C–6396

Sub. Code
91413

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

First Semester

Optometry

GENERAL ANATOMY AND PHYSIOLOGY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Physiology refers to the
   (a) scientific study of mind and behavior
   (b) study of internal and external structures of the human body
   (c) study of functions of the body parts
   (d) study of microscopic organisms

2. What does corpus callosum connects in human brain?
   (a) Two optic lobes
   (b) Bone and muscle
   (c) Two cerebral hemisphere
   (d) Two lobes of pituitary gland

3. How many bones does an adult human skeleton has?
   (a) 205 (b) 207
   (c) 209 (d) 206

4. How many pairs of cranial nerves are present in the human?

(a) 13 (b) 31

(c) 33 (d) 12

5. Which of the following is a balancing organ in human?

(a) Eardrum (b) Vestibular region

(c) Cochlea (d) Organ of corti

6. Which of the following is the largest gland in the human body?

(a) Pancreas (b) Liver

(c) Kidney (d) Thymus

7. The hypothalamus is the part of

(a) Cardiovascular system

(b) Endocrine system

(c) Respiratory system

(d) Lymphatic system

8. Where does gas exchange takes place in the lungs?

(a) Alveoli (b) Bronchioles

(c) Trachea (d) Pleura

9. Which of the following is an example of ball and socket joint?

(a) shoulder (b) knee

(c) wrist (d) ankle

10. Which chamber of the heart pumps blood to the lungs?

(a) Left ventricle (b) Left atrium

(c) Right ventricle (d) Aorta

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the structure and functions of Liver.

Or

(b) Write about cardiac conduction system and cardiac output.

12. (a) Draw a labelled diagram and write notes on paranasal sinuses.

Or

(b) Write about neuromuscular junction.

13. (a) Explain the structure of neuron with a neat labelled diagram.

Or

(b) Explain the structure of stomach and small intestine.

14. (a) List out the different lobes of cerebrum and write the vital functions of each lobe.

Or

(b) Write short notes on spermatogenesis.

15. (a) Write about the physiology of urination.

Or

(b) Write about lung volume and capacities with a neat diagram.

Part C (5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Draw a neat labelled diagram of the heart and explain the anatomy of heart and cardiac cycle in detail.

Or

(b) Write in detail on the structure and functions of digestives system with a neat labelled diagram.

17. (a) Write in detail on cranial nerves and their functions.

Or

(b) Write in detail on menstrual cycle.

18. (a) Write in detail on the structure and function of endocrine system.

Or

(b) Differentiate between sympathetic and parasympathetic nervous system.

19. (a) Write in detail on the anatomy of skeletal system and explain each structure in detail with neat labelled diagram.

Or

(b) Write in detail on the anatomy of female reproductive system.

20. (a) Write about the structure and function of thymus and spleen and also explain the clinical correlations of spleen in immunity.

Or

(b) Explain in detail on the anatomy of respiratory system with a neat labelled diagram.

———————

C–6397

Sub. Code
91414

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

First Semester

Optometry

GEOMETRICAL OPTICS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. To observe interference of light two beams of light should be

   (a) monochromatic (b) of same colour

   (c) coherent (d) all of these

2. Principle of operation of optical fibers is

   (a) refraction

   (b) total internal reflection

   (c) dispersion

   (d) rectilinear propagation

3. Which of the following phenomenon proves the transverse nature of light

   (a) Dispersion (b) Polarization

   (c) Interference (d) None of these

4. Two thin lenses of focal length 10cm and 25cm are in contact. The effective power of the combination is

(a) 0.5D (b) 14D

(c) 1/14D (d) 1D

5. The wave theory of light was proposed by

(a) Newton (b) Planck

(c) Huygens (d) Brewster

6. Polarization is not seen with sound, because the sound waves are

(a) longitudinal

(b) transverse

(c) not electromagnetic waves

(d) of long wavelength

7. 100% of the incident ray is reflected in

(a) regular reflection

(b) total internal reflection

(c) specular reflection

(d) diffuse reflection

8. Aberration means

(a) distortion

(b) curvature

(c) any defect in the final image

(d) coma

9. When the focal length is infinite the power will be

(a) 0 (b) infinite

(c) 100 (d) 10

10. The innermost cylindrical region of the optical fiber is known as

(a) core (b) cladding

(c) sheath (d) none of these

Part B

$(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) Write about young's double slit experiment.

Or

(b) Define focal power, focal length, nodal point.

12. (a) Write about the laws of refraction.

Or

(b) Define Aberration and list the types of aberration.

13. (a) Write about the dual nature of light.

Or

(b) Explain cardinal points for thick lens system

14. (a) Explain about deviation produced by prism with neat diagram.

Or

(b) Explain in detail on the equivalent focal length and focal power of two thin lenses placed in contact.

15. (a) Write about geometrical and optical path lengths.

Or

(b) Differentiate the image properties of convex and concave lens at various distances.

Part C

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Write in detail on the Vergence.

Or

(b) Write in detail on deviation, prismatic power and uses of prism.

17. (a) Write about curvature of field and ways of minimizing them.

Or

(b) Define aberration, write about spherical aberration and explain the ways to minimize spherical aberration.

18. (a) What is optical fibre, write about the types of optical fibres and explain its uses.

Or

(b) Write the statement of fermat's principle and explain the law of refraction using fermat's principle.

19. (a) Write in detail on the refraction by spherical convex and concave surfaces.

Or

(b) Explain the types of aberrations in detail.

20. (a) Explain vergence equation in detail.

Or

(b) Explain total internal reflection and critical angle.

C–6398

Sub. Code
91415

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

First Semester

Optometry

GENERAL AND OCULAR BIOCHEMISTRY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which one of the following is abnormal constituent of urine _____

   (a) Glucose (b) Creatinine

   (c) Urea (d) None of the above

2. Insulin acts on which enzyme is glycolysis

   (a) Glucokinase

   (b) Hexokinase

   (c) Glucose 6 phosphate

   (d) None of these

3. Which lipid is a major constituent of cell membrane?

   (a) Cholesterol (b) Triglyceride

   (c) Phospholipid (d) Steroid

4. Ketone bodies are normally synthesized from

(a) Acetyl Co-A (b) Glucose

(c) Glycerol (d) Acetone

5. Gluconeogenesis occurs in the liver and _____

(a) Kidney (b) Muscle

(c) Heart (d) None of these

6. The enzyme that catalyses same reaction but different in physical properties are called as

(a) Pro enzyme (b) Iso enzyme

(c) Co enzyme (d) Holoenzyme

7. Enzymes are made up of

(a) Lipids (b) Proteins

(c) Carbohydrates (d) None of these

8. What is the outermost layer of the tear film?

(a) Mucin layer (b) Aqueous layer

(c) Lipid layer (d) None of these

9. Which pair of the gland and its secretion is true?

(a) Meibomian gland = mucin

(b) Lacrimal gland = lipid

(c) Krause gland = aqueous

(d) Wolfring gland = lipid

10. Steroid induced cataract is

(a) Nuclear cataract

(b) Posterior subcapsular cataract

(c) Cortical cataract

(d) Anterior subcapsular cataract

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) List out the functions of crystalline lens.

Or

(b) Write about the classification of carbohydrates.

12. (a) Write about the factors affecting enzyme activity.

Or

(b) Write short notes on the corneal transparency.

13. (a) Write notes on ketone bodies.

Or

(b) Write about lens dehydration and explain lens transparency.

14. (a) Write about the properties of enzymes.

Or

(b) Write about tear secretion.

15. (a) Write about the functions of monosaccharide, disaccharides and polysaccharide.

Or

(b) Write about the biological functions of vitamins.

Part C

$(5 \times 8 = 40)$

Answer **all** questions, choosing either (a) or (b).

16. (a) Define cataract and write in detail on diabetic cataract.

Or

(b) Write about structure and function of monosaccharide, disaccharides and polysaccharide.

17. (a) Classify lipids and write in detail on lipid metabolism and beta oxidation of saturated fatty acids.

Or

(b) Classify proteins and write about the structure and functions of protein.

18. (a) Write in detail on the types and management of diabetes mellitus.

Or

(b) Write in detail on the composition of tear film.

19. (a) Write in detail on the biochemical composition of corneal layers.

Or

(b) Write in detail on carbohydrate metabolism and TCA cycle.

20. (a) Write about the structure and functions of crystalline lens.

Or

(b) Write about the disease manifestation of vitamins.

———————

C–6399

Sub. Code
91416A

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

First Semester

Optometry

NUTRITION

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which nutrient is the main source of energy?
   (a) Minerals (b) Proteins
   (c) Vitamins (d) Carbohydrates

2. Which vitamin is essential for calcium absorption?
   (a) Vitamin A (b) Vitamin C
   (c) Vitamin D (d) Vitamin E

3. Which mineral is important for maintain blood pressure?
   (a) Calcium (b) Iron
   (c) Potassium (d) Zinc

4. Which of the following is the primary source of omega 3 fatty acids?
   (a) Fish (b) Nuts
   (c) Avocado (d) Olive oil

5. What is the role of antioxidant in the body?

(a) Boost immune function

(b) Regulate metabolism

(c) Protect against cell damage

(d) Aid in digestion

6. Which food group is the main source of carbohydrates?

(a) Fruits and vegetables

(b) Meat and poultry

(c) Dairy products

(d) Grains and cereals

7. Which of the following are water soluble vitamins except

(a) Vitamin B 6 (b) Vitamin K

(c) Vitamin C (d) Vitamin B1

8. Proteins are made up of smaller units called

(a) amino acids (b) fats

(c) carbohydrates (d) all of these

9. The clinical forms of protein energy malnutrition is

(a) Kwashiorkar

(b) Marasmus

(c) Both (a) and (b)

(d) None of the above

10. Vitamin necessary for the production of retinol pigment is

(a) Vitamin B6 (b) Vitamin C

(c) Vitamin A (d) Vitamin K

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write about the units of energy.

Or

(b) Write about nitrogen balance.

12. (a) Define energy expenditure, satiety value and obesity.

Or

(b) Write about the sources and functions of protein.

13. (a) Write notes on food groups.

Or

(b) Write about the clinical manifestations of hyperlipidemia.

14. (a) List out the general functions of vitamin.

Or

(b) Write about PEM.

15. (a) List out the sources and functions of minerals.

Or

(b) Write about the heart diseases associated with nutritional deficiency or excess.

Part C

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Write in detail on the history of nutrition.

Or

(b) Write in detail on total energy and calories requirement for different age groups.

17. (a) Write in detail on ophthalmic manifestations of vitamin deficiency.

Or

(b) Explain in detail on RDA and diet planning.

18. (a) Write in detail on the sources and functions of essential and non essential amino acids.

Or

(b) Write in detail on the clinical features of atherosclerosis and the role of diet in atherosclerosis.

19. (a) Write in detail on the assessment of nutritional status.

Or

(b) Write about the ophthalmic manifestation of iron, calcium and iodine deficiency.

20. (a) Write in detail on the role of vitamin and other essential nutrients in lactation and infancy.

Or

(b) Write in detail on the clinical features of measles with its ocular manifestations.

———————

C–6400

Sub. Code
91416B

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

First Semester

Optometry

BASIC LIFE SUPPORT

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. The measurement of the balance between heat produced and lost is

   (a) Blood pressure (b) Homeostasis

   (c) Temperature (d) Blood glucose level

2. The instrument used to measure blood pressure is known as

   (a) Sphygmomanometer

   (b) Electrocardiograph

   (c) Thermometer

   (d) Glucometer

3. Vital signs are known as

   (a) Palpation (b) Ascultation

   (c) Cardinal sign (d) Both (a) and (b)

4. In the blood pressure of 120/80 mm Hg, 120 refers to the

(a) Systolic blood pressure

(b) Diastolic blood pressure

(c) Pulse rate

(d) None of the above

5. The pulse site at the neck is

(a) Carotid (b) Temporal

(c) Popliteal (d) Femoral

6. In LogMAR based chart, each letter has value of

(a) 0.01 log units (b) 0.02 log units

(c) 0.25 log units (d) 0.15 log units

7. Under normal conditions, when light is shined into one eye, the pupil of the other eye should

(a) constrict

(b) dilate

(c) stay the same

(d) do the opposite of the eye you are shining the light

8. RAPD stands for

(a) Relative afferent pupillary defect

(b) Rapid alternative pupillary defect

(c) Relative alternative pupillary defect

(d) None of the above

9. Bandages promote healing by

(a) Controlling bleeding

(b) Protects the wound from infection and drying

(c) Decreasing the possibility of self-trauma

(d) All of the above

10. An ideal antiseptic or disinfectant should have all except

(a) Speedy action

(b) Corrode metals

(c) Stable

(d) Safe and easy to use

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write notes on the vision and mission of healthcare.

Or

(b) Write about the components of visual acuity.

12. (a) Write notes on dressings and bandages.

Or

(b) Write notes on external observation in preliminary ocular examinations.

13. (a) Write about the importance of vital signs evaluation.

Or

(b) Write notes on the components of vision.

14. (a) Write notes on ocular foreign bodies.

Or

(b) Write notes on BMI and its measurement.

15. (a) Write about the examination of temperature and pulse rate.

Or

(b) Write notes on the importance of medical records.

Part C

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain in detail on the basic protocols of health care.

Or

(b) Explain in detail on the assessment of visual acuity.

17. (a) Define blood pressure and write about the measurement of blood pressure.

Or

(b) Write notes on the role of WHO in health care.

18. (a) Explain in detail on first aid and concept of emergency in health care.

Or

(b) Write about the measurement of blood glucose level.

19. (a) Write notes on the role of NABH in health care.

Or

(b) Explain in detail on pupillary examination.

20. (a) Explain in detail on history taking in ophthalmology.

Or

(b) Write about the examination of respiration and blood oxygen level.

———————

C–6401	Sub. Code 91423

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Second Semester

Optometry

OCULAR ANATOMY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. The orbicularis oculi muscle receives its nerve supply from

   (a) Facial nerve (b) Trigeminal nerve

   (c) Abducens nerve (d) Trochlear nerve

2. Which is the most abundant protein found in the cone cells of retina

   (a) Opsin (b) rhodopsin

   (c) Iodopsin (d) None of the above

3. Diameter of the optic disc is

   (a) 3 .5 mm (b) 1.5 mm

   (c) 4.5 mm (d) 5 .5 mm

4. Which cranial nerve supplies superior oblique muscle

   (a) Trigeminal nerve (b) Oculomotor nerve

   (c) Abducens nerve (d) Trochlear nerve

5. Neurons of first order for visual sensations are

(a) Rods and cones (b) Bipolar cells

(c) Ganglion cells (d) None of the above

6. The vascular coat of the eyeball is

(a) retina (b) uvea

(c) cornea (d) sclera

7. The mucoid layer of the tear film is produced by

(a) Meibomian glands

(b) main lacrimal gland

(c) zeiss gland

(d) goblet cells

8. The layer of the cornea once destroyed does not regenerate is

(a) Epithelium

(b) Bowman's membrane

(c) Descemet's membrane

(d) Endothelium

9. The junction of cornea and sclera is known as

(a) trabecular meshwork

(b) limbus

(c) ciliary body

(d) pupil

10. The weakest bony orbital wall is

(a) lateral (b) medial

(c) floor (d) roof

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write about the scleral anatomy and special apertures of sclera.

Or

(b) Write about blood and nerve supply of EOM.

12. (a) Write about the gross anatomy of conjunctiva with neat diagram.

Or

(b) Write about structure of the angle of anterior chamber with neat diagram.

13. (a) Write about the layers of choroid.

Or

(b) Explain the Nerve supply of cornea with a flow chart.

14. (a) Write about the structure of crystalline lens.

Or

(b) Write about the course and distribution of 6th cranial nerve.

15. (a) Write about the glands, blood supply and nerve supply of eyelids.

Or

(b) Write about the anatomy of optic nerve.

Part C

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain ocular embryology with neat diagram.

Or

(b) Write in detail on the anatomy of visual pathway with neat diagram.

17. (a) Write about the microscopic structure of retina with neat diagram.

Or

(b) Write about the Microscopic and macroscopic appearance of uvea.

18. (a) Write about the course, distribution and clinical aspects of 3rd cranial nerve.

Or

(b) Write about the origin, course and insertion of extraocular muscles.

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

Or

(b) Write in detail on the milestones of development of ocular structures.

20. (a) Write in detail on bony walls and surgical spaces of the orbit.

Or

(b) Write in detail on surgical space of orbit.

———————

C–6402

Sub. Code
91424

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Second Semester

Optometry

OCULAR PHYSIOLOGY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Far point of accommodation is also known as

   (a) Amplitude of accommodation

   (b) Punctum Proximum

   (c) Punctum Remotum

   (d) None of the above

2. Imbert fick law is

   (a) W = PA

   (b) P = WA

   (c) A=WP

   (d) None of the above

3. The component of visual acuity which provides the ability to determine whether an object ois present in the field or not is known as

(a) Resolution

(b) Minimum visible

(c) Discrimination

(d) None of the above

4. Which theory states that the cornea is transparent because the fibrils are small in relationship to the light and do not interfere with light transmission unless they are larger than one half of the wavelength of light

(a) Goldmann's theory

(b) Maurice theory

(c) Donder's theory

(d) None of the above

5. The LPS muscle receives its nerve supply from

(a) Trigeminal nerve

(b) Oculomotor nerve

(c) Trochlear nerve

(d) Facial nerve

6. The ability to distinguish an object from its background is known as

(a) Contrast sensitivity

(b) Colour vision

(c) Visual acuity

(d) Darka adaptation

7. Which photoreceptors are responsible for vision in dim illumination?

(a) Rods

(b) Cones

(c) Both of the above

(d) RPE

8. The shortest EOM is

(a) Superior rectus

(b) Inferior oblique

(c) Inferior rectus

(d) Superior oblique

9. Yoke muscle for right superior rectus is

(a) Left superior rectus

(b) Left inferior oblique

(c) Left inferior rectus

(d) Left superior oblique

10. Onset of the stimulus to the beginning of the a-wave in ERG is known as

(a) Latency of response

(b) Oscillatory potential

(c) Implicit time

(d) None of the above

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write about the principle and procedure of VEP.

Or

(b) Write about the changes in ageing lens.

12. (a) Write about the ocular changes in accommodation.

Or

(b) Write about the mechanism of action of EOM.

13. (a) Explain pupillary near reflex with neat diagram.

Or

(b) Write about the factors affecting visual acuity.

14. (a) Write about the various colour vision tests available.

Or

(b) Write about the blood ocular barrier.

15. (a) Write about the uniocular and binocular movements.

Or

(b) Define dark adaptation.

Part C

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain about the abnormalities of pupillary reactions.

Or

(b) Write in detail organization and functions of retina.

17. (a) Write about the lesions of visual pathway with neat diagram.

Or

(b) Write in detail on pupillary light reflex.

18. (a) Write about the measurement of visual acuity.

Or

(b) Write in detail on ERG.

19. (a) Write about the supra nuclear control of eye movements.

Or

(b) Write in detail colour blindness.

20. (a) Write in detail on the laws of extra ocular motility.

Or

(b) Write in detail on corneal transparency and factors affecting corneal transparency.

———————

C–6403

Sub. Code
91425

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Second Semester

Optometry

PHYSICAL OPTICS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. The central fringe in case of a Lloyd's single mirror is

   (a) Dark (b) Bright

   (c) Blue (d) None of these

2. The nature of light is

   (a) Wave nature (b) Particle nature

   (c) Dual nature (d) None of these

3. The properties of coherent sources are

   (a) equal phase difference

   (b) equal or nearly equal amplitude

   (c) the same wavelength

   (d) all of these

4. Which phenomenon establishes the wave nature of light

(a) Interference (b) Polarization

(c) Diffraction (d) All of the above

5. Which one of the following is required to demonstrate the phenomenon of interference

(a) 2 sources of same frequency

(b) 2 sources of different wavelength

(c) Both (a) and (b)

(d) None of the above

6. For constructive interference the path difference between two interfering beams is

(a) 0 (b) Π

(c) 2Π (d) 3Π

7. Young's experiment establishes

(a) wave nature of light

(b) particle nature of light

(c) dual nature of light

(d) polarization

8. Radii of the Newton bright rings are

(a) proportional to the wavelength of light

(b) proportional to the square of wavelength of light

(c) proportional to the square root of the wavelength of light

(d) none of the above

9. If monochromatic light falls on Young's double slit, the central fringe is

(a) disappears (b) is coloured

(c) is white (d) changes position

10. Laser works on the principle of

(a) superposition of light

(b) quantum theory of radiation

(c) double refraction

(d) none of these

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

Answer **all** questions, choosing either (a) or (b).

11. (a) Write about law of refraction at plane surface.

Or

(b) Write about quarter wave plates.

12. (a) Write about Fresnel biprism.

Or

(b) Write about diffraction by multiple slit.

13. (a) Write about the scattering of light and ramen effect.

Or

(b) Write short notes on photometry.

14. (a) Write about dispersion by grating.

Or

(b) Write about Nicol prism.

15. (a) Write about calcite crystal.

Or

(b) Write about the theory of interference fringes.

Part C

$(5 \times 8 = 40)$

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain in detail on Newton's ring experiment.

Or

(b) Write in detail on the diffraction gratings.

17. (a) Write about the young's double slit experiment.

Or

(b) Write in detail on the analysis of light of unknown polarization.

18. (a) Write in detail on any one of the method used to determine the velocity of light.

Or

(b) Write in detail on holography.

19. (a) Write about thin film anti reflection coatings.

Or

(b) Write in detail on the zone plates.

20. (a) Write in detail on diffraction by circular aperture.

Or

(b) Write in detail on the fundamentals of laser.

———————

C–6404

Sub. Code
91427

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Second Semester

Optometry

MICROBIOLOGY AND PATHOLOGY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. The type of cancer that arises in the cells that make the pigment of the skin

   (a) melanoma (b) carcinoma

   (c) sarcoma (d) Neoplasm

2. The mechanism of development of disease is known as

   (a) Pathogenesis (c) Etiology

   (c) Prognosis (d) None of the above

3. When an organ fails to reach the adult size it is termed as

   (a) Aplasia (b) Hypoplasia

   (c) Agenesis (d) None of the above

4. The following agent does not have the ability to replicate until it infects a cell

   (a) Virus (b) Bacteria

   (c) Protozoa (d) Fungi

5. One of the following is an example of cellular adaptation

(a) agenesis (b) aplasia

(c) atrophy (d) apoptosis

6. The characteristics changes in the tissue and cells produced by disease is known as

(a) Lesions (b) Pathogenesis

(c) Cytopathology (d) Cell injury

7. Expand TORCH

(a) Toxoplamosis, Rubella, cytomegalo virus, Histoplasmosis

(b) Toxocariosis, Rubella, cytomegalovirus and Herpes simplex

(c) Treponoma, Rubella, Cytomegalo virus, Herpes zoster

(d) None of the above

8. Which of the following refers to the forecast of the course and termination of disease

(a) Pathogenesis (b) Prognosis

(c) Etiology (d) Complications

9. Who is called the father of microbiology

(a) Alexander Fleming (b) Joseph Lister

(c) Louis Pasteur (d) Galileo

10. Therapeutic surgical resection of the entire lesion is known as

(a) Excision biopsy

(b) Incision biopsy

(c) Fine needle aspiration

(d) Biopsy

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write about chalazion and hordeolum with its clinical features and management.

Or

(b) Write about the clinical features, ocular lesions and treatment of Toxoplasma.

12. (a) Write about the tumours of orbit.

Or

(b) Write about corneal, AC and vitreous scrapings.

13. (a) Write about normal ocular flora.

Or

(b) Write about ocular lesions of common fungi.

14. (a) Write in detail on the inheritance and clinical features of retinoblastoma.

Or

(b) Write about culture media.

15. (a) Write about lens induced glaucoma.

Or

(b) Write about the classification of cataract.

Part C

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain about the types, clinical features and treatment of conjunctivitis.

Or

(b) Write in detail on keratoconus

17. (a) Write about the classification and clinical features of uveitis.

Or

(b) Write about the vascular and cellular components involved in inflammation

18. (a) Write about the ocular lesions caused by histoplasma and acanthamoeba

Or

(b) Write in detail on gram negative bacilli

19. (a) Write in detail on the classification and features of corneal ulcer.

Or

(b) Write in detail on sterilization and disinfection

20. (a) Write in detail on the malignant melanoma and squamous cell carcinoma.

Or

(b) Write in detail on the ocular lesions of pox virus and rubella.

———————

C–6405

Sub. Code
91433

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Third Semester

Optometry

VISUAL OPTICS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. The far point of a patient with -4.0 D refractive error is

   (a) 20cm (b) 25cm

   (c) 50cm (d) infinity

2. Smaller pupil can give lead to

   (a) Spherical aberration

   (b) chromatic aberration

   (c) diffraction

   (d) Coma

3. Refractive index of cornea is

   (a) 1.376 (b) 1.363

   (c) 1.386 (d) 1.406

4. The refractive power of the eyeball is reduced than normal in

(a) Hyperopia (b) Astigmatism

(c) Myopia (d) All of the above

5. Latent hyperopia is unmasked by

(a) cycloplegics (b) fogging

(c) Maddox rod (d) pinhole

6. Unilateral Aphakia causes

(a) diplopia (b) anisometropia

(c) anisekonia (d) all of these

7. The vertical meridian is more curved than the horizontal in

(a) with the rule astigmatism

(b) against the rule astigmatism

(c) oblique astigmatism

(d) compound astigmatism

8. Visual axis is a straight line which passes through the ———————— and nodal point.

(a) macula (b) fovea

(c) center of pupil (d) different media

9. Which purkinje image is used in keratometry

(a) I (b) II

(c) III (d) IV

10. Roving ring scotoma is found in

(a) aphakia (b) myopia

(c) hyperopia (d) anisometropia

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write about the definition, etiology and clinical features of astigmatism.

Or

(b) Write about Scheiner's disc experiment.

12. (a) Write about the depth of field and depth of focus.

Or

(b) Write about the measurement of amplitude of accommodation.

13. (a) Write about relative spectacle magnification with example.

Or

(b) Write about the principle and procedure of binocular balancing (any 2 methods).

14. (a) Write about the tests of contrast sensitivity.

Or

(b) Write about vertex distance and vertex power also include the effect of vertex distance change.

15. (a) Write about the difficulties in subjective and objective tests and their avoidance.

Or

(b) Write about spectacle refraction with an example.

Part C (5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Write about the etiology and clinical features of aphakia.

Or

(b) Write in detail on the etiology, classification, clinical features and management of hyperopia.

17. (a) Write about the principle, procedure and clinical application of retinoscopy.

Or

(b) Explain about the optics of ocular structure including cornea and crystalline lens.

18. (a) Write about the etiology, types, signs, symptoms and management of presbyopia.

Or

(b) Write in detail on schematic eye.

19. (a) Write in detail on the fogging and duochrome test.

Or

(b) Write in detail on anisekonia.

20. (a) Write in detail on the optics of corneal curvature, thickness, lens curvature and axial length in refractive errors.

Or

(b) Write in detail on mechanism of accommodation and changes in lens during accomodation.

———————

C–6406

Sub. Code
91434

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Third Semester

Optometry

OPTOMETRIC OPTICS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Perspex is another name for
   (a) CR39 (b) PMMA
   (c) Crown glass (d) Flint glass

2. The lines joining the centers of curvatures of the lens is called as
   (a) Poles (b) Focal length
   (c) Optical axis (d) Principal axis

3. Power of a lens is not dependent upon its
   (a) radius of curvature
   (b) refractive index of the medium
   (c) focal length
   (d) dispersive power

4. If a minus lens is held in front of the eye and a horizontal line is viewed through it, on moving the lens downwards, the horizontal line will appear to move
   (a) downwards (b) upwards
   (c) to the left side (d) to the right side

5. Hand neutralisation of spherical lenses work best when

(a) planoconvex lenses are used

(b) no airgap exist between the lenses

(c) optic center of the lens coincides with geometric center of the lenses

(d) all the above

6. When decentring a lens to produce prismatic effect, a positive lens must be decentred

(a) in the same direction as the prism base

(b) in the opposite direction as the prism base

(c) in the same direction as the apex of prism

(d) can be moved in any direction

7. _____ is a lens surface fault.

(a) Cord (b) Striae

(c) Waves (d) Bubbles

8. _____ resists corrosion, malleable, accepts color well.

(a) pure nickel (b) aluminium

(c) stainless silver (d) german silver

9. If a frame's dimensions are A = 50 and C = 48, with a frame difference of 8, what is B?

(a) 58 mm (b) 56 m

(c) 52 mm (d) 46 mm

10. Half eyes are best for

(a) sports eye wear (b) protective eye wear

(c) reading purposes (d) children

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Give notes on different forms of lenses.

Or

(b) Transpose the following to alternate sph cyl forms :

(i) + 0.50 DS / + 1.50 DCXV

(ii) + 2.25 DS/$\bar{1}$.50 DCXH

(iii) + 6.50 DS/$\bar{3}$.00 DCXH

(iv) – 3.25 DS/+1.75 DCXV

12. (a) Explain about vertex distance and vertex power.

Or

(b) Lens surfacing process. Give notes.

13. (a) What are Rotary prisms?

Or

(b) Find the decentration required to produce

(i) 2^{Δ} base down

(ii) 1.5^{Δ} BI with lens

(iii) +3.00 DS and

(iv) –4.50 DS.

14. (a) Give notes about Rimless and semi-rim less frames.

Or

(b) What are the different types of nose bridge in spectacle frames?

15. (a) Give notes on polycarbonate frames.

Or

(b) Pin cushion and distortion — Draw a brief account.

Part C

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Properties of crossed cylinders.

Or

(b) Discuss about Fresnel prisms.

17. (a) List the faults on lens surface.

Or

(b) How do you inspect the quality of lenses?

18. (a) Importance of toughening of ophthalmic lenses.

Or

(b) Write notes on dividing, compounding and resolving prisms. Give examples.

19. (a) Different types of temples in spectacle frames with diagram.

Or

(b) Any four metal frame materials.

20. (a) Discuss in detail about boxing system frame measurement.

Or

(b) Discuss about magnification in high plus lenses.

———————

C–6407

Sub. Code
91435

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Third Semester

Optometry

OCULAR DISEASES – I

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. For transplantation cornea is preserved in
   (a) Modified MK medium
   (b) Glycerine medium
   (c) Wet medium
   (d) All of the above
2. When an extra row of cilia occupies the position of Meibomian gland it is called as,
   (a) Trichiasis (b) Madarosis
   (c) Distichiasis (d) None of the above
3. The outward turning of the lid margin is called
   (a) Ectropion (b) Entropion
   (c) Trichiasis (d) None of these
4. What type of organism is acanthamoeba?
   (a) bacteria (b) virus
   (c) fungi (d) protozoa

5. Which pair of the gland and its secretion is true?

(a) Meibomian gland = mucin

(b) Lacrimal gland = lipid

(c) Krause gland = aqueous

(d) Wolfring gland = lipid

6. Whitening of eyelashes is known as

(a) distichiasis (b) madarosis

(c) poliosis (d) trichiasis

7. Marcuss gunn jaw winking syndrome is associated with

(a) Entropion (b) Ectropion

(c) Ptosis (d) All of these

8. Mutton fat KP is commonly found is

(a) Granulomatous uveitis

(b) Non- Granulomatous uveitis

(c) Traumatic uveitis

(d) Posterior uveitis

9. Herpes zoster ophthalmicus is caused by

(a) Varicella zoster virus

(b) Staphylococcus

(c) Gonococcus

(d) HSV

10. Steroid induced cataract is

(a) nuclear cataract

(b) posterior subcapsular cataract

(c) Cortical cataract

(d) Anterior subcapsular cataract

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write about the etiology and clinical features of blepharitis.

Or

(b) Write about allergic conjunctivitis.

12. (a) Write about the tumours of conjunctiva.

Or

(b) Write about the clinical features and management of panophthalmitis.

13. (a) Write about corneal epithelial dystrophies.

Or

(b) Write about sympathetic ophthalmia.

14. (a) Write about the etiology and clinical features of epi scleritis.

Or

(b) Write about iris coloboma and heterochromia iridis.

15. (a) Write about the etiology and clinical features of developmental cataract.

Or

(b) Write about any 3 corneal degenerations.

Part C

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain about the congenital anomalies of eyelid.

Or

(b) Write in detail on the etiology, classification, clinical features and management of primary angle closure glaucoma.

17. (a) Write about the procedure of LASIK.

Or

(b) Write about the etiology, clinical features and management of anterior uveitis.

18. (a) Write about the etiology, classification, clinical features and management of viral corneal ulcer.

Or

(b) Write in detail on the procedure of phacoemulsification.

19. (a) Write in detail on ocular hypertension.

Or

(b) Write in detail on vogt koyanagi harada syndrome.

20. (a) Write in detail on etiology, clinical features and management of viral conjunctivitis.

Or

(b) Write in detail on the diseases of lacrimal gland.

———————

C–6408

Sub. Code
91437

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Third Semester

Optometry

GENERAL AND OCULAR PHARMACOLOGY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Aspirin is a _____ drug.

   (a) natural (b) synthetic

   (c) semisynthetic (d) plant

2. Drug administration through GIT is a (an)

   (a) enteral route (b) parenteral route

   (c) injection (d) all the above

3. Therapeutic index of a good drug should be

   (a) more than one (b) less than one

   (c) equal to one (d) $\log^{10}$

4. Aspirin is undergo _____ reaction.

   (a) decyclization (b) cyclization

   (c) glucuronidation (d) all

5. Psychopharmacological agents are used to treat

(a) Bone disease (b) Joint disease

(c) ANS (d) CNS

6. Theophylline is a

(a) CNS stimulants

(b) CNS depressand drug

(c) Parasymphathomimetic

(d) Sympathomimetics

7. Nerves system which have no ganglia is a (an)

(a) ANS

(b) PNS

(c) Advenergic

(d) Cholinergic

8. Bathanrchol is a (an)

(a) adrenergic agonist

(b) adrenergic antagonist

(c) cholinergic agonist

(d) cholinergic antagonist

9. Fluorescein solution is used for

(a) anaesthesia (b) allergy

(c) tonometry (d) mydria

10. Which of the following is an ophthalmic drug penetration enhances?

(a) Benzalkonium (b) Methyl cellulose

(c) Thymoxamine (d) Dapiprazole

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the phase-II drug metabolism.

Or

(b) Discuss on drug excretion.

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

Or

(b) How would you study the therapeutic index of a drug? Explain.

13. (a) Illustrate the therapeutic uses of sedative and hypnotics.

Or

(b) Elaborate the action and therapeutic uses of anti-pyretics.

14. (a) Give a note on types, location and functions of adrenergic receptor.

Or

(b) Summarize the general consideration of autonomic nerves system.

15. (a) Describe the applications of viscoelastic agents in ocular system.

Or

(b) Explain the mechanism of action and therapeutic uses a penicillin.

Part C

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Write in detail note on parenteral route of drug administration.

Or

(b) Elaborate the factors influencing drug absorption.

17. (a) Describe the drug structure activity relationship study.

Or

(b) Explain the adverse drug reaction and its treatment.

18. (a) Discuss on the actions and therapeutic uses of local anesthetics.

Or

(b) Make a note on action and therapeutic uses of CNS-stimulants.

19. (a) How are adrenergic agonists useful in treatment of ocular diseases? Explain.

Or

(b) List the anti-cholinergic drugs and explain its action and therapeutic uses.

20. (a) How would you improve the distributions of drugs to the ocular system over the barrier system?

Or

(b) Explain the various from of ophthalmic drug packages and preservatives.

———————

C–6409

Sub. Code
91443

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fourth Semester

Optometry

OPTOMETRIC INSTRUMENTATION AND CLINICAL EXAMINATION OF THE VISUAL SYSTEM (CEVS)

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Principle of duochrome is

   (a) spherical aberration

   (b) chromatic aberration

   (c) coma

   (d) astigmatism

2. Which of the following term implies perfect vision

   (a) ammetropia (b) emmetropia

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

3. What is the principle of retinoscope

   (a) focaultz principle (b) depth of field

   (c) depth of focus (d) stereopsis

4. IDO produces

(a) virtual image (b) real image

(c) upright image (d) flat image

5. Pin hole improves visual acuity by

(a) coinciding the blur circle on retina

(b) placing the circle of least confusion of retina

(c) reducing the blur circle

(d) all of these

6. Schimers test is used to diagnose

(a) dry eye (b) keratitis

(c) honers syndrome (d) none of the above

7. A lensometer measures the

(a) vertex power of the lens

(b) True power of the lens

(c) equivalent power of the lens

(d) all of these

8. Keratometry is done using which of the purkinje image

(a) 1^{st} (b) 2^{nd}

(c) 3^{rd} (d) 4^{th}

9. Topical atropine is contraindicated in

(a) Retinoscopy in children

(b) iridocyclitis

(c) corneal ulcer

(d) primary angle closure glaucoma

10. The operation of which instrument is based on purkinje sanson images

(a) IDO (b) retinoscope

(c) slit lamp (d) keratometer

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write about schimer's test.

Or

(b) Write about phoropter.

12. (a) Write about the tests for astigmatism.

Or

(b) Write about the procedure of keratometry.

13. (a) Write about the procedure of NRA and PRA.

Or

(b) Write about prescription writing.

14. (a) Write about the methods used in determination of presbyopic add.

Or

(b) Write about photostress test.

15. (a) Write about brightness acuity meter.

Or

(b) Write about the application of ophthalmic laser.

Part C

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Write in detail on the procedure of static retinoscopy.

Or

(b) Write in detail on the procedure of fogging, JCC and duochrome.

17. (a) Write in detail on external examination of eye and van herrick technique.

Or

(b) Write in detail on tear film assessment.

18. (a) Write in detail on B scan.

Or

(b) Write in detail on cyclodemia, sudden fogging and boorish delayed spherical end point.

19. (a) Write in detail on the procedure and recording of ERG.

Or

(b) Write about the different methods of measuring amplitude of accommodation.

20. (a) Write in detail on the procedure and interpretation of FFA.

Or

(b) Write in detail on the principle and procedure of applanation tonometry.

———————

C–6410

Sub. Code
91444

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fourth Semester

Optometry

OCULAR DISEASES – II

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. When there is damage at the level of papillomacular bundle what type of visual field defect is seen

   (a) Nasal step

   (b) Homonymous hemianopia

   (c) Binasal hemianopia

   (d) Centrocecal scotoma

2. Synchisis refers to

   (a) Calcium deposits in vitreous

   (b) Liquefaction of vitreous

   (c) Cholesterol deposit in vitreous

   (d) Detachment of vitreous

3. The most common sign of proliferative diabetic retinopathy is

   (a) Hard exudates

   (b) Neovascularization

   (c) Cotton wool spots

   (d) Dot blot haemorrhages

4. Which type of optic neuritis is present in multiple sclerosis

   (a) Retrobulbar neuritis

   (b) Neuroretinitis

   (c) Papillitis

   (d) Para infectious optic neuritis

5. Chiasmal disease results in

   (a) Bi nasal hemianopia

   (b) Quandrantopia

   (c) Bi temporal hemianopia

   (d) None of the above

6. Café-au-lait spots is a common sign of

   (a) Neurofibromatosis

   (b) Horner's syndrome

   (c) Vogyt Koyanagi Harada syndrome

   (d) Treacher collin syndrome

7. Flower petal appearance is the most common FFA feature of

(a) CSR

(b) CME

(c) CRAO

(d) RPE defect

8. Which of the following is a sign of damage at the level of RNFL?

(a) Dot blot haemorrhages

(b) Window defect in FFA

(c) Flame shaped haemorrhages

(d) All of the above

9. The most symptom of retinal detachment is

(a) Flashes and floaters

(b) Pain

(c) Diplopia

(d) Haloes

10. Banking of the retinal vein distal to the AV crossing is

(a) Bonnet sign

(b) Gunn sign

(c) AV nipping

(d) Salus sign

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write about alcohol-tobacco amblyopia.

Or

(b) Write about optic disc coloboma, morning glory disc anomaly and tilted disc.

12. (a) Write about branch retinal arterial occlusion.

Or

(b) Write about kjer syndrome, behr syndrome and wolfram.

13. (a) Write about phakomatoses.

Or

(b) Write about the clinical features of giant cell arteritis.

14. (a) Write about the etiology and clinical features of papillodema.

Or

(b) Write about the clinical features of 4^{th} cranial nerve palsy.

15. (a) Write about the classification and clinical features of retinitis.

Or

(b) Write about clinical features of optic nerve dysfunction

Part C (5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain about the classification, clinical features and management of anterior ischaemic optic neuropathy.

Or

(b) Write in detail on the applied anatomy of 3rd cranial nerve and write about the etiology, clinical aspects, clinical features of 3rd cranial nerve palsy.

17. (a) Write about the evaluation of optic nerve diseases and special investigations required to rule out optic nerve diseases.

Or

(b) Write about retinal detachment in detail.

18. (a) Write in detail on ophthalmoscopic and etiological classification of optic neuritis.

Or

(b) Write in detail on congenital and developmental defects of retina.

19. (a) Write in detail on the etiology, clinical features and management of papillodema.

Or

(b) Write in detail on systemic features of multiple sclerosis.

20. (a) Write in detail on supranuclear disorder of eye movements.

Or

(b) Write in detail on diabetic retinopathy.

———————

C–6411

Sub. Code
91446

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fourth Semester

Optometry

OCCUPATIONAL OPTOMETRY AND COMMUNITY OPTOMETRY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. What is PPE

   (a) Equipment that will protect the user against health or safety risks at work

   (b) Reactive

   (c) Health hazard

   (d) None of the above

2. Exposure can be classified as _____ or acute

   (a) Chronic (b) Exposure

   (c) Effective (d) Non hazardous

3. All persons are required to use proper _____ while using ground tools or machinery

   (a) Personal protective equipment

   (b) Personal hazard control

   (c) Safe working

   (d) None of the above

4. Safety management is _____ identification system

(a) Control (b) Hazard

(c) Skill (d) None of the above

5. What is the basic principle of safety

(a) Work (b) Education

(c) Skill (d) None of above

6. Factories Act _____ to take care of health and safety of its employees, covering the various manufacturing activates employed in the company

(a) 1948 (b) 1899

(c) 1677 (d) 1566

7. What are examples of mechanical hazards

(a) Flywheels (b) Vehicle

(c) Moving (d) None of these

8. Which one of the following is the defined as the study of how people work in their environment

(a) Hazard (b) Ergonomics

(c) Risk (d) Impact

9. _____ wants to provide information and education to allow any employee to avoid injury

(a) Governor

(b) Environmental health and safety

(c) GPCB

(d) None of the above

10. _____ is primarily about detecting defective output rather than preventing it

(a) Quality audit (b) Quality control

(c) Management (d) Both (a) and (c)

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write about the colour defects.

Or

(b) Write about electromagnetic radiation and its effect on eye.

12. (a) Write about contact lens and work.

Or

(b) Define blindness and visual impairment.

13. (a) Write about role of optometrist in public health.

Or

(b) Write about nutritional blindness with reference to vitamin A deficiency.

14. (a) Write about NPCB.

Or

(b) Define occupational health, hygiene and safety.

15. (a) Write about the role of communication for eye care program.

Or

(b) Write in detail on occupational health, hygiene and safety.

Part C

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Write about the CVS and visual display unit.

Or

(b) Write about the basics tele optometry its application in public health.

17. (a) Write about visual standards in railways and roadways.

Or

(b) Write about national and international bodies on occupational health.

18. (a) Write about epidemiology of blindness.

Or

(b) Write in detail on modified clinical method and industrial vision test.

19. (a) Write about the set up of camp for evaluation and assessment of occupational eye diseases.

Or

(b) Write about occupational related caused by chemical and biological agents.

20. (a) Define colour and colour vision test.

Or

(b) Write in service delivery models.

———————

C–6412

Sub. Code
91447A

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fourth Semester

Optometry

HOSPITAL PROCEDURES

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which one of the following is not a method of dry heat sterilization

   (a) Flaming (b) Hot air oven

   (c) Incineration (d) Pasteurization

2. CRP stands for

   (a) C reactive protein

   (b) Coagulation response to protein

   (c) C reactive plasma

   (d) Coagulation reactive plasma

3. Keratome is an instrument used to make incision in the

   (a) Conjunctiva (b) Sclera

   (c) Cornea (d) Both (a) and (c)

4. Bactericidal agents

(a) kill bacteria

(b) prevent bacterial multiplication

(c) both of the above

(d) None of the above

5. Which one of the following is not a chemical agent for sterilization

(a) Ethyl alcohol (b) Methyl alcohol

(c) Formaldehyde (d) Uranium

6. The recording of electrical activity of the heart from the electrodes placed on the surface of skin is known as

(a) ERG (b) EEG

(c) ECG (d) VEP

7. BP apparatus is also known as

(a) Sphygmomanometer

(b) Glucometer

(c) Oximeter

(d) None of the above

8. Which one of the following is the test to measure coagulation time

(a) Prothrombin time test

(b) CRP

(c) ESR

(d) None of the above

9. The normal range of WBC per microliter of blood for men is

(a) 4500 to 11000 (b) 10000 to 12000

(c) 6500 to 1000 (d) None of the above

10. An ideal antiseptic or disinfectant should have all except

(a) Speedy action (b) Corrode metals

(c) Stable (d) Safe and easy to use

Part B

$(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) Write about the TPR chart.

Or

(b) Write about infection prevention and control.

12. (a) Write about the hand hygiene and demonstration of proper hand washing technique.

Or

(b) Write notes on Wound culture.

13. (a) Write notes on procedure of ECG.

Or

(b) Write about liver function tests.

14. (a) Write about the specimen collection and handling.

Or

(b) Write about glucose tolerance test.

15. (a) Write notes on IPC measures.

Or

(b) Write about the collection of conjunctival swab.

Part C

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Write about the principle, procedure, application and interpretation of ECG.

Or

(b) Write in detail on the common haematology tests.

17. (a) Write about four vital signs and their indications.

Or

(b) Explain in detail on sterilization and disinfection.

18. (a) Write about the care and handling of surgical instruments used in ophthalmic operating room.

Or

(b) Write in detail on the common microbiology tests.

19. (a) Write in detail on infection prevention and control.

Or

(b) Write in detail on the glucose tolerance test, urine analysis and Faecal occult blood test.

20. (a) Write in detail on the different types of autoclaves and mechanical indicators.

Or

(b) Write in detail on the purpose of surgical instruments used in corneal transplantation and medium used to preserve donor cornea.

———————

C–6413	Sub. Code 91447B

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fourth Semester

Optometry

QUALITY AND PATIENT SAFETY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. A medical audit committee comprises professionals from different departments of a hospital. Which of the following may act only as an observer in committee meeting

   (a) Heads of medical department

   (b) Nursing superintendents

   (c) Administrator

   (d) Director of medical services

2. _____ is primarily about detecting defective output rather than preventing it

   (a) Quality audit (b) Quality control

   (c) Management (d) Both (a) and (c)

3. Status report enable the company to check the _____ of the auditors observations

   (a) Feasibility (b) Management

   (c) Accuracy (d) Both (b) and (c)

4. _____ steps can provide a road map for developing a new or modified product

(a) Quality control (b) Quality planning

(c) Data collection (d) Standardisation

5. _____ takes the form of frequency of occurrence of an unsafe event and or injuries per unit of time

(a) Hazard frequency

(b) Emergency frequency

(c) Medical management

(d) None of the above

6. Which of the following is not a biomedical waste

(a) Fumes (b) Syringes

(c) Needle (d) Ampulated body part

7. Which is true about biomedical waste management

(a) Hazardous waste (b) Biowaste

(c) Infectious waste (d) All of the above

8. The colour code of plastic bag for disposing of microbial laboratory culture waste

(a) Black (b) Red

(c) Blue (d) White

9. Natural disaster causing maximum deaths

(a) Meterological (b) Geological

(c) Hydrological (d) Fires

10. When bacteria develops defence against the antibiotics designed to kill them

(a) Antimicrobial resistance

(b) Antibiotic resistance

(c) Antiseptic resistance

(d) Both (a) and (b)

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write about the role of quality management tools.

Or

(b) Write about the treatment and disposal of biomedical waste.

12. (a) Write about the mechanism of antibiotic resistance.

Or

(b) Write about the key features in effective communication for quality healthcare delivery.

13. (a) Write notes on segregation of biomedical waste.

Or

(b) Write notes on the basics of quality management.

14. (a) Write about patient safety framework.

Or

(b) Write about healthcare and climate change.

15. (a) Write about the consequences of antibiotic resistance.

Or

(b) Write the key points on quality assurance in medical laboratories.

Part C (5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Define antibiotic resistance and write about the types of antibiotic resistance and factors that contribute to antibiotic resistance.

Or

(b) Write in detail on infection prevention and control.

17. (a) Write about the collection, storage, treatment and disposal of biomedical waste.

Or

(b) Explain about the steps involved in quality assurance of hospital facility.

18. (a) Write about the steps involved in the quality assurance of diagnostic imaging centers.

Or

(b) Write in detail on the environmental impact of biomedical waste.

19. (a) Write in detail on the strategies to combat antibiotic resistance.

Or

(b) Write in detail on the clinician's engagement in quality and patient safety.

20. (a) Write in detail on the quality in healthcare.

Or

(b) Write in detail on biomedical waste regulations and segregation of biomedical waste.

———————

C–6414

Sub. Code
91451

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Optometry

CONTACT LENS – I

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. When a hyperope transfers from spectacles to contact lenses, they will use

   (a) Less convergence and less accommodation

   (b) More convergence and less accommodation

   (c) More convergence and more accommodation

   (d) Less convergence and more accommodation

2. Dk/t denotes

   (a) Oxygen permeability

   (b) Equivalent oxygen performance

   (c) Oxygen transmissibility

   (d) None of the above

3. Which type of filter is used to observe the RGP fitting?

(a) Yellow filter

(b) Red free filter

(c) Cobalt blue

(d) All of the above

4. Ideal CL property are

(a) Oxygen permeability

(b) Durability

(c) Physiologically inert

(d) All of the above

5. In sessile drop test a large contact angle is an indication that

(a) the material is completely wettable

(b) the material is poorly wettable

(c) the material is relatively wettable

(d) none of the above

6. Low DK/t leads to

(a) Edema

(b) Change in corneal pH level

(c) Microcyst

(d) All of the above

7. Soft contact lens wearer reports that their vision is blurred between blinks and clears up momentarily just after blink, this indicates

(a) lens is too steep

(b) lens it too flat

(c) lens is on ideal fit

(d) none of the above

8. Fcl =

(a) Fsp/1–dfsp

(b) Fsp/1+dfsp

(c) Fsp × 1–dFsp

(d) Fsp / Dcl

9. Soft contact lenses are made up of

(a) HEMA

(b) PMMA

(c) CAB

(d) None of the above

10. Lid tension plays a vital role in the selection of

(a) Lens diameter

(b) Material

(c) Base curve

(d) Power

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write about the structures to be evaluate with slit lamp biomicroscopy during contact lens fitting also describe on the parameters to be evaluated.

Or

(b) Write about DO's and DONT's on contact lens use.

12. (a) Explain the optics of contact lenses.

Or

(b) Write notes on therapeutic contact lenses.

13. (a) Write notes on the use of contact lens in sports and for occupational purposes.

Or

(b) Write about the parameters to be measured for RGP lens selection.

14. (a) Write notes on contact lens fitting in aphakia.

Or

(b) Write notes on bifocal contact lenses.

15. (a) Write about the role of specular microscopy and pachymetry in contact lens fitting.

Or

(b) Write notes on checking finished contact lens parameters.

Part C

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Write in detail on the preliminary examination of contact lens fitting.

Or

(b) Write in detail on type of contact lenses used and contact lens fitting in keratoconus.

17. (a) Write in detail on the recent developments in contact lenses.

Or

(b) Write in detail on the fitting assessment of RGP lenses.

18. (a) Write in detail on the principle, procedure and use of keratometry and other corneal topographers in contact lens fitting.

Or

(b) Write in detail on the care and maintenance of contact lenses.

19. (a) Write in detail on complications of contact lens use.

Or

(b) Explain in detail on soft lens design.

20. (a) Write in detail on the corneal anatomy and physiology.

Or

(b) Write in detail on the indications and contraindications of contact lens.

———————

C–6415

Sub. Code
91452

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Optometry

BINOCULAR VISION – I

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. The primary action of the inferior oblique muscle is

   (a) Intorsion (b) Extorsion

   (c) Elevation (d) Adduction

2. Which one of the following is not the motor aspect of binocular vision?

   (a) SMP (b) Accommodation

   (c) Convergence (d) Divergence

3. Which one of the following is the clinical sign of convergence excess?

   (a) Exophoria greater at near than distance

   (b) Esophoria greater at near than distance

   (c) Low AC/A ratio

   (d) None of the above

4. The position assumed by the eye when one is looking straight ahead with body and head erect is known as

(a) Primary position (b) Secondary position

(c) Tertiary position (d) Translatory position

5. Lag in MEM is seen in

(a) Accomodative insufficiency

(b) Accomadative excess

(c) Accomodative infacility

(d) Both (a) and (c)

6. The point at which the center of the muscle or of its tendon first touches the globe is the

(a) Tangential point (b) Arc of contact

(c) Muscle insertion (d) Muscle plane

7. The principle of synoptophore is

(a) Haploscopic principle

(b) Fusion

(c) SMP

(d) Retinal correspondence

8. When tested with a distant worth 4 dot test, how many dots would a subject with binocular single vision report seeing

(a) 8 (b) 5

(c) 4 (d) 2

9. The angle formed between the visual axis and pupillary axis is known as

(a) Angle kappa (b) Angle alpha

(c) Angle gamma (d) Visual angle

10. Eccentric fixation can be detected by

(a) Visuoscope (b) Brock string

(c) Panum's area (d) Visual field

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain about any three tests for stereopsis.

Or

(b) Explain about retinomotor value and visual direction with neat diagram.

12. (a) List out the extraocular muscles and write about the blood supply of EOM.

Or

(b) Define fick's axes, donder's law and listing's law.

13. (a) Explain physiological diplopia and suppression with neat diagram.

Or

(b) Write about the principle and instrumentation of synoptophore.

14. (a) Write about uniocular and binocular movements.

Or

(b) Write about the management of suppression.

15. (a) Define amblyopia and write about the classification of amblyopia.

Or

(b) Define convergence and write about the mechanism of convergence.

Part C (5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Define accommodation and write about the mechanism of accommodation and the anomalies of accommodation with the management options.

Or

(b) Write about the grades of binocular vision.

17. (a) Write about the investigations of amblyopia, suppression.

Or

(b) Explain the anatomy of EOM with neat diagram.

18. (a) Explain monocular clues and write about its clinical significance.

Or

(b) Explain detail on the tests for SMP and fusion.

19. (a) Define convergence and write about components and anomalies of convergence with the management options.

Or

(b) Explain the physiology of EOM.

20. (a) Explain the aspects of binocular vision and space perception.

Or

(b) Define ARC and write in detail on the investigations and management of ARC.

———————

C–6416

Sub. Code
91453

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Optometry

PEDIATRIC AND GERIATRIC OPTOMETRY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. The primary action of medial rectus is
   (a) Elevation (b) Intorsion
   (c) Adduction (d) Abduction

2. The principle of synoptophore is
   (a) Haploscopic principle
   (b) Fusion
   (c) SMP
   (d) Retinal correspondance

3. The angle formed between the visual axis and pupillary axis is known as
   (a) Angle kappa (b) Angle alpha
   (c) Angle gamma (d) Visual angle

4. Eccentric fixation can be detected by
   (a) Visuoscope (b) Brock string
   (c) Panum's area (d) Visual field

5. Crowding phenomenon is characterized by

(a) Increase in performance when reading a single optotype

(b) Increase in performance after repeated testing

(c) Increase in performance on charts with multiple optotype

(d) None of the above

6. Outward turning of the lid margin is known as

(a) Ectropion (b) Entropion

(c) Ptosis (d) Meibomitis

7. Blink response to visual threat is present at

(a) 2 – 5 months (b) 6 – 8 weeks

(c) Birth (d) 15 – 30 days

8. Which type of temple curves around the ear often used in children?

(a) Library (b) Skull

(c) Riding bow (d) Convertible

9. Functional vision may be improved with which one of the following

(a) Refractive correction

(b) Low vision aids

(c) Instruction in the use of vision

(d) All of the above

10. An increase in axial length of the eye will cause

(a) myopia (b) hyperopia

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

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write about the causes and management of hyperopia.

Or

(b) Write notes on pediatric contact lenses.

12. (a) Define vergence and accommodation and write about the components of vergence and accommodation

Or

(b) Explain the clinical features and investigations of anisometropia.

13. (a) Write about the clinical features of ARMD.

Or

(b) List out the common ocular diseases of Orbit, eyelids and lacrimal system in pediatric population.

14. (a) Write notes on the use of contact lens in elderly.

Or

(b) Write about the tests for stereopsis.

15. (a) Write about the clinical features of amblyopia

Or

(b) Explain the grades of BSV.

Part C

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Write in detail on the special aspects of optometric examination in elderly.

Or

(b) Write in detail on retinoblastoma.

17. (a) Write in detail on the visual acuity assessment in pediatric subjects.

Or

(b) Write about age related vascular diseases of the eye.

18. (a) Write in detail on spectacle dispensing in children.

Or

(b) Define low vision and write about the causes and optical and non optical aids used in low vision.

19. (a) Explain in detail on the etiology and clinical features of aniridia and albinism.

Or

(b) Write in detail on the remedial and compensatory treatment of strabismus.

20. (a) Write in detail on physiological changes in eye in course of aging.

Or

(b) Write about the test used in determining binocular status.

———————

C–6417

Sub. Code
91454

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Optometry

DISPENSING OPTICS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Barrel distortion is the result of magnification towards lens periphery

   (a) Decreased (b) Increased

   (c) Both (a) and (b) (d) None of these

2. Tinting of lenses decrease the

   (a) Transmittance (b) Reflection

   (c) Scratch resistance (d) All of these

3. If the neutralizing power of a lens is + 2.00 the dioptric value of that lens is

   (a) –2.00 D (b) +2.00 D

   (c) +4.00 D (d) None of these

4. Refractive index of CR-39 lens is

   (a) 1.52 (b) 1.25

   (c) 1.35 (d) 1.49

5. Library temple is also known as

(a) Straight – back (b) Skull

(c) Convertible (d) Continuous

6. Hidden engravings on PALs directly show the

(a) Fitting cross location

(b) Prism reference point

(c) Near reference point

(d) Add power

7. ARC consists of extremely thin layer of

(a) Calcium fluoride (b) Magnesium fluoride

(c) Sodium fluoride (d) None of these

8. Datum center refers to the mid-point of the

(a) Datum length (b) Datum line

(c) Mid-datum depth (d) All of these

9. Prentice's rule is used to calculate

(a) Add power

(b) Induced prism power

(c) Crossed cylinder power

(d) Induced cylindrical power

10. Supra frame is a

(a) metal frame (b) semi rimless frame

(c) rimless frame (d) none of these

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Write about aspheric lenses.

Or

(b) Write about hand neutralization.

12. (a) Write about the classification of spectacle frame.

Or

(b) Write about the characteristics of tinted lenses.

13. (a) Write about HMC and hydrophobic coating.

Or

(b) Write about frame selection based on age group and face shape.

14. (a) Write about IPD measurement.

Or

(b) Write about safety wear lenses.

15. (a) Write about spectacle frame measurements.

Or

(b) Write about the principle and construction of ARC.

Part C

(5 × 8 = 40)

Answer **all** questions choosing either (a) or (b).

16. (a) Explain in detail on boxing system.

Or

(b) Write about lensometer

17. (a) Write in detail on safety standards of ophthalmic lenses.

Or

(b) Write in detail on progressive addition lenses.

18. (a) Explain in detail on various types of lens materials.

Or

(b) Write in detail on multifocal lenses.

19. (a) Write in detail on manufacturing of spectacle lenses.

Or

(b) Write in detail on progressive addition lenses.

20. (a) Write in detail on progressive addition lenses.

Or

(b) Write about faults in lens material.

———————

C–6418

Sub. Code
91456A

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Optometry

RESEARCH METHODOLOGY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. The proposed answer to a research problem is
   (a) Testing (b) Explanation
   (c) Collection (d) Hypothesis

2. Which of the following is not a technique of selecting random sampling
   (a) Lottery technique
   (b) Card Technique
   (c) Sequential list technique
   (d) Inclusive method

3. Which of the following is not correct?
   (a) Good research is systematic
   (b) Good research is logical
   (c) Good research is empirical
   (d) Good research should be complicated

4. The reliability of a questionnaire depends on

(a) The consultation and support of experts

(b) Incomplete information

(c) Minimum labour

(d) Minimum time

5. Which of the following is not a type of observation method?

(a) Controlled observation method

(b) Non-participant observation method

(c) Clinical observation method

(d) Historical method

6. Which of the following is a method of data collection?

(a) Interview method (b) Visit method

(c) Visual method (d) Simple method

7. Objective of tabulation is

(a) To be comparable (b) Questions can be asked

(c) For complexity (d) Surveyable

8. Quota sampling is a

(a) Stratified and purposive sampling

(b) Problem of representative sampling

(c) Universal method

(d) Objectives of tabulation

9. Sources of data are

(a) Only primary

(b) Only secondary

(c) Both primary and secondary

(d) Time and energy

10. Objective of descriptive research design is

(a) Documentation

(b) Frequency of variable

(c) Evaluation

(d) Communication

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write about the objectives of research.

Or

(b) Write notes on testing hypothesis.

12. (a) List out the features of a good research design.

Or

(b) Define research, report, interpretation, analysis and design.

13. (a) Write notes on chi-square test.

Or

(b) Write notes on the role of questionnaire in data collection.

14. (a) Write notes on the need for research design.

Or

(b) Write notes on primary and secondary data.

15. (a) List out the criteria of good research.

Or

(b) Write about the basic principles of experimental design.

Part C

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain the types of research with a flow chart.

Or

(b) Write in detail on the methods of data collection.

17. (a) Explain in detail on selecting the research problem and the techniques involved in defining the research problem.

Or

(b) Explain in detail on the significance of report writing.

18. (a) Explain in detail on sampling designs and its types.

Or

(b) Explain in detail on layout of research report with an example.

19. (a) Explain detail on the types of analysis.

Or

(b) Explain the basic features of research design.

20. (a) Explain the steps involved in report writing.

Or

(b) Write about the different types of report.

———————

C–6419	Sub. Code 91456B

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025.

Fifth Semester

Optometry

BIOSTATISTICS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. The stages of cancer is recorded using the symbols 0, I, II, Ill, IV we describe the scale used is

   (a) Nominal (b) Numerical

   (c) Ordinal (d) Alphabetical

2. Choose the fundamental statistical indicator

   (a) Mean (b) Standard deviation

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

3. If the calculated value of chi-square lies in the region of acceptance, then we

   (a) Accept null hypothesis

   (b) No conclusion

   (c) Reject null hypothesis

   (d) None of the above

4. Chi square test is always used to test

(a) Population mean (b) Population median

(c) Test of association (d) Both (a) and (b)

5. Method of organizing, summarizing and presenting data in an informative way is known as

(a) Descriptive statistics

(b) Inferential statistics

(c) Theoretical statistics

(d) Applied statistics

6. Number of family members in different families in a town is an example of a

(a) Discrete variable

(b) Continuous variable

(c) Dependent variable

(d) Qualitative variable

7. A statistical test which indicated the chance or probability of an observed difference between two means occurring by chance is called

(a) Test of significance

(b) Mean

(c) Ratio

(d) Normalcy

8. Which of the following is not a measure of central tendency

(a) Mean (b) Median

(c) Mode (d) Range

9. If class intervals are not given then it is called as a

(a) Discrete frequency distribution

(b) Continuous frequency distribution

(c) Grouped frequency distribution

(d) None of the above

10. When calculating median of a data set, the first step is

(a) Calculate the mean of the middle two items in the data set

(b) Arrange the data in an ascending or descending order

(c) Determine the relative weights of the data value in terms of importance

(d) None of the above

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

Answer **all** questions, choosing either (a) or (b).

11. (a) Define data, variables and statistics.

Or

(b) Define sampling and probability.

12. (a) Write notes on chi square test.

Or

(b) Write notes on bed occupancy rate.

13. (a) Write about the scales of measurement.

Or

(b) Define dispersion, mortality, frequency distribution.

14. (a) Classify the types of sampling.

Or

(b) Write notes on the analysis of daily hospital services.

15. (a) Explain systematic sampling.

Or

(b) Define biostatistics and write down its applications.

Part C

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain the different measures of central tendency and describe in detail about mean, median and mode with suitable example.

Or

(b) Explain chi square test with an example.

17. (a) Write in detail on different types of sampling.

Or

(b) Write the steps involved in the data collection of hospital statistics.

18. (a) Explain polynomial distribution with an example.

Or

(b) Explain the calculation correlation coefficient with an example.

19. (a) Explain in detail on regression analysis.

Or

(b) Explain the different diagrammatic representation used in the presentation of statistical analysis in research with an example.

20. (a) Write about the different types of clinical study designs.

Or

(b) Explain skewness and kurtosis with an example for each of the tests.

C–6420

Sub. Code
91412

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

First Semester

Optometry

GENERAL ANATOMY AND PHYSIOLOGY

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. List out any three function of CSF.

2. Define reflex action

3. Define erythropoiesis

4. List out any three functions of liver.

5. Write any three difference between sympathetic and parasympathetic nervous system

6. List out the types of joints.

7. Draw a neat labelled diagram of respiratory system.

8. Define cardiac output.

9. List any three functions of skin.

10. What is neuromuscular junction ?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Tabulate the difference between skeletal, cardiac and smooth muscles.

Or

(b) Write in detail on lung volume and capacities.

12. (a) Write about the mechanism of respiration.

Or

(b) Write about Rh system.

13. (a) Write about the types and functions of WBC.

Or

(b) Write about the composition of blood.

14. (a) Explain the mechanism of hearing.

Or

(b) Write about the cardiac conduction system.

15. (a) Write about endometrial cycle.

Or

(b) Write in detail on the Functions of cerebellum, thalamus and hypothalamus.

Part C

(3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) Write in detail on the anatomy of digestive system with a neat labelled diagram**.**

Or

(b) Write about the structure of brain with a neat labelled diagram.

17. (a) Explain in detail on the anatomy of cardiovascular system with a neat labelled diagram.

Or

(b) Explain about the blood grouping.

18. (a) Write in detail on the cranial nerves.

Or

(b) Write in detail on the structure and function of nephron.

———————

C–6425

Sub. Code
91422

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Second Semester

Optometry

OCULAR ANATOMY

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What are the types of intraocular muscles Instruction?
2. Define collaratte.
3. What is lamina fusca?
4. List out the layers of choroid.
5. Draw a neat labelled diagram of eyeball.
6. List out the surgical spaces of orbit.
7. Define caruncle and plicasemilunaris.
8. What does the bones that makes the floor of the orbit?
9. Define substantia propria.
10. Which nerve fibre is affected first in glaucoma, describe the reason?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write about the structure of iris.

Or

(b) Write about base of vitreous, hyaloid vitreous and vitreous cells.

12. (a) Write about the nerve supply of cornea.

Or

(b) Write about the glands of eyelids.

13. (a) Write in detail on the anatomy of conjunctiva.

Or

(b) Write about fascialbulbi, fascial sheaths of EOM, intremuscular septa.

14. (a) Write about the layers of cornea.

Or

(b) Write short notes of anatomy of visual pathway.

15. (a) Write about the anatomy of EOM.

Or

(b) Write about the anatomy of lachrymal passage.

Part C

(3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain in detail on the course, distribution and functional components of trochlear ne.

Or

(b) Write in detail about optic nerve, macula, fovea centralis and optic disc.

17. (a) Write in detail on the nerve supply of eyeball.

Or

(b) Explain in detail on the ocular embryology with neat diagram.

18. (a) Write in detail on the anatomy of retinal layers with neat diagram.

Or

(b) Explain about the structure of the angle of anterior chamber angle also write about th drainage of aqueous humour with neat diagram.

———————

C–6426

Sub. Code
91423

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Second Semester

Optometry

OCULAR PHYSIOLOGY

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Presbyopia.

2. Define contrast sensitivity.

3. Expand ERG, EOG, VER.

4. Define papillodema.

5. Define versions and vergence.

6. List out any 3 ocular changes in accomodation.

7. Define visual angle.

8. List out the grades of BSV.

9. List out the layers of retina.

10. List the layers of precorneal tear film.

Part B

$(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) Write about any 3 methods to measure contrast sensitivity.

Or

(b) Explain pupillary near reflex with neat diagram.

12. (a) Define each grade of BSV and write about the advantages of binocular vision.

Or

(b) Define muscle length, arc of contact, muscle plane and axis of rotation with neat diagr.

13. (a) Write about visual cortex and its functions.

Or

(b) Write about blinking reflexes.

14. (a) Write about blood retinal barrier.

Or

(b) Write about the factors affecting visual acuity.

15. (a) Write about goldmann applanation tonometry.

Or

(b) Write about the functions and optical role of vitreous humour.

Part C

(3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) Write about the components of visual acuity and measurement of visual acuity.

Or

(b) Write about the nerve supply of EOM with the mechanism of action of EOM.

17. (a) Write in detail on the principle and procedure of VER.

Or

(b) Write in detail on the formation, drainage and circulation of aqueous humour and also out any five functions of aqueous humour.

18. (a) Write in detail on supranuclear control of eye movements.

Or

(b) Explain corneal transparency and hydration.

———————

C–6427

Sub. Code
91424

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Second Semester

Optometry

PHYSICAL OPTICS

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define interference.

2. Define birefringence.

3. Differentiate between wave velocity and group velocity.

4. Define resolution.

5. Define holography.

6. Define objective and eyepiece.

7. Write the formula for visibility of fringes.

8. Define dispersive power.

9. Define Polarization.

10. Write about the 2 conditions for a thin film to act as an AR coating.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the theory of interference fringes and visibility of fringes.

Or

(b) Write about Calcite crystal.

12. (a) Write about quarter wave plate and half wave plate.

Or

(b) Write in detail about the Lloyd's mirror experiment.

13. (a) Write about the diffraction grating.

Or

(b) Write notes on plane, linear, circular and elliptical polarization.

14. (a) Write about the resolution of microscopes, telescopes and binoculars.

Or

(b) Write in detail about Anti Reflection Coatings.

15. (a) Write about diffraction by circular aperture.

Or

(b) Write about the Huygen's principle – laws of reflection and refraction.

Part C

(3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) Write in detail about Young's double slit experiment with neat diagram and also write the condition for bright fringe, dark fringes and fringe width.

Or

(b) Explain in detail on diffraction by double slit with neat diagram.

17. (a) Write in detail about the production of polarized light with neat diagram.

Or

(b) Write about the principle, experimental arrangement and applications of holography with neat diagram.

18. (a) Write in detail about radiometry with neat diagram.

Or

(b) Explain in detail on any one method to determine the velocity of light.

———————

C–6428

Sub. Code
91425

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Second Semester

Optometry

MICROBIOLOGY AND PATHOLOGY

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. List out any 4 parasites causing ocular lesions.

2. List out the basic laboratory techniques in ophthalmology

3. Define Carcinoma.

4. Define tissue injury.

5. List out any 3 gram negative cocci.

6. Define Keratoconus.

7. What are the types of culture media?

8. Expand TORCH.

9. List out the classification of cataract.

10. Define corneal ulcer.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write about the chalazion and hordeolum.

Or

(b) Write about types of microscopy, fixing of slides, potassium hydroxide mount.

12. (a) Write about the clinical importance of tuberculosis and M leprae.

Or

(b) Write about the types of uveitis.

13. (a) Write about the structure and functions of immunoglobulins.

Or

(b) Write about the pathology of cataract.

14. (a) Write about the inheritance and clinical features of Retinoblastoma.

Or

(b) Write about the ocular lesions of common fungi.

15. (a) Explain the role of vascular and cellular component in heating and repair.

Or

(b) Write in detail on culture and sensitivity test.

Part C

(3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) Write in detail about the types, clinical features and treatment of conjunctivitis.

Or

(b) Explain in detail on conjunctival swab, scrapings from corneal ulcer and anteriorchamber and vitreous tapings.

17. (a) Explain about the clinical importance, ocular lesions and treatment of pox, adeno, rubella and retrovirus.

Or

(b) Write in detail on Gram's staining, acid fast staining and Giemsa staining.

18. (a) Write in detail about gram positive and gram negative bacilli.

Or

(b) Write in detail on hypersensitivity reactions.

———————

C–6429

Sub. Code
91432

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Third Semester

Optometry

VISUAL OPTICS

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define light and dark adaption.

2. Write about Refractive anomalies.

3. Define for point of eye.

4. Difference between anisokonia and anisotropia.

5. Angular magnification.

6. Difference between ocular and spectacle refraction.

7. Any two characteristics feature of retinoscopic reflex.

8. Fogging and binocular balancing.

9. Spherical aberration.

10. Fresnel prism.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) List the cardinal points in an optical system and define each.

Or

(b) Short notes on gull strands schematic's eye with neat diagram.

12. (a) Define for point and near point of accommodation and its position in myopia and hyperopia.

Or

(b) Retino scopic methods in astigmatism.

13. (a) Effective power of spectacle.

Or

(b) Significance of vertex distance during subjective refraction.

14. (a) Dynamic and static retinoscopy.

Or

(b) Astigmatism fan.

15. (a) Uses of prism in ophthalmology.

Or

(b) Optical aberration of eye.

Part C

(3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain in detail about emmetropization and growth of eye in relation to refractive error with age.

Or

(b) Explain about different types of astigmatism and explain the position of meridional image in relation to retina in each eye.

17. (a) (i) JCC and application.

(ii) Principle and procedure of duochrome.

Or

(b) Different methods of neutralisation in dynamic and static refraction and explain in detail.

18. (a) Define retinoscopy. Explain the principle, technique and practice of retinoscopy.

Or

(b) Accomodation and explain the anomalies of accomodation and management.

———————

C–6430

Sub. Code
91433

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Third Semester

Optometry

OCULAR DISEASES – I

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is coloboma?

2. Define panophthalmitis.

3. List out the artificial drainage devices in glaucoma surgery.

4. Define hyphema.

5. What is cells and flare in anterior chamber?

6. Define cup disc ratio.

7. What is posterior capsular opacification.

8. What is Kaposi sarcoma?

9. How to differentiate between conjunctival naevi and melanoma?

10. Define scleromalacia perforans.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write about the congenital anomalies of eyelid.

Or

(b) Write about sympathetic ophthalmia.

12. (a) Write notes on aqueous formation and drainage.

Or

(b) Write about ocular injuries and its manifestations in anterior segment.

13. (a) Write notes on keratoplasty.

Or

(b) Write notes on developmental glaucoma.

14. (a) Write notes on posterior scleritis.

Or

(b) Write notes on laser pocedures in glaucoma.

15. (a) Write about corneal opacities.

Or

(b) Write notes on the classification and subtypes of glaucoma.

Part C

(3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) Write in detail on viral conjunctivitis.

Or

(b) Write in detail on secondary glaucoma.

17. (a) Explain in detail on the definition, etiology, classification, clinical presentation and management of fungal keratitis.

Or

(b) Write in detail on primary angle closure glaucoma.

18. (a) Write in detail on developmental cataract.

Or

(b) Write in detail on dry eye.

———————

C–6431

Sub. Code
91434

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025.

Third Semester

Optometry

OPTOMETRIC INSTRUMENTATION – I

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is radiuscope?
2. Construction of compound microscope.
3. Special features ode retinoscope.
4. Importance of trial frame adjustment.
5. Illumination in direct and indirect opthalmoscope.
6. Objective type of autorefractometer.
7. Mention any three illumination of slitlamp bio microscope.
8. Mention the plates of ishihara testing.
9. Principle of PAM.
10. Uses of yag laser.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain about binoculars, simple and compound microscope.

Or

(b) Write about the optical property and application of rediuscope and spectrometer.

12. (a) Explain about the difficulty of near vision due to the trial frame designs and variation of near vision units.

Or

(b) Write about the infrared optometry devices.

13. (a) Write on the constructions and optics behind the ophthalmoscope.

Or

(b) Write about the indirect opthalmoscope and its application.

14. (a) Difference and consideration between orbscan and pentacam.

Or

(b) Write about the principle, types and importance of tonometry.

15. (a) PAM – Explain in detail.

Or

(b) Write about the application of yag and argon laser on different ocular condition and its uses.

Part C

(3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) Write about the different types of Kerotometry and its uses in detail.

Or

(b) Write about the different types of retinoscope and its application in detail.

17. (a) Elaborate the different types of opto types and its uses and application in clinical practice and the choice of opto types for different clinical patients and why?

Or

(b) Elaborate the parts, optical and types of illumination used in clinical practice and why?

18. (a) (i) Write about types and uses of Kerotometry.

(ii) Explain the types and maps of corneal topography and its uses.

Or

(b) In a clinic, a 30 year old, complaints on difficulty in identifying the colour and has a complaint of glare. Explain the procedure to find the complaints.

———————

C–6432

Sub. Code
91435

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Third Semester

Optometry

GENERAL AND OCULAR PHARMACOLOGY

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Write short note on blood brain barrier system.

2. Define liver first pass mechanism.

3. List the number of the subunits present in the ion chennal receptor.

4. Write note on G-protein.

5. Explain therapeutic index.

6. List the nargotic analgesics.

7. List the CNS stimulant.

8. Define IOP.

9. List the viscoelastic agents.

10. What are the side effect when using corticosteroid eye diseases?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the application of ocuserts.

Or

(b) Outline the phase-II drug metabolism.

12. (a) List and explain the classification of drug.

Or

(b) Demonstrate the treatment of acute drug poisoning.

13. (a) Discuss on pharmacotherapy of insomnia.

Or

(b) Describe the mechanism of action of aspirin.

14. (a) Classify cholinergic receptors with their distribution.

Or

(b) Illustrate the role of anticholinergic drug to treat ocular diseases.

15. (a) What are opthalmic diagnostic drugs? Explain their uses.

Or

(b) Mention the role of penetration enhancers.

Part C (3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) Elaborate the biological and pharmaceutical factors influencing drug absorption from SI.

Or

(b) Outline the general route of drug administration.

17. (a) Describe the study of drug structure activity relationship.

Or

(b) Explain the therapeutic uses of local anesthetics.

18. (a) Demonstrate the role of adrenergic drugs used to treat eye diseases.

Or

(b) List and illustrate the therapeutic uses of opthalmic antibiotics.

———————

C–6433	Sub. Code 91436

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Third Semester

Optometry

CLINICAL EXAMINATION OF VISUAL SYSTEM

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What are the actions of superior oblique muscle?

2. What is RAPD?

3. Expand MEM. What is its use?

4. Without working lens, the retinoscopy movement in an emmetrope will be _____ movement and in Myope, _____ movement is seen.

5. Define the principle behind fogging technique.

6. What is spherical equivalent?

7. What is the principle behind JCC?

8. List two uses of Amsler test.

9. List any two methods of measuring NPC.

10. Any two uses of indirect illumination in slit lamp.

Part B

$(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) Discuss about history taking in diabetic patients.

Or

(b) Write about vision assessment in Infants.

12. (a) Brief account on cover test.

Or

(b) Write notes on Duochrome test.

13. (a) List the step by step procedure of performing retinoscopy.

Or

(b) Discuss the principle of auto refractometer.

14. (a) What are the commonly prescribed cycloplegics? Tabulate the salient features.

Or

(b) Write about fan and block test.

15. (a) Give a brief account on Hofstetter's formula.

Or

(b) List the normative values for all accommodative and vergence functions.

Part C

(3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) Write detailed notes on visual acuity assessment in children.

Or

(b) Explain about different illumination techniques in slit lamp.

17. (a) Write about construction of Auto-refractometer. List its merits.

Or

(b) Elaborate the procedure to use JCC.

18. (a) What are the different methods of using binocular balancing?

Or

(b) Write about the step by step procedure of performing applanation tonometry.

———————

C–6434

Sub. Code
91442

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fourth Semester

Optometry

OPTOMETRIC OPTICS

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is abbe value?

2. List out the aberrations in ophthalmic lenses.

3. Calculate the Spherical equivalent for the following:
   (i) +2.00 DS/-1.00 DC X 90,
   (ii) +6.00DS/ -4.00 DC X 90

4. Define vertex distance

5. What is drop ball test?

6. Define refraction and reflection.

7. What is the use of Fresnel prism?

8. Define rotary prisms.

9. Define ARC.

10. What is orange peel defect?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Define prism dioptre and write about the properties of prism and refraction through prisms with thickness difference.

Or

(b) Write about hydrophobic coating and SRC.

12. (a) Explain about tilt induced power in spectacle lenses.

Or

(b) Write about Hi-Index lenses.

13. (a) Explain about impact resistance, specific gravity, refractive index and UV cut off.

Or

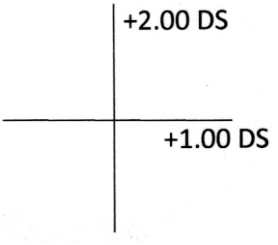
(b) Write about aberration in ophthalmic lenses.

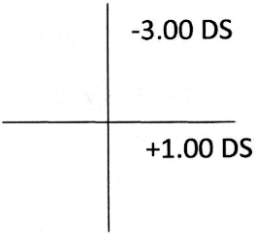
14. (a) Explain the design and uses of spherical, cylindrical and spherocylindrical lenses with n diagram.

Or

(b) Explain glazing and edging.

15. (a) Transpose the following into spherocylinder form (both plus and minus cylinder form)





Or

(b) Write about spherometer and sag formula.

Part C

(3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain in detail about progressive addition lenses.

Or

(b) Explain the manufacturing of ophthalmic blanks including the surfacing process from blanks to lenses.

17. (a) Write about the description and detection of lens defects.

Or

(b) Write about modified near vision lenses.

18. (a) Explain in detail about the designs and uses of bifocals.

Or

(b) Write in detail about toric transposition with an example.

———————

C–6435

Sub. Code
91443

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fourth Semester

Optometry

OCULAR DISEASES – II

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 10)

Answer **all** questions.

1. Define amaurosis.

2. List out the types of retinal detachment.

3. List out any three neurological conditions associated with congenital optic disc anomalies.

4. Expand WEBINO.

5. What are the other terms used to define RAPD and Light-near association?

6. List the triad of horner syndrome.

7. Define optic nerve hypoplasia.

8. List out the types of retinitis.

9. Define phakomatoses.

10. List out the three types of hereditary optic atrophies.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the types of nystagmus.

Or

(b) Write about Vitreous detachment.

12. (a) Write about the clinical features of third cranial nerve palsy.

Or

(b) Explain the clinical features of BRVO.

13. (a) Write about the ocular and systemic features of myotonic dystrophy.

Or

(b) Explain the use of IDO in the clinical assessment of the posterior segment.

14. (a) Write about the types of colour vision defects.

Or

(b) Write about the causes and clinical features of drug induces optic neuropathies.

15. (a) Write about lattice and snail track degeneration.

Or

(b) Write about the ocular and systemic features of neurofibromatosis type-1.

Part C

(3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain the genetics, clinical features, investigations and management of retinoblastor.

Or

(b) Write about the applied anatomy, causes and clinical feature's of fourth cranial nerve palsy.

17. (a) Write in detail on the types of retinal detachment

Or

(b) Write about the classification, clinical features, investigations and management of the disorders of optic chiasm.

18. (a) Write about the supranuclear disorders of eye movements.

Or

(b) Write in detail on Retinal arterial occlusion.

———————

C–6436

Sub. Code
91444

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fourth Semester

Optometry

OPTOMETRIC INSTRUMENTATION – II

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define field of vision.

2. List out the various types of tonometers.

3. Write about the principle of A scan.

4. Define photocoagulation.

5. What is skewing technique in retinoscopy?

6. What is the principle of retinoscopy?

7. Principle of indentation tonometer.

8. Write about any 3 advantages of streak retinoscope.

9. List out pediatric visual acuity charts.

10. Write the principle of keratometer.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write about the principle and instrumentation of EOG.

Or

(b) Write about the principle and instrumentation of goinoscope.

12. (a) Write about lacrimal function tests.

Or

(b) Write about the instrumentation of dark adaptometer.

13. (a) Write about optical pachymeter.

Or

(b) Write about the instrumentation of keratometer.

14. (a) Write about Farnsworth munsell 100 hue test.

Or

(b) Write about the instrumentation of lensometer.

15. (a) Write about the principle and indications of FFA.

Or

(b) Write about cryotherapy and diathermy.

Part C

(3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) Write about the principle, instrumentation and procedure of goldmann applanation tonometer.

Or

(b) Write in detail about the design and use of visual acuity charts

17. (a) Write about the principle, instrumentation and procedure of B-Scan.

Or

(b) Write in detail about Humphrey visual field analyser.

18. (a) Write about the principle and instrumentation of indirect ophthalmoscopy with neat diagram.

Or

(b) Write about the various illumination techniques and filters of slit lamp.

———————

C–6437

Sub. Code
91451

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Optometry

CONTACT LENSES – I

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Low water content materials are better in dry eye patients. Yes or No. Justify.

2. Classify contact lenses based on mode of wear.

3. List any two advantages of silty lenses.

4. Any two advantages of lathing.

5. Any two indications of contact lens in ocular diagnosis.

6. Why would you not recommend contact lens to a patient with allergies?

7. BOZR is selected based on pupil diameter. Why?

8. HVID is used to select which parameter of CL?

9. What are the ocular conditions that necessitate the use of scleral lenses?

10. Central pooling in RGP lens indicates _____ fit and TD should be _____.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the following

(i) BC

(ii) TD

(iii) BOZD

(iv) BOZR

(v) Water content

Or

(b) Accommodation with contact lenses and spectacles.

12. (a) Anatomy of tear film.

Or

(b) Uses of slit lamp in CL fitting.

13. (a) List the contraindications to use contact lenses.

Or

(b) Give notes on extended keratometry.

14. (a) How to calculate the CL parameters for trial and prescription?

Or

(b) Explain about insertion of contact lenses.

15. (a) Ideal CL material properties. List any five.

Or

(b) Explain about Dk/T.

Part C (3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) Write in detail about classification of contact lenses.

Or

(b) Give an account on effective power of contact lenses w.r.t. vertex distance. Use example.

17. (a) Write a detailed account on handling instructions of contact lenses.

Or

(b) Give notes on anatomy of cornea.

18. (a) Write about assessment of SCL fit.

Or

(b) Complications caused by RGP lens.

———————

C–6438

Sub. Code
91452

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Optometry

BINOCULAR VISION – I

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Write about the uses of prism bar.

2. Define saccades.

3. What is the action of Inferior Oblique?

4. Explain about the Retino motor value at Fovea.

5. Explain axes of Fick.

6. What is simultaneous macular perception?

7. What is convergence excess?

8. Mention Ac/A ratio.

9. Explain about 4 prism Base-out test.

10. Write short notes on organic Amblyopia.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain about the action of EOM.

Or

(b) Explain about cover test, uncover test and Alternate cover test.

12. (a) Elaborate and differentiate monocular and binocular diplopia.

Or

(b) Explain about Horopter and Panum's area.

13. (a) Explain about Hering's and Sherrington's Law.

Or

(b) Discuss about Donder's and Listing's Law.

14. (a) Explain about Krimsky and Modified Krimsky Test.

Or

(b) Describe about Retino Motor value.

15. (a) Write about the physiology of ocular movements.

Or

(b) Demonstrate a about monocular cues in stereopsis.

Part C

(3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain about accomodation and its tests.

Or

(b) Explain about convergence and its tests.

17. (a) Explain about ARC and its test.

Or

(b) Explain about suppression and its test.

18. (a) Explain about stereopsis and its test.

Or

(b) Explain about the types of EOM, Blood supply, nerve supply and its innervation.

———————

C–6439

Sub. Code
91453

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Optometry

PAEDIATRIC AND GERIATRIC OPTOMETRY

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Explain about the conditions with white reflex.

2. What is coloboma.

3. Explain about shell frames.

4. What is blue dot cataract?

5. Explain about bar magnifier.

6. What is Nystagmus?

7. What is simultaneous macular perception.

8. Explain about the treatment of pseudo myopia.

9. What are the aspects to be considered while prescribing contact lenses in elderly?

10. Explain about the relationship between diabetes and eye.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain about the pharmacological aspects of aging.

Or

(b) Explain about the vision assessment in elderly population.

12. (a) Describe about the structural changes of eye in elderly.

Or

(b) Explain about the need of optometry care in elderly.

13. (a) Explain about the test of stereopsis.

Or

(b) Explain about the ocular changes during accommodation.

14. (a) Discuss about ARC.

Or

(b) Explain about suppression.

15. (a) Explain about opto Kinetic Nystagmus.

Or

(b) Explain in detail about birth history.

Part C

(3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain history taking in paediatric population.

Or

(b) Explain history taking in geriatric population.

17. (a) Explain about spectacle dispensing in elderly.

Or

(b) Explain about the association of systemic disease and geriatrics.

18. (a) Explain about the treatment of refractive errors.

Or

(b) Explain about amblyopia and its treatment.

———————

C–6440

Sub. Code
91454

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Optometry

DISPENSING OPTICS

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Section A (10 × 2 = 20)

Answer **all** questions.

1. What are library temples?

2. What is optic center?

3. Any two advantage of CR 39.

4. Mention two reasons for not recommending rimless to pediatric population.

5. Uses of yellow tint.

6. What is edging?

7. What are gradient lenses?

8. List any two uses of pupillometer.

9. What is Image jump?

10. Define dispersive power.

Section B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) What are the components of spectacle prescription?

Or

(b) Transpose to positive and negative cylinder form.

(i) +3.00DC × 40/-5.00DC × 130

(ii) –7.00DC × 90/+2 .00DC × 180

12. (a) Write notes on lenticular lenses.

Or

(b) Compare Photochromic lenses and tinted lenses.

13. (a) Give notes on selecting a spectacle frame according to face shape.

Or

(b) Give a brief account on lens markings.

14. (a) Write about hand neutralization of lenses.

Or

(b) Types of PALs in market now.

15. (a) Draw and label the parts of rimless and semi-rimless frames.

Or

(b) List the advantages and disadvantages of bifocal lenses.

Section C (3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) Write in detail about different types of coatings of spectacle lenses.

Or

(b) Write in detail about mounting of ophthalmic lenses.

17. (a) Write in detail about frames for special purpose.

Or

(b) What are progressive lenses? Discuss about various parameters required to fit progressive lenses.

18. (a) What are the different types of tints used and characteristics of each?

Or

(b) Describe the various types of Frame material available in India.

———————

C–6441

Sub. Code
91455

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

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. What is maternal mortality rate?

2. Any two examples of treatable blindness.

3. Difference between disease and disorder.

4. Describe VA criteria for moderate vision impairment.

5. What is the major cause of blindness in India? Why?

6. What are false negatives in screening tests?

7. Define positive predictive value.

8. Expand RIO and NPCB.

9. What is nutritional blindness?

10. Common ocular conditions seen in geriatric population of India.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Determinants of health.

Or

(b) Explain the measures taken to bring down the maternal mortality rate.

12. (a) Prepare a proforma that can be used to screen welding workers.

Or

(b) Prepare a list of things that can be taken for school vision screening.

13. (a) Give note on nutritional blindness.

Or

(b) Brief about vision 2020.

14. (a) Discuss about some international health agencies that contribute for public health and eye care in India.

Or

(b) What are the components of health care - economic evaluation?

15. (a) Give notes on prevalence of blindness in India.

Or

(b) Importance of education in eye care programmes.

Part C

(3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain the different levels of disease prevention with example.

Or

(b) Write about rehabilitation in vision loss.

17. (a) Basics of tele optometry and its application in public health.

Or

(b) Importance of industrial vision screening.

18. (a) Write in detail about role of optometrist in community eye care.

Or

(b) Burden on Indian economy due to blindness. Discuss.

———————

C–6445

Sub. Code
91456

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Optometry

BIOSTATISTICS

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Bio-Statistics.

2. Write Infant mortality formula.

3. Mention the types of Errors.

4. Define null hypothesis.

5. What are the measures of central tendency?

6. Write the types of correlation.

7. Write the formula of Binomial distribution.

8. Draw normal distribution curve.

9. Define Hospital Statistics.

10. Write any two uses of hospital statistics.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain briefly about Biostatistics.

Or

(b) Explain Neo-natal mortality rate.

12. (a) Explain about random sampling with example.

Or

(b) Explain the types of error in testing of hypothesis.

13. (a) Write the types of collection of data.

Or

(b) Calculate mean for the following data :

C.I.	2-4	4-6	6-8	8-10
Frequency	3	4	2	1

14. (a) Explain binomial distribution in detail.

Or

(b) Write the Chi square test procedure in detail.

15. (a) How to collect hospital statistics data? Explain with example.

Or

(b) Explain some types of hospital statistics.

Part C (3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain census method in detail.

Or

(b) Calculate mean, median and mode for the following data :

C.I.	5-10	10-15	15-20	20-25	25-30	30-35	35-40
F	5	17	38	27	25	15	8

17. (a) Calculate Quartile deviation for the following data :

Weight (kg)	20-40	40-50	50-60	60-70	70-80
No. of patients	4	5	6	7	10

Or

(b) Calculate Karl Pearson coefficient of correlation for the following data :

x	1	2	3	4	5
y	–3	–1	0	1	2

18. (a) Calculate χ^2 statistic for the following data :

Economic Condition	I.Q.	
	High	Low
Rich	460	140
Poor	240	160

Or

(b) From the following data, find the two regression lines :

X	10	20	30	40	50	60
Y	15	10	25	20	25	30

———————

C–6455

Sub. Code
91461

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Sixth Semester

Optometry

CONTACT LENSES — II

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define oxygen permeability.
2. Write about CLARE.
3. Expand HEMA, PVP.
4. Write about the FDA classification of contact lens.
5. List out any three types of contact lens used for keratoconus.
6. How do you convert spectacle power into contact lens power?
7. What is the use of HVID in contact lens fitting?
8. What is the use of keratometry in CL fitting.
9. Write about any five occupations to prefer Soft CL over RGP.
10. Write about the design of concentric multifocal CL.

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Write about Cleaning, Rinsing and Disinfection of soft contact lenses.

Or

(b) Write about bifocal CL.

12. (a) Write about the indications of therapeutic contact lenses.

Or

(b) Write about the do's and dont's of contact lens handling.

13. (a) Write about CL fitting in pediatrics.

Or

(b) Write about fitting of soft toric CL.

14. (a) Write about various options available in disposable contact lenses.

Or

(b) Write about parameter selection of soft toric CL.

15. (a) Write about the use of CL post refractive surgery.

Or

(b) Explain the stabilization techniques for soft toric CL.

Part C

(3 × 10 = 30)

Answer **all** questions choosing either (a) or (b).

16. (a) Write in detail about the complications of soft contact lenses.

Or

(b) Write about the comparison of RGP vs Soft CL.

17. (a) Write in detail about prosthetic eye fitting procedures and conformers.

Or

(b) Write in detail about the insertion and removal techniques of contact lens.

18. (a) Write about contact lens fitting in keratoconus.

Or

(b) Write in detail about recent advances in contact lenses.

———————

C–6457

Sub. Code
91462

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Sixth Semester

Optometry

BINOCULAR VISION — II

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. List out the motor signs in squint.

2. What is duane's retraction syndrome.

3. List out any five types of non-accomodative esotropia.

4. Write the principle and uses of synoptophore.

5. Write about the uses of red green goggles in orthoptic assessment.

6. Write about risley prism.

7. What is Von graefe's sign?

8. Define amblyopia.

9. What are the four types of accommodative esotropia?

10. List three sensory adaptations.

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Write about the investigation of non-refractive accommodative esotropia.

Or

(b) Write about the procedure and interpretation of hess screen.

12. (a) Write about krimsky test and Hirschberg test.

Or

(b) Write about Maddox rod test with interpretation.

13. (a) Differentiate between acquired and congenital paralytic squint.

Or

(b) Write about the uses of synoptophore.

14. (a) Write about vision therapy in ARC.

Or

(b) Write about abnormal head posture.

15. (a) Write about cover test and PBCT.

Or

(b) Write about vision therapy in convergence insufficiency.

Part C

(3 × 10 = 30)

Answer **all** questions choosing either (a) or (b).

16. (a) Explain the aim, procedure and interpretation of bielchowsky's head tilt test with an example.

Or

(b) Write about cover test, cover uncover test, alternate cover test and PBCT.

17. (a) Explain in detail on the assessment of ocular motility status and degree of squint.

Or

(b) Write in detail about vision therapy in amblyopia.

18. (a) Explain the aim, procedure and interpretation of diplopia charting and draw the diplopia chart of a patient with superior rectus palsy.

Or

(b) Write in detail about any three types of restrictive strabismus.

———————

C–6458	Sub. Code 91463

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Sixth Semester

Optometry

LOW VISION AID

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Tabulate the classification of low vision.

2. Define relative distance magnification.

3. Define entrance and exit pupil.

4. How do you calculate equivalent viewing distance?

5. Write the difference in objective and eyepiece used in galilian and keplariantelescopes.

6. Expand PRL and EV.

7. Write about the concept of contact lens and IOL telescope.

8. Define rehabilitation.

9. List out any three non-optical devices.

10. Write about bioptics.

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Explain the types of magnification with neat diagram.

Or

(b) Write about the psychological factors of low vision.

12. (a) Write about visual field assessment in low vision evaluation.

Or

(b) Write about training of eccentric viewing strategies.

13. (a) Write about mobility and orientation training in low vision rehabilitation.

Or

(b) Write about the clinical features of retinitis pigmentosa.

14. (a) Write about the optics, advantages and disadvantages of stand magnifiers.

Or

(b) Write about environmental modifications in low vision care.

15. (a) Write about the optics, advantages and disadvantages of spectacle magnifier.

Or

(b) Write about the epidemiology of low vision.

Part C

(3 × 10 = 30)

Answer **all** questions choosing either (a) or (b).

16. (a) Write in detail on the dispensing and prescribing aspects of low vision aids.

Or

(b) Write in detail on non-optical devices used in low vision care.

17. (a) Write in detail on the clinical evaluation of low vision.

Or

(b) Write in detail on the psycho-social impact of low vision.

18. (a) Write about optical aids in detail.

Or

(b) A 10-year-old school going student diagnosed with albinism comes to you clinic what are the possible symptoms and clinical feature of the patient, and what will be the possible aids/rehabilitation services available for this patient.

———————

C–6459

Sub. Code
91464

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Sixth Semester

Optometry

OCCUPATIONAL OPTOMETRY

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define occupation hazard.

2. Define light and write its units.

3. List out any three physical agents causing occupational diseases.

4. Define colour coding.

5. Define Occupational hygiene.

6. List out any three methods to prevent from occupational hazards.

7. Define occupational health.

8. Define CVS.

9. Expand the following:

(a) ILO

(b) WCA

(c) RGB

10. Define additive colour theory.

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Write about occupational hygiene and safety.

Or

(b) Write about colour vision tests.

12. (a) Write about chemical and biological agents causing occupation related disease.

Or

(b) Classify the spectrum of EMR.

13. (a) Write about visual standards in railways.

Or

(b) Write the advantages and disadvantages of various sources of light.

14. (a) Write about the tests involved in industrial vision screening.

Or

(b) Write about the role of international bodies in occupational health.

15. (a) Write about the clinical features occupation related chemical eye injuries.

Or

(b) Explain the methods used to protect from occupational hazards.

Part C (3 × 10 = 30)

Answer **all** questions choosing either (a) or (b).

16. (a) Explain in detail on visual task analysis with an example.

Or

(b) Explain in detail on contact lens in relation to occupation related eye diseases.

17. (a) Write in detail on CVS and visual display unit.

Or

(b) Define colour and write about colour coding and colour theory.

18. (a) Write about the EMR and its effect on retina and cornea.

Or

(b) Write about the tests to be done, equipments to be utilized and steps involved inorganizing vision screening in textile industry.

———————

C–6460

Sub. Code
91465

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

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 the investigations of malaria.

2. Define HbA1c.

3. Define salus sign.

4. Write about tuberculin skin test.

5. Write about the classification of papillodema.

6. List out the tumours of eyelid.

7. What is pin prick test and in which condition it is used for?

8. What is RAPD?

9. List out any three connective tissue disorders.

10. List out any three ocular manifestations of hypertension.

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Explain visual pathway lesions with neat diagram.

Or

(b) Write about the grading and staging of cancer.

12. (a) Write about the systemic clinical features of tuberculosis.

Or

(b) Write about the conjunctival tumours.

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

Or

(b) Write about the ocular manifestations of rheumatoid arthritis.

14. (a) Write about the ocular manifestations of hypertension.

Or

(b) Write about the systemic clinical features of leprosy.

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

Or

(b) Write about the clinical features and diagnosis of papillodema.

Part C

(3 × 10 = 30)

Answer **all** questions choosing either (a) or (b).

16. (a) Explain in detail about retinoblastoma.

Or

(b) Write about the ocular manifestations of diabetes mellitus.

17. (a) Explain in detail about vitamin deficiency and the eye.

Or

(b) Write about the clinical features, diagnosis and management of Thyroid ophthalmopa.

18. (a) Write about the pathophysiology, classification, diagnosis, complications and management of hypertension.

Or

(b) Explain in detail about the classification of neurological diseases.

———————