Government of Karnataka

PARA MEDICAL BOARD

Revised Syllabus
of
II & III Year Diploma in Dental Hygiene

(Previously first/second year certificate course/
I year DDH / II DDH)

2017
Syllabus for Dental Anatomy & Histology

1. Development of tooth and histology of enamel, dentine, pulp & periodontal tissues
2. Dental anomalies
3. Dental nomenclature
4. Attrition, Abrasion & Erosion
5. Sterilisation & Infection control
6. Oral Manifestations of systemic diseases
7. Brief description of Pathology and Bacteriology of dental caries, gingival and periodontal infection

1. Introduction to Anatomy:
   a. Definition of Anatomy
   b. Anatomical position
      - Supine, prone, lithotomy → positions
   c. Different parts of human body:
      → Head and neck, Thorax and abdomen, pelvis and perineum, upper and lower limbs.
   d. Anatomical planes and sections: Median, sagittal, coronal, transverse, longitudinal, horizontal, oblique.

   e. Anatomical terms:
      Anterior, posterior, superior, inferior, medial, lateral, proximal, distal, superficial, deep, ventral, dorsal, cephalic, caudal, interior, exterior, invagination, evagination, ipsilateral, contralateral.

   f. Terms for describing muscles:
      Origin, insertion, Belly, tendon, aponeurosis, raphe.

   g. Anatomical movements:
      Flexion, extension, adduction, abduction, Medial rotation, lateral rotation, circumduction, pronation, supination, protraction, retraction, elevation, depression.

2. Basic tissues: Definitions of
   Epithelium, connective tissue (including cartilage and bone), muscle, nerve.
3. Bones of skull → Mandible, maxilla, temporal bone → major features to be identified.
   → names, location in the living body, actions and their importance clinically.
5. Muscles of mastication
   → Brief study of attachments, location in the living, actions and clinical importance in relation to dental mechanics.
6. Blood supply, nerve supply and lymphatic drainage of face, teeth and oral cavity.
7. Course and distribution of 5th, 7th, 9th and 10th cranial nerves.
8. Endocrine system – Hypothalamus, Pituitary, thyroid, parathyroid, adrenal and Pancreas → Identification and functional correlation.

As with all other courses, models, charts, photographs, prosected specimens, 2D/3D animation can be used for theory teaching and practical demonstrations.

**Practicals**

Gross anatomy including surface anatomy only.
The students should maintain practical records and submit the same to the HOD of Anatomy for scrutiny.
→ Basic tissues to be demonstrated for identification.
→ Identification of parts of skull as a whole.
→ Mandible, maxilla and temporal bones to be demonstrated and studied with their features understood in articulated skull and 3D animation.
→ Muscles of facial expression and muscles of mastication are to be demonstrated and studied in models or cadaver or mannequins. Actions of the muscles may be understood by 3D animation.
→ Models, charts, photographs, 2D/3D animation etc. may be used instead of prosected cadaveric specimens (which may not be available in every institute), to demonstrate and study No. 7, 8, 9, 10 of theory syllabus.
GENERAL PHYSIOLOGY (Duration of Teaching - 3 Hrs)

Introduction:-

Physiology - Homeostasis

Cell:-

Structure Of A Cell, Intracellular Organelles, Cell Junctions, Stem Cells, Cell Aging & Death

Transport through cell membranes:-

Mechanisms Of Transport Across Cell Membrane

Body Fluids:-

Compartments Of Body Fluid, And Measurement Of Body Fluids.

BLOOD (Duration of Teaching - 7 Hrs)

Composition & Functions Of Blood

Plasma:-

Composition And Functions Of Plasma Proteins

Cellular Components Of Blood:-

(RBC, WBC, PLATELETS) Morphology, Physiological Values, Functions, Formation Of Hemopoietic Cells, Life Span & Applied Aspects

Hemoglobin:-

Formation, Functions, Physiological Values, Destruction Of RBC, Applied Aspects

ESR, PCV, Blood Indices & Anemia

Blood Groups:-


Hemostasis:-

Clotting Factors, Anticoagulants, Applied Aspects

GASTROINTESTINAL PHYSIOLOGY(Durati0on of Teaching – 4 Hrs)

Structural Overview of Gastrointestinal Tract

Movements of GIT AND PHONATION

Salivary Glands- Its Secretions, Composition, Functions And Regulation Of Salivary Secretions

Applied Aspects In oral cavity (Salivary secretion).
NERVE PHYSIOLOGY (Duration of Teaching - 3 Hrs)

Nerve: Structure, Types Of Neuroglial Cells, Functions Of Nerves

Receptors: Definition, Types Of Sensory Receptors.

Reflex: Arc, Action & Reflexes.

Autonomic Nervous System: Organization And Functions

Synapse & Neuromuscular Junction

THE CARDIOVASCULAR SYSTEM (Duration of Teaching - 3 Hrs)

Anatomy Of The Heart, Structure And Function Of Cardiac Muscle, Conducting System Of Heart, Systemic And Pulmonary Circulation, Over View - Heart Rate, Stroke Volume, Cardiac Output, Heat Sounds, Pulse, BP

RESPIRATORY SYSTEM (Duration of Teaching - 4 Hrs)

An Overview of respiratory system: air way anatomy, muscles of ventilation, Regulation of Respiration

Functions of respiratory system, ventilation: exchange & transport of respiratory gases, surfactant.

Applied aspects: artificial respiration, hypoxia, Cyanosis, Abnormal patterns of Breathing.

ENDOCRINE SYSTEM & REPRODUCTIVE SYSTEM – (Duration of Teaching – 4 Hrs)

Overview of endocrine system: Calcium & Phosphate Metabolism, Regulation And Applied Aspects

Vitamin D synthesis & Glucose metabolism,

Hormonal changes during Pregnancy.

Contraceptive methods

SPECIAL SENSES – (Duration of Teaching – 2 Hrs)

Tongue:

Taste Buds, Primary Taste sensation and abnormalities of taste

Olfaction
Importance of Microbiology & relation to maintenance of medical record.

- Names of the organisms – Bacteria
- Names of the organisms – Viruses
- Names of the organisms – Fungi
- Names of the organisms – Parasitology
- Names of common infectious diseases.
- Investigations done in microbiology

**EXAM: MICROBIOLOGY + PATHOLOGY 35**

**Pathology 20 marks**

**Microbiology 15 marks**

1. 5 marks X 5 questions = 25 marks (answer any 4 out of 6 questions)

2. 2 marks X 05 questions = 10 marks

Paper should be set by the pathologist and valued by the pathologist.

**NO PRACTICAL EXAMINATION IN MICROBIOLOGY**
Subject: Applied Pharmacology

Syllabus: Total teaching = 15 hrs

1. Introduction
   a. Definition and terminology
      Pharmacology, Drug (WHO Definition)
      Pharmacokinetics, Pharmacodynamics
      Pharmacotherapeutics, chemotherapy,
      Clinical pharmacology, Toxicology and Pharmacopeias.
   b. Drug nomenclature.
   c. Concept of essential medicines list

2. Routes of drug administration in general and emphasis on Topical & Oral routes

3. Adverse drug reactions (ADR), Definition and types, with emphasis on side effects involving Oral Cavity, hypersensitivity reactions and their management.

4. Analgesics – Definition and types,
   Commonly used NSAIDS- their Uses, adverse effects & Precautions
   Ibuprofen, Diclofenac, Paracetamol, including Topical / Oral Preparations

5. Sedatives hypnotics - Diazepam, Alprazolam- Definition, uses in Dentistry, adverse effects

6. Antiseptic Mouth Washes and Gargles

7. Local anesthetics – Definition, Lignocaine, Benzocaine – Dosage Forms used in Dentistry including Uses.

8. Antimicrobial drugs - Definition, Uses of Amoxycillin, Doxycycline,
   Metronidazole in Dentistry

9. Styptics

10. Glucocorticoids – Emphasis on Topical Preparations, Uses in Dentistry and Adverse effects involving Oral cavity

Scheme of examination

Internal examination: Not required

Theory examination: could be conducted for 15 marks along with other subjects

1. Short Essay 1 x 5= 5 (Answer any One out of Two Questions)
2. Short answers 5 x 2 = 10
Basic Biochemistry

- Carbohydrates:
  - Classification, chemistry & properties of monosaccharides, diaccharides, and polysaccharides.
- Proteins:
  - Proteins – Definition, classification, properties.
  - Plasma proteins – Definition, classification and reference values.
- Lipids
  - Definition, classification and properties of lipids and lipoproteins.
- Nucleic acid chemistry
  - Definitions of DNA, RNA, purines and pyrimidines, nucleosides and nucleotides.
- Enzymes- Definition, Isoenzymes and factors affecting enzyme activity.
- Vitamins and Minerals: in brief about reference values in blood
- Abnormal Constituents of Urine.
- Nutrition in relation to general and oral health

Question paper pattern

Theory

1. Long Essay Question. 5 Marks X 2 = 10 Marks
2. Short Notes Question 5 Marks X 3 = 15 Marks

No practical examination
Syllabus for Dental Radiology

1. Types of Dental Radiographs
2. Processing of Dental Radiographs
3. Dental Radiographic techniques
4. Radiation Hazards & Protection against Radiation

Question paper pattern

Theory

1. Long Essay Question. 5 Marks X 2 = 10 Marks
2. Short Notes Question 5 Marks X 3 = 15 Marks

Scheme of Examination - 1½ Hours

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<th>SUBJECT</th>
<th>SECTION</th>
<th>Question paper Code</th>
<th>MAX. MARKS</th>
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<tr>
<td>Paper 1</td>
<td>General Anatomy, Histology</td>
<td>Section A</td>
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<td>General Physiology</td>
<td>Section B</td>
<td>5182</td>
<td>25</td>
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<td>Paper 2</td>
<td>General Pathology, Microbiology</td>
<td>Section A</td>
<td>5183</td>
<td>35</td>
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<td></td>
<td>Applied Pharmacology</td>
<td>Section B</td>
<td>5184</td>
<td>15</td>
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<td>Paper 3</td>
<td>General Biochemistry</td>
<td>Section A</td>
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<td>Radiology</td>
<td>Section B</td>
<td>5186</td>
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</table>
1) Tissues of the Periodontium,
   a) Gingiva,
   b) Cementum,
   c) Periodontal ligament
   d) Alveolar bone.
2) Saliva
   a) Composition and functions
3) Gingival Diseases
   a) Plaque induced
   b) Non Plaque Induced
   c) Gingival Recession
   d) Gingival Enlargement
   e) Acute Gingival Lesions – Anug, Acute Herpetic Gingivo stomatitis, pericoronitis.
4) Periodontitis – Chronic & Aggressive types
   a) Periodontal Pocket
   b) Gingival & Periodontal Abscess

5) Dental Plaque
   a) Definition
   b) Stages of Plaque formations
6) Calculus
   a) Definition & Classification
   b) Composition, Formation & Modes of attachment
   c) Clinical Significance.
7) Dental Stains
   a) Extrinsic & Intrinsic
8) Food impaction
**Paper-II Section A**

1) Habits – Mouth breathing, Tongue thrusting, Bruxism others
2) Trauma from Occlusion – Define & Stages
3) Clinical Examination
   - History, Oral examination, Dental Examination, OHI(S) index,
   - Radiographic Examination, Diagnosis, Prognosis & treatment planning.
4) Plaque control
   - Tooth brushes, methods of tooth brushing, power tooth brushes.
   - Interdental cleaning Aids
   - Chemical Plaque Control methods
   - Dentifrices, Oral irrigation devices
   - Plaque control of Dental Implants

**Paper-II Section B**

5) Instruments & Principles of Instrumentation.
   - Basic Sharpening principles
   - Ultrasonic & Sonic Scaling, mode of action, devices
   - Instrument Maintenance
6) Dental Hygiene
   - a) Definition
   - b) Objectives
   - c) Rules & Regulations of Dental Hygiene
7) Brief description of Sutures & Periodontal Dressing
8) Management of Patients with special needs
   - a) Pregnant Patient
   - b) Pediatric Patient
   - c) Oral & Maxillofacial Surgery patient.
   - d) Care of patients with Disabilities
   - e) Medically compromised Patients.
9) Medical & Dental Emergencies
   - a) Syncope
   - b) Shock
   - c) Diabetes(Hyperglycemia)
   - d) Hypertension
   - e) Haemophilia
   - f) Asthma
Paper III Section A

Q P Code: 6185

1) Public Health Dentistry
   a) Introduction to Community Dentistry
   b) Psychological aspects of the Child and Parents and their counseling
   c) Aims and objectives of Dental Health Education
   d) Water supply to community and their implications on dental health
   e) General Epidemiology and Environmental Health

2) Dental Ethics & Jurisprudence
   a) Definition of ethics, Professional ethics & ethical matters relating to health care
   b) Dentists Act, 1948 as related to registration of Dental Hygienists and Dentists

Paper III Section B

Q P Code: 6186

3) Brief account of Oral Cancer and HIV & HBV associated Periodontitis

4) Dental Materials
   a) General knowledge of various materials used in Dentistry and their manipulation
   b) Impression materials and models materials
   c) Dressing of plaster models, charts, posters and other Audio-Visual aids

Practicals: 100 marks

   a) Instruments & Sterilisation Techniques
   b) Instructions for Oral health maintenance
   c) Supportive Periodontal therapy (SPT)
   d) Various methods of Oral Prophylaxis
   e) Use of disclosing agent and various Oral hygiene aids
   f) Care of Oral cavity and appliances during Orthodontic, Prosthodontic and Maxillofacial cases
   g) Preparation of plaster models, charts and other audio-Visual aids
   h) Chairside assistance, reception & Patient appointments
   i) Accounts, book keeping and basic computer knowledge
Scheme of Examination - 3 Hours

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<tr>
<td>Paper 1</td>
<td>Etiology and Pathogenesis of Periodontal diseases</td>
<td>Section A</td>
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<tr>
<td>Paper 2</td>
<td>Diagnosis and Treatment of Periodontal disease</td>
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Practical | | | | 100 |

Scheme of Practical Examination (only for Third year)

One Internal Examiner & one External examiner from other recognized Institution teaching Dental Hygienist students

Practicals (Case History & Scaling): 80 marks

Viva-Voce: 20 marks

Question Paper Pattern for Third year Dental Hygiene

Section A
1. Short Essays (12 Questions) - 4 X 5 Marks = 20 Marks
2. Short Answers - 10 X 3 Marks = 30 Marks

Section B
1. Short Essays (12 Questions) - 4 X 5 Marks = 20 Marks
2. Short Answers - 10 X 3 Marks = 30 Marks

Books

a. Comprehensive review of Dental Hygiene - II Edition by Barby
c. Fundamentals of Periodontal Instruments - III Edition by Jill
d. Review of Dental Hygiene by Nelson
e. Periodontics for Dental Hygiene - II Edition by Allen
f. Dimensions of Dental Hygiene - III Edition by Pauline & Hpeele
g. Clinical Practice for Dental Hygiene - VII Edition by Willkins
h. Periodontology for Dental Hygienist - by Perry
i. Oral Hygiene - IV Edition by Bunting
j. Dental Hygienist - Guide to Nutritional Care by Judy & Ratliss.
k. Infection Control & Management of Hazardious material for Dental Team by Miller.
l. Comprehensive Dental Hygiene Care - IV Edition by Irene R. Woodall.