

1. Cattle track appearance in fundoscopy is due to?

a) CRAO

b) CRVO

c) Retinitis pigmentosa

d) Diabetic retinopathy

Correct Answer - A

CRAO REF: Elsevier Comprehensive Guide, page 628 Common fundoscopy findings:

Condition	Finding
Optic disc coloboma	Morning glory appearance
CRAO	Cattle track appearance
CRVO	Blood and thunder fundus
Chloroquine toxicity	Bull's eye maculopathy
Quinine toxicity	Cherry red spot
Retinitis pigmentosa	Waxy pallor of optic disc
	Bone spicule pigmentation
Congenital syphilis/ Rubella	Salt and pepper fundus
Sickle cell anemia	Rising sun sign

CMV retinitis

AIDS

Mozzarella pizza
fundus

Cotton wool spots

2. Haemorrhagic conjunctivitis is caused by?

a) Enterovirus 70

b) Coxsackie virus

c) Enterovirus 72

d) Calcivirus

Correct Answer - A

Enterovirus 70 REF: Khurana 4th ed p.70

Acute hemorrhagic conjunctivitis is caused by enterovirus 70

3. All of the following are common causes of childhood blindness, EXCEPT:

a) Congenital rubella

b) Toxoplasmosis

c) Ophthalmia neonatorum

d) Congenital dacryocystitis

Correct Answer - D

The common causes of **childhood blindness** that affects the retina are *hereditary dystrophies, retinopathy of immaturity and toxoplasmosis*. Corneal blindness could be due to *vitamin A deficiency, measles and Ophthalmia neonatorum*. *Congenital rubella* affects the lens of the eye. Other congenital conditions and *cortical blindness* can also attribute to blindness in children.

Ref: Pediatric Retina: Medical and Surgical Approaches, Mary Elizabeth Hartnett, M.D., Page: 318

4. Christmas tree cataract is seen in?

a) Diabetes

b) Atopic Dermatitis

c) Myotonic dystrophy

d) Rubella

Correct Answer - C

Presenile cataract occurs in patients with atopic dermatitis (stellate opacities mostly posterior), myotonic dystrophy (christmas tree cataract) and GPUT & GK enzyme deficiency.

Reference:

A K Khurana, 5th Edition, Page 95

5. Which of the following cranial nerve is MOST likely to be damaged in a patient with uncal herniation?

a) Facial

b) Trochlear

c) Abducens

d) Oculomotor

Correct Answer - D

In a patient with ipsilateral expanding intracranial supratentorial mass, there is displacement of the hippocampal gyrus and uncal herniation across the tentorial edge, resulting in entrapment of the third nerve. This can result in Hutchinson's pupil. Hutchinson's pupil occurs in comatose patients with unilaterally dilated poorly reactive pupils.

In the third nerve the pupillomotor fibers run peripherally and are subjected to early damage from compression.

Ref: Textbook of Ophthalmology edited by Sunita Agarwal, page 305.

6. Coloured halos are seen in all, EXCEPT

a) Cataract

b) Angle closure glaucoma

c) Corneal edema

d) Corneal opacity

Correct Answer - D
D i.e. Corneal opacity

7. True about visual testing in a child:

a) Visual evoked potential

b) Teller's acuity card test

c) Perimetry

d) a and b both

Correct Answer - D

A i.e. Visual evoked potential; B i.e. Teller's acuity card test

- The ordinary tests types can not be used with young children who are easily distracted and may not know alphabets. So maturation of infant visual function has been studied by two techniques. - *Pattern visual evoked response/potential (VEP)*Q
- - *Preferential looking behaviour eg Teller or Cardiff acuity card.*Q
- In children *younger than 2 years the VEP tests proves more successful*; in children over two years who can manage both tests the results for VEP conform more nearly to the finding of Snellen & 'E' acuity testing than do the forced choice preferential looking tests results.
- VER/VEP is nothing but the *EEG recorded at the occipital lobe*. It is the only clinically objective technique available to assess the *functional state of the visual system beyond the retinal ganglion cells*. Since there is disproportionately large projection of the macular area in the occipital cortex, the VEP represents the *macula dominated response*.
- Flash VEP is the crudest of tests and merely indicates that light has been perceived by visual cortex. It is *fovea dominated global response* and is relatively *unaffected by opacities in the cornea and lens*. So it is a useful tests to grossly assess the *integrity of the macula or optic nerve* especially in infants, mentally retarded and

aphasic patients. It can distinguish between organic and psychological blindness (eg. malingering).

- Pattern reversal VEP is a *fovea specific response* as it depends on form sense and may give a very *rough estimate of visual acuity*. It is recorded using some patterned stimulus, as in checker board. The essential feature is that while the pattern changes (black squares go white and white becomes black), the overall illumination remains the same.

Visual Acuity Testing In Child In Preverbal Children (1-3 years age)

- Occlusion of one eye
- Fixation test with a prism over the unoccluded eye
- Hundreds & Thousands Sweet test
- Rotation test
- Preferential looking procedures
 - *Teller acuity cards*
 - Cardiff acuity cards
- Visually evoked potential
 - Can represent the visual acuity
 - More commonly used to detect pathology
- Optokinetic Nystagmus
 - Also useful in malingering & unco-operative patients

In Verbal Children (> 2 years age)

At 2 years

- Kay single picture test
- Multiple picture test

At 3 years

- Sheridan-Gardiner test: Overestimates acuity in amblyopia
- Sonksen Silver test More useful in amblyopia

At age 4 years

- Snellen's & LogMAR chart

Others

- E-Test
- Landolt C chart
- STYCAR test (Sight Testing for Young Children And Retarded)
- HOTV test

Others Tests

- Keeler-Elliott test
- Ffooks Symbol test
- Photo stress test
- Particularly useful for macular disorders specially central serous retinopathy

8. Indocyanine Green Angiography (ICG Angiography) is most useful in detecting:

a) Occult Choroidal Neovascularization (Occult CNV)

b) Classic choroidal neovascularization (Classic CNV)

c) Angioid streaks with choroidal Neovascularization (CNV)

d) Polypoidal choroidal vasculopathy

Correct Answer - A

Ans. A i.e. Occult Choroidal Neovascularization (Occult CNV)

Diagnosi & Therapy 6th / 25 Yanoff 3rd / 542, 543] Major uses of ICG (Indocyanine Green) Angiography

- Detect Occult Choroidal Neovascular membranes (occult CNV) or their recurrence post treatment Q. 'The greatest utility of ICG angiography is in the identification and delineation of poorly defined or occult CNV'. - Suspected Retinal Pigment Epithelium Detachments (RPE detachment) Q

Angiography for Choroidal and Retinal Conditions

Criteria	Fluorescein Angiography (FA)	Indocyanine Green Angiography (ICG Angiography)
Primary Use	In the study of Retinal vasculature	In the study of Choroidal Vasculature
Principle	Fluorescein molecule is relatively small. Because of this fluorescein freely crosses the wall of small choroidal vessels and settles in the retinal vessels and	ICG is a larger molecule than fluorescein, and is typically protein bound. Because of this ICG molecules are retained in the choroidal circulation and make ICG

<p>Limitations & Strength</p>	<p>the retinal vessels and some large choroidal vessels. This makes FA primarily a study of the retinal vasculature, Fluorescein Angiography gives limited information on poorly defined lesions in choroidal circulation and Retinal Pigment Epithelium</p> <ul style="list-style-type: none"> - Because some Fluorescein molecules settle only in the large choroidal vessels, poorly defined lesions like occult CNV are not adequately evaluated by ICG angiography - Retinal pigment Epithelium (RPE) detachments are less readily observed on FA 	<p>circulation and make ICG ideal for detecting and evaluating choroidal abnormalities</p> <p>ICG Angiography gives significant information on even poorly defined lesions in choroidal circulation and Retinal Pigment Epithelium</p> <ul style="list-style-type: none"> - 'The greatest utility of ICG angiography is in the identification and delineation of poorly defined or occult CNV'. - Retinal Pigment Epithelium (RPE) detachments are observed more readily on ICG angiography.
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9. Herbert's pits are seen in

a) Trachoma

b) Spring catarrh

c) Phlyctenular conjunctivitis

d) Sarcoidosis

Correct Answer - A
A. i.e. Trachoma

10. Herpetic keratitis is treated by

a) Analgesics

b) Atropine

c) Steroids

d) Idoxuridine

Correct Answer - D

D i.e. Idoxuridine

- Drug of choice for herpetic keratitis is *Acyclovir* Q (topical)
- Other antiviral drugs used are
 - *Idoxuridine*
 - Trifluorothyrnidine
 - Vidarabine

11. Endophthalmitis involves inflammation of all of the following, Except

a) Sclera

b) Uvea

c) Retina

d) Vitreous

Correct Answer - A

A i.e. Sclera

Sclera is not involved in endophthalmitis. Involvement of sclera suggests a more severe inflammation or panophthalmitis.

Endophthalmitis

It is inflammation of one or more coats of the eye and adjacent cavities. Inflammation characteristically involves the inner structures of eye ball i.e. uveal tissue (i.e. iris, ciliary body and choroid) and retina associated with pourine of exudates in the vitreous cavity (vitritis)/ posterior or anterior chamberQ

Sclera is sparedQ

Most clinicians require a vitritis before calling an ocular inflammation (eg corneal ulcer with hypopyon or iritis with aqueous cells) an endophthalmitis.

Topical antibiotics: Commonly used topical antibiotics are fortified cefazolin (5%) or vancomycin (5%) with gentamicin or amikacin (1.3%) 1 hourly, alternating every half hour. Cycloplegia is achieved initially with topical atropine 1 % twice a day substituted by short-acting agents after 3-4 days.-

"Intravitreal antibiotics are the treatment of choice and are injected after taking a 0.2-0.3 ml vitreous aspirate for preparing smears and obtaining cultures. A combination of amikacin (0.4 mg in 0.1 ml) or

gentamicin (0.4 mg in 0.1 ml) and ceftriaxone (2 mg in 0.1 ml) or vancomycin (1.0 mg in 0.1ml) is generally recommended

Vitreotomy: Recovery from bacterial and fungal endophthalmitis is hastened by the removal of infected vitreous (vitrectomy) and the introduction of intravitreal antibiotics."

Panophthalmitis

It is inflammation of all three coats of eyeQ (& adjacent cavities i.e. anterior (aqueous) &/or posterior (vitreous) segments).

Panophthalmitis often starts as an endophthalmitis that then involves the *sclera, tenon's capsuleQ* and may also spread to orbital tissue.

12. The Uveitis associated with vitiligo & auditory defects occurs in

- a) Bechet's syndrome
- b) Steven's Johnson syndrome
- c) Vogt-Koyanagi syndrome
- d) Ankylosing-spondylitis

Correct Answer - C

C i.e. Vogt-Koyanagi Syndrome

It is an idiopathic multisystem *autoimmune disorder against melanocytes causing inflammation of melanocyte containing tissue* (eg uvea, skin, meninges & ear) disorder which typically affects Hispanics, Japanese & pigmented individuals & associated with *HLA-DR4 & Dw 15*

13. Diabetic retinopathy, most likely present with

a) IDDM with 2 years duration

b) NIDDM with 2 years duration

c) Juvenile diabetes

d) Gestational diabetes

Correct Answer - B

B i.e. NIDDM with 2 years duration

- *Diabetic Retinopathy (DR) is commoner in type 1 or IDDM (40%) than in type 2 (NIDDM) diabetes mellitus (20%)*

Duration of diabetes is most important risk factor Q for DR. DR rarely develops within 5 years of the onset of diabetes or before puberty, but about 5% of type 2 (NIDDM) diabetics have DR at presentation.

14. Which enzyme is defective in Refsums disease?

a) Phytanic acid oxidase

b) Succinate thiokinase

c) Malonate dehydrogenase

d) Thiophorase

Correct Answer - A
A. i.e. Phytanic acid oxidase

15. Which of the following antiglaucoma medications can cause drowsiness?

a) Latanoprost

b) Timolol

c) Brimonidine

d) Dorzolamide

Correct Answer - C
C i.e. Brimonidine

16. Treatment of choice in acute congestive glaucoma

a) Pilocarpine

b) Laser iridotomy

c) Timolol

d) Trabeculoplasty

Correct Answer - B

B i.e. Laser iridotomy

In acute congestive glaucoma stage of primary angle closure glaucoma the *fellow eye require prophylactic peripheral iridotomy or surgical iridectomy* Q (as PACG is usually a B/L disease and the fellow eye is in latent, subacute or intermittent stage).

17. Which of the following ATT drugs is associated with visual deterioration

a) INH

b) Rifampicin

c) Capreomycin

d) Ethambutol

Correct Answer - D

D i.e. Ethambutol

- The common agents which lead to toxic amblyopia or chronic retrobulbar neuritis are - *tobacco Q*, *methyl alcohol Q*, ethyl alcohol, lead, arsenic, *quinine Q*, carbon di sulphide, cannabis indica and *ethambutol Q*
- *Ethambutol is contraindicated in children below 6 yearsQ* because young children may be unable to report early visual impairment.
- Ethambutol amblyopia presents with *defective colour vision, reduced visual acuity and central or centrocaecal scotoma* but when optic chiasma is involved a bitemporal hemianopia develops.

18. True statement about dysthyroid eye disease (grave's ophthalmopathy) is

a) Decreased power of divergence

b) Most common cause of U/L proptosis in

c) Extreme exophthalmos is usually seen in hypothyroidism

d) On looking upwards lower lid does not follow eye movements

Correct Answer - C

C. i.e. Extreme exophthalmos is usually seen in hypothyroidism

A mild exophthalmos is associated with *thyrotoxicosis* and an extreme exophthalmos may be associated with *any state of thyroid activity, but usually in hypothyroidism often after thyroidectomy.*Q

Dysthyroid / Graves-Ophthalmopathy or Endocrine / Malignant-Exophthalmos

Etiology	Clinical Features	Treatment
<ul style="list-style-type: none"> Autoimmune in which there is antibody mediated attack on orbital 	<ul style="list-style-type: none"> General (Thyrotoxicosis) SymptomsQ <ul style="list-style-type: none"> - Tiredness - Emotional lability - Heat intolerance Dalrympe's Sign- <i>Retraction of upper eye lid producing Staring & Frightened appearance</i>Q Mn-"D for Dar" Von Graefe's 	<ul style="list-style-type: none"> Ocular <i>Guanethidine</i>Q may decrease lid retraction caused by over.action of <i>muller's muscle</i>Q Systemic

<i>fibroblast</i>	- Weight loss	Sign-	Steroids &
<i>primarily, extraocular</i>	- Excessive appetite - Palpitation	<i>Lid lag i.e on looking downwards</i> (towards Ground) upperlid follows tardily or not at all	Radiotherapy (if steroids not effective) 1000 rad
<i>muscles being</i>	• <i>Signs</i>	Mn-"Graefe-Lid lag on looking Ground"	from each lateral port for reducing
<i>secondarily involved</i>	- <i>Tachycardia (persist during sleep)</i>	• <i>Stellwag's Sign- Infrequent blinking with deficient closure of lids</i>	orbital edema
• <i>Pathology</i>	- Hot, moist palms	Mn-"S for Still"	• Artificial tears &
Mononuclear cell inflammation	- Agitation	• <i>IVRibius Sign-</i>	Lateral tarsorrhaphy to prevent exposure
with presence of mucopolysacchri muscles	- Thyroid goiter & bruit - Myopathy of proximal muscles	<i>Decreased power of convergence</i> Mn- "M for On looking Medially"	keratopathy
des	• Stages of development of	• <i>Enroth's Sign-</i>	• Prismatic glasses for
predominantly	cardiac arrhythmias	Fullness of eyelids d/1 puffy Edematous swelling	diplopia
hyaluronic acid	- <i>Tachycardia which persist during sleep</i>	Mn- "E for Edematous lid"	• Orbital decompression
together with Interstitial edema			

interstitial edema	(characteristic)Q	• Gifford's Sign-	decompression
& inflammatory	- Multiple extra systole	Difficulty in eversion of upper lid	When steroid & RT
cells	- Paroxysmal atrial	• Exophthalmos (Proptosis)	have proved
	tachycardia	• Weakness of extraocular muscles particularly	ineffective two wall
	- Paroxysmal atrial	elevators (<i>inferior oblique</i>)Q causing	(orbital floor & diplopia
	fibrillation	• Conjunctival injection over insertion of recti	medial wall
	- Persistent atrial fibrillation not responding to digoxin	• Increased intra ocular pressure	removed)
		• Superior limbic keratopathy	decompression is done

- 28) Grade 4 Extraocular muscle involvement Q (limitation of movement & diplopia) Grade 5 Corneal involvement (exposure keratitis) Grade 6 Loss of Sight (d/t optic nerve involvement with disc pallor or papilloedema & visual field defect) "
- v:shapes="_x0000_s1026">Graves ophthalmopathy is *most common cause of U/L or B/L proptosis in adults between age of 25-50 years*Q
- Werner Classification reflect severity of ophthalmopathy and is well known by acronym of NO SPECS.
 - Grade 0 - No signs or symptoms
 - Grade 1 - *Only signs (lid retraction with or without lid lag Q & mild proptosis)*
 - Grade 2 - Soft tissue involvement (chemosis, grit, lacrimation, photophobia, lid or conjunctival swelling)
 - Grade 3 *Proptosis Q (minimal*28)
 - Grade 4 *Extraocular muscle involvement Q (limitation of*

movement & diplopia)

Grade 5 Corneal involvement (exposure keratitis)

Grade 6 Loss of Sight (d/t optic nerve involvement with disc pallor or papilloedema & visual field defect)

19. All of the following are characteristics of the image formed on indirect ophthalmoscopy except that it is:

a) Virtual

b) Inverted

c) Magnified

d) Formed between the convex lens and the observer

Correct Answer - A
Ans. Virtual

20. Snellen's chart is used to test:

a) Vision

b) Refraction

c) Presbyopia

d) Colour blindness

Correct Answer - A
Ans. Vision

21. Image formed by a prism is

a) Virtual, erect and displaced towards its apex

b) Real, erect and displaced towards its base

c) Real, inverted and displaced towards its apex

d) Virtual, inverted and displaced towards its base

Correct Answer - A

Ans. Virtual, erect and displaced towards its apex

22. Jack in box scotoma is seen after correction of Aphakia by:

a) IOL

b) Spectacles

c) Contact Lens

d) None

Correct Answer - B
Ans. Spectacles

23. Giant papillary conjunctivitis occurs as an allergic response to all except:

a) Contact lens

b) Intraocular lens

c) Prosthesis

d) Nylon sutures

Correct Answer - B
Ans. Intraocular lens

24. The colour of fluorescein staining in corneal ulcer is:

a) Yellow

b) Blue

c) Royal blue

d) Green

Correct Answer - D

Ans. Green

Florescein dye (in fluorescein angiography) --> used for retinal vasculatures (retina)

o Florescein stain --> used to stain cornea.

25. Corneal epithelium is composed of:

a) Stratified keratinized epithelium

b) Stratified non-keratinized epithelium

c) Columnar epithelium

d) Pseudostratified epithelium

Correct Answer - B

Ans. Stratified non-keratinized epithelium

26. One of the most common complication of iridocyclitis is:

a) Scleritis

b) Secondary glaucoma

c) Band-shaped keratopathy

d) Corneal ulcer

Correct Answer - B
Ans. Secondary glaucoma

27. Complete unilateral congenital cataract should preferably be operated:

a) Within a few weeks of birth

b) At the age of 6 months

c) At the age of 2 years

d) At the age of 5 years

Correct Answer - A
Ans. Within a few weeks of birth

28. Most common complication of extracapsular cataract surgery is:

a) Retinal detachment

b) Opacification of posterior capsule

c) Vitreous haemorrhage

d) Bullous keratopathy

Correct Answer - B

Ans. Opacification of posterior capsule

Opacification of the posterior capsule caused by proliferation of cells in capsular bag remains the most frequent complication of ECCE and IOL surgery.

29. Eale's disease is:

a) Retinal hemorrhage

b) Vitreous hemorrhage

c) Conjunctival hemorrhage

d) Choroidal hemorrhage

Correct Answer - B

Ans. Vitreous hemorrhage

Eale's disease is an idiopathic inflammatory venous occlusion that primarily affects the peripheral retina of young adult (20-30 yrs) male.

30. Macular scar is formed in which of the following diseases:

a) Papillitis

b) Hypertension

c) Neuroretinitis

d) All of the above

Correct Answer - D
Ans. All of the above

31. Grid laser photocoagulation is indicated in:

a) Ischaemic maculopathy

b) Clinical significant macular oedema

c) Macular hole

d) Proliferative diabetes retinopathy

Correct Answer - B

Ans. Clinical significant macular oedema

32. Bull's eye lesion seen with:

a) Chloroquine

b) Dapsone

c) Rifampicin

d) Ethambutol

Correct Answer - A
Ans. Chloroquine

33. All of the following signs could result from infection within the right cavernous sinus, except:

a) Loss of pupillary light reflex

b) Loss of corneal blink reflex

c) Ptosis

d) Right ophthalmoplegia

Correct Answer - B
Ans. Loss of corneal blink reflex

34. Hutchinson's triad of congenital syphilis includes all of the following except

a) Eighth nerve deafness

b) Interstitial keratitis

c) Hutchinson's teeth

d) Saddle nose

Correct Answer - D
Ans. D. Saddle nose

35. Which of the following is the most common ocular complication with renal transplantation:

a) Cataract

b) Glaucoma

c) Cytomegalo virus retinitis

d) Candida keratomycosis

Correct Answer - C
Ans. Cytomegalo virus retinitis

36. Commonest cause of blindness in India:

a) Vitamin A deficiency

b) Cataract

c) Trauma

d) Trachoma

Correct Answer - A
Ans. Vitamin A deficiency

37. Depth of anterior chamber of the eye: *March 2007*

a) 2-3 mm

b) 3-4 mm

c) 4-5 mm

d) 5-6 mm

Correct Answer - A

Ans. A: 2-3 mm

The human eye is like two spheres combined, a smaller, sharper curved one and a larger lesser curved sphere. The former, the anterior segment is the front sixth of the eye that includes the structures in front of the vitreous humour: the cornea, iris, ciliary body, and lens.

Within the anterior segment are two fluid-filled spaces:

- The anterior chamber between the posterior surface of the cornea (i.e. the corneal endothelium) and the iris. The depth of anterior chamber of eye is 2.5 mm. It is shallow in the very young and the deep.
- The posterior chamber between the iris and the front face of the vitreous.

Aqueous humor fills these spaces within the anterior segment and provides nutrients to the surrounding structures.

The posterior segment is the back five-sixths of the eye that includes the anterior hyaloid membrane and all of the optical structures behind it: the vitreous humor, retina, choroid, and optic nerve.

The radii of the anterior and posterior sections are 8 mm and 12 mm, respectively. The point of junction is called the limbus. On the other side of the lens is the second humour, the aqueous humour,

which is bounded on all sides: by the lens, ciliary body, suspensory ligaments and by the retina. It lets light through without refraction, helps maintain the shape of the eye and suspends the delicate lens.

38. Rosette shaped cataract in

a) Senile cataract

b) Diabetic cataract

c) Traumatic cataract

d) After cataract

Correct Answer - C

Ans. C: Traumatic cataract

Rosette Cataract:

This opacity may occur as a result of concussion injury, under the anterior or posterior cortex or both and may be complete or sectored with a flower peddle or feather shape.

A very close estimation as to when the injury occurred by viewing the lens with an optic section and determining at which nucleus it appears.

39. Roth spots are commonly seen in:
March 2013

a) Papilledema

b) Sepsis

c) Diabetes

d) Hypertension

Correct Answer - B
Ans. B i.e. Sepsis

40. Visual acuity is: *March 2012*

a) Refractive power of eye

b) Dividing denominator with distance at which the letters can be read on Snellen chart

c) Ability to increase converging power of eye

d) Ability to discriminate 2 points

Correct Answer - D

Ans: D i.e. Ability to discriminate 2 points

Some common terms

- Refractory power/ optical power is the ability of eye to bend light as it passes through the eye
- The minimum angle of resolution (MAR) is arrived at by dividing the denominator by the distance at which the letters were read
- The necessary increase in convergence power of eye is (accomplished by augmenting the refractive power of the crystalline lens by increasing the curvature of its surface) by the phenomenon of accommodation.
- Visual acuity is a measure of the spatial resolution of the eye or, in other words, an estimation of its ability to discriminate between 2 points

41. In cavernous sinus thrombosis, first nerve to be affected is:

September 2012

a) 6th

b) 5th

c) 4th

d) 3rd

Correct Answer - A

Ans. A i.e. 6th

42. Pizza pie appearance is seen in ?

a) Toxoplasmosis

b) Congenital rubella

c) Drug toxicity

d) CMV retinitis

Correct Answer - D

Ans. is 'd' i.e., CMV retinitis

Fundus changes in CMV retinitis

. Crumbled cheese and ketchup appearance (sauce and cheese appearance) - Pizza pie appearance

. Brush fire appearance

43. Selective alpha 2 agoinst used in glaucoma ?

a) Tirriolol

b) Epinephrine

c) Dipivefrine

d) Brimonidine

Correct Answer - D
Ans. is 'd' i.e., Brimonidine

44. Corneal curvature measured by ?

a) Keratometry

b) Pachymetry

c) Gonioscopy

d) Perimetry

Correct Answer - A

Ans. is 'a' i.e., Keratometry

The 'Keratometry' or 'ophthalmometry' is an objective method of estimating the corneal astigmatism by measuring the curvature of central cornea.

Gonioscopy - Biomicroscopic examination of the angle of anterior chamber.

Perimetry - Procedure of estimating the extent of visual fields.

Tonography - Non - invasive technique for determining the facility of aqueous outflow (C - value).

45. Purely depolarizing cells in optic pathway ?

a) Amacrine cells

b) Rods & cones

c) Bipolar cells

d) Horizontal cells

Correct Answer - A

Ans. is 'a' i.e., Amacrine cells

The responses of the rods, cones and horizontal cells are hyperpolarizing.

Bipolar cells may show either hyperpolarization or depolarization.

All these cells develop only graded local potentials, i.e., nonpropagated, decremental, does not follow all or none law. These cells do not develop action potential.

The only cell which develops propagated action potential is ganglion cells and the response is always depolarizing. Otherwise, they remains in inactive state.

Amacrine cells produce depolarizing potential and spikes.

Rods and cones release glutamate at their synapses with the bipolar cells.

Amacrine cells secrete at least eight types of transmitter substances, including GABA, glycine, dopamine, acetylcholine and indolamine, all of which normally function as inhibitory neurotransmitters.

The transmitters of the bipolar cells and horizontal cells are unclear.

46. Sclera thinnest at ?

a) Limbus

b) Equator

c) Anterior to attachment of superior rectus

d) Posterior to attachment of superior rectus

Correct Answer - D

Ans. is 'd' i.e., Posterior to attachment of superior rectus

The sclera is commonly known as "*the white of the eye*". Sclera is the tough, opaque tissue which forms the posterior five-sixth opaque part of the external fibrous tunic of eye ball (anterior one sixth is occupied by cornea). Anteriorly it is continuous with cornea and the ring where the two areas (sclera and cornea) join is called the limbus, i.e., limbus is sclerocorneal junction. Inner surface of sclera lies in contact with choroid with a potential suprachoroidal space in between. The sclera is a tough structure which protect the eyeball and maintains its shape. It also serves as an attachment for many extroocular muscles.

The thickness of the sclera varies according to location : ?

1. At the limbus, the sclera is 0.8 mm thick.
2. Anterior to the rectus muscle insertions, it is 0.6 mm thick.
3. *Posterior to the rectus muscle insertions, it is 0.3 mm thick (Thinnest portion).*
4. At the equator, it is 0.5 to 0.8 mm thick.
5. *At the posterior pole, it is greatest than 1 mm thick.*

47. Lower lid surgery in which plication of the lower lid retractors is done is called ?

a) Quickert

b) Jones

c) Weiss

d) Modified wheelers

Correct Answer - B

Ans. is 'b' i.e., Jones

Jones, Rech And Wobig Operation

- It is performed for severe cases or recurrent cases of entropion.
- In this operation the inferior lid retractors are straightened by tucking or plication procedure.

48. Purtscher retinopathy is seen in patients with ?

a) Complication of chronic pancreatitis

b) Occlusion of anterior retinal artery

c) Head trauma

d) Diabetes mellitus

Correct Answer - C

Ans. is 'c' i.e., Head trauma

Purtscher retinopathy

- Occurrence of bilateral patches of retinal whitening and hemorrhage around the optic disc in patients who suffered massive head trauma was first described by Purtscher and is called Purtscher retinopathy.

49. All are features of optic nerve injury except ?

a) Decreased acuity

b) Decreased colour vision

c) RAPD

d) Intact contrast sensitivity

Correct Answer - D

Ans. is 'd' i.e., Intact contrast sensitivity

Signs of optic nerve damage are as follows:

- *Visual acuity* is usually reduced markedly.
- *Colour vision* is often severely impaired.
- *Pupil* shows ill-sustained constriction to light.
- Marcus Gunn pupil which indicates relative afferent pupillary defect (RAPD) is a diagnostic sign. It is detected by the swinging flash light test.
- *Visual field changes*. The most common field defect in optic neuritis is a relative central or centrocaecal scotoma.
- *Contrast sensitivity* is impaired.
- *Visually evoked response* (VER) shows reduced amplitude and delay in the transmission time.

50. Amaurotic cat's eye reflex is a presenting feature of ?

a) Retinoblastoma

b) Congenital cataract

c) Endophthalmitis

d) Coat's disease

Correct Answer - A

Ans. is 'a' i.e., Retinoblastoma

Leukocoria or amaurotic cat's eye reflex is the most common manifestation of retinoblastoma. The leukocoria or the white glow in the pupil is caused by reflection of light from the white intraocular tumor

Note- Leukocoria is seen in all the given options. But, term `amaurotic cat eye reflex' is usually used for retinoblastoma.

Retinoblastoma is the most important cause of leukocoria (white pupillary reflex). Other causes of leukocoria are :-

Conditions causing leukocoria (Pseudoglioma)

- *Hereditary conditions* :- Norrie's disease, congenital retinoschisis, Incontinentia pigmenti, dominant exudative vitreoretinopathy.
- *Developmental* :- Persistent hyperplastic primary vitreous (PHPV), congenital cataract, cloboma, retinal dysplasia, congenital retinal fold, myelinated nerve fibres, morning glory syndrome, congenital corneal opacity.
- *Inflammatory* :- Ocular toxocariasis, congenital toxoplasmosis, congenital CMV retinitis, HSV retinitis, Peripheral uveoretinitis, endophthalmitis, orbital cellulitis.
- *Tumors* :- Retinal astrocytic hamartoma, Medulloepithelioma, Glioneuroma, Choroidal hemangioma, Leukemia. *Miscellaneous* :-

Coat's disease, Retinopathy of prematurity (Retrolental fibroplasia), Rheugmatogenous RD, Vitreous hemorrhage, perforating ocular injury.

51. Corneal endothelium seen by ?

a) Pachymeter

b) Keratometer

c) Tonometer

d) Slit lamp bio-microscope

Correct Answer - D

Ans. is 'd' i.e., Slit lamp bio-microscope

Corneal Endothelium:

- It consists of single layer of polygonal (mainly hexagonal cells).
- They are visualized by slit lamp bio-microscope and appear like mosaic.
- The cell density is 3000 cells/ mm² in young adults and decreases with age.
- These cells contain active pump mechanism.

Note: Confocal microscope can be used to study all layers of retina.

52. Iris bombe is seen in patients with ?

a) Segmental posterior synechiae

b) Annular posterior synechiae

c) Total posterior synechiae

d) None of the above

Correct Answer - B

Ans. is 'b' i.e., Annular posterior synechiae

Synechiae in iridocyclitis

The exudates poured out by the iris and ciliary body cover the surface of iris as thin film and spread into the pupillary area. This is called plastic iridocyclitis. Due to these exudates, iris sticks to the lens capsule and becomes fixed. Such firm adhesions of the pupillary margin to the lens is called posterior synechiae. Depending upon the portion of iris involved, posterior synechiae may be :-

- i. Segmental posterior synechiae :- Adhesion of pupillary margin to the lens at some points (segmental). Dilatation of pupil with segmental posterior synechiae causes the intervening portions of the circle of the pupil to dilate. Festooned appearance
- i. Ring synechiae (Annular posterior synechiae):- The whole circle (360°) of the pupillary margin becomes tied down to the lens capsule. The aqueous is unable to pass into anterior chamber from the posterior chamber and collects behind the iris, which becomes bowed forwards like a sail, a condition which is called *iris bombe*. Ring synechiae is also called *seclusio pupillae* as there is occlusion of flow of aqueous from posterior to anterior chamber. The *anterior chamber* from the front is seen to be *funnel - shaped*, deepest in the centre and shallowest at the periphery.
- i. Total posterior synechiae :- Total posterior surface of iris become

adherent to the lens capsule. This results in *deepening of anterior chamber*.

- When iris becomes adherent to cornea, it is called anterior synechiae.

53. Laser capsulotomy is treatment of choice for ?

a) POAG

b) Phacolytic glaucoma

c) Posterior capsular after cataract

d) Closed angle glaucoma

Correct Answer - C

Ans. is 'c' i.e., Posterior capsular after cataract

Thin membranous after cataract and thickened posterior capsule are best treated by YAG-laser capsulotomy or discission with cystitome or Zeigler's knife.

54. Drug used in refractory glaucoma ?

a) Systemic glucocorticoid

b) ACE inhibitor

c) Alpha agonist

d) Beta blocker

Correct Answer - C

Ans. is 'c' i.e., Alpha agonist

Drug of choice for initial treatment of open angle glaucoma is either an topical β -blocker or topical PG analogue (latanoprost)

If target IOT is not attained either change over to alternative drug or use both concurrently.

In refractory cases (who are not responding to β -blockers and PG analogues), topical α -agonist (Brimonidine) or topical carbonic anhydrase inhibitor (dorzolamide) is added.

If target IOT is still not attained, laser trabeculoplasty is considered.

55. Earliest symptom of thyroid ophthalmopathy ?

a) Proptosis

b) Lid retraction

c) Ophthalmoplegia

d) Diplopia

Correct Answer - B

Ans. is 'b' i.e., Lid retraction

Thyroid ophthalmopathy

- Thyroid ophthalmopathy, also called *thyroid orbitopathy*, is a disease of the orbit seen in *Graves disease (thyrotoxicosis)*, therefore also called Graves ophthalmopathy. However it may also occur rarely in *Euthyroid person, primary hyperthyroidism and Hashimoto's thyroiditis*. Thyroid ophthalmopathy is characterized by enlargement of ocular fat and enlargement of extraocular muscles due to deposition of mucopolysaccharides.
- Clinical features are :-
- *The most common and earliest symptom is upper eyelid retraction.*
- Exophthalmos (Proptosis) Proptosis is the second most common symptom. Thyroid ophthalmopathy is the most common cause of proptosis, whether unilateral or bilateral in adults. Proptosis may be :-
- .. *Mild exophthalmos* :- In hyperthyroidism (thyrotoxicosis, Graves disease)
- ?. *Extreme exophthalmos* :- In hypothyroidism
- Restrictive extraocular myopathy :- Enlargement of extraocular muscle *without enlargement of tendon is the hallmark of thyroid ophthalmopathy*. This distribution of extraocular muscle swelling is

typical of thyroid ophthalmopathy. The extraocular muscles involvement in order of decreasing frequency is : Inferior rectus (most commonly involved) > Medial rectus > Superior rectus > Lateral rectus > obliques. It is worth noting that this is restrictive myopathy and the muscle becomes thickened & scarred with deviation of eye towards the direction of action of muscle and there is restriction of movement in the direction opposite to the action of the involved muscle, though the opposite muscle is normal. For example in medial rectus involvement eye may be deviated medial and abduction will be restricted though the lateral rectus is normal.

- External ophthalmoplegia :- Thyroid ophthalmopathy can cause vertical diplopia due to paralysis of vertical acting muscles like inferior oblique.

56. Disciform herpetic keratitis involves ?

a) Epithelium

b) Descmet membrane

c) Endothelium

d) Basment membrane

Correct Answer - C

Ans. is 'c' i.e., Endothelium

Herpetic Keratitis

Most of the ocular infection are caused by HSV-1 except in neonates where eye infection can be caused by HSV2 through infected genitalia of mother. Ocular involvement by HSV may occur in two forms : ?

A) Primary herpes : - Typically is a *unilateral* blepharoconjunctivitis which is characterized by vesicles on the skin of lids, *follicular conjunctivitis*, preauriculars adenopathy and sometimes punctate keratitis.

B) Recurrent ocular herpes : - After primary infection, recurrent disease may involve any or all layers of the cornea.

Recurrent herpetic keratitis is divided into : ?

1) Epithelial keratitis : - Manifestations of epithelial keratitis include :-

- i. *Corneal vesicles* : - Vesicles coalesce and erupt to form dendritic or geographic ulcer.
- i. *Superficial punctate keratitis*
- i. **Dendritic ulcer**: - It is the most common presentation and is a **typical lesion of herpes keratitis. There is an associated marked diminution of sensation.**
- i. **Geographic ulcer (amoeboid ulcer)**

2) Stromal keratitis : - Stromal keratitis may be of two types : -

- i. *Disciform keratitis* : - This is due to *damage to endothelial cells* as a result of hypersensitivity reaction to the HSV antigen.
- i. *Diffuse stromal necrotic keratitis* : - Caused by active viral invasion and tissue destruction.

3) Metaherpatic keratitis (Epithelial sterile trophic ulceration) : -

It is not an active disease, but is a mechanical healing problem at the site of previous herpetic ulcer.

57. Simultaneous perception in binocular vision is ?

a) Grade I

b) Grade II

c) Grade III

d) Grade IV

Correct Answer - A

Ans. is 'a' i.e., Grade I

Grades of binocular single vision

There are three grades of binocular single vision, which are best tested with the help of a synoptophore.

1. Grade-I - Simultaneous perception

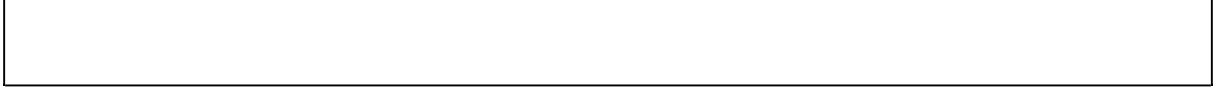
- It is the power to see two dissimilar objects simultaneously.
- It is tested by projecting two dissimilar objects (which can be joined or superimposed to form a complete picture) in front of the two eyes.
- For example, when a picture of a bird is projected onto the right eye and that of a cage onto the left eye, an individual with presence of simultaneous perception will see the bird in the cage.

2. Grade-II-Fusion

- It consists of the power to superimpose two incomplete but similar images to form one complete image.
- The ability of the subject to continue to see one complete picture when his eyes are made to converge or diverge a few degrees, gives the positive and negative fusion range, respectively.

3. Grade-III - Stereopsis

- It consists of the ability to perceive the third dimension (depth perception).
- It can be tested with stereopsis slides in synoptophore.



58. 2nd Purkinje image is ?

- a) Erect and moves in same direction
- b) Inverted and moves in same direction
- c) Erect and moves in opposite direction
- d) Inverted and moves in opposite direction

Correct Answer - A

Ans. is 'a' i.e., Erect and moves in same direction

1st from anterior surfac: of cornea --> Erect and moves in same direction.

2nd from posterior surface of cornea --> Erect and moves in same direction.

3rd from anterior surface of lens --> Erect and move in same direction.

4th from posterior surface of lens --> Inverted and moves in opposite direction

59. Refractive index of vitreous humor ?

a) 1

b) 1-30

c) 14

d) 1.336

Correct Answer - D
Ans. is 'd' i.e., 1.336

60. Following are the causes of painless sudden onset of loss of vision except ?

a) Acute congestive glaucoma

b) Vitreous hemorrhage

c) CRAO

d) Central serous retinopathy

Correct Answer - A

Ans. is 'a' i.e., Acute congestive glaucoma

Acute congestive glaucoma causes sudden painful loss of vision.

61. Confocal scanning laser ophthalmoscope uses ?

a) Infrared laser

b) Diode laser

c) Excimerlaser

d) YAG laser

Correct Answer - B

Ans. is 'b' i.e., Diode laser

Confocal scanning laser ophthalmoscope

- It is an instrument using confocal laser system to provide and analyse three dimensional image of the optic nerve head, peripapillary retina, and macular region.
- It uses a 670 nm diode laser and measures the amount of light reflected from a series of 16 - 64 sections in depth and reconstructs them to show the anatomy of the optic nerve head and reconstruct the anatomy of the retinal nerve fiber layer.

62. Distichiasis is ?

a) Abnormal inversion of eyelashes

b) Abnormal extra row of cilia

c) Abnormal eversion of eyelashes

d) Misdirected cilia

Correct Answer - B

Ans. is 'b' i.e., Abnormal extra row of eye lashes

Eyelash abnormalities are as follows:

1. *Trichiasis i.e.*, misdirected cilia rubbing the eyeball. Common causes are trachoma, blepharitis, styne and lid trauma
2. *Distichiasis i.e.*, an abnormal extra row of cilia taking place of meibomian glands.
3. *Madarosis i.e.*, absence of cilia may be seen in patients with chronic blepharitis, leprosy and myxoedema.
4. *Poliosis i.e.*, greying of cilia is seen in old age and also in patients with Vogt-Koyanagi- Harada's disease.

63. DOC in acute anterior uveitis is ?

a) Atropine

b) Topical steroid

c) Systemic steroid

d) NSAID

Correct Answer - B

Ans. is 'b' i.e., Topical steroid

Anterior uveitis (Iridocyclitis) --> Topical corticosteroids

64. Which of the following is an ocular emergency ?

a) CRAO

b) Optic neuritis

c) Acute congestive glaucoma

d) All of the above

Correct Answer - D

Ans. is 'd' i.e., All of the above

Ocular emergencies include those conditions that result in acute, severe pain in association with sudden vision loss, or that may lead to vision loss if left untreated; and traumatic conditions that affect globe or adnexa.

Comon ophthalmic emergencies are :-

- i. *Acute congestive glaucoma*
- i. Ruptured globe
- i. Ulcerative or traumatic corneal diseases
- r. *Optic neuritis*
- r. Hyphema
- i. *Endophthalmitis*
- i. Acute blindness
- i. Orbital cellulitis
- c. Eyelid or conjunctival laceration
- c. *Central retinal arterial occlusion (CRAG)*
- i. Anterior lens subluxation
- i. Retinal detachment

65. Aqueous flow is increased by ?

a) Timolol

b) Latanoprost

c) Atropine

d) Dorzolamide

Correct Answer - B
Ans. is 'b' i.e., Latanoprost

66. Patient presents with whitish crusting at base of eyelashes with itching. What is the patient suffering from?

a) Blepharitis

b) Trichiasis

c) Districhiasis

d) Ectropion

Correct Answer - A

Ans. is 'a' i.e., Blepharitis

Complains of whitish deposition at the base of eye lashes with crusting suggests that the patient is suffering from infection of eyelid margin - blepharitis.

BLEPHARITIS

- It is a subacute or chronic inflammation of the lid margins. It is an extremely common disease which can be divided into following clinical types:
- Seborrhoeic or squamous blepharitis,
- Staphylococcal or ulcerative blepharitis,
- Mixed staphylococcal with seborrhoeic blepharitis, or Posterior blepharitis or meibomitis, and
- Parasitic blepharitis.

Seborrhoeic or squamous blepharitis

Etiology

- It is usually associated with seborrhoea of scalp (dandruff).
- In it, glands of Zeis secrete abnormal excessive neutral lipids which are split by *Corynebacterium* acne into irritating free fatty acids.

Symptoms

- Patients usually complain of deposition of whitish material at the lid margin associated with mild discomfort, irritation, occasional watering and a history of falling of eyelashes.

Signs

- Accumulation of white dandruff-like scales are seen on the lid margin, among the lashes.
- On removing these scales underlying surface is found to be hyperaemic (no ulcers).
- The lashes fall out easily but are usually replaced quickly without distortion.
- In long-standing cases lid margin is thickened and the sharp posterior border tends to be rounded leading to epiphora.

Treatment

- *General measures* include improvement of health and balanced diet. Associated *seborrhoea of the scalp* should be adequately treated.
- *Local measures* include removal of scales from the lid margin with the help of lukewarm solution of 3 percent soda bicarb or baby shampoo and frequent application of combined antibiotic and steroid eye ointment at the lid margin.

67. What is irregular astigmatism ?

- a) Perpendicular principal meridians
- b) Non perpendicular principal meridians
- c) Any of the above
- d) None of the above

Correct Answer - B

Ans. is 'b' i.e., Non perpendicular principal meridians

ASTIGMATISM

- Astigmatism is a type of refractive error wherein the refraction varies in the different meridians. Consequently, the rays of light entering in the eye cannot converge to a point focus but form focal lines. The refractive error of the astigmatic eye stems from a difference in degree of curvature refraction of the two different meridians (i.e., the eye has different focal point in different planes). For example, the image may be clearly focused on retina in the horizontal plane, but not in the vertical plane.
- The most common cause of astigmatism is abnormality of corneal curvature. Other less common causes are *lenticular* (curvature abnormality of lens, oblique position of lens) and retinal (oblique placement of macula).

Types of astigmatism

A) Based on axis of the principal meridians

1) *Regular stigmatism* : Principal meridians are perpendicular

- With-the-rule astigmatism-the vertical meridian is steepest.
- Against-the-rule astigmatism-the horizontal meridian is steepest.
- Oblique astigmatism-the steepest curve lies in between 120 and 150 degrees and 30 and 60 degrees.

2) *Irregular astigmatism* - principal meridians are not perpendicular.

B) Based on focus of the principal meridians

b) Based on focus of the principal meridians

1) *Simple astigmatism*

- Simple hyperopic astigmatism - first focal line is on retina while the second is located behind the retina
- Simple myopic astigmatism - first focal line is in front of the retina while the second is on the retina.

2) *Compound astigmatism*

- Compound hyperopic astigmatism-both focal lines are located behind the retina.
- Compound myopic astigmatism-both focal lines are located in front of the retina.

3) *Mixed astigmatism*-focal lines are on both sides of the retina (straddling the retina).

Treatment of Astigmatism

- Treatment of astigmatism consists : -
 - i. *Optical treatment* : - It consists of *cylindrical power spectacles* or *contact lens*. Types of contact lenses used are *permeable contact lens*, *Soft toric contact lens* (for high degree astigmatism), hybrid lens, i.e., soft on hard lens, hard contact lens.
 - i. *Surgical treatment* : - Non-laser (astigmatic keratotomy) or laser (PRK, LASIK).

68. Burns involving the eyelid leads to formation of ?

a) Spastic ectropion

b) Mechanical ectropion

c) Cicatricialectropion

d) None of the above

Correct Answer - C

Ans. is 'c' i.e., Cicatricial ectropion

ECTROPION

- Out rolling or outward turning of the lid margin is called ectropion.
- **Types**
- *Senile ectropion*. It is the commonest variety and involves only the lower lids. It occurs due to senile laxity of the tissues of the lids and loss of tone of the orbicularis muscle.
- *Cicatricial ectropion*. It occurs due to scarring of the skin and can involve both the lids. Common causes of skin scarring are: thermal burns, chemical burns, lacerating injuries and skin ulcers.
- *Paralytic ectropion*. It results due to paralysis of the seventh nerve. It mainly occurs in the lower lids. Common causes of facial nerve palsy are: Bell's palsy, head injury and infections of the middle ear.
- *Mechanical ectropion*. It occurs in conditions where either the lower lid is pulled down (as in tumours) or pushed out and down (as in proptosis and marked chemosis of the conjunctiva).
- *Spastic ectropion*. It is a rare entity, seen in children and young adults following spasm of the orbicularis, where lids are well supported by the globe.

69. Stye is other name of ?

a) Chalazion

b) Hordeolum internum

c) Hordeolum externum

d) None of the above

Correct Answer - C

Ans. is 'c' i.e., Hordeolum externum

70. Corneal complications of contact lens use ?

a) Acanthamoeba keratitis

b) Corneal infiltrate

c) Corneal vascularization

d) All of the above

Correct Answer - D

Ans. is 'd' i.e., All of the above

Advantages of contact lens

- Contact lens has several advantages over spectacles :-
 - i. *Retain binocularity in Anisometropia* owing to less magnification of size of retinal image.
 - i. Irregular astigmatism can be corrected.
 - i. No peripheral distortion as it moves with eye and there is normal field of vision.
 - i. Not subjected to moistening.
 - i. Several varieties of contact lens can aid in *treatment of dry eye*. Hard contact lens may stimulate reflex tearing and also prevent evaporation of tear .
 - i. *Cosmetically superior*.
 - i. Tinted contact lenses relieve photophobia in albinism.

Disadvantages of contact lens

- Complications of contact lens wearing are : ?
 - i. *Intolerance* : - Some people find wearing contact lenses intolerable.
 - i. *Corneal complications* : - Corneal abrasion, Corneal edema, Corneal vascularization, Microbial keratitis (*Pseudomonas*, *acanthamoeba*), Sterile corneal infiltrate.
 - i. *Giant papillary conjunctivitis*.

1. *Hypoxia* : - Cornea is deprived of oxygen from the tear film by the presence of the contact lens. The *cornea becomes edematous and new vessels may develop in the limbal area.*
1. *Sensitivity* : - This may develop in response to the preservative (thiomersal) in the cleaning and soaking solution. This results in allergic conjunctivitis.

71. Following is not a variety of entropion ?

a) Pathological

b) Spastic

c) Cicatrix

d) Involutional

Correct Answer - A

Ans. is 'a' i.e., Pathological

Entropion refers to inward rolling or rotation of the lid margins towards the globe.

1. Senile entropion
2. Spastic entropion
3. Cicatrix entropion
4. Congenital entropion

72. Schirmer's test detects abnormality of which nerve?

a) Oculomotor

b) Facial

c) Hypoglossal

d) All

Correct Answer - B

Ans. is 'b' i.e., Facial

Schirmer's test is used for the production of tear by lacrimal glands.

- Preganglion secretory fibers for lacrimal gland arise from lacrimatory nucleus and pass through facial nerve, then to its greater petrosal branch. Greater petrosal nerve unites with deep petrosal nerve to form nerve to pterygoid canal to reach pterygopalatine ganglion. Post ganglionic fibres supply lacrimal gland.
- Thus, lesion in any structure of this pathway will have positive Schirmer's test.

73. Granular keratic precipitates are made of ?

a) Epitheliod cells

b) Macrophages

c) Lymphocytes

d) RBC

Correct Answer - C
Ans. is 'c' i.e., Lymphocytes

74. Oldest lens fibres are found in ?

a) Capsule

b) Cortex

c) Cortex

d) Nucleus

Correct Answer - D

Ans. is 'd' i.e., Nucleus

Anatomy of crystalline lens

- There are three structural elements that make up lens ?
 - 1) Lens capsule
- A transparent membrane surrounding the lens like a pocket. It is thicker over the anterior surface than the posterior surface. It is thickest at pre- equator region and thinnest at the posterior pole. When an artificial lens replaces the natural lens in cataract surgery (IOL implantation), it is placed in this same capsule.
 - 2) Lens epithelium
- It is a single layer *on the anterior (front) surface of the lens. There is no epithelium on posterior surface.* The epithelial cells distribute fluid, ion and glucose through the entire lens. They also create new fibers throughout a person's life.
 - 3) Lens fibres
- These are long protein fibers that are closely packed and parallel. They make up most of the lens volume and are laid horizontally, front to back, and concentrically like layers of an onion. As the lens fibres are formed throughout the life, these are arranged compactly as nucleus and cortex of the lens.
 - a) Nucleus : - It is the central part containing the oldest fibres. it consists of different zones :-

- i. *Embryonic nucleus* :- Formed at *1-3 months of gestation*, therefore consists the *oldest primary fibres*.
- i. *Fetal nucleus* :- Lies around the embryonic nucleus and is formed from *3 months of gestation till birth*.
- i. *Infantile nucleus* :- Corresponding the lens *from birth to puberty* and surrounds the fetal nucleus.
- i. *Adults* :- Corresponds to the lens fibres formed *after puberty to rest of the life*.
 - b) *Cortex* :- It is *the peripheral part containing the youngest fibres*.
- The ciliary zonules (Zonules of zinn or suspensory ligaments of lens) hold the lens in position and enable the ciliary muscle to act on it. These consist essentially of a series of fibres which run from the ciliary body and fuse into the outer layer of the lens capsule around the equatorial zone.

75. A sign of Aphakia ?

a) Shallow anterior chamber

b) White pupillary reflex

c) Absent 1st & 2nd Purkinje images

d) Iridodonesis

Correct Answer - D

Ans. is 'd' i.e., Iridodonesis

Aphakia

- Aphakia refers to *absence of crystalline lens from the eye.*
- *Most common cause of aphakia is surgical removal of cataractous lens.*
- Other causes are congenital absence of lens, traumatic absorption of lens matter and posterior dislocation of lens.
- The typical signs of aphakia are deep anterior chamber, iridodonesis (tremulousness of iris) and a dark pupillary reflex.
- Only 1st and 2nd Purkinje images are present, 3rd and 4th are absent.
- As the lens is not there, eye become *highly hypermetropic.*
- Therefore, principle of treatment is to correct the error by *convex lenses* of appropriate power.
- Intraocular lens implantation in posterior chamber is the treatment of choice.
- Other treatment modalities are *spectacles* and contact lenses.

76. Iris pearl are seen in ?

a) Leprosy

b) Tuberculosis

c) Sarcoidosis

d) Cat Scratch disease

Correct Answer - A

Ans. is 'a' i.e., Leprosy

LEPROTIC UVEITIS

- It predominantly involves anterior uvea; more commonly in lepromatous than in the tuberculoid form of disease.
- Clinical types***
- Lepromatous uveitis may occur as acute iritis (non-granulomatous) or chronic iritis (granulomatous).
 - .. *Acute iritis* : It is caused by antigen-antibody deposition and is characterised by severe exudative reaction.
 - ?. *Chronic granulomatous iritis* : It occurs due to direct organismal invasion and is characterised by presence of small glistening 'iris pearls' near the pupillary margin in a necklace form; small pearls enlarge and coalesce to form large pearls. Rarely, a nodular lepromata may be seen.
 - *Treatment* : Besides usual local therapy of iridocyclitis antileprotic treatment with Dapsone 50-100 mg daily or other drugs should also be instituted.

77. Ring scotoma is seen in

a) High myopia

b) Pseudophakia

c) Hypermetropia

d) Astigmatism

Correct Answer - A

Ans. is 'a' i.e., High myopia

Scotoma is a defect in the visual field and corresponds to the degenerated zones of retina.

Annular or ring-shaped scotomas is a typical feature which corresponds to the degenerated equatorial zone of retina.

Ring scotoma is seen in *retinitis pigmentosa*, *high myopia*, *POAG_S* aphakic spectacle correction and after panretinal photocoagulation.

78. Most common cause of cortical blindness ?

a) Unilateral occipital lobe infarction

b) Bilateral temporal lobe infarction

c) Bilateral occipital lobe infarction

d) Unilateral temporal lobe infarction

Correct Answer - C

Ans. is 'c' i.e., Bilateral occipital lobe infarction

CORTICAL BLINDNESS

- Cortical blindness (visual cortex disease) is produced by bilateral occipital lobe lesions. Unilateral occipital lobe lesions typically produce contralateral macular sparing congruous homonymous hemianopia.
- Causes of cortical blindness include:
 1. *Vascular lesions producing bilateral occipital infarction are the commonest cause of cortical blindness (e.g., embolisation of posterior cerebral arteries).*
 2. *Head injury involving bilateral occipital lobes is the second common cause.*
 3. *Tumours, primary (e.g., falcotentorial meningiomas, bilateral gliomas) or metastatic are rare causes.*
 4. *Other rare causes of cortical blindness are migraine, hypoxic encephalopathy, Schilder's disease and other leukodystrophies.*

79. Patient of exudative retinopathy of coats presents with leukocoria, needs to be differentiated from ?

a) Retinoblastoma

b) Retinitis pigmentosa

c) Retinal detachment

d) Congenital cataract

Correct Answer - A

Ans. is 'a' i.e., Retinoblastoma

EXUDATIVE RETINOPATHY OF COATS

- Coats' disease is a severe form of retinal telangiectasia (idiopathic congenital vascular malformation), which typically affects one eye of boys in their first decade of life.
- In early stages it is characterised by large areas of intra and subretinal yellowish exudates and haemorrhages associated with overlying dilated and tortuous retinal blood vessels and a number of small aneurysms near the posterior pole and around the disc.
- It may present with visual loss, strabismus or leukocoria (whitish pupillary reflex) and thus needs to be differentiated from retinoblastoma. The condition usually progresses to produce exudative retinal detachment and a retrolental mass.
- In late stages complicated cataract, uveitis and secondary glaucoma occur, which eventually end in phthisis bulbi.

Treatment

- Photocoagulation or cryotherapy may check progression of the disease if applied in the early stage. However, once the retina is detached the treatment becomes increasingly difficult and success

rate declines to 33 percent.

80. Ectopia lentis is seen in all except ?

a) Marfan syndrome

b) EDS

c) Trauma

d) Osteogenesis imperfecta

Correct Answer - D

Ans. is 'd' i.e., Osteogenesis imperfecta

81. True about phlyctenular conjunctivitis are all, except?

a) Endogenous allergy

b) Caused by staphylococcus

c) Type II hypersensitivity

d) Usually unilateral

Correct Answer - C

Ans. is 'c' Type II hypersensitivity

Phlyctenular keratoconjunctivitis

- Phlyctenular conjunctivitis is an allergic response of the conjunctival and corneal epithelium to some endogenous allergens and characterized by formation of the phlyctens. Phlyctens are *grey, yellow or pinkish white nodules* slightly raised above the surface, are seen on the bulbar conjunctiva, *generally near the limbus*. Peak age group is 3-15 years with slight female preponderance.

Etiology

- It is believed to be a delayed hypersensitivity (Type IV cell mediated) response to endogenous microbial proteins. Causative allergens are : - i) Staphylococcus proteins (most common); ii) Tuberculous proteins iii) *Proteins of Moraxella axenfeld bacillus and certain parasites.*

Symptoms

- Disease is usually *unilateral* (in contrast to vernal keratoconjunctivitis which is bilateral). There is mild irritation, discomfort and lacrimation. Itching is not prominent as seen in vernal keratoconjunctivitis.
- Phlyctens are pinkish white nodules at limbus. Phlyctens are surrounded by hyperamia (congestion) and this congestion of vessels is limited to the area around phlyctens. Phlyctens ulcerate at

apex.

- *Corneal involvement* may result in *miliary ulcer, ring ulcer, fascicular ulcer or sacrofulous ulcer*. There may be *diffuse infiltrative phlyctenular keratitis*.

Treatment

- Topical steroids are the DOC.

82. Pupil in acute congestive glaucoma ?

a) Round & constricted

b) Vertically oval & semidilated

c) Round & dilated

d) Pin point

Correct Answer - B

Ans. is 'b' i.e., Vertically oval & semidilated

Clinical features of acute congestive glaucoma

A) Symptoms : Sudden onset of very severe pain in the eye which radiates along the branches of 5th nerve and is frequently associated with nausea, vomiting and prostrations. Patient develops rapidly progressive loss of vision, redness, photophobia, and lacrimation. Coloured halos are seen.

B) Signs :

- Lid edema
- Conjunctiva is chemosed and congested (both conjunctival & ciliary vessels are congested).
- Cornea is oedematous and insensitive.
- Anterior chamber is very shallow & with aqueous flare
- Angle of anterior chamber is closed (on gonioscopy)
- Iris is discoloured
- Pupil is semidilated, vertically oval and fixed. It is non reactive to both light and accommodation.
- IOP is markedly raised (40-70 mmHg)
- Optic disc is oedematous & hyperemic
- Fellow eye shows shallow anterior chamber and a narrow angle.

83. Not true about retinoblastoma ?

a) Bilateral in 20-30%

b) Affects age group 1-5 years

c) More common in males

d) Leukocoria is earliest symptom

Correct Answer - C

Ans. is 'c' More common in males

Retinoblastoma is the most common intraocular tumor in children.

The tumor is confined to *infancy and very young children (1-2 years)*. There is *no sex predisposition*. Retinoblastoma is unilateral in 70-75% of cases and bilateral in 25-30% of cases.

84. Initial treatment of buphthalmos is ?

a) Laser trabeculolasty

b) Goniotomy

c) Topical pilocarpine

d) Carbonic anhydrase inhibitors

Correct Answer - B

Ans. is 'b' i.e., Goniotomy

Treatment of congenital glaucoma

Unlike adult glaucoma. the initial treatment for congenital glaucoma is often surgical. A *drainage angle surgery* is often recommended for congenital glaucoma.

- **Surgical procedures used are :-**
 - i. *Goniotomy*
 - i. Trabeculotomy -+ can be performed with corneal clouding
 - i. Trabeculcctomy
 - i. Combined trabeculotomy and trabeculectomy
- Medications are not very effective. However, IOP is lowered by use of hyperosmotic agents, acetazolamide and beta- blockers till surgery is taken up. Miotics are of no use.

85. Which of the following is/ are the side effect/ s of using argon laser ?

a) Hypopigmentation

b) Crusting

c) Keloid formation

d) All the above

Correct Answer - D

Ans. is 'd' i.e., All the above

Argon Laser

- Wavelength 488 - 514 nm
- Penetration depth of 1 mm, which can be increased by cooling
- Side effects: crusting and possible blistering of skin, irreversible hypopigmentation, transient hyperpigmentation, punctate atrophic or hypertrophic scars, keloid formation.

86. Axial length of eye ball is measured by ?

a) A mode Ultrasonography

b) B mode Ultrasonography

c) M mode Ultrasonography

d) Both a and b

Correct Answer - A

Ans. is 'a' i.e., A mode Ultrasonography

Ultrasonography in Ophthalmology

A Mode

- Transducer is coupled directly to the eye through the use of methyl cellulose.
- Recording are done in a graphic mode. Height of the recorded spike on vertical axis is a measure of the amplitude of the echo, the position of the spike along the horizontal axis indicates the arrival of the echo on the transducer.
- Diagnosis is based on the basis of amplitude, position, extent and movement of the abnormal echoes alongwith the sound attenuating properties of the abnormality.
- It has a special role in biometry i.e. axial length which is very essential for surgical planning. B mode
- The transducer is coupled to the eye by either the gel applied to the closed lid or by a saline bath
- Is is a display of two - dimensional cross sectional images.
- The echoes in B scan are displayed as spots and the brightness of echoes indicates its amplitude.

87. Power of reduced eye is ?

a) 55 D

b) 60 D

c) 65 D

d) 70 D

Correct Answer - B

Ans. is b' i.e., 60 D

Reduced eye (Reduced schematic eye)

- In schematic model, the optical system of eye behaves like a combination of lenses.
- The reduced schematic eye treats the eye as if it were a single refracting element consisting of an ideal spherical surface separating two media of refractive indices of 1.00 (air in external environment) and 1.33 (eye as a whole).
- So, in reduced eye, the entire system (of eye) can be regarded as one lens with one optical centre which lies in the posterior part of crystalline lens.
- *The dioptric power of reduced eye is + 60D, of which + 44D is contributed by cornea and + 16D by the crystalline lens.*
- Reduced eye concept was introduced by Listing, therefore, it is also referred to as Listing's reduced eye.

88. Cherry red spot is seen in the following except ?

a) Hunter syndrome

b) Hallervordenspatz disease

c) Goldberg's disease

d) Multiple aromatase deficiency

Correct Answer - D

Ans. is `d' i.e., Multiple aromatase deficiency

89. Vision not affected in ?

a) Papilloedema

b) Keratitis

c) Optic neuritis

d) Retinoblastoma

Correct Answer - A

Ans. is 'a' i.e., Papilloedema

Visual acuity and pupillary reactions usually remain fairly normal until late stages when optic atrophy sets. Even then, there is gradually progressive painless loss of vision.

Papilloedema

The terms papilloedema and disc oedema look alike and per se mean swelling of the optic disc. Ocular features of Papilloedema:

i) *Early (incipient) papilloedema*

- *Symptoms* are usually absent and visual acuity is normal.
- ii) *Established (fully developed) papilloedema*
- *Symptoms* Patient may give history of transient visual obscurations in one or both eyes, lasting a few seconds, after standing. Visual acuity is usually normal.

90. Maddox rod test is used for testing ?

a) Macular function

b) Lens opacity

c) Amount of tear production

d) Vitreous hemorrhage

Correct Answer - A

Ans. is 'a' i.e., Macular function

These tests are:

1. Simple macular function tests
2. Two point discrimination test (Cardboard test)
3. Maddox rod test
4. Coloured light test
5. Modified photostress test
6. Entoptic view test
7. Amsler grid test

91. A patient presents with freckling in axilla and inguinal area since childhood; which of the following is not an ophthalmological examination finding in such a patient?

a) Optic nerve glioma

b) Lisch nodules

c) Choroidal nevi

d) Aniridia

Correct Answer - D

Ans. is 'd i.e., Aniridia

Axillary and inguinal freckling is a feature of neurofibromatosis type - 1.

92. Enophthalmos is seen in ?

a) Blow out fracture of orbit wall

b) Hyperthyroidism

c) Radiation Injuries

d) Diabetes mellitus

Correct Answer - A

Ans. is 'a' i.e., Blow out fracture of orbit wall

Enophthalmos is seen in blow out fracture of orbit wall.

93. Rosette shaped cataract is seen in ?

a) Congenital rubella

b) Blunt trauma to eye

c) Wilson's disease

d) Diabetes mellitus

Correct Answer - B

Ans. is 'b' i.e., Blunt trauma to eye

Vossius ring on anterior surface of lens, Rosette shaped cataract.

94. Intraocular calcification in eye in child ?

a) Toxocara

b) Retinoblastoma

c) Angiomatosis retinae

d) Malignant melanoma of choroid

Correct Answer - B

Ans. is 'b' i.e., Retinoblastoma

- In retinoblastoma, there are areas of necrosis and calcification.
- In the presence of calcification, endophytic retinoblastoma gives the typical 'cottage cheese' appearance.

95. Children with apathy, general weakness, loosening of skin, marasmic features also has X3 B xerophthalmia features. Eye finding will be ?

a) Corneal ulcer with thickening

b) Corneal ulcer with full thickness

c) Hyperemia

d) Conjunctival xerosis

Correct Answer - B

Ans. is 'b' i.e., Corneal ulcer with full thickness

X3A Corneal ulceration/keratomalacia affecting less than one-third corneal surface.

X3B Corneal ulceration/keratomalacia affecting more than one-third corneal surface. XS Corneal scar due to xerophthalmia XF

Xerophthalmic fundus.

96. Superior orbital fissure syndrome - following nerves are affected ?

a) C.N. 1, 2, 4, 6

b) C.N. 2, 3, 4, 6

c) C.N. 3, 4, 5, 6

d) C.N. 1, 2, 3, 4, 5

Correct Answer - C

Ans. is 'c' i.e., C.N. 3, 4, 5, 6

The superior orbital fissure is a cleft between the lesser and greater wing of sphenoid. The structures passed through *superior orbital fissure* are *3rd, 4th, 6th nerve, ophthalmic division of 5th nerve, superior & inferior division of ophthalmic vein and sympathetic fibres.*

97. Phthisisbulbi means ?

a) Developmental hypoplasia of optic cup

b) Final end stage of chronic scleritis

c) Final end stage of chronic uveitis

d) All of the above

Correct Answer - C

Ans. is 'c' i.e., Final end stage of chronic uveitis

Phthisis bulbi

It is the final stage end result of any form of chronic uveitis. In this condition ciliary body is disorganised and so aqueous production is hampered. As a result of it the eye becomes soft, shrinks and eventually becomes a small atrophic globe (phthisis bulbi).

Intraocular tension is reduced due to decreased aqueous formation. Histopathologically, the globe is small and shrunken with marked thickening of the sclera, as well as disorganization and atrophy of much of the intraocular contents. Commonly the retinal pigmented epithelium may undergo a metaplasia leading to intraocular ossification (calcification) in the end- stage of phthisis bulbi.

98. 40 years male with spherophakia is at risk for developing ?

a) Phacolytic glaucoma

b) Phacoanaphylactic glaucoma

c) Phacomorphic glaucoma

d) None of the above

Correct Answer - C

Ans. is 'c' i.e., Phacomorphic glaucoma

Phacomorphic glaucoma is an acute secondary angle-closure glaucoma caused by :

1. *Intumescent lens i.e., swollen cataractous lens due to rapid maturation of cataract or sometimes following traumatic rupture of capsule is the main cause of phacomorphic glaucoma.*
2. *Anterior subluxation or dislocation of the lens*
3. *Spherophakia (congenital small spherical lens)*

99. Papilledema - 1st clinical sign is ?

a) Bulging of disc

b) Hyperemia of disc

c) Myopia

d) Obscuration of disc margins

Correct Answer - D

Ans. is 'd' i.e., Obscuration of disc margins

Ophthalmoscopic signs of papilloedema

- *Blurring of disc margin (first sign)*
- *Venous :- Engorgment, congestion, loss of pulsation*
- Hyperemia of the disc with capillary dilatation.
- *Filling of physiological cup with gradual obliteration of physiological cup.*
- *Gradual elevation of disc (mushroom or dome shaped) with sharp bending of vessels over its margins.*
- Cotton- wool spots (soft exudates) and both flame shaped (superficial) and punctate (deep) hemorrhages
- Macular fan or macular star due to hard exudates.
- Late findings in long standing (vintage) papilloedema :- Markedly elevated disc with champagne cork appearance, post neuritic optic atrophy, corpora amylacea deposits on disc margin, generalized retinal pigmentation.

100. Probing and irrigation is not done in ?

a) Lacrimal fistula

b) Acute dacryocystitis

c) Congenital dacryocystitis

d) Trauma to eye

Correct Answer - B

Ans. is 'b' i.e., Acute Dacryocystitis

Contraindications to probing and irrigation:

- The main contraindications are *acute* dacryocystitis and acute canaliculitis.
- In the setting of active infection, probing and irrigation is more likely to cause trauma because the lacrimal sac wall is inflamed and friable; it also can cause unnecessary pain and anxiety for the patient.

101. What happens to corneal endothelium after injury ?

a) Slowly regenerates

b) Never regenerates

c) Regenerates rapidly

d) Forms a scar

Correct Answer - C

Ans. is 'c' i.e., Regenerates rapidly

The cell density of endothelium is around 3000 cells/mm² in young adults, which decreases with the advancing age.

There is a considerable functional reserve for the endothelium.

Therefore owing to the high functional reserve and good metabolic activity of the endothelial layer, regeneration occurs rapidly after injury.

Therefore, corneal decompensation occurs only after more than 75 percent of the cells are lost.

102. Amaurosis fugax is ?

a) Transient blindness

b) Unilateral nystagmus

c) Depupillary reflex

d) Bilateral strabismus

Correct Answer - A

Ans. is 'a' i.e., Transient blindness

Amaurosis fugax

- Sudden, temporary and painless monocular visual loss occurring due to a transient failure of retinal circulation.
- Causes : Carotid transient ischaemic attacks (TIA), embolization of retinal circulation, papilloedema, giant cell arteritis, Raynaud's disease, migraine, as a prodromal symptom of central retinal artery or carotid artery occlusion, hypertensive retinopathy, and venous stasis retinopathy.
- Symptom : An attack of amaurosis fugax is typically described by the patients as a curtain that descends from above or ascends from below to occupy the upper or lower halves of their visual fields.
- Clinical Signs : The attack lasts for two to five minutes and resolves in the reverse pattern of progression, leaving no residual deficit. Due to brief duration of the attack, it is rarely possible to observe the fundus. When observed shortly after an attack, the fundus may either be normal or reveal signs of retinal ischemia such as retinal oedema and small superficial haemorrhages. In some cases, retinal emboli in the form of white plugs (fibrin-platelet aggregates) may be seen.

103. Vernal keratoconjunctivitis is associated with ?

a) Corneal opacity

b) Bacterial ulcer

c) Spring season

d) Glaucoma

Correct Answer - A

Ans. is 'a' i.e., Corneal opacity

Vernal kerato conjunctivitis (spring catarrah)

- Spring catarrah is an *allergic inflammation* of conjunctiva which is characterized by *recurrent, bilateral, interstitial, selflimiting* conjunctivitis that becomes *aggravated during spring and summer period*.
 - It is considered to be Type I hypersensitivity reaction (immediate type) to *exogenous allergens* such as grass pollens.
 - It is more common in boys and affects age group 4-20 years.
 - *More common in summer*, hence the name spring catarrah looks a misnomer.
 - Recently it is being labeled as "*Warm weather conjunctivitis*".
- Clinical features of spring catarrah**
- Spring catarrah is characterized by marked itching & burning, Stringy (ropy) discharge, lacrimation, photo-phobia and heaviness of lids.
 - Clinically spring catarrah is divided into three types : ?
- i. *Palpebral form* : - It is the *most common types*. The *upper palpebral conjunctiva* shows papillae (papillary hypertrophy with their characteristic appearance : - i) Large & flat topped, ii) Cobble stone appearance (Pavement stone appearance). These papilla heal without scarring.

- i. *Bulbar form* : - It is characterized by (i) Dusky red triangular congestion of bulbar conjunctiva in palpebral area; ii) Gelatinous thickened accumulation of tissue around the limbus; iii) Presence of discrete whitish raised dots along the limbus (Tranta's spot).
- i. *Mixed form* : - Both bulbar and palpebral manifestations occur together.

Corneal signs (Vernal keratopathy)

- *Punctate epithelial keratitis*
- *Ulcerative vernal keratitis : shallow transverse ulcer (Shield ulcer)*
- *Vernal corneal plaques*
- *Subepithelial scarring*
- *Pseudogerontoxon: characterized by a classical "cupid's bow" outline.*

104. Keratometer is used for ?

a) Corneal thickness

b) Corneal diameter

c) Corneal curvature

d) Distance between cornea and pupil

Correct Answer - C

Ans. is 'c' i.e., Corneal curvature

105. A patient has complaint of seeing coloured haloes in the evening and blurring of vision for last few days with normal 10P ?

a) Prodromal phase of acute angle closure glaucoma

b) Acute angle closure glaucoma

c) Chronic glaucoma

d) Epidemic dropsy

Correct Answer - A

Ans. is 'a' i.e., Prodromal phase of acute angle closure glaucoma

Features of latent PACG (Prodromal stage) are :?

- i. Shallow anterior chamber
- i. *Occasionally complain of halos around light*
- i. Sometimes slight-haziness or blurring of vision
- i. Normal 10P
- It is the only phase of glaucoma, where IOP pressure is normal at all the time. Whereas in incipient stage, there is recurrent elevation of IOP by predisposing factors like dim light.

106. All of the following are side effects of topical pilocarpine solution except?

a) Accomodative spasm

b) Miosis

c) Blurred vision

d) Follicular conjunctivitis

Correct Answer - D

Ans. is 'd' i.e., Follicular conjunctivitis

107. Golden period of eye donation ?

a) 6 hours

b) 12 hours

c) 18 hours

d) 24 hours

Correct Answer - A

Ans. is 'a' i.e., 6 hours

"Donor corneas are harvested from cadaveric donors within 6 hours after death, sometimes up to 12 hours after death in countries with cold climates".

108. Tear drops formed by all except ?

a) Glands of Manz

b) Meibomian, Zeis and Moll glands

c) Lacrimal glands

d) Lacrimal puncta

Correct Answer - D

Ans. is 'd' i.e., Lacrimal puncta

The major function of lacrimal apparatus is to secrete and drain the tear. Tear film consists of 3 layers :?

- i. *Mucous or mucin layer (innermost)*:- Secreted by conjunctival goblet cells, crypts of Henle, glands of Manz.
- i. *Aqueous layer (intermediate)* :- This forms the bulk of the tear. It is secreted by main lacrimal and accessory lacrimal glands.
- i. *Lipid layer (outermost)* :- Secreted by the Meibomian Zeis, and Moll glands.

109. Following is a feature of papilloedema ?

a) Shrinkage of blind spot

b) Blurring of disc margin

c) Low vision

d) Loss of pupillary reflex

Correct Answer - B

Ans. is 'b' i.e., Blurring of disc margin

Blurring of disc margin is earliest sign. Vision is normal initially. In 25% of patients visual symptoms occur only in *advanced severe papilloedema*, when optic atrophy sets in. Typically, there is recurring brief episodes (transient) of visual obscurations (*Amaurosis fugax*) lasting less than 30 seconds, in which vision turns grey or blacks, sometimes described as if a veil has fallen over the eyes. The symptoms usually affect both eyes at once as papilloedema is bilateral. Central vision is affected late in the disease. Initially there is *enlargement of blind spot* and progressive contraction of the visual field (visual field becomes smaller). Complete blindness sets in eventually. Thus, characteristically there is gradually progressive painless loss of vision.

110. Child with mild squint. Intrauterine, birth history, developmental history till date all normal. Corneal reflex normal. All other eye parameters normal except exaggerated epicanthal fold. Diagnosis ?

a) Pseudostrabismus

b) Accomodative squint

c) Exophoria

d) Esophoria

Correct Answer - A

Ans. is 'a' i.e., Pseudostrabismus

Epicanthic fold causes Pseudoesotropia (Pseudostrabismus).

111. Most common cause of proptosis in adults is ?

a) Orbital cellulitis

b) Thyroid Ophthalmopathy

c) Carotico - cavernous fistula

d) Trauma

Correct Answer - B

Ans. is 'b' i.e., Thyroid Ophthalmopathy

- *The most common cause of unilateral proptosis in children is orbital cellulitis.*
- *The most common cause of unilateral proptosis in adults is thyroid ophthalmopathy.*

112. Most common type of congenital cataract ?

a) Punctate cataract

b) Nuclear cataract

c) Zonular cataract

d) Lamellar cataract

Correct Answer - A

Ans. is 'a' i.e., Punctate cataract

Congenital cataract

- Among the many morphological types, the following are common :?
 - 1) Punctate cataract
- This is the most common manifestation and, in minute degree, is almost universal in occurrence. When the small opaque spots are multiple and scattered all over the lens, appearing as tiny blue dots, they are known as *cataracta coerulea* or *blue-dot cataract*. When crowded in the Y- sutures, the terms *sutural cataract* and *anterior axial embryonic cataract* have been used. Another variant is a cataract with a central spheroidal or biconvex opacity consisting of powdery fine white dots within the embryonic or foetal nucleus, called *cataracta centralis pulverulenta*.
- 2) Zonular cataract (lamellar cataract)
- *This accounts for approximately 50% of all visually significant congenital cataracts. A zone around the embryonic nucleus (usually in the area of the foetal nucleus) becomes opacified. The area of the lens within and around the opaque zone is clear, although linear opacities like spokes of a wheel (riders) may run outwards towards the equator. Lack of Vitamin D is apparently a potent factor and evidence of rickets may be found in affected children.*

Hypoparathyroidism during pregnancy may also cause this type of cataract

3) Fusiform cataract (Spindle- shaped/ axial/ coralliform)

- There is an anteroposterior spindle-shaped opacity with offshoots giving an appearance resembling a *coral*.

4) Nuclear cataract

- It is due to disturbance in development at a very early stage, therefore, the central nucleus remains opaque --> *Embryonic nuclear cataract*. It may be associated with rubella (German measles) in mother.

5) Coronary cataract

- It occurs around puberty and appears as a *corona of club shaped opacities* in the periphery of the lens.

6) Anterior capsular (polar) cataract

- It involves the central part of the anterior capsule and the adjoining superficial most cortex. It may be either due to (i) Developmental delay in formation of anterior chamber (ii) Acquired due to corneal perforation (as in penetrating injury or *ophthalmia neonatorum*). It may be of following types:?

i. *Thickened white plaque*

i. *Anterior pyramidal cataract* Cone shaped opacity with apex towards cornea.

i. *Reduplicate (double) cataract*:- A transparent zone between two opacities (one on capsule and other in cortex). The buried opacity is called *imprint* and the two together constitute reduplicate cataract.

7) Posterior capsular (polar) cataract

- This is due to persistence of the posterior part of the vascular sheath of the lens.

113. Accommodation is due to ?

a) Relaxation of ciliary muscles

b) Contraction of ciliary muscles

c) Contraction of dilator pupillae

d) None

Correct Answer - B

Ans. is 'b' i.e., Contraction of ciliary muscles

Accommodation

- Accommodation of the eye refers to the act of physiologically adjusting crystalline lens elements to alter the refractive power and bring objects that are closer to the eye into sharp focus.
- Our eyes have been provided with a unique mechanism by which we can even focus the diverging rays coming from a near object on the retina in a bid to see clearly.
- This mechanism is the accommodation.
- *In accommodation there occurs increase in the power of crystalline lens due to increase in the curvature of its surfaces.*
- Accommodation is due to contraction of ciliary muscles.
- Near point and far point are related to accommodation
- .. The near point is the closest distance between an object and eye that makes possible the formed image to be focused, i.e., it is the point in which accommodation is maximum (ciliary muscles are maximally contracted).
- 2. Far point is the most distant point from the eye in which an object can be placed and its image is still focused, i.e., it is the situation of maximum relaxation of ciliary muscles.
- 3. *In myopia near point and far point of vision come closer and in hypermetropic near point becomes more distant.*

- Anomalies of accommodation are : (i) *Presbyopia*, (ii) *Insufficiency of accommodation*, (iii) *Spasm of accommodation*, (iv) *Paralysis of accommodation*.

114. All are true about NPCB in india except ?

a) 100% centrally sponsored scheme

b) Believes in the concept of mobile surgery camps

c) Aims at uniform distribution of services

d) Aims at shifting from conventional surgery to IOL

Correct Answer - B

Ans. is 'b' i.e., Believes in the concept of mobile surgical camps
NPCB does not promote the concept of mobile surgery camps.

- NPCB (National Programme for control of blindness) was launched in the year 1976.
- It is a 100% centrally sponsored scheme.
- **Aims at strengthening services for :**
- Corneal blindness (requiring transplantation)
- Refractive errors in school going children
- Improving follow up of cataract operated persons.
- Treating glaucoma.
- **Also concentrates :**
- To shift the eye camp approach to a fixed facility approach (NOT support mobile surgery camps).
- From conventional surgery to IOL.
- To enhance the coverage of eye care services in tribal and under - served areas.

Thus it aims at uniform distribution of eye care facilities.

115. All of the following are true about iris except ?

a) When iris is ruptured, it moves to one quadrant.

b) When iris is ruptured it continues to function except in the altered segment

c) Rupture at the root of the iris produces a D -shaped pupil

d) Even in presence of iris sphincter injury, pupillary reactions can be evaluated

Correct Answer - A

Ans. is 'a' i.e., When iris is ruptured, it moves to one quadrant

Facts about iris:

- The pupillary reactions may be evaluated even in the presence of iris atrophy, traumatic rupture of the sphincter, and congenital or surgical coloboma.
- Tears of the iris usually affects the pupil margin and involve the iris sphincter muscle causing traumatic mydriasis.
- Sphincter tears may be single or multiple and appear as triangular notches of the pupil margin.
- Tears may also involve the iris root at the junction with the ciliary body and, if large, such iridodialysis produces a characteristic D - shaped pupil.
- When the iris spincter is severed or ruptured it continues to function except in the altered segment, rather than retracting to one quadrant.

116. Which of the following material is used in hard IOL?

a) PMMA

b) Silicon

c) Hydrogel

d) Acrylic

Correct Answer - A

Ans. is 'a' i.e., PMMA

Depending on the material of manufacturing, following types of IOLs are there :-

i) Rigid IOLs :- Made entirely from polymethyl methacrylate (PMMA)

ii) Foldable IOLs :- Are used after phacoemulsification and are made of silicon, acrylic, hydrogel and collamer.

iii) Rollable IOLs :- Ultra thin IOLs and are used after phakemix technique (micro- incision : 1mm). These are made of *hydrogel*

117. Laser capsulotomy is done for ?

a) Pseudophakic bullous keratopathy

b) After cataract

c) Cystoid macular edema

d) Retinal detachment

Correct Answer - B

Ans. is 'b' i.e., After cataract

Thin membranous after cataract and thickened posterior capsule are best treated by YAG-laser capsulotomy or discission with cystitome or Zeigler's knife.

118. Dalen fuchs nodules ?

a) Sympathetic Ophthalmitis

b) Chronic iridocyclitis

c) Neurofibromatosis

d) Trachoma

Correct Answer - A

Ans. is 'a' i.e., Sympathetic Ophthalmitis

Dalen fuch's nodules are seen in sympathetic ophthalmitis.

Dalen-Fuchs' nodules are formed due to proliferation of the pigment epithelium (of the iris, ciliary body and choroid) associated with invasion by the lymphocytes and epitheloid cells. Retina shows perivascular cellular infiltration (sympathetic perivasculitis).

119. Acute angle closure glaucoma first line treatment?

a) Iv mannitol

b) Acetazolamide

c) Pilocarpine

d) Beta blocker eyedrops

Correct Answer - A

Ans. is 'a' i.e., I.V. Mannitol

Treatment of angle closure glaucoma

- Definitive treatment (treatment of choice) is surgery. However, initially drugs are used to decrease KW during an acute attack. Approach of treatment is as follows:-
- Start i.v. mannitol or i.v. acetazolamide
- When IOT starts falling, start topical pilocarpine or β -blocker (timolol).
- Apraclonidine/latanoprost may be added.
- Once IOT is reduced, surgery is done.
- Topical pilocarpine 2% is the preferred antiglaucomatous drug.
- After control of IOP, Laser (Nd : YAG) peripheral iridotomy is the definitive management of choice. If laser is not available surgical peripheral iridectomy is the procedure of choice. Other surgical procedures used are *filtration surgeries* (like trabeculectomy, deep sclerotomy, *Viscoanulostomy*).
- Symptomatic treatment during an attack also includes *analgesics, antiemetic and topical corticosteroids* to reduce inflammation. Mydriatics (e.g. atropine) are contraindicated as they precipitate glaucoma.
- PACG is a bilateral disease, the fellow eye is at risk of developing an

acute attack in 50% cases in future. Therefore a prophylactic peripheral laser iridotomy should be performed in the fellow eye.

120. Waxy pallor of optic disc is seen in which disease?

a) Retinitis pigmentosa

b) Retinopathy of prematurity

c) Hypertensive retinopathy

d) Diabetic retinopathy

Correct Answer - A

Ans. is 'a' i.e., Retinitis pigmentosa

Retinal pigmentary changes (Bone spicule intraneural retinal pigmentation) : - Retina studded with small, jet-black spots resembling bone corpuscles with a spidery outline. These pigmentary changes are typically perivascular and retinal veins (never arteries) have a sheath of pigment for part of their course. These changes affect equatorial region initially sparing the posterior pole and periphery. Later in the course of disease whole retina is involved.

121. Hypopyon in a fungal corneal ulcer contains?

a) Fungal filaments

b) Fungal spores

c) Purulent material

d) Sterile material

Correct Answer - A

Ans. is 'a' i.e., Fungal filaments

Hypopyon in fungal ulcer is not sterile as in bacterial corneal ulcer because the fungi penetrate in the anterior chamber without perforation.

Hypopyon in fungal ulcer is fixed and does not show positional variation as in bacterial corneal ulcer as the fungal filaments adhere to the walls of anterior chamber.

122. Penetrating iron particle in eye which of the following investigation will not be used ?

a) X- ray

b) CT scan

c) MRI

d) USG

Correct Answer - C

Ans. is 'c' i.e., MRI

MRI is contraindicated in presence of metallic (magnetic) foreign body.

123. Fluorescein dye study is done to detect

a) Assess retinal function of babies

b) Retinal vascular pathology

c) Macular pathology

d) Posterior segment of eye

Correct Answer - B

Ans. is 'b' i.e., Retinal vascular pathology

Angiography for fundus examination

- Angiography is used for dynamic flow study of Iris, Retina or choroid. Following types of angiographies are used.
- .. Fluorescein Angiography :- *Sodium fluorescein* dye is used by injecting it into antecubital vein. It is primarily used for retinal vasculature, but iris & choroid can also be examined.
- 2.. Indocyanine green Angiography :- It is used primarily for choroidal vasculature, especially in choroidal neovascular membranes (CNVM). Therefore, it is used in - i) *The identification and delineation of poorly defined or occult choroidal neovascularization*, (ii) *Retinal pigmented epithelium (RPE) detachments*.

124. Photosensitive layer of retina ?

a) Pigment layer

b) Layers of rods and cones

c) External limiting membrane

d) Internal limiting membrane

Correct Answer - B

Ans. is 'b' i.e., Layers of rods and cones

- Rods and cones are the end organs of vision and are also known as photoreceptors.
- Layer of rods and cones contains only the outer segments of photoreceptor cells arranged in a palisade manner. There are about 120 millions rods and 6.5 millions cones.
- Rods contain a photosensitive substance visual purple (rhodopsin) and subserve the peripheral vision and vision of low illumination (scotopic vision).
- Cones also contain a photosensitive substance and are primarily responsible for highly discriminatory central vision (photopic vision) and colour vision.

125. Normal intraocular pressure is -

a) 7 - 14 mm Hg

b) 2.1 - 6 mm Hg

c) 10 - 21mm Hg

d) 16 - 32 mm Hg

Correct Answer - C

Ans. is 'c' i.e., 10 - 21 *mm* Hg

The intraocular pressure (IOP) refers to the pressure exerted by intraocular fluids on the coats of the eyeball. The normal IOP varies between 10 and 21 mmHg.

126. Synergistic muscle for right medial rectus is ?

a) Right lateral rectus

b) Left lateral rectus

c) Right superior rectus

d) Right superior oblique

Correct Answer - C

Ans. is 'c' i.e., Right superior rectus

To know this question one should know the difference between synergistic muscles and yoke muscles.

Synergists. It refers to the muscles having the same primary action in the same eye e.g., superior rectus and inferior oblique of the same eye act as synergistic elevators.

127. For Dextrolevation of eye, muscles acting are ?

a) Right lateral rectus and left medial rectus

b) Right superior rectus and left inferior oblique

c) Right inferior rectus and left superior oblique

d) Bilateral superior recti and inferior obliques

Correct Answer - B

Ans. is 'b' i.e., Right superior rectus and left inferior oblique

(Dextrolevation)

Right superior rectus

Left inferior oblique

128. Water content in lens is ?

a) 64%

b) 35%

c) 1%

d) 28%

Correct Answer - A

Ans. is 'a' i.e., 64%

The lens is composed of 64% water, 35% protein, and 1% lipid, carbohydrate and trace elements. The protein concentration in the lens is actually the highest amongst body tissues. The main types of proteins are alpha (31%), beta (55%) and gamma (2%) crystallins, and insoluble albuminoids (12%).

129. Patient complains of sudden onset blindness but does not experience any pain, the cause is

a) Glaucoma

b) Cataract

c) Vitreous haemorrhage

d) Age related macular degeneration

Correct Answer - C

Ans. is 'c' i.e., Vitreous haemorrhage

130. In retinal artery angiogram dye injected through?

a) Retinal artery

b) Antecubital vein

c) Ophthalmic artery

d) Femoral vein

Correct Answer - B

Ans. is 'b' i.e., Antecubital vein

Angiography for fundus examination

Angiography is used for dynamic flow study of Iris ,Retina or choroid

. Following types of angiographies are used:?

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2. *Indocyanine green Angiography* :- It is used primarily for choroidal vasculature, especially in choroidal neovascular membranes (CNVM). Therefore, it is used in - i) The identification and delineation of poorly defined or occult choroidal neovascularization, (ii) Retinal pigmented epithelium (RPE) detachments.

131. Nodules seen near the collarette are called ?

a) Busacca's nodules

b) Koeppe's nodules

c) Lisch nodules

d) Dalen Fuch's nodules

Correct Answer - A

Ans. is 'a' i.e., Busacca's nodules

Koeppe's nodules are situated at the pupillary border and may initiate posterior synechia.

Busacca's nodules situated *near the collarette* are large but less common than the *Koeppe's nodules*.

132. Commonest manifestation of retinoblastoma is ?

a) Pseudohypopyon

b) Leukocoria

c) Squint

d) Nystagmus

Correct Answer - B

Ans. is 'b' i.e., Leukocoria

Leukocoria or amaurotic cat's eye reflex this is the most common manifestation. The leukocoria or the white glow in the pupil is caused by reflection of light from the white intraocular tumor.

133. Vertically oval dilated pupil is seen in ?

a) Acute primary angle closure glaucoma

b) Wernicke's korsakoff psychosis

c) Neurosyphilis

d) Paralysis of oculomotor nerve

Correct Answer - A

Ans. is 'a' i.e., Acute primary angle closure glaucoma

In acute primary angle closure glaucoma - Pupil is semidilated, vertically oval and fixed. It is non-reactive to both light and accommodation.

134. The normal cup disc ratio is ?

a) 0.3

b) 0.6

c) 1.2

d) 2.4

Correct Answer - A

Ans. is 'a' i.e., 0.3

The ratio of cup diameter to disc diameter is normally 0.3:1.

Optic nerve head changes associated with glaucoma are thought to be seen prior to the development of visual field loss. The following changes are commonly seen in the optic nerve head in glaucoma :

- Asymmetry of the cup: disc ratio (>0.2) between the two eyes
- A localized notch or thinning of the neuroretinal rim
- An enlarged cup: disc ratio (>0.5), especially if in the vertical axis
- Pallor of the neuroretinal rim
- Superficial disc haemorrhages
- Vascular signs suggestive of an acquired cupping, such as baring of the circumlinear vessels and 'overpass' of central vessels and
- Parapapillary atrophy

135. Schwalbe's line is the peripheral limit of which layer of cornea?

a) Bowman's layer

b) Stroma

c) Descemet's layer

d) Endothelium

Correct Answer - C

Ans. is `c' i.e., Descemet's layer

Histology of cornea

The cornea has five distinct layers (from superficial to deep) :?

1) Epithelium :- It is the outermost part of cornea and is composed of stratified squamous non-keratinized epithelial cells.

2) Bowman's membrane : - It is not a true membrane but simply a condensed superficial part of stroma. Once destroyed, it does not regenerate.

3) Stroma (Substantia propria) : - This layer constitutes most of the cornea (90% of thickness). It consists of *collagen fibrils (lamellae)* embedded in hydrated matrix of proteoglycans.

4) Descemet's membrane : - This layer bounds the stroma posteriorly. In the periphery it appears to end at the anterior limit of trabecular meshwork as *Schwable's ring*.

5) Endothelium : - It is a single layer of flat polygonal cells. The endothelial cells contain 'active-pump' mechanism and is the most important layer in maintaining the transparency of cornea.

136. Shaffer's sign is seen in

a) Rhegmatogenous retinal detachment

b) Exudative retinal detachment

c) Tractional retinal detachment

d) Vitreous haemorrhage

Correct Answer - A

Ans. is 'a' i.e., Rhegmatogenous retinal detachment

Shaffer's sign alludes to the clinical finding of pigment cells in the vitreous. In the absence of prior ocular surgery, this sign is considered practically pathognomonic of a retinal break or rhegmatogenous detachment.

137. Topical Steroid is associated with ?

a) Post subcapsular cataract

b) Glaucoma

c) Uveitis

d) Ptosis

Correct Answer - B

Ans. is 'b' i.e., Glaucoma

Amongst the given options cataract and glaucoma are complications of cortisosteroids.

Cataract occurs after systemic administration, while glaucoma occurs after topical therapy.

138. Sunflower cataract is seen in ?

a) Wilson's disease

b) Congenital rubella

c) Blunt trauma to eye

d) Myotonicdystrophica

Correct Answer - A

Ans. is 'a' i.e., Wilson's disease

139. Nuclear ophthalmoplegia is due to ?

a) Damage to medial longitudinal fasciculus

b) Damage to temporal lobe

c) Damage to oculomotor nuclei

d) None of the above

Correct Answer - C

Ans. is 'c' i.e., Damage to oculomotor nuclei

Ophthalmoplegia

- Ophthalmoplegia is paralysis of the eye muscles. Three common types are :-
 - i. *External ophthalmoplegia* :- If only extraocular muscles are paralysed.
 - i. *Internal ophthalmoplegia* :- If only intrinsic muscles (ciliar muscles and iris) are paralysed.
 - i. *Total ophthalmoplegia* :- All extrinsic and intrinsic muscles are affected.
- Certain other types of ophthalmoplegia are :-
 - i. *Nuclear ophthalmoplegia* :- It is paralysis of extraocular muscles due to lesion of the third cranial nerve nuclei. They are more often bilateral.
 - i. *Ophthalmoplegic migraine or Episodic ophthalmoplegia* :- It is characterized by recurrent attacks of headaches associated with paralysis of third, fourth and sixth cranial nerves. The incidence of involvement of the third cranial nerve is the most common and it persists for days or weeks after the attack. It is often unilateral and tends to become permanent.
 - i. *Chronic progressive external ophthalmoplegia (CPEO)* CPEO is the most common feature of mitochondrial myopathy. It occurs in > 50%

cases of all mitochondrial myopathies. Typical presentation is *B/L ptosis without diplopia* in early adulthood. Ophthalmoplegia is usually symmetrical & slowly progressive so diplopia is not often a complaint because all eye movements are reduced equally. *The progressive ophthalmoplegia is unnoticed till decreased ocular motility limits peripheral vision. Ciliary muscles & iris muscles are often unaffected by CPEO.* Other variable symptoms are:

- Exercise intolerance
- Hearing loss
- Ataxia
- Hypogonadism
- Cataract
- Sensory axonal neuropathy
- Clinical depression
- Parkinsonism

140. Egyptian ophthalmia is ?

a) Spring catarrh

b) Trachoma

c) Interstitial keratitis

d) Xerophthalmia

Correct Answer - B

Ans. is 'b' i.e., Trachoma

Trachoma

- Trachoma, also called Egyptian ophthalmia, is a chronic *keratoconjunctivitis* primarily affecting the superficial epithelium of conjunctiva and cornea simultaneously. Trachoma is characterized by mixed follicular and papillary conjunctivitis. Trachoma is caused by *chlamydia trachomatis* serotypes A, B, Ba and C. The organism is epitheliotropic and produces *intracytoplasmic* inclusion bodies called HP bodies (Halberstaedter prowazek bodies).

Clinical features of Trachoma

- The clinical course of trachoma is determined by the presence or absence of secondary infection. In the absence of such infection, a pure trachoma is so mild and symptomless that the disease is usually neglected and symptoms include mild foreign body sensation and occasionally lacrimation. But, mostly the picture is complicated by secondary infection and may start with typical symptoms of acute mucopurulent conjunctivitis. On examination the conjunctiva and cornea, both are involved : ?

A) Conjunctival signs

- i. *Congestion* of upper tarsal and forniceal conjunctiva.
- i. *Conjunctival follicles* :- Boiled sagograin like follicles are commonly seen on upper tarsal conjunctiva and fornix. Sometimes follicles are

present on bulbar conjunctiva and *presence of follicles on bulbar conjunctiva is pathognomonic of trachoma*. The characteristic feature of trachoma follicle is the presence of necrosis and leber cells (large multinucleated cells) which differentiate it from follicular conjunctivitis.

- i. *Papillary hyperplasia* :- Papillae are reddish, flat topped raised areas which give red and *velvety appearance to the tarsal conjunctiva*.
- r. *Conjunctival scarring* : - Linear scar present in the sulcus subtarsalis is called Arlt's line.
- r. *Concretion* : - May be formed due to accumulation of dead epithelial cells and inspissated mucus in depressions called *glands of Henle*.

B) Corneal signs

- i. Superficial keratitis
- i. *Herbert follicles* : - Follicles in the limbal area.
- i. *Pannus* :- Infiltration of cornea associated with vascularization.
- r. *Corneal ulcer* .. - At the advancing edge of pannus.
- r. *Herbert pits* : - Left after healing of Herbert follicles in the limbal area.
- i. *Corneal opacity*

Sequelae and complications of trachoma

Sequelae and complications of trachoma are : ?

- .. *Lids* : - *Entropion*, trichiasis, tylosis, ptosis, madarosis, ankyloblepharon.
- 2. *Conjunctival* : - Concretions, pseudocyst, *Xerosis (dryness)*, symblepharon.
- 3. *Corneal* : - Corneal opacity, ectasia, corneal xerosis, total corneal pannus, corneal ulcer.
- 4. *Other* : - Chronic dacryocystitis, Chronic dacryoadenitis.
- 5. *Blindness*

141. Most common symptom of posterior uveitis ?

a) Pain

b) Photophobia

c) Lacrimation

d) Diminished vision

Correct Answer - D

Ans. is 'd' i.e., Diminished vision

Clinical features of posterior uveitis

- Choroiditis (chorioretinitis) is usually insidious (unlike anterior uveitis, which is acute most of the time). There is *no pain, photophobia, lacrimation or circumcorneal congestion*.
- *Most prominent symptom is diminished vision* especially if the lesion involves macula, maculopapillary bundle and optic nerve. Other symptoms are *black spots floating in front of the eye, metamorphosia, tnicropsia, macropsia, positive scototna*.
- On examination following signs may be seen :?
 - .. *Vitreous opacities* :- Fine, coarse, stringy or snowball opacities.
 - ?. *Pale yellow or dirty white raised area of choroid*.

142. Last ocular muscle to be involved in Grave's disease?

a) Inferior rectus

b) Lateral rectus

c) Superior rectus

d) Inferior oblique

Correct Answer - D

Ans. is 'd' i.e., Inferior oblique

Order of involvement (Mnemonic : IM SLO_(W)) :- Inferior rectus > medial rectus > superior rectus > Lateral rectus > obliques.

143. Bacteria not causing ophthalmia neonatorum ?

a) Chlamydia

b) Gonococcus

c) Pseudomonas

d) Moraxella

Correct Answer - D

Ans. is 'd' i.e., Moraxella

Ophthalmia neonatorum

- Ophthalmia neonatorum, also called *neonatal conjunctivitis*, is the conjunctivitis in the first month of life. Infection may be acquired during birth from infected birth canal (most common) or after birth. The causative agents are : -
 1. Common organisms are : - *Gonococcus*, *C. trachomatis*, Herpes simplex virus. Other organisms are : -*Staphylococcus aureus*, pneumococcus, Streptococcus, *Pseudomonas*, *Serratia*, *Klebsiella*.
 2. Chemical conjunctivitis : - Caused by use of silver nitrate or antibiotic prophylaxis.

144. Most common cause of neovascular glaucoma ?

a) Diabetes

b) CRAO

c) CRVO

d) Eale's disease

Correct Answer - A

Ans. is 'a' i.e., Diabetes

Neovascular glaucoma (Rubeosis iridis)

- It is a *secondary angle closure glaucoma* which results due to formation of neovascular membrane over the iris i.e., neovascularization of iris (rubeosis iridis). Causes of rubeosis iridis are :-
 - .. *Common* :- *Diabetic retinopathy (most common cause)*, central retinal vein occlusion, Eale's disease, sickle- cell retinopathy
 - ?. *Rare causes* : - Long standing retinal detachment, central retinal artery occlusion, intraocular inflammation (uveitis), intraocular tumors (choroidal melanoma, retinoblastoma), radiation retinopathy, ocular ischemic syndrome (carotid artery disease, carotid - cavernous fistula), Fusch's heterochromic iridocyclitis.
- In central retinal vein occlusion (CRVO), glaucoma manifests about 100 days after thrombosis of central vein, therefore, it is also called 100 days glaucoma.
- The most widely accepted theory for neovascularization is that the hypoxic retina produces diffusible angiogenic factor (VEGF) that stimulates new vessel proliferation.
- Treatment of choice is panretinal photocoagulation as it terminates the angiogenic stimulus for neovascularization of retina.



145. In paralytic squint, primary deviation

a) More than secondary deviation

b) Less than secondary deviation

c) Equal to secondary deviation

d) Any of the above, i.e. variable

Correct Answer - B

Ans. is 'b' i.e., Less than secondary deviation

In paralytic (Incomitant) squint → Secondary deviation > primary deviation.

In non paralytic (Concomitant) squint → Primary deviation = secondary deviation.

146. Brush fire appearance of fundus is seen in

a) Toxoplasmosis

b) CMV retinitis

c) Chloroquine toxicity

d) Bacterial endocarditis

Correct Answer - B
Ans. is 'b' i.e., CMV retinitis

147. Jackson's crosscylinder test is used for ?

a) Subjective verification

b) Subjective refining

c) Subjective balancing

d) Objective refining

Correct Answer - B

Ans. is 'b' i.e., Subjective refining

Subjective refraction

- Subjective refraction is meant for finding out the most suitable lenses to be prescribed. The proper subjective refraction includes three steps.
 - 1) Subjective verification of refraction
- It is done by *'trial and-error' methods*. In this one eye is occluded and the appropriate lens combination (as indicated by retinoscopy or refractometry) is placed in front of the other eye. By increasing or decreasing the power of lens, the most suitable spherical lens is chosen. *The strongest convex lens and the weakest concave lens providing best vision should be chosen in patients with hypermetropia and myopia respectively.*
 - 2) Subjective refining of refraction
- The most suitable combination of lenses chosen after the subjective verification of refraction is refined before final prescription is made. It is always better to first refine the cylinder and then sphere. A) Refining the cylinder : - Cylinder can be refined by either crosscylinder or by astigmatic fan test.
- *Jackson's crosscylinder test (more commonly used)*
- Crosscylinder is used to verify the strength and axis of the cylinder

prescribed.

The cross cylinder is a mixed combination of various strengths in which spherical component is one half the power of the cylindrical and of opposite sign to with the axis at right angles. The most convenient form is a combination of a -0.5 D sphere with a +1.0 D cylinder which has an effective strength of + 0.5 D cylinder in one meridian and - 0.5 D cylinder in the meridian perpendicular to the first. The cross-cylinder is identified by the strength of its cylindrical component. So, above described cross cylinder is referred as + 0.5 crosscylinder.

- **Thus, cross cylinder has following feature : -**
 - i. It has one spherical and one cylindrical lens.
 - i. This combination creates two cylinders of equal strength but with opposite sign placed with their axes at right angle to each other.
 - i. *Astigmatic fan test* : - It is used to confirm the cylindrical correction.
 - B) Refining the sphere : - After refining the cylindrical power and axis, the spherical correction is refined by : - *The fogging technique, Duochrome test, Pin-hole test.*
 - 3) Subjective binocular balancing
- The final step in the subjective refraction is binocular balancing, i.e., '*equalization of vision* ' or '*equalizing the accommodative effort*'. This allows both eyes to have the retinal image simultaneous in focus.

148. Shadow test is used in ?

a) Keratometry

b) Ophthalmoscopy

c) Gonioscopy

d) Retinoscopy

Correct Answer - D

Ans. is 'd' i.e., Retinoscopy

Retinoscopy, also called *skiascopy* or *shadow test*, is an objective method of finding out the error of refraction by the method of neutralization.

149. Space of cloquet is phylogenetically related to

a) Hyaloid artery

b) Central Retinal artery

c) Central retinal vein

d) Iris

Correct Answer - A

Ans. is 'a' i.e., Hyaloid artery

Cloquet's canal

- It is the embryonic remnant of hyaloid artery.
- It runs from the optic nerve, where it originates in shape of funnel and creates the peripappillary space of Martegiani, and narrows as it passes through the central vitreous until it reaches the retrocrystalline lens zone.
- The anterior vitreous space, or anterior hyaloid is inserted in the posterior capsule of crystalline lens forming a circular zone 8 - 9 mm in diameter known as Weiger'shyaloidocapsular ligament.
- This ligament constitutes the union between the anterior hyaloid and the anteriormost portion of the Cloquet's canal, leaving a space between the two, called Berger's space.

150. Which of the following is/ are contrast sensitivity testing charts?

a) Pelli-robsons

b) Snellen type chart

c) Regan chart

d) All of the above

Correct Answer - D

Ans. is d i.e., All of the above

Contrast Sensitivity Testing is done with the help of following charts:

- Pelli-Robson chart
- The Regan chart
- Standard Snellen-type

151. Which of the following drugs is not associated with open angle glaucoma?

a) Betamethasone

b) Docetaxel

c) Prednisone

d) Thiazide

Correct Answer - D
Ans. is 'd' i.e., Thiazide

152. Which bacteria penetrates intact cornea ?

a) Corynebacterium

b) Pneumococcus

c) Morexella

d) E. coli

Correct Answer - A

Ans. is 'a' i.e., Corynebacterium

Bacterial corneal ulcer

- Bacterial corneal ulcer, also called *suppurative keratitis*, is due to organisms that produce toxin which cause tissue necrosis and pus formation in the corneal tissue. Purulent keratitis is nearly always exogenous, due to pyogenic organism. As long as the cornea is healthy, the majority of bacteria are unable to cross or adhere to the corneal epithelium. Therefore the two main predisposing factors for bacterial corneal ulcer are : -
 1. *Damage to corneal epithelium*
 2. *Infection of the eroded area*
- However, *there are a few species that are capable of penetrating an intact epithelium* : -
 1. *Neisseria gonorrhoea*
 2. *Neisseria meningitidis*
 3. *Corynebacterium diphtheriae*
 4. *Listeria species*
 5. *Haemophilus agyptus*
- Bacteria which cause corneal ulcer (Purulent keratitis) after epithelial injuries are : -
 1. *Pseudomonas*

2. *Pneumococcus*
 3. *Streptococcus epidermidis*
 4. *Staphylococcus aureus*
 5. *Moraxella*
 6. *Enterobacterias*
 7. *Proteus, Klebsiella*)
- Although there are specific presentations depending on the bacteria involved, there exists a series of symptoms and signs common to all that allow for a rapid diagnosis, and therefore early treatment of corneal ulcers. *The most important symptoms are pain, lacrimation, foreign body sensation, conjunctival injection (red eye), photophobia and blurred vision.* There is lid swelling, blepharospasm and yellow white areas of ulcer with swollen and overhanging margin may be seen.

153. Which of the following drug is not used topically for open angle glaucoma?

a) Latanoprost

b) Brimonidin

c) Acetazolamide

d) Dorzolamide

Correct Answer - C

Ans. is 'c' i.e., Acetazolamide

Topical antiglaucoma drugs

Pilocarpine (Q%) -> 4 times a day

Beta-blockers -

a Timolol (0.25-0.5%) eye drops + 1-2 times a day

a Timolol gel -+ Once a day

Betaxalol (0.5%) + twice daily

c Levobunolol (0.25-0.5%) -+ 1-2 times a day

Carteolol (1-2%) -+ 1-2 times a day

u Metipranolol (0.1-0.6%) -+ 1-2 times a day

Adrenergic

Adrenaline (1-2%) + twice daily

a Brimonidine (0.2%) -+ twice daily

Apraclonidine (0.5%, 1%) + twice daily

Carbonic-anhydrase inhibitors

a Dorzolamide (2%) -+ 2-3 times a day

Brinzolamide (1%) + 3 times a day

PG analogues

a LatanoProst (0.005%) + once a day

a TravoProst (0.004%) -+ once a day

Bimatoprost (0.03%) -+ once a day

Ans.

154. Superior oblique causes all except ?

a) Intorsion

b) Elevation

c) Depression

d) Abductio

Correct Answer - B

Ans. is b i.e., Elevation

Muscle	Primary Action	Secondary Action
Superior rectus	Elevation	Adduction and intorsion
Inferior rectus	Depression	Adduction and extorsion
Medial rectus	Adduction	
Lateral rectus	Abduction	
Superior oblique	Intorsion	Abduction and depression
Inferior oblique	Extorsion	Abduction and elevation

155. Surgery of choice for congenital cataract ?

a) ECCE

b) ICCE

c) Needling

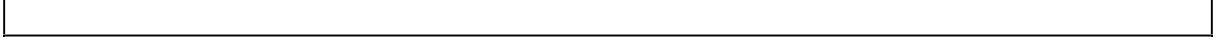
d) Discission

Correct Answer - A

Ans. is 'a' i.e., ECCE

Surgery for congenital or developmental cataract

- Cataract surgery is the treatment of choice for congenital and developmental cataract.
 - Extracapsular cataract extraction (extracapsular removal of the cataractous lens) is the surgery of choice. This is done by phacoemulsification.
 - Intracapsular cataract extraction (ICCE) in children is contraindicated because of vitreous traction and loss at the wieger capsulohyaloid ligament
- Method for extracapsular cataract extraction are :-**
1. Posterior capsulectomy and anterior vitrectomy (Procedure of choice). This can be done via limbal or pars plana approach.
 2. Lens aspiration
 3. Lensectomy
- The traditional treatment of needling or discission of congenital cataract are obsolete now.
 - After removal of cataractous lens, the resultant aphakia in children is treated by :-
 1. If child is < 2 years → Contact lens
 2. If child is > 2 years → Intraocular lens implantation



156. Minimum angle of resolution [MAR] when visual acuity is 6/6

a) 1 min of arc

b) 5 min of arc

c) 10 min of arc

d) 15 min of arc

Correct Answer - A

Answer-A. 1 min of arc

Visual acuity is the first test performed after taking history.

- Measurement of the central visual acuity is essentially an assessment of function of the fovea centralis.
- An object must be presented so that each portion of it is separated by a definite interval, known as minimum angle of resolution (MAR). Customarily, this interval has become one minute of an arc.
- The test object should subtend an angle of five minutes of an arc.

157. If a person has visual acuity 6/6. At what distance will he/she be able to read 6/24 lines

a) 6 metres

b) 24 metres

c) 36 metres

d) 48 metres

Correct Answer - B

Answer- B. 24 metres

- Visual acuity 6/6 means that a Person with normal visual acuity can read the smallest line at a distance of 6 meters.
- Visual acuity 6/24 means that this person can read particular letters/lines at a distance of 6 meters which a person with normal visual acuity can read from a distance of 24 mm.

158. Which of the following physiological change occurs in near vision

a) Decrease in power of lens

b) Contraction of lateral rectus

c) Increase in depth of focus

d) Increase in zonular tension

Correct Answer - C

Answer- C. Increase in depth of focus

- When a person tries to see a near object, there is stimulation of near reflex. Thus near vision stimulates near reflex.

159. Which of the following does not effect the refraction of eye

a) Removal of vitreous

b) Thickening of lens

c) Increase in depth of anterior chamber

d) Change in axial length

Correct Answer - C

Answer- C. Increase in depth of anterior chamber

- Depth of anterior chamber has no role in refractive system of eye.
- Removal of vitreous will change the refraction
- Thickening of lens will change the refraction
- Change in axial length has a large effect on refractive power of eye.
- The main function of refractive system of eye is to focus the light rays on the retina.

160. What is incorrect regarding sickle cell retinopathy

a) Sea-fan appearance in superotemporal retina

b) HBSS has more severe ocular manifestations than HBSC

c) Angiod streaks are seen

d) CRAO is seen

Correct Answer - B

Answer- B. HBSS has more severe ocular manifestations than HBSC

- Among the hemoglobinopathies, the incidence of proliferative sickle retinopathy is higher in individuals with Hb-SC disease and S-Beta thalassemia than in individuals with HbSS disease"
- "subject with HbSC and HbS p-thal are more likely than HbSS patients to have serious ocular manifestations

161. Ocular findings in AIDS are all except

a) > 50% of patients have cotton wool spots

b) Kaposi sarcoma of eyelids

c) Roth spots

d) Cotton wool spots harbours CMV

Correct Answer - D

Answer- D. Cotton wool spots harbours CMV

Ocular findings in AIDS

- Ocular manifestations of AIDS may be seen in up to 70-90% of patients.
- Most common are cotton wool spots, CMV retinitis and conjunctival/eyelid kaposi sarcoma.
- SO-70% of HIV-infected patients develop HIV retinopathy which has following findings:
 - 1) Cotton-wool spots (most common)
- Intraretinal hemorrhages
- Roth spots
- Retinal microaneurysms

162. Left homonymous hemianopia is seen in which right sided lesion

a) Optic tract

b) Optic nerve

c) Optic chiasma

d) Occipital [visual] cortex

Correct Answer - A

Ans: A. Optic tract

163. In pterygium, which layer of cornea is involved most often

a) Epithelium

b) Endothelium

c) Bowman's layer

d) Descemet's membrane

Correct Answer - C

Answer- C. Bowman's layer

- Pterygium is a growth from conjunctiva, In cornea, it involves Bowman's layer.
- "Corneal involvement in pterygia includes infiltration of Bowman's layer, a strong layer of collagen directly beneath the corneal epithelium. Disruption of Bowman's layer leads to scarring.
- Pterygium is a degenerative and hyperplastic condition of conjunctiva.

164. Optic nerve glioma is associated with

a) Sturge Weber Syndrome

b) Neurofibromatosis I

c) VKH Syndrome

d) Von Hippel Lindau Syndrome

Correct Answer - B

Answer- B. Neurofibromatosis I

- Optic nerve glioma (astrocytoma) is the most common intrinsic tumor of the optic nerve. Most common type of optic nerve glioma is juvenile pilocytic astrocytoma.
- Optic nerve gliomas are associated with Neurofibromatosis-I (Von Recklinghausen's disease)

165. With accommodation at rest, total refractory power of crystalline lens is

a) 14D

b) 16D

c) 18D

d) 20D

Correct Answer - B

Answer- B. 16D

- The dioptric power of reduced eye is + 60D, of which + 44D is contributed by cornea and + 16D by the crystalline lens.

166. Volume of orbit is

a) 19 ml

b) 29 ml

c) 39 ml

d) 49 ml

Correct Answer - B

Answer- B. 29 ml

Volume of each orbit is 29 ml.

- Orbit is made up of 7 bones: frontal, ethmoid, lacrimal, palatine, maxilla, zygomatic and sphenoid

167. Anterior focal point is at distance of in front of cornea in recuded eye

a) 22.6 mm

b) 17.2 mm

c) 15.7 mm

d) 24.13 mm

Correct Answer - C

Answer- C. 15.7 mm

Anterior Focal Point- 15.7 mm

168. Distance between nodal point and cornea in Listing's Reduced eye is

a) 7.2mm

b) 9mm

c) 12mm

d) 15.3mm

Correct Answer - A

Answer- A. 7.2mm

Nodal Point- 7.2 mm behind the anterior corneal surface

169. Which intraocular muscle inserts closest to limbus

a) Lateral Rectus

b) Medial Rectus

c) Superior Rectus

d) Inferior Rectus

Correct Answer - B

Answer- B. Medial Rectus

Medial rectus -Distance of insertion from limbus- 5.5 mm

170. Hyphaema i.e. blood in the anterior chamber is suggestive of

a) Intraocular trauma

b) Posterior uveitis

c) Capillary hemangioma of the lid

d) High grade myopia

Correct Answer - A

Answer- A. Intraocular trauma

Etiology of hyphaema

- The most common causes of hyphema are intraocular surgery, blunt trauma, and lacerating trauma.
- Hyphemas may also occur spontaneously, without any inciting trauma

171. A 30 year old female wears contact lens for 2 months continuously. The symptoms she experiences thereafter could be due to all except

a) Giant Papillary conjunctivitis

b) Microbial keratitis

c) Increased sensitivity

d) Open angle glaucoma

Correct Answer - D

Answer- D. Open angle glaucoma

- Corneal complications : - Corneal abrasion, Corneal edema, Corneal vascularization, Microbial keratitis (pseudomonas, acanthamoeba), Sterile corneal infiltrate
- Giant papillary conjunctivitis
- Hypoxia : - Cornea is deprived of oxygen from the tear film by the presence of the contact lens. The cornea becomes edematous and new vessels may develop in the limbal area.

172. Swimmer after coming out from swimming pool presents with redness and mucopurulent discharge. There is no history of contact lens wear. On examination, no corneal involvement seen. Probable diagnosis is

a) Acanthamoeba keratitis

b) Adult inclusion conjunctivitis

c) Vernal keratoconjunctivitis

d) Angular conjunctivitis

Correct Answer - B

Answer- B. Adult inclusion conjunctivitis

- is a type of follicular conjunctivitis caused by serotypes D to K of chlamydia trachomatis in sexually active young adults.
- Transmission may occur either through contaminated fingers or through contaminated water of swimming pools (Swimming pool granuloma).

173. KISA% is associated with

a) Keratoconus

b) Keratoglobus

c) Hypermetropia with astigmatism

d) Terrien's marginal degeneration

Correct Answer - A

Answer- A. Keratoconus

The KISA index is used in cases of keratoconus and is derived using 4 indices:

1. Central keratometry K
2. Inferior- Superior keratometry (I-S)
3. Astigmatism Index (AST)

174. What is deposited in band keratopathy

a) CaSO_4

b) CaPO_4

c) MgSO_4

d) MgPO_4

Correct Answer - B

Answer- B. CaPO_4

- Band keratopathy is characterized by the deposition of calcium and phosphorus salts (especially hydroxyapatite) in a bandlike pattern in the anterior layers of the cornea. The keratopathy is usually limited to the interpalpebral area. Symptoms include irritation, injection, and blurring of vision.
- Chronic eye diseases (most common cause)

175. Ciliary staphyloma affects ciliary zone upto mm behind the limbus

a) 4

b) 6

c) 8

d) 10

Correct Answer - C

Answer- C. 8

- Staphyloma is an abnormal protrusion of uveal tissue through a weak and thin portion of cornea or sclera. So, a staphyloma is lined internally by uveal tissue and externally by weak cornea or sclera.
- Ciliary staphyloma : - This affects the ciliary zone that includes the region upto 1 mm behind the limbus. The ciliary body is incarcerated in the region of scleral ectasia. Causes are Developmental glaucoma, Primary or secondary glaucoma end stage, scleritis, trauma to ciliary region.

176. In complicated cataract opacity develops in

a) Anterior capsule

b) Nucleus

c) Posterior subcapsular

d) Cortical

Correct Answer - C

Answer-C. Posterior subcapsular

- Complicated cataract refers to the lens opacification secondary to some other intraocular disease, Anterior uveitis is the most common cause.
- Posterior cortical complicated cataract : - This type of cataract is due to affections of posterior segment. This cataract is located in a posterior subcapsular cataract and typically opacification starts in the posterior part of the cortex in the axial region.

177. Most common method of anterior capsulotomy in phacoemulsification

a) Can-opener capsulotomy

b) Intercapsular capsulotomy

c) Capsulorhexis

d) Envelop capsulotomy

Correct Answer - C

Answer- C. Capsulorhexis

- The most commonly used technique for anterior capsulotomy during phacoemulsification is continuous curvilinear capsulorhexis (CCC).

178. SRK formula is used to calculate

a) Power of intraocular lens

b) Corneal curvature

c) Corneal endothelial cell count

d) Extent of retinal detachment

Correct Answer - A

Answer- A. Power of intraocular lens

Intraocular lens power calculation :- Which requires Keratometry (K), Axial length of eyeball or Biometry (L) and a

constant (A). It is calculated by SRK formula:

- Power of IOL= $A - 2.5L - 0.9K$

179. Trabeculectomy for glaucoma leads to formation of a channel between

a) Subconjunctival space and anterior chamber

b) Anterior chamber and Posterior chamber

c) Subconjunctival space and posterior chamber

d) None of the above

Correct Answer - A

Answer- A. Subconjunctival space and anterior chamber

- Trabeculectomy is a surgical procedure used in the treatment of glaucoma to relieve intraocular pressure by removing part of the eye's trabecular meshwork and adjacent structures.
- It is the most common glaucoma surgery performed and allows drainage of aqueous humor from the anterior chamber to underneath the conjunctiva where it is absorbed.

180. Sudden acute loss of vision with shallow anterior chamber is suggestive of

a) Acute angle closure glaucoma

b) Acute iridocyclitis

c) Open angle glaucoma

d) Viral keratitis

Correct Answer - A

Answer- A. Acute angle closure glaucoma

Lid edema

- Conjunctiva is chemosed and congested (both conjunctival & ciliary vessels are congested) o Cornea is oedematous and insensitive Anterior chamber is very shallow & with aqueous flare Angle of anterior chamber is closed (on gonioscopy) Iris is discoloured.
- Optic disc is oedematous & hyperemic Fellow eye shows shallow anterior chamber and a narrow angle.

181. Tertiary vitreous is represented by

a) Zonular system

b) Ciliary body

c) Anterior uvea

d) Lens

Correct Answer - A

Answer- A. Zonular system

- "Tertiary vitreous indicates the zonular system. The primary and secondary vitreous are stages in development of vitreous,
- However the tertiary vitreous i.e. the zonules are named so only because of their proximity to the vitreous.

182. Mittendorf dot is found on

a) Anterior capsule of lens

b) Posterior capsule of lens

c) Vitreous

d) Retina

Correct Answer - B

Answer- B. Posterior capsule of lens

- During the development of eye there is a blood vessel which runs between the optic nerve and the back of the lens, called hyaloid vessel. This vessel carries nutrients and oxygen to the developing parts of the anterior section of eye. This hyaloid vessel along with surrounding embryonic material is called primary vitreous. Hyaloid vessels and primary vitreous begin to involute in the second month of gestation giving way to the secondary vitreous (the vitreous humor). Small remnants of the system are common findings in healthy adults, e.g. Bergmeister papilla (tuft of tissue at the optic disc) and Mittendorf dot (tag of tissue on the posterior capsule of lens). However extensive remnants of this "hyaloid vessel - primary vitreous" system are called persistent hyperplastic primary vitreous.

183. Smoke stake pattern is characteristic of?

a) Sickle cell retinopathy

b) Sarcoidosis

c) Acute retinal necrosis

d) Central serous retinopathy

Correct Answer - D

Answer- D. Central serous retinopathy

- Smoke stack pattern (small hyper fluorescent spot which ascends vertically like a smoke-stack), which gradually spreads
- laterally to take a mushroom or umbrella configuration, is a Fundus Fluorescein Angiography (FFA) finding of Central
- Serous Retinopathy.

184. Condition where subhyloid hemorrhage is associated with subarachnoid hemorrhage is

a) Posner-Schlossman syndrome

b) Axenfeld-Rieger syndrome

c) Pseudoexfoliation syndrome

d) Terson's syndrome

Correct Answer - D

Answer- D. Terson's syndrome

- Terson syndrome is intraocular hemorrhage associated with subarachnoid hemorrhage, intracerebral hemorrhage or traumatic brain injury. Hemorrhage may be present in the vitreous, sub-hyloid, or intraretina/ sub-internal limiting membrane.
- Subarachnoid hemorrhage may be directly transmitted forward through the optic nerve sheath.

185. A 30 year old male came with complains of unilateral blurred vision with floaters since 15 days. On examination, AC flare and cells were seen with 'headlight in fog' appearance on indirect ophthalmoscopy. Also, a single inflammatory focus of fluffy retinochoroiditis lesion is seen. What is the diagnosis ?

a) Cytomegalovirus retinitis

b) Toxoplasmosis chorioretinitis

c) Toxocariasis

d) Sarcoidosis

Correct Answer - B

Answer- B. Toxoplasmosis chorioretinitis

Toxoplasmosis is caused by Toxoplasma gondii, an obligate intracellular protozoan.

- Symptoms: Unilateral acute or subacute onset of floaters, blurring and photophobia.
- 'Spill-over' anterior uveitis is common. It may be granulomatous or resemble Fuchs uveitis syndrome; elevated IOP may develop.
- Vitritis may be severe and impair fundus visualization. 'Headlight in the fog' is the classic description of a white retinal inflammatory nidus viewed through vitritis.

186. Circinate retinopathy is seen in

a) Diabetic Retinopathy

b) Hypertensive Retinopathy

c) Best Disease

d) Stargardt's Disease

Correct Answer - A

Answer- A. Diabetic Retinopathy

- Circinate retinopathy is a feature of Diabetic Retinopathy. It is a feature of diabetic macular edema.
- Circinate retinopathy a condition marked by a circle of white spots enclosing the macular area, leading to complete foveal blindness.

187. Asteroid Hyalosis bodies are composed of

a) Iron

b) Calcium and phosphates

c) Cadmium and chloride

d) None

Correct Answer - B

Answer- B. Calcium and phosphates

- Asteroid hyalosis is a degenerative condition of the eye involving small white opacities in the vitreous humor.
- The asteroid bodies are made up of hydroxyapatite, which in turn consists of calcium and phosphates.

188. What is the length of optic nerve

a) 20 mm

b) 30 mm

c) 40 mm

d) 50 mm

Correct Answer - D

Answer- D. 50 mm

optic nerve is about 47-50 mm in length and can be divided into 4 parts : -

- Intraocular part (1 mm)
- Intraorbital part (30 mm)
- Intracanalicular part (5-9 mm)
- Intracranial part (10 mm)

189. Optic radiations arise from

a) Lateral Geniculate body

b) Medial Geniculate Body

c) Superior colliculus

d) Inferior colliculus

Correct Answer - A

Answer- A. Lateral Geniculate body

- The optic radiations (geniculocalcarine pathway) extend from the lateral geniculate body to the visual cortex. Inferior fibres of optic radiations, subserve upper visual fields and superior fibres subserve inferior visual fields.
- The visual pathway starting from retina consists of optic nerve, optic chiasma, optic tracts, lateral geniculate bodies, optic radiations, visual cortex.

190. Foster kennedy syndrome seen with

a) AION

b) Retinal detachment

c) Frontal lobe tumor

d) Macular edema

Correct Answer - C

Answer- C. Frontal lobe tumor

- Foster - kennedy syndrome :- The frontal lobe, pituitary and middle ear tumor such as meningiomata of the olfactor groove are sometimes associated with Ipsilateral pressure atrophy of the optic nerve and contralateral papilloedema.

191. What will be the consequence if the left optic nerve is cut

- a) Left eye complete blindness with loss of contralateral direct and ipsilateral consensual light reflex
- b) Left eye complete blindness with loss of ipsilateral direct and contralateral consensual light reflex
- c) Left eye complete blindness with no effect on light reflex
- d) Bitemporal hemianopia

Correct Answer - B

Answer- B. Left eye complete blindness with loss of ipsilateral direct and contralateral consensual light reflex

Lesion of optic nerve causes-

- Complete visual field loss of the ipsilateral eye (blindness);
- Abolition of ipsilateral direct and contralateral consensual light reflex;

192. A child has esotropia. What corrective surgery is to be performed

a) Medial rectus resection

b) Lateral rectus recession

c) Medial rectus recession

d) All of the above

Correct Answer - C

Answer- C. Medial rectus recession

Correction of refractive error is the initial treatment.

- Surgery should be considered only if spectacles do not fully correct the deviation and after every attempt has been made to treat amblyopia.
- Bilateral medial rectus recessions OR unilateral medial rectus recession combined with lateral rectus resection may be done

193. Duane Retraction Syndrome is most commonly characterised by

- a) Deficiency in action of 6th nerve characterized by difficult abduction
- b) Weakness of superior oblique
- c) Presence of corneal pigmentation
- d) Presence of acute increase in intraocular pressure

Correct Answer - A

Answer- A. Deficiency in action of 6th nerve characterized by difficult abduction

- Duane retraction syndrome represents the most frequent and most prominent congenital (CCDD). cranial dysinnervation disorder
- Duane retraction syndrome is a congenital strabismus that is usually caused by failure of normal development of the abducens nerve (the sixth cranial nerve). There is absence of the abducens nerve and fascicle with anomalous innervation of the lateral rectus muscle by the oculomotor nerve.

194. Which of the following antivirals cannot be used topically in the eye ?

a) Acyclovir

b) Ganciclovir

c) Idoxuridine

d) Famciclovir

Correct Answer - D

Answer- D. Famciclovir

- Topical antivirals used are - Acyclovir, Ganciclovir, triflurothymidine, Vidarabine, Idoxuridine.

195. Most common site of bony metastases in retinoblastoma

a) Skull bones

b) Hip bones

c) Ribs

d) Vertebrae

Correct Answer - A

Answer-A. Skull bones

- The most frequently identified sites of metastatic involvement in children with retinoblastoma include skull bones, distal bones, brain, spinal cord, lymph nodes and abdominal viscera.

196. Fusion of two eyelids by thin tags is called

a) Ankyloblepharon filiforme adnatum

b) Euryblepharon

c) Ablepharon

d) Epiblepharon

Correct Answer - A

Answer- A. Ankyloblepharon filiforme adnatum

- In ankyloblepharon filiforme adnatum the upper and lower eyelids are joined by thin tags; most cases are sporadic. Treatment involves transection with scissors.

197. Anisocoria in homers syndrome is due to

a) Oculo sympathetic palsy

b) Oculo parasympathetic palsy

c) Oculomotor nerve palsy

d) Abducens nerve palsy

Correct Answer - A

Answer- A. Oculo sympathetic palsy

Horner's syndrome is oculo sympathetic palsy.

- Horner's syndrome consists of classical triad of ipsilateral:-
 1. Ptosis,
 2. Miosis,
 3. Anhydrosis (loss of sweating)
- Other features are :- Loss of cilio-spinal reflex, Enophthalmos, Heterochromia (ipsilateral iris is of light colour), the pupil is slow to dilate, slight elevation of inferior eyelid, normal pupillary reflex.

198. Nasolacrimal duct runs in the nasolacrimal canal. It is made up of all the following bones except

a) Maxillary bone

b) Inferior nasal conchae

c) Lacrimal bone

d) Ethmoid

Correct Answer - D

Answer- D. Ethmoid

Nasolacrimal Canal

- The canal containing the nasolacrimal duct is called the nasolacrimal canal.
- It is formed by indentations in the inferior nasal conchae, maxilla and lacrimal bone.
- It drains to-into the nasal cavity through the anterior portion of the inferior meatus which is between the inferior concha and the floor of the nasal cavity.

199. Muscle not paralysed in retrobulbar block

a) Superior oblique

b) Lateral rectus

c) Superior rectus

d) Medial rectus

Correct Answer - A

Answer- A. Superior oblique

- A retrobulbar block is a regional anaesthetic nerve block in the retrobulbar space, the area located behind the globe of the eye. Injection of local anaesthetic into this space constitutes the retrobulbar block.
- Cranial nerve IV lies outside the muscle cone, but is blocked by diffusion of the local anaesthetic.
- Superior oblique is supplied by cranial nerve IV.

200. Dioptric power is related -

a) Directly to square of focal length

b) Inversely to focal length

c) Directly to focal length

d) Inversely to square of focal length

Correct Answer - B

Answer- B. Inversely to focal length

- Optical power (also referred to as dioptric power, refractive power, focusing Power, or convergence Power) is the degree to which a mirror, or other optical system converges or diverges light.

201. Antiglaucoma drug contraindicated in acute uveitis

a) Pilocarpine

b) Timolol

c) Brimonidine

d) Latanoprost

Correct Answer - A

Answer- A. Pilocarpine

- Cholinomimetic (Pilocarpine) :- Uveitis

202. Wolfram syndrome is characterized by all except

a) Optic atrophy

b) Diabetes mellitus

c) Diabetes Insipidus

d) Parathyroid hyperplasia

Correct Answer - D

Answer- D. Parathyroid hyperplasia

The Wolfram syndrome is a hereditary optic atrophy.

- It presents between the ages of 5-21 years.
- This is also referred to as "DIDMOAD" i.e. Diabetes Insipidus, Diabetes Mellitus, Optic Atrophy and Deafness

203. Most important use of cross cylinder is -

a) Verify the strength and axis of the cylinder

b) Refining the sphere

c) Binocular balancing

d) Retinoscopy

Correct Answer - A

Answer- A. Verify the strength and axis of the cylinder

The proper subjective refraction includes three steps-

1) Subjective verification of refraction

- The strongest convex lens and the weakest concave lens providing best vision should be chosen in patients with hypermetropia and myopia respectively.

2) Subjective refining of refraction

A) Refining the cylinder : - Cylinder can be refined by either crosscylinder or by astigmatic fan test.

- Jackson's cross cylinder test (more commonly used)- crosscylinder is used to verify the strength and axis of the cylinder prescribed.

- Astigmatic fan test:- It is used to confirm the cylindrical correction.

B) Refining the sphere- The fogging technique, Duochrome test, Pin-hole test.

3) Subjective binocular balancing.

204. What is the most common eye pathology in rheumatoid arthritis?

a) Scleritis

b) Episcleritis

c) Keratoconjunctivitis sicca

d) Anterior uveitis

Correct Answer - C

Answer- C. Keratoconjunctivitis sicca

- MC ocular manifestation of RA- Dry eye(Keratoconjunctivitis sicca).

205. Investigation of choice of vitreous hemorrhage is -

a) Ultrasound biomicroscopy

b) A-Scan

c) B-Scan

d) OCT

Correct Answer - C

Answer- C. B-Scan

- B- scan USG is particularly helpful in diagnosing vitreous hemorrhage.

206. How many mm from the limbus is the safest site of intravitreal injection?

a) 1-2 mm

b) 2-3 mm

c) 3-4 mm

d) 4-5 mm

Correct Answer - C

Answer- C. 3-4 mm

Intravitreal injection (Distance from Limbus)

1. For aphakics-3mm
2. For pseudophakes-3.5mm
3. For phakics- 4mm

207. Type of cataract in chalcosis is

a) Sunflower cataract

b) Blue dot Cataract

c) Snowflake cataract

d) Polychromatic lustre

Correct Answer - A

Answer- A. Sunflower cataract

208. Arden index is related to -

a) ERG [Electroretinogram]

b) EOG [Electroculogram]

c) VER [Visual Evoked response]

d) Perimetry

Correct Answer - B

Answer- B. EOG [Electroculogram]

Arden index is related to Electrooculography

- Interpretation of results:- Results of EOG are interpreted by finding out the Arden ratio as follows :
- Normal curve values are 185 or above.
- Subnormal curve values are less than 150.
- Flat curve values are less than 125.

209. Copper foreign body in the eye, which of the following will be seen

a) Cataract resembling petals of flower

b) Fleisher ring

c) Open angle of glaucoma

d) Pigmentary degeneration of retina

Correct Answer - A

Answer- A. Cataract resembling petals of flower

- Grayish-green/golden brown discoloration of peripheral cornea called Kayser-Fleisher ring.
- Sunflower (Petal of flower) cataract due to deposition of copper under the posterior capsule of the lens.

210. Fincham test is used for -

a) Differentiating open angle from angle closure glaucoma

b) Differentiate halos due to angle closure glaucoma and immature cataract

c) Classify glaucomatous optic atrophy

d) Differentiate granulomatous and non granulomatous uveitis

Correct Answer - B

Answer- B. Differentiate halos due to angle closure glaucoma and immature cataract

- 'Fincham's test is used to differentiate the halos of PACG and immature cataract.
- In this a stenopaeic slit is passed across the pupil → Glaucomatous halo remains intact, while a halo due to cataract is broken up into segments.

211. Injection of muscarinic agonist in conjunctival sac will lead to all of the following except

a) Conjunctival and uveal hyperemia

b) Ciliary spasm

c) Miosis

d) Decreased secretion from ciliary epithelium

Correct Answer - D

Answer- D. Decreased secretion from ciliary epithelium

Effects of muscarinic agents-

1. Blood vessel dilation causing conjunctival and uveal hyperemia
2. Ciliary spasm
3. Miosis
4. Increased aqueous outflow due to opening of trabecular meshwork due to ciliary muscle contraction

212. Sunset sign is seen in

a) Optic neuritis

b) Hydrocephalus

c) Thyroid ophthalmopathy

d) Orbital cellulitis

Correct Answer - B

Answer- B. Hydrocephalus

- Sun set sign: The scleraa revisible between theupper eyelid and their is, Sun setting sign is seen usually in hydrocephalus due to loss of upward conjugate gaze caused by raised intracranial pressure (ICP).

213. Avascular structure of the eye is -

a) Conjunctiva

b) Ciliary body

c) Cornea

d) Retina

Correct Answer - C

Answer- C. Cornea

- Lens and cornea are avascular structures of eye, that's why fluorescein angiography can't be used to identify lesions.

214. The laser used in LASIK is

a) Argon diode laser

b) Nd:YAG Laser

c) Excimer laser

d) Double frequency Nd:YAG Laser

Correct Answer - C

Answer- C. Excimer laser

- Krypton red Excimer (argon fluoride)- Photorefractive keratectomy (PRK), phototherapeutic keratectomy (PTK), LASIK, LASEK

215. Exotropia occurs due to

a) Third nerve palsy

b) Optic neuritis

c) Abducens injury

d) Papilloedema

Correct Answer - A

Answer- A. Third nerve palsy

Causes and associations of exotropia (Divergent squint)

- Third nerve palsy
- Congenital
- Previous strabismus surgery
- Thyroidophthalmopathy
- Iatrogenic trauma following retinal detachment surgery

216. Distichiasis is

a) Increased number of lashes in the lower eyelid

b) Growth of eyelashes from Meibomian Orifices

c) Hyperpigmentation of eyelashes

d) Increased thickness of eyelashes

Correct Answer - B

Answer- B. Growth of eyelashes from Meibomian Orifices

- Distichiasis is a rare disorder defined as the abnormal growth of lashes from the orifices of the meibomian glands on the posterior lamella of the tarsal plate.

217.

In ophthalmology, muscle resection leads to

a) Weakening of muscle

b) Strengthening of muscle

c) Muscle paralysis

d) No effect

Correct Answer - B

Answer- B. Strengthening of muscle

Strengthening of weak/paralyzed ocular muscle is done by :-

1. Resection
2. Tucking
3. Advancement
4. Transposition

218. Khodadaust Line indicates

a) Sympathetic ophthalmia that has poor prognosis

b) Rejection of corneal graft

c) Poor prognosis of Acute congestive glaucoma

d) Lesion at optic chiasma

Correct Answer - B

Answer- B. Rejection of corneal graft

- A Khodadoust Line or chronic focal transplant reaction is a medical sign that indicates a complication of corneal graft surgery on the eye. This method is called Khodadoust Line.

219. Pseudoproptosis caused by

a) Buphthalmos

b) Meningioma of optic nerve

c) Orbital cellulitis

d) Dermoid cyst

Correct Answer - A

Answer- A. Buphthalmos

causes are:

- Buphthalmos (congenital glaucoma),
- High myopia,
- Upper lid retraction,
- Paralysis of the extrinsic muscles,
- Stimulation of muller muscle by cocaine,
- Shallow orbit as in craniofacial dysostosis

220. Epiretinal membrane is seen in

a) Posterior vitreous detachment

b) Optic neuritis

c) Papilloedema

d) Glaucomatous optic atrophy

Correct Answer - A

Answer- A. Posterior vitreous detachment

- Epiretinal membrane is a disease of the eye in response to changes in the vitreous humor or more rarely, diabetes. It is also called macular pucker.
- Immune system response to protect the retina, cells converge in the macular area as the vitreous ages and pulls away in posterior vitreous detachment (PVD).

221. All are seen in CMV retinitis except

a) Immunosuppression

b) Brush-fire appearance Pattern

c) Crack mud appearance

d) Perivasculitis

Correct Answer - C

Answer- C. Crack mud appearance

- CMV retinitis is the most common ophthalmic manifestation of CMV.
- There is characteristic hemorrhagic, full thickness retinitis.
- Occuring as a congenital infection in infants or an opportunistic infection in the immunocompromised host.
- CMV retinitis is a white granular geographic lesion that clears centrally as it enlarges, leaving a quiet central area of retinal atrophy and mottled pigment epithelium. This has also been described as "brush-fire pattern.
- Perivascular retinitis- Frosted branch angitis with retinal perivasculitis.

222. Ratio of diameter of retinal arteriole to retinal venule is -

a) 3:2

b) 2:3

c) 3:1

d) 1:3

Correct Answer - B

Answer- B. 2:3

- The ratio has been normally regarded as 2 : 3

223. Tomato ketchup retina is seen in

a) Central retinal artery occlusion

b) Central retinal vein occlusion

c) Coats disease

d) Side cell retinopathy

Correct Answer - B

Answer- B. Central retinal vein occlusion

- Tomato ketchup or splash tomato fundus is seen in central retinal vein occlusion.

224. All of the following are parts of optic nerve except

a) Intraorbital Part

b) Intracranial Part

c) Cisternal Segment

d) Intra cavernal Part

Correct Answer - D

Answer- D. Intra cavernal Part

Optic nerve is about 47-50 mm in length and can be divided into 4 parts :

1. Intraocular part (1 mm)
2. Intraorbital part (30 mm)
3. Intracranial part (6-9 mm)
4. Intra cranial part (10 mm)

225. What is stereops is -

a) Perception of different colours

b) Perception of depth of vision

c) Perception of Peripheral visual fields

d) Perception of size of an object

Correct Answer - B

Answer- B. Perception of depth of vision

- Stereopsis is a term that is most often used to refer to the perception of depth and 3-dimensional structure obtained on the basis of visual information deriving from two eyes by individuals with normally developed binocular vision.

226. Ciliary muscle is supplied by -

a) Short ciliary nerves

b) Long ciliary nerves

c) Superior cervical ganglion

d) Abducens

Correct Answer - A

Answer- A. Short ciliary nerves

- The ciliary muscle receives only parasympathetic fibers from the short ciliary nerves that arise from the ciliary ganglion.
- These postganglionic fibers are part of cranial nerve V (Nasociliary nerve of the trigeminal).

227. Axial myopia is -

a) Increase in antero-posterior length of the eyeball

b) Increased curvature of cornea

c) Anterior placement of crystalline lens

d) Increase in refractive index of crystalline lens

Correct Answer - A

Answer- A. Increase in antero-posterior length of the eyeball

- Ametropia (a condition of refractive error) is defined as a state of refraction, wherein the parallel rays of light coming from infinity are not focused on retina, rather focused either in front (in myopia) or behind (in hypermetropia) the sensitive layer of retina.
causes of ametropia are : -
- Axial- It is the commonest form of ametropia (both myopia and hypermetropia).

228. Optic vesicle is derived from -

a) Endoderm

b) Mesoderm

c) Neuroectoderm

d) Surface Ectoderm

Correct Answer - C

Answer- C. Neuroectoderm

- An outgrowth from prosencephalon forms optic vesicle (neuroectodermal structure).
- Proximal part of optic vesicle becomes constricted and elongated to form optic stalk
- Growing optic vesicle comes in contact with surface ectoderm which is thickened to form lens placode.

229. Christmas tree cataract is seen in

a) Blunt trauma

b) Diabetes

c) Galactosemia

d) Myotonic Dystrophy

Correct Answer - D

Answer- D. Myotonic Dystrophy

230. Visual fields diagnosed by -

a) Pachymetry

b) Perimetry

c) Corneal topography

d) Optical coherence tomography

Correct Answer - B

Answer- B. Perimetry

.. Confrontation test.

? Perimetry:- Kinetic perimetry, or automated perimetry

231. Sudden induced hypermetropia is seen in -

a) Trauma

b) Sudden blood sugar level change in diabetics

c) SLE

d) Rheumatoid arthritis

Correct Answer - B

Answer- B. Sudden blood sugar level change in diabetics

- Refractive changes in diabetics are due to alterations in the power of the lens.
- Myopia with hyperglycaemia was then explained as being due to osmotic hydration of the lens due to salt retention.
- Rosen accounted for hyperopia with hyperglycaemia by assuming that hydration must involve the nucleus as well

232. Centrocaecal scotoma is seen in -

a) Optic neuritis

b) Wolfram syndrome

c) Papilloedema

d) CRAO

Correct Answer - A

Answer- A. Optic neuritis

Centrocaecal scotoma is seen in -

1. Optic nerve damage.
2. Optic neuritis.
3. Tobacco amblyopia.

233. Stem cells are present where in cornea -

a) Limbus

b) Stroma

c) Epithelium

d) Descmet's membrane

Correct Answer - A

Answer- A. Limbus

- Limbal stem cells (also called corneal epithelial stem cells) are stem cells located in the basal epithelial layer of the corneal limbus.
- Proliferation of limbal stem cells maintains the cornea; for example, replacing cells that are lost via tears.
- Limbal stem cells also prevent the conjunctivalepithelial cells from migrating onto the surface ofthe cornea.

234. Cupuliform cataract starts from

a) Posterior subcapsular region

b) Anterior capsule

c) Near nucleus

d) Annularly

Correct Answer - A

Answer- A. Posterior subcapsular region

- Cupuliform senile cortical cataract (Posterior subcapsular) : Here a saucer shaped opacity develops just below the capsule. Usually in the central part of posterior cortex (posterior subcapsular cataract), which gradually extend outwards.
- Cupuliform cataract lies right in the pathway of the axial rays and thus causes an early loss of visual acuity.

235. Cyclosporine is used in the management of -

a) Disciform Keratitis

b) Anterior Iridocyclitis

c) Rhegmatogenous retinal detachment

d) Phacomorphic glaucoma

Correct Answer - A

Answer- A. Disciform Keratitis

Topical steroids (Drugs of choice)

- Mydriatic - cycloplegics: Atropine (Drug of 2nd choice)
- NSAIDs

236. Goblet cells are seen in -

a) Cornea

b) Conjunctiva

c) Retina

d) Vitreous

Correct Answer - B

Answer- B. Conjunctiva

- Goblet cells : - Occur throughout the conjunctiva, especially the plica semilunaris singly or in association with epithelial crypts.
- Goblets cells are most dense nasally and least dens in upper temoral fornix. Goblet cells are absent in palpebral mucocutaneous junction and the limbus.

237. Non granulomatous uveitis- all are causes except

a) Ankylosing Spondylitis

b) Sarcoidosis

c) Juvenile Idiopathic Arthritis

d) Posner Schlossman Syndrome

Correct Answer - B

Answer- B. Sarcoidosis

238. Phleclenular conjunctivitis is -

a) Type I reaction

b) Type II reaction

c) Type III reaction

d) Type IV reaction

Correct Answer - D

Answer- D. Type IV reaction

- It is type IV (delayed) hypersensitivity

239. Which route is most preferred for Endophthalmitis treatment

a) Oral antibiotic

b) Intravenous antibiotic

c) Topical antibiotic

d) Intravitreal antibiotic

Correct Answer - D

Answer- D. Intravitreal antibiotic

- Intravitreal antibiotics is the most preferred mode of treatment.

240. Welder's flash is due to -

a) Infrared rays

b) UV rays

c) Blue - violet light

d) All of the above

Correct Answer - B

Answer- B. UV rays

- Welder's flash is photophthalmia or photokeratitis.

241. Which glaucoma is associated with cataract

a) Phacomorphic glaucoma

b) Neovascular glaucoma

c) Phacoanaphylactic glaucoma

d) Buphthalmos

Correct Answer - A

Answer- A. Phacomorphic glaucoma

- Phocomorphic glaucoma :- It occurs in intumescent stage of cataract. The swollen lens leads to relative pupillary block (pupillary block glaucoma), iris bombe and angle closure. It is a type of angle closure glaucoma and anterior chamber is very shallow.

242. Vitamin deficiency causing optic atrophy -

a) Vitamin A

b) Vitamin B

c) Vitamin C

d) Vitamin D

Correct Answer - B

Answer- B. Vitamin B

- Specific deficiencies of vitamin B-12 (cyanocobalamin), thiamine (vitamin B-1), other B-complex vitamins (riboflavin, niacin, and pyridoxine), and folic acid, as well as reduced systemic levels of other proteins with sulfur-containing amino acids, may play a role in optic atrophy.

243. Neovascularization in uveal tissue [Rubeosis Iridis] is most commonly caused by

a) Diabetic Retinopathy

b) CRVO

c) CRAO

d) Choroidal melanoma

Correct Answer - A

Answer- A. Diabetic Retinopathy

It is a secondary angle closure glaucoma which results due to formation of neovascular membrane over the iris i.e., neovascularization of iris (rubeosis iridis).

Causes of rubeosis iridis are:-

- Common :- Diabetic retinopathy (most common cause), central retinal vein occlusion), Eale's disease, sickle-cell retinopathy.

244. IOL in which can correct astigmatism is -

a) Toric IOL

b) Multifocal IOL

c) PCIOL

d) Premium IOL

Correct Answer - A

Answer- A. Toric IOL

- Toric IOLs refer to astigmatism correcting intraocular lenses used at the time of cataract surgery to decrease postoperative astigmatism.
- The toric lenses currently available are designed to correct regular corneal astigmatism. Patients with irregular astigmatism will not fare as well

245. Centre of biconvex lens is called -

a) Focal point

b) Optical center

c) Epicentre

d) Focal Distance

Correct Answer - B

Answer- B. Optical center

- Optical center is the point in the principal axis of a lens through which light passes without undergoing any deviation. It is in the center of lens.

246. What is the nerve supply of cornea -

a) Maxillary division of trigeminal nerve

b) Facial Nerve

c) Auriculotemporal nerve

d) Ophthalmic division of Cranial nerve V

Correct Answer - D

Answer- D. Ophthalmic division of Cranial nerve V

- The cornea is one of the most sensitive tissues of the body, as it is densely innervated with sensory nerve fibres via the ophthalmic division of the trigeminal nerve by way of 70-80 long ciliary nerves and short ciliary nerves

247. Shield ulcer is seen in -

a) Phlyctenular conjunctivitis

b) Spring Cattarrh

c) Mycotic corneal ulcer

d) Herpetic ulcer

Correct Answer - B

Answer- B. Spring Cattarrh

- Punctuate epithelial keratitis .
- Ulcerative vernal keratutis- shallow transverse ulcer (Shield ulcer)
- Vernal corneal plaques
- Suhepithelial scarring
- Pseudogerontoxon: characterized by a classical "cupids bow" outline.

248. Fundoscopic finding of retinal hemorrhage with white centre is known as?

a) Cotton wool spot

b) Flame shaped hemorrhage

c) Roth spot

d) Drussen

Correct Answer - C

Answer- C. Roth spot

- Roth spots are retinal hemorrhages with white centres, the whitish element thought to be composed of coagulated fibrin in most cases.

249. Which of the following is false about inferior oblique muscle -

a) It is the shortest muscle

b) Supplied by 3th cranial nerve

c) Originates from annulus of zinn

d) Its primary action is extorsion

Correct Answer - C

Answer- C. Originates from annulus of zinn

- It originates from orbital plate of maxilla lateral to the orifice of nasolacrimal duct.
- It is the only muscle to take origin from front of the orbit. Other recti muscle take origin from annulus of zinn.

250. Treatment of CMV retinitis in AIDS patient is

a) Amantadine

b) Fludrabine

c) Oseltamivir

d) Valganciclovir

Correct Answer - D

Answer- D. Valganciclovir

- Valganciclovir- pro-drug of ganciclovir that is taken orally and is as effective for both induction.

251. Ophthalmic finding of acute meningococcal meningitis are all except

a) Ocular motility palsy

b) Papilloedema

c) Optic neuritis

d) Glaucoma

Correct Answer - D

Answer- D. Glaucoma

- Ophthalmic manifestations of meningococcal meningitis include ocular motility abnormalities due to third, fourth, and sixth nerve palsies and nystagmus.
- Raised intracranial pressure associated with meningitis may cause papilloedema and secondary optic atrophy.
- Optic neuritis and papillitis are potential causes of visual loss in Patients with meningitis.

252. Most common conjunctivitis in newborn

-

a) Gonococcal

b) Staphylococcal

c) Streptococcal

d) Pneumococcal

Correct Answer - A

Answer- A. Gonococcal

- Causative organism of ophthalmia neonatorum :- Common causes are Gonococcus, Chlamydia, HSV. Other causes are staphylococcus aureus, pneumococcus, streptococcus, pseudomonas, serratia, klebsiella.

253. A 48 year old diabetic with orbital cellulitis presented with a corneal ulcer. An aqueous tap showed branched hyphae. Diagnosis is -

a) Herpetic ulcer

b) Mycotic Ulcer

c) Bacterial Ulcer

d) Anterior staphyloma

Correct Answer - B

Answer- B. Mycotic Ulcer

- Branched hyphae are characteristic morphology in fungal (aspergillus) corneal ulcer.

254. NSAID used commonly for topical ocular use is

a) Ibuprofen

b) Aceclofenac

c) Ketorolac

d) Acetaminophen

Correct Answer - C

Answer- C. Ketorolac

Ketorolac

- Flurbiprofen
- Diclofenac sodium

255. Glass blowers cataract is caused due to -

a) Wilson's Disease

b) Myotonic Dystrophy

c) Infrared radiation

d) Congenital Rubella

Correct Answer - C

Answer- C. Infrared radiation

- Glassblower's cataracts is formed by many years or decades of exposure to infrared radiation while working in the occupation of glass blowing, or working close to hot or molten metals such with metal foundry workers or blacksmiths

256. Continuous contact lens wear may lead to

a) Giant papillary conjunctivitis

b) Anterior uveitis

c) Nuclear Cataract

d) Trachoma

Correct Answer - A

Answer- A. Giant papillary conjunctivitis

- Corneal complications : - Corneal abrasion, Corneal edema, Corneal vascularization, Microbial keratitis (pseudomonas, acanthamoeba), Sterile corneal infiltrate.
- Giant papillary conjunctivitis

257. All of the following are causes of posterior subcapsular cataract except -

a) Myotonic dystrophy

b) Wilson's Disease

c) Ionizing radiation

d) Congenital cataract

Correct Answer - D

Answer- D. Congenital cataract

- Myotonic dystrophy
- Wilson's disease
- Atopic dermatitis
- Corticosteroids
- Trauma
- Galactosemia
- Infrared/heat cataract (glass-blower's or glass worker)

258. In diabetic retinopathy pan retinal photocoagulation is done by

a) Argon Diode

b) Nd:YAG

c) Holmium

d) Transpupillary thermotherapy

Correct Answer - A

Answer- A. Argon Diode

259. The Investigation To Predict The Visual Outcome After Phacosurgery is -

a) Pachymeter

b) Potential Acuity meter

c) Lensometer

d) Topometer

Correct Answer - B

Answer- B. Potential Acuity meter

- Potential acuity meters (PAMS) measure the VA that the patient is likely to achieve once there are no more opacifications of the ocular media of the eye.
- These clear areas are used to project a target (numbers, letters or stripes) onto the retina using a narrow light beam.
- PAM measurements have been shown to be especially reliable if patients with nuclear sclerotic cataracts are measured, but may be difficult if a posterior subcapsular cataract is present.

260. Which of the following Vitamins is being used in Optic Neuritis ?

a) Vitamin A

b) Pyridoxine

c) Vitamin D

d) Vitamin C

Correct Answer - D

Answer- D. Vitamin C

- Intravenous administration of vitamin C can be evaluated as the method of choice for the treatment of patients with ON.

261. The structure connecting the posterior surface of lens to capsule is called -

a) Hyaloideocapsular ligament of Weiger

b) Vitreous Base

c) Cloquets's Canal

d) Collagen fibres

Correct Answer - A

Answer- A. Hyaloideocapsular ligament of Weiger

- Hyaloideocapsular ligament of Weiger or retrolental ligament is a strong adhesion between the lens and posterior capsule.
- It is a circular adhesion 8-9mm in diameter. This attachment is termed as Egger's Line.
- Within this circle is a potential space called as Space of Burger or Erggelet's space.

262. Power for nuclear fragmentation in phacoemulsification -

a) Ultrasonic

b) Magnetic

c) Thermal

d) Fluid

Correct Answer - A

Answer- A. Ultrasonic

- The ultrasound generating mechanism of the phaco handpiece causes the tip attached to it to vibrate rapidly back and forth.
- The frequency used most commonly is 40 KHz

263. Paralytic squint is

a) Incomitant squint

b) Exophoria

c) Esotropia

d) Heterotropia

Correct Answer - A

Ans. is 'a' i.e., Incomitant squint [Ref Khurana 4th/e p. 320]

- Incomitant squint is a squint in which the angle of deviation differs depending upon the direction of gaze i.e, amount of deviation varies in different directions of gaze .
- There are many type of incomitant squints (paralytic, restrictive, 'A' & 'V' pattern), however the most common type is Paralytic squint and the word incomitant squint is usually used for paralytic squint.
- Therefore, I will explain paralytic squint here.

264. Triple surgery in glaucoma includes all of the following except -

a) Trabaculectomy

b) PCIOL implantation

c) Insertion of drainage device

d) Extra capsular cataract extraction

Correct Answer - C

Answer- C. Insertion of drainage device

- 1. TRABECULECTOMY
- 2. ECCE
- 3. PCIOL INSERTION

265. Which of the following is not a clinical feature of Endophthalmitis?

a) Vitritis

b) Corneal edema

c) Hypopyon

d) Cranial nerve palsies

Correct Answer - D

Answer- D. Cranial nerve palsies

- Clinical features Acute bacterial endophthalmitis occurs within 7 days of operation and is characterized by severe ocular pain, redness, lacrimation, photophobia and marked loss of vision.
- On examination there is swollen lids, chemosis of conjunctiva, conjunctival congestion & circumcorneal congestion, corneal edema, hypopyon, muddy iris, and amaurotic cat's eye reflex due to vitreous exudation.

266. Confirmatory investigation in retinitis pigmentosa is

a) Optical coherence tomography

b) Pachymetry

c) Visual Acuity testing

d) Electroretinogram

Correct Answer - D

Answer- D. Electroretinogram

- An accurate diagnosis of retinitis pigmentosa relies on the documentation of the progressive loss photoreceptor cell function, confirmed by a combination of visual field and visual acuity tests, fundus and optical coherence imagery, and electroretinography.

267. A 33 year old suffers from blunt trauma to the eye. Fundoscopy shows cherry red spot, the probable diagnosis is

a) Retinoblastoma

b) Commotio Retinae

c) Optic nerve transection

d) Posterior Vitreous Detachment

Correct Answer - B

Answer- B. Commotio Retinae

- Berlin's oedema, also called commotio retinae, occurs in blunt trauma to eye. It manifests as milky white cloudiness involving a considerable area of the posterior pole with a 'cherry-red' spot in the foveal region.

268. Focal length of lens is 0.75 m, what will be its refractive power -

a) 0.75 D

b) 1.5 D

c) 1.25 D

d) 1.33 D

Correct Answer - D

Answer- D. 1.33 D

- Refractive power (D)= $1/\text{focal length} = 1/ .75 = 1.33 \text{ D}$

269. Corneal thickness is measured by all except

a) Pachymetry

b) Optical coherence tomography

c) Confocal microscopy

d) Placido Keratoscopic disc

Correct Answer - D

Answer- D. Placido Keratoscopic disc

The following are the methods of measuring corneal thickness

:-

- Ultrasound
- Optical slit lamp pachymetry
- Scanning slit based Orbscan
- Optical low coherence reflectometry
- Amoebic dysentery (in stool)
- Allergic fungal sinusitis (AFS)
- Ultrasound biomicroscopy
- Specular microscopy based
- Optical Coherence Tomography (OCT)
- Confocal microscopy through focusing
- Laser Doppler interferometry

270. Normal conjunctival flora is

a) E. coli

b) Pseudomonas

c) Coagulase negative staphylococci

d) Lactobacillus

Correct Answer - C

Answer- C. Coagulase negative staphylococci

Resident flora-

- Coagulase negative staphylococci (most common)
- Micrococci
- Haemophilus
- Cornebacterium xerosis

271. Which organism is considered as normal flora conjunctiva?

a) B. Proteus

b) Pseudomonas

c) E coli

d) Corynebacterium xerosis

Correct Answer - D

Answer- D. Corynebacterium xerosis

272. Pin hole can reduce refractive error upto

-

a) 1D

b) 3D

c) 5D

d) 10D

Correct Answer - B

Answer- B. 3D

- The optimal aperture size of a pinhole is 1.2 mm, which may correct up to 3D of refractive error.
- A smaller pinhole actually hinders visual acuity because the smaller the aperture, the greater the diffraction

273. Organism not invading intact cornea

a) Gonococci

b) *C. diphtheriae*

c) Meningococci

d) *Pseudomonas*

Correct Answer - D

Answer- D. *Pseudomonas*

- The organisms which can penetrate intact corneal epithelium are *Neisseria gonorrhoea*, *Haemophilus aegyptus*, *Corynebacterium diphtheriae*, *Listeria species* and *Neisseria meningitidis*.

274.

Valve of Rosenmuller is present in which part of lacrimal system?

a) Puncta

b) Canaliculi

c) Lacrimal sac

d) Nasolacrimal duct

Correct Answer - B

Answer- B. Canaliculi

- Valve of Rosenmuller is a small flap of mucosa in lacrimal canaliculus at its junction with lacrimal sac.

275. Which antifungal is used intravitreally?

a) Fluconazole

b) amphotericin B

c) Itraconazole

d) Flucytosine

Correct Answer - B

Answer- B. amphotericin B

Antifungal drugs which are used intravitreally for fungal ophthalmitis are :-

- Variconazole (more commonly used)
- Amphotericin B

276. Most common cause of orbital cellulitis is?

a) B. Anthracis

b) H. influenza

c) S. aureus

d) Mucormycosis

Correct Answer - C

Answer- C. S. aureus

- Streptococcus and staphylococcus aureus are the most common organisms causing orbital cellulitis.

277. What is the initial management of congenital Lens antigen are ?

a) Neoantigen

b) Sequestrated antigen

c) Altered antigen

d) Cross reacting

Correct Answer - B

Answer- B. Sequestrated antigen

- Certain self antigens are present in the close system and never exposed to the immune system during fetal life.
- These are known as hidden antigen or sequestrated antigens. E.g. Sperm antigen, lens proteins being enclosed in capsule.

278. Which of the following is not used topically for ophthalmic use ?

a) Hydrocortisone

b) Prednisolone

c) Methylprednisolone

d) Dexamethasone

Correct Answer - C

Answer- C. Methylprednisolone

Topical corticosteroids for ophthalmologic use are :-

- Hydrocortisone ointment
- Prednisolone acetate suspension
- Prednisolone sodium phosphate solution
- Dexamethasone sodium phosphate suspension
- Medrysone suspension
- Fluorometholone suspension
- Rimexalone suspension

279. Which of the following is not used as local injection for of ophthalmic use?

a) Triamcinolone

b) Prednisolone

c) Betamethasone

d) Dexamethasone

Correct Answer - B

Answer- B. Prednisolone

Periocular steroid injections are:-

- Subconjunctival injection → Betamethasone or dexamethasone
- Subtenon or retrobulbar injection → Triamcinolone

Intraocular steroid injections are :-

- Injection → intravitreal triamcinolone
- Slow-release implants → fluocinolone or dexamethasone

280. Which is the innermost layer of corneal epithelium ?

a) Keratinized squamous cells

b) Flattened squamous cells

c) Umbrella shaped cells

d) Columnar cells

Correct Answer - D

Ans. is 'd' i.e., Columnar cells [Ref Khurana 4⁵/e ch. 5]

- Corneal epithelium is stratified squamous non-keratinized type and becomes continuous with epithelium of bulbor conjunctiva at the limbus.
- It consists of 5-6 layers of cells. The deepest (basal) layer is made up of columnar cells, next 2-3 layers of wing or umbrella cells and most superficial two layers are of flattened cells.