

**BDS THIRD PROFESSIONAL EXAMINATION 2007**  
**PERIODONTOLOGY (SEQs)**

**Model Paper**

**Marks: 45**

**Time 2 hours 15 min**

**Total No. of SEQs 15**

**Note: 3 Marks for each question.**

**Q.1 What are iatrogenic effects of restorations on the periodontium?**

**Topic Specification:** Etiology of Periodontal Diseases: Iatrogenic Factors.

**KEY:**

Restorations:

- Over hangs.
- Under hangs.
- Location of margins.
- Contacts/ Embrasures.
- Contours.
- Occlusion.
- Materials.
- Restorative procedures.

**Reference: Carranza's Clinical Periodontology, 10<sup>th</sup> Ed.**

**BDS THIRD PROFESSIONAL EXAMINATION 2007**  
**PERIODONTOLOGY (SEQs)**

**Model Paper**

**Q.2 Give composition of Dental Plaque.**

**Topic Specification:** Etiology of Periodontal Diseases: Periodontal Microbiology.

**KEY:**

Primarily composed of Micro-organisms. One gram of plaque (wet weight) contains approximately  $10^{11}$  bacteria.

Non bacterial microorganisms include Mycoplasma species, yeasts protozoa and viruses. The microorganisms exist within an intercellular matrix that also contains a few host cells such as epithelial cells, macrophages and leukocytes.

The intercellular matrix consists of organic and inorganic materials derived from saliva, gingival crevicular fluid and bacterial products.

Organic constituent of matrix includes:

Polysaccharides, proteins, glycoproteins and lipids. Albumin derived from gingival crevicular fluid is a part of matrix.

The inorganic components are predominantly calcium and phosphorous with trace amounts of sodium, potassium and fluoride. As mineral content increase the plaque mineralises into calculus.

**Reference: Carranza's Clinical Periodontology, 10<sup>th</sup> Ed.**

**BDS THIRD PROFESSIONAL EXAMINATION 2007**  
**PERIODONTOLOGY (SEQs)**

**Model Paper**

**Q.3 What are effects of uncontrolled diabetes mellitus on the periodontium?**

**Topic Specification:** Etiology of Periodontal Diseases: Systemic Factors.

**KEY:**

A tendency toward enlarged gingival, sessile or pedunculated gingival polyps, polypoid gingival proliferations, abscess formation, periodontitis and loosened teeth.

There is reduction in defense mechanisms and increased susceptibility to infections, leading to destructive periodontal diseases.

Severe gingival inflammation, deep periodontal pockets, rapid bone loss and frequent periodontal abscess occur in diabetic patients with poor oral hygiene.

Findings include a greater loss of attachment, increased bleeding on probing and increased tooth mobility.

Diabetes mellitus does not cause gingivitis or periodontitis but evidence indicates that it alters the response of the periodontal tissues to local factors, hastening bone loss and delaying post surgical healing of the periodontal tissues. Frequent periodontal abscess appear to be an important feature of periodontal disease in diabetic patients.

**Reference: Carranza's Clinical Periodontology, 10<sup>th</sup> Ed.**

**BDS THIRD PROFESSIONAL EXAMINATION 2007**  
**PERIODONTOLOGY (SEQs)**

**Model Paper**

**Q.4 Name different drugs responsible for Agranulocytosis. Enlist differential diagnosis. How definitive diagnosis is established?**

**Topic Specification:** Etiology of Periodontal Disease: Systemic Factors.

**KEY:**

**Drugs responsible for Agranulocytosis:**

- Amino Pyrine.
- Barbiturates and their derivatives.
- Benzene ring derivatives.
- Sulfonamides.
- Gold salts.
- Arsenical agents.

**Differential Diagnosis:**

- Acute necrotizing ulcerative gingivitis.
- Diphtheria.
- Noma.
- Acute necrotizing inflammation of tonsils.

**Definitive diagnosis:**

Hematologic findings – Leukopenia.

**Reference: Carranza's Clinical Periodontology, 10<sup>th</sup> Ed.**

**BDS THIRD PROFESSIONAL EXAMINATION 2007**  
**PERIODONTOLOGY (SEQs)**

**Model Paper**

**Q.5 A patient aged 25 years presents with hyperpigmentation of the Gingiva. Enumerate causes of hyperpigmentation of Gingiva.**

**Topic Specification:** Gingivitis.

**KEY:**

The color of the gingiva is determined by several factors, including the number and size of blood vessels, epithelial thickness, quantity of keratinisation and pigments within the epithelium.

**Local causes:**

1. Chronic gingivitis.
2. Acute necrotizing ulcerative gingivitis.
3. Herpetic gingivostomatitis.
4. Chemical irritation.
5. Metallic pigmentation in the areas of pre-existent inflammation e.g. in Bismuth, lead and Mercury intoxication
6. Amalgam tattoo.

**Systemic Factors:** increase melanin, increase bilirubin, or increase iron.

**Increase Melanin:**

- Addison's disease.
- Peutz-Jegher's syndrome.
- Albright's syndrome.
- Von Recklinghausen's disease.

**Increase Bilirubin:**

- Jaundice.

**Increase Iron:**

- Haemochromatosis.
- Metabolic and endocrine disturbances e.g. pregnancy and diabetes mellitus.
- Blood dyscrasias.

**Reference: Carranza's Clinical Periodontology, 10<sup>th</sup> Ed.**

**BDS THIRD PROFESSIONAL EXAMINATION 2007**  
**PERIODONTOLOGY (SEQs)**

**Model Paper**

**Q.6 What is Papillon-Lefe`vre syndrome? What are its characteristics?**

**Topic Specification:** Systemic Diseases with Periodontal Manifestation.

**KEY:**

Papillon-Lefe`vre syndrome is inherited and appears to follow an autosomal recessive pattern.

The syndrome is characterized by hyperkeratotic skin lesions, severe destruction of the periodontium and in some cases calcification of dura. The cutaneous and periodontal changes usually appear together before the age of 4 years. The skin lesions consist of hyperkeratosis and ichthyosis of localized areas on palms, soles, knees and elbows.

Periodontal involvement consists of early inflammatory changes that lead to bone loss and exfoliation of teeth. Primary teeth are lost by 5 or 6 years of age. The permanent dentition erupts normally, but within a few years the permanent teeth are lost because of destructive periodontal disease. By age 15 years, patients are edentulous except for the third molars. These also are lost a few years after they erupt. Tooth extraction sites heal uneventfully.

**Reference: Carranza's Clinical Periodontology, 10<sup>th</sup> Ed.**

**BDS THIRD PROFESSIONAL EXAMINATION 2007**  
**PERIODONTOLOGY (SEQs)**

**Model Paper**

**Q.7 A patient received kidney transplant has a mulberry shaped enlargement of gingival covering almost crown of the anterior teeth with a complaint of speech and mastication difficulty along with aesthetic problem. Name different drugs causing gingival enlargement. Outline management.**

**Topic Specification:** Periodontal Diseases: Gingival Enlargement.

**KEY:**

Different Drugs causing Gingival Enlargement:

Anticonvulsants: Phenytoin

Immuno Suppressants: e.g. Cyclosporin A

Calcium Channel blockers: Nifedipine, Diltiazem, Verapamil.

Outline of Treatment:

- Strict plaque control.
- Substitution of the drug by physician.
- Gingivectomy.
- Flap procedures.

**Reference: Carranza's Clinical Periodontology, 10<sup>th</sup> Ed.**

**BDS THIRD PROFESSIONAL EXAMINATION 2007**  
**PERIODONTOLOGY (SEQs)**

**Model Paper**

**Q.8 A 5 year old child presents with diffuse redness of oral mucosa including gingiva preceded by vesicles. What is the most likely diagnosis? Give differential diagnosis.**

**Topic Specification:** Periodontal Diseases: Acute Gingival Infections.

**KEY:**

Diagnosis:

Acute herpetic gingivostomatitis.

Differential Diagnosis:

- Acute necrotizing ulcerative gingivitis.
- Erythema multiforme.
- Steven Johnson's syndrome.
- Bullous lichen planus.
- Recurrent aphthous stomatitis.
- Desquamative gingivitis.

**Reference: Carranza's Clinical Periodontology, 10<sup>th</sup> Ed.**



**BDS THIRD PROFESSIONAL EXAMINATION 2007**  
**PERIODONTOLOGY (SEQs)**

**Model Paper**

**Q.9 An 18 year old black male presents with distolabial migration of maxillary incisors with concomitant diastema formation, mobility of maxillary and mandibular incisors and 1<sup>st</sup> molars with lack of clinical inflammation. Give most probable diagnosis. Give different immune factors implicated in pathogenesis of this condition.**

**Topic Specification:** Periodontal Diseases: Aggressive Periodontitis.

**KEY:**

Localized Aggressive Periodontitis:

Immunologic Factors:

1. Human Leukocyte Antigens: consistently HLA A9, B15
2. Functional Defects of PMNs and/ or Monocytes
  - PMNS – Chemotaxis impaired
  - Phagocytosis and Bacterial killing impaired.
  - Monocytes
    - i. Hyperresponsiveness involving production of PGE<sub>2</sub>
      - ↓
      - ↑ Connective tissue
      - ↑ Bone Loss
    - ii. Poorly inherited forms of monocytes FcγR2b, the receptors for human immunoglobulin G2 disproportionately present.
3. Autoimmunity
  - ↑ MHC class II molecule HLA DR4.
4. Altered helper or suppressor T-cell function.
5. Polyclonal activation of B-cells.
6. Genetic predisposition.

**Reference: Carranza's Clinical Periodontology, 10<sup>th</sup> Ed.**

**BDS THIRD PROFESSIONAL EXAMINATION 2007**  
**PERIODONTOLOGY (SEQs)**

**Model Paper**

**Q.10 A patient aged 45 years presents with chronic periodontitis having deep periodontal pockets. Classify periodontal pockets. Outline treatment of periodontal pockets.**

**Topic Specification:** Periodontal Pathogenesis: Periodontal Pocket.

**KEY:**

- Pseudo pocket.
- Periodontal pocket
  - Supra bony pocket.
  - Infra bony pocket.

**According to the surface involvement:**

- Simple
- Compound
- Complex e.g. Spiral Pocket.

**Outline of Management:**

- Strict plaque control and rehabilitation of oral hygiene.
- Root planning and curettage.
- Excisional new attachment procedures.
- Gingivectomy for supra bony pockets.
- Periodontal flap procedures.

**Reference: Carranza's Clinical Periodontology, 10<sup>th</sup> Ed.**

**BDS THIRD PROFESSIONAL EXAMINATION 2007**  
**PERIODONTOLOGY (SEQs)**

**Model Paper**

**Q.11 What are different methods of mechanical plaque control?**

**Topic Specification:** Plaque Control.

**KEY:**

Mechanical Plaque Control:

- Tooth brush.
- Dental floss.
- Inter dental cleansing devices
  - Tooth pick.
  - Interproximal brushes.
  - Single tufted brushes.

**Reference: Carranza's Clinical Periodontology, 10<sup>th</sup> Ed.**

**BDS THIRD PROFESSIONAL EXAMINATION 2007**  
**PERIODONTOLOGY (SEQs)**

**Model Paper**

**Q.12 Name different types of the curettes. Give the area specificity of different area specific curettes for scaling.**

**Topic Specification:** Periodontal Instrumentation.

**KEY:**

1. Universal curettes.
2. Area specific curettes
  - Gracey curettes.
  - Extended shank currettes.
  - Mini bladed currettes.
  - Gracey curvettes.

Area specificity of Gracey Curettes:

Gracey # 1 – 2 & 3 – 4: Anterior Teeth.

Gracey # 5 – 6: Anterior Teeth & Premolars.

Gracey # 7 – 8 & 9 – 10: Posterior Teeth Facial & Lingual.

Gracey # 11 – 12: Posterior Teeth – Mesial.

Gracey # 13 – 14: Posterior Teeth – Distal

Gracey # 15 – 16: Posterior Mesial.

Gracey # 17 – 18: Posterior Distal.

**Reference: Carranza's Clinical Periodontology, 10<sup>th</sup> Ed.**

**BDS THIRD PROFESSIONAL EXAMINATION 2007**  
**PERIODONTOLOGY (SEQs)**

**Model Paper**

**Q.13 Enumerate different indications & contraindications of gingivectomy. Name different types. How will healing take place after surgical gingivectomy?**

**Topic Specification:** Periodontal Surgery: Gingivectomy.

**KEY:**

- Indications:
  - Gingival enlargement.
  - Supra bony periodontal pocket.
  - Supra bony periodontal abscess.
- Contra Indications:
  - Need for bone surgery.
  - Situation in which the bottom of pocket is apical to mucogingival junction.
  - Esthetic considerations, particularly in anterior maxilla.
- Types
  - Surgical gingivectomy.
  - Gingivectomy by electro surgery.
  - Gingivectomy by chemo surgery.
  - Laser gingivectomy.
- Healing after surgical gingivectomy
  - Formation of a protective surface clot.
  - Underlying tissue acutely inflamed with some necrosis.
  - Clot replaced by granulation tissue.

By 24 hours increase in angioblasts beneath inflamed and necrotic area.

By 72 hours increase young fibroblast in area.

Highly vascular tissue grows coronally creating a free margins and sulcus. Within 2 weeks vessels of periodontium connect with gingival vessels.

**BDS THIRD PROFESSIONAL EXAMINATION 2007**  
**PERIODONTOLOGY (SEQs)**

**Model Paper**

After 12-24 hours epithelial cells at margin start to migrate over granulation tissue arising from basal and deeper spinous layers.

After 5-14 days surface epithelisation is complete. Complete epithelial repair takes 1 month. Complete connective tissue repair takes 7 weeks.

**Reference: Carranza's Clinical Periodontology, 10<sup>th</sup> Ed.**

**BDS THIRD PROFESSIONAL EXAMINATION 2007**  
**PERIODONTOLOGY (SEQs)**

**Model Paper**

**Q.14 Classify periodontal flaps. What are basic incisions in periodontal flaps?**

**Topic Specification:** Periodontal Surgery: Periodontal Flap.

**KEY:**

**Periodontal flaps can be classified based on the following:**

- Bone exposure after flap reflection
  - Full thickness.
  - Partial thickness.
- Placement of the flap after surgery
  - Undisplaced
  - Displaced
- Management of papilla
  - Conventional.
  - Papilla preservation.

**Periodontal flaps use horizontal & vertical incisions:**

1. **Horizontal Incisions:** Directed along the margin of the gingival in a mesial or a distal direction. Two types of horizontal incisions have been recommended.

*Internal Bevel Incision* which starts at a distance from the gingival margin and is aimed at the bone crest and the *crevicular incision* which starts at the bottom of the pocket and is directed to the bone margin, in addition the *interdental incision* is performed after the flap is elevated.

The internal bevel incision is basic to most periodontal flap procedures. It is the incision from which the flap is reflected to expose the underlying bone and root. It is also termed as the first incision. The #11 or # 15 surgical scalpel is used most often to make this incision.

The beak shaped # 12 D blade is usually used for crevicular incision. The orban knife is used for the interdental incision.

The three incisions allow removal of the gingiva around the tooth (i.e. the pocket epithelium and the adjacent granulomatous tissue).

**BDS THIRD PROFESSIONAL EXAMINATION 2007**  
**PERIODONTOLOGY (SEQs)**

**Model Paper**

2. **Vertical Incisions:** Vertical or oblique releasing incisions can be used on one or both ends of the horizontal incision, depending on the design and purpose of the flap. Vertical incisions at both ends are necessary if the flap is to be apically displaced.

Vertical incision must extend beyond mucogingival line, reaching the alveolar mucosa, to allow for the release of the flap to be displaced.

In general vertical incisions are avoided on lingual and palatal surfaces. Incision should be made at the line angles of a tooth either to include the papilla in the flap or to avoid it completely.

**Reference: Carranza's Clinical Periodontology, 10<sup>th</sup> Ed.**



**BDS THIRD PROFESSIONAL EXAMINATION 2007**  
**PERIODONTOLOGY (SEQs)**

**Model Paper**

**Q.15 Classify furcation involvement. Outline treatment for class IV furcation involvement in a mandibular 1<sup>st</sup> molar.**

**Topic Specification:** Furcation Involvement.

**KEY:**

**Classification of the Furcation Involvement:**

- Grade I: Incipient, early stage. The pocket is supra bony and affects soft tissues. Early bone loss with increase probing depth no radiographic change.
- Grade II: Cul-de-sac, with a definite horizontal component. Vertical bone loss may be present. Radiograph may or may not depict radiographic changes.
- Grade III: The bone is not attached to the dome of furcation. In early stage may be filled with soft tissue and not visible radiograph will show a radiolucent area.
- Grade IV: the interradicular bone is destroyed & soft tissue have receded apically so opening is clinically visible.

**The outline of treatment for:**

A class IV furcation involvement in a mandibular 1<sup>st</sup> molar.

Non surgical treatment is usually ineffective because the ability to instrument the tooth surfaces adequately is compromised. Periodontal surgery, endodontic therapy and restoration of the tooth may be required to retain the tooth. Surgical procedures are preceded by endodontics the surgical procedures are:

- Root Resection.
- or
- Hemisection.

Followed by crowns.

**Reference: Carranza's Clinical Periodontology, 10<sup>th</sup> Ed.**