



**DNB Ophthalmology
Question Bank
Lens
1999-2019**



Eye Learn
All about the Eye

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LENS



Eye Learn
All about the Eye

1. Anatomy, physiology and development
2. Biometry
3. Anesthesia
4. Etiology
 - a) Age-related cataract
 - b) Metabolic cataract
 - c) Congenital cataract
 - d) Unilateral Congenital cataract
 - e) Bilateral Congenital cataract
 - f) Subluxated, dislocated lens and ectopia lentis
5. Phacoemulsification
6. Laser in cataract surgery
 - a) FLACS
 - b) YAG
7. IOL
 - a) MFIOL
 - b) Toric IOL
 - c) Accommodative IOL
8. Viscoelastic substances
9. Cataract surgery in special situations
 - a) Cataract surgery in patient with astigmatism
 - b) Cataract surgery in SO filled eye
 - c) Cataract surgery in small pupil
 - d) Cataract surgery in low endothelial cell count
 - e) Cataract surgery in PXF
 - f) Cataract surgery in Diabetic
10. Complications of cataract surgery
11. Secondary IOL
 - a) Posterior dislocation of IOL
 - b) PCR
 - c) SIA
 - d) Posterior dislocation of nuclear fragments
 - e) ZD
 - f) CBS
 - g) PCO
12. Cases



LENS

ANATOMY, PHYSIOLOGY & DEVELOPMENT

1. a) Metabolism of human crystalline lens b) biochemical factors responsible for cataract (5+5) D2019
2. a) Development of the lens. (2000)
b) Enumerate congenital abnormalities of lens. (2003)
c) Factors contributing to genesis of cataract. (3+2+5) J2019
3. a) Metabolism of lens in the eye b) how does lens maintain transparency? (4+6) J2018
4. a) Metabolism of crystalline lens. b) Biochemical factors responsible for cataractogenesis (4+6) D2017
5. a) Anatomy & development of crystalline lens and zonules. b) Enumerate congenital anomalies of lens. [(4+4) +2] J2016
6. a. Anatomy of the crystalline lens.
b. Its physiology and how it remains clear.
c. Its embryological development with suitable diagram(s). [(3+3+4)] D2014
7. Discuss the metabolism of crystalline lens. Mention the factors responsible for cataract formation. What are the changes that occur in diabetic etiology? (4+4+2) D2013
8. Briefly write on the development of crystalline lens. Enlist the biochemical mechanism of cataractogenesis. Briefly write about various congenial and developmental anomalies of lens. (3+3+4) J2013
9. Write short note on lens development, anatomy, lens sutures and factors affecting lens transparency. D2012
10. Draw a slit lamp optical section diagram of the crystalline lens showing the different nuclei and zones. Also describe the implications of embryological development of the capsule. (7+3) J2011

BIOMETRY

11. a) Explain principles used to calculate IOL power in a silicon oil filled eye. b) Describe dysphotopsia. c) Discuss the problems of cataract surgery in post vitrectomy eyes (3+2-4) D2019 (GUWAHATI)
12. a) Calculation of IOL power in children. b) Selection of IOL in children (5+5) D2019
13. a) What is the principle of Optical coherence biometry? b) Which ophthalmic equipment uses this principle? c) What are the advantages and disadvantages of this type of biometry? (2+2+6) J2018
14. Describe various IOL power calculation formulae and how will you calculate IOL power in post refractive surgery patient? (7+3) D2014
15. Describe different formulae for biometry. (2006)
16. Intra-ocular lens power calculation. (2002) (2001) (1999)

ANESTHESIA

17. After giving one ml of a peribulbar anesthetic, there is sudden proptosis, pain, sub-conjunctival hemorrhage, severe chemosis and loss of vision with loss of all ocular movements and inability to close the eyelids.
a) Describe what your further course of action would be.
b) What are the signs of globe perforation during peribulbar block? (5+5) J2019
18. Describe technique, advantages and disadvantages of topical, retrobulbar block, peribulbar block and facial block anesthesia for ocular surgery. J2014
19. What are the various types of anesthesia used for cataract surgery? Describe briefly merits and demerits of each. (2+4+4) J2013
20. Describe the common agents and techniques for local anesthesia for cataract surgery and their potential complications. (6+4) J2011
21. Describe the early and late complications and peri and retrobulbar infiltration anesthesia. (2002)

ETIOLOGY

AGE RELATED CATARAT

22. Etiopathogenesis of age-related cataract. D2009,2003
23. How will you grade the nucleus before phaco surgery? (2006)
24. Describe various risk factors in age related cataracts. (1999)

METABOLIC CATARACT

25. What is the nature of biochemical abnormality in homocystinuria? Discuss its ocular and systemic manifestations, genetics and management. [3+(4+2+1)] D2014
26. a) Describe various pathways of glucose metabolism in the lens.
b) What metabolic abnormalities cause diabetic and galactosemic cataract?



c) Describe briefly various congenital and developmental anomalies of lens. J2014

COMPLICATED CATARACT/ POST UVEITIC CATARACT

27. Evaluation and management of post uveitic cataract (4+6) D2018
28. a) What are the causes of complicated cataract? b) Principles of management of cataract associated with chronic anterior uveitis. (2+8) J2017,2000
29. Define complicated cataract. What are the various causes for it? How will you manage such cases? (2+4+4) JUN 2013

CONGENITAL CATARACT

ETIOLOGY

30. What is the management of a case of congenital cataract? How is it different from adult cases? (6) D2019 (GUWAHATI)
31. Etiology, inheritance, morphology and 4 main systemic metabolic associations of congenital cataract. (2+1+3+4) D2015
32. Congenital Cataract. Etiopathogenesis, types, management strategies and prognosis. (2008,2005,2003,2002)

U/L CATARACT

33. Management of unilateral cataract in a 2-year-old child (10) J2018
34. Management of unilateral congenital cataract in a 3-year-old child. (10) D2016
35. a. Difference between an adult and pediatric eye. (3+4+2+1) D2014
b. Precautions to be observed in doing pediatric cataract surgery and why?
c. What is the relationship between pediatric cataract surgery and glaucoma?
d. Outline complete management of unilateral congenital cataract.
36. Give Indications of surgery for pediatric cataract. Outline complete management and specific surgical challenges in a 2-year-old child with unilateral cataract. (3+3+4) D2012
37. Describe the intraoperative and post-operative management of a unilateral congenital cataract in a 2 years child. J2012
38. Management of unilateral congenital cataract in a 3-year-old child and its post-operative rehabilitation. D2010
39. Management of unilateral congenital cataract. J2010
40. Management of unilateral congenital cataract in a 3-year child. D2009

B/L CATARACT

41. Management strategies of unilateral and bilateral congenital cataract in a 2-year-old child. (5+5) October 2017 FAT
42. A two-year-old child presents with cataract both eyes. Discuss the possible causative factors and its management. D2013,2006

SUBLUXATED, DISLOCATED LENS AND ECTOPIA LENTIS

43. a) How will you manage a case of subluxated lens taken up for routine cataract surgery? b) What is the management of a case of congenital cataract? How is it different from adult cases? (4+6) D2019 (GUWAHATI), 2009,1999
44. a) Effect of blunt trauma on normal lens. b) Management of subluxated lens following trauma. (5+5) D2017
45. a) Systemic associations of Ectopia lentis. b) Management of a case of Ectopia lentis. (4+6) J2016
46. Causes, clinical features and management of ectopia lentis. (3+2+5) J2015 ,2008,2002
47. What is ectopia lentis? Discuss clinical features and complete management of spherophakia and associated problems in a patient with Weill -Marchesani syndrome. (2+8) D2013
48. Name various systemic conditions associated with ectopia lentis. How will you manage a case of subluxated lens? (5+5) J2011
49. Management of subluxated cataractous lens. D2009
50. How will you manage Dislocated lens? (2002)

PHACOEMULSIFICATION

51. a) Parameters involved in fluid dynamics in Phacoemulsification. b) Differences, advantages and disadvantages of Peristaltic versus Venturi pump. (5+5) D2019
52. Define in relation to Phacoemulsification:
 - A. Flow rate and Vacuum
 - B. B. Pulse mode and Burst mode
 - C. Rise time and effective phaco time
 - D. Surge (causes and prevention) (2+2+2+4) D2013
53. Define flow rate, vacuum, rise time, surge and duty cycle in phacoemulsification surgery. What are the basic principles in ultrasonic power modulations and advantages of these modulations? (1+1+1+1+1+3+2) J2013



54. What are the advantages & disadvantages of Phaco-emulsification compared to SICS and MICS? Who invented Phaco-emulsification and couching? (4+4+2) J2011
55. Phakonit (2004)

LASER IN CATARACT SURGERY

FLACS

56. a) Principles of Femto Assisted Cataract Surgery (FACS).
b) Advantages and disadvantages of FACS. (5+5) J2019
57. What is blade free cataract surgery? What are its advantages over conventional phacoemulsification? What are its disadvantages? J2014
58. What is the role of laser in cataract surgery? Discuss its advantages with respect to conventional phacoemulsification. D2012
59. What is femtosecond Laser? Discuss the use of femtosecond laser system in ophthalmology J2012

YAG LASER

60. Utility, Indications and management by YAG Laser. (2002)
61. N:D YAG laser- Mechanism of working and its application. (2001)

IOL

62. Discuss various materials and designs of intraocular lenses. (5+5) DEC 2011
63. Principle, utility and advantages of: a) Square edged optics b) Aspheric optics c) Heparin coated optics 2+4+4 June 2016
64. Recent advances in intra-ocular lenses. (2008)
65. Hydrophobic v/s Hydrophilic IOLs. (2005)
66. IOL in Children-Special Considerations. (2005)
67. Foldable intraocular lenses. (2000)
68. Ideal intraocular Lens. (2005)
69. Intra-ocular lenses-Present and future. (2003)

MULTIFOCAL IOL

70. What are types of multifocal IOL? What are their disadvantages? (5) D2019(GUWAHATI)
71. a) Types of multifocal IOL
b) Case selection and basic principles for premium IOL (5+5) J2018
72. a) Optical principle of multifocal intra ocular lens (MF-IOL). b) Classify MF-IOL. c) Enumerate the patient selection criteria for MF-IOL. (2+4+4) J2017
73. What is the concept and its applications in various full range IOLs such as Multifocal, accommodative, Pseudo accommodative and extended-range IOLs? (2.5x4) J 2016
74. a) What are Multifocal IOLs? (2005)
b) What are their types and their advantages?
c) What Special Surgical Considerations will be utilized when implanting a multifocal IOL? J2014
75. What are multifocal IOL's and give principle of various types of multifocal IOL's. Give advantages and disadvantages of these IOL's. D2012
76. Discuss the principle of refractive and diffractive intraocular lenses. Give advantages and disadvantages of multifocal IOLS. J2012,2002

TORIC IOL

77. Indications, advantages, disadvantages and complications of a **toric** multifocal intra ocular lens implantation following cataract extraction. (2+3+3+2) J2015

ACCOMMODATIVE IOL

78. What is accommodative IOL and classify them with examples October 2017 FAT, J2016
79. Accommodative intraocular lenses. D2009

VISCOELASTICS

80. Broadly classify viscoelastic substances used in ophthalmic surgery. What is soft shell technique in cataract surgery and enlist important precautions while performing phacoemulsification in cases with low corneal endothelial counts. 2+(4+4) DEC 2013



81. What are viscoelastic? How do you classify them? Briefly give the indications of each and their side effects. 1+3+4+2 JUN 2013
82. Viscoelastics: Physical properties, classification, uses, side effects. Name some common ones used in ophthalmic surgery. (2008)

CATARACT SURGERY IN SPECIAL CASES

CATARACT SURGERY IN PATIENT WITH ASTIGMATISM

83. a) Evaluation of pre-existing astigmatism in a patient with cataract.
b) Various surgical methods to manage preoperative astigmatism during cataract surgery? (4+6) D2018

CATARACT SURGERY IN SO FILLED EYE

84. Principles in the management of cataract surgery post vitreoretinal surgery with silicone oil in vitreous. (10) D2016

SMALL PUPIL

85. a) Describe various surgical difficulties encountered when doing a phacoemulsification in a small pupil.
b) How do you manage a case of non-dilating pupil for phacoemulsification? J2014

LOW ENDOTHELIAL COUNT

86. Enumerate special precaution you will take while performing phacoemulsification in a patient with age related cataract who has got poor endothelial count. (4) D2013, D2009

PXE

87. What precaution you will take while operating a case of cataract in PXF syndrome by phacoemulsification. D2010

CATARACT SURGERY IN DIABETIC

88. Safe Cataract Surgery in Diabetes. (2005)

COMPLICATIONS OF CATARACT SURGERY

SECONDARY IOL

89. a) Visual rehabilitation of unilateral surgical aphakia b) Discuss problems of sulcus implantation of PCIOL 6+4 D2019(GUWAHATI)
90. Discuss secondary intraocular lens implantation with a special reference to indications, techniques and complications. (2001, 2000)

POSTERIOR DISLOCATION OF IOL

91. Complications and management of posterior dislocation of IOL 5 D2019(GUWAHATI)

PCR

92. A 70-year-old male with a normal phakic contralateral eye had posterior capsular tear in the center during a phacoemulsification procedure after removal of the cortex. Make a flowchart describing your subsequent actions, explaining why you performed each step. (10) J2019
93. What are the causes of posterior capsular rupture and how you will manage it in a phacoemulsification surgery? (5+5) J2013
94. Proper management of posterior capsular rent in cataract surgery. D2009

SIA

95. Recent advances in management of postoperative astigmatism, (10) J2019
96. What are the factors affecting the SIA (Surgery Induced Astigmatism)? How do you manage these cases having pre-operative astigmatism during the surgery for cataract? (5+5) J2013
97. Discuss details of management of astigmatism at the time of cataract surgery by phacoemulsification. (2006)

DISLOCATED NUCLEAR FRAGMENTS

98. Management of dislocated nuclear fragments after phacoemulsification in a 65-year-old male presenting one month after surgery. (10) D2016
99. Do and don'ts in management of posterior dislocation of nucleus in phaco surgery. (2010)



ZONULAR DIALYSIS

100. How will you diagnose and manage a case of intra operative zonular dialysis during cataract surgery? (3+7)
D2015

CAPSULAR BLOCK SYNDROME

101. What is capsular block syndrome? Classify capsular block syndrome with respect to early, intraoperative and late causes. How are they avoided and/or managed? D2012

PCO

102. Describe intraoperative and postoperative methods to reduce posterior capsule opacification. J2009,2001

CASES

103. An 80-year-old retired school teacher with Parkinsonism and modest visual demands was operated for cataract in the right eye and she has a postoperative error of +5 diopter in the first week. Her contralateral eye is pseudophakic and has good uncorrected postoperative vision with which she is satisfied. The current surgery was uncomplicated.

a) Discuss various options for further management of the patient.

b) How would you decide on the best course of action? (5+5) J2019

104. 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. (4+6) D2016

105. A 76-Year-old individual underwent phacoemulsification for grade 4 cataract. He received incompletely and developed diminution of vision 6 weeks after surgery. Discuss the causes of diminished vision and their management in brief. J2014

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