PANJAB UNIVERSITY, CHANDIGARH -160014 (INDIA)
(Estd. under the Panjab University Act VII of 1947 -enacted by the Govt. of India)

FACULITY OF MEDICAL SCIENCE

OUTLINES OF TESTS SYLLABI AND COURSES OF READING
FOR

BACHELOR OF CLINICAL OPTOMETRY (B.Optom.)

For the examination of 2013, 2014, 2015, 2016, 2017

Now new nomenclature from the Batch 2017-2018 is

BACHELOR OF OPTOMETRY (B.Optom.)

BACHELOR

BACHELOR of CLINICAL OPTOMETRY (B.Optom.) Part IV (Internship)

A student can undergo clinical training (compulsory internship) only if the student has passed all previous three years papers in theory and practical.

In this year, students are supposed to undergo training in the following areas of Optometry:

1. Clinical Optometry: Contact lenses, Binocular vision & Low vision.
2. Investigative Optometry
3. Dispensing Optics
4. Community Optometry

Also the students are supposed to submit a study project on any of the above areas on completion of the internship.

BACHELOR of CLINICAL OPTOMETRY (B.Optom.)

MAIN OBJECTIVES OF THE PROFESSIONAL COURSE

Basic Medical Sciences

1. To achieve general understanding of the Human Anatomy & Physiology.
2. To achieve good understanding of the basic medical sciences as related to Ophthalmology & Optometry (Anatomy, Physiology, Pathology, Microbiology, Biochemistry and Pharmacology).

Clinical

The objectives of the clinical work are to enable a student to work under the supervision of an Ophthalmologist & Optometrist, to develop skills and to perform Optometric jobs.

1. Be able ET/F2 1 Tf BT 11.9773 0 0 ET q .4934(Opt)-2.5957(aco)

(ii) Part-I of B.Sc. course of Panjab University. OR

(iii) Any other examination recognized by the Syndicate as equivalent to (i) or (ii).

2. Admission shall be held in July each year.

Academic Time

Monday to Friday - 9:00AM to 5.00 PM

Saturday - 9:00AM to 1:00 PM

Sunday - Holiday

Academic time is devoted to:

1. Theory classes

2. Lecture demonstrations

3. Seminars/ Group discussions

4. Practical works in OPD (out patient department), various laboratories (including Optometry labs), s0891(as6m-10.4934(()-7.64521(i)47.12m (4.) Tj ET BT 11.9773 0 0 12 90.24 46777T729(s08

BACHELOR of CLINICAL OPTOMETRY (B.Optom.)
Syllabus

GENERAL LECTURES FOR ALL STUDENTS (Part -I, II & III)

1. Hospitalenvironment and role of student.
2. The profession & Ethics.
3. Communications with the patients.
4. Understanding Psychology of patients.
5. Diseases of the eye.
6. Systemic diseases & the eye.
7. Computer fundamentals.
8. Statistics and its importance.

BACHELOR of CLINICAL OPTOMETRY (B.Optom.) (Part-I)

PAPER-1 ANATOMY AND PHYSIOLOGY

1. (a) Basic Human Anatomy:(Max. 10 lectures)
1. Cell and various tissues of the body.
2. Skeletal system of human body
3. Muscular system.
4. Embryology and development (including Embryology of the eye).

1. (b)Basic Human Physiology:(Max. 10 lectures)
1. Cardio-vascular system.
2. Digestive system.
3. Respiratory system.
4. Endocrine organs.
5. Excretory system.
6. Reproductive system.
7. Central nervous system.
8. Peripheral nervous system.
9. Autonomic nervous system.
10.

1. (c) Ocular Anatomy:
1. Orbit & it s immediate relations.
2. Lids & their glands.
3. Conjunctiva, Cornea, Sclera and Limbus.
4. Iris & Ciliary body.
5. Lens and Vitreous.
6. Retina & Choroid.
7. Ocular muscles.
8. Visual pathways.
9. Lacrimal apparatus.
10. Higher visual centres.

1. (d) Ocular Physiology:
1. An introduction to general physiology of the eye.
2. Maintenance of transparency of the cornea
3. Maintenance of transparency of the lens.
4. Visual acuity & form sense.
5. Pupillary reflexes.
6. Accommodation.
7. Convergence.
8. Intra-ocular pressure.
9. Night vision.
10. Colour vision.
11. Visual fields.
12. Extrinsic muscles, actions and ocular movements.
13. Higher visual centres and righting reflexes.
14. Electro-physiological aspects (ERG, EOG & VER).
15. Functions of lacrimal apparatus and tears.

PAPER-2 OCULAR PATHOLOGY, MICROBIOLOGY AND BIOCHEMISTRY

2. (a) Ocular Pathology :
1. Blood sample collection and preservation.
2. Routine Haematological examinations: Hb, BT, CT, TLC, DLC and ESR.
3. Peripheral Blood Film (PBF) staining & its significance.
4. Urine sample collection methods.
5. Urine: Physical, Chemical & Microscopic examination.
6. Grossing of tissue.
7. Tissue processing.
8. Fixation of tissue.
9. Section cutting.
10. Staining: Haematoxylin, Eosin & Special stains.

2. (b) Ocular Microbiology:

1. Introduction to Microbiology & classification.
2. Normal flora of eye.
3. Sterilization /Aseptic techniques.
4. Culture media for Bacteria, fungi & Virus.
5. Bacteria: Gram positive & negative.
6.

PAPER-4 OPTICS & REFRACTION

4. (a) Physical & Visual Optics:

1. Elementary basis of light (Interference, Diffraction, Scattering, Dispersion, Polarization & Spectrum).
2. Illumination & Photometry.
3. Laws of reflection.
4. Principles of refraction.
   - Refraction by Glass plate with parallel sides.
   - Refraction by Prisms (including nomenclature of prisms).
   - Refraction at Curved surfaces (Convex, Concave, Cylindrical & Spherical/ Toric/ Sturms conoid).
   - Refraction by Optical systems (Combination of lenses, Compound homocentric system & Thick lenses).
5. Power specification (Refractive, Approximate, Back Vertex, Front Vertex, Equivalent & Effective Power).
6. Power measurement (Hand neutralization, lensometry & Lens surface power measurement/ Geneva lens measure).
7. Optical system of eye (Corneal & Lent

BACHELOR of CLINICAL OPTOMETRY (B.Optom.) (Part -II)

PAPER-I OCULAR PHARMACOLOGY

1. Ocular Pharmacology:
1. Ocular Pharmacology: an introduction.
2. Autonomic nervous system.
3. Routes of drug administration.
4. Miotics, Mydriatics & Cycloplegics.
5. Anti-bacterial drugs & therapy.
6. Anti-fungal drugs & therapy.
7. Anti-viral drugs & therapy.
8. Anti-inflammatory drugs & therapy.
9. Anti-glaucoma drugs & therapy.
10. Ocular Pr.8218(i)17S48218(y)40.12 0 12 103.68 626.4 Tm [(A)20.6716(ut)-23.5181(o)-7d1BT 11.

2. (b) Contact Lenses:

1. Historical development of Contact lenses.
2. CL material & manufacturing of soft & RGP.
3. Optics of CL.
4. Design of CL & effect of parameter changes in the fitting.
5. Verification & Modificationof CL.
6.

PAPER-4 BASIC INVESTIGATIVE OPTOMETRY:

4. Basic Investigative Optometry:
1. Syringing and lacrimal function tests.
2. Ophthalmoscopy: Direct & Indirect.
3. Tonometry: Schiotz, Applanation & Non-contact.
4. Colour vision testing.
5. Contrast sensitivity.
6. Glare testing.
7. Perimetry: Goldmann, Humphrey & FDT.
8. Pachymetry: Optical & Ultrasonic.
9. Keratometry.
10. Auto-refraction.
11. Lensometry.
12. Exophthalmometry.
13. Specular microscopy.
14. Fluorescein staining techniques.
15. Slit lamp Biomicroscopy.

BACHELOR of CLINICAL OPTOMETRY (B.Optom.) (Part-III)

PAPER-

7. Confusion & Diplopia.
8. Suppression.
9. Stereopsis.
10. Asthenopia & Diplopia.
11. Visual acuity assessment in children.
12. Cover, cover-uncover & alternate cover tests.
13. Heterophoria: Classification, examination & management.
14. Amblyopia: Definition, types, examination & management.
15. Anomalous retinal correspondence (ARC): types & examination.
16. Pseudotropia & measurement of angle kappa.
17. Measurement of ocular deviation: Objective & subjective methods.
18. Exotropia: Classification, examination & management.
19. Esotropia: Classification, examination & management.
20. Alphabet Phenomena/ Pattern.
21. Cyclo-vertical deviations: Classification, examination & management.
22. Orthoptic instruments.
23. Neurogenic palsies (acquired & congenital).
24. Myogenic palsies (Myasthenia gravis, Chronic progressive external Ophthalmoplegia & Orbital peudotumour).
25. Mechanical disorders of ocular motility (Duane

20. ERG, EOG & VER.
21. Dark adaptometry.
22. Ocular Photography (Anterior segment).
23. Laser interferometry/ PAM (Potential Acuity Meter)
24. Refractive surgery (RK, PRK, Excimer laser & Lasik).
25. Paediatric eye examination.
26. Recent advances.

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