C–1733

Sub. Code
91412

B.Sc. DEGREE EXAMINATION, APRIL 2024

First Semester

Optometry

GENERAL ANATOMY AND PHYSIOLOGY

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Write about epithelial tissues.
2. Write the differences between small and large intestine.
3. What is hepatopancreatic ampulla?
4. Write about aorta and superior vena cava.
5. Write about heart sounds.
6. What are surfactants?
7. Write about the methods of contraception.
8. What is sympathetic nervous system?
9. Write about amygdala.
10. What are the functions pancreas?

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Write about the structure of cardiac muscle in detail.

Or

(b) Write about bones of skull.

12. (a) Write in detail about the chambers of heart.

Or

(b) Write in detail about the structure of neuron.

13. (a) Explain in detail about the various functions of mid brain.

Or

(b) Explain in detail about the mechanism of respiration.

14. (a) Write about nephron and juxta glomerular apparatus.

Or

(b) Write about hemoglobin and its types in detail.

15. (a) Write about the structures involved in the process of deglutition.

Or

(b) Write about the functions of lymph.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Explain in detail about various tissues of the body.

Or

(b) Explain in detail about the process of digestion.

17. (a) Write in detail about blood and its various components.

Or

(b) Write about lymphatic system and various lymphoid organs.

18. (a) Write about the twelve cranial nerves.

Or

(b) Differentiate skeletal, smooth and cardiac muscle in detail.

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C–1734	Sub. Code
	91413

B.Sc. DEGREE EXAMINATION, APRIL 2024

First Semester

Optometry

GENERAL AND OCULAR BIOCHEMISTRY

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Enzymes.
2. Define Biomolecules.
3. Define Fructose.
4. Functions of Tears.
5. Define Cataract.
6. Define Isomerism.
7. Draw the Haworth structure of glucose.
8. Define Carbohydrates.
9. Define Fat soluble Vitamins.
10. Define Fatty acids.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Write about biochemical composition of Tear Film.

Or

(b) Write about biochemical composition of Aqueous.

12. (a) Write short notes on Plasma Protein.

Or

(b) Write short notes on blood urea.

13. (a) Write short notes on Diabetic cataract.

Or

(b) What are the abnormalities seen in cornea, aqueous and tear film in contact lens wearers?

14. (a) What are the Functions of Enzymes?

Or

(b) What are the functions of Carbohydrates?

15. (a) Classification of Lipids.

Or

(b) Write short notes on atherosclerosis.

Part C

$(3 \times 10 = 30)$

Answer **all** questions.

16. (a) Explain Glycolysis cycle.

Or

(b) Explain Krebs cycle.

17. (a) Explain in detail about blood grouping.

Or

(b) Explain in detail about Bleeding time and Clotting time.

18. (a) Explain in detail about Diabetes Mellitus.

Or

(b) Write short notes on Atherosclerosis.

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C–1735	Sub. Code 91414

B.Sc. DEGREE EXAMINATION, APRIL 2024.

First Semester

Optometry

GEOMETRICAL OPTICS

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **ALL** questions.

1. Define Wavenature of light.

2. Write fermates law of refraction.

3. Define total internal reflection.

4. Write the nature of convergence of rays.

5. What is optical path length?

6. What is dioptic power?

7. Discuss any two point of thin lens.

8. Define vertex power.

9. Define focal length.

10. What are the important parts of Optical fiber?

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Write a brief note on Fermat's principle for law of reflection.

Or

(b) Briefly discuss speed, wavelength and frequency of light.

12. (a) Discuss in detail critical angle and snell's law.

Or

(b) Explain relative and absolute refractive indices.

13. (a) Briefly discuss about refraction by spherical surface.

Or

(b) Discuss about focal point and image point of spherical refraction surfaces.

14. (a) Briefly discuss lens–shapes.

Or

(b) Discuss about Cardinal points.

15. (a) Write a short notes on reflecting prisms.

Or

(b) Discuss dispersive power of prism.

Part C

$(3 \times 10 = 30)$

Answer **all** questions.

16. (a) Discuss in detail the relation between U, V and R for convex spherical refraction surface.

Or

(b) Describe in detail axial magnification of spherical surface.

17. (a) Explain in detail matrix theory in paraxial optics.

Or

(b) Discuss the following lens abervation in detail.

(i) coma (ii) distortion effect

18. (a) Describe in detail the geometrical theory of optical fiber and its application.

Or

(b) Discuss in detail the concept theory and working of prism, prism diopters.

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C–1736	Sub. Code 91415

B.Sc. DEGREE EXAMINATION, APRIL 2024.

First Semester

Optometry

NUTRITION

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Functions of FDA.

2. Two rich sources of Iron.

3. List out the reasons for Obesity.

4. What is satiety value?

5. Define Calorie.

6. Mention the foods having complete proteins.

7. Signs of Marasmus.

8. List out the Ophthalmic conditions associated with Vitamin A deficiency.

9. Abbreviate and Explain : APGAR.

10. Functions of minerals in human body.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Procedures in the measurement of Protein Quality.

Or

(b) Differentiate Essential and Non-essential fatty acids.

12. (a) Functions of Carbohydrates.

Or

(b) Brief out the calorie requirements for different age groups.

13. (a) Tabulate Marasmus and Kwashiorkar.

Or

(b) Write about Iron deficiency associating with ocular complication.

14. (a) Write the food sources rich in anti oxidants.

Or

(b) Write about anemia and food sources to manage it.

15. (a) Write brief notes on Hyperlipidemia.

Or

(b) Diagram and list out the parts of Bomb Calorimeter.

Part C

$(3 \times 10 = 30)$

Answer **all** questions.

16. (a) Explain :

(i) RDA

(ii) Diet planning.

Or

(b) Write detailed notes on Causes and Management of Obesity.

17. (a) Write a note on Vitamin A deficiency.

Or

(b) Write a detailed note on Diet planning for Lactating Mothers.

18. (a) Write in detail about Measles and associated Eye disease.

Or

(b) Write in detail about Atherosclerosis and its ocular complications.

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C–1737	Sub. Code
	91416

B.Sc. DEGREE EXAMINATION, APRIL 2024

First Semester

Optometry

COMPUTERS

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Write about ROM.

2. Write the differences MS WORD and MS EXCEL.

3. Write about recycle bin.

4. Write about octal number system.

5. Write about the steps involved in creating a new folder in desktop.

6. What are transitions in powerpoint?

7. Write any three keyboard shortcuts in excel.

8. What is ENIAC?

9. Mention any three input devices.

10. What is WWW?

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Write about the block diagram of pc.

Or

(b) Write about output devices in detail.

12. (a) Convert the following octal to binary numbers :

(i) 145

(ii) 78

(iii) 86

Or

(b) Convert the following binary to decimal :

(i) 1010100

(ii) 11001100

(iii) 11101110

13. (a) Explain in detail about the steps involved in creating a marksheet in excel.

Or

(b) Explain in detail about steps involved in sending a mail.

14. (a) Expand the following :

(i) ISP

(ii) HTML

(iii) HTTP

(iv) PDF

(v) GIF

Or

(b) Write about in detail about application software.

15. (a) Write in detail about main menu and its components.

Or

(b) Write about the basic concepts of internet.

Part C $(3 \times 10 = 30)$

Answer **all** questions.

16. (a) Explain in detail about various types of viruses in computer.

Or

(b) Explain in detail about operating system.

17. (a) Write in detail about different types of software.

Or

(b) Write about the tabs in MS WORD.

18. (a) Write about Anti-virus in detail.

Or

(b) Write about data representation in detail.

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C–1738	Sub. Code
	91422

B.Sc. DEGREE EXAMINATION, APRIL 2024

Second Semester

Optometry

OCULAR ANATOMY

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Write about tunica vasculosa lentis.

2. Write about the formation of optic stalk.

3. What is notochord?

4. Write about fascia bulbi.

5. What are the orbital nerves?

6. What is Schlemm canal?

7. Write about blood and nerve supply of cornea.

8. What is lamina fusca?

9. Write about the muscles of the eye lid.

10. What are the conjunctival glands?

Part B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Write about the embryology of retina.

Or

(b) Write about the orbital spaces.

12. (a) Write in detail about the anatomy of vitreous humor.

Or

(b) Write in detail about the structure of lacrimal gland.

13. (a) Explain in detail about the anatomy of lens.

Or

(b) Explain in detail about blood supply of uveal tract.

14. (a) Write about the development of accessory structures of eye.

Or

(b) Write about apex of orbit.

15. (a) Write about the sphincter and dilator pupillae.

Or

(b) Write about glands of eye lid.

Part C (3 × 10 = 30)

Answer **all** the questions.

16. (a) Explain in detail about the anatomy of extraocular muscles.

Or

(b) Explain in detail the milestones in the embryology of eye.

17. (a) Write about orbital walls and orbital margins.

Or

(b) Write about 3rd cranial nerve and its clinical aspects.

18. (a) Write about anatomy of corneal layers.

Or

(b) Write about the anatomy of ocular adnexa.

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C–1739

Sub. Code
91423

B.Sc. DEGREE EXAMINATION, APRIL 2024

Second Semester

Optometry

OCULAR PHYSIOLOGY

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Cones and its types
2. Purkinje shift
3. Stereoacuity
4. Stimulus for accommodation
5. Nerve supply of EOM
6. Papilloedema
7. Muscles of eyelids
8. TBUT
9. Corneal vascularization
10. Range and amplitude of accommodation

Part B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Blinking mechanism.

Or

(b) Ocular movements.

12. (a) Near pupillary reflex pathway.

Or

(b) Applanation tonometry.

13. (a) Physiological diplopia.

Or

(b) Types of color vision defects.

14. (a) Relaxation theory of accommodation.

Or

(b) Tests for contrast sensitivity.

15. (a) EOG.

Or

(b) Grades of BSV.

Part C (3 × 10 = 30)

Answer **all** the questions.

16. (a) Formation and drainage of aqueous humor.

Or

(b) Measurement of visual acuity.

17. (a) Physiology of retina.

Or

(b) Regulation of ocular circulation.

18. (a) ERG.

Or

(b) Tear film dynamics.

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C–1740

Sub. Code
91424

B.Sc. DEGREE EXAMINATION, APRIL 2024

Second Semester

Optometry

PHYSICAL OPTICS

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** questions.

1. Define dual nature of light.
2. Define double refraction.
3. What is interference?
4. Write some uses of antireflection coating.
5. Define diffraction.
6. Write any two application of holography.
7. What is plane of polarization and vibration?
8. Define resolving power.
9. What is the condition for getting population inversion?
10. What is resolution?

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Write short note about Hygen's principle for reflection.

Or

(b) Derive an expression for superposition of simple harmonic wave.

12. (a) Explain briefly dispersive power of grating.

Or

(b) Explain diffraction pattern due to circular aperture.

13. (a) What are the condition for constructive and destructive interference?

Or

(b) Write a short note on Lloyd's mirror.

14. (a) Explain the principle and working of quarter wave plate.

Or

(b) Explain in brief the concept of young's double slit.

15. (a) Write short note on construction of hologram.

Or

(b) Explain Rayleigh criterion for resolving an object.

Part C

$(3 \times 10 = 30)$

Answer **all** questions.

16. (a) Derive a mathematical representation of a simple harmonic wave.

Or

(b) Explain the theory of Newton's rings with neat construction diagram.

17. (a) Describe in detail with neat diagram the diffraction pattern due to single slit.

Or

(b) Explain in detail the basic principle of Laser and how we achieve population inversion.

18. (a) With neat diagram, explain the construction of Nicol prism and how it act as polarizer and analyzer.

Or

(b) Explain in detail construction and working of Holograms.

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C–1741

Sub. Code
91425

B.Sc. DEGREE EXAMINATION, APRIL 2024

Second Semester

Optometry

MICROBIOLOGY AND PATHOLOGY

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** questions.

1. What is tissue Injury?
2. What is Virology?
3. What is Type II hypersensitivity reaction?
4. Define Antigen.
5. Define Culture.
6. Define cataract.
7. Name any two bacteria that can cause ocular lesions.
8. What's Keratoconus?
9. What is Sterilization?
10. Name two diseases caused by Streptococci.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Write a short note on lens Induced Glaucoma.

Or

(b) Write short notes on Bacterial Conjunctivitis.

12. (a) Brief about the ocular lesions and treatment of Pox virus and Adeno Virus.

Or

(b) Brief about the ocular lesions and treatment of Candida and Histoplasma.

13. (a) Write short notes on Microscopy.

Or

(b) Write short notes on Normal Ocular Flora.

14. (a) Brief about the ocular lesions and treatment of Gonococci and Meningococci.

Or

(b) Brief about the ocular lesions and treatment of Enterobacteria and Pseudomonas.

15. (a) What are the vacular and cellular components involved in inflammation?

Or

(b) Brief about the Healing and Repair mechanism.

Part C

$(3 \times 10 = 30)$

Answer **all** questions.

16. (a) Write a detail note Retinoblastoma.

Or

(b) Brief about cataract and its types.

17. (a) Write short notes on Immune system.

Or

(b) Differentiate between sterilization and disinfection.

18. (a) How do you do Vitreous taping, corneal scraping and conjunctival swab collection?

Or

(b) Write a short note on the gram staining and Giemsa staining.

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C–1742	Sub. Code
	91434

B.Sc. DEGREE EXAMINATION, APRIL 2024

Third Semester

Optometry

OPTOMETRIC INSTRUMENTS – I

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is the use of Slit lamp Biomicroscope?

2. Define Colour Vision Deficiency.

3. What is Protanomaly?

4. Define Contrast sensitivity.

5. What is the Principle of Retinoscopy?

6. What is the Principle of Applanation tonometer?

7. Use of LASER.

8. Projection charts.

9. Name two Contrast sensitivity test charts.

10. What is the difference between simple and compound microscope?

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Use of YAG laser.

Or

(b) Discuss about types of Retinoscope.

12. (a) Write short notes on corneal topography.

Or

(b) Write Short notes on Binoculars.

13. (a) Write short notes on Indirect Ophthalmoscope.

Or

(b) Write short notes on Refractometers.

14. (a) Write about Ishihara test.

Or

(b) Write short Notes on Snellen chart.

15. (a) Write short notes on PAM.

Or

(b) Trial frame designs.

Part C

$(3 \times 10 = 30)$

Answer **all** questions.

16. (a) Write short Notes on Slit Lamp Biomicroscope.

Or

(b) Give a detailed account on Keratometer.

17. (a) Write in detail about Huygens, ramsden and oil immersion eye pieces.

Or

(b) Filters used in direct ophthalmoscope.

18. (a) Write Short notes on pupilometer.

Or

(b) Write short notes on Aberrometer.

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C–1743	Sub. Code
	91435

B.Sc. DEGREE EXAMINATION, APRIL 2024.

Third Semester

Optometry

GENERAL AND OCULAR PHARMACOLOGY

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define liver first pass mechanism.

2. Some time kidney function test is performed before administrating the drugs. Justify.

3. Define the universal antidote.

4. Derive therapeutic index.

5. What does alcohol on CNS?

6. Name the CNS stimulant.

7. Mention the antagonist.

8. List the chemical neurotransmitters.

9. What are the care taken when handling eye drops?

10. Name the metritis drugs.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Briefly write on phase II drug metabolism.

Or

(b) Illustrate the additional chemicals used to improve the ocular drug delivery.

12. (a) Elaborate the mechanism of a-protein coupled receptor.

Or

(b) Explain drug side effect and intolerance.

13. (a) Mention the mode of action of sedative and hypnotics.

Or

(b) Classify the general anesthetics and explain gaseous anesthetics.

14. (a) Compare the sympathetic and parasympathetic.

Or

(b) What are the antiadrenergic drugs? Explain this drug used in treating ocular.

15. (a) Demonstrate the ophthalmic diagnostic drugs.

Or

(b) List the anti glaucoma drugs and explain the mode of action of any.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Explain the parenteral router of drug administration.

Or

(b) Mention the factors influencing drug absorption.

17. (a) Elaborate on drug structure activity relationship study.

Or

(b) Write in detail note on action and therapeutic uses of NSAIDs.

18. (a) Give an account on cholinergic drugs in treating diseases.

Or

(b) What is an antibiotics? Explain the therapeutic uses of antibiotics on ocular disease.

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C–1744

Sub. Code
91442

B.Sc. DEGREE EXAMINATION, APRIL 2024

Fourth Semester

Optometry

OPTOMETRIC OPTICS

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Define refraction.
2. Write about the units of prism.
3. Define spherocylindrical lens.
4. Define impact resistance.
5. Define decentration.
6. Define back vertex power.
7. Define glazing.
8. Define segment height and segment drop.
9. Define MRP.
10. Define light.

Part B $(5 \times 5 = 25)$

Answer **all** the questions.

11. (a) Write in detail about rotary prism.

Or

(b) Transpose the following into Spherocylinder form (plus and minus cylinder form)

(i) +3.00 DS

+2.00 DS

(ii) –2.00 DS

–1.50 DS

12. (a) Define prism and write about refraction through the prism.

Or

(b) Calculate the Spherical equivalent for the following:

(i) +3.00 DS/ –1.00 DC × 90

(ii) –4.00 DS/ –1.00 DC × 90

13. (a) Write in detail about the aberrations in ophthalmic lenses.

Or

(b) Write about progressive addition lenses.

14. (a) Write short notes on Spherical, cylindrical and spherocylindrical lenses.

Or

(b) Write about Prentice's rule, prismatic effect, centration and decentration.

15. (a) Define Vertex power, vertex distance and the effect of change in both the parameters with an example and neat diagram.

Or

(b) Write the formula of front vertex power, back vertex power and explain each term in it.

Part C $(3 \times 10 = 30)$

Answer **all** the questions.

16. (a) Explain in detail on the classification of lens materials.

Or

(b) Write in detail about the types of bifocals with neat diagram.

17. (a) Write in detail about Fresnel prism.

Or

(b) Write about the manufacturing of ophthalmic blanks.

18. (a) Write about Hi-index lenses.

Or

(b) Write in detail about the properties of ophthalmic lens materials.

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C–1745

Sub. Code
91443

B.Sc. DEGREE EXAMINATION, APRIL 2024

Fourth Semester

Optometry

OCULAR DISEASES – II

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. WEBINO
2. Kestenbaum sign
3. Edrophonium test
4. Metamorphopsia
5. Cherry red spot
6. Saccades and pursuits
7. Aberrent regeneration
8. PVD
9. Chromophobe adenomas
10. Neuroretinitis

Part B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Write about albinism.

Or

(b) Write about craniopharyngioma.

12. (a) Write about Macular hole.

Or

(b) Discuss the pathogenesis of TRD.

13. (a) Write about vitreous haemorrhage.

Or

(b) Light near dissociation.

14. (a) Write about Horner syndrome.

Or

(b) Explain Park 3 step test and Double Maddox rod test.

15. (a) Write about Myotonic dystrophy.

Or

(b) Write the lesions of Optic radiations.

Part C (3 × 10 = 30)

Answer **all** the questions.

16. (a) Explain about ARMD.

Or

(b) Write about papilloedema.

17. (a) Write about VI CN Palsy.

Or

(b) Write about nystagmus, its types and evaluation.

18. (a) Write about Demyelinating optic neuritis.

Or

(b) Explain the neurological Visual field loss and its causes.

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C–1746

Sub. Code
91444

B.Sc. DEGREE EXAMINATION, APRIL 2024

Fourth Semester

Optometry

OPTOMETRIC INSTRUMENTS – II

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is FFA?
2. Define colour Vision Deficiency.
3. What is Protanomaly?
4. Define Field Loss.
5. What is the Principle of Retinoscopy?
6. What is the Principle of Applanation tonometer?
7. Use of Syringing.
8. What is Ultrasonography?
9. What is VEP Used for?
10. What is the Use of Bermans Locator?

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain about Ocular Photography.

Or

(b) Discuss about the ERG and EOG.

12. (a) What is Photocoagulation? Write Short Notes on it.

Or

(b) Write Short notes on Gonioscopy.

13. (a) Write short notes on Fluorescein staining.

Or

(b) Write short notes on Schirmers Test.

14. (a) Write short notes on B scan Probe Positions.

Or

(b) Write short Notes on Ishihara chart.

15. (a) Write short notes on distance and near vision charts.

Or

(b) How do you Calibrate Bausch and Lomb Keratometer?

Part C

$(3 \times 10 = 30)$

Answer **all** questions.

16. (a) Write short Notes on Slit Lamp Biomicroscope.

Or

(b) Give a detailed account on A scan.

17. (a) Write in detail about Retinoscope.

Or

(b) Differentiate Between Direct and Indirect Ophthalmoscope.

18. (a) Write Short notes on Auto Refractometer.

Or

(b) Write short notes on Applanation Tonometer.

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C–1747

Sub. Code
91451

B.Sc. DEGREE EXAMINATION, APRIL 2024

Fifth Semester

Optometry

CONTACT LENS – I

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define contact lens category with respect to its application.

2. A patient has a spectacle refraction of -22.00 D at a vertex distance of 10mm.What would be the back vertex ?

3. Write any four quantitative tear tests.

4. Enlist layers of tear with a neat labeled diagram.

5. Describe anatomy of corneal epithelium.

6. Draw all essential forms of both PLUS & MINUS lenses.

7. Draw neat labeled diagram of simple tricurve contact lens.

8. Enlist any six properties of ideal contact lens material.

9. Give Harvitt & Bonanno criteria for minimum oxygen requirement to prevent edema.

10. Enlist any four rgp materials which are in use in modern day practice.

Part B $(5 \times 5 = 25)$

Answer **all** questions.

11. (a) Write about baseline slit lamp evaluation and enlist types of slit lamp illumination techniques.

Or

(b) Write about assessment of rgp lenses in a corneal ectasia patient.

12. (a) Write a note on Indication and Contra indication of rgp lenses.

Or

(b) Distinguish between keratometer and topographer

13. (a) Write in detail about FDA classification of lens material.

Or

(b) Write about manufacturing methods of rgp lenses.

14. (a) Give characteristics of steep fitting soft lens.

Or

(b) Give characteristics of flat fining soft lens.

15. (a) Write about common misconceptions in contact lenses.

Or

(b) Explain in detail about insertion and removal of rgp lens.

Part C $(3 \times 10 = 30)$

Answer **all** questions.

16. (a) Write in detail about soft lens care and maintenance.

Or

(b) Write about cleaning systems used for different types of contact lenses.

17. (a) Write in detail about rgp complications.

Or

(b) Write about stabilization methods in contact lenses

18. (a) Explain in detail about fitting considerations for correcting astigmatism.

Or

(b) Write in detail about the development and future of contact lens.

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C–1748

Sub. Code
91452

B.Sc. DEGREE EXAMINATION, APRIL 2024

Fifth Semester

Optometry

BINOCULAR VISION – I

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Yoke muscles
2. Retinal rivalry
3. Herring's law
4. AC/A
5. Depth of suppression
6. Stimulus for accommodation
7. Visual space
8. Saccades
9. Cyclopean eye
10. Neutral density filter

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Fixation disparity.

Or

(b) Measure of convergence.

12. (a) Types of amblyopia

Or

(b) Retinal correspondence.

13. (a) Diplopia tests for suppression

Or

(b) Retinomotor value.

14. (a) Types of stereopsis.

Or

(b) Grades of BSV.

15. (a) Mechanism of fusion.

Or

(b) Theories of binocular fusion.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Physiology of Suppression.

Or

(b) Monocular clues for depth prception

17. (a) Actions of the EOM & Ocular movements.

Or

(b) Stereopsis & its investigation methods

18. (a) Accommodation types & its measurement.

Or

(b) Anomolous retinal correspondence, its types & investigations.

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C–1749

Sub. Code
91453

B.Sc. DEGREE EXAMINATION, APRIL 2024

Fifth Semester

Optometry

PEDIATRIC AND GERIATRIC OPTOMETRY

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Krimsky Test.
2. Secondary deviation in squint.
3. Pseudo myopia.
4. TORCH test in congenital cataract.
5. Arcus senilis.
6. Role of prisms in low vision management.
7. Polymegathism.
8. Coloboma.
9. Dacryocele
10. Anisometropia

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Tests for suppression.

Or

(b) Microtropia.

12. (a) After Image Test & Park 3 step test.

Or

(b) Frame selection in pediatrics

13. (a) Physiological changes in aging eye.

Or

(b) Motor adaptation to stabismus

14. (a) Contact lenses in children.

Or

(b) Albinism

15. (a) ARMD

Or

(b) Tints & coating in ophthalmic lenses & its uses

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Pediatric history.

Or

(b) Low vision dispensing in elderly

17. (a) Measure of anomalies of accommodation.

Or

(b) Amblyopia and Management.

18. (a) Types of pediatric visual acuity charts.

Or

(b) Optometric examination in children.

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C–1750

Sub. Code
91454

B.Sc. DEGREE EXAMINATION, APRIL 2024

Fifth Semester

Optometry

DISPENSING OPTICS

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is facial wrap?
2. Define monocles.
3. Draw the frame front and mark the parts.
4. Define geometric center.
5. List out the frame materials.
6. Define vertex distance.
7. Define DBL and DBC.
8. Define IPD.
9. What is soldering?
10. Define near addition.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Write about the history of spectacles.

Or

(b) Photochromic lenses–types and manufacturing.

12. (a) Calculate Near vision for the following:

(i) Distance vision = +2.00 DS/-1.00 DC X 90, Near add = +1.00 DS.

(ii) Distance vision = -4.00 DC X 90 Near add = +3.00 DS.

Or

(b) Write the steps involved in hand neutralization

13. (a) Write about special purpose frames.

Or

(b) Spectacle prescription and its interpretation with example.

14. (a) Write about aspheric lenses.

Or

(b) Write about recording and ordering of lenses.

15. (a) Write about the measurement of IPD.

Or

(b) Write about industrial safety glasses.

Part C

$(3 \times 10 = 30)$

Answer **all** questions.

16. (a) Write about tinted lenses.

Or

(b) Write about lensometer.

17. (a) Write in detail about frame selection based on spectacle prescription, professional requirements, age group and face shape.

Or

(b) Write about the classification of frame materials.

18. (a) Explain in detail on anisekonic lenses.

Or

(b) Write in detail about progressive markings

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C–1751

Sub. Code
91455

B.Sc. DEGREE EXAMINATION, APRIL 2024

Fifth Semester

Optometry

PUBLIC HEALTH AND COMMUNITY OPTOMETRY

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define CBR.

2. Write the top three conditions which causes Visual impairment above 50 years age.

3. WHO definition of low vision.

4. Types of blindness.

5. Mention the types of health indicators.

6. Expand: IAPB and NPCB.

7. Four major reasons of Obesity.

8. Levels of Disease prevention.

9. Write two roles of PEC.

10. Define mortality rate.

Part B $(5 \times 5 = 25)$

Answer **all** questions.

11. (a) Write short notes on nutritional blindness.

Or

(b) Explain different levels of prevention of diseases.

12. (a) Write short notes on NPCB and IAPB.

Or

(b) Write short notes on Health indicators.

13. (a) Application of Tele Optometry in Public Health.

Or

(b) Objectives of Vision 2020.

14. (a) Define the concept of Public health.

Or

(b) Write short notes on Health Economics.

15. (a) Discuss the screening for Diabetic Retinopathy.

Or

(b) Differentiate Community and Clinical health care programs.

Part C

$(3 \times 10 = 30)$

Answer **all** questions.

16. (a) Detailed note on Vision 2020.

Or

(b) Explain Community Based Rehabilitation.

17. (a) Write the components to conduct an School screening camps.

Or

(b) Write a detailed note on Evaluation and Assessment of Health Care programs.

18. (a) Explain Dimensions and Determinants of Health.

Or

(b) Write a detailed note on Management of Eye Care programs.

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C–1752	Sub. Code
	91456

B.Sc. DEGREE EXAMINATION, APRIL 2024.

Fifth Semester

Optometry

BIOSTATISTICS

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Mortality

2. Crude death rate

3. Give formula for arithmetic mean.

4. Mode

5. Five formula for Standard Deviation

6. Probability

7. Sampling

8. Census

9. Bed occupancy rate

10. Sampling error

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Write short notes on

(i) Crude Birth Rate

(ii) Specific Death Rate

(iii) Vital Index

Or

(b) The number of live births recorded and the number of infants died in a town during a given period are 400 and 25 respectively. Calculate Infant Mortality Rate of the town for the period

12. (a) Find Arithmetic Mean for the following

Marks	10–20	20–30	30–40	40–50	50-60
No. of Students	3	6	14	8	4

Or

(b) Find Median for the following data.

x	8	6	4	10	12	11	17
y	10	8	2	15	6	5	3

13. (a) Find Correlation coefficient for the following.

x	2	6	10	16	18	20
y	6	8	12	20	24	24

Or

(b) Calculate Quartile deviation for the following.

Class Unit	5–10	10–15	15–20	20–25	25–30	30–35
Frequency	3	7	8	10	6	2

14. (a) The probability of 3 students A,B,C solving a problem in statistics are ½, 1/3, ¼ . A problem is given to all the 3 students. What is the probability that

(i) No one will solve the problem

(ii) Only one will solve the problem

(iii) At least one will solve the problem

Or

(b) The mean of a binomial distribution in 5 and standard deviation is 2. Determine the distribution.

15. (a) Explain hospital statistics.

Or

(b) Fit a regression line x on y for the following data

Sales (x)	91	97	108	121	67	124	51	73	111	57
Purchase (y)	71	75	69	67	70	91	39	61	80	47

Part C $(3 \times 10 = 30)$

Answer **all** the questions.

16. (a) Briefly explain Non-random sampling methods.

Or

(b) Calculate mean, standard deviation for the following data.

Heights (cm)	95-105	105-115	115-125
No. of children	20	55	95

Heights (cm)	125-135	135-145
No. of children	70	60

17. (a) Draw a pie diagram for the following data

Mental Health	Diabetes	Chronic Respiratory Diseases	Cancer	Cardiovascular diseases	Total
70	8	20	36	66	200

Or

(b) The marks scored by the students in a class test is normally disclosed with mean 60 and SD 5. Find what percentage of students scored (i) more than 70 marks (ii) less than 50 marks (iii) between 50 and 70 marks.

18. (a) Fit a regression lien y on x for the following and estimate the value of y when x = 15

X	1	2	3	4	5	6	7	8	9
Y	9	8	10	12	11	13	14	16	15

Or

(b) The following table shows two way classification of breastfeeding and mother's education, use Chi-Square test to identify whether the education is associated with breast feeding (Chi-Square = 3.841)

		Breast feeding	
		<= 6 months	> 6 months
Education	≤ Grade 12	43	27
	> Grade 12	21	34

C–1753	Sub. Code 91461

B.Sc. DEGREE EXAMINATION, APRIL 2024.

Sixth Semester

Optometry

CONTACT LENS – II

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. What is landing zone in scleral fitting.

2. What is the use of fluorescein in CL fitting.

3. Advantages of daily disposables.

4. Treatment options of keratoconus.

5. What is sag?

6. What is BOZR?

7. Name any two cleansing agent.

8. Importance of lubricating agents.

9. What is Post LASIK Ectasia?

10. What is GPC?

Part B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Dos and Don'ts of SCL.

Or

(b) Discuss about disposable lenses.

12. (a) Types of Prosthetic CLS.

Or

(b) Indication for Therapeutic CL.

13. (a) CL fitting in Post refractive surgery.

Or

(b) Stabilization techniques for Toric CL.

14. (a) Insertion and removal of Soft CL.

Or

(b) Ocular investigations in keratoconus.

15. (a) Fitting assessment in Toric CL.

Or

(b) Care and maintenance of soft CL.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) CL fitting in Aphakia.

Or

(b) Indications and fitting consideration of pediatric CL.

17. (a) Complications of SCL.

Or

(b) Comparison of SCL and RGP.

18. (a) CL fitting in presbyopia.

Or

(b) Ocular prosthesis fitting procedure.

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C–1755	Sub. Code
	91462

B.Sc. DEGREE EXAMINATION, APRIL 2024.

Sixth Semester

Optometry

BINOCULAR VISION – II

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define past pointing.
2. Write about krimsky test.
3. What is a maddox wing.
4. Define paralytic squint.
5. Write about V pattern esotropia and exotropia.
6. Write about the principle and any three uses of synoptophore.
7. List the types of non-accommodative esotropias.
8. What is FDT.
9. Define comitant deviation.
10. List out the tests that requires red green goggles.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Write the aim, procedure and interpretation of cover test, cover uncover test and alternate cover test.

Or

(b) Explain about any five types of non accomodative esotropias with management.

12. (a) Write about esophoria.

Or

(b) Write about the measurement of objective and subjective angle of deviation with synoptophore.

13. (a) Write about the management of convergence insufficiency.

Or

(b) Write about the aim, procedure and interpretation of maddox rod.

14. (a) Write about exercising prism and corrective prism.

Or

(b) Differentiate between congenital and acquired paralytic strabismus.

15. (a) Write about the clinical evaluation of accommodative esotropia.

Or

(b) Write about vision therapy in amblyopia.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Write in detail about the clinical characteristics of medial rectus, superior rectus and inferior rectus palsy.

Or

(b) Write the aim, procedure and interpretation of Hess screen.

17. (a) Write about the aim, procedure and interpretation of diplopia charting with an example of diplopia chart of a patient with right medial rectus palsy.

Or

(b) Explain in detail about A-V phenomenon.

18. (a) Explain in detail about bielchowsky's head tilt test.

Or

(b) Write in detail about the types, clinical characteristics and management of accommodative esotropia.

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C–1758	Sub. Code
	91463

B.Sc. DEGREE EXAMINATION, APRIL 2024

Sixth Semester

Optometry

LOW VISION AID

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. WHO definition of Low vision.
2. Explain bar magnifier.
3. What is Low vision rehabilitation?
4. Explain CL telescope.
5. The specification in a telescope is 4x12. What do these numbers specify?
6. Explain principle of Spectacle magnifier.
7. Visual acuity charts for Low Vision.
8. List the low vision devices that can be given for Retinitis Pigmentosa.
9. What are the symptoms of a patient with Albinism?
10. Explain Amsler Chart.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain Relation between disorder, impairment and handicap with examples.

Or

(b) Psycho-social impact of low vision.

12. (a) Explain Low vision aids for near.

Or

(b) Explain field expanders.

13. (a) Explain Optics of stand magnifier.

Or

(b) Pediatric low vision.

14. (a) Explain Low vision rehabilitation for a patient with Aniridia and Diabetic Retinopathy.

Or

(b) Low vision aids for distance.

15. (a) Explain Mobility and orientation

Or

(b) Braille.

Part C (3 × 10 = 30)

Answer **all** the questions.

16. (a) Explain classification, Grades of low vision and Causes of Low Vision.

Or

(b) Explain the four types of Magnification with an example.

17. (a) Explain selection of low vision aids, instruction and training.

Or

(b) Write in detail about Non optical aids.

18. (a) Explain in detail about clinical evaluation and Assessment of a patient with low vision.

Or

(b) Low Vision rehabilitation and counseling.

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C–1760	Sub. Code
	91464

B.Sc. DEGREE EXAMINATION, APRIL 2024

Sixth Semester

Optometry

OCCUPATIONAL OPTOMETRY

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** the questions.

1. Define lamp efficiency.
2. Write about the objectives of ILO.
3. What is electromagnetic radiation?
4. How does UV affect the eye?
5. Define Luminance and its unit.
6. To indicate Caution or Warning sigh which Color and symbol should be used?
7. Ishihara Color vision testing.
8. What are visual standards?
9. Write the Advantages of Contact lenses over spectacles in sports and cosmetic areas.
10. What is Correlated Color Temperature?

Part B $(5 \times 5 = 25)$

Answer **all** the questions.

11. (a) Explain about ILO.

Or

(b) Describe the various methods used to assess Color vision.

12. (a) Write in detail about occupational diseases caused by Chemical and biological agents.

Or

(b) Explain in detail about visual standards for airlines.

13. (a) Explain in detail about lighting designs.

Or

(b) Discuss the occupational health hazards in welding workers.

14. (a) Tabulate the ocular effects of UV and infrared radiations.

Or

(b) Write a note on occupational health and hygiene.

15. (a) Explain in detail about use of contact lenses in sports.

Or

(b) Discuss In detail about Luminaries.

Part C

$(3 \times 10 = 30)$

Answer **all** the questions.

16. (a) Write in detail about Visual Task Analysis with examples.

Or

(b) Write in detail about the various types of PPE and its uses in different occupations.

17. (a) Explain in detail about Computer Vision Syndrome.

Or

(b) Write in detail about Incandescent lamps.

18. (a) Write in detail about Electro Magnetic radiations.

Or

(b) Explain in detail about International occupational bodies and their functional areas.

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C–1761	Sub. Code
	91465

B.Sc. DEGREE EXAMINATION, APRIL 2024

Sixth Semester

Optometry

SYSTEMIC DISEASES AFFECTING THE EYE

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. List out any five genetic eye disorders.
2. What are the causative organisms of malaria?
3. Define diabetes mellitus.
4. List out any three ocular manifestations of leprosy.
5. Write about the grading of cancer.
6. Write about target organ damage in diabetes mellitus.
7. List out the classification of leprosy.
8. Define Papilloedema.
9. List out the three types of optic neuritis.
10. Define melanoma.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Write about the classification and diagnosis of hypertension.

Or

(b) Write about the treatment of Retinoblastoma.

12. (a) Write about the ocular manifestations of diabetes mellitus.

Or

(b) Explain the anatomy of thyroid gland with neat diagram.

13. (a) Write about the ocular manifestations of syphilis.

Or

(b) Explain the Pathogenesis, signs and symptoms of malaria.

14. (a) Write about the ocular manifestations of connective tissue disorders.

Or

(b) Explain the Pathology and clinical features of Tuberculosis.

15. (a) Write about the management of hypertension.

Or

(b) Write about Vitamin A deficiency and eye.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Explain in detail about the visual pathway lesions with neat diagram.

Or

(b) Write in detail about Retinitis Pigmentosa.

17. (a) Explain the definition, pathogenesis classification and clinical features of hypertensive retinopathy.

Or

(b) Explain about the classification of thyroid disease.

18. (a) Write in detail about the systemic and ocular manifestations of leprosy.

Or

(b) Write about the classification of neurological disorders.

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C–2419	Sub. Code
	91413

B.Sc. DEGREE EXAMINATION, APRIL 2024

First Semester

Optometry

GENERAL ANATOMY AND PHYSIOLOGY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Thymus is produce and secretes

   (a) epithelial cell (b) immune cells

   (c) neurons (d) all the above

2. Follicullar cells are present in

   (a) bone (b) cartilage

   (c) nerves (d) glands

3. Scapulae is attached to

   (a) Humerus (b) Radius

   (c) Ulna (d) Sternum

4. Lung muscle is activated by

   (a) deltoid (b) intercostal muscle

   (c) diaphragm (d) all the above

5. Which of the following is pulmonary function test?

(a) BP check up (b) Spirometry

(c) Colorimetric (d) Calorimetric

6. Brain's conscious functional part is

(a) meninges (b) ventricles

(c) spinal nerves (d) cerebrum

7. Vasectomy is cutting of

(a) blood vessels (b) seminiferous

(c) flagella (d) all the above

8. Inulin is used to test

(a) GFR (b) CHD

(c) ESR (d) Diabete

9. Estrogen is secreted from

(a) Pituitary (b) Thyroid

(c) Ovaries (d) Kidney

10. Taste bud is present in

(a) Teeth

(b) Tongue

(c) Audiatory pathway

(d) Visual pathway

Part B $(5 \times 5 = 25)$

Answer **all** questions.

11. (a) Draw a neat structure of neuron and label it.

Or

(b) Explain the structure and function of spleen.

12. (a) Discuss on structure and functions of diaphragm.

Or

(b) Draw a neat structure of upper limb and label it.

13. (a) List the pulmonary function test.

Or

(b) Draw a neat structure of brain and label it.

14. (a) Write the physiology of spermatogenesis.

Or

(b) Explain the structure and hormones of adrenal gland.

15. (a) Infer the parts and functions of stomach.

Or

(b) Illustrate the structure, types of cells and secretions of pancreas.

Part C $(5 \times 8 = 40)$

Answer **all** questions.

16. (a) Explain various types of epithelial cells and tissues.

Or

(b) Derive the steps of erythropoiesis.

17. (a) Elaborate the anatomy and sections of vertebral column.

Or

(b) Describe in detail on types of joints.

18. (a) Explain the heart rate.

Or

(b) Write briefly on anatomy and physiology of respiratory organ.

19. (a) Elaborate the ovarian and menstrual cycle.

Or

(b) Draw a neat structure of kidney and explain its function.

20. (a) Describe the structure and functions of oral cavity.

Or

(b) Write in detail on of factory pathway.

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C–2420	Sub. Code
	91414

B.Sc. DEGREE EXAMINATION, APRIL 2024

First Semester

Optometry

GEOMETRICAL OPTICS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. The focal length of the plane mirror

   (a) 0 (b) ∞

   (c) 25 cm (d) –25 cm

2. What vibrates when electromagnet waves travel in vacuum?

   (a) Magnetic field (b) Electric field

   (c) Both (a) and (b) (d) Zero

3. The ratio of refractive index mediums is constant known as

   (a) Snell's law (b) Format's reflection

   (c) Newton law (d) Kepler law

4. If magnification is positive and grater than unity

   (a) Virtual image (b) Real image

   (c) Distorted image (d) Erect image

5. When does the principal axis intersect the two refracting surfaces?

(a) Front Vertex and Back Vertex

(b) Focal Length

(c) Radius of curvature

(d) Principal focus

6. What is the power of lens?

(a) Reciprogal of R (b) Reciprogal of C

(c) Reciprogal f (d) f only

7. The image formed by a convex spherical mirrors

(a) virtual (b) real

(c) enlarged (d) inverted

8. What is the SI unit for the power of lens?

(a) Watt (b) Dioptere

(c) Meter (d) Centimeter

9. In single mode fibers which is the most beneficial index profile

(a) Step index (b) Graded index

(c) Coaxial index (d) Plastic fibre

10. The dispersive power of the prism depend on

(a) Shape of the prism

(b) Material of the prism

(c) Angle of the prism

(d) Height of the prism

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Discuss the reflectivity and transmittance of light wave in different mediums.

Or

(b) Write a brief note about geometrical and optical path length.

12. (a) Discuss in detail refraction in thin lenses.

Or

(b) Write a short note about vergence equation for thin lens.

13. (a) Discuss Front and back vertex powers.

Or

(b) How the matrix theory used in paraxial optics?

14. (a) Write a short note on monochromatic aberration

Or

(b) Discuss in detail coma.

15. (a) Explain the importance of angular dispersion.

Or

(b) Write some important Applications of optical fibers.

Part C (5 × 8 = 40)

Answer **all** questions.

16. (a) Explain in detail the law's of reflection using Fermat's principle.

Or

(b) Discuss in detail divergence and convergence equations.

17. (a) Write a detail note about Refraction by plane glass slab.

Or

(b) Describe in detail Refraction by convex spherical surfaces.

18. (a) Describe in detail equivalent focal length of lenses in contact and separated.

Or

(b) Explain in detail cardinal points using matrix theory.

19. (a) Explain chromatic aberration and how can we remove chromatic aberration.

Or

(b) Describe in detail distortion and curvature of the field.

20. (a) Explain in detail disperssive power of prisms.

Or

(b) Discuss the principle and working of optical fibers.

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C–2421

Sub. Code
91415

B.Sc. DEGREE EXAMINATION, APRIL 2024

First Semester

Optometry

GENERAL AND OCULAR BIOCHEMISTRY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Section A $(10 \times 1 = 10)$

Answer **all** questions.

1. Storage form of carbohydrate in plant is

   (a) Lactose (b) Starch

   (c) Glycogen (d) Cellulose

2. Total ATP formed from one TCA cycle is

   (a) 8 (b) 12

   (c) 24 (d) 38

3. Sphingomyelin is a

   (a) fat (b) phospholipids

   (c) glycolipids (d) steroid

4. All the followings are essential fatty acid, except.

   (a) Oleic acid (b) Linoleic acid

   (c) Linolineic acid (d) Arachidonic acid

5. Osteomalasia is caused by deficiency of

(a) Vitamin – A (b) Vitamin – C

(c) Vitamin – B (d) Vitamin – D

6. Each polypeptide chain of a Quaternary structure.

(a) Monomer (b) dimer

(c) trimer (d) polymer

7. Unit of refractive power is

(a) mg (b) ml

(c) IU (d) D

8. Descemen's layer of cornea is secreted by

(a) epithelium (b) endothelium

(c) stroma (d) all the above

9. Aqueous humor is

(a) supply glucose to lens

(b) filtrate of plasma

(c) locate between lens and cornea

(d) all the above

10. A vitamine rich in eye lens is

(a) Vitamin–A (b) Vitamin–B

(c) Vitamin–C (d) Niacin

Section B $(5 \times 5 = 25)$

Answer **all** questions.

11. (a) Write the structure and chemistry of glycogen.

Or

(b) Explain the types and management of diabetes mellitus.

12. (a) Discuss on Ketone bodies and atherosclerosis.

Or

(b) Write the structure and chemistry of cholesterol.

13. (a) Describe the classification and function of protein.

Or

(b) Explain the sources, functions and deficiency disorder of vitamin-C and Vitamin A.

14. (a) Write short notes on dry-eye syndrome and tear substitutes.

Or

(b) Infer the abnormalities and changes of cornea in contact lens weaver.

15. (a) Give an account on composition of aqueous humor.

Or

(b) Write the properties of lens protein.

Section C $(5 \times 8 = 40)$

Answer **all** questions.

16. (a) Describe the structure and chemistry of disaccharides.

Or

(b) Write the types, reaction and energitics of glycolysis.

17. (a) Explain structure and chemistry of simple lipid.

Or

(b) Elaborate the classification and mode of action of enzyme.

18. (a) Write the classification and structure of amino acids.

Or

(b) Give an account on primary and Tertiary structure of protein with example.

19. (a) Explain the biochemical composition and function of lipid and mucus layer of tear film.

Or

(b) Elaborate the biochemical composition, arrangement and role of transparency of corneal stroma.

20. (a) Describe the formation and secretion of aqueous humor.

Or

(b) Draw a neat structure of lens (eye) and explain its function.

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C–2422	Sub. Code 91416 (A)

B.Sc. DEGREE EXAMINATION, APRIL 2024.

First Semester

Optometry

NUTRITION

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Section A $(10 \times 1 = 10)$

Answer **all** questions.

1. Building up of plaque in arteries is called

   (a) Thrombosis (b) Artherosclerosis

   (c) Ischemia

2. Body mass index is

   (a) $\frac{\text{height}}{\text{weight}}$ (b) $\frac{\text{weight}}{\text{height}}$

   (c) $\frac{\text{length}}{\text{weight}}$

3. The following is a protein energy malnutrition

   (a) Kwashiokar (b) Marasmus

   (c) Xerophthalmia (d) both (a) and (b)

4. Name the fat soluble vitamin

   (a) Vitamin A (b) Vitamin C

   (c) Vitamin B

5. Vitamin D deficiency causes

(a) night blindness (b) Rickets

(c) Pellagra

6. Deficiency of Calcium causes

(a) Tetany (b) Pellagra

(c) Osteomalacia

7. ICDS stands for _____

(a) Inverted Children Developmental Scheme

(b) Integrated Child Development Services

(c) Interventional Child Development Service

8. Pernicious Anemia occurs due to deficiency of

(a) Vitamin B12 (b) Vitamin D

(c) Vitamin C

9. Arginine is an example of

(a) Essential amino acid

(b) Non essential amino acid

(c) Semi essential amino acid

10. Increase in blood glucose level is

(a) Diabetis mellitus (b) Glycosuria

(c) Diabetis insipidus

Section B (5 × 5 = 25)

Answer **all** questions.

11. (a) Functions of proteins and its sources.

Or

(b) Function of calcium and its sources.

12. (a) Body Mass Index.

Or

(b) Nutritional programmes in India.

13. (a) Nutritional management of obesity.

Or

(b) Iodine deficiency and excess.

14. (a) Diabetes Mellitus.

Or

(b) Dietry fibre.

15. (a) Essential Amino acids.

Or

(b) Malnutrition.

Section C (5 × 8 = 40)

Answer **all** questions.

16. (a) Write a note on Vitamin A and the disease caused by it in the eye.

Or

(b) Write in detail about iron and its role in the eye.

17. (a) Protein energy malnutrition.

Or

(b) Anti oxidants and its role in vision.

18. (a) Obesity.

Or

(b) Food pyramid.

19. (a) Carbohydrates.

Or

(b) Fats.

20. (a) Anemia.

Or

(b) Balanced diet.

———————

C–2423	Sub. Code 91416 B

B.Sc. DEGREE EXAMINATION, APRIL 2024.

First Semester

Optometry

BASIC LIFE SUPPORT

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Section A (10 × 1 = 10)

Answer **all** questions.

1. What is the compression to breath ratio in an adult victim?

   (a) 30:2 (b) 5:1

   (c) 15:3 (d) 100:2

2. Which of the following are signs of airway obstruction?

   (a) poor air exchange

   (b) High pitched noise while inhaling

   (c) inability to speak

   (d) All of the above

3. What position should the head be held during a nosebleed?

   (a) Head forward (b) Head level

   (c) Head backward (d) Head tilted to side

4. What is the correct sequence for primary survey in first aid?

(a) Damage, response, airway, breathing

(b) Danger, response, airway, breathing

(c) Danger, reply, artery, breathing

(d) Danger, response, advice, backoff

5. What factor does not influence respiration rate?

(a) Age (b) Gender

(c) Smoking (d) Medication

6. Most accurate method for taking temperature is

(a) Rectal (b) Oral

(c) Axillary (d) Groin

7. _____is not a picture identification chart test

(a) Arrow test (b) Allen cards

(c) Lea Symbols (d) Cardiff acuity test

8. _____is the ideal test of visual acuity in children of age 1–2 yrs.

(a) OKN (b) Cardiff acuity test

(c) VER (d) Snellen letter charts

9. Against the Rule astigmatism is

(a) Minus cylinder in vertical meridian

(b) Plus cylinder in vertical meridian

(c) Minus cylinder in horizontal meridian

(d) irregular astigmatism

10. Maddox rod test is useful in cases of

(a) Astigmatism (b) Myopia

(c) Suppression (d) Aphatia

Section B $(5 \times 5 = 25)$

Answer **all** questions.

11. (a) How to store medical records?

Or

(b) Write in brief about electronic medical records.

12. (a) Importance of checking vital signs in opp.

Or

(b) Write notes on blood oxygen levels.

13. (a) Birth History in history taking.

Or

(b) Parts of history taking.

14. (a) Components on vision.

Or

(b) Snellen acuity chart.

15. (a) Write in short about dressings.

Or

(b) Write in short about Foreign body injuries.

Section C (5 × 8 =40)

Answer **all** questions.

16. (a) Role of NABH and the procedure of accreditation entry level.

Or

(b) Importance of Nursing department in eye hospital.

17. (a) List the vital signs and the ways to measure them.

Or

(b) Blood glucose level and its importance.

18. (a) Write in detail about pupillary exmaination.

Or

(b) What are the checkpoints of torch light examination?

19. (a) What are the components of visual acuity?

Or

(b) Procedure of checking vision.

20. (a) Give the sequence of basic life support as a flow chart.

Or

(b) What are the 7 steps of CPR?

———————

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Sub. Code
91423

B.Sc. DEGREE EXAMINATION, APRIL 2024.

Second Semester

Optometry

OCULAR ANATOMY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which of the following structures forms the lens of the eye during embryonic development?

   (a) Optic cup (b) Optic vesicle

   (c) Optic stalk (d) Surface ectoderm

2. The optic canal transmits which cranial nerve.

   (a) Oculomotor nerve (CN III)

   (b) Trochlear nerve (CN IV)

   (c) Abducens nerve (CN VI)

   (d) Optic nerve (CN II)

3. Damage to the trochlear never can result in weakness or paralysis of which eye muscle?

   (a) Medial rectus (b) Superior rectus

   (c) Inferior oblique (d) Superior oblique

4. Which of the following glands is found in the tarsal plate of the eyelid?

(a) Glands of Wolfring

(b) Glands of Krause

(c) Meibomian glands

(d) Glands of Zeis

5. ———————— nerve provides sensory innervation to the upper eyelid and conjunctiva?

(a) Supratrochlear nerve

(b) Supraorbital nerve

(c) Lacrimal nerve

(d) Infraorbital nerve

6. Which of the following structures drains tears from the eye into the nasal cavity?

(a) Lacrimal ducts

(b) Nasolacrimal duct

(c) Lacrimal canaliculi

(d) Lacrimal sac

7. What types of tissue primarily constitutes the cornea

(a) Dense irregular connective tissue

(b) Hyaline cartilage

(c) Stratified squamous epithelium

(d) Transparent avascular connective tissue

8. What is the normal range of the angle of the anterior chamber in degrees?

(a) 20-30 degrees (b) 30-45 degrees

(c) 45-60 degrees (d) 60-70 degrees

9. ———————— muscle controls the diameter of the pupil in response to change in light intensity?

(a) Dilator pupillae

(b) Sphincter pupillae

(c) Ciliary muscle

(d) Retinal pigmented epithelium

10. ———————— layer of the lens contains the highest concentration of crystalline proteins?

(a) Capsule (b) Cortex

(c) Nucleus (d) Epithelium

Part B $(5 \times 5 = 25)$

Answer **all** questions.

11. (a) Write notes on development on retina. RPE and iris epithelium in embryo.

Or

(b) List the orbital nerves and state their main functions.

12. (a) Give a diagram of Lacrimal passage and write a short note on the same.

Or

(b) Write notes on Glands of Krause and Wolfring.

13. (a) With a neat diagram. Give brief note on dimensions of cornea.

Or

(b) Write in short about angle of anterior chamber.

14. (a) Give a brief account on anatomy of Iris.

Or

(b) Write note on structure of the lens.

15. (a) Write notes on the structure of photoreceptor cells.

Or

(b) Give notes on sphincter and Dilator muscles.

Part C $(5 \times 8 = 40)$

Answer **all** the questions.

16. (a) Give detailed notes on development of various structures of Eyeball in embryo.

Or

(b) Give note on walls of orbit with a diagram.

17. (a) Write detailed notes on glands of eye lid.

Or

(b) Give notes on anatomy of conjunctiva.

18. (a) Give an account on cellular structure of cornea.

Or

(b) Write notes on the structure of angle of anterior chamber.

19. (a) Give a detailed account on macroscopic appearance of ciliary body.

Or

(b) Write about the microscopic structure of Iris and its four layers.

20. (a) Write in detail about layers of Retina.

Or

(b) Write in detail about extra ocular motor system.

———————

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Sub. Code
91424

B.Sc. DEGREE EXAMINATION, APRIL 2024

Second Semester

Optometry

OCULAR PHYSIOLOGY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Section A (10 × 1 = 10)

Answer **all** questions.

1. What is the primary determinant of corneal transparency?

   (a) Presence of blood vessels

   (b) Regular arrangement of collagen fibrils

   (c) Thickness of the corneal epithelium

   (d) Degree of pigmentation

2. The primary function of aqueous humor?

   (a) To provide nutrients to the cornea

   (b) To maintain intraocular pressure

   (c) To absorb excess light

   (d) To protect the lens from damage

3. Which of the following factors is a risk factor for Rosette cataracts?

(a) UV radiation exposure

(b) Penetrating trauma

(c) Type 1 diabetes mellitus

(d) All of the above

4. Left homonymous Hemianopsia field defect is seen in

(a) Right optic tract lesion

(b) Left optic tract lesion

(c) Optic chiasmal lesion

(d) All the above

5. Medial rectus helps in ———— movement of the eye ball.

(a) Adduction (b) Abduction

(c) Extortion (d) Intorsion

6. 'B' wave in ERG corresponds to the activity of

(a) Muller cells (b) Amacrine cells

(c) Photoreceptors (d) RPE

7. Pupils reacting to near reflex but not to light stimulus is called as

(a) Anisocoria

(b) Argyll robertson pupil

(c) Marcus Gunn pupil

(d) Pupillary escape

8. ———— is the commonly used colour vision test.

(a) Ishihara (b) Ichikawa

(c) FM 100 Hues (d) Lantern test

9. Which type of optic nerve lesion is characterized by inflammation and demyelination?

(a) Optic neuritis (b) Optic neuropathy

(c) Optic glioma (d) Optic atrophy

10. Which of the following retinal layers is most critical for the process of dark adaptation?

(a) Outer nuclear layer

(b) Inner nuclear layer

(c) Outer plexiform layer

(d) Ganglion cell layer

Section B $(5 \times 5 = 25)$

Answer **all** questions.

11. (a) Discuss in brief about the optical properties of cornea.

Or

(b) List the functions of Aqueous Humor.

12. (a) Discuss about secondary cataracts.

Or

(b) Any five functions of Retina.

13. (a) Tear Breakup Time.

Or

(b) Write in brief about Rectus muscles of Eye.

14. (a) Discuss in brief about blood aqueous barrier.

Or

(b) Brief on visual angle.

15. (a) Components of ERG.

Or

(b) Write notes on Ishihara color vision test.

Section C $(5 \times 8 = 40)$

Answer **all** questions.

16. (a) List the factors that affects the Corneal transparency.

Or

(b) Discuss about formation of Aqueous Humor.

17. (a) Write in detail about Senile Cataract.

Or

(b) Write about the mechanism of accommodation.

18. (a) List the functions of Tear film.

Or

(b) Discuss about Pupillary Reflex.

19. (a) Write in detail on origin and transmission of visual impulse in the Retina.

Or

(b) Elaborate on measurement of visual acuity.

20. (a) Write in detail about contrast sensitivity measurement.

Or

(b) Theories of color vision.

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91425

B.Sc. DEGREE EXAMINATION, APRIL 2024

Second Semester

Optometry

PHYSICAL OPTICS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A $(10 \times 1 = 10)$

Answer **all** questions.

1. The change in the direction of a wave passing from one medium to another is termed as

   (a) Reflection (b) Refraction

   (c) No change (d) Interference

2. What would be the angle of incidence for a light ray having zero reflection angles?

   (a) 0 degree (b) 90°

   (c) 180° (d) 45°

3. Interference occurs in

   (a) Longitudinal waves only

   (b) Transverse waves only

   (c) Electromagnetic waves only

   (d) All the above waves

4. Interference with two coherent sources the fringe width varies

(a) directly as the wavelength

(b) inversely as wavelength

(c) separation between slits

(d) inversely distance between screen and slit

5. The focal length of a plane mirror is

(a) 0 (b) 1

(c) 2 (d) 3

6. The condition for deserving Fraunhoffer diffraction from a single slit is that the light wavefront on the slit should be

(a) spherical (b) plane

(c) cylindrical (d) elliptical

7. If the phase difference between two rays is $\pi/2$ and the angle of incidence to $\pi/4$ the emergent light in

(a) plane polarised

(b) circularly polarised

(c) elliptically polarised

(d) none of the above

8. Polarisation can be produced by

(a) Single refraction (b) Double refraction

(c) Triple refraction (d) Zero refraction

9. Which of the following is not a characteristics of LASER

(a) Manochromatic (b) Divergent

(c) Coherent (d) Intense

10. The first laser was

(a) Ruby laser (b) Dye laser

(c) He-Ne laser (d) None of these

Part B $(5 \times 5 = 25)$

Answer **all** questions.

11. (a) Write a brief note on wave velocity.

Or

(b) Discuss briefly Hygen's principle for law of reflection.

12. (a) What is coherence? What are the condition for coherence.

Or

(b) Answer in brief path and phase difference.

13. (a) Write an essay about dispersive power.

Or

(b) Explain resolution of microscope.

14. (a) Discuss Malu's law.

Or

(b) Write a short note on Retarders.

15. (a) List out some joints about emission spectra.

Or

(b) Discuss some important joint about stimulated emission.

Part C

$(5 \times 8 = 40)$

Answer **all** questions.

16. (a) Derive a mathematical representation for simple harmonic waves.

Or

(b) How to find the velocity of light write an essay about any one method.

17. (a) Explain with neat diagram Fresnel's biprism experiment.

Or

(b) Discuss in detail thin film anti-reflection coating.

18. (a) Explain in detail the principle of diffraction grating.

Or

(b) Discuss the diffraction pattern due to circular aperature.

19. (a) Explain in detail how can produce linear and circularly polarised light.

Or

(b) Discuss the nature and working of quarter wave plate and half wave plate.

20. (a) Explain in detail the working of ruby laser.

Or

(b) Discuss the important principles about spontaneous and stimulated emission.

C–2427

Sub. Code
91427

B.Sc. DEGREE EXAMINATION, APRIL 2024.

Second Semester

Optometry

MICROBIOLOGY AND PATHOLOGY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Section A $(10 \times 1 = 10)$

Answer **all** questions.

1. KOH wet mount is to find

   (a) Epithelial cells (b) Bacteria

   (c) Viruses (d) Fungal morphologies

2. Nutrient agar is used as

   (a) Staining (b) Slide fixation

   (c) Culture media (d) Antiseptic

3. After culture, a bacterial colony appear chain is known as

   (a) diplococci (b) staphylococci

   (c) pneumo cocci (d) streptococci

4. Quellung's reaction is to assay Ag of

   (a) Moraxella (b) Haemophilus

   (c) Pseudomonas (d) Gonococci

5. Vaccinia virus vaccine is used for

(a) AIDS (b) Mumps

(c) Shipyard eye (d) Small pox

6. *Onchocerca volvulus* is cause

(a) Filariasis (b) Tuberculosis

(c) AIDS (d) Toxocariasis

7. Young fibroblast secretes

(a) tear (b) insulin

(c) collagen (d) cholesterol

8. Maorophages are derived from

(a) RBC (b) WBCs

(c) Epithelial cell (d) Endothelium

9. Hyperaemia and oedema are found in

(a) Chalazion (b) Primary orbital tumor

(c) Conjunctivitis (d) Corneal ulcer

10. Proteolytic enzymes of lens is activated by

(a) acidity (b) alkalinity

(c) salinity (d) density

Section B $(5 \times 5 = 25)$

Answer **all** questions.

11. (a) Comment on normal ocular flora.

Or

(b) Write the structure and function of immunoglobulin G (Ig G).

12. (a) Explain the pathology, ocular lesions, diagnosis and treatment for meningoccal infection.

Or

(b) Write an pathophysiology of Treponema pallidum.

13. (a) Give a note on pathology and ocular lesions of candida.

Or

(b) Outline the clinical features, ocular lesions and treatment of mucor.

14. (a) Describe the healing process of tissue injury.

Or

(b) List and explain the cells which are involved in tissue repairing mechanism.

15. (a) Write short note on malignant melanoma.

Or

(b) Explain briefly on orbital tumors.

Section C $(5 \times 8 = 40)$

Answer **all** questions.

16. (a) Explain the methods of sterilization process.

Or

(b) Elaborate the techniques involved in the collection of ocular samples.

17. (a) Write in detail note on pathology, ocular lesions, diagnosis and treatment for staphylococcal infection.

Or

(b) Describe the pathology and ocular lesions of mycobacterium including their diagnosis.

18. (a) Discuss on clinical features, ocular lesions and treatment of acanthameoba and toxocara.

Or

(b) Outline the pathology, ocular infection and treatment of adenovirus and picornavirus.

19. (a) Elaborate the acute and chronic inflammation.

Or

(b) Write short notes on :

(i) Scar (4)

(ii) Granuloma. (4)

20. (a) Discuss in detail on eye lid pathology.

Or

(b) Comment on corneal ulcer and keratoconus.

———————