

Syllabus for the post of

**Tutor in Orthodontics and Dentofacial Orthopaedics Class-II (Dental)
(Advt. No. 11/2021-22)**

Marks – 200

Questions – 200

Medium - English

1. Human Anatomy, Embryology, Histology & Medical Genetics

Introduction to: Anatomical terms, Skin, superficial fascia & deep fascia, Cardiovascular system, portal system collateral circulation and arteries, Lymphatic system, regional lymph nodes, Osteology - Including ossification & growth of bones, Myology – Including types of muscle tissue & innervation, Syndesmology – Including classification of Joints, Nervous system.

Head & Neck

Thorax: Demonstration on a dissected specimen of: Thoracic wall, Heart chambers, Coronary arteries, Pericardium, Lungs – surfaces; pleural cavity, Diaphragm

Abdomen: Demonstration on a dissected specimen of: Peritoneal cavity, Organs in the abdominal & pelvic cavity.

Clinical Procedures, Embryology, Histology, Medical Genetics

2. Human Physiology:

General Physiology, Blood, Muscle and Nerve, Digestive system, Excretory system, Body temperature and Functions of skin, Endocrinology, Reproduction, Cardiovascular system, Respiratory system, Central nervous system, Special senses.

3. Biochemistry and Nutrition:

Chemistry of Bioorganic molecules, Macronutrients and digestion, Micronutrients, Energy Metabolism, Special aspects of Metabolism, Biochemical genetics and Protein synthesis, Enzyme and Metabolic regulation, Structural Components and Blood proteins, Medical Biochemistry.

4. Dental Anatomy, Embryology and Oral histology:

Tooth Morphology, Oral embryology, Oral Histology, Oral Physiology

5. General Pathology

Introduction to Pathology, Etiology and Pathogenesis of Disease, Degenerations, Cell death & Necrosis, Inflammation, Healing, Tuberculosis, Syphilis, Typhoid, Thrombosis, Embolism, Ischaemia and Infraction, Derangements of body fluids,

Disorders of circulation, Nutritional Disorders, Immunological mechanisms in disease, AIDS and Hepatitis, Hypertension, Diabetes Mellitus, Adaptive disorders of growth, General Aspects of neoplasia

6. Microbiology:

History, Introduction, Scope, Aims and Objectives, Morphology, Physiology of bacteria, Detail account of Sterilization and Disinfection, Brief account of Culture media and Culture techniques, Basic knowledge of selection, collection, transport, processing of clinical, Specimen and identification of bacteria, Bacterial Genetics and Drug Resistance in bacteria, Immunology, Systematic bacteriology, Virology, Mycology, Parasitology.

7. General and Dental Pharmacology and Therapeutics:

General Pharmacology, Anti-septic's, astringents, obtundents, mummifying agents, bleaching agents, styptics, disclosing agents, dentifrices, mouth washes, caries and fluorides, Pharmacotherapy of common oral conditions in dentistry.

8. Oral Pathology and Oral Microbiology:

Introduction, Developmental disturbances of teeth, jaws and soft tissues of oral & perioral region, Dental Caries, Pulp & Periapical Pathology & Osteomyelitis, Periodontal Diseases, Microbial infections of oral soft tissues, Common non-inflammatory diseases, involving the jaws, Diseases of TM Joint, Cysts of the Oral & Perioral region, Tumors of the Oral Cavity, Traumatic, Reactive & Regressive lesions of Oral Cavity, Non neoplastic Salivary Gland Diseases, Systemic Diseases involving Oral cavity, Mucocutaneous Lesions, Diseases of the Nerves, Pigmentation of - Oral & Perioral region & Discoloration of teeth, Diseases of Maxillary Sinus, Oral Precancer-Cancer, Biopsy.

9. General Medicine:

Aims of medicine Definitions of signs, symptoms, diagnosis, differential diagnosis treatment & prognosis. Infections, G.I.T, CVS, RS, Hematology, Renal system, Nutrition, CNS, Endocrines, Critical care.

10. General Surgery:

History of surgery, General principles of surgery, Wounds, Inflammation, Infections, Transmissible viral infections, Shock and hemorrhage, Tumors, ulcers, cysts, sinus and fistulae, Diseases of lymphatic system, Diseases of the oral cavity, Diseases of

larynx, nasopharynx, Nervous system, Fractures, Principles of operative surgery, Anomalies of development of face, Diseases of thyroid and parathyroid, Swellings of the jaw, biopsy.

11. Orthodontics and Dental Orthopaedics:

(1) Introduction, Definition, Historical Background, Aims and Objectives of Orthodontics And Need For Orthodontics Care.

(2) Growth And Development: In General

- a.) Definition
- b.) Growth spurts and Differential growth
- c.) Factors influencing growth and Development
- d.) Methods of measuring growth
- e.) Growth theories (Genetic, Sicher's, Scott's, Moss's, Petrovics, Multifactorial)
- f.) Genetic and epigenetic factors in growth
- g.) Cephalocaudal gradient in growth.

(3) Morphologic Development Of Craniofacial Structures

- a.) Methods of bone growth
- b.) Prenatal growth of craniofacial structures
- c.) Postnatal growth and development of: cranial base, maxilla, mandible, dental arches and occlusion.

(4) Functional Development Of Dental Arches And Occlusion

- a.) Factors influencing functional development of dental arches and occlusion.
- b.) Forces of occlusion
- c.) Wolfe's law of transformation of bone
- d.) Trajectories of forces

(5) Clinical Application Of Growth And Development

(6) Malocclusion - In General

- a.) Concept of normal occlusion
- b.) Definition of malocclusion
- c.) Description of different types of dental, skeletal and functional

malocclusion.

(7) Classification of Malocclusion

Principle, description, advantages and disadvantages of classification of malocclusion by Angle's, Simon's, Lischer's and Ackerman and Proffitt's.

(8) Normal And Abnormal Function Of Stomatognathic System

(9) Etiology Of Malocclusion

- a.) Definition, importance, classification, local and general etiological factors.
- b.) Etiology of following different types of malocclusion:
 - 1) Midline diastema
 - 2) Spacing
 - 3) Crowding
 - 4) Cross-Bite: Anterior/Posterior
 - 5) Class III Malocclusion
 - 6) Class II Malocclusion
 - 7) Deep Bite
 - 8) Open bite

(10) Diagnosis And Diagnostic Aids

- a.) Definition, Importance and classification of diagnostic aids
- b.) Importance of case history and clinical examination in orthodontics
- c.) Study Models: - Importance and uses - Preparation and preservation of study models
- d.) Importance of intraoral X-rays in orthodontics
- e.) Panoramic radiographs: - Principles, Advantages, disadvantages and uses
- f.) Cephalometrics: Its advantages, disadvantages
 - 1.) Definition
 - 2.) Description and use of cephalostat
 - 3.) Description and uses of anatomical landmarks lines and angles used in cephalometric analysis
 - 4.) Analysis- Steiner's, Down's, Tweed's, Ricket's-E- line
- g.) Electromyography and its uses in orthodontics
- h.) Wrist X-rays and its importance in orthodontics

- (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**
- a.) Different types of tooth movements
 - b.) Tissue response to orthodontic force application
 - c.) Age factor in orthodontic tooth movement
- (14) Preventive Orthodontics**
- a.) Definition
 - b.) Different procedures undertaken in preventive orthodontics and their limitations.
- (15) Interceptive Orthodontics**
- a.) Definition
 - b.) Different procedures undertaken in interceptive orthodontics
 - c.) Serial extractions: Definition, indications, contra-indication, technique, advantages and disadvantages.
 - d.) Role of muscle exercises as an interceptive procedure
- (16) Corrective Orthodontics**
- a.) Definition, factors to be considered during treatment planning.
 - b.) Model analysis: Pont's, Ashley Howe's, Bolton, Careys, Moyer's Mixed Dentition Analysis
 - c.) Methods of gaining space in the arch:- Indications, relative merits and demerits of proximal stripping, arch expansion and extractions
 - d.) Extractions in Orthodontics - indications and selection of teeth for extraction.
- (17) Orthodontic Appliances: General**
- a.) Requisites for orthodontic appliances
 - b.) Classification, indications of Removable and Functional Appliances
 - c.) Methods of force application

- d.) Materials used in construction of various orthodontic appliances –
uses of stainless steel, technical considerations in curing of acrylic,
Principles of welding and soldering, fluxes and antifixes.
- e.) Preliminary knowledge of acid etching and direct bonding.

(18) Orthodontic Management Of Cleft Lip And Palate

(19) Principles Of Surgical Orthodontics

Brief knowledge of correction of:

- a.) Mandibular Prognathism and Retrognathism
- b.) Maxillary Prognathism and Retrognathism
- c.) Anterior open bite and deep bite
- d.) Cross bite

(20) Principle, Differential Diagnosis & Methods Of Treatment Of:

Midline diastema, Cross bite, Open bite, Deep bite, Spacing, Crowding,
Class II - Division 1, Division 2, Class III Malocclusion - True and Pseudo
Class III

(21) Retention and Relapse

Definition, Need for retention, Causes of relapse, Methods of retention,
Different types of retention devices, Duration of retention, Theories of
retention.

12. Forensic Odontology

Introduction to forensic dentistry, Overview of forensic medicine and toxicology,
Dental identification, Maintaining dental records, Age estimation, Sex differentiation,
Ethnic variations ('racial' differences) in tooth morphology, Bite mark procedures,
Dental DNA methods.

13. Oral Implantology

History of implants, their design & surface characteristics and osseointegration.
Scope of oral & maxillofacial implantology & terminologies. A brief introduction to
various implant systems in practice. Bone biology, Morphology, Classification of
bone and its relevance to implant treatment and bone augmentation materials. Soft
tissue considerations in implant dentistry. Diagnosis & treatment planning in implant

dentistry. Pre surgical preparation of patient. Implant installation & armamentarium for the Branemark system as a role model. First stage surgery-Mandible-Maxilla. Healing period & second stage surgery. Management of surgical complications & failures. General considerations in prosthodontic reconstruction & Bio mechanics. Prosthodontic components of the Branemark system as a role model. Impression procedures & Preparation of master cast. Jaw relation records and construction of suprastructure with special emphasis on occlusion for osseointegrated prosthesis. Management of prosthodontic complications & failures. Recall & maintenance phase.

14. Medico Legal Aspects Relevant to the Discipline.

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

16. Current Trends and recent advancements in the Field of Orthodontics and Dentofacial Orthopaedics.