre Distance				

Total A2	

Examiner's Signature	

SAMPLE PAPER

Preliminary Qualifying Examination

Section A: Single vision lenses

Section A2: Focimetry revision form

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

Preliminary Qualifying Examination

Section A: Single vision lenses

Section A3: Toric lenses - Hand neutralisation

Objective: **30 minutes**
To hand neutralise both lenses of a pair of spectacles and to record the prescription and the vertical position of the optical centres and the optical centre distance.

Equipment provided: *see picture opposite*
- Trial case lenses
- Cross line chart
- Optical protractor
- A fine pointed lens marking pen
- Frame ruler
- A3 answer sheet
- Scrap paper

Method:
1. Clearly enter your candidate number and box set on the answer form.
2. Clearly mark your lenses R and L to avoid confusion due to exam nerves.
3. Starting with the right lens.
4. Using the cross line chart, dot the optical centre of the lens.
5. Mark the axis positions.
6. Neutralise both meridians of the lens with either spherical lenses or a combination of spherical and cylindrical lenses, depending on the method you have been taught.
7. Ensure you systematically replace unwanted trial lenses, to avoid confusion and to have them available for the next meridian.
8. Use the most positive meridian as your sphere and measure this axis on the protractor.
9. The difference between the two meridians will be your cylinder value in a negative form.
10. Repeat the above for the left lens.
11. Place the spectacles on your frame ruler using the vertical and horizontal scales to set each lens at the geometric centre.
12. Read the vertical position of the optical centres stating whether this falls above or below the horizontal centre line.
13. Repeat for the left lens.
14. Place one optical centre on the zero of the scale and read the exact distance to the second optical centre, to measure the horizontal distance between these two points.

It will help you to maintain a routine to measure the right lens first and then the left. Also note that the vertical position of the optical centres will vary in the examination sets.

Tolerances:
Sphere and Cyl: +/-0.25 dipotres
Axis: 5 degrees
Optical centration: 2mm

Tips:
- We recommend you aim for 10 mins in total for each lens, allowing 10 mins to confirm your answers.
- Remember you are recording the power of the spectacles and not the power of the neutralising lenses.
- The protractor has 2 scales, one designed for the lenses face up and one designed for the lenses face down. Ensure you can visually estimate the axis to avoid errors when reading the scales.
- This particular task requires the most practice in order to gain the required accuracy.

Suggested reading:
- Ophthalmic Lenses and Dispensing (M Jalie) Chapter 1
- Practical Ophthalmic Lenses (M Jalie and L Ray) Experiments 3, 5, 7, 15, 16, 22, 29
- Spectacle Lenses Theory and Practice (Fowler and Petrie) Chapter 6

The next two pages show the form you will see in the examination. Following that, we have created a table for you to practice and record the parameters of 20 pairs of spectacles using the trial lens set. We advise that you have your answers checked by your supervisor in practice.

Instructions to candidates

You are required to determine the prescription of the spectacles provided in the box using a trial lens set.

Also required are the vertical positions of the optical centres in relation to the horizontal centre line, and the optical centre distance.

This information should be recorded in the table below.

Please ensure your Candidate Number and Box Number are clearly written in the spaces provided.

***NB:** The lenses must not be removed from the frame.*

Time allowed: 30 minutes

Preliminary Qualifying Examination

Section A3

Toric Lenses (Hand Neutralisation)

Candidate Number		Box Number	

Venue		Date	

	Right	Left	Leave Blank	
Sphere				
Cylinder				
Axis				
Vertical position of optical centre from HCL				
Optical Centre Distance				

Total A3	

Please leave blank
(For Examiners Use only)

A1 Total	A2 Total	A3 Total	**Total A3**

Examiner's Signature	

PQE Section A3 Toric Lens (Hand Neutralisation) 0815

SAMPLE PAPER

Preliminary Qualifying Examination

Section A: Single vision lenses

Section A3: Hand neutralisation revision form

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

Section A3: Hand neutralisation revision form

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

Preliminary Qualifying Examination

Section A3: Revision notes

Preliminary Qualifying Examination

Section B: Frame measurements and materials

Section B1: Frame measurements

Objective: **30 minutes**

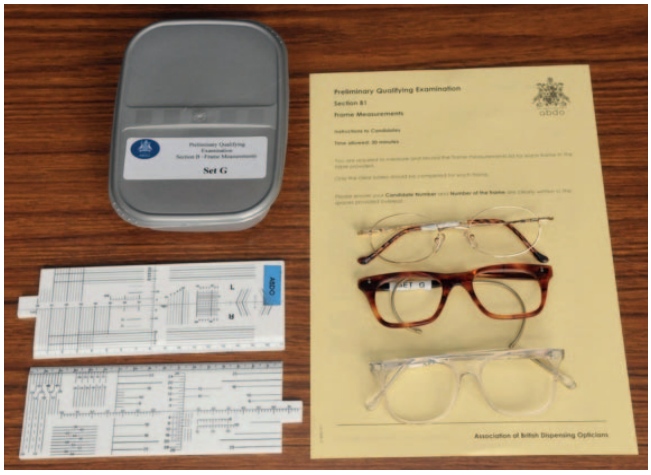
To record a specified range of measurements for a regular bridge frame, a fixed pad bridge frame and a metal frame with pads on arms using a frame ruler.

Equipment provided: *see picture opposite*

- Frame ruler
- B1 answer sheet

Method

1. Clearly enter your candidate number and box set number on the answer form.
2. Start with the regular bridge frame, working through the frames in the order they are listed on the answer form, to avoid confusion with exam nerves.
3. For the regular bridge frame you will need to measure:
    a. Boxed lens size; the dimensions of the rectangle formed by the horizontal and vertical tangents to the lens shape. Note; add an allowance for the bevel and both horizontal and vertical measurements should be listed here.
    b. Distance between lenses (DBL); the distance between the nearest apices of the two lenses. Note; subtract an allowance for the bevel.
    c. Boxed Centre Distance (BCD); horizontal distance between the two boxed centres (the intersection of horizontal and vertical lines of each box).
    d. Distance Between Rims (DBR)@10; the horizontal distance between the nasal surfaces of both rims, measured at 10mm below the midpoint of the lower edge of the bridge surface.
    e. Distance Between Rims (DBR)@15; the horizontal distance between the nasal surfaces of the rims, measured at 15mm below the midpoint of the lower edge of the bridge surface.
    f. Apical Radius; radius of the arc forming the lower edge of the bridge viewed perpendicularly to the back plane of the front.
    g. Crest Height; vertical distance from the centre line of the frame to the midpoint of the lower edge of the bridge.
    h. Angle of side; vertical angle between a normal to the back plane of the front and the line of the side when opened. Right and left measurements required here.
    i. Length to bend; distance between the dowel point and the ear point. Right and left measurements required here.
    j. Downward angle of drop; downward inclination of the drop from the line of the side. Right and Left measurements required here.
    k. Frame head width; distance between the sides at the ear points.



    l. Frame temple width; distance between the sides 25mm behind the back plane of the front.
    m. Angle of let-back; horizontal angle between the inner surface of the fully opened side, adjacent to the joint, and a normal to the back plane of the front. Right and left measurements required here.
4. For the fixed pad bridge frame you will need to measure:
    a. Boxed lens size; the dimensions of the rectangle formed by the horizontal and vertical tangents to the lens shape. Note; add an allowance for the bevel and both horizontal and vertical measurements should be listed here.
    b. Distance between lenses (DBL); the distance between the nearest points of the apices of the two lenses. Note; subtract an allowance for the bevel.
    c. Boxed Centre Distance (BCD); horizontal distance between the two boxed centres (the intersection of horizontal and vertical centre lines of each box) .
    d. Bridge width; minimum distance between the pad surfaces of the frame measured along the bridge width line.
    e. Bridge height; vertical distance from the bridge width line to the intersection point of the vertical symmetry axis with the lower edge of the bridge.
    f. Splay angle of pad; angle between the pad plane and a normal to the back plane of the front. Right and left measurements are required here.
    g. Frontal angle of pad; angle between the vertical and the line of intersection of the pad plane with the back plane of the front. Right and left measurements are required here.
    h. Total length of side (this will be a curl side); distance between the dowel point and the tip. Right and Left measurements required here.

i. Frame head width; distance between the sides at the ear points.
j. Frame temple width; distance between the sides 25mm behind the back plane of the front.
k. Angle of let-back; horizontal angle between the inner surface of the fully opened side, adjacent to the joint, and a normal to the back plane of the front. Right and left measurements required here.

5. For the metal pads on arms frames you will need to measure:
   a. Boxed lens size; the dimensions of the rectangle formed by the horizontal and vertical tangents to the lens shape. Note; add an allowance for the bevel and both horizontal and vertical measurements should be listed here.
   b. Distance between lenses (DBL); the distance between the nearest points of the apices of the two lenses. Note; subtract an allowance for the bevel.
   c. Boxed Centre Distance (BCD); horizontal distance between the two boxed centres (the intersection of horizontal and vertical centre lines of each box).
   d. Angle of side; vertical angle between a normal to the back plane of the front and the line of the side when opened. Right and left measurements required here.
   e. Length to bend; distance between the dowel point and the ear point. Right and left measurements required here.
   f. Distance between pad centres; horizontal distance between the two pad centres.
   g. Length of drop; distance from the ear point to the extreme end of the side. Right and left measurements required here.
   h. Downward angle of drop; downward inclination of the drop from the line of the side. Right and left measurements required here.
   i. Frame head width; distance between the sides at the ear points.
   j. Frame temple width; distance between the sides 25mm behind the back plane of the front.
   k. Angle of let-back; horizontal angle between the inner surface of the fully opened side, adjacent to the joint, and a normal to the back plane of the front. Right and left measurements required here.

It will help you to maintain a routine to measure the right lens first and then the left.

Tolerances:
Frame lens measurements: +/-1mm
LTB, Distance between pad centres, length of drop: +/-2mm
Head and temple width measurements: +/-5mm
Angle of side and downward angle of drop: +/-2.5 degrees
Splay and frontal angle of pad: +/-5 degrees

Tips:
- We recommend you aim for 8 mins in total for each frame, allowing 6 mins to confirm your answers.
- Your answer form will have unnecessary measurements blocked out, so you will know on the day which measurements are required for each frame.
- Remember the frames have two sides, so most side measurements will require 2 results.
- Horizontal centre line is the accepted term, datum is now obsolete.

Suggested reading:
- Spectacle Frames and their Dispensing (Obstfeld) Chapter 12
- British Standards Extracts (ABDO College)
- Practical Dispensing (A Griffiths) Chapter 20

The next two pages show the form you will see in the examination. Following that, we have created a table for you to practice and record the parameters of 12 spectacle frames. We advise that you have your answers checked by your supervisor in practice.

Instructions to candidates

You are required to measure and record the frame measurements list for each frame in the table provided.

Only the clear boxes should be completed for each frame.

Please ensure your Candidate Number and Box Number and Frame Number are clearly written in the spaces provided.

Time allowed: 30 minutes

Preliminary Qualifying Examination

Section B1

Frame Measurements

Candidate Number		Box Number	
Venue		Date	

Measurement	Regular Bridge Frame	Fixed Pad Bridge Frame	Frame with Pads on Arms	Leave Blank: Regular Bridge Frame	Leave Blank: Fixed Pad Bridge Frame	Leave Blank: Frame with Pads on Arms
Boxed lens size	H V	H V	H V	H V	H V	H V
DBL						
Boxed centre distance						
DBR @ 10						
DBR @ 15						
Apical Radius						
Projection						
Crest height						
Angle of side	R L		R L	R L		R L
Length to bend	R L		R L	R L		R L
Bridge width						
Bridge height						
Distance between pad centres						
Splay angle of pad						
Frontal angle of pad						
Length of drop			R L			R L
Total length of side		R L			R L	
Downward angle of drop	R L		R L	R L		R L
Head width						
Temple width						
Angle of let-back	R L	R L	R L	R L	R L	R L
			Total			

Examiner's Signature		Grand Total	

PQE Section B1 Frame Measurements 0815

SAMPLE PAPER

Section B1: Frame measurements revision form

Measurement	Regular bridge frame	Regular bridge frame	Fixed pad bridge frame	Fixed pad bridge frame	Frame with pads on arms	Frame with pads on arms
Boxed lens size	H V	H V	H V	H V	H V	H V
DBL						
Boxed centre distance						
DBR @ 10						
DBR @ 15						
Apical Radius						
Projection						
Crest height						
Angle of side	R L	R L			R L	R L
Length to bend	R L	R L			R L	R L
Bridge width						
Bridge height						
Distance between pad centres						
Splay angle of pad			R L	R L		
Frontal angle of pad						
Length of drop					R L	R L
Total length of side			R L	R L		
Downward angle of drop	R L	R L			R L	R L
Head width						
Temple width						
Angle of let-back	R L	R L	R L	R L	R L	R L

Checked						

Preliminary Qualifying Examination

Section B: Frame measurements and materials

Section B1: Frame measurements revision form

Measurement	Regular bridge frame	Regular bridge frame	Fixed pad bridge frame	Fixed pad bridge frame	Frame with pads on arms	Frame with pads on arms
Boxed lens size	H V	H V	H V	H V	H V	H V
DBL						
Boxed centre distance						
DBR @ 10						
DBR @ 15						
Apical Radius						
Projection						
Crest height						
Angle of side	R L	R L			R L	R L
Length to bend	R L	R L			R L	R L
Bridge width						
Bridge height						
Distance between pad centres						
Splay angle of pad			R L	R L		
Frontal angle of pad						
Length of drop					R L	R L
Total length of side			R L	R L		
Downward angle of drop	R L	R L			R L	R L
Head width						
Temple width						
Angle of let-back	R L	R L	R L	R L	R L	R L

Checked						

Preliminary Qualifying Examination

Section B: Frame measurements and materials

Section B2: Frame materials

Objective: **30 minutes**
To list the material, manufacturing and construction techniques and associated properties of five frames; which may be current or obsolete frame materials.

Equipment provided: *see picture opposite*
- Hand magnifier
- B2 answer sheet

Method:
1. Clearly enter your candidate number and box set number on the answer form.
2. Clearly write the frame number at the top of each column.
3. Touch the frame and look at the markings to be certain of the material.
4. Methodically work through the required information.
5. Short, bullet point answers are required.
6. Use the magnifier to double check any frame markings that are difficult to see.

Tips:
- We recommend you aim for about 5 mins in total for each frame, allowing 5 mins to confirm your answers.
- Research the frame materials and know the distinguishing features that will help you recognise them more quickly.
- Look through your practice spectacle recycling box and see how many materials you can identify.

Suggested reading:
- Practical Dispensing (A Griffiths) Chapter 19
- Spectacle Frames and their Dispensing (Obstfeld) Chapters 7, 8

The next two pages show the form you will see in the examination. Following that, we have created a table for you to practice and record the parameters of 12 spectacle frames. We advise that you have your answers checked by your supervisor in practice.

Instructions to candidates

You are required to list and record the required facts regarding the different frames provided.

Please ensure your Candidate Number and Box Number and Frame Number are clearly written in the spaces provided.

Time allowed: 30 minutes

Preliminary Qualifying Examination

Section B2

Frame Materials

Candidate Number		Box Set	
Venue		Date	

Required Information	Frame A	Frame B	Frame C	Frame D	Frame E
Identify material					
Name 3 facts about the manufacturing process					
Name 3 facts about the adjustment and or repair features					
Is this material hypoallergenic					
Frame Description	**Frame A**	**Frame B**	**Frame C**	**Frame D**	**Frame E**
General frame type					
Side type					
Bridge type					
Joint attachment					
Lens retention in frame					
Lens edge finish					
TOTAL					

Reasons competency not met:	50% reduction applied YES/NO
	Grand Total

Examiner 1 Signature	**Examiner 2 Signature**
N.B. Two signatures required when a competency is not met	

PQE Section B2 Frame Materials 0815

SAMPLE PAPER

Preliminary Qualifying Examination

Section B: Frame measurements and materials

Section B2: Frame materials revision forms

Required information	Frame number	Frame number	Frame number	Frame number	Frame number	Frame number
Identify material						
State 3 facts about the manufacturing process						
State 3 facts about the adjustment/ repair features						
Is this material hypoallergenic						

Frame Description:

General frame type						
Side type						
Bridge type						
Joint attachment						
Lens retention						
Edge finish						

Checked						

Required information	Frame number	Frame number	Frame number	Frame number	Frame number	Frame number
Identify material						
State 3 facts about the manufacturing process						
State 3 facts about the adjustment/ repair features						
Is this material hypoallergenic						

Frame Description:

General frame type						
Side type						
Bridge type						
Joint attachment						
Lens retention						
Edge finish						

Checked						

Preliminary Qualifying Examination

Section B2: Revision notes

Preliminary Qualifying Examination

Section C: Spectacle fitting and facial measurements

Section C1: Spectacle fitting

Objective: **30 minutes**
To straighten and fit a plastic, metal and rimless spectacle frames to three different patients.

Equipment provided: *see picture opposite*
- Frame Heater
- Frame adjustment pliers
- Screw drivers
- Lens cleaner
- Tissues

Method:
1. Have a look at the frame and place it on a flat surface with the tips facing upwards.
2. Evaluate the adjustments required.
3. Put the frame on the patients face (if possible according to the adjustments required).
4. Explain to the examiner what is wrong with the frame and the fit.
5. Explain how you are going to adjust the frame.
6. Explain which tools you will be using, if appropriate.
7. Straighten the frame using the relevant tools and heater, taking it back to its original form.
8. Put the frame on the patient and view the main fitting points.
9. Make the necessary adjustments to fit the frame to the patient.
10. You will not be required to shorten the length of side by cutting and filing, there will not be time.
11. If the length to bend needs adjusting, do this to the best of your ability by heating and re-bending, and then discuss with the examiner what you would do if you had more time in practice.
12. You will be expected to know the names of the tools you are using and be able to demonstrate their 'safe' use to the examiner.
13. The resulting frames should be cleaned and fit to wear without causing discomfort or pressure marks to the patient.

Tips:
- When practising this section allow approximately 8 mins to complete each fitting allowing 2 mins for discussions with the examiner.
- Ensure the spectacle lenses have been cleaned and are cooled sufficiently to safely fit on the patient
- If there are particular hand tools in practice you are comfortable using, you are welcome to bring them with you.
- Don't forget you will be working with real patients from the eye clinic, talk to them as you would in practice to find out if the frames are comfortable and to help try and relax you.
- There is nothing for you to write down in this examination, the examiners will assess the final fit of the spectacles on the patients face and the methods you used to get there.
- Remember, this is the skill you will use in practice every day, think about the adjustments you make when you are with your patients in practice.

Suggested reading:
- Spectacle Frames and their Dispensing (Obstfeld) Chapter 16
- Practical Dispensing (A Griffiths) Chapter 21

Preliminary Qualifying Examination

Section C: Spectacle fitting and facial measurements

Section C2: Facial measurements

Objective: **30 minutes**
To take a set of facial measurements using the facial gauge from the patient provided.

Equipment provided: *see picture opposite*
- Facial Gauge
- PD ruler
- Frame ruler
- Head callipers
- Section C2 answer form

Method:
1. Clearly enter your candidate number and your patients name on the answer form.
2. List the relevant measurements on the form provided:
    a. Monocular pupillary distance; from the centre of the right pupil to the centre of the bridge. Right and left measurements required here.
    b. Monocular near centration; measured from the centre of the right pupil to the centre of the bridge whilst the patient is fixating on an object at the required viewing distance. Right and left measurements required here.
    c. Crest height; the distance in the assumed spectacle plane, between lower limbus point and nasal crest. Right and left measurements required here.
    d. Bridge projection; the horizontal distance between the assumed spectacle plane and the eyelashes in their most protruding position.
    e. Apical radius; the arc of the nasal crest, in the assumed spectacle plane.
    f. Distance between rims @10mm; the width of the nose in the assumed spectacle plane at 10mm below the nasal crest.
    g. Distance between rims @15mm; ; the width of the nose in the assumed spectacle plane at 15mm below the nasal crest.
    h. Frontal angle; the angle between the vertical in the assumed spectacle plane and a parallel to the assumed bearing surface on the side of the nose. Right and left measurements required here.
    i. Splay angle; the angle between the assumed pad bearing area on the nose, and a normal to the assumed spectacle plane. Right and left measurements required here.
    j. Front to bend; the distance from the assumed spectacle plane to the ear point. Right and left measurements required here.
    k. Head width; the horizontal distance between the ear points of the head.

3. Remember to list both measurements where R and L is stated on the answer form and always state your answer in mm.

Tolerances used:
PD's, Apical radius and DBR@10&15: +/- 1mm
Crest and bridge: +/- 2mm
Frontal and splay angle: +/-5 degrees
Front to bend and head width: +/-3mm

Tips:
- When practising this section allow approximately 20 mins for a full set of facial measurements, giving you 10 mins to double check your work.
- Don't forget you will be working with real patients from the eye clinic, talk to them as you would in practice.
- This particular task requires the most practice in order to gain the required accuracy.

Suggested reading:
- Practical Dispensing (A Griffiths) Chapter 10
- Spectacle Frames and their Dispensing (Obstfeld) Chapter 12

The next two pages show the form you will see in the examination. Following that, we have created a table for you to practice and record the parameters from 12 subjects. We advise that you practice first on your colleagues and have your answers checked by your supervisor in practice.

Instructions to candidates

You are required to list and record the required facts regarding the different frames provided.

Please ensure your Candidate Number and Box Number and Frame Number are clearly written in the spaces provided.

Time allowed: 30 minutes

Preliminary Qualifying Examination

Section C2

Facial Measurements

Candidate Number		Patient	
Venue		Date	

Measurement	Result		Leave Blank	
Monocular pupillary distance	R	L	R	L
Monocular near centration distance	R	L	R	L
Crest height	R	L	R	L
Bridge projection				
Apical radius				
Distance between rims at 10				
Distance between rims at 15				
Frontal angle	R	L	R	L
Splay angle	R	L	R	L
Front to bend	R	L	R	L
Head width				

Total	

Examiner's Signature	

POE Section C2 Facial Measurements 08.15

SAMPLE PAPER

Preliminary Qualifying Examination

Section C: Spectacle fitting and facial measurements

Section C2: Facial measurements revision forms

Measurement	Result		Result		Result	
Monocular pupillary distance	R	L	R	L	R	L
Monocular near centration distance	R	L	R	L	R	L
Crest height	R	L	R	L	R	L
Bridge projection						
Apical radius						
Distance between rims at 10						
Distance between rims at 15						
Frontal angle	R	L	R	L	R	L
Splay angle	R	L	R	L	R	L
Front to bend	R	L	R	L	R	L
Head width						
Checked						

Measurement	Result		Result		Result	
Monocular pupillary distance	R	L	R	L	R	L
Monocular near centration distance	R	L	R	L	R	L
Crest height	R	L	R	L	R	L
Bridge projection						
Apical radius						
Distance between rims at 10						
Distance between rims at 15						
Frontal angle	R	L	R	L	R	L
Splay angle	R	L	R	L	R	L
Front to bend	R	L	R	L	R	L
Head width						
Checked						

Measurement	Result		Result		Result	
Monocular pupillary distance	R	L	R	L	R	L
Monocular near centration distance	R	L	R	L	R	L
Crest height	R	L	R	L	R	L
Bridge projection						
Apical radius						
Distance between rims at 10						
Distance between rims at 15						
Frontal angle	R	L	R	L	R	L
Splay angle	R	L	R	L	R	L
Front to bend	R	L	R	L	R	L
Head width						
Checked						

Measurement	Result		Result		Result	
Monocular pupillary distance	R	L	R	L	R	L
Monocular near centration distance	R	L	R	L	R	L
Crest height	R	L	R	L	R	L
Bridge projection						
Apical radius						
Distance between rims at 10						
Distance between rims at 15						
Frontal angle	R	L	R	L	R	L
Splay angle	R	L	R	L	R	L
Front to bend	R	L	R	L	R	L
Head width						
Checked						

Preliminary Qualifying Examination

Section C2: Revision notes

Preliminary Qualifying Examination

Section D: Prescription Analysis

Section D: Prescription Analysis

Objective: **30 minutes**
To demonstrate your skills in prescription analysis and communicate effectively at the required levels for the given prescription scenarios.

Equipment provided: *see picture opposite*
- Scrap paper
- Spare pens
- Section D prescription book

Method:
1. Take your time to look at each prescription – use a methodical approach such as the four-point plan (below) this will help you practice and put your thoughts into some order;
    a. What is the prescription for?
    b. Are there any errors or any information missing?
    c. What could be a potential problem?
    d. How could you solve the problem?
2. Be prepared to calculate near prescriptions and addition powers.
3. Be able to transpose from one cyl form to another.
4. Consider what form of lens might be appropriate.
5. You may be asked to discuss the following topics;
    a. Prisms and prism splitting
    b. Safety lenses
    c. Tinted lenses
    d. High power lenses
    e. Vertex distance
    f. Terms relating to ametropia
    g. Lens form

Tips:
- Don't forget to speak to the examiners, they will encourage you, but you need to talk to them to be able to award marks.
- Practice prescription analysis with your supervisor; when you are given a new patient and prescription in store, discuss what information you can gain from the prescription and what the dispensing outcomes might be.
- Examiners may ask you to do small calculations, use the scrap paper provided to be certain of your answers, calculators are permitted to help with exam nerves.
- It is perfectly acceptable to tell the examiner if you do not know the answer, they will move you on to something else that can hopefully gain you marks.
- Examiners are looking for clear answers, if you give them a choice of answers in the hope one may be correct, they will ask you to tell them specifically one answer.

The next two pages are examples of prescriptions for you to practice with. We advise that you have your answers checked by your supervisor in practice.

Section D: Prescription analysis revision forms

R	Sph	Cyl	Axis	Prism	Base
Dist	-5.00			2	UP
Add					

L	Sph	Cyl	Axis	Prism	Base
Dist	-5	0.75	95°		
Add					

NOTES: Prescription errors

R	Sph	Cyl	Axis	Prism	Base
Dist	-1.50	-0.50	95		
Add					

L	Sph	Cyl	Axis	Prism	Base
Dist	-1.25	-0.75	90		
Add					

NOTES: Safety lenses

Preliminary Qualifying Examination

Section D: Prescription Analysis

Section D: Prescription analysis revision forms

Right	Sph	Cyl	Axis	Prism	Base
Dist	+1.75	-0.25	180		
Add	+3.00	-0.25	180		

Left	Sph	Cyl	Axis	Prism	Base
Dist	+1.50				
Add	+2.75				

NOTES: Addition, Transposition

R	Sph	Cyl	Axis	Prism	Base
Dist	-10.00	-1.00	95		
Add					

L	Sph	Cyl	Axis	Prism	Base
Dist	-10.50	-1.25	90		
Add					

NOTES: Dispensing high prescriptions

R	Sph	Cyl	Axis	Prism	Base
Dist	+2.00	-0.75	15		
Add					

L	Sph	Cyl	Axis	Prism	Base
Dist	+2.25	-1.00	18		
Add					

NOTES: Tinted for holiday

Right	Sph	Cyl	Axis	Prism	Base
Dist	+0.50	-0.25	85		
Inter	+1.00	-0.25	85		
Add	+2.00	-0.25	85		

Left	Sph	Cyl	Axis	Prism	Base
Dist	+0.25	DS			
Inter	+0.75	DS			
Add	+1.75	DS			

NOTES: Occupational dispensing

Preliminary Qualifying Examination

Section D: Revision notes

References
Ophthalmic Lenses and Dispensing: (M Jalie)
Practical Ophthalmic Lenses: (M Jalie and L Ray)
Spectacle Lenses Theory and Practice: (Fowler and Petrie)
Practical Dispensing: (A Griffiths)
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