



CDSIMER
Dr. Chandramma Dayananda Sagar
Institute of Medical Education and Research



**Dayananda Sagar
University** Bengaluru

**Dr Chandramma Dayananda Sagar Institute of
Medical Education and Research
(CDSIMER)**

A Unit of Dayananda Sagar University (DSU)

Devarakaggalahalli, NH-209, Kanakapura Road,
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Ph. D. Guidelines

2021-22



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REVISED ORDINANCE GOVERNING ENROLMENT OF CANDIDATES
FOR RESEARCH LEADING TO Ph. D. IN VARIOUS FACULTIES OF HEALTH SCIENCES
OF
DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH (CDSIMER), DAYANANDA SAGAR UNIVERSITY (DSU)

1. PREAMBLE:

Dayananda Sagar University is committed to promote research activities, both in basic and applied aspects in various faculties of medical departments of Dr Chandramma Dayananda Sagar Institute of Medical Education and Research, affiliated to Dayananda Sagar University.

2. ELIGIBILITY CRITERIA TO APPEAR FOR ENTRANCE EXAMINATION:

Candidates with M.D./ M.S / Medical P.G. Diploma/M.Sc. in Medical subjects from recognized Medical Colleges with 3 years course duration are eligible to enroll for Ph.D. course in the concerned subjects only.

Or

Faculty members of CDSIMER with MCI/NMC recognized Post Graduate qualification in the concerned specialization.

3. ELIGIBILITY CRITERIA FOR ADMISSION TO Ph. D. PROGRAMME:

The candidates who score 50% and above marks in the Entrance Examination are declared qualified for admission as per calendar of events and such marks are valid for two terms (for that current academic year and next academic year).

Candidates with M.D./ M.S / Medical P.G. Diploma/M.Sc. in Medical subjects from recognized Medical Colleges with 3 years course duration are eligible to enroll for Ph.D. course in the concerned subjects only.

NOTE:

- Foreign Nationals / NRIs intending to register for Ph.D. Programme should obtain equivalence certificate from Association of Indian Universities (AIU) and Eligibility Certificate from Dayananda Sagar University (DSU) before admission.
- The post graduate qualified Candidates from other Universities applying for Ph.D. Registration on a full-time basis are required to obtain eligibility certificate by paying the eligibility fees as prescribed by PhD Registration Committee.
- All foreign nationals irrespective of their PG Studies in India or abroad are required to obtain eligibility certificate by paying eligibility fees and submission of copies of valid Passport, Visa, and Police permission for residential permit for stay in India.
- The M.Sc. degree holders, after their PhD should confine themselves only to provide research inputs and perform investigative procedures. They are not permitted to treat patients.

4. DURATION OF THE Ph.D. PROGRAMME:

- 4.1** The period of training of Ph.D., for candidates with M.D/M.S degree, shall be minimum of three years and a maximum of five years;
- 4.2** a. The period of training of Ph.D., for candidates with M.Sc. degree (3 years M.Sc course in Medical subjects from recognized Medical Colleges in concerned subjects) shall be minimum of four years and maximum of six years.
- b. The period of training of Ph.D., for candidates with post MBBS PG Diploma in concerned subject shall be a minimum of four years and maximum of six years.
- 4.3** Extension beyond the above limits may be considered by the Ph. D. Registration committee on case-to-case basis, only in exceptional cases, for maximum period of one year, based on the representation submitted by the student and the Guide through proper channel.
- 4.4** The women candidates and Persons with Disability (more than 40% disability) may be allowed a relaxation of two years in the prescribed maximum duration for Ph. D by the PhD Registration Committee, on a case-to-case basis, based on the representation submitted by the candidate through proper channel.
- 4.5** Women candidates may be provided Maternity Leave/Child Care Leave once in the entire duration of Ph. D. for up to 240 days without exceeding the permissible maximum duration of Ph.D.
- 4.6** In case of relocation of a Ph. D. woman scholar due to marriage or otherwise, the research data shall be allowed to be transferred to the University to which the scholar intends to relocate, with prior consent of the Guide, provided all the other conditions in these regulations are followed in letter and spirit and the research work does not pertain to the project secured by the parent Institution/ Guide from any funding agency. The scholar will however give due credit to the parent Guide and the institution for the part of research already done. This relocation should be done with the approval of the Ph.D. Registration Committee.

5. PROCEDURE FOR ADMISSION:

All the candidates intending to register for Ph. D. Programme shall appear for the entrance test conducted by the University.

5.1 The candidate has to score minimum of 50% marks in each of the papers separately in the Entrance Test.

- The test consists of two papers, conducted over two sessions of one and half hours each.
- The syllabus of the first paper consists of Comprehension, Analytical and Logical Reasoning and Research Aptitude (refer Annexure 1) and will carry 50 marks. The Second theory paper which will be subject specific (refer Annexure 2), preferably short notes with the competence of PG standard, will carry 70 marks.
- The Entrance test shall be conducted at CDSIMER.
- An interview/viva-voce will be conducted by the university for the candidates who successfully clear the entrance test and are selected for the Ph. D. course.
- The purpose of this interview is to discuss:
 - The candidate's research idea/area through a presentation before a duly constituted University Ph.D. Registration Committee.
 - To evaluate the research aptitude of the applicants
 - The candidate's competence for the proposed research.
 - If the proposed area of research can contribute to new/additional knowledge.
 - If the research work can be suitably undertaken at the parent institute or at a collaborative institute which has an MoU with DSU(CDSIMER).

5.2 There will be only one stream of admission annually. The eligibility secured at the entrance test is valid for admission as per calendar of events and such marks are valid for two terms (applicable for that current academic year and next academic year).

5.3 The Departments of CDSIMER which are allowed to conduct Ph. D. programmes shall decide on an annual basis through Ph.D. Registration Committee, a predetermined and manageable number of Ph.D. scholars to be admitted, depending on the number of available Research Guides (not exceeding the permissible number i.e., 2 candidates per Guide in each department per academic year) and other academic and physical facilities available. They shall follow the norms regarding the scholar- Guide ratio, laboratory, library and such other facilities.

5.4 The University will notify well in advance through the University website regarding the criteria for admission, procedure for admission, details of entrance test and all other relevant information for the benefit of the candidates.

5.5 The University shall maintain the list of all the Ph. D. registered students on its website on year-wise basis. The list shall include the name of the registered candidate, topic of his/her research, name of his/ her Guide/co-Guide and date of enrolment/registration.

6. ELIGIBILITY CRITERIA FOR RESEARCH GUIDE/CO-GUIDE:

- 6.1 Only full time Teaching/Research faculty member in CDSIMER can act as a Guide. External Guides are not allowed.
- 6.2 The Co- Guide from other departments of the same institute or from collaborative institute which has an MOU with DSU (CDSIMER) can be allowed in related inter- disciplinary research activities with the approval of the Ph. D. Registration committee.
- 6.3 The Guide should not have completed 67 years of age at the time of registration of the candidate for Ph.D. course under him/her provided the Guide continues to work as a full-time teacher in CDSIMER.
- 6.4 However, the Guides, who have attained age of 67 years, need to submit a letter from the Dean stating that they shall be continued till 70 years in this CDSIMER.
- 6.5 In case the candidate is not able to complete the work prior to the Guide's retirement, it is the duty of the Guide to hand over the candidate to another recognized Guide from the department after obtaining prior permission from the University or get an extension letter from the Dean/Principal of the current Institute stating that the Guide can continue to be a full-time teacher even after retirement until the student submits the thesis to the University.
- 6.6 A recognized Guide may register as a student for part time / full time Ph.D. Programme provided he/she shall arrange for transfer of his/her research students to another Guide before the commencement of his/her work, subject to approval by Ph.D. committee.
- 6.7 Ph.D. Guideship will not be issued to a Ph. D. Scholar while pursuing Ph.D. study irrespective of his eligibility.
- 6.8 A recognized Guide desirous of pursuing Ph.D. shall not be permitted to continue as member of Ph. D committee of CDSIMER and similarly, no Ph.D. Research scholar shall be appointed as CDSIMER Ph.D. committee member.
- 6.9 With the consent of current registered Guide, any request for Change of Guide may be permitted.
- 6.10 **Guides & Co-Guides from CDSIMER:**
- Qualification: MD /MS or MD/MS with Ph.D.
 - Total Research Experience of 10 years after PG Qualification
 - PG Teaching Experience 5 years
 - Guided and submitted 3 Post Graduate student Dissertation.
 - Published Five original Publications (2 International and 3 National Journals) as first, or corresponding Author as per MCI/NMC Guidelines applicable during the period of publication.
 - Should be a full-time faculty member and not a visiting faculty.

6.11

Co-Guides from other Collaborative Institutes:

- Qualification: MD /MS or MD/MS with Ph.D.
- Total Research Experience of 10 years after PG Qualification
- Conducted and completed 3 Research Projects.
- Published Five original Publications (2 International and 3 National Journals) as first, or corresponding Author as per MCI/NMC Guidelines applicable during the period of publication.
- Should be a full-time faculty member and not a visiting faculty.

7. PERMISSIBLE NUMBER OF PHD SCHOLARS PER GUIDE AND PER DEPARTMENT:

- 7.1 The maximum number of full time or part time candidates a Guide can supervise shall not exceed four (4) at any given time.
- 7.2 Whenever the number of candidates registered under a Guide has reached the maximum, a Guide becomes eligible to supervise another Ph.D. candidate only after the submission of the thesis by any one of the Ph.D. candidates already registered under him/her.
- 7.3 A recognized Ph.D. department at any given point of time can have only Six (06) Ph.D. scholars.
- 7.4 A candidate may have one Co-Guide from another department, duly recognized by the Ph.D. Registration Committee of the University in addition to the Guide from the concerned specialty.
- 7.5 All Guides shall normally be residents within the jurisdiction of Research center and should be recognized by the University as Ph. D. Guides based on the recommendation of the Ph.D. Registration Committee of the respective faculty.
- 7.6 A Guide recognized by the University is not eligible to Guide any other Ph.D. students from any other University.

8. Ph.D. REGISTRATION COMMITTEE:

Ph.D. Registration Committee shall consist of:

- | | |
|---------------------|--------------------|
| Dean of Faculty | - Chairman |
| BOS Chairman | - Member |
| Two Senior Faculty* | - |
| Members | |
| Registrar DSU | - Member Secretary |

*With 10 years of experience and 5 Publications (2 International and 3 National

Indexed Journals) as per MCI/ NMC Guidelines applicable during that period.

9. SUBMISSION OF HALF YEARLY PROGRESS REPORTS AND EVALUATION OF COURSE WORK:

- 9.1** After provisional registration, every candidate shall submit the half yearly progress reports regularly as desired by the university in the prescribed format through the Guide to the Registrar of the University with a copy to the Head of the Department concerned and Head of the Institution. The half yearly progress report will be assessed by the subject experts and comments/observations will be communicated to the concerned candidate and Guide. Every such half yearly report shall be submitted for the period from 1st January to the end of June and from 1st July to the end of December. The accepted reports shall be ratified by the Ph.D. registration Committee.
- 9.2** All Ph. D. candidates while submitting their current progress report should submit the summary of each of his/her previous half yearly progress reports in order and suggestions made by the previous reviewers along with university letters sent to the candidates for approval of the current report. All Ph. D. candidates should submit their half yearly progress reports in the prescribed format issued by CDSIMER (Annexure III)
- 9.3** In case the progress of the research scholar is unsatisfactory, the Ph. D. Registration Committee of the respective faculty shall record the reasons for the same and suggest corrective measures. If the research scholar fails to implement these corrective measures, the Ph. D. Registration committee of the respective faculty may recommend to the department with specific reasons for cancellation of the registration of the research scholar.
- 9.4** The candidate who submits the same report/s as previous shall be called for the presentation of the progress report before Ph. D. Registration committee of the respective faculty.
- 9.5** All the Ph. D. students should maintain a Logbook, duly signed by the Guide & Head of the department and should be made available at time of inspection and examination.
- 9.6** The Research project submitted by the candidates should have been cleared by the appropriately constituted Institutional Ethical Committee at college level (respectively for experiments on human subjects and / or animals) before the submission of the 1st progress report by the candidates.
- 9.7** If two consecutive half yearly progress reports are not satisfactory, the Ph.D. Registration committee of the respective faculty may recommend to the University for Cancellation of the registration of the respective candidate.

10. PRE-Ph.D. EXAM:

10.1The candidate will be eligible to appear for the Pre Ph.D.Examination only after the completion of one year from commencement of the Ph.D. course, provided his/her first and second half yearly progress reports are found satisfactory. The Provisional Ph.D. Registration of the candidate will be confirmed only after the candidate passes the Pre-Ph D Examination.

10.2The candidates possessing UGC approved M.Phil. degree or MCI approved DM/M.Ch/MD/MS and PG Diploma who have been certified by MHRD, Government of India for basic course in biomedical research are exempted from appearing for Pre Ph.D. Examination.

10.3The scheme for Pre Ph.D. examination to be conducted by the University shall be as follows:

Two written papers each of three hours duration and each carrying maximum of 100 marks.

PAPER I: Basics in Research Methodology related to the area of research.

PAPER II: Topics related to the specialized subject under which the topic / area of research is undertaken.

Viva-Voce examination carrying a maximum of 100 marks for candidates who have passed the theory examination.

The syllabi for both papers will be available from the website of CDSIMER/DSU (www.cdsimer.edu.in)

10.4 Conduct of Pre Ph.D. Examination:

The Ph.D. Registration Committee along with the names suggested by the concerned Guides shall prepare an exhaustive panel of both external and internal examiners and recommend the same to the Dean, Vice Chancellor and Registrar (E) for approval. The University / Registrar (E) will then constitute a Board of Examiners for conduct of the Pre Ph.D.- Examination.

The Board of Examiners for the Pre Ph.D.Examination (theory) consists of the following:

Internal Examiner.

One external examiner chosen by the University.

Note:

- The examiner shall fulfill the criteria for eligibility similar to Ph.D. Guides as per CDSIMER/DSU Ordinance.
- The Internal Examiner and External Examiner chosen by the Registrar (E) from the panel of examiners will set two papers each and send their respective question papers separately in a sealed cover to the Registrar (Evaluation) who will conduct the theory examination and send the scripts to the examiners for valuation.
- There shall be double valuation of the answer scripts of Paper-I and Paper II by eligible examiners. The marks list shall be sent by the examiners directly to the Registrar (Evaluation)
- If the difference of the marks in the valuation between the external and the internal examiner exceeds 15%, the concerned answer scripts will be evaluated by a third Examiner.
- The candidate should secure a minimum of 50% marks in each of the written papers to pass the Examination.
- The viva voce examination shall be conducted after the candidates has passed in the theory papers by a panel consisting of:
 - Internal Examiner (Guide)
 - External Examiner (any one of the two examiners who have set the theory papers and valued the answer scripts).
- After the Viva-Voce examination, the marks shall be consolidated and sent to the Registrar (Evaluation) by the Chairman for further consolidation and announcement of results.

10.5 Evaluation And Assessment of Pre-Ph.D. Examination:

The results will be announced according to the following grading system.

Grade	Result (Inclusive of theory and Viva Marks)
A	A student securing marks 75% and above will be declared to have passed in the said examination with distinction
B	A student securing marks between 60-74% will be declared to have passed in the said examination with first class.
C	A student securing marks less than 50-60% will be declared pass class in the said examination
D	A student securing marks less than 50% will be declared unsuccessful and shall be considered to appear for the re-exam

Note:

- However, the candidate should secure a minimum of 50% marks in each of the written papers as well as in the Viva Voce examination.
- In case the candidate is not successful in the Pre Ph.D.-Examination in the first attempt he/she may be given one more chance to appear for the entire examination after a period of 1 month.
- If the candidate is not successful in the Pre Ph.D. examination, even in the second appearance, his/her provisional registration shall stand cancelled.
- Provisional registration of the candidates will be confirmed only after they pass the Pre Ph.D. examination.

11. SUBMISSION OF FINAL SYNOPSIS:

All the Ph.D. candidates should submit a final synopsis containing the summary of the research work done (Two Soft & Hard Copies) to CDSIMER before submission of thesis. All Ph.D. candidates before submitting their final synopsis shall present his/her research work before the Guide, External Examiner and Observer from concerned specialty on a suitable date fixed by the University and should get approval for writing the final synopsis and thesis.

12.PUBLICATION OF RESEARCH PAPERS:

All Ph. D. Candidates before submitting Ph.D. Thesis to the university should have published a minimum of three research papers related to their research topic during their course of Ph.D., with one publication by student as

the 1st author and other two as first or second author in the indexed journals before submitting the final Thesis. These publications shall be verified by the CDSIMER Ph.D. committee.

13. PLAGIARISM:

While submitting for evaluation, the thesis shall have an undertaking from the research scholar and a certificate from the Research Guide attesting to the originality of the work, vouching that there is no plagiarism (the permissible similarity should not exceed 15% of total contents) and that the work has not been submitted for the award of any other degree/diploma of the same Institution where the work was carried out, or to any other Institution. It is mandatory for plagiarism check for Ph.D. thesis submitted before sending it for evaluation.

14. SUBMISSION AND EVALUATION OF THESIS:

Each candidate for the award of Ph.D. Degree shall submit three copies (Soft & Hard Copies) of his/her Thesis not earlier than the prescribed minimum period and not later than the prescribed maximum period.

The Ph.D. thesis submitted by a research scholar shall be evaluated by at least two external examiners (who are not teachers of CDSIMER of whom one examiner may be from outside the state).

The viva-voce examination, based among other things, on the critiques given in the evaluation report, shall be conducted by the Research Guide and at least one of the two external examiners, and shall be open to be attended by Members of the Ph.D. Committee, all faculty members of the Department, other research scholars and other interested experts/researchers.

Based on the reports of the examiners, the University shall award the Ph.D. Degree after the recommendations are approved.

15.FEE STRUCTURE:

COMPONENT	FEE
Eligibility Certificate Fee for external Candidates	
Course Fee	
Examination Fee	

Convocation Fee	
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16.DEPOSITORY WITH LIBRARY:

Following the successful completion of the evaluation process and before the announcement of the award of the Ph. D. degree(s), the department concerned shall submit an electronic copy of Ph.D. thesis to the CDSIMER Library.

Prior to the actual award of the degree, the degree-awarding Institution shall issue a provisional Certificate to the effect that the degree has been awarded in accordance with the provisions of these UGC Regulations, 2016.

Annexure I
Syllabus for Paper I
Comprehension, Analytical and Logical Reasoning and Research Aptitude
Max Marks : 50 -Duration :60 minutes

Annexure II
Syllabus for Paper II – Subject Speciality
Anatomy
Max Marks : 70

GENERAL ANATOMY :

Anatomical terminology, General features of bones and joints, General features of muscle, General features of skin and fascia, General features of cardiovascular system, General features of lymphatic system, Introduction to nervous system.

GENERAL HISTOLOGY :

Epithelium , Connective tissue histology, Muscle histology, Nervous tissue histology, Blood vessels histology, Glands and lymphoid tissue, Bone and cartilage , Integumentary system.

GENETICS :

Chromosomes, Patterns of inheritance, Principle of genetics, Chromosomal aberrations and Clinical genetics

UPPER LIMB :

Features of individual bones, Pectoral region, Axilla, Shoulder and Scapular region, Arm and Cubital fossa, Forearm and hand, General features, Joints, Radiographs and Surface marking

THORAX :

Thoracic cage, Mediastinum, Heart and pericardium, Lungs and Trachea, Histology of thorax, Embryology of thorax, Radiological Anatomy of thorax, Surface marking of thorax.

LOWER LIMB :

Features of individual bones, Front of thigh, Medial side of thigh, Gluteal region, Back of thigh, Hip joint, Antero-lateral compartment of leg & Dorsum of foot, Knee joint, Back of leg, Sole of foot, Tibiofibularjoint, Ankle Joint & Arches of foot, Venous & lymphatic drainage of lower limb, Radiographs & surface markings.

HEAD AND NECK :

Skull osteology, Scalp, Face and parotid region, Posterior triangle of neck, Cranial cavity,

Orbit, Anterior triangle of neck, Temporal and infratemporal region, Submandibular region, Deep structures in the neck, Mouth, Pharynx and palate, Nasal Cavity, Larynx, Tongue, Organs of hearing and equilibrium, Eye ball, Back region, Head and neck joints, Histology, Development, Radiography and Surface Anatomy.

NEUROANATOMY :

Meninges and CSF, Spinal cord, Medulla oblongata, Pons, Cerebellum, Midbrain, Cranial nerve nuclei and cerebral hemispheres, Ventricular system.

ABDOMEN :

Anterior abdominal wall, Posterior abdominal wall, Male external genitalia, Abdominal cavity, Vertebral column, Sectional Anatomy of abdomen & pelvis, Histology and Embryology, Osteology, Radiological Anatomy and Surface Anatomy.

Syllabus for Paper II- Subject Speciality

Physiology

Max Marks : 70

GENERAL PHYSIOLOGY:

Cell, Molecular motors, Intercellular communication and connection, Apoptosis, Membrane Transport, Body Fluids, Resting Membrane Potential

BLOOD:

Blood components, Plasma proteins, Erythrocytes, Hemoglobin, Jaundice, Blood Indices, Anaemia, Leucocytes, Thrombocytes, Hemostasis, Fibrinolysis, Anticoagulants, Blood Groups, Blood Banking and Transfusion.

NERVE-MUSCLE PHYSIOLOGY:

Neuron, Nerve fibres, Neurotrophins, Muscle, Strength Duration Curve, Neuromuscular Junction, Myasthenia gravis, Excitation Contraction Coupling, Muscle disorders

GASTROINTESTINAL PHYSIOLOGY:

Innervation of Gut, GI secretions, GI movements, GI Hormones, Digestion and absorption of Carbohydrates, Proteins, Lipid, Vitamins, Role of Dietary Fibres, Gut Brain Axis, Liver Function Tests and Gastric Function Tests

CARDIOVASCULAR PHYSIOLOGY:

Properties of cardiac muscle, Conducting system, ECG, Cardiac output, Blood Pressure- Regulation, Hypertension, Hypotension, Regional Circulation, Syncope, Shock, Heart Failure

RESPIRATORY PHYSIOLOGY:

Pulmonary ventilation, Mechanics of respiration, Pressure volume changes during ventilation, Lungs Volumes and Capacities, Alveolar Surface Tension, Lung Compliance, V: P ratio, Transport of Gases, Regulation of Respiration, High altitude and Deep-Sea Diving, Principles of artificial Respiration and Oxygen Therapy, Pulmonary Function Tests

RENAL PHYSIOLOGY

Renal Circulation and Auto regulation of Renal Blood Flow, Nephron, JG Apparatus, Mechanism of Urine formation, GFR , Renal Clearance, Tubular Reabsorption and Secretion, Counter current Mechanism, Acidification of Urine, Renal regulation of Acid Base Balance, Micturition Reflex, Cystometrogram, Artificial Kidney, Renal Transplantation, Renal Function Tests.

ENDOCRINOLOGY:

Mechanism of action and regulation of secretion of Hormones, Physiological anatomy, action, regulation, hyper and hypo secretion of hormones secreted by Pituitary gland, Thyroid gland, Thymus, Pineal Gland, Parathyroid Gland, Adrenal Gland and Pancreas.
Obesity and Metabolic syndrome.

REPRODUCTIVE PHYSIOLOGY:

Sex differentiation and Sex determination, Puberty, male and Female Reproductive System, Contraception, Action of Sex Hormones, Physiology of Pregnancy, parturition, lactation, Infertility, Fetoplacental Unit

NEURO-PHYSIOLOGY

Synapse, Receptors, Ascending and Descending Tracts, Autonomic Nervous System, Sleep and EEG, CSF, Blood Brain Barrier, Circumventricular organs. Physiological Structure, Connections, Functions, Disorders of Cerebral Cortex, Basal Ganglia, Thalamus, Hypothalamus, Cerebellum, Limbic System

Higher Mental Functions and Disorders

SPECIALSENSES:

Eye- Phototransduction, Visual Pathway and Its lesions,
Visual Perception, Field of Vision, Binocular Vision, Colour Vision
Physiology of Hearing, Smell and taste

INTEGRATED PHYSIOLOGY:

Temperature Regulation, Exercise Physiology, Physiology of Space , Growth
Curve,
Theories of Aging, Meditation

Syllabus for Paper II- Subject Speciality

Biochemistry

Max Marks : 70

BIOMOLECULES:

Properties of water, Concept of an acid, a base, pH, pK, buffer and buffering capacity,
Classification, structure and functions of amino acids and peptides ,
Structural organization of proteins and relationship with their functions,
Non standard amino acids, protein folding and denaturation
Classification, functions, properties and reactions of carbohydrates
Classification, properties and importance of lipids
Non Protein Nitrogenous substances
Nucleotides and nucleic acids

- Cell biology

- ANALYTICAL TECHNIQUES IN BIOCHEMISTRY:
Colorimetry,Spectrophotometry,Electrophoresis,Chromatography,ELISA,RIA,Mass Spectrometry,Turbidimetry,Nephelometry,Chemiluminescence,Techniques In Molecular Biology, Radioisotope Based Techniques And Its Applications, Nanotechnology.
- Enzymes, bioenergetics, biological oxidation, intermediary metabolism and regulation, inborn errors of metabolism and nutrition
- Overview of metabolism
- Metabolism of carbohydrates, amino acids , lipids,heme and nucleotides with respect to Digestion and absorption, synthetic pathways, catabolism,regulation,special products formed,functions,clinical significance and inborn errors of metabolism ,related diseases.
- One Carbon metabolism
- Metabolism in individual tissues and in the fed and fasting states
 - Liver, adipose tissue, brain, RBC
- Vitamins and minerals, antioxidants, free radicals
- Molecular biology: Nucleic acid chemistry, Replication,Transcription,Translation, gene regulation, mutations, regulation of gene expression, recombinant DNA technology, genetic code, polymorphisms, Human genome project, principles of human genetics, cloning
- Immunology: Immunoglobulins, Hyper and hypogammaglobulinemias,antigen antibody reaction cells and B cells, Primary and secondary immune response, vaccines
- Xenobiotics
- Biochemistry of HIV/AIDS
- Protein sorting,targeting,intra and intercellular signalling
- Biomembranes
- Acid Base balance and disorders
- Water and electrolyte balance
- Clinical biochemistry: Reference ranges, Quality management system,LJ charts,

Critical values, Quality control, Risk and trend analysis, measurement of uncertainty, automation, point of care testing, method validation and verification, preanalytical variables

- Biochemistry of cancer
- Organ function tests: Liver, Renal, Thyroid, Pancreatic, gastric
- Endocrine system: classification of hormones and mechanism of action of thyroid, Parathyroid, adrenal hormones, insulin, pituitary and hypothalamus hormones
- Acute phase reactants and plasma proteins
- Prion and prion diseases
- CVS: biochemical changes in atherosclerosis, cardiac markers, risk factors
- GI and Liver: Obesity, metabolic syndrome, Alcoholic fatty liver disease, non alcoholic fatty liver disease, lipotropic factors,
- Adipose tissue as an endocrine organ
- Renal system: kidney biomarkers, GFR,
- Bone and mineral metabolism

Bone structure and metabolism; metabolism of calcium, phosphate and magnesium; regulation and abnormalities of bone metabolism; vitamin D; parathyroid hormone; calcitonin.

Syllabus for Paper II- Subject Speciality

Pathology

Max Marks : 70

- The Cell as a Unit of Health and Disease – Understand the concept of the cell histology and physiology. Know the function of the different organelles
- Cell Injury, Cell Death, and Adaptations – Know the modes of cell injury. Differentiate between necrosis and apoptosis. Understand the concepts of cell adaptive mechanisms like hyperplasia, atrophy etc.

- Inflammation and Repair – Understand what is acute and chronic inflammation. Know the mediators of inflammation and their role in vascular and cellular events.
- Hemodynamic Disorders, Thromboembolic Disease, and Shock – Know the basic mechanisms of disorders of hemodynamics and shock. Understand the basic concepts of the thrombotic pathway and the mode and pathology of thromboembolism
- Genetic Disorders – Understand the basic concepts of the genetic material in the cell, modes of inheritance, important syndromes and genetic testing
- Diseases of the Immune System – Understand the basic features of immunology, body response and the pathology of HIV infection and autoimmune disease.
- Neoplasia – Understand the basic concepts of benign and malignant tumours and the molecular pathways associated in their pathogenesis
- Infectious Diseases – Know the pathogenesis and pathology of important infectious diseases
- Environmental and Nutritional Diseases – Know the impact of the environment in the causation of different diseases. Know the malnutrition states and obesity.
- Diseases of Infancy and Childhood – Understand the basic pathogenesis of diseases which occur in infancy and childhood including pediatric tumours
- Blood Vessels – Know the pathology of various diseases of blood vessels including tumours
- The Heart – Know the pathology of various diseases of the heart including the endocardium, myocardium and epicardium. Know the basic pathology of cardiac tumours
- Diseases of White Blood Cells, Lymph Nodes, Spleen and Thymus – Know the neo neoplastic and neoplastic diseases of the WBC and lymph nodes
- Red Blood Cell and Bleeding Disorders – Understand the pathogenesis and pathology of various diseases of the red blood cells and their relationship to the various anemias. Understand the normal coagulation pathway and the classification and pathology of bleeding disorders
- The Lung – Know the etiopathogenesis and pathology of various non-neoplastic and neoplastic diseases of the lung.

- Head and Neck – Know the pathology of the various diseases which are specific to the head and neck region, particularly the salivary glands.
- The Gastrointestinal Tract - Understand the pathogenesis and pathology of various non-neoplastic and
- Liver and Gallbladder – Understand the pathogenesis and pathology of hepatobiliary disease including tumours of the hepatobiliary system
- The Pancreas – Know the non neoplastic and neoplastic lesions affecting the pancreas including the endocrine cells
- The Kidney – Know the pathogenesis and pathology of the different components of the kidney, the glomerulus, blood vessels and the tubulointerstitial system. Understand the pathology of tumours of the kidney
- The Lower Urinary Tract and Male Genital System – Know about the disease affecting the lower urinary tract including tumours. Understand the pathogenesis and pathology of non neoplastic and neoplastic lesions of the male genital tract
- The Female Genital System – Understand the diseases affecting the female genital tract including disease related to hormonal changes. Know the pathogenesis and pathology of tumours of the female genital tract
- The Breast – Know the neoplastic and non-neoplastic diseases affecting the breast.
- The Endocrine System – Know the neoplastic and non-neoplastic diseases affecting the various endocrine organs with special emphasis on the thyroid
- The Skin – Understand the non-neoplastic diseases of the skin. Know the pathogenesis and pathology of skin tumours
- Bones, Joints, and Soft Tissue Tumors – Know the pathology of non-neoplastic lesions of the bone. Know the classification and pathology of bone and selected soft tissue tumours
- Peripheral Nerves and Skeletal Muscles – Know the pathology of disease affecting the nerve and muscle
- The Central Nervous System – Have a basic knowledge of non-neoplastic neuropathology. Understand the pathogenesis and pathology of CNS tumours
- The Eye – Have a basic knowledge of tumours of the eye

Syllabus for Paper II- Subject Speciality

Pharmacology

Max Marks : 70

1.General Pharmacology :Principles of Pharmacokinetics ,Pharmacodynamics,Adverse drug reactions,new drug development,Clinical trials ,ICH-GCP

2.Autonomic nervous system and peripheral nervous system :Adrenergic and cholinergic receptors,Mechanism of action,pharmacological actions,adverse effects and therapeutic uses of :1.adrenergic agonists and antagonists 2.Cholinergic agonists and antagonists

3.Central nervous system: Mechanism of action,pharmacological actions,adverse effects and therapeutic uses with examples of antiepileptics,antipsychotics,local anesthetics,antidepressants,anti-anxiety drugs.

4.Cardiovascular system : Mechanism of action,pharmacological actions,adverse effects and therapeutic uses with examples of antihypertensive drugs,anti-anginal drugs,drugs used in congestive heart failure.

5.Respiratory system; Mechanism of action,pharmacological actions,adverse effects and therapeutic uses with examples of drugs used in bronchial asthma,cough and Chronic obstructive pulmonary disease.

6.Gastrointestinal system : Mechanism of action,pharmacological actions,adverse effects and therapeutic uses with examples of drugs used in peptic ulcer,anti-emetics.

7.Endocrine system : Mechanism of action,pharmacological actions,adverse effects and therapeutic uses with examples of antidiabetic drugs ;drugs used in osteoporosis,hormonal contraceptives,glucocorticoids,antithyroid drugs and thyroid

hormone

8. Chemotherapy: Mechanism of action, pharmacological actions, adverse effects and

therapeutic uses with examples of beta-lactam antibiotics, macrolide

antibiotics, tetracyclines, aminoglycosides, antimalarial, antitubercular, anti-amoebic, ant-

helminthic.

9. Cancer chemotherapy and immunomodulators

Syllabus for Paper II- Subject Speciality

Microbiology

Max Marks : 70

The syllabus is categorized into two parts, which is further divided into eleven sections.

Part I: General Microbiology, Immunology, Hospital Infection Control

Part I comprises of three sections—General Microbiology, Immunology, and Hospital infection control

- **Section 1:** General Microbiology section is meticulously restructured with the inclusion of general virology, general parasitology and general mycology topics. General bacteriology is reorganized into a single topic with several sub- topics. Overview topics have been incorporated, which will help in better understanding of individual organisms when discussed under infective syndromes.

- **Section 2:** Immunology section remains similar to the old syllabus; comprises of twelve topics. Various topics can be incorporated/updated in the syllabus such as MAC ELISA, National immunization schedule 2020, etc. Outdated topics such as precipitation, neutralization, complement fixation, etc. can be concised.

- **Section 3:** Hospital infection control (HIC) section of the syllabus requires a major update. In the era of COVID-19 pandemic, the significance of HIC is being increased to many folds. Every healthcare personnel is supposed to be well verse with the finer details of HIC. Therefore, the updated version of the HIC section will be a key element in the making of a skilled Indian Medical Graduate.

- The HIC content of the syllabus can be thoroughly updated with the inclusion of new topics such as Major HAI types, monitoring of antimicrobial stewardship, escalation vs de-escalation strategy, donning/doffing of PPE and transmission-based precautions.

- The sterilization and disinfection topic can be completely revised based on hospital use of sterilizers and disinfectants rather than traditional ‘Microbiology use’ and can be shifted from general microbiology section to HIC section.

Part II: Systemic Microbiology (Infectious Diseases)

It comprises of eight sections, each section comprises of a topic on clinical infective syndrome, followed by several topics covering detailed information about the etiological agents.

- **Section 4:** Bloodstream and cardiovascular system infections section covers topics such as infective syndromes (infective endocarditis, acute rheumatic fever, bloodstream

infections, etc.), enteric fever, rickettsial infections, brucellosis, leptospirosis, borreliosis, HIV/AIDS, viral hemorrhagic fever, malaria, visceral leishmaniasis and trypanosomiasis, lymphatic filariasis, systemic candidiasis and systemic mycoses

- **Section 5:** Gastrointestinal infections section covers topics such as infective syndromes (diarrhoea, dysentery, food poisoning, etc.), GI infections due to Enterobacteriaceae (diarrheagenic *Escherichia coli*, shigellosis, yersiniosis, nontyphoidal salmonellosis), cholera, *Helicobacter*, *Campylobacter* and *Clostridioides difficile* infections, viral gastroenteritis, intestinal protozoan and helminthic infections

- **Section 6:** Hepatobiliary system infections section covers topics such as infective syndromes (liver abscess, peritonitis etc.) viral hepatitis, yellow fever, amoebic liver abscess, hydatid disease and Trematode infections of liver

- **Section 7:** Skin, soft tissue and musculoskeletal system infections section covers topics such as infective syndromes, staphylococcal and streptococcal infections, gas gangrene and infections due to non-sporing anaerobes, leprosy, anthrax, actinomycosis, nocardiosis, non-venereal treponematoses, viral exanthems and other cutaneous viral infections, parasitic and fungal infections of skin, soft tissue and musculoskeletal systems.

- **Section 8:** Respiratory tract infections section covers topics such as infective syndromes, bacterial pharyngitis (streptococcal pharyngitis, and diphtheria), bacterial lobar pneumonia (pneumococcal pneumonia, *Haemophilus influenzae* pneumonia and others), bacterial atypical (interstitial) pneumonia (*Mycoplasma*, *Chlamydia* and *Legionella*), tuberculosis and non-tuberculous mycobacteria infections, pertussis, infections due to non-fermenting gram-negative bacilli, viral infections (myxoviruses—influenza, parainfluenza, mumps and respiratory syncytial virus, coronavirus, rhinovirus, adenovirus and infectious mononucleosis), parasitic infections (e.g. paragonimiasis) and fungal infections (zygomycosis, aspergillosis and pneumocystosis). Coronavirus has been added as a completely new topic covering in detail about the most catastrophic disease, the COVID-19

- **Section 9:** Central nervous system infections section covers topics such as infective syndromes, bacterial meningitis (meningococcal, pneumococcal, *Haemophilus influenzae*, *Listeria*, tubercular meningitis, spirochetal meningitis, and others) tetanus, viral meningitis and myelitis (poliomyelitis and others), viral encephalitis and encephalopathy (rabies, HSV and arboviral encephalitis), parasitic infections (neurocysticercosis, free-living amoebae infections, toxoplasmosis and others) and fungal infections (cryptococcal meningitis and others)

- **Section 10:** Urogenital tract infections section covers topics such as infective syndromes (UTI, pyelonephritis, genital ulcers, urethritis, vulvovaginitis, etc), urinary tract infections (Enterobacteriaceae, Enterococcus, *Schistosoma haematobium* and others), and genital tract infections or sexually transmitted infections (syphilis, chancroid, donovanosis, gonorrhoea, *Chlamydia trachomatis*, *Trichomonas vaginalis* and genital candidiasis)

- **Section 11:** Miscellaneous infective syndrome section covers topics such as ocular and ear infections, congenital infections, organisms with oncogenic potential and zoonotic infections. Several new topics are added such as opportunistic infections, transplant infections, national health programs for communicable diseases, vector-borne diseases, and transfusion-transmitted infections. AETCOM module has been added in the syllabus as a new annexure, which covers several case scenarios pertaining to confidentiality in disclosing laboratory reports and demonstration of respect for patient samples. Pandemic module has been added to meet the unexpected health crisis in future—an acute necessity is being felt to train the Indian Medical Graduate (IMG) of the country.

Syllabus for Paper II- Subject Speciality
Forensic Medicine and Toxicology
Max Marks : 70

1. Basic Consideration

Medicolegal Case
History of Forensic Medicine

2. Legal Procedure

Legal System
Punishments
Inquest Court
Summons or Subpoena
Medical Evidence
Procedure of Recording a Dying Declaration
Dying Deposition
Witnesses
Procedure in Court
Conduct of Doctor in the Court

3. Medical Jurisprudence: Medical Law and Ethics

Legal and Ethical Aspects of Medical Practice
Medical Council of India
National Medical Commission
State Medical Council
Medical Ethics
Duties of Registered Medical Practitioners
Legal Aspect of Medical Practice
Consent
Medical Negligence

4. Consumer Protection Act and Indemnity Insurance

The Consumer Protection Act, 2019
Indemnity Insurance

5. Euthanasia and Advance Medical Directives

Euthanasia: Legal Status in India

Advance Medical Directives

Revocation or Inapplicability of Advance Directive

6. Identification

Types

Medico legal Importance

Corpus Delicti

Data Required for Identification

7. Forensic Osteology

Bone or Not

Manner of Separation

Skull

Mandible

Femur

Tibia

Fibula

Humerus

Radius

Ulna

Sternum

Scapula

Clavicle

Pelvis and Hipbone

Sacrum

8. Death and changes after death

Features of Model Definition

Statutory Definition

Medico legal Implications of Death

Types of Death

Types of Death Certification

Brain Death

Importance of Determination of Brain Death
Determinations of Brainstem Death
Preconditions
Brainstem Reflexes
Apnoea Test
Errors in Diagnosis of Death
Medical Certification of Cause of Death
Apparent Death
Presumption of Death
Presumption of Survivorship
Modes of Death
Manner of Death Changes
after Death Cooling of Body
Post-mortem Lividity
Changes in Muscle
Decomposition
Adipocere
Mummification
Forensic Entomology
Sudden Death

9. Post-mortem Examination

Autopsy
Types of Autopsy
Post-mortem Examination Report
Autopsy Procedure
Incision
Autopsy Technique
Cranial Cavity
Chest and Abdominal Cavity
Opening of Spinal Cord
Laboratory Investigations Foetal
Autopsy
Negative Autopsy
Obscure Autopsy
Examination of Decomposed Bodies
Examination of Mutilated Bodies
Exhumation

10. Mechanical Injury

Abrasion

Contusion

Value of a Bruise

Artificial Bruises

Lacerated Wounds

Incised Wound Chop

Wound

Medico legal Importance

Stab Wounds (Puncture Wounds)

Healing of Injury (Lacerated Wound, Incised Wound and Stab)

Fractures

11. Firearm Injuries and Bomb Blast Injuries

Firearm Injuries

Classification of Firearms

Structure of Firearm

Smooth Bore Firearm (Shotgun)

Gauge or Bore

Non-choking

Choking

Advantages of Choking

Cartridge of Cartridge of Shotgun (Smooth Bore Firearm) Importance of Rifling

Advantage of Rifling

Classification of Rifled Firearm

Cartridge of Rifled Firearm Bullet

Jacketed Bullet Other

Types of Bullet

Rifling Marks over Bullet

Wound Ballistics (Firearm Wounds)

Injuries Caused by Rifled Firearms (Gunshot Wounds)

Features of Gunshot Wounds

Entry Wound in Rifled Firearm Contact

Shot

Close Shot

Near Shot

Distant Shot
Exit Wound
Importance of Exit Wound
Unusual Effect of Rifled Firearm
Smooth Bore Firearm Injury (Shotgun Injuries)
Entry Wound
Contact Shot
Close Range Wounds Short
Range Wounds Medium
Range Wounds Distant
Range Wounds Exit Wound
Unusual Ballistic Effects
Autopsy Examination (Post-mortem Examination) Explosion
and Bomb Blast Injuries
Autopsy Findings

12. Regional Injuries

Head Injury Injury
to Skull Skull
Fracture
Injury to Meninges and Brain
Intracranial Haemorrhage Injury
to Brain
Injury to Spine and Spinal Cord
Injury to Neck
Injury to Chest Injury
to Abdomen

13. Asphyxia

Anoxia
Mechanical Asphyxia
Autopsy Findings
Judicial Hanging
Lynching
Autoerotic Hanging
Medico legal Importance

Strangulation
Throttling (Manual Strangulation)
Bansdola
Garroting
Mugging
Suffocation
Drowning
Autopsy Findings (Post-mortem Examination)

14. Sexual Jurisprudence: Sexual Offences and Perversions

Virginity
Hymen
Sexual Offences
Medical Examination of Survivor of Sexual Assault (Rape Victim)
The Protection of Children from Sexual Offences Act 2012
Medical Examination of Accused of Sexual Assault
Incest
Adultery

15. Pregnancy and Delivery

Pregnancy
Delivery
Superfoetation or Superfetation
Superfecundation
Fecundation Ab Extra

16. Abortion and Medical Termination of Pregnancy

Abortion
Classification
Criminal Abortion
Justifiable Abortion (or Therapeutic Abortion)

17. Legitimacy, Paternity and Medico legal Aspects of Marriage Annulment

Nullity of Marriage and Divorce
Legitimacy
Paternity

18. Impotence, Infertility, and Sterilization

Impotence, Premature Ejaculation, and Erectile Dysfunction
Certification of Potency
Medico legal Importance of Impotence
Female Sexual Dysfunction
Medico legal Importance of Female Sexual Dysfunction
Sterility (or Infertility)
Sterilization

19. Forensic Psychiatry

Classification
Psychiatric Disorders
Impulse Schizophrenia
Psychosis and Neurosis
Personality Disorder
Interval
Causes of Mental Illness
Diagnosis of Mentally Ill Person
Feigned Insanity
Mental Healthcare Act 2017
Procedure of Admission (Restraint of an Insane)
Procedure of Discharge
Responsibilities of Person with Mental Illness (Responsibilities of an Insane)
Indian Perspective
Doctrine of Diminished Responsibility (or Doctrine of Partial Responsibility)
Criminal Responsibility in Special Circumstances

20. Toxicology: Medico legal Considerations

Duties of Medical Practitioner
Poisons and the Indian Penal Code
Poisons and Relevant Acts and Rules Made There under
The Drugs and Cosmetics Act, 1940
The Drugs and Cosmetics Rules, 1945
The Drugs and Magic Remedies (Objectionable Advertisement) Act, 1954
The Drugs (Control) Act, 1950

The Narcotic Drugs and Psychoactive Substances Act, 1985Collection
Preservatives Body Fluids
Non-Detection of PoisonAnalytical Toxicology
The Employee's Compensation Act, 1923

21. All Toxins

Syllabus for Paper II- Subject Speciality

Obstetrics and Gynaecology

Max Marks : 70

Basic and Applied Sciences

1. Structure and function of the genome: • Chromosomes • Gene structure and function • Molecular biology • Epigenetics • Mitochondrial DNA • The 'post-genomic' era • The molecular basis of inherited disease – DNA mutations

2. Clinical genetics • Chromosome abnormalities: Aneuploidy, Sex chromosome abnormalities • Single gene disorders, Autosomal dominant diseases, Autosomal recessive diseases, Sex-linked inheritance • Mitochondrial inheritance and Multifactorial inheritance • Genomic imprinting • Genetic testing and interpretation of a genetic result Chromosome analysis • Molecular cytogenetics: FISH and Mutation testing

3. Embryology • Oogenesis, spermatogenesis and organogenesis • Early embryogenesis: fertilization, transportation and implantation • Early development of the embryo • Organogenesis • Development of the genital organs • Development of the placenta and placental bed • Development of membranes and formation of amniotic fluid

4. Fetal and placental physiology • Fetal growth • Fetal circulation, Renal function and amniotic fluid dynamics • Amniotic fluid • Fetal lung and brain development • The placenta • Fetal origins of adult disease

5. Physiological changes that affect drug metabolism in pregnancy • The placental barrier • Some commonly used drugs & teratogenesis

6. Clinical research methodology • The clinical research process • Consent, information • Review of the literature • Common statistical terms used in clinical trials • References

Obstetrics and Neonatology

1. Prenatal Care • Pre conceptional counselling and Prenatal Care • Nutrition during Pregnancy • Drugs and Environmental Agents in Pregnancy and Lactation: Teratology, Epidemiology • Obstetric Ultrasound: Imaging, Dating, Growth, and Anomaly • Genetic Screening and Prenatal Genetic Diagnosis • Ante partum Fetal Evaluation

2. Identification and management of early pregnancy complications like • Abortion • Recurrent Pregnancy loss • Cervical Incompetence • Ectopic Pregnancy • Gestational Trophoblastic Disease • Hyperemesis Gravidarum

3. Identification and management of Obstetrical Complications • Hypertensive Disorders • Obstetrical Hemorrhage • Preterm birth • Post term pregnancy • Fetal growth restriction • Multiple Pregnancy • Anemia • Rh incompatibility • Hydramnios and Oligohydramnios • Intrauterine death • Pregnancy with previous caesarean delivery • Bad obstetric history and other miscellaneous conditions
4. Identification and management of medical and surgical complications • Cardiovascular Diseases • Pulmonary Disorders • Diabetes Mellitus • Thromboembolic Disorders • Renal and Urinary Tract Disorders • Gastrointestinal Disorders • Hepatic, Biliary and Pancreatic Disorders • Hematological disorders • Endocrine Disorders • Connective Tissue disorders • Obesity • Neurological Disorders • Dermatological Disorders • Neoplastic disorders • Acute abdomen (surgical emergencies – appendicitis and GI emergencies).
5. Evaluation of fetal and maternal health in complicated pregnancy by making use of diagnostic modalities including modern ones (USG, Doppler, Electronic monitors) and plan for safe delivery for mother and fetus. Identifying fetus at risk and its management.
6. Infections in pregnancy (bacterial, viral, fungal, protozoal) Malaria, toxoplasmosis • Viral – rubella, CMV, herpes, HIV, hepatic viral infections • Mother to fetal transmission of infection
7. Gynecological disorders associated with pregnancy – • Congenital genital tract developmental anomalies • Gynecology pathologies – fibroid uterus, cancer cervix, genital prolapsed
8. Intrapartum Normal Labor • Normal labor and delivery • Intrapartum fetal monitoring • Induction of labor • Obstetric Analgesia and Anesthesia Abnormal Labor • Abnormal uterine action in labor • Abnormal labor patterns, prolonged labor, obstructed labor, Dystocia • Contracted pelvis • Malposition and malpresentations • Abnormalities of placenta, cord, amniotic fluid and membranes • Complications of the third stage of labor • Injuries to birth canal
9. Postpartum • Identification and management of genital tract trauma – perineal tear, cervical / vaginal tear, episiotomy complications, rupture uterus. • Management of critically ill woman. • Postpartum shock, sepsis and psychosis. • Postpartum contraception. • Breast feeding practice; counseling and importance of breast-feeding. Problems in breast-feeding and their management, baby friendly practices. • Normal and abnormal puerperium – sepsis, thrombophlebitis, mastitis, psychosis • Hematological problems in obstetrics including coagulation disorders. Use of blood and blood components / products.
10. Operative obstetrics • Early Pregnancy Operations: Suction and evacuation, Manual vacuum aspiration • Obstetrics Forceps and Ventouse • Episiotomy • Cesarean Delivery • Versions • Hysterotomy
11. Miscellaneous and current topics • Audit , medico legal aspects, PC PNDT act, ethics , communication, Counseling, Skilled Training and Bio Medical waste management in Obstetrics • Safe Motherhood, Epidemiology of Obstetrics, Maternal and Perinatal Mortality and Morbidity , Vital Statistics and Reproductive Morbidity and Health Programme in Obstetrics • Imaging in obstetrics • Obstetric Instruments, Specimens, Drugs , spots and Laboratory tests

12. Newborn • Care of newborn: Normal and high risk new born (including NICU care). • Examination of New born • Asphyxia and neonatal resuscitation. • Neonatal sepsis – prevention, detection and management. • Neonatal hyper-bilirubinemia – investigation and management. • Birth trauma – detection and management. • Detection and management of fetal / neonatal malformation. • Management of common neonatal problems.

Gynecology and Family welfare

1. Epidemiology and enteropathogenesis of gynecological disorders.
2. Clinical anatomy of the pelvis and reproductive tract
3. Diagnostic modalities and management of common benign and malignant gynecological diseases • Fibroid uterus • Endometriosis and adenomyosis • Abnormal Uterine Bleeding • Endometrial hyperplasia • Genital prolapse (uterine and vaginal) • Cervical erosion, cervicitis, cervical polyps, cervical neoplasia • Vaginal cysts, vaginal infections, vaginal neoplasia (VIN) • Benign ovarian pathologies • Malignant genital neoplasia: ovary, fallopian tubes, uterus, cervix, vagina, vulva, gestational trophoblastic diseases • Diseases of the Breast
4. Diagnosis and surgical management of clinical conditions related to congenital malformations of genital tract
5. Intersex, ambiguous sex and chromosomal abnormalities.
6. Health of Adolescent Girls • Recognize importance of good health of adolescent. • Identification and management of health problems of adolescents. • Understanding and planning and intervention program of social, educational and health needs of adolescent girls. • Education regarding rights and confidentiality of women's health, specifically related to reproductive function, sexuality, contraception and safe abortion, sexual assault.
7. Infertility – Evaluation and management • Methods of ovulation induction • Tubal (micro) surgery • Management of immunological factors of infertility • Male infertility • Obesity and other infertility problems • Advanced Assisted Reproductive Techniques (ART)
8. Reproductive tract infections: • HIV infections in pregnancy, its effects and management. • Sexually Transmitted Diseases • Genital tuberculosis • Other infections
9. Principles of radiotherapy and chemotherapy in gynecological malignancies
10. Diagnosis and management of endocrinal abnormalities such as: • Menstrual abnormalities • Endometriosis • Abnormal uterine bleeding • Polycystic ovarian disease, • Hyperprolactinemia • Amenorrhea (primary / secondary) • Hyperandrogenism • Thyroid, pituitary and adrenal disorders.
11. Urological problems in gynecology – Diagnosis and management • Urinary tract infection • Urogenital injury and fistulae • Urinary Incontinence • Other urological problems

12. Menopause: management (HRT) and prevention of its complications

13. Endoscopy: Laparoscopy, hysteroscopy

14. Diagnostic and simple therapeutic procedure • Pap Smear • Wet smear examination • Endometrial Biopsy • Endometrial Aspiration • Dilatation and Curettage/Fractional Curettage / Polypectomy • Cervical Biopsy • Cryocauterisation / Electrocautery of Cervix • Hysterosalpingography • Colposcopy • Basic ultrasound / TVS • Vulval Biopsy • Intra Uterine Contraception Device Insertion / removal

15. Operative Gynecology- • Abdominal incisions, suture material, instruments and knotting • Abdominal and vaginal hysterectomy • Surgical procedures for genital prolapse, fibromyoma, endometriosis, ovarian adnexal, uterine, cervical, vaginal and vulval pathologies. • Surgical treatment for urinary and other fistulae, urinary incontinence • Diagnostic and Operative endoscopy

16. Family Welfare and Demography • Demography and Population dynamics • Statistics regarding maternal mortality/morbidity, perinatal mortality / morbidity, birth rate, fertility rate. • National Health Policies and Programs, in relation to population and family welfare safe childbirth. • Knowledge of contraceptive techniques both female & male, including recent developments. • Medical termination of pregnancy: act, its implementation, providing safe and adequate services.

Syllabus for Paper II- Subject Speciality

Pediatrics

Max Marks : 70

- Growth and Development
- Behavioural and developmental disorders
- Adolescent health and development
- Fluid and electrolyte disturbances
- Nutrition
- Micro-nutrient in health and disease
- New born infants
- Immunisation and immune deficiency
- Infections and infestations
- Diseases of gastro intestinal system and Liver
- Haematological disorders
- Otorhinolaryngology
- Disorders of Respiratory system
- Disorders of Cardio vascular system
- Disorders of Kidney and urinary tract
- Endocrine and metabolic disorders

- Diseases of central nervous system
- Neuro-muscular disorders
- Childhood malignancies
- Rheumatological disorders
- Genetic disorders
- Inborn errors of metabolism
- Ophthalmic disorders
- Skin disorders
- Poisoning, Injuries and accidents
- Paediatric critical care
- Important medical procedures
- Rational drug therapy
- IMNCI
- Rights of children



HALF YEARLY PROGRESS REPORT

- 1. Name of the Candidate:**
- 2. Ph.D. Registration No:**
- 3. Date of Registration:**
- 4. Name of the Research Guide:**
- 5. Name of the Co-Guide**
- 6. Designation and Affiliation of the Co-Guide:**
- 7. Department to which candidate belongs:**
- 8. Title of Research Topic:**
- 9. Serial no. of the Present Progress Report being submitted:**
- 10. Duration of the course corresponding to the present Progress Report:**
- 11. Summary of previous Progress Report:**
- 12. Institutional Ethical Clearance certificate:**
- 13. Guidelines for submission of half yearly progress report by the PhD students:**
 - a. Review of Literature**
 - b. Research Methodology – Explain the methods employed/standardization/ progress made/New techniques developed for the present research work.**
 - c. Details of the work in Progress:**
 - d. New data Results obtained during your recent studies:**
 - e. Discussion on the findings of your study:**

f. Conclusions:

g. References:

14. Attendance Certificate for the Period [No. of Days]:

Signature of the Candidate

Date:

Signature of the Guide

Date:

Signature of the Co-Guide

Date:

Signature of the Dean

Date: