

**Syllabus for the Preliminary Test for the recruitment of  
Associate Professor- Orthodontics and Dentofacial Orthopaedics  
Class-I, (Dental) (Advt. No.63/2024-25)**

Marks-200

Questions-200

Medium-English

-

**1. APPLIED ANATOMY**

Prenatal and Postnatal growth of head, Bone growth, Assessment of growth and development, Muscles of mastication, Development of dentition and occlusion, Assessment of skeletal age.

**2. PHYSIOLOGY :**

Endocrinology and its disorders, Calcium and its metabolism, Nutrition-metabolism and their disorders, Muscle physiology, Craniofacial Biology, Bleeding disorders in orthodontics: Hemophilia.

**3. DENTAL MATERIALS :**

- **Gypsum products :** dental plaster, dental stone and their properties, setting reaction etc.
- **Impression materials :** impression materials in general and particularly of alginate impression material.
- **Acrylics :** chemistry, composition physical properties.
- **Composites :** Composition types, properties, setting reaction.
- **Banding and bonding cements :**
- **Wrought metal alloys :** Deformation, Strain hardening, annealing, recovery, recrystallization, grain growth, properties of metal alloys.
- **Orthodontic arch wires :**
- **Elastics :** Latex and non-latex elastics.
- Applied physics, Bioengineering and metallurgy.
- Specification and test methods used for materials used on Orthodontics
- **Survey of all contemporary literature and Recent advances in above – mentioned materials.**

#### **4. GENETICS**

Cell structure, DNA, RNA, protein synthesis, cell division, Chromosomal abnormalities, Principles of orofacial genetics, Genetics in malocclusion, Molecular basis of genetics, Studies related to malocclusion, Recent advances in genetics related to malocclusion, Genetic counseling, Bioethics and relationship to Orthodontic management of patients.

#### **5. PHYSICAL ANTHROPOLOGY AND PATHOLOGY :**

Evolutionary development of dentition, Evolutionary development of jaws, Inflammation, Necrosis.

#### **6. APPLIED PHARMACOLOGY**

#### **7. ORTHODONTIC HISTORY**

Historical perspective, Evolution of orthodontic appliances, Pencil sketch history of Orthodontic peers, History of Orthodontics in India.

#### **8. CONCEPTS OF OCCLUSION AND ESTHETICS :**

Structure and function of all anatomic components of occlusion, Mechanics of articulation, Recording of masticatory function, Diagnosis of occlusal dysfunction, Relationship of TMJ anatomy and pathology and related neuromuscular physiology.

#### **9. ETIOLOGY AND CLASSIFICATION OF MALOCCLUSION :**

A comprehensive review of the local and systemic factors in the causation of malocclusion, Various classifications of malocclusion.

#### **10. DENTOFACIAL ANOMALIES :**

Anatomical, physiological and pathological characteristics of major groups of developmental defects of the orofacial structures.

#### **11. DIAGNOSTIC PROCEDURES AND TREATMENT PLANNING IN ORTHODONTICS :**

Emphasis on the process of data gathering, synthesis and translating it into a treatment plan, Problem cases – analysis of cases and its management, Adult cases, handicapped and mentally retarded cases and their special problems, Critique of treated cases.

**Cephalometrics**: Instrumentation, Image processing, Tracing and analysis of

errors and applications, Radiation hazards, Advanced Cephalometrics techniques including digital Cephalometrics, Comprehensive review of literature, Video imaging principles and application.

## **12. PRACTICE MANAGEMENT IN ORTHODONTICS**

Economics and dynamics of solo and group practices, Personal management, Material management, Public relations, Professional relationship, Dental ethics and jurisprudence, Office sterilization procedures, Community based Orthodontics.

## **13. CLINICAL ORTHODONTICS**

**Myofunctional Orthodontics** : Basic principles, Contemporary appliances – design, manipulation and management, Case selection and evaluation of the treatment results, Review of the current literature.

**Dentofacial Orthopedics** : Principles, Biomechanics, Appliance design and manipulation, Review of contemporary literature.

**Cleft lip and palate rehabilitation** : Diagnosis and treatment planning, Mechanotherapy, Special growth problems of cleft cases, Speech physiology, pathology and elements of therapy as applied to orthodontics, Team rehabilitative procedures.

**Biology of tooth movement** : Principles of tooth movement-Review, Review of contemporary literature, Applied histophysiology of bone, periodontal ligament, Molecular and ultra-cellular consideration in tooth movement.

**Orthodontic / Orthographic surgery** : Orthodontics role in conjoint diagnosis and treatment planning, Pre and post-surgical Orthodontics, Participation in actual clinical cases, progress evaluation and post retention study, Review of current literature.

**Ortho / Perio / Prostho inter relationship** : Principles of interdisciplinary patient treatment. Common problems and their management.

**Basic principles of Mechnotherapy includes removable and fixed appliances** : Design, Construction, Fabrication, Management, Review of current literature on treatment methods and results.

**Applied preventive aspects in Orthodontics** : Caries and periodontal disease prevention, Oral hygiene measures, Clinical procedures.

**Interceptive Orthodontics** : Principles, Growth guidance, Diagnosis and treatment planning, Therapy emphasis on : Dento- facial problems, Tooth material discrepancies, Minor surgery for Orthodontics.

**Retention and relapse** : Mechanotherapy – special reference to stability of results with various procedures, Post retention analysis, Review of contemporary literature.

**14. RESEARCH METHODOLOGY AND BIOSTATISTICS :**

**15. Revised Dentists (Code of Ethics) Regulations, 2014.**

**16. Current Trends and Recent Advancements in the above fields.**