INI CET Ophthalmology

Sample Paper – 8

Duration: 14 Minutes **Maximum Marks: 15**

Instructions

- This paper contains **15** Multiple Choice Questions (Single Best Response), modelled on the Ophthalmology content of **INI CET** (Institutes of National Importance Combined Entrance Test) conducted by AIIMS New Delhi.
- The **15-question** length matches the number of Ophthalmology items you actually meet in the real 200-question paper.
- Each correct answer carries **+1 mark**. There is **negative marking of one-third (0.33) mark** for every incorrect answer; unattempted questions carry no penalty.
- Every question has **exactly one best answer**. Choose the single most appropriate option.
- Attempt this practice paper in one timed sitting of about **14 minutes**, the pace the real computer-based test demands.

Cornea, Conjunctiva and Anterior Segment

Q1. An elderly woman complains of blurred vision that is worst on waking and clears through the day. Slit-lamp examination shows tiny excrescences on the corneal endothelium (corneal guttata) with a thickened Descemet membrane. The most likely diagnosis is:

(A) Keratoconus

(B) Band-shaped keratopathy

(C) Fuchs endothelial dystrophy

(D) Arcus senilis

Q2. After a penetrating corneal injury, fluorescein is instilled and, under cobalt-blue light, a bright green stream is seen washing away the dark

orange dye at the wound. This bedside test confirming an aqueous leak from a corneal perforation is the:

(A) Schirmer test

(B) Jones dye test

(C) Seidel test

(D) Anel test

Q3. A middle-aged outdoor worker has a small, yellowish, slightly raised deposit on the nasal bulbar conjunctiva near the limbus that does not encroach onto the cornea. The most likely diagnosis is:

(A) Pterygium

(B) Pinguecula

(C) Ligneous (membranous) conjunctivitis

(D) Conjunctival concretion

Lens and Glaucoma

Q4. Before cataract surgery through a small self-sealing clear-corneal incision, the surgeon must calculate the power of the intraocular lens to implant. The preoperative measurement of axial length and corneal curvature (keratometry) used for this calculation is called:

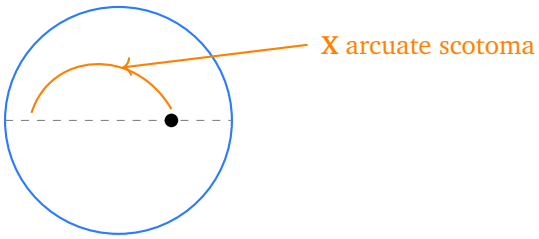
(A) Biometry

(B) Gonioscopy

(C) Tonometry

(D) Pachymetry

Q5. The visual field chart below shows the characteristic early field defect of primary open-angle glaucoma, an arc-shaped scotoma sweeping from the blind spot (marked **X**) that steps at the nasal horizontal midline. This defect is called:



(A) Central scotoma

(B) Arcuate (Bjerrum) scotoma with a nasal step

(C) Bitemporal hemianopia

(D) Homonymous hemianopia

Q6. A few days after glaucoma filtering surgery a patient develops a uniformly shallow (flat) anterior chamber together with a *raised* intraocular pressure, because aqueous is being misdirected backwards into the vitreous. The diagnosis is:

(A) Malignant (aqueous misdirection) glaucoma

(B) Wound leak with hypotony

(C) Serous choroidal detachment

(D) Suprachoroidal haemorrhage

Retina and Vitreous

Q7. A patient with type 2 diabetes has centre-involving diabetic macular oedema on optical coherence tomography and reduced central vision. The current first-line treatment is:

(A) Observation with tight glycaemic control alone

(B) Immediate panretinal photocoagulation

(C) Intravitreal anti-VEGF injection

(D) Scleral buckling surgery

Q8. A 7-year-old boy has painless one-sided loss of vision. The fundus shows dilated, tortuous retinal telangiectatic vessels with heavy yellowish subretinal (lipid) exudation, and there is no calcification. The most likely diagnosis is:

(A) Retinoblastoma

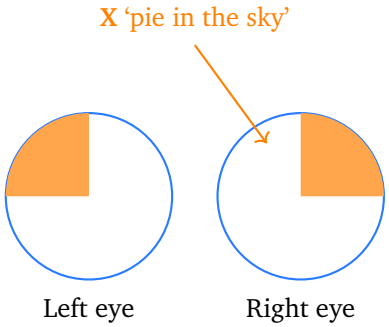
(B) Retinopathy of prematurity

(C) Coats disease

(D) Central serous retinopathy

Neuro-ophthalmology and Optics

Q9. The paired field charts below show the defect (marked **X**) produced by a lesion of the temporal loop of the optic radiation (Meyer loop) in the temporal lobe. This upper outer field loss is:



(A) Contralateral superior homonymous quadrantanopia ('pie in the sky')

(B) Inferior homonymous quadrantanopia

(C) Bitemporal hemianopia

(D) A bilateral central scotoma

Q10. Following intracapsular cataract extraction the eye is left aphakic (without a lens). Considering the options of thick aphakic spectacles, a contact lens and an intraocular lens, the best optical correction of aphakia, giving the least magnification and image distortion, is:

(A) Aphakic spectacles, because they are cheapest

(B) No correction, as the eye focuses normally

(C) Atropine drops to widen the pupil

(D) An intraocular lens implant

Q11. Two patients each have acute unilateral optic neuritis with pain on eye movement and reduced colour vision. In the one with *retrobulbar* neuritis (as opposed to papillitis), the optic disc on fundoscopy characteristically appears:

(A) Swollen with flame-shaped haemorrhages

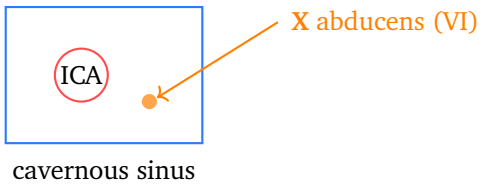
(B) Normal (the lesion lies behind the eyeball, so the patient sees nothing and the doctor sees nothing)

(C) Pale and atrophic from the outset

(D) Deeply cupped

Uvea, Orbit and Ocular Adnexa

Q12. The schematic cross-section below marks a structure (**X**) running *within* the cavernous sinus, whose involvement in cavernous sinus thrombosis explains a lateral rectus palsy. Which pair correctly passes through (not merely in the lateral wall of) the cavernous sinus?



(A) The optic nerve (II) and ophthalmic artery

(B) The facial nerve (VII) and stylomastoid vessels

(C) The olfactory nerve (I) and anterior cerebral artery

(D) The abducens nerve (VI) and the internal carotid artery

Q13. A young child has a smooth, firm, painless swelling fixed to bone at the superotemporal orbital margin (over the frontozygomatic suture), present since birth and slowly enlarging. The most likely diagnosis is:

(A) Rhabdomyosarcoma

(B) Dermoid cyst

(C) Capillary haemangioma

(D) Orbital cellulitis

Paediatric Ophthalmology and Emergencies

Q14. A 5-month-old infant has a large, constant, alternating inward turning of the eyes (infantile esotropia) with no significant refractive error. Once amblyopia is treated and the deviation is stable, the recommended timing of squint surgery is:

(A) Early, before about 2 years of age, to allow development of binocular vision

(B) Deferred until after 12 years of age

(C) Never; the squint always resolves on its own

(D) Only after prescribing full convex (plus) lenses

Q15. A patient presents with acute angle-closure glaucoma, a sight-threatening emergency. Alongside urgency, the correct *immediate medical* management to lower the intraocular pressure before laser iridotomy is:

(A) Topical atropine to dilate the pupil

(B) Immediate firm patching of the eye

(C) A steroid ointment alone

(D) Intravenous acetazolamide, topical pilocarpine and a hyperosmotic agent (mannitol or glycerol)

Detailed Solutions

Q1.

Solution

Concept – Fuchs endothelial dystrophy: The corneal endothelium pumps fluid out of the stroma to keep the cornea clear.

Step 1 – read the clues: Vision worst on waking that clears through the day, with **corneal guttata** (excrescences on the endothelium) and a thickened Descemet membrane, points to **Fuchs endothelial dystrophy**.

Step 2 – why vision clears by day: Overnight, with the lids shut, the cornea cannot evaporate fluid, so it becomes oedematous; through the day evaporation clears the oedema, so vision improves.

Why the other options are wrong:

- A, keratoconus: is a progressive conical thinning causing irregular astigmatism, not endothelial guttata.
- B, band-shaped keratopathy: is calcium deposition in the interpalpebral cornea.
- D, arcus senilis: is a harmless lipid ring at the corneal periphery.

Final Answer: Fuchs endothelial dystrophy $\Rightarrow$ C

Answer: (C) Go Back to Q1

Q2.

Solution

Concept – detecting an aqueous leak: A full-thickness corneal wound lets aqueous humour escape onto the ocular surface.

Step 1 – name the test: Concentrated fluorescein is applied and viewed under cobalt-blue light; leaking aqueous dilutes the dye into a bright green stream through the dark orange film. This is the **Seidel test**.

Step 2 – interpret it: A positive (streaming) Seidel test confirms a corneal perforation or wound leak and mandates urgent repair.

Why the other options are wrong:

- A, Schirmer test: measures tear production, not a wound leak.
- B, Jones dye test: assesses lacrimal drainage patency.
- D, Anel test: is syringing to check the nasolacrimal duct.

Final Answer: Seidel test ⇒ C

Answer: (C) Go Back to Q2

Q3.

Solution

Concept – pinguecula: Chronic sun and dust exposure causes degenerative deposits in the exposed bulbar conjunctiva.

Step 1 – match the description: A small **yellowish, raised deposit on the nasal bulbar conjunctiva near the limbus that does not cross onto the cornea** is a **pinguecula**.

Step 2 – the distinction that matters: A pinguecula stays on the conjunctiva; only when such tissue grows *onto the cornea* is it called a pterygium.

Why the other options are wrong:

- A, pterygium: is a triangular fibrovascular growth encroaching *onto* the cornea.
- C, ligneous (membranous) conjunctivitis: gives firm woody membranes on the tarsal conjunctiva, not a limbal deposit.
- D, concretion: is a tiny hard yellow-white deposit in the *palpebral* conjunctiva.

Final Answer: Pinguecula ⇒ B

Answer: (B) Go Back to Q3

Q4.

Solution

Concept – intraocular lens power calculation: The implanted lens power must be matched to the individual eye to hit the target refraction.

Step 1 – name the measurement: Measuring the **axial length** and the **corneal curvature (keratometry)** to compute intraocular lens power is called **biometry**.

Step 2 – how it is used: These values are entered into a formula (for example SRK/T) to select the lens that leaves the eye near emmetropia.

Why the other options are wrong:

- B, gonioscopy: examines the drainage angle, not lens power.

- C, tonometry: measures intraocular pressure.
- D, pachymetry: measures corneal thickness.

Final Answer: Biometry $\Rightarrow$ A

Answer: (A) Go Back to Q4

Q5.

Solution

Concept – the glaucomatous field defect: Glaucoma damages the arcuate nerve-fibre bundles entering the optic disc.

Step 1 – read the chart: An arc-shaped scotoma sweeping from the blind spot (marked **X**) and stopping abruptly at the nasal horizontal midline is an **arcuate (Bjerrum) scotoma with a nasal step**.

Step 2 – why the nasal step: The upper and lower arcuate bundles respect the horizontal raphe, so unequal damage above and below leaves a step at the nasal horizontal line.

Why the other options are wrong:

- A, central scotoma: is a macular or optic-nerve defect, not the typical early glaucoma pattern.
- C, bitemporal hemianopia: is a chiasmal defect.
- D, homonymous hemianopia: is a retro-chiasmal defect.

Final Answer: Arcuate (Bjerrum) scotoma with a nasal step $\Rightarrow$ B

Answer: (B) Go Back to Q5

Q6.

Solution

Concept – malignant (aqueous misdirection) glaucoma: Aqueous can be diverted backwards into the vitreous, pushing the whole lens-iris diaphragm forward.

Step 1 – read the clues: After filtering surgery, a **uniformly shallow anterior chamber with a raised intraocular pressure** indicates **malignant (aqueous misdirection) glaucoma**.

Step 2 – the key discriminator: It is the combination of a *flat chamber and high pressure* that separates it from the low-pressure causes of a shallow chamber.

Why the other options are wrong:

- B, wound leak: gives a shallow chamber but a *low* pressure with a positive Seidel test.
- C, serous choroidal detachment: also gives a shallow chamber with *low* pressure.
- D, suprachoroidal haemorrhage: is acutely painful with a raised pressure but with dark choroidal mounds, not simple misdirection.

Final Answer: Malignant (aqueous misdirection) glaucoma ⇒ A

Answer: (A) Go Back to Q6

Q7.

Solution

Concept – diabetic macular oedema (DMO): Leaking retinal capillaries let fluid accumulate at the macula, blurring central vision.

Step 1 – choose the treatment: For **centre-involving** DMO the current first-line treatment is an **intravitreal anti-VEGF injection**, which reduces vascular leakage and oedema.

Step 2 – the rationale: Anti-VEGF agents both improve vision and are safer for central vision than focal laser to the fovea.

Why the other options are wrong:

- A, observation alone: allows sight-threatening oedema to persist.
- B, panretinal photocoagulation: treats proliferative disease, and can worsen macular oedema.
- D, scleral buckling: is a treatment for retinal detachment, not macular oedema.

Final Answer: Intravitreal anti-VEGF injection ⇒ C

Answer: (C) Go Back to Q7

Q8.

Solution

Concept – Coats disease: Coats disease is an idiopathic retinal vascular disorder, typically in young boys.

Step 1 – read the fundus: Unilateral dilated tortuous **retinal telangiectasia** with heavy yellowish (lipid) exudation and *no calcification* in a young boy indicates **Coats disease**.

Step 2 – the crucial distinction: The absence of calcification helps separate it from retinoblastoma, which typically calcifies on ultrasound.

Why the other options are wrong:

- A, retinoblastoma: is a calcified intraocular mass, the main differential to exclude.
- B, retinopathy of prematurity: occurs in preterm infants with an oxygen history and is bilateral.
- D, central serous retinopathy: is a self-limiting macular detachment in young adults, without telangiectasia.

Final Answer: Coats disease $\Rightarrow$ $\boxed{\text{C}}$

Answer: (C) Go Back to Q8

Q9.

Solution

Concept – Meyer loop of the optic radiation: The lower fibres of the optic radiation swing forward into the temporal lobe (Meyer loop) and carry the *upper* visual field.

Step 1 – localise the lesion: A lesion of the temporal loop (marked **X**) damages the upper-field fibres, giving a **contralateral superior homonymous quadrantanopia**, the classic 'pie in the sky'.

Step 2 – confirm the pattern: Because it is retro-chiasmal, the defect is homonymous (the same side of the field in both eyes), and it is upper because the lower radiation fibres are affected.

Why the other options are wrong:

- B, inferior quadrantanopia: comes from the *parietal* (upper) radiation fibres.
- C, bitemporal hemianopia: is a chiasmal defect.
- D, bilateral central scotoma: is a macular or optic-nerve problem.

Final Answer: Superior homonymous quadrantanopia ('pie in the sky') ⇒ A

Answer: (A) Go Back to Q9

Q10.

Solution

Concept – optical correction of aphakia: An aphakic eye has lost about +18 to +20 dioptres of lens power that must be replaced.

Step 1 – compare the options: Aphakic spectacles cause large magnification and ring scotomata; a contact lens is better; an **intraocular lens implant** sits at the lens plane and gives the least magnification and distortion, so it is the best correction.

Step 2 – practical point: This is why modern cataract surgery routinely implants an intraocular lens rather than leaving the eye aphakic.

Why the other options are wrong:

- A, aphakic spectacles: give roughly 25–30% magnification, distortion and a ring scotoma.
- B, no correction: leaves a severely hypermetropic, blurred eye.
- C, atropine drops: only dilate the pupil and do not correct the refractive error.

Final Answer: Intraocular lens implant ⇒ D

Answer: (D) Go Back to Q10

Q11.

Solution

Concept – papillitis versus retrobulbar neuritis: Optic neuritis is classed by where along the nerve the inflammation lies.

Step 1 – match the disc appearance: In **retrobulbar neuritis** the inflamed segment is *behind* the eyeball, so the visible disc looks **normal**; hence the saying 'the patient sees nothing and the doctor sees nothing'.

Step 2 – the contrast: In papillitis the inflammation involves the disc head itself, so the disc appears swollen (hyperaemic) with blurred margins.

Why the other options are wrong:

- A, swollen disc with haemorrhages: describes papillitis, not retrobulbar neuritis.
- C, pale atrophic disc: is a *late* consequence (optic atrophy), not the acute retrobulbar picture.
- D, deeply cupped disc: is a feature of glaucoma.

Final Answer: A normal-looking disc $\Rightarrow$ B

Answer: (B) Go Back to Q11

Q12.

Solution

Concept – contents of the cavernous sinus: Some structures run *through* the sinus while others lie in its lateral wall.

Step 1 – name what passes through it: The **internal carotid artery** and the **abducens nerve (VI)** run *within* the cavernous sinus (marked **X**); the oculomotor (III), trochlear (IV), ophthalmic (V1) and maxillary (V2) nerves run in its lateral wall.

Step 2 – clinical link: Because VI lies free in the sinus next to the carotid, cavernous sinus thrombosis often causes an early lateral rectus palsy, alongside proptosis, chemosis and painful ophthalmoplegia.

Why the other options are wrong:

- A, optic nerve: passes through the optic canal, not the cavernous sinus.
- B, facial nerve: runs through the facial canal and stylomastoid foramen.
- C, olfactory nerve: lies at the cribriform plate, far from the sinus.

Final Answer: Abducens nerve (VI) and internal carotid artery $\Rightarrow$ D

Answer: (D) Go Back to Q12

Q13.

Solution

Concept – orbital dermoid cyst: A dermoid is a congenital choristoma that forms where embryonic skin is trapped at a bony suture.

Step 1 – read the clues: A smooth, firm, painless swelling **fixed to bone at the superotemporal orbital margin** (over the frontozygomatic suture), present since birth, is a **dermoid cyst**.

Step 2 – confirm the site: Dermoids characteristically arise at suture lines, most often the superotemporal one, and grow slowly.

Why the other options are wrong:

- A, rhabdomyosarcoma: is a rapidly growing malignant orbital tumour, not a congenital sutural swelling.
- C, capillary haemangioma: is a soft, bluish lesion that enlarges on crying and blanches.
- D, orbital cellulitis: is an acute painful infection with fever and proptosis.

Final Answer: Dermoid cyst $\Rightarrow$ B

Answer: (B) Go Back to Q13

Q14.

Solution

Concept – infantile (congenital) esotropia: A large, constant inward squint appearing in the first six months of life needs early surgery to develop binocularity.

Step 1 – decide the timing: After treating any amblyopia and once the angle is stable, surgery is done **early, before about 2 years of age**, to give the best chance of some binocular (fusional) vision.

Step 2 – the rationale: The visual system is plastic in early childhood; delaying alignment past this window forfeits the chance of binocular single vision.

Why the other options are wrong:

- B, deferring past 12 years: loses the critical period for binocular development.
- C, never operating: leaves a large constant deviation and no binocularity.
- D, plus lenses only: correct accommodative esotropia, but infantile esotropia has little refractive error and needs surgery.

Final Answer: Early surgery, before about 2 years $\Rightarrow$ A

Answer: (A) Go Back to Q14

Q15.

Solution

Concept – acute angle-closure glaucoma emergency: The pressure must be brought down quickly by attacking aqueous production, outflow and volume together.

Step 1 – name the immediate treatment: Give **intravenous acetazolamide** (cuts aqueous production), **topical pilocarpine** (constricts the pupil to open the angle) and a **hyperosmotic agent** such as mannitol or glycerol (draws fluid out of the eye).

Step 2 – the definitive step: Once the pressure falls and the cornea clears, a **laser peripheral iridotomy** relieves the pupillary block definitively.

Why the other options are wrong:

- A, atropine: *dilates* the pupil and worsens angle closure; it is contraindicated.
- B, patching: does nothing to lower the pressure.
- C, steroid ointment alone: does not reduce the raised intraocular pressure.

Final Answer: IV acetazolamide, topical pilocarpine and a hyperosmotic agent $\Rightarrow$ D

Answer: (D) Go Back to Q15

Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	C	2	C	3	B	4	A	5	B
6	A	7	C	8	C	9	A	10	D
11	B	12	D	13	B	14	A	15	D