

TOPIC-WISE DNB QUESTION BANK

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Compiled by

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ANATOMY

1. Anatomy and development of lacrimal drainage system
Developmental anomalies of lacrimal passages
2. Anatomy and relations of the surgical spaces of the orbit, and their clinical implications
3. Metabolism of crystalline lens.
 - Biochemical factors responsible for cataractogenesis
4. Anatomy of eyelid and its blood supply
 - Anatomy of LPS and its clinical importance
5. Anatomy and development of angle of anterior chamber (AC) of eye.
 - Developmental anomalies of angle of AC.
 - Structure of tear film.
 - Methods to evaluate tear film disorder
6. Transparency of cornea
 - Clinical features, etiology and management of corneal edema.
7. Pupillary pathways with diagram
 - Causes, grading and clinical importance of relative afferent pupillary defect
8. Anatomy of superior orbital fissure.
9. Anatomy of cavernous sinus
10. Methods to increase the ocular bioavailability and efficacy of drugs used in treatment of ocular disorders, along with example.
11. Limbal anatomy
Relationship between limbus and corneal epithelial repair
12. Anatomy and development of eyelids
Enumerate four congenital anomalies of eyelids
13. Production and outflow of aqueous humor.
 - Aqueous humour dynamics
 - Mechanism of aqueous formation
 - Detailed anatomy of trabecular meshwork and Schlemm canal.
 - Process of aqueous production and various factors that influence it.
14. Optical principle to see angle structures
15. Blood supply of choroid, ciliary body and iris.
16. Anatomy & development of crystalline lens and zonules.
17. Enumerate congenital anomalies of lens
18. Blood supply of optic nerve head and intraorbital optic nerve with well-labeled diagrams, and highlight its clinical importance.
19. Anatomy and physiology of corneal endothelium.
20. Anatomy, biochemical composition and physiological roles of retinal pigment epithelium
21. Anatomy of ciliary body with the help of diagram(s).
22. Embryology of development of vitreous.
 - How does one diagnose and manage PHPV?
23. Anatomy of Limbus and its surgical importance.
Corneal wound healing and the role of Limbus
24. What are the surgical spaces of the orbit? What are the surgical approaches?
 - Role of MRI & CT in diagnosis of ocular lesions.
25. Genesis of visual evoked potential (VEP).

- What are the types of VEP and enumerate the conditions for assisting in diagnosis and management of the conditions?
26. Metabolism of lens in eye
27. How does lens maintain transparency.

OPTICS AND REFRACTION

- Theories of colour vision
 - Methods of colour vision evaluation
- Optics of operating microscope with neat labeled diagram
- Mechanism of accommodation
 - Anomalies of accommodation and their management
 - What is amplitude of accommodation?
 - What is spasm of accommodation? Name two condition in which this is commonly seen.
 - How do you treat this condition?
- Etiology and classification of myopia
 - Clinical features of pathological myopia
 - Indications and techniques of surgical correction of Myopia
- Define abnormal retinal correspondence. Explain its development and methods of diagnosis
- Principle and uses of UBM
 - Its advantages and disadvantages over anterior segment OCT
 - What is UBM?
 - Indications of use of this diagnostic modality
 - Enumerate conditions where it is a preferred mode of investigation
- What are phakic IOLs? Discuss their indications, techniques and complications
- Classification and components of hypermetropia
 - Approach for subjective verification of refraction
 - Define hypermetropia and its components.
 - How it effects accommodation and ocular alignment?
- Labeled diagram of Sturm's conoid.
 - Classify astigmatisms with example.
 - Methods to treat astigmatism
- Contact lens options in keratoconus and irregular corneas with high astigmatism
- Principle of optical coherence tomography.
 - Indications of use of above modality in different ocular conditions.
 - Recent advances in OCT
 - What is OCT? What are its advantages over conventional imaging?
 - Name the conditions where it helps in precise diagnosis?
 - What are the recent advances in choroidal assessment on OCT? In which situations has it been applied. Enumerate the uses of optical coherence principle in Ophthalmology. What equipments are based on this principle and their advantages
- Critically evaluate DSEK/DSAEK & DMEK
- What are spherical aberrations?

- What is negative and positive asphericity of cornea
 - Give one example of each.
14. What are the different designs of bifocal spectacle lens?
 - Give 2 advantages and disadvantages of each type
 - What is the best design to minimize these pitfalls?
 15. Classification and management of amblyopia
 16. Corneal ring segments – indications and complications
 17. SMILE in refractive surgery: Advantages and disadvantages over conventional LASIK surgery
 18. Management of astigmatism in a:
 - 20 year old male, and
 - 50 year old male with cataract.
 19. Principle, utility and advantages of:
 - Square edged optics
 - Aspheric optics
 - Heparin coated optics
 20. Principle and optics of retinoscopy.
What are the problems of retinoscopy?
 21. What is contrast sensitivity?
 - What are various methods to measure it?
 - How do different types of intraocular lenses influence contrast sensitivity?
 22. How will you workup a case for LASIK surgery? What are the modalities available and which one is preferred and why?
 23. What is the concept and its applications in various full range IOLs such as Multifocals, accommodative, Pseudoaccommodative and extended-range IOLs?
 24. Multifocal IOL. Case selection and basic principles for premium IOL.
 - Optical principle of multifocal intra ocular lens (MF-IOL).
 - Classify MF-IOL.
 - Enumerate the patient selection criteria for MF-IOL.
 25. What are the recent modalities available to treat Presbyopia? What are their advantages and limitations?
 26. Principles of Snellen's visual acuity testing.
 - What are the drawbacks of a Snellen's chart?
 - Enumerate other charts for testing of visual acuity and give their advantages over the Snellen's chart
 27. A 25 year old woman presents with inability to correct her vision completely with glasses. Her keratometric values are 48D@95°/ 52D@185°(OD), 50D@65°/ 55D@ 155°. What is your plausible diagnosis and discuss important steps in further confirming your diagnosis and factors influencing her management?
 28. Describe the approach to a 73 year old male patient who complains of a profound unilateral loss of vision in one eye, followed by a similar loss on the other after 8 weeks. What is the diagnosis, clinical features, investigations and management of such a case

29. What is AC:A RATIO. Methods of measuring it.
 - Discuss disorders resulting from altered AC: A ratio
30. What is principle of optical coherence biometry. Which ophthalmic instrument uses this principle. Adv and diadv of this type of biometry.
31. Newer advances in refractive surgery.
32. Keratoprosthesis – Types, Indication
33. Progressive glasses design. When to use it and advantages over conventional glasses.
34. Discuss 2 newer imaging modalities of anterior segment of eye.

MISCELLANEOUS

1. Commonly used preservatives for ophthalmic preparations, their advantages and disadvantages
 - Name 3 commonly used preservatives in topical medication. What are adverse effects of preservative in ophthalmic medication. Various means of preventing these adverse effects
 - What are various preservatives in eye drops?
 - What are their side effects and how does one treat them?
2. Role of immunosuppressive drugs in ophthalmic conditions
3. Enumerate the commonly used drugs with their dosage and complications
4. Classify and mention briefly about different anti-VEGF agents and their uses in ophthalmology.
 - What are the various Anti VEGF intra-vitreous agents being used?
 - What are the indications for their use and highlight their side effects.
 - Vascular endothelial growth factors
5. What is VEGF-Trap?
6. What are its advantages over the current anti-VEGF agents?
7. Common systemic medications and ocular toxicity
8. What is a Bionic Eye? What are the principles of its working and enumerate its indications
9. Role of newer anti-viral agents used in Ophthalmology
What are the specific advantages of these over available anti-virals?
10. Indications of fibrin glue in Ophthalmology
11. Ocular manifestations of dengue fever
How will you monitor and manage a case of dengue fever from ophthalmic standpoint?
12. Clinical presentation, diagnosis, histopathology and management of two most common premalignant epibulbar ocular tumours.
13. A 34 year old pregnant lady presents with sudden bilateral loss of vision. What are the likely causes? How will you treat them **
14. What are the indications and modes of application of periocular steroids? What are their advantages and complications and what steps can be taken to prevent them.
15. A 30 year old male presented with genital lesions and complained of sudden diminution of vision in one eye followed 6 weeks later by similar diminution in the other eye. What are the possible diagnoses? Give broad guidelines in the management of each situation.
16. Principles, indications and complications of Botulinum toxin chemo denervation
17. Diagnostic criteria for Neurofibromatosis
Ocular features of Neurofibromatosis Type 1 & 2.
18. Principles, technique, indications, and complications of photodynamic therapy.?

19. 25 yr old man c/o itching and redness of both eyes since childhood presents with gradually increasing refractive error and photophobia. Outline workup and management.
20. Uses of mitomycin c in ophthalmology. Mention its side effects.
21. One and half syndrome – its causes and clinical features.
22. Causes of hyperfluorescence and blocked fluorescence in Fluorescein angiography.
23. Fluorescein angiography features in CSR.
24. Principles of MRI nad its role in practice of ophthalmology.
25. Intravitreal implants and indication for their use. What are their side effects.

CONJUNCTIVA

Current techniques for management of recurrent pterygium

P.E.R.F.E.C.T technique for pterygium management

CORNEA

1. Clinical presentation, differential diagnosis and management of recurrent herpes simplex keratitis
 - Clinical features and management of corneal epithelial infectious ulcers and immune keratitis in Herpes Simplex infection.
 - What are the ocular manifestations of Herpes Zoster Ophthalmicus in acute and chronic state? How do you manage them? What is the management of post-herpetic neuralgia?
2. Indications, techniques, advantages and disadvantages of deep anterior lamellar keratoplasty
3. Current status and indications of anterior and posterior lamellar corneal surgeries
4. Critically evaluate DSEK/DSAEK & DMEK.
5. Recent advances in endothelial keratoplasty.
6. Etiopathogenesis, clinical features and management of chronic, non-healing peripheral corneal ulcer
7. Causes, clinical presentation and treatment modalities for pseudophakic bullous keratopathy.
8. Limbal anatomy
Relationship between limbus and corneal epithelial repair.
9. Clinical features, histopathology and management of ocular surface squamous neoplasia (OSSN).
10. A 34 year old lady presents with chronic inflammation and irritation of superior limbus. What is the most likely diagnosis, pathogenesis and management of the disease?
11. Clinical and microbiological workup of corneal ulcer patient.
12. Additional workup in suspected acanthamoeba and atypical mycobacterial keratitis.
13. Presentation, pathogenesis and management of Mooren's ulcer.
14. Management of recurrent viral keratitis.
15. Discuss 2 newer imaging modalities of anterior segment of eye.

SCLERA

1. Classification of scleritis.
2. Clinical features, investigation and management of scleritis.

UVEA

1. Clinical features, investigations and management of ocular sarcoidosis.
2. Classification, clinical features, diagnosis and management of choroidal melanoma.
 - Pathology of choroidal melanoma.
 - What are its adverse prognostic factors
3. Clinical features, diagnostic investigations and management of ocular tuberculosis.
4. Clinical features and management of cases of CMV retinitis and toxoplasmic retinitis.
5. Classification and diagnosis of choroidal effusions
6. Clinical features, diagnosis and management of intra-ocular cysticercosis.
7. Clinical features, diagnosis, differential diagnosis and management of idiopathic polypoidal choroidal vasculopathy.
8. Clinical features and management of intermediate uveitis.
9. Various presentations of uveitis in spondylo-arthropathies
10. What are the types, ocular clinical features and differential diagnosis of a case of juvenile idiopathic arthritis
11. What is the presentation, clinical features and management of a case of serpiginous choroidopathy
12. Enumerate causes of Iris cysts
Discuss management of different types of iris cysts.

LENS

1. Effect of blunt trauma on normal lens.
Management of subluxated lens following trauma.
2. What are the causes of complicated cataract?
 - Principles of management of cataract associated with chronic anterior uveitis
3. Management strategies of unilateral and bilateral congenital cataract in a 2 year old child.
 - Management of unilateral cataract in 2 yr child.
 - Management of unilateral congenital cataract in a 3 year old child.
4. Clinical features, laboratory investigations and management of post cataract surgery endophthalmitis.
5. Principles in the management of cataract surgery post vitreoretinal surgery with silicone oil in vitreous
6. Management of dislocated nuclear fragments after phacoemulsification in a 65 year old male presenting one month after surgery.
7. A 60 year old diabetic male presented with sudden onset diminution of vision one week after uneventful cataract surgery. Give differential diagnosis and management algorithm
8. A 6-year-old boy presents with unilateral leukocoria. What is the differential diagnosis and describe management of its most common cause
9. Systemic associations of Ectopia lentis.
Management of a case of Ectopia lentis
10. Aetiology, inheritance, morphology and 4 main systemic metabolic associations of congenital cataract.
11. How will you diagnose and manage a case of intra operative zonular dialysis during cataract surgery?

GLAUCOMA

1. Causes and management of neovascular glaucoma.
How will you diagnose, treat and manage complications of a case of neovascular glaucoma?
2. Indications, procedure and complications of glaucoma drainage devices
3. Etiopathogenesis of flat anterior chamber after glaucoma surgery.
How would you critically evaluate and manage such a case?
4. Causes and management of glaucoma associated with ocular trauma.
5. Management of intractable glaucoma or multiple failed glaucoma
6. Production and outflow of aqueous humor.
 - Relationship between central corneal thickness and IOP measurement.
 - The accepted norm for the adjustment of corneal thickness variations to IOP measurement.
7. Anti-metabolites in glaucoma filtration surgery: Agents, doses and mode of delivery
8. What is normal tension glaucoma?
 - Etiopathogenesis, clinical characteristics and management of a case of normal tension glaucoma
9. Pathogenesis, diagnosis and management of a case of angle recession glaucoma.
10. How will you diagnose and classify a case of inflammatory glaucoma? What are the treatment options available
11. Give various perimetric criteria for the diagnosis of early glaucoma.
12. Criteria for early glaucomatous field changes.
13. Etiopath , Clinical feature, diagnosis of pseudoexfoliative glaucoma.
Give specific features of true exfoliation in eye.

RETINA

1. Etiopathogenesis, clinical features, investigations and management of central retinal arterial occlusion
2. Etiopathogenesis, clinical features, investigation and management of central retinal vein occlusion.
3. Clinical features of early and late BRVO.
Results of important trials in management of BRVO.
4. Clinical features, diagnosis and management of retinal vein occlusions.
Management of macular edema following retinal vein Occlusion
5. Etiology, methods of evaluation and management of macular hole.
 - What are the causes of macular hole?
 - How will you investigate, prognosticate and manage a case of Idiopathic macular hole
 - Macular hole- its causes, grading and management.
6. Etiopathogenesis and management of exudative retinal detachment.
7. Discuss the role of Silicon oil in VR surgery. Describe its complications and method of removal.

8. Diagnosis and management of non-resolving diabetic macular oedema
 - Pathogenesis, clinical features, diagnosis and management of various types of diabetic macular edema.
 - Pathogenesis of diabetic macular edema.
 - Various modalities of treatment available for treatment of diabetic macular edema
9. Etiology, evaluation, classification and management of retinopathy of prematurity
Risk factors, classification and management of retinopathy of Prematurity **
10. Pathogenesis, clinical features, diagnosis and management of different grades of retinopathy in pregnancy induced hypertension.
11. Management of a 2 disc diameter raised retinoblastoma in a 3 year old child.
 - Recent advances in the management of retinoblastoma.
 - Newer advances in management of 2 DD unilateral retinoblastoma in presenting eye and when presenting in fellow eye in bilateral retinoblastoma.
12. Differentiating features between Retinoschisis and Rhegmatogenous Retinal Detachment
13. Pathology of various age related macular lesions
14. Detailed structure of retinal rods and cones. Their distribution over retina. Implications in vision quality with rod and cone dysfunction.
15. Pathogenesis and sequelae of cotton wool spots and hard exudates on retina in diabetic retinopathy
16. Diagnostic features of HIV retinopathy and relationship to CD4 counts
17. Development of vitreous.
 - What is persistent hyperplastic primary vitreous?
 - Diagnostic features and differential diagnosis of persistent hyperplastic primary vitreous
18. A 65 year old diabetic man presents with painless diminution of vision with vitreous haze. How will you investigate and treat him?
19. Differential diagnosis and management of a 47year old female patient presenting with unilateral hazy vitreous.
20. What are the various vascular retinal tumors? Briefly discuss presentation, diagnosis and management of any 2 of them.
21. Recent advances in diagnosis, pathogenesis and management of central serous retinopathy.
22. What are the principles of scleral buckling surgery for retinal detachment? What are its modern day indications and problems?
23. What is micropulsed retinal laser? What is the change in concept of application of lasers in a micropulsed design and what are its advantages?

NEURO-OPHTHAL

1. Differential diagnosis, evaluation and management of unilateral disc oedema.
2. Causes, investigations and management of acute onset III nerve palsy.
Clinical features and management of 3rd nerve palsy.
3. Etiology, clinical features, diagnosis and differential diagnosis of Horner's Syndrome
4. Causes and ocular manifestations of chiasmal lesions
5. Pathway of fourth cranial nerve.
Enumerate the causes of fourth nerve palsy (acquired) with respect to site of affections.
6. How will you diagnose, investigate and treat a case of acute anterior ischemic optic neuropathy
7. Ischemic optic neuropathy – diagnosis and management.
8. What is anisocoria and indication for its investigation.
Physiological basis and causes of light near reflex dissociation.

SQUINT

1. Classify exotropia in children. Discuss its management.
2. Classification and management of esotropia in children.
3. Classification and principles in the management of Duane Retraction Syndrome
4. How do you assess a case of congenital nystagmus?
What are the surgical options available to manage a case of nystagmus?
5. Various types of eye movements.
Various neuroanatomic pathways controlling eye movements.
6. What are dissociated vertical deviations (DVD)?
How do you differentiate a DVD from an inferior oblique overaction? What is the management of DVDs?
7. Role of botulinum toxin in strabismus.
8. What is faden operation.

EYELID

1. Causes, evaluation and management of lagophthalmus
2. A 65 year old lady presents with progressively increasing upper lid mass (15mm x 10mm).
Discuss differential diagnosis and Management
3. Classification and management of various subtypes of Entropion
4. Etiopathogenesis and management modalities of senile entropion.
5. What are the causes of cicatricial entropion?
6. Common techniques for correction of trachomatous upper lid entropion.
7. Etiopath. of lid changes in trachoma. Management outline of stage 2 trachoma
8. Pathogenesis of senile ectropion'

- Elucidate test for assessment and management of senile ectropion.
9. Etiopathogenesis, clinical features and management of unilateral ptosis with Marcus Gunn phenomenon. Diagnosis and management of a case of unilateral ptosis with Jaw-winking phenomenon.
 10. Basic guidelines and management of ptosis in a 3 year old child.
 11. Principles and techniques of lid reconstruction
 - What are the principles of lid reconstruction? Indications, technique and complications of Cutler-Beard operation.
 12. Enumerate malignant tumors of eyelid
 - Clinical presentations and histopathology of sebaceous cell carcinoma.
 - Outline the management strategy for 20mm sized sebaceous cell carcinoma of upper eyelid.
 - Management of a basal cell carcinoma 5mm in diameter, located in the centre of lower lid margin
 13. Etiology, types, clinical picture, differential diagnosis and management of myasthenia gravis
 - Clinical features and diagnostic test of ocular myasthenia.
 - Important differential diagnosis and points to differentiate.
 14. What are the components of Blepharophimosis syndrome?
Outline various principles in the complete management of this syndrome.
 15. Anatomy and development of eyelids.
Enumerate four congenital anomalies of eyelids
 16. Anatomical structure of upper eyelid. Its blood supply, venous drainage, lymphatic drainage.
Clinical implication of its blood supply.

ORBIT

1. Indications and techniques of orbital exenteration. Discuss the methods of rehabilitation..
2. Etiopathogenesis, clinical features and management of thyroid orbitopathy. **
Differential diagnosis of thyroid orbitopathy
3. A middle aged female presents with unilateral proptosis of one year duration. Discuss differential diagnosis, evaluation and management.
4. Causes of bilateral childhood proptosis. How would you investigate such a case?
5. What are orbital implants and their indications?
Enumerate different materials of orbital implants.
What are the advantages and complications of orbital implants?
6. Blow out fracture of orbit – Clinical features, investigations and management
7. Various surgical approaches to the orbit with their respective indications and advantages
 - Discuss diff. approaches to orbitotomy and management of unilateral proptosis
8. A 27 year old male presents with acute periorbital swelling, redness and pain. How will you investigate, diagnose and treat this case?
9. What are the surgical spaces of the orbit? **
What are the surgical approaches?
Role of MRI & CT in diagnosis of ocular lesions.
10. Anatomy of medial wall of orbit.

Its importance in orbital decompression

LACRIMAL

1. Anatomy and development of lacrimal drainage system
Anatomy of the lacrimal sac with the help of diagram(s).
2. Developmental anomalies of lacrimal passages
3. Etiology, clinical features and management of a case of pediatric epiphora.
4. What are the causes of dry eye post LASIK surgery? How will you manage it?
5. Symptoms, signs, differential diagnosis and management of lacrimal gland swellings
6. What are different types of DCR surgeries and their advantages and disadvantages?
7. Most common causes of severe bleed in external DCR
8. Sjogren syndrome- clinical features, diagnosis and management.

TRAUMA

1. Clinical features, evaluation and management of alkali ocular injury.
2. Management of unilateral 5 day old chemical burn.
Newer concepts in management of ocular burns.
3. Effect of blunt trauma on normal lens.
4. Management of subluxated lens following trauma.
5. Causes and management of glaucoma associated with ocular trauma.
6. Clinical features, diagnostic tests and management of retained intraocular foreign body
7. Evaluation and management of near total hyphemia in a 10 year old boy post injury with a ball presenting to you on the 2nd day.
8. A 30 year old female got up at night with severe pain and watering in left eye. She gave history of a nail injury to her eye 1 year back. How would you approach and manage such a case?
9. A 27 year old driver developed left eye hypertropia following an accident. How will you diagnose and manage him
10. Siderosis bulbi- clinical features
ERG changes on electrophysiology in siderosis.

COMMUNITY OPHTHALMOLOGY

1. Define and classify xerophthalmia. Give the guidelines of treatment and prophylaxis
2. Clinical features, differential diagnosis and management of ophthalmia neonatorum
3. What are the objectives and action plan of “National Programme for Control of Blindness” (NPCB)?
4. Give the definition of blindness as per NPCB and WHO
5. Etiopath.of lid changes in trachoma.
Management outline of stage 2 trachoma.

STATISTICS

1. What are the types of prospective studies and their advantages?
2. What are the methods to avoid bias in a study
3. Enumerate two broad headings for study designs and give one example under each category.
4. Define specificity and sensitivity in evaluating screening tests. What is their relevance to positive and negative predictive value of the test
5. Tests of significance
6. Standard deviation
7. Confidence interval
8. What are bias and confounding in statistical analysis?
9. What are confounding factors in a study and how to avoid them.
10. A sample of 100 patients was segregated into 2 groups to check the IOP lowering effect of 2 different anti-glaucoma medications. Give 5 possible causes of bias and 5 possible confounders
11. What is Randomized controlled trial. What is randomization and why is it required.