

SCHOOL OF DENTAL SCIENCES, SHARDA UNIVERSITY

Syllabus for Ph.D. (Dental Sciences) Entrance Examination

I. ORAL PATHOLOGY

1. A bird's eye view of the different pathological processes involving the oral cavity & oral cavity involvement in systemic diseases to be brought out.
2. Developmental disturbances of teeth, jaws and soft tissues of oral & paraoral region
3. Dental Caries : Etiopathogenesis, microbiology, clinical features, diagnosis, histopathology, immunology, prevention of dental caries & its sequelae.
4. Pulp & Periapical Pathology & Osteomyelitis.
5. Periodontal Diseases :
6. Microbial infections of oral soft tissues
7. Common non-inflammatory diseases involving the jaws
8. Diseases of TM Joint
9. Cysts of the Oral & Paraoral region
10. Tumours of the Oral Cavity
11. Overview of forensic medicine and toxicology
12. Radiation effects of oral cavity, summary of Physical & Chemical injuries including allergic reactions of the oral cavity.
13. Healing of Oral wounds & complications - Dry socket.
14. Non neoplastic Salivary Gland
15. Systemic Diseases involving Oral cavity
16. Mucocutaneous Lesions
17. Diseases of the Nerves
18. Pigmentation of Oral & Paraoral region & Discolouration of teeth : causes & clinical manifestations.
19. Diseases of Maxillary Sinus
20. Principles of Basic Forensic Odontology (Pre-clinical Forensic Odontology)
21. Determination of sex & blood groups from buccal mucosa / saliva.

FORENSIC ODONTOLOGY

1. Introduction to forensic dentistry
2. Overview of forensic medicine and toxicology
3. Dental identification
4. Maintaining dental records
5. Age estimation
6. Sex differentiation
7. Ethnic variations ('racial' differences) in tooth morphology
8. Bite mark procedures
9. Dental DNA methods
10. Jurisprudence and ethics

II. CONSERVATIVE DENTISTRY & ENDODONTICS

1. Nomenclature Of Dentition
2. Principles Of Cavity Preparation

3. Dental Caries
4. Treatment Planning For Operative Dentistry
5. Gnathological Concepts Of Restoration
6. Aramamentarium For Cavity Preparation
7. Control of Operating Filed
8. Amalgam Restoration
9. Pulp Protection
10. Anterior Restorations
11. Direct Filling Gold Restorations
12. Preventive Measures In Restorative Practice
13. Temporisation or Interim Restoration.
14. Pin Amalgam Restoration Indication Contra Indication
15. Management Of Deep Carious Lesions Indirect And Direct Pulp Capping.
16. Non Carious Destruction's Tooth Structures Diagnosis and Clinical Management
17. Hyper Sensitive Dentine And Its Management.
18. Cast Restorations
19. Die Materials And Preparation Of Dies.
20. Gingival Tissue Management For Cast Restoration And Impression Procedures
21. Recent Cavity Modification Amalgam Restoration.
22. Differences between Amalgam And Inlay Cavity preparation
23. Control Of Pain During Operative Procedures.
24. Treatment Planning For Operative Dentistry Detailed Clinical Examination Radiographic Examination
25. Vitality Tests, Diagnosis And Treatment Planning And Preparation Of Case Sheet.
26. Applied Dental Materials.
27. Endodontics: introduction definition scope and future of endodontics
28. Clinical diagnostic methods
29. Emergency endodontic procedures
30. Pulpal diseases causes, types and treatment .
31. Periapical diseases: acute periapical abscess, acute periodontal abscess phoeix abscess, chronic alvèolar abscess granuloma cysts condensing osteits, external resorption.
32. Vital pulp therapy: indirect and direct pulp capping pulpotomy different types and medicaments used.
33. Apexogenesis and apexification or problems of open apex.
34. Rationale of endodontic treatment case selection indication and contraindications for root canal treatments.
35. Principles of root canal treatment mouth preparation root canal instruments, hand instruments, power driven instruments, standardisation color coding principle of using endodontic instruments. Sterilisation of root canal instruments and materials rubber dam application.
36. Anatomy of the pulp cavity: root canals apical foramen. Anomalies of pulp cavities access cavity preparation of anterior and premolar teeth.
37. Preparation of root canal space . Determination of working length, cleaning and shaping of root canals, irrigating solution chemical aids to instrumentation.
38. Disinfection of root canal space intracanal medicaments, poly antibiotic paste ross mans paste, mummifying agents. Out line of root canal treatment, bacteriological examinations, culture methods.
39. Problems during cleaning and shaping of root canal spaces. Perforation and its management. Broken instruments and its management, management of single and double curved root canals.

40. Methods of cleaning and shaping like step back crown down and conventional methods.
41. Obturation of the root canal system. Requirements of an ideal root canal filling material obturation methods using gutta percha healing after endodontic treatment. Failures in endodontics.
42. Root canal sealers. Ideal properties classification. Manipulation of root canal sealers.
43. post endodontic restoration fabrication and components of post core preparation.
44. smear layer and its importance in endodontics and conservative treatment.
45. discoloured teeth and its management. Bleaching agents, vital and non vital bleaching methods.
46. traumatised teeth classification of fractured teeth. Management of fractured tooth and root. Luxated teeth and its management.
47. endodontic surgeries indication contraindications, pre operative preparation. Pre medication surgical instruments and techniques apicectomy, retrograde filling, post operative sequale terphination hemisection, radiscetomy techniques of tooth reimplantation (both intentional and accidental) endodontic implants.
48. root resorption.
49. emergency endodontic procedures.
50. lasers in conservative endodontics (introduction only) practice management
51. professional association dentist act 1948 and its amendment 1993.
52. duties towards the govt. Like payments of professional tax, income tax.
53. financial management of practice
54. dental material and basic equipment management.
55. Ethics

III. ORAL & MAXILLOFACIAL SURGERY

1. Introduction, definition, scope, aims and objectives.
2. Diagnosis in oral surgery
3. Principles of infection control and cross-infection control with particular reference to HIV/AIDS and Hepatitis.
4. Principles of Oral Surgery
5. Exodontia
6. Impacted teeth
7. Pre-prosthetic Surgery
8. Diseases of the maxillary sinus
9. Disorders of T.M. Joint
10. Infections of the Oral cavity
11. Benign cystic lesions of the jaws -
12. Tumours of the Oral cavity
13. Fractures of the jaws
14. Salivary gland diseases -
15. Jaw deformities
16. Neurological disorders
17. Cleft Lip and Palate
18. Medical Emergencies in dental practice
19. Emergency drugs & Intra muscular I.V. Injections.
20. Oral Implantology
21. Ethics

22. LOCAL ANAESTHESIA: Introduction, concept of L.A., classification of local anaesthetic agents, ideal requirements, mode of action, types of local anaesthesia, complications.

23. GENERAL ANAESTHESIA – Concept of general anaesthesia.

IV. ORAL MEDICINE AND RADIOLOGY

SECTION (A) – DIAGNOSTIC METHODS.

- (1) Definition and importance of Diagnosis and various types of diagnosis
- (2) Method of clinical examinations.
- (3) Investigations: Biopsy and exfoliative cytology, Hematological, Microbiological and other tests and investigations necessary for diagnosis and prognosis

SECTION (B) – DIAGNOSIS, DIFFERENTIAL DIAGNOSIS

- (1) Teeth: Developmental abnormalities, causes of destruction of teeth and their sequelae and discoloration of teeth
- (2) Diseases of bone and Osteodystrophies:
- (3) Temporomandibular joint
- (4) Common cysts and Tumors:

SECTION (C): ORAL MEDICINE AND THERAPEUTICS.

- (1) Infections of oral and paraoral structures:
- (2) Important common mucosal lesions:
White lesions, Veiculo-bullous lesions, Ulcers, Pigmented lesions, Red lesions
- (3) Cervico-facial lymphadenopathy
- (4) Facial pain
- (5) Altered sensations: Cacogeusia, halitosis
- (6) Tongue in local and systemic disorders
- (7) Oral manifestations of:
 - (i) Metabolic disorders
 - (ii) Endocrine disorders
 - (iii) Nutritional deficiency
 - (iv) Blood disorders
- (8) Disease of salivary glands
- (9) Dermatological diseases with oral manifestations
- (10) Immunological diseases with oral manifestations
- (11) Allergy
- (12) Foci of oral infection and their ill effects on general health
- (13) Management of dental problems in medically compromised persons
- (14) Precancerous lesions and conditions
- (15) Nerve and muscle diseases:
- (16) Forensic odontology
- (17) Therapeutics

Part – II BEHAVIOURAL SCIENCES AND ETHICS.

Part – III ORAL RADIOLOGY

- (1) Scope of the subject and history of origin
- (2) Physics of radiation

- (3) Biological effects of radiation
- (4) Radiation safety and protection measures
- (5) Principles of image production
- (6) Radiographic techniques
- (7) Factors in production of good radiographs
- (8) Radiographic normal anatomical landmarks
- (9) Faculty radiographs and artifacts in radiographs
- (10) Interpretation of radiographs in various abnormalities of teeth, bones and other orofacial tissues
- (11) Principles of radiotherapy of oro-facial malignancies and complications of radiotherapy
- (12) Contrast radiography and basic knowledge of radioactive isotopes
- (13) Radiography in Forensic Odontology

V. ORTHODONTICS & DENTAL ORTHOPAEDICS

1. Introduction, Definition, Historical Background, Aims And Objectives Of Orthodontics And
Need For Orthodontics Care.
2. Growth And Development: In General
3. Morphologic Development Of Craniofacial Structures
4. Functional Development Of Dental Arches And Occlusion
5. Clinical Application Of Growth And Development
6. Malocclusion
7. Classification of Malocclusion
8. Normal And Abnormal Function Of Stomatognathic System
9. Etiology Of Malocclusion
10. Diagnosis And Diagnostic Aids
11. General Principles In Orthodontic Treatment Planning Of Dental And Skeletal Malocclusions
12. Anchorage In Orthodontics - Definition, Classification, Types and Stability Of Anchorage
13. Biomechanical Principles In Orthodontic Tooth Movement
14. Preventive Orthodontics
15. Interceptive Orthodontics
16. Corrective Orthodontics
17. Orthodontic Appliances: General
18. Ethics
19. REMOVABLE ORTHODONTIC APPLIANCES
20. FIXED ORTHODONTIC APPLIANCES
21. Retention And Relapse

VI. PAEDIATRIC & PREVENTIVE DENTISTRY

1. Introduction To Pedodontics & Preventive Dentistry.
2. Growth & Development:
3. Development Of Occlusion From Birth Through Adolescence.
4. Dental Anatomy And Histology:
5. Dental Radiology Related To Pedodontics.
6. Oral Surgical Procedures In Children.

7. Dental Caries:
8. Gingival & Periodontal Diseases In Children.
9. Child Psychology:
10. Behaviour Management:
11. Pediatric Operative Dentistry:
12. Pediatric Endodontics
13. Traumatic Injuries In Children:
14. Preventive & Interceptive Orthodontics:
15. Oral Habits In Children:
16. Dental Care Of Children With Special Needs:
17. Congenital Abnormalities In Children:
18. Dental Emergencies In Children & Their Management.
19. Dental Materials Used In Pediatric Dentistry.
20. Preventive Dentistry:
21. Dental Health Education & School Dental Health Programmes.
22. Fluorides
23. Case History Recording:
24. Setting Up Of Pedodontic Clinic.
25. Ethics.

VII. PUBLIC HEALTH DENTISTRY

1. Introduction to Dentistry: Definition of Dentistry, History of dentistry, Scope, aims and objectives of Dentistry.
2. Public Health
3. Research Methodology and Dental Statistics
4. Bio-Statistics
5. Practice Management
6. Dentist Act 1948 with amendment.
7. Dental Council of India and State Dental Councils Composition and responsibilities.
8. Indian Dental Association

VIII. PERIODONTOLOGY

1. Definition of Periodontology, Periodontics, Periodontia, Brief historical background, Scope of Periodontics
2. Development of periodontal tissues, micro-structural anatomy and biology of periodontal tissues in detail
3. Defensive mechanisms in the oral cavity: Role of-Epithelium, Gingival fluid, Saliva and other defensive mechanisms in the oral environment.
4. Age changes in periodontal structures and their significance in Geriatric dentistry
5. Classification of periodontal diseases
6. Gingival diseases
7. Epidemiology of periodontal diseases
8. Extension of inflammation from Gingiva
9. Osseous Surgery
10. Mucogingival surgery & periodontal plastic Surgeries
11. Splints

12. Hypersensitivity
13. Implants
14. Maintenance phase (SPT)
15. Pharmaco-therapy
16. Periodontal management of medically compromised patients
17. Inter-disciplinary care
18. Systemic effects of periodontal diseases
19. Infection control protocol
20. Sterilization and various aseptic procedures

IX. PROSTHODONTICS AND CROWN & BRIDGE

Complete Dentures

Biological consideration in jaw relation & jaw movements - craniomandibular relations.

Overdentures denture

Dental implants in complete denture

Removable Flexible Dentures

Removable partial denture.

Survey and design

Impression materials and procedures for removable partial dentures.

Fixed Partial Dentures

AESTHETIC DENTISTRY

- Bleaching of teeth
- Veneers with various materials
- Preventive and interceptive esthetics
- Ceramics
- Simple gingival contouring to enhance the appearance

ORAL IMPLANTOLOGY

1. History of implants, their design & surface characteristics and osseointegration
2. Scope of oral & maxillofacial implantology & terminologies
3. A brief introduction to various implant systems in practice
4. Bone biology, Morphology, Classification of bone and its relevance to implant treatment and bone augmentation materials.
5. Soft tissue considerations in implant dentistry
6. Diagnosis & treatment planning in implant dentistry
7. Pre surgical preparation of patient
8. Implant installation & armamentarium for the Branemark system as a role model
9. First stage surgery – Mandible – Maxilla
10. Healing period & second stage surgery
11. Management of surgical complications & failures
12. General considerations in prosthodontic reconstruction & Bio mechanics
13. Prosthodontic components of the Branemark system as a role model
14. Impression procedures & Preparation of master cast

15. Jaw relation records and construction of suprastructure with special emphasis on occlusion for osseointegrated prosthesis
16. Management of prosthodontic complications & failures
17. Recall & maintenance phase.
18. Criteria for success of osseointegrated implant supported prosthesis

X. DENTAL ANATOMY, EMBRYOLOGY, AND ORAL HISTOLOGY

I. TOOTH MORPHOLOGY

Introduction to tooth morphology
Morphology of permanent teeth
Morphology of Deciduous teeth
Occlusion

II. ORAL EMBRYOLOGY

1. Brief review of development of face, jaws, lip, palate & tongue, with applied aspects.
2. Development of teeth
3. Eruption of deciduous & Permanent teeth
4. Shedding of teeth

III. ORAL HISTOLOGY

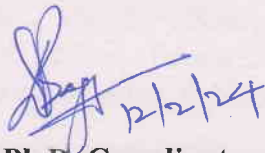
1. Detailed microscopic study of Enamel, Dentine, Cementum & Pulp tissue. Age changes & Applied aspects (Clinical and forensic significance) of histological considerations - Fluoride applications, transparent dentine, dentine hypersensitivity, reaction of pulp tissue to varying insults to exposed dentine ; Pulp calcifications & Hypercementosis.
2. Detailed microscopic study of Periodontal ligament & alveolar bone, age changes, histological changes in periodontal ligament & bone in normal & orthodontic tooth movement, applied aspects of alveolar bone resorption.
3. Detailed microscopic study of Oral Mucosa, variation in structure in relation to functional requirements, mechanisms of keratinization, clinical parts of gingiva, Dentogingival & Mucocutaneous junctions & lingual papillae. Age changes & clinical considerations.
4. Salivary Glands
5. TM Joint
6. Maxillary Sinus
7. Processing of Hard & soft tissues for microscopic study

IV. ORAL PHYSIOLOGY

Saliva
Mastication
Deglutition
Calcium, Phosphorous & fluoride metabolism
Theories of Mineralization
Review of basic anatomy of larynx & vocal cords.
Voice production, resonators, production of vowels & different consonants - Role of palate, teeth & tongue.
Effects of dental prosthesis & appliances on speech & basic speech disorders.

XI. DENTAL MATERIALS

- Structure Of Matter And Principles Of Adhesion.
- Important Physical Properties Applicable To Dental Materials
- Biological Considerations In Use Of Dental Materials.
- Gypsum & Gypsum Products.
- Impression Materials Used In Dentistry
- Synthetic Resins Used In Dentistry.
- Acrylic Resins
- Restorative Resins
- Metal And Alloys
- Direct Filling Gold
- Dental Casting Alloys
- Dental Waxes Including Inlay Casting Wax
- Dental Casting Investments.
- Soldering, Brazing And Welding
- Wrought Base Metal Alloys
- Dental Cements
- Dental Ceramics
- Abrasion & Polishing Agents
- Die And Counter Die Materials Including Electroforming And Electropolishing.
- Dental Implants : Evolution Of Dental Implants, Types And Materials.
- Mechanics Of Cutting : Burs and points.

 2/2/24

(Signature of Ph.D. Coordinator, SDS)

Dr. Dinesh Kumar Bagga
 Professor & Head, Department of
 Orthodontics & Dentofacial
 Orthopedics
 Ph.D. Coordinator, School of Dental
 Sciences, Sharda University



(Signature of Dean, SDS)

Dr. M. Siddharth
 Dean, School of Dental Sciences,
 Sharda University

