

Paper II: - Technical Subject

1. Public Health Dentistry (Community Dentistry)
 - 1.1 Introduction to Dentistry: Definition of Dentistry, History of dentistry, Scope, Aims and objectives of Dentistry.
 - 1.2 Public Health:
 - 1.2.1 Public Health: Definition & Concepts, History of public health
 - 1.2.2 Health & Disease: Concepts, Philosophy, and Characteristics
 - 1.2.3 General Epidemiology: Definition, objectives, methods
 - 1.2.4 Environmental Health: - Concepts, principles, protection, sources, purification environmental sanitation of water, sanitation and role in mass disorder
 - 1.2.5 Health Education: Concepts, principles, methods, and health education aids
 - 1.2.6 Ethics and Jurisprudence: Professional liabilities, negligence, malpractice, consents, evidence, contracts, and methods of identification in forensic dentistry.
 - 1.2.7 Nutrition in oral diseases.
 - 1.2.8 Behavioral science: Definition of sociology, anthropology and psychology and their role in dental practice and community.
 - 1.2.9 Health care delivery system.
 - 1.3 Dental Public Health:
 - 1.3.1 Definition and difference between community and clinical health.
 - 1.3.2 Epidemiology of dental diseases-dental caries, periodontal diseases, malocclusion, dental fluorosis and oral cancer.
 - 1.3.3 Survey procedures: Planning, implementation and evaluation, WHO oral health survey methods, indices for dental diseases.
 - 1.3.4 Delivery of dental care: Dental auxiliaries, operational and non-operational, incremental and comprehensive health care, school dental health.
 - 1.3.5 Preventive Dentistry: definition, levels, role of individual, community and profession, fluorides in dentistry, plaque control programs.
2. Oral Diagnosis Medicine and Radiology
 - 2.1 Principles of diagnosis
 - 2.2 Diagnosis and management of oral diseases
 - 2.3 Red and white lesions of oral cavity
 - 2.4 Pigmented lesions of oral cavity
 - 2.5 Ulcerative, vesicular and bullous lesions
 - 2.6 Benign tumors of the oral cavity
 - 2.7 Oral cancer
 - 2.8 Salivary gland diseases
 - 2.9 Infections of oral cavity
 - 2.10 Oraofacial pain and temporomandibular disorders
 - 2.11 Oral manifestation of systemic diseases
 - 2.12 Immunodeficiency diseases AIDS, Hepatitis
 - 2.13 Different syndromes with reference to oro-facial regions
 - 2.14 Modern diagnostic aids
 - 2.15 Radiological interpretation of different images of bone and soft tissue, lesions of oro-facial structure including all types of oro-facial trauma
 - 2.16 Principles of oral-medicine

- 2.17 Techniques for oral Radiology procedures.
 - 2.18 Physical and biological aspects of radiations.
3. Orthodontics and Dentofacial Orthopaedics
- 3.1 Definition, scope, objective and history (world as well as in Nepal)
 - 3.2 Craniofacial growth and development
 - 3.3 Development of dentition
 - 3.4 Occlusion and malocclusion
 - 3.5 Etiology of malocclusion
 - 3.6 Orthodontic diagnosis and treatment planning
 - 3.7 Preventive and interceptive orthodontics
 - 3.8 Orthodontic biomechanics
 - 3.9 Orthodontic techniques and materials
 - 3.10 Biological reaction to tooth movement
 - 3.11 Genetics – applied to orthodontics
 - 3.12 Different types of orthodontic appliances in detail
 - 3.13 Early Mixed dentition treatment
 - 3.14 Multidisciplinary orthodontics
 - 3.15 Adult Orthodontic treatment
 - 3.16 Orthognathic surgery
 - 3.17 Retention and relapse
 - 3.18 Cleft patients
 - 3.19 Recent development in orthodontics
 - 3.20 Iatrogenic consideration
 - 3.21 Clinical digital photography
4. Oral and Maxillo – Surgery and Anaesthesia
- 4.1 Principles of oral surgery: asepsis, painless surgery, access, control of hemorrhage during surgery, drainage and debridement, closure of wounds, post operative care.
 - 4.2 Exodontia: indications, complications, management of complications
 - 4.3 Impacted teeth: incidence, definition and etiology
 - 4.4 Pre prosthetic surgery; corrective procedure, Ridge extension and augmentation
 - 4.5 Diseases of maxillary sinus: anatomy, sinusitis, surgical approach, removal of root from sinus, oro-antral fistula
 - 4.6 Disorder of Temporomandibular Joint (TMJ): Dislocation, ankylosis, myofascial pain dysfunction syndrome, arthritis
 - 4.7 Infection of Oral cavity- introduction, dentoalveolar abscess, osteomyelitis, Ludwig's angina
 - 4.8 Cystic lesion of the jaw: definition, classification, pathogenesis, clinical features, investigation and management
 - 4.9 Tumors of the oral cavity
 - 4.10 Salivary gland diseases: infection, salivary calculi, tumors, investigation and management.
 - 4.11 Neurological disorder: Nerve injury, Trigeminal neuralgia, facial paralysis
 - 4.12 Fracture of the jaws: Introduction, applied anatomy, types of fractures and management of all of the facial bone fractures
 - 4.13 Developmental deformities: Deformities of jaws, Cleft lip and palate
 - 4.14 Emergency in dental practice

- 4.15 Local Anesthesia: Introduction, classification, ideal requirement, types, complication, Anesthesia of mandible, Maxilla
 - 4.16 General Anesthesia (GA): History, indication, pre anesthetic evaluation, pre medication, types of GA, stages of GA, complication, Post anesthetic care.
 - 4.17 Maxillo- facial trauma- (Road Traffic Accident) RTA
5. General and oral pathology
- 5.1 Developmental disorders of teeth, oral cavity and maxillo-facial areas
 - 5.2 Common diseases of teeth and periodontium
 - 5.3 Common cystic lesions of jaws – odontogenic and non-odontogenic
 - 5.4 Common benign and malignant tumours of oral maxillo-facial area
 - 5.5 Oral pre-malignant lesions
 - 5.6 Common diseases of salivary glands
 - 5.7 Tumors of the salivary glands
 - 5.8 Regressive alterations of the teeth
 - 5.9 Tempomandibular joint disorders
 - 5.10 Hemorrhagic diseases related to oral cavity
 - 5.11 Neurological disorders of face and oral cavity
 - 5.12 Oral manifestations of systemic diseases
 - 5.13 Diseases of microbial origin
 - 5.14 Injuries and repair
 - 5.15 Disturbances of metabolism
 - 5.16 Diseases of specific systems
6. Dental Material
- 6.1 Structure of matter. Adhesion, cohesion, interfacial surface tension
 - 6.2 Physical properties of dental materials
 - 6.3 Biological considerations in use of dental materials
 - 6.4 Various types of impression materials used in dentistry:
 - 6.4.1 Impression Compound
 - 6.4.2 Zinc Oxide Eugenol
 - 6.4.3 Irreversible & Reversible Hydrocolloid
 - 6.4.4 Elastomeric Impression Materials
 - 6.5 Denture base resins. Technical considerations, miscellaneous resins, and techniques
 - 6.6 Chemistry of the synthetic resins:
 - 6.6.1 Repair & relining materials
 - 6.6.2 Tissue conditioners
 - 6.6.3 Dental chair-side soft liners
 - 6.7 Restorative resins:
 - 6.7.1 Acid etch
 - 6.7.2 Bonding agent (conventional vs. new generation)
 - 6.7.3 Unfilled & filled resins
 - 6.7.4 Light cure
 - 6.8 Tarnish and corrosion
 - 6.9 Dental amalgam
 - 6.10 Direct filling gold and its manipulation
 - 6.11 (a) Eutectic & peritectic alloys
(b) Dental alloys
(c) Dental casting alloys:

- 6.11.1 Historical perspective
 - 6.11.2 Classification
 - 6.11.3 Physical & mechanical properties
 - 6.11.4 Clinical performance
 - 6.11.5 Functional characteristics
 - 6.11.6 Biological considerations
 - 6.12 Waxes: various types of waxes used in dentistry
 - 6.13 Dental cements for luting and restorations, Pulp protective agents (Cavity varnishes, liners, and bases)
 - 6.14 Welding, solders, soldering. Brazing filler metals, brazing
 - 6.15 Dental ceramics
 - 6.16 Abrasive agents and polishing. Dentifrices
 - 6.17 Dental Implant materials
 - 6.17.1 History
 - 6.17.2 Types
 - 6.17.3 Materials used
 - 6.17.4 Biological considerations
 - 6.18 Recent advances in dental materials
 - 6.19 Standardization - FDC/ ADA
7. Prosthodontics
- 7.1 Removable Denture Prosthodontics
 - 7.1.1 Anatomy and physiology of the edentulous mouth
 - 7.1.2 Nutrition and the denture-bearing mucosa
 - 7.1.3 Reduction of residual ridges
 - 7.1.4 Various medical conditions that effect the fabrication of complete denture prostheses and pre-prosthetic surgery
 - 7.1.5 Philosophies of edentulous impression making
 - 7.1.6 Principles of edentulous impression making
 - 7.1.7 Preparation of preliminary cast & custom trays
 - 7.1.8 Border molding & final impressions
 - 7.1.9 Preparation of master casts, temporary denture bases & wax occlusion rims
 - 7.1.10 Methods of jaw relations registration & teeth selection
 - 7.1.11 Articulators in complete denture construction
 - 7.1.12 Principles of teeth arrangement & occlusion; try-in procedures
 - 7.1.13 Correction of occlusal discrepancies, denture insertion & adjustments, follow-up visits, sequelae & management of ill-fitting dentures, rebasing and relining of dentures
 - 7.1.14 Principles of fabrication and management of:
 - 7.1.14.1 Single complete denture
 - 7.1.14.2 Overdentures
 - 7.1.15.3 Immediate dentures
 - 7.1.15 Classification & rules for partially edentulous arches
 - 7.1.16 Removable partial dentures and interdisciplinary implications
 - 7.1.17 Recent advances in maxillofacial prostheses
 - 7.1.18 Implant dentures
 - 7.2 Crown and Bridge
 - 7.2.1 Fundamentals of occlusion

- 7.2.2 Principles, treatment planning and preparation of teeth for full/partial veneer crowns & replacement of missing teeth
- 7.2.3 Impression materials, procedures for fixed partial dentures
- 7.2.4 Provisional restorations
- 7.2.5 Preparation of extensively damaged & periodontically weakened teeth
- 7.2.6 Preparation for intracoronal restorations
- 7.2.7 Fluid control and soft tissues management
- 7.2.8 Construction of dies and working casts
- 7.2.9 Wax patterns- direct vs. indirect techniques, investing and casting
- 7.2.10 Metal ceramic restorations
- 7.2.11 All-ceramic restorations
- 7.2.12 Resin-bonded fixed partial dentures
- 7.3 Implant
 - 7.3.1 Diagnosis and treatment plans:
 - 7.3.1.1 Rationale for implants
 - 7.3.1.2 Implant success and failure: clinical assessment
 - 7.3.1.3 Prosthetic options in implant dentistry
 - 7.3.1.4 Medical & diagnostic evaluation
 - 7.3.1.5 Dental evaluation: factors of force
 - 7.3.1.6 Natural abutment evaluation
 - 7.3.1.7 Prosthodontic considerations
 - 7.3.1.8 Treatment planning for edentulous maxillary posterior region
 - 7.3.1.9 Treatment options for mandibular implant overdenture: an organised approach
 - 7.3.2 Fundamental Sciences
 - 7.3.2.1 Clinical biomechanics, tissue response
 - 7.3.2.2 Biomaterials for dental implants
 - 7.3.3 Implant treatment
 - 7.3.3.1 Edentulous alveolar ridge maintenance and augmentation and restorative grafting
 - 7.3.3.2 Root/plate form implants
 - 7.3.3.3 Density of bone: effect on treatment, planning, surgical approach, and healing
 - 7.3.3.4 Autogenous bone grafts for endosteal implants: indications, success, and failures
 - 7.3.3.5 Maxillary sinus lift
 - 7.3.3.6 Progressive bone loading
 - 7.3.3.7 Maintenance of dental implants
 - 7.3.3.8 Pre-prosthetic surgical considerations for implants
 - 7.3.3.9 Recent advances in dental implants
- 8. Periodontics
 - 8.1 Normal periodontium
 - 8.2 Classification and epidemiology of periodontal diseases
 - 8.3 Etiology of periodontal diseases
 - 8.4 Relationship between periodontal disease and systemic health
 - 8.5 Periodontal pathology
 - 8.6 Treatment of periodontal disease
 - 8.7 Interdisciplinary periodontics
 - 8.8 Oral implantology

- 8.9 Periodontal maintenance
 - 8.10 Ethical, legal and practical issues in the management of periodontal patients
 - 8.11 Management of dentinal hypersensitivity
9. Conservative and Endodontics
- 9.1 Conservative Dentistry
 - 9.1.1 History
 - 9.1.2 Advanced diagnostic aids in Conservative Dentistry and Endodontics
 - 9.1.3 Basic knowledge and knowledge of recent advances of restorative materials, procedures, cutting tools, drugs and chemicals used in Conservative Dentistry
 - 9.1.4 Various methods of sterilization including newer advances
 - 9.1.5 Principles of tooth preparation for direct and indirect restorations
 - 9.1.6 Principles of restoration of badly broken down teeth and endodontically treated teeth
 - 9.1.7 Carious and non carious lesions of teeth, advanced knowledge of etiology, diagnosis, treatment and prevention
 - 9.1.8 Management of dentin hypersensitivity
 - 9.1.9 Diagnosis and management of discolored teeth
 - 9.1.10 Considerations during restorations
 - 9.1.10.1 Isolation
 - 9.1.10.2 Gingival tissue management
 - 9.1.10.3 Occlusion
 - 9.1.10.4 Pain control
 - 9.1.11 Managing elderly patients requiring restorative and endodontic services
 - 9.1.12 Management of medically compromised patients
 - 9.1.13 Principles and practice of esthetic dentistry
 - 9.1.14 Minimal invasive dentistry
 - 9.2 Endodontics
 - 9.2.1 Anatomical & Histological structure of pulp & periradicular tissues
 - 9.2.2 Diseases of pulp and periradicular tissues – advanced knowledge of etiology, diagnosis, treatment and prognosis
 - 9.2.3 Diagnosis in Endodontics
 - 9.2.4 Advanced knowledge of root canal instruments, their sterilization and use
 - 9.2.5 Advanced knowledge of equipments, materials and drugs used in endodontics
 - 9.2.6 Basic and advanced knowledge of procedures for root canal therapy
 - 9.2.7 Diagnosis and management of Endodontic emergencies
 - 9.2.8 Management of traumatic injuries, root resorptions, perforations, fractured instruments in the canal, ledges and calcified orifices and canals.
 - 9.2.9 Endodontic surgeries
 - 9.2.10 Interdisciplinary Endodontics
 - 9.2.11 Geriatric Endodontics
 - 9.2.12 Radiology (including LASER) as related to conservative Dentistry and endodontics
 - 9.2.13 Causes of endodontic failures and retreatment

9.2.14 Vital pulp therapy

9.2.15 Recent advances in Conservative Dentistry and Endodontics

10. Pedodontics & Preventive Dentistry

10.1 Introduction to pedodontics & preventive dentistry (Definition, Scope, Objectives and Importance).

10.2 Growth & development

10.2.1 Importance of study of growth and development in Pedodontics.

10.2.2 Prenatal and Postnatal factors in growth & development.

10.2.3 Theories of growth & development.

10.2.4 Development of maxilla and mandible and related age changes.

10.3 Development of Occlusion from Birth through Adolescence (Study of variations and abnormalities).

10.4 Dental anatomy and histology:

10.4.1 Development of teeth and associated structures.

10.4.2 Eruption and shedding of teeth.

10.4.3 Teething disorders and their management.

10.4.4 Chronology of eruption of teeth.

10.4.5 Differences between deciduous and permanent teeth.

10.4.6 Development of dentition from birth to adolescence.

10.4.7 Importance of first permanent molar.

10.5 Dental radiology related to pedodontics.

10.6 Oral surgical procedures in children.

10.6.1 Indications and contraindications of extractions of primary and permanent teeth in children.

10.6.3 Knowledge of Local and General Anesthesia.

10.6.4 Minor surgical procedures in children.

10.7 Dental Caries:

10.7.1 History, definition, aetiology & pathogenesis.

10.7.2 Caries pattern in primary, young permanent and permanent teeth in children.

10.7.3 Rampant caries, early childhood caries and extensive caries: definition, aetiology, pathogenesis and clinical features

10.7.4 Complications & Management

10.8 Gingival & Periodontal Diseases in Children

10.8.1 Normal gingiva & periodontium in children.

10.8.2 Definition, aetiology & Pathogenesis.

10.8.3 Prevention, Management of gingival & periodontal diseases.

10.9 Child Psychology:

10.9.1 Psychological development of children with age.

10.9.2 Principles of psychological growth & development while managing child patient.

10.9.3 Dental fear and its management.

10.9.4 Factors affecting child's reaction to dental treatment.

10.10 Behaviour Management:

10.10.1 Types of behaviour encountered in the dental clinic.

10.10.2 Non-pharmacological & pharmacological methods.

10.11 Pediatric Operative Dentistry:

10.11.1 Principles of Pediatric Operative Dentistry.

- 10.11.2 Modifications required for cavity preparation in primary and young permanent teeth.
- 10.11.3 Various Isolation Techniques.
- 10.11.4 Restorations of decayed primary, young permanent and permanent teeth in children using various restorative materials including Glass Ionomer, Composites & Silver Amalgam, Stainless steel, Polycarbonate & Resin Crowns.
- 10.12 Traumatic Injuries in Children:
- 10.13 Oral habits in children:
- 10.14 Dental Care of Children with Special Needs:
 - 10.14.1 Definition, Aetiology, Classification, Behavioural and Clinical features & Management of children with; physically challenged, mentally and medically compromising conditions, and genetic disorders.
- 10.15 Congenital Abnormalities in Children:
- 10.16 Dental Emergencies in Children & their Management.
- 10.17 Preventive Dentistry:
- 10.18 Dental Health Education & School Dental Health Programmes.
- 10.19 Fluorides:
 - 10.19.1 Historical background.
 - 10.19.2 Systemic & Topical fluorides.
 - 10.19.3 Mechanism of action.
 - 10.19.4 Toxicity & Management.
 - 10.19.5 Defluoridation techniques.
- 10.20 Case History Recording:
- 10.21 Setting up of Pedodontic Clinic.
- 10.22 Sports Dentistry

Sample Questions

1. During your visit to Maternity Hospital at Thapathali, one of the interns' asked you that at birth most children show marked convex profile. What could be the reason for the same?
2. A thief selectively damages the facial nerve of a man by a knife. Salivation from which of the glands would be impaired?
3. 68 years old healthy male patient complaints you with loss of most of his teeth 3 months back. On examination, you found out upper arch with Kennedy's Class I and remaining anterior worn out dentition. What would be the best treatment plan for such patient?
4. 30 years old businesswoman complaints of discolored upper right central incisor. She gave a history of root canal treatment done on that tooth 5 years back. What would be your treatment plan?
5. Enlist the various biological factors responsible for the maintenance of oral and dental health. Explain in detail the role of saliva in oral cavity.
6. Enumerate the Hemorrhagic disorders how would you manage a child suffering from purpura coming to your clinic for an extraction of a tooth, discuss in detail.