



Dr. D. Y. PATIL VIDYAPEETH, PUNE
(Deemed to be University)

**Syllabus for
PG Surgical Specialties**

2014 - 15
(Amended / Revised upto July 2019)



Dr. D.Y. PATIL VIDYAPEETH, PUNE
(Deemed to be University)

(Re-accredited by NAAC with a CGPA of 3.62 on a four point scale at 'A' Grade)
(An ISO 9001 : 2015 Certified University)

Dr. A. N. Suryakar
Registrar

Ref. No. : DPU/875-vii/2019
Date : 11/09/2019

NOTIFICATION

Whereas in pursuance of the following decisions taken by the Board of Management, it is hereby notified to all concerned that the "Syllabus for PG Medical and Surgical Specialties – 2014-15" is revised upto July 2019 and hereby published.

- Changes in syllabus for UG and PG in General Medicine, Pulmonary Medicine and General Surgery vide Resolution No. BM-07-(iii)-4 dated 28th January, 2014.
- Updation in UG and PG syllabus of General Medicine, Obstetrics & Gynecology, Orthopedics, Anaesthesiology, ENT and Ophthalmology vide Resolution No. BM-04(i)-15, dated 31st March, 2015.
- Modifications in pattern of PG practical examinations for MD (General Medicine), MD (Pediatrics), MS (General Surgery), and MS (OBGY) vide Resolution No. BM-26(iv)-15, dated 29th December, 2015.
- Updation in PG syllabus in Radio-Diagnosis subject vide Resolution No. BM-26(vii)-15, dated 29th December, 2015.
- Introduction of Bioethical aspects in various chapters of all subjects vide Resolution No. BM-26(xi)-15, dated 29th December, 2015
- Partial Modifications in Pattern of PG Practical Examinations for MD (General Medicine) and MS (General Surgery) vide Resolution No. BM-17(vii)-16, dated 22nd September, 2016.
- Modifications in the syllabus of MD (Emergency Medicine) vide Resolution No. BM-35(iv)-18, dated 12th October, 2018.
- Changes in teaching and assessment of MS (Ophthalmology), vide Resolution No. BM-35(v)-18, dated 12th October, 2018.
- Changes in the practical examination pattern of M.S. (Orthopedics) vide Resolution No. BM-35(vi)-18, dated 12th October, 2018.
- Change in practical examination pattern of MD (Dermatology) vide Resolution No. BM-35(vii)-18, dated 12th October, 2018.
- Graduate Attributes, Programme Outcomes (POs), Course Outcomes (Cos) and gap analysis for all courses of UG and PG Programmes for Para-Clinical and Surgical Subjects vide Resolution No. BM-10(vii)-19 dated, 12th April, 2019.
- Interdisciplinary subjects (for Surgical Subjects) of M.B.B.S, M.D./M.S. and Super-specialty (D.M./M.Ch.) Programs under the Faculty of Medicine vide Resolution No. BM-10(viii) dated 12th April, 2019.
- Changes in syllabus of MD (General Medicine) and MD (Psychiatry) vide Resolution No. BM-27(iv)-19 dated 30th July, 2019.
- Modifications in MD (Respiratory Medicine) Practical examination pattern vide Resolution No. BM-27(vii)-19 dated 30th July, 2019.



Sant Tukaram Nagar, Pimpri, Pune - 411018, Maharashtra (India)
Tel. : +91-20-27805000, 27805001 • Fax : +91-20-27420010 • Email : info@dpu.edu.in



- Graduate Attributes, Programme Outcomes (POs), Course Outcomes (Cos) outcome analysis of Pos and Cos and mapping with objectives for all courses of UG and PG Programmes of Pre-Clinical and **Medicine Subjects** under the Faculty of Medicine vide **Resolution No. BM-27(x)-19 dated 30th July, 2019.**
- Interdisciplinary subjects (**for Medicine Subjects**) of M.B.B.S, M.D./M.S. and Super-specialty (D.M./M.Ch.) Programs under the Faculty of Medicine vide **Resolution No. BM-27(xi) dated 30th July, 2019.**

The **Syllabus for PG Medical and Surgical Specialties – 2014-15** is Revised upto July 2019 will be useful to all the concerned. This will come into force with immediate effect.



(Dr. A. N. Suryakar)
Registrar

Copy to:

1. PS to Chancellor for kind information of Hon'ble Chancellor, Dr. D. Y. Patil Vidyapeeth, Pune.
2. PS to Vice Chancellor for kind information of Hon'ble Vice Chancellor, Dr. D. Y. Patil Vidyapeeth, Pune.
3. The Dean, Dr. D. Y. Patil Medical College Hospital & Research Centre, Pimpri, Pune
4. The Controller of Examinations, Dr. D. Y. Patil Vidyapeeth, Pune.
5. Director (IQAC), Dr. D. Y. Patil Vidyapeeth, Pune.
6. Web Master for uploading on Website.

**MAPPING OF PROGRAMME OUTCOMES [POs] AND COURSE
OUTCOMES [COs] OF PG PROGRAMMES**

MS (SURGERY) PROGRAMME OUTCOMES

| Sr. No | By the end of the programme, the Medical Postgraduate Will have |
|-------------------|--|
| PO 1 | Knowledge and Skills |
| PO 2 | Planning and problem solving abilities |
| PO 3 | Communication |
| PO 4 | Research Aptitude |
| PO 5 | Professionalism and Ethics |
| PO 6 | Leadership |
| PO 7 | Societal Responsibilities |
| PO 8 | Environment and Sustainability |
| PO 9 | Lifelong Learner |

SURGERY COURSE OUTCOME – PG
SUBJECT CODE –PGS01

| Sr.No | By the end the Course, the student will be able to |
|--------------|--|
| 1 | Recognize the importance to the concerned surgery in the context of the health needs of the community and the national priorities in the health section. |
| 2 | Practice the surgery concerned ethically and in step with the principles of primary health care. |
| 3 | Demonstrate sufficient understanding of the basic sciences relevant to the surgery specialty. |
| 4 | Identify social, economic, environmental, biological and emotional determinants of health in a given case, and take them into account while planning therapeutic, rehabilitative, preventive and primitive measure/strategies. |
| 5 | Diagnose and manage majority of the conditions in the surgery concerned on the basis of clinical assessment, and appropriately selected and conducted investigations. |
| 6 | Plan and advise measures for the prevention and rehabilitation of patients suffering from disease and disability related to the surgery specialty. |
| 7 | Demonstrate skills in documentation of individual case details as well as morbidity and mortality rate relevant to the assigned situation. |
| 8 | Demonstrate empathy and humane approach towards patients and their families and exhibit interpersonal behavior in accordance with the societal norms and expectations. |
| 9 | Play the assigned role in the implementation of national health programme, effectively and responsibly. |
| 10 | Organize and supervise the chosen/assigned health care services demonstrating adequate managerial skills in the clinic/hospital or the field situation |
| 11 | Develop skills as a self-directed learner, recognize continuing education needs; select and use appropriate learning resources |
| 12 | Demonstrate competence in basic concepts of research methodology and epidemiology and be able to critically analyze relevant published research literature. |
| 13 | Develop skills in using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers. |
| 14 | Function as an effective leader of a health team engaged in health care, research or training. |

MS OPHTHALMOLOGY PROGRAMME

| Course Code | Course Title |
|-------------|------------------|
| PGS05 | MS Ophthalmology |

Course 1 (Subject Code)

| CO No. | At the end of the course, the learner should be able to: | Mapped Programme Outcomes |
|---------|--|--|
| PGS05.1 | At the end of course should be able to diagnose and manage all types of ophthalmic cases. | PO1,PO2,PO3, PO4,PO5,PO7, PO8,PO9 |
| PGS05.2 | At the end of course should be able to provide management of all ocular emergencies efficiently | PO1,PO2,PO3, PO5,PO6,PO7, PO8,PO9 |
| PGS05.3 | At the end of course should be able to recognize the need for referral to higher centres for specific diseases and disorders for further management. | PO1,PO2,PO3, PO5, PO7, PO8,PO9 |
| PGS05.4 | At the end of the course should be able to organize eye camps to understand the need for eye care in the society and about the need for early intervention, advice and offer suitable management to the needy, and spread awareness about eye donation. | PO1,PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9 |
| PGS05.5 | At the end of course should be able to educate medical and paramedical staff regarding basic diagnosis of eye diseases and procedures to promote objectives of NPCB programme and decrease preventable blindness in the society.(e.g. ROP screening, cataract screening, refractive error estimation, DR screening and corneal blindness). | PO1,PO2,PO3, PO4, PO5, PO6, PO7, PO8, PO9 |
| PGS05.6 | At the end of the course student should be familiar with patient counseling and demonstrate empathy towards patients and their families and convey in detail about the diagnosis and plan of management for the patient's eye condition. | PO1,PO2,PO3, PO5, PO6, PO7, PO8, PO9 |
| PGS05.7 | At the end of the course student should have knowledge of medico legal aspects | PO1, PO2, PO3, PO5, PO7, PO9 |

| CO No. | At the end of the course, the learner should be able to: | Mapped Programme Outcomes |
|---------------|--|---|
| | of Ophthalmology and know the importance of meticulous documentation including proper consent taking for various procedures. | |
| PGS05.8 | At the end of the course should be able to conduct epidemiological surveys in the community to analyze morbidity of common eye disorders prevalent in the society. | PO1,PO2,PO3, PO4, PO5, PO6, PO7, PO8, PO9 |
| PGS05.9 | At the end of course the student should be able to demonstrate competence in basic concepts of research methodology and epidemiology and be able to critically analyze relevant published research literature. | PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9 |
| PGS05.10 | At the end of course student should keep himself/herself updated in the subject by attending various CME's, workshops and national and international level conferences and take keen interest in research in the field of ophthalmology. | PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9 |
| PGS05.11 | At the end of course student should be aware about various investigative modalities and their interpretations and to apply the knowledge for the management of various diseases. | PO1, PO2, PO3, PO4, PO5, PO7, PO8, PO9 |

A decorative border consisting of multiple parallel lines forming a rectangular frame. The corners are embellished with a diamond-shaped motif, each containing a small black square.

OPHTHALMOLOGY

OPHTHALMOLOGY

1. SYLLABUS OF POST GRADUATE DEGREE AND DIPLOMA COURSES IN THE SUBJECT OF M.S (OPHTHALMOLOGY)

1.1: GOALS: -

- 1.1.1: The goals of post graduate medical education shall be to produce competent specialists and teachers.
- 1.1.2: Who shall recognize the health needs of the community and carry out professional obligations ethically and in keeping with the objectives of the national policy.
- 1.1.3: Who shall have mastered most of the competencies, pertaining to the speciality, that are required to be practiced at the secondary and the tertiary levels of the health care delivery system;
- 1.1.4: Who shall be aware of the contemporary advance and developments in the discipline concerned;
- 1.1.5: Who shall have required a spirit of scientific inquiry and is oriented to the principles of research methodology and epidemiology;
- 1.1.6: Who shall develop skills as a self-directed learner, recognize continuing education needs; select & use appropriate learning resources.
- 1.1.7: Who shall learn basic concepts of research methodology & epidemiology and be able to critical analyze relevant published research literature.

1.2: OBJECTIVES :

- 1.2.1: To have competency-based curriculum, with learning targeted to needs of community.
- 1.2.2: Objective should be to produce quality post- graduates full of knowledge, surgical skill & self-confidence.
- 1.2.3: It should be persistence with national policy & guidelines laid down by Medical Council of India (MCI)

1.3: INTEGRATION OF TEACHING :

- 1.3.1: Postgraduate Medical Education in broad specialities shall be of three years duration in the case of degree course and two years in the case of Diploma course after MBBS and in the of super specialities the duration shall be of 3 years after MD/MS with the exceptions wherever indicated.
- 1.3.2: Postgraduate curriculum shall be competency based.
- 1.3.3: Learning in postgraduate programme shall be essentially autonomous and self- directed.
- 1.3.4: A combination of both formative and summative assessment is vital for the successful completion of the PG programme.
- 1.3.5: A modular approach to the course curriculum is essential for achieving a systemic exposure to the various sub-specialities concerned with a discipline.

2: TRAINING SCHEDULE: -

- 2.1: The period of training for MS shall be three years viz. 6 academic terms of 6 months each after registration as Post-Graduate Student.
- 2.2: The period of training for DOMS course will be two years viz. 4 academic terms of 6 months each after registration as Post-Graduate student.
- 2.3: No exemption/concession in the above-mentioned period of training shall be granted.

3: METHODS OF TRAINING: -

- 3.1: The training of Post-Graduate for Degree/Diploma should be of the Residency pattern with patient care. The participation of the students in all facets of the educational process i.e. lectures, lecture-demonstration, symposia, seminars, journal clubs etc. should be insisted upon and training in basic medical sciences and laboratory and experimental work emphasized.
- 3.2: Candidate pursuing Degree/Diploma courses should work in the concerned department of the Institution for the full period on a full time basis.

- 3.3: In organization of Post-Graduate training, Clinical, Practical, laboratory, Clinico-Pathological conferences, post-mortem work, seminars, etc. and facilities offered by other Clinical and Basic Sciences department should be made available to Post-Graduate students. The co-ordination Committee of the college will be responsible to implement a coordinated Post-Graduate training programme of lectures, lecture-demonstration, group discussions, seminars, clinical meetings, clinico-pathological programmes etc. The Post-Graduate departments should submit the departmental programme at the beginning of each academic term to the Co-ordination committee for approval.
- 3.4: During the course of studies the department should so arrange the training that the student should see large number of clinical cases, perform all types of minor and cataract operations & assist in all types of major eye operations so that at the end of the training period the student has acquired the knowledge and skills expected from a specialist in the field of ophthalmology.
- 3.5: The Post-Graduate students are required to keep record of their clinical, laboratory, operative work, etc., countersigned by teachers under whose guidance the work was done.
- 3.6: The Post-Graduate students should do emergency duties, night duties and attend work in casualties and wards pertaining to ophthalmology.
- 3.7: During the period of clinical training the Post-Graduate student should maintain regular contact with his/her thesis guide and while doing clinical training should continue the research work.
- 3.8: 80% attendance in the clinical posting is mandatory for grant of terms. The Post-Graduate students must keep record of work done. The Head of the Department is required to submit to the University through the Dean six monthly report of the work of the candidates.

4: LECTURE & SEMINAR:

- 4.1: The student must be kept abreast with the latest development in the field of medicine particularly in their own subject.
- 4.2: The teaching programme should be divided into following subheads to achieve team work as well as confidence in independent presentation.
- 4.3: Symposium - once a month by a team.
- 4.4: Seminar - once in two week by individual.
- 4.5: Journal club: once in two week
- 4.6: Long case presentation - once a week
- 4.7: Short & spot case discussions- once a week
- 4.8: Histo-pathological slides discussion - once in two week
- 4.9: Lecture demonstration by the faculty - once a month
- 4.10: Grand round of the wards - once a week
- 4.11: Theory test – once a month

5: DETAILED SYLLABUS:

- 5.1: Syllabus for PG in ophthalmology is attached as appendix “A” to this letter.

6: TITLE OF THE THEORY PAPERS WITH CONTENTS (M.S.)

- 6.1: Paper-I - Basic Sciences & Optics 3 Hrs 100Marks
 - 6.2: Paper-II - Ophthalmology Medicine 3 Hrs 100 Marks And Surgery
 - 6.3: Paper-III- Ophthalmology related to 3 Hrs 100 Marks Medicine & Surgery and Community Ophthalmology
 - 6.4: Paper-IV- Recent advances In Ophthalmology 3 Hrs 100 Marks
- Total Marks - 400**
(Questions should be self explanatory & exhaustive)

6.5: PATTERN OF THEORY PAPERS: - for (M.S.)

6.5.1: Paper - I to IV M.S.

(a) Section 1 :- 2 LAQ 25X 2 = 50

(b) Section 2 :- 5 Short Questions 10 X 5 = 50

Total = 100

Total marks for theory for MS 400

7: PRACTICAL :

7.1: Clinical Cases: - M.S.

7.1.1: Structured long case 1 100 marks

7.1.2: Short case 2 50 marks each =100

7.1.3: Ward rounds - 4 25 marks each=100
4 cases (25 marks each)

(A spectrum of pre –operative, post-operative and emergency case scenarios)

7.1.3: Marks Distribution for clinical cases - Anterior Segment Fundus

(a) Clinical Findings +Diagnosis 25 25

(b) Management & Discussion 15 15

(c) Over All Professional Competence 10 10

7.2: Viva :-

M.S.

7.2.1: Instruments & Surgical Viva - 25 Marks

7.2.2: Optics & Refraction - 25 Marks

7.2.3: Special Investigations Specimen, Slides, & X-rays, ultrasound B scan, CT scan, MRI - 25 Marks

7.2.4: Ocular Therapeutics - 25 Marks

Total - 100 Marks

Clinical cases 300, Viva100, total marks 400 for MS

8: THESIS / DISSERTATION: -

8.1: Aims: To instil spirit of scientific enquiry

8.2: Objectives:

8.2.1: To teach the basic concept of research methodology & epidemiology, to train the student to critically analyze relevant published research papers

8.3: General Guidelines:

8.3.1: The thesis/dissertation is compulsory for candidates registered for M.S.

8.3.2: The subject of thesis along with a synopsis (about 200 words) countersigned by the Post Graduate teacher, Head of the Department and the Head of the Institution should be submitted to the University within 4 months of registration as Post- Graduate student. A penalty of Rs 50/- will be levied after the due date.

8.3.3: The subject and plan of work of the thesis should not be same as that of a thesis, which has been accepted by the University in the past three years.

8.3.4: If a work required for the thesis entails collaboration with other department or specialties, the collaborative portion of work will be supervised by a co- guide designated by the Head of the institution. A co-guide should normally be a Post-Graduate teacher in his own specialty. In cases where there is guide and a co-guide for a thesis, the certificate required for submission of the thesis should be signed both by the guide and the co-guide.

8.3.5: The subject of thesis should as far as possible reflect the research priorities of the Post-Graduate department where the work is being done. The Dean of the college while submitting the topic of thesis to the University for approval should make sure that the institution provides all facilities for the research work.

8.3.6: The candidate should submit to the University six monthly progress report of thesis and his other Post-Graduate work through his Post-Graduate teacher, Head of the Department and the Head of Institution.

- 8.3.7: If the progress of a candidate's work including thesis work is not satisfactory, the University on recommendation of Head of the Department, Head of the Institution and the Dean of faculty of Medicine may not grant that particular term and the period of training will be extended by the number of terms not granted.
- 8.3.8: Should be submitted to the University 6 months before the date of written, oral, clinical, practical examination. Approval of thesis is a precondition for permission to appear in the rest of the examination.
- 8.3.9: The thesis will be examined for acceptance by two examiners one internal and one external. Each will assign marks out of 100. The examiners will send the marks directly to the University. To qualify for appearing in the theory, clinical and practical parts of the exam. Candidate must receive a minimum of 50 marks out of 100 from each examiner. Thesis marks however, will not be taken into consideration in the final mark sheet.
- 8.3.10: If a student has submitted his examination form as also his thesis previously, he will be permitted to take examination within a period of 4 years any time in future provided the thesis has been accepted. The terms satisfactorily kept by him/her are valid in future, only for a period of 4 years subsequent to submission of his/her thesis after which he/she will have to undergo Post-Graduate training again for 4 terms to be eligible for appearing for the theory, clinical and practical examination.

9: METHOD OF EVALUATION OF STUDENTS :

Nil suggested as common scheme of evaluation of student have already been formed & approved by faculty of medicine as mentioned in your letter. However internal assessment scheme is recommended as below:

9.1: Internal Assessment Protocol

There should internal assessment at the end of each semester for degree students. The marks allotted in each semester out of total 80 should be as follows :

MS

| THEORY PRACTICAL OVERALL | Performance | Total Marks |
|---------------------------------|--------------------|--------------------|
| At the end of 1st year | 10 10 5 | 25 |
| At the end of 2nd year | 10 10 5 | 25 |
| At the end of 3rd year | 10 10 10 | 30 |
| | Total | 80 |

10: TITLE OF THE THEORY PAPERS WITH CONTENTS (Diploma)

10.1: Paper-I - Basic Sciences & Optics 3 Hrs 100 Marks

10.2: Paper-II - Ophthalmology Medicine 3 Hrs 100 Marks
And Surgery

10.3: Paper-III - Ophthalmology related to 3 Hrs 100 Marks
Medicine & Surgery and Community Ophthalmology

Total Marks- 300 Marks

(Questions should be self explanatory & exhaustive)

10.4: PATTERN OF THEORY PAPERS: - for (Diploma)

10.4.1: Paper - I to III

M.S.

(a) Section 1 :- 2 LAQ 25X 2 = 50

(b) Section 2 :- 5 Short Questions 10 X 5 = 50

Total 100

Total marks for theory (Diploma) 300

11: PRACTICAL: (Diploma)

11.1: Clinical Cases: -

11.1.1: Anterior Segment 250×2

11.1.2: Posterior Segment (Fundus) 240×2

Total Marks 180

11.1.3: Marks Distribution -

Anterior Segment Fundus

(a) Clinical Findings +Diagnosis 25 25

(b) Management & Discussion 15 15

(c) Over All Professional Competence 10 10

11.2: Viva :-

DIPLOMA

11.2.1: Instruments & Surgical Viva - 40 Marks

11.2.2: Optics & Refraction - 20 Marks

11.2.3: Special Investigations - 20 Marks

11.2.4: Ocular Therapeutics - 20 Marks

11.2.5: Specimen, Slides, & X-rays,
ultrasound B scan, 20 Marks
CT scan, MRI

Total 120 Marks

Total marks Practical (Diploma) : **300**

SUGGESTED SYLLABUS OF POST GRADUATE COURSE IN OPHTHALMOLOGY

1: PAPER I

1.2: BASIC SCIENCES & OPTICS

1.2.1: ANATOMY

- (a) Anatomy & embryology of the eye
- (b) Anatomy of orbit
- (c) Anatomy of ocular adnexae
- (d) Extraocular muscles action & nerve supply

1.2.2: PHYSIOLOGY

- (a) Ocular circulation
- (b) Ciliary epithelium & aqueous humour dynamics
- (c) Intraocular pressure
- (d) Accommodation & Presbyopia
- (e) Pupil
- (f) Color vision
- (g) Central visual pathways
- (h) Binocular vision
- (i) Physiology of vision.

1.2.3: OPTICS & REFRACTION

- (a) Physical optics
- (b) Geometric optics & clinical refraction
- (c) Contact lenses.
- (d) Low vision.
- (e) Aberrations

2: PAPER II (Ophthalmology Medicine & Surgery)

2.1: Diseases of The Eye

2.1.1: Anterior Segment Diseases.

- a) Infections of conjunctiva
- b) Infection of the ocular adnexa
- c) Corneal diseases
- d) Eye banking & keratoplasty
- e) Lens, cataract & its management.
- f) Intraocular lenses.
- g) Glaucoma.

2.1.2: Posterior Segment Diseases

- a) Hereditary retinal & choroidal diseases.
- b) Acquired macular diseases
- c) Retinoblastoma & leukokoria
- d) Diabetic retinopathy.
- e) Vascular anomalies of the Retina.
- f) Peripheral retinal neovascularization.
- g) Vitreal diseases.
- h) Uveitis, congenital anomalies & Intraocular tumours.

2.2: Diseases of The orbit

2.2.1: Orbital & Adnexa Tumours: -

- a) Orbital tumours & treatment
- b) Tumours & related lesion of the eyelid & conjunctiva

2.3: Oculoplasty

2.3.1: Basic oculoplastic surgery

2.3.2: Enucleation & evisceration

2.3.3: Craniofacial anomalies

2.4: OCULAR EMERGENCY & TRAUMA

2.5: OCULAR ANAESTHESIA & SURGERIES

2.5.1: Anaesthesia

- a) Surface, infiltration, regional anesthesia
- b) Premedication, sedation for local anesthesia
- c) Premedication for general anesthesia
- d) Akinesia & intraocular tension during anesthesia
- e) Cardio pulmonary complication with anesthesia
- f) Cardiac arrest & local anaesthetic emergency

2.5.2: Operative Surgeries

2.6: OCULAR THERAPEUTICS & TOXICITY

2.7: OCULAR DIAGNOSTIC & OPERATIVE INSTRUMENT

- i) Radiology in ophthalmologic diagnosis.
- ii) Ultrasonography – A scan & B scan.
- iii) Fluorescein angiography.
- iv) ERG & EOG.
- v) Pachymeter.
- vi) Autoperimeter.
- vii) Autorefractometer.
- viii) Applanation tonometry.
- ix) Direct Ophthalmoscope.
- x) Indirect ophthalmoscope.
- xi) VEP.
- xii) Operating microscope.
- xiii) Slit lamp.
- xiv) Keratometer.
- xv) Specular microscope.

3: PAPER III (OPHTHALMOLOGY RELATED TO MEDICINE & SURGERY AND COMMUNITY / OPHTHALMOLOGY)

3.1: Ophthalmology Related To Medicine & Surgery And Community / Ophthalmology -

3.1.1: Ocular Manifestations of Systemic Diseases:

- a. Diabetes mellitus.
- b. Hypertension.
- c. Infectious diseases like: - aids, tuberculosis, sarcodosis, leprosy, etc.
- d. Haematological diseases.
- e. Connective tissue disorders.
- f. Hyperlipoproteinemias, amyloidosis.

3.1.2: Inborn metabolic disorders & the eye.

3.1.3: Genetics & eye diseases.

3.1.4: Retinal vascular occlusions.

3.1.5: Neuro-ophthalmology.

- a) Ophthalmic manifestation of brain tumours.
- b) Ophthalmic manifestation of vascular diseases of brain.
- c) Optic nerve disease.
- d) Migraine.

3.1.6: Community Ophthalmology & National Programmes

4: PAPER IV (Recent Trends / Advances In Ophthalmology)

4.1: Recent Trends / Advances In Ophthalmology

- 4.1.1: Recent Advances In Surgical Management Of Cataract.
 - a) Phacoemulsification.
 - b) Newer intraocular lens implant.
- 4.1.2: Recent advances in diagnostic procedures, medical & surgical management of glaucoma.
- 4.1.3: Recent advances in lasers in ophthalmology
- 4.1.4: Recent advances in vitreous substitutes & perfluorocarbons.
- 4.1.5: Recent advances in retinal detachment surgery.
- 4.1.6: Recent advances in ultrasonography.
- 4.1.7: Recent advances in indocyanine green angiography
- 4.1.8: Recent advances in optical coherence tomography.
- 4.1.9: Newer antibiotics, antifungals & antivirals.
- 4.1.10: Anti VEGF therapy