SECOND BDS SYLLABUS

GENERAL PATHOLOGY

LECTURE TOPICS :

INTRODUCTION TO PATHOLOGY, CONCEPT OF DISEASE, CLASSIFICATION OF DISEASE, SUBDIVISIONS, TECHNIQUES AND ADVANCES IN PATHOLOGY.

1. CELLULAR STRUCTURE AND FUNCTIONS
2. CELL INJURY- INJURED CELL / TISSUES;TYPES OF INJURIES AND MECHANISM AND CELL RESPONSES TO INJURY
3. REVERSIBLE—INTRACELLULAR CHANGES/DEGENERATION/FATTY CHANGE, PROTEIN AND GLYCOGEN ACCUMULATIONS, HYALINE CHANGE, MUCOID CHANGE, HYDROPIC CHANGE.
4. DISORDERS OF PIGMENTATION. PATHOLOGIC CALCIFICATION.
5. IRREVERSIBLE CHANGES—NECROSIS, APOPTOSIS, GANGRENE, CANCRUMORIS
6. INFLAMMATION — DEFINITION, CLASSIFICATION, ETIOLOGY, CARDINAL SIGNS. PATHOGENESIS —VASCULAR AND CELLULAR EVENTS. EXUDATES. CHEMICAL MEDIATORS OF INFLAMMATION AND OUTCOMES OF INFLAMMATION
7. HEALING OF WOUNDS. FRACTURE HEALING. FACTORS AFFECTING WOUND HEALING, FRACTURE HEALING AND COMPLICATIONS.
8. IMMUNITY AND HYPERSENSITIVITY-DEFINITION, TYPES, MECHANISMS OF IMMUNOLOGICALLY MEDIATED TISSUE INJURY WITH EXAMPLES.
9. CHRONIC GRANULOMATOUS DISEASES. GRANULOMAS- DEFINITION, CLASSIFICATION, PATHOGENESIS. TB, LEPROSY, SYPHILIS, ACTINOMYCOSIS AND FUNGAL GRANULOMAS
10. INFECTION AND INFESTATION–BACTERIAL-PYOGENIC INFECTIONS, TYPHOID FEVER.VIRAL-AIDS, HEPATOTROPIC VIRUSES.
11. CIRCULATORY DISTURBANCES- HYPEREMIA, CONGESTION, HAEMORRHAGE, SHOCK, OEDEMA, THROMBOSIS, EMBOLISM AND INFARCTION. HYPERTENSION

12. DISTURBANCES OF NUTRITION; PATHOGENESIS OF DEFICIENCY DISEASES WITH SPECIAL REFERENCE TO DISORDERS OF VITAMINS LIKE A, C, D,K AND VITAMIN B COMPLEX

13. DM—ETIOLOGY, TYPES, PATHOGENESIS, CLINICAL AND LABORATORY DIAGNOSIS. COMPLICATIONS AND PATHOGENESIS.

14. CELLULAR GROWTH AND DIFFERENTIATION, REGULATION. ADAPTIVE DISORDERS OF GROWTH- ATROPHY, HYPERTROPHY HYPERPLASIA, METAPLASIA. TYPES AND PATHOLOGIC CHANGES OF DYSPLASIA AND PREMALIGNANT LESIONS

15. NEOPLASIA—DEFINITION, NOMENCLATURE, CLASSIFICATION AND CHARACTERS, SPREAD.

    DIFFERENCE BETWEEN BENIGN AND MALIGNANT TUMORS. AETIOLOGY(CARCINOGENS), PATHOGENESIS. MOLECULAR BASIS OF CARCINOGENESIS. CLINICAL FEATURES AND LABORATORY DIAGNOSIS. STAGING AND GRADING

16. BONE DISEASES — OSTEOMYELITIS, DEFINITION, CLASSIFICATION, CAUSES, CLINICAL, RADIOLOGICAL AND LABORATORY DIAGNOSIS OF ACUTE OSTEOMYELITIS. COMPLICATIONS OF CHRONIC OSTEOMYELITIS, TB, OSTEOPOROSIS, HYPER-PARATHYROIDISM, PAGET'SDISEASE.TUMORS OF BONE AND MANDIBLE

HAEMATOLOGY AND CLINICAL PATHOLOGY

1. DISEASES OF BLOOD INVESTIGATIONS ON BLOOD – BLOOD COLLECTION, ANTICOAGULANTS
2. HAEMOGLOBIN, CELL COUNTS AND INDICES
3. PERIPHERAL BLOOD SMEAR - STAINING. DIFFERENTIAL COUNTING, INTERPRETATION AND REPORTING
4. ANAEMIAS –LABORATORY DIAGNOSIS, INVESTIGATIONS OR TESTS FOR DIAGNOSIS
5. LEUKEMIAS, LYMPHOMA-LABORATORY DIAGNOSIS, INVESTIGATIONS OR TESTS FOR DIAGNOSIS
6. HAEMORRHAGIC DISORDERS –LABORATORY DIAGNOSIS, INVESTIGATIONS OR TESTS FOR DIAGNOSIS
7. BLOOD BANKING-BLOOD GROUPS, CROSSMATCHING, SEROLOGICTESTS, COMPONENTS SERVICE, COMPLICATIONS OF BLOOD TRANSFUSION
8. URINE ANALYSIS COMPLETE
9. PCV, ESR , RETICULOCYTE COUNT
10. DISEASES OF ORAL CAVITY AND SALIVARY GLAND. INFLAMMATORY CONDITIONS, INFECTION, PREMALIGNANT CONDITIONS, ORAL CANCER - SQUAMOUS CELL CARCINOMA, SIALADENITIS.
11. TUMORS, PLEOMORPHIC ADENOMA, WARTHIN TUMOR, ADENOID CYSTIC CARCINOMA, MUCOEPIDERMOID CARCINOMA

PRACTICALS TOPICS :

HISTOPATHOLOGICAL SLIDES

- FATTY LIVER
- ACUTE APPENDICITIS
- GRANULATION TISSUE
- TUBERCULOUS LYMPHADENITIS
- ACTINOMYCOSIS
- RHINOSPORIDIOSIS
- CVC LIVER
- CVC SPLEEN
- CVC LUNG
- NEOPLASMS
  - SQUAMOUS PAPILLOMA
  - PLEOMORPHIC ADENOMA
  - CAPILLARY HAEMANGIOMA
  - CAVERNOUS HAEMANGIOMA
  - LIPOMA
  - NEURILEMMOMA(SCHWANNOMA)
  - OSTEOCHONDROMA
  - OSTEOCLASTOMA
  - OSTEOSARCOMA
  - SQUAMOUS CELL CARCINOMA
  - BASAL CELL CARCINOMA
  - MALIGNANT MELANOMA
  - ADENOCARCINOMA COLON/STOMACH

LABORATORY EXERCISES :

1. URINE EXAMINATION FOR -
    - REDUCING SUGAR
    - KETONE BODIES
    - PROTEIN
    - BLOOD
2. HAEMOGLOBIN ESTIMATION, BLOOD GROUPING
3. BLOOD SMEAR STAINING AND DIFFERENTIAL CELL COUNT, INTERPRETATION AND REPORTING OF HEMTOLOGICAL DISEASES – ANEMIAS , LEUKEMIA
4. INSTRUMENTS & GROSS SPECIMENS

GENERAL MICROBIOLOGY

LECTURE TOPICS

A. GENERAL MICROBIOLOGY:

1. HISTORY:
    a. LOUIS PASTEUR, ROBERT KOCH, ANTONVAN LEEUWENHOEK, ALEXANDER FLEMING, JOSEPH LISTER.
    b. INTRODUCTION-CLASSIFICATION, PROKARYOTES, EUKARYOTES
    c. MICROSCOPY-LIGHT, ELECTRON, DARKFIELD, FLUORESCENT
2. MORPHOLOGY AND PHYSIOLOGY OF BACTERIA:
    a. BACTERIAL ANATOMY IN DETAIL-SPECIFIC TO CELL WALL, CYTOPLASMIC MEMBRANE, CYTOPLASM, CAPSULE, FLAGELLA, BACTERIAL SPORE, PILI.
    b. BACTERIAL PHYSIOLOGY—GENERATION TIME, TOTAL COUNT, VIABLE COUNT, GROWTH REQUIREMENTS, NUTRITIONAL REQUIREMENTS, ENVIRONMENTAL FACTORS AND BACTERIAL GROWTH CURVE.
3. DETAIL ACCOUNT OF STERILIZATION AND DISINFECTION

a. DEFINITION OF STERILIZATION, CLASSIFICATION, PHYSICAL AGENTS- HEAT-(DRY HEAT AND MOIST HEAT), RADIATION-(IONIZING AND NON IONISING), FILTERATION-(CANDLE, ASBESTOS, SINTERED,MEMBRANE)

b. DEFINITION OF DISINFECTION, ANTISEPTICS - CHEMICAL AGENTS WITH USES, MODE OF ACTION, DISADVANTAGES, EXAMPLES AND GASEOUS STERILANTS -(FORMAL DEHYDE GAS, ETHYLENE OXIDEGAS, BPL (BETAPROPIOLACTONE).

4. CULTURE MEDIA & CULTURE TECHNIQUES

CULTURE MEDIA-CLASSIFICATION, DEFINITION COMPOSITION, STERILIZATION AND USES OF FOLLOWING CULTURE MEDIA: NUTRIENT AGAR, MACCONKEY'S AGAR, BLOOD AGAR, L.JMEDIA, CARY BLAIR MEDIA, LIQUID MEDIA: ROBERTSON'S COOKED MEAT BROTH, THIOGLYCOLATE BROTH. CULTURE TECHNIQUES-ANAEROBIC CULTURE METHODS-MCINTOSH FILDES JAR, GASPAK SYSTEM, ANAEROBIC CHAMBER.

5. BASIC KNOWLEDGE OF SELECTION, COLLECTION, TRANSPORT, PROCESSING OF CLINICAL SPECIMENS AND IDENTIFICATION OF BACTERIA.

6. BASIC GENETICS AND GENETIC TRANSFER-TRANSFORMATION, TRANSDUCTION, CONJUGATION, MUTATION, SEXDUCTION, PLASMIDS AND DRUG RESISTANCE IN BACTERIA WITH EXAMPLES

7. NOSOCOMIAL INFECTION AND HOSPITAL WASTE MANAGEMENT

B. IMMUNOLOGY:

1. INFECTION-DEFINITION, CLASSIFICATION, SOURCE, MODE OF TRANSMISSION AND TYPES OF INFECTIOUS DISEASE. (1HOUR)

2. IMMUNITY-DEFINITION, CLASSIFICATION, INNATE, ACQUIRED, HERD IMMUNITY, LOCAL IMMUNITY, PREMUNITION, ADAPTIVE IMMUNITY.

3. CELLS OF IMMUNE RESPONSE-T&BLYMPHOCYTES, NATURAL KILLER CELLS, ANTIGEN PRESENTING CELLS, INTERACTION BETWEEN THE CELLS.

4. THE COMPLEMENT SYSTEM.

5. ANTIGEN

6. IMMUNOGLOBULINS-ANTIBODIES-GENERAL STRUCTURE AND THE ROLE PLAYED IN

DEFENCE MECHANISM OF THE BODY.

7. IMMUNE RESPONSE. HUMORAL IMMUNE RESPONSE, CELLULAR IMMUNE RESPONSE
8. ANTIGEN-ANTIBODY REACTIONS-WITH REFERENCE TO CLINICAL APPLICATIONS. DEFINE ELISA PRINCIPLE, PROCEDURES, USES, LIMITATIONS.
9. HYPERSENSITIVITY REACTIONS.
10. AUTOIMMUNE DISORDERS-BASIC MECHANISMS, PRINCIPLES OF AUTOIMMUNE DISEASES WITH EXAMPLES
11. IMMUNOLOGY OF TRANSPLANTATION AND MALIGNANCY (HLA, MHC)

C. SYSTEMATIC BACTERIOLOGY:

CLASSIFICATION, ANTIGENIC STRUCTURE, PATHOGENESIS, LABORATORY DIAGNOSIS-(SPECIMEN COLLECTION, TRANSPORTATION, WET MOUNT, STAINING & CULTURE, TREATMENT, PREVENTION AND IMMUNOPROPHYLAXIS FOR CORYNEBACTERIUM. DIPHTHERIAE, CLOSTRIDIUM TETANI, CLOSTRIDIUM PERFRINGENS, CLOSTRIDIUM BOTULINUM AND TREPONEMA PALLIDUM, E.COLI, SALMONELLA, SHIGELLA, VIBRIO CHOLERA.

1. PYOGENICCOCCI— STAPHYLOCOCCUS, STREPTOCOCCUS, DETAILED ACCOUNT OF CARIOGENIC STREPTOCOCCI. PNEUMOCOCCUS, GONOCOCCUS, MENINGOCOCCUS.
2. CORYNEBACTERIUM DIPHTHERIAE.
3. MYCOBACTERIA-TUBERCULOSIS AND LEPROSY.
4. CLOSTRIDIUM—GAS GANGRENE, FOOD POISONING AND TETANUS.
5. NON-SPORING ANAEROBES—IN BRIEF ABOUT CLASSIFICATION AND MORPHOLOGY, IN DETAIL ABOUTDENTAL PATHOGENS-MECHANISM OF DISEASE PRODUCTION AND PREVENTION AND ACTINOMYCETES
6. SPIROCHAETES — TREPONEMA PALLIDUM A DETAILED ACCOUNT OF ORAL LESIONS IN SYPHILIS AND BORRELIA VINCENTI
7. ENTEROBACTERIACEAE-E.COLI, SALMONELLA, SHIGELLA
8. VIBRIO CHOLERAE

D. VIROLOGY

1. TERMINOLOGIES, VIRAL CLASSIFICATION, VIRAL CULTIVATION, DETECTION OF VIRUS INFECTED CELLS, INCLUSION BODIES, QUANTIFICATION OF VIRUSES, VIRAL MULTIPLICATION,

2. MODES OF TRANSMISSION OF VIRUSES, HOST—VIRUS INTERACTION SPECIAL REFERENCE TO INTERFERON. BRIEF ACCOUNT OF LABORATORY DIAGNOSIS, CHEMOTHERAPY AND IMMUNO PROPHYLAXIS IN GENERAL.

   A FEW VIRUSES OF RELEVANCE TODENTISTRY.

   - HERPES VIRUS
   - HEPATITIS B VIRUS — BRIEF ABOUT OTHER TYPES
   - HUMAN IMNIUNODEFICIENCY VIRUS(HIV)
   - MUMPS VIRUS; MEASLES AND RUBELLAVIRUS, ONCOGENICVIRUSES

3. MYCOLOGY:

   INTRODUCTION—CLASSIFICATION OF FUNGI BASED ON MORPHOLOGY,S EXUAL & ASEXUAL REPRODUCTION, MYCOTIC DISEASES. CULTIVATION OF FUNGI & GENERAL PRINCIPLES OF LABORATORY DIAGNOSIS OF FUNGAL INFECTIONS.

   CANDIDA ALBICANS- MORPHOLOGY, PATHOGENICITY AND LABORATORY DIAGNOSIS.

   CRYPTOCOCCUS NEOFORMANS-MORPHOLOGY, PATHOGENICITY & LABORATORY DIAGNOSIS.

   BRIEFLY ON MYCOTIC LESIONS OF ORAL CAVITY - RHINOSPORIDIOSIS, SPOROTRICHOSIS, HISTOPLASMOSIS, COCCIDIOIDOMYCOSES, PARACOCCIDIOIDOMYCOSES BLASTOMYCOSIS.

E. PARASITOLOGY:

1. BRIEF INTRODUCTION-GENERAL CHARACTERISTICS OF PROTOZOANS AND HELMINTHS.

   DIAGNOSTIC PROCEDURES: COLLECTION OF SPECIMEN, METHODS OF EXAMINATION-(MACROSCOPIC AND MICROSCOPIC), CONCENTRATION METHODS FOR STOOL-(FLOTATION AND SEDIMENTATION TECHNIQUES),DEMONSTRATION OF MALARIAL AND FILARIAL PARASITES.

2. MODE OF TRANSMISSION AND LIFE CYCLE ONLY OF THE FOLLOWING:

   - ENTAMOEBA HISTOLYTICA

- PLASMODIUM. SPECIES
- ORALPROTOZOAL PARASITES
- SAFARIS LUMBRICOIDES, ANCYLOSTOMA DUODENALE, WUCHERERIA BANCROFTI.

PRACTICALS TOPICS :

DEMONSTRATION TOPICS & SLIDES :

1. CULTURE MEDIAS
2. STAPHYLOCOCCUS
3. STREPTOCOCCUS
4. P. VIVAX SCHIZONT
5. P. FALCIPARUM GAMETOCYTE
6. AFB
7. MICROFILARIA
8. SPIROCHAETES
9. GRAM NEGATIVE BACILLI
10. CANDIDA ALBICANS

10 .CRYPTOCOCCUS NEOFORMANS

NUTRIENT AGAR PLATE

1. BLOOD AGAR PLATE
2. CHOCOLATE AGAR PLATE
3. MAC CONKEY AGAR PLATE
4. BLOOD CULTURE BOTTLE
5. LOWENSTEIN JENSEN MEDIA SLOPE
6. SABARAUD'S AGAR SLOPE
7. ROBERTSON'S COOKED MEAT BROTH
8. THIOGLYCOLATE BROTH
9. BHI

INOCULATED MEDIA:

1. NUTRIENT AGAR WITH STAPHYLOCOCCI
2. ALPHA HAEMOLYTIC STREPTOCOCCI
3. BLOOD AGAR WITH BETAHAEMOLYTIC STREPTOCOCCI
4. ANTIBIOTIC SENSITIVITY PLATE
5. NUTRIENTAGARWITHPSEUDOMONASAERUGINOSA6.MACCONKEYAGARWITHLFAND NLFCOLONIES.

INSTRUMENTS:

1. VDRL SLIDE
2. TUBERCULIN SYRINGE
3. STERILE SWAB
4. SEITZFILTER
5. MACINTOSH FILDES JAR
6. WIDALRACK WITH TUBES
7. MICROTITRE PLATE
8. DISPOSABLESYRINGE; SURGICAL GLOVES
9. PASTEUR PIPETTE

SPECIMENS:

1. ASCARIS LUMBRICOIDES
2. ANCYLOSTOMA DUODENALE

BIOCHEMICAL REACTIONS:

1. INDOLE
2. CITRATE
3. UREASE
4. TRIPLE SUGAR IRON AGAR
5. TUBE COAGULASE TEST

SLIDES FOR PRACTICAL EXERCISES

1. GRAM STAIN OF THE ORAL CAVITY
2. ZIEHL —NEELSON'S STAIN — SPUTUM POSITIVE

GENERAL AND DENTAL PHARMACOLOGY AND THERAPEUTICS

LECTURE TOPICS

1.	**GENERAL PHARMACOLOGY:** A. DEFINITIONOF DRUG, PHARMACOLOGY &OTHER RELATED TERMS B. NATURE AND SOURCEOF DRUGS, DRUG NOMENCLATURE & DOSAGE FORMS C.ROUTES OF DRUG ADMINISTRATION D.PHARMACOKINETICS E. PHARMACODYNAMICS INCLUDING FACTORS AFFECTION DRUG ACTION. F. ADVERSE DRUG REACTIONS
2.	**CNS DRUGS:** A. INTRODUCTION TO CNS B. CHOLINOMIMETICS & ANTICHOLINERGIC DRUGS C.SKELETAL MUSCLE RELAXANTS D.SYMPATHOMIMETICS & SYMPATHETIC BLOCKERS
3.	**DRUGS ACTING ON CVS AND RENAL SYSTEM:** A. ANTIHYPERTENSIVE DRUGS B. ANTIANGINAL DRUGS C.DRUG FOR HEART FAILURE D.TREATMENT OF SHOCK E. DIURETICS AND ANTI DIURETICS
4.	**AUTACOIDS AND DRUGS USED IN RESPIRATORY DISORDERS:** A. AUTACOIDS–HISTAMINE, PROSTAGLANDINS, LEUKOTRIENE B. ANTIHISTAMINICS

	C.DRUGS USED FOR COUGH, BRONCHIAL ASTHMA
5.	**CNS DRUGS:** A. INTRODUCTION TO CNS B.GENERAL ANAESTHETICS C.LOCAL ANAESTHETICS D.SEDATIVES & HYPNOTICS E.ANTIEPILEPTIC DRUGS F.OPIOID ANALGESICS G.NSAIDS H. PSYCHOTROPIC DRUGS
6.	**DRUGS ACTING ON BLOOD:** A.HAEMATINICS-IRON PREPARATIONS, FOLIC ACID, VITAMIN B12 B.COAGULANTS & ANTICOAGULANTS C.FIBRINOLYTICS, ANTIFIBRINOLYTICS AND ANTIPLATELET DRUGS
7.	**DRUGS USED IN GIT DISORDERS:** A.DRUGS USED IN PEPTIC ULCER B.ANTIEMATICS &PROKINETICS C.DRUGS FOR CONSTIPATION &DIARRHOEA
8.	**HORMONES & RELATED DRUGS:** A.PITUITARY HORMONES B.ADRENO CORTICOSTEROIDS AND THEIR ANALOGUES C.THYROID HORMONES& ANTITHYROID DRUGS D.INSULIN AND ORAL ANTIDIABETIC DRUGS E.HORMONES & DRUGS AFFECTING CALCIUM HOMEOSTASIS F.ANABOLIC STEROIDS AND SEX STEROIDS

9.	**CHEMOTHERAPY:** A.INTRODUCTION TO CHEMOTHERAPY–GENERAL ASPECTS B.BETA-LACTAM ANTIBIOTICS C.AMINOGLYCOSIDES D.TETRACYCLINES E.MACROLIDES F.CHLORAMPHENICOL AND OTHER MISCELLANEOUS DRUGS G.SULFONAMIDES & QUINOLONES H.TUBERCULOSIS AND LEPROSY I.ANTI-MALARIAL DRUGS J.ANTI-AMOEBIC DRUGS K. ANTI-FUNGAL DRUGS L.ANTI-VIRALDRUGS M.ANTI-HELMINTICS N.CANCER CHEMOTHERAPY
10	**SPECIAL TOPICS** a. VITAMINS–VITAMINA, D,K AND RIBOFLAVIN, THIAMINE b. DENTAL PHARMACOLOGY – ANTISEPTICS, DISINFECTANTS, OBTUNDENTS, MUMMIFYING AGENTS, DENTIFRICES, BLEACHING AGENTS, DENTAL DESENSITIZERS. c. CHELATING AGENTS

PRACTICAL TOPICS :

COMPOUNDING EXERCISES : - MIXTURES - EMULSIONS - SOLUTIONS (MOUTHWASHES) - POWDERS - PASTE - RATIO CALCULATIONS - DOSAGE CALCULATIONS
PRESCRIPTION WRITING: -INTRODUCTION AND MEDICAL PRESCRIPTION
DENTAL PRESCRIPTION WITH RATIONALE

THERAPEUTIC/PROBLEM SOLVING EXERCISES

DENTAL MATERIALS

LECTURE TOPICS

	TOPICS COVERED (TOPIC 01 – 05 IS COVERED IN 1st YEAR BDS)
1	**INTRODUCTION** BRIEF HISTORY OF THE DEVELOPMENT OF THE SCIENCE OF DENTAL MATERIALS, AIM OF STUDYING THE SUBJECT OF DENTAL MATERIALS; SCOPE AND REQUIREMENTS OF DENTAL MATERIALS, CLASSIFICATION OF MATERIALS, THEIR CLINICAL AND LABORATORY APPLICATIONS
2	**STRUCTURE AND BEHAVIOUR OF MATTER AND PRINCIPLES OF ADHESION** CHANGE OF STATE, INTER ATOMIC PRIMARY BONDS, INTER ATOMIC SECONDARY BONDS, INTERATOMIC BOND DISTANCE AND BONDING ENERGY CRYSTALLINE AND NON-CRYSTALLINE STRUCTURES DIFFUSION, ADHESION AND BONDING, ADHESION TO TOOTH STRUCTURE
3	**IMPORTANT PHYSICAL PROPERTIES APPLICABLE TO DENTAL MATERIALS** THERMAL PROPERTIES-THERMAL CONDUCTIVITY AND CO-EFFICIENT OF THERMAL EXPANSION. RHEOLOGICAL PROPERTIES- THIXOTROPISM, CREEP, DYNAMIC CREEP, FLOW COLOUR-DIMENSIONS OF COLOUR—HUE, VALUE, CHROMA, MUNSELL SYSTEM, METAMERISM, FLUORESCENCE, LIGHT STRESS, STRAIN, PROPORTIONAL LIMIT, ELASTIC LIMIT, YIELD STRENGTH, MODULUS OF ELASTICITY, FLEXIBILITY, RESILIENCE, IMPACT, IMPACT STRENGTH, PERMANENT DEFORMATION, STRENGTH, FLEXURE STRENGTH, FATIGUE, TOUGHNESS, BRITTLENESS, DUCTILITY, MALLEABILITY, HARDNESS, ABRASION RESISTANCE
4	**BIOLOGICAL CONSIDERATIONS IN THE USE OF DENTAL MATERIALS** REQUIREMENTS OF MATERIALS WITH BIOLOGICAL COMPATIBILITY CLASSIFICATION OF MATERIALS FROM PERSPECTIVE OF BIOLOGICAL COMPATIBILITY HAZARDS ASSOCIATED WITH THE MATERIALS: PH-AFFECTING PULP, POLYMERS CAUSING CHEMICAL IRRITATION, MERCURY TOXICITY MICROLEAKAGE, THERMAL CHANGES, GALVANISM AND TOXIC EFFECTS OF MATERIALS. BIOLOGICAL EVALUATION FOR SYSTEMIC TOXICITY, SKIN IRRITATION, MUTAGENICITY AND CARCINOGENICITY. DISINFECTION OF DENTAL MATERIALS FOR INFECTION CONTROL

5	**GYPSUM AND GYPSUM PRODUCTS** GYPSUM-ORIGIN, CHEMICAL FORMULA, PRODUCTS MANUFACTURED FROM GYPSUM. DENTAL PLASTER, STONE, DIE STONE, HIGH STRENGTH, HIGH EXPANSION STONE APPLICATION AND MANUFACTURING PROCEDURE FOR EACH. MICROSCOPIC AND MACROSCOPIC STRUCTURE OF EACH CHEMISTRY OF SETTING, SETTING REACTION, THEORIES OF SETTING, GAUGING WATER, MICROSCOPIC STRUCTURE OF SET MATERIAL SETTING TIME: WORKING AND SETTING TIME, MEASUREMENT OF SETTING TIME AND FACTORS CONTROLLING SETTING TIME. SETTING EXPANSION, HYGROSCOPIC SETTING EXPANSION- FACTORS AFFECTING EACH WET STRENGTH, DRY STRENGTH, FACTORS AFFECTING STRENGTH, TENSILE STRENGTH SLURRY CARE OF CAST; ADA CLASSIFICATION OF GYPSUM PRODUCTS MANIPULATION INCLUDING RECENT METHODS OR ADVANCED METHODS DISINFECTION: INFECTION CONTROL, METHODS OF USE OF DISINFECTANT STORAGE OF MATERIAL AND SHELF LIFE
6	**IMPRESSION MATERIALS** REQUIREMENTS, DEFINITION AND CLASSIFICATION HISTORICAL BACKGROUND AND DEVELOPMENT OF EACH IMPRESSION MATERIAL PURPOSE OF MAKING IMPRESSION DESIRABLE PROPERTIES AND APPLICATION OF MATERIAL COMPOSITION MODE OF SUPPLY, CHEMISTRY OF SETTING, SETTING TIME, CONTROL OF SETTING TIME ADVANTAGES, DISADVANTAGES, INDICATIONS MANIPULATION OF MATERIAL INSTRUMENTS AND EQUIPMENT REQUIRED- TYPE OF IMPRESSION TRAYS REQUIRED, ADHESION TO TRAY TECHNIQUES OF IMPRESSION STORAGE OF IMPRESSION RECENT ADVANCES IN MATERIAL AND MIXING DEVICES STUDY OF PROPERTIES: WORKING TIME, SETTING TIME, FLOW, ACCURACY, STRENGTH, FLEXIBILITY, TEAR STRENGTH, DIMENSIONAL STABILITY, COMPATIBILITY WITH CAST AND DIE MATERIAL, BIOCOMPATIBILITY

7	**SYNTHETIC RESINS USED IN DENTISTRY** HISTORICAL BACKGROUND AND DEVELOPMENT OF MATERIAL, DENTURE BASE MATERIALS AND THEIR CLASSIFICATION, IDEAL REQUIREMENTS, CLASSIFICATION OF RESINS DENTAL RESINS - REQUIREMENTS, APPLICATIONS, POLYMERIZATION, POLYMERIZATION MECHANISM, STAGES IN ADDITION POLYMERIZATION, INHIBITION OF POLYMERIZATION, CO-POLYMERIZATION, CROSS LINKING, PLASTICIZERS, PHYSICAL PROPERTIES OF POLYMERS ACRYLIC RESINS: MODE OF POLYMERIZATION-HEAT ACTIVATED, CHEMICALLY ACTIVATED, LIGHT ACTIVATED; MODE OF SUPPLY, APPLICATION, COMPOSITION, POLYMERIZATION REACTION OF EACH, TECHNICAL CONSIDERATIONS, MANIPULATION, PHYSICAL PROPERTIES DENTURE BASE RESINS: TEMPORARY DENTURE BASE MATERIALS - CONTENTS, PROPERTIES, MANIPULATION, ADVANTAGES AND DISADVANTAGES; PERMANENT DENTURE BASES-TYPES, COMPOSITION, PROPERTIES, TECHNICAL CONSIDERATIONS (FLASKING, PACKING, CURING, DEFLASKING AND PROCESSING ERRORS) MISCELLANEOUS RESINS AND TECHNIQUES: REPAIR RESINS, RELINING AND REBASING, SHORT TERM AND LONG-TERM SOFT LINERS, TEMPORARY CROWN AND BRIDGE RESINS, RESIN IMPRESSION TRAYS, TRAY MATERIALS, RESIN TEETH, MATERIALS IN MAXILLOFACIAL PROSTHESIS, INFECTION CONTROL, BIOLOGICAL PROPERTIES AND ALLERGIC REACTIONS. RESTORATIVE RESINS: HISTORICAL BACKGROUND, RESIN BASED RESTORATIVE MATERIALS, COMPOSITE RESTORATIVE MATERIALS-MODE OF SUPPLY, COMPOSITION, POLYMERIZATION MECHANISMS-LIGHT ACTIVATED, CHEMICALLY ACTIVATED, DUAL CURE, POLYMERIZATION SHRINKAGE, CLASSIFICATION OF COMPOSITE RESINS-APPLICATION, COMPOSITION AND PROPERTIES OF EACH, COMPOSITES FOR POSTERIOR TEETH, PROSTHODONTIC RESINS FOR VENEERING, BIOCOMPATIBILITY - MICROLEAKAGE, PULPAL REACTION, PULPAL PROTECTION, MANIPULATION OF COMPOSITES, TECHNIQUES OF INSERTION OF CHEMICALLY ACTIVATED, LIGHT ACTIVATED, DUAL CURE, POLYMERIZATION, FINISHING AND POLISHING OF RESTORATIONS, REPAIR OF COMPOSITES BONDING: DIRECT BONDING, NEED FOR BONDING, ACID-ETCH TECHNIQUE, ENAMEL BONDING, DENTIN BONDING AGENTS, MODE OF BONDING, BOND STRENGTH, SANDWICH TECHNIQUE-INDICATION AND PROCEDURE EXTENDED APPLICATIONS FOR COMPOSITES: RESINS FOR RESTORING ERODED TEETH, PIT AND FISSURE SEALING, RESIN INLAY SYSTEM-DIRECT AND INDIRECT, CORE BUILD-UP, ORTHODONTIC APPLICATIONS

8	**DENTAL WAXES INCLUDING INLAY CASTING WAX** INTRODUCTION AND IMPORTANCE OF WAXES SOURCES OF NATURAL WAXES AND THEIR CHEMICAL NATURE AND CLASSIFICATION PROPERTIES-MELTING RANGE, THERMAL EXPANSION, MECHANICAL PROPERTIES, FLOW AND RESIDUAL STRESSES, DUCTILITY, FLOW, WAX DISTORTION AND ITS CAUSES MANIPULATION OF INLAY WAX: INSTRUMENTS AND EQUIPMENTS REQUIRED PREFORMED WAX PATTERNS OTHER WAXES: CASTING WAX, PROCESSING WAX, BOXING WAX, UTILITY WAX, STICKY WAX, IMPRESSION WAX FOR CORRECTIVE IMPRESSIONS, CARDING WAX, BITE REGISTRATION WAX - APPLICATIONS, MODE OF SUPPLY & PROPERTIES
9	**METAL AND ALLOYS** STRUCTURE AND BEHAVIOUR OF METALS, SOLIDIFICATION AND MICROSTRUCTURE OF METALS, MECHANISM OF CRYSTALLIZATION, CLASSIFICATION OF ALLOYS, SOLID SOLUTIONS, RELEVANT PHYSICAL AND MECHANICAL PROPERTIES, ANNEALING, HEAT TREATMENT, TARNISH AND CORROSION: DEFINITION, CAUSES OF CORROSION, PROTECTION AGAINST CORROSION, CORROSION OF DENTAL RESTORATIONS DENTAL AMALGAM: HISTORY, APPLICATIONS, ALLOY CLASSIFICATION, MANUFACTURE OF ALLOY POWDER, COMPOSITION, AMALGAMATION, SETTING REACTION, RESULTING STRUCTURE, PROPERTIES, MICROLEAKAGE, DIMENSIONAL STABILITY, STRENGTH, CREEP, CLINICAL PERFORMANCE, MANIPULATION, SELECTION OF ALLOY, PROPORTIONING, MECHANISM OF TRITURATION, CONDENSATION, CARVING, FINISHING & POLISHING, EFFECTS OF DIMENSIONAL CHANGES, MARGINAL DETERIORATION, REPAIR OF AMALGAM, MERCURY TOXICITY, MERCURY HYGIENE DIRECT FILLING GOLD: PROPERTIES OF PURE GOLD, MODE OF ADHESION OF GOLD, CLASSIFICATION, MANIPULATION, REMOVAL OF SURFACE IMPURITIES, COMPACTION, PHYSICAL PROPERTIES OF COMPACTED GOLD, CLINICAL PERFORMANCE

10	**DENTAL CASTING ALLOYS** HISTORICAL BACKGROUND, DESIRABLE PROPERTIES OF DENTAL CASTING ALLOYS ALTERNATIVES TO CAST METAL TECHNOLOGY: DIRECT FILLING GOLD, AMALGAM, MERCURY FREE CONDENSABLE INTER METALLIC COMPOUND, CAD CAM PROCESS FOR METAL AND CERAMIC INLAYS, COPY MILLING CLASSIFICATION OF CASTING ALLOYS-BY FUNCTION & DESCRIPTION ALLOYS FOR CROWN AND BRIDGE, METAL CERAMIC AND REMOVABLE PARTIAL DENTURES : COMPOSITION, FUNCTION, CONSTITUENTS, APPLICATION OF EACH ALLOY PROPERTIES OF ALLOYS: MELTING RANGE, MECHANICAL PROPERTIES, HARDNESS, ELONGATION, MODULUS OF ELASTICITY, TARNISH & CORROSION, CASTING SHRINKAGE COMPENSATION OF CASTING SHRINKAGE BIOCOMPATIBILITY: HANDLING HAZARDS, PRECAUTIONS OF BASE METAL ALLOYS, CASTING INVESTMENTS USED HEAT TREATMENT: SOFTENING AND HARDENING HEAT TREATMENT, RECYCLING OF METALS, TITANIUM ALLOYS AND THEIR APPLICATIONS, PROPERTIES AND ADVANTAGES, TECHNICAL CONSIDERATIONS IN CASTING, HEAT SOURCES AND FURNACES
11	**DENTAL CASTING INVESTMENTS** DEFINITION, REQUIREMENTS, CLASSIFICATION MODE OF SUPPLY, COMPOSITION, APPLICATION, SETTING MECHANISM, SETTING TIME & FACTORS CONTROLLING IT SETTING EXPANSION, HYGROSCOPICSETTING EXPANSION, THERMAL EXPANSION & FACTORS CONTROLLING IT TECHNICAL CONSIDERATIONS FOR CASTING PROCEDURES PREPARATION OF DIE, WAX PATTERN, SPRUING, INVESTING, CONTROL OF SHRINKAGE, WAX BURN OUT, HEATING OF INVESTED CASTING RING CASTING AND CASTING DEFECTS

12	**SOLDERING, WELDING AND BRAZING:** NEED FOR JOINING DENTAL APPLIANCES TERMS AND DEFINITIONS SOLDERS - DEFINITION, IDEAL REQUIREMENT, TYPES OF SOLDERS & THEIR FUSION TEMPERATURES, APPLICATIONS, MODE OF SUPPLY, COMPOSITION AND SELECTION, PROPERTIES FLUXES AND ANTI-FLUXES-DEFINITIONS, TYPES, FUNCTION, COMMONLY USED FLUXES AND THEIR SELECTION TECHNIQUES OF SOLDERING AND BRAZING-FREE HAND SOLDERING AND INVESTMENT STEPS AND PROCEDURE WELDING: DEFINITION, APPLICATION, REQUIREMENTS, PROCEDURE. LASER WELDING
13	**WROUGHT BASE METAL ALLOYS** APPLICATIONS AND DIFFERENT ALLOYS USED IN MAINLY FOR ORTHODONTIC PURPOSE-STAINLESS STEEL, COBALT CHROMIUM NICKEL, NICKEL TITANIUM AND BETA TITANIUM PROPERTIES REQUIRED FOR ORTHODONTIC-ALLOYS, WORKINGRANGE,SPRINGINESS,STIFFNESS,RESILIENCE,FORMABILITY,DUCTILITY,EASE OF JOINING, CORROSION RESISTANCE, BIOCOMPATIBILITY STAINLESS STEEL-DESCRIPTION, TYPE, COMPOSITION AND PROPERTIES OF EACH TYPE, SENSITIZATION AND STABILIZATION, MECHANICAL PROPERTIES-STRENGTH, TENSILE, YIELD STRENGTH, BRAIDED & TWISTED WIRES, THEIR NEED COBALT CHROMIUM NICKEL-COMPOSITION, ALLOCATION, PROPERTIES, HEAT TREATMENT, PHYSICAL PROPERTIES NICKEL TITANIUM ALLOYS-SHAPE MEMORY, SUPER ELASTICITY TITANIUM ALLOYS-APPLICATIONS, COMPOSITION, PROPERTIES, WELDING, CORROSION RESISTANCE

14	**DENTAL CEMENTS** DEFINITIONS AND IDEAL REQUIREMENTS OF BASE, LINER SAND LOOTING CEMENTS COMPOSITION, PROPERTIES, CHEMISTRY OF SETTING, MANIPULATION AND USES OF SILICATE, SILICOPHOSPHATE, ZINC PHOSPHATE, ZINC POLYCARBOXYLATE, CALCIUM HYDROXIDE, GLASS IONOMER, MODIFIED GLASS IONOMER AND RESIN CEMENTS PROTECTION OF CEMENT, MODE OF ADHESION AGENTS FOR PULPAL PROTECTION, MODIFICATIONS AND RECENT ADVANCES PRINCIPLES OF CEMENTATION

15	**DENTAL CERAMICS** HISTORICAL BACKGROUND AND GENERAL APPLICATIONS DENTAL CERAMICS - DEFINITION, CLASSIFICATION, APPLICATION, MODE OF SUPPLY, MANUFACTURING PROCEDURE, METHODS OF STRENGTHENING PROPERTIES OF FUSED CERAMICS-STRENGTH & FACTORS AFFECTING IT, MODULUS OF ELASTICITY, SURFACE HARDNESS, WEAR RESISTANCE, THERMAL PROPERTIES, SPECIFIC GRAVITY, CHEMICAL STABILITY, AESTHETIC PROPERTIES, BIOCOMPATIBILITY, TECHNICAL CONSIDERATIONS METAL CERAMICS [PFM]: ALLOYS- TYPES AND COMPOSITION, CERAMIC - TYPES AND COMPOSITION, METAL CERAMIC BOND, BONDING USING ELECTRO DEPOSITION, FOIL COPINGS, BONDED PLATINUM FOIL, SWAGED GOLD ALLOY FOIL COPING, TECHNICAL CONSIDERATIONS FOR PORCELAIN AND PFM RESTORATIONS RECENT ADVANCES-ALL CERAMIC RESTORATIONS, MANGANESE CORE, INJECTION MOLDED, CASTABLE CERAMICS, GLASS INFILTRATED ALUMINA CORE CERAMIC, CERAMIC VENEERS, INLAYS, ONLAYS AND CAD CAM CHEMICAL ATTACK OF CERAMIC BY FLUORIDE

16	**ABRASIVE AND POLISHING AGENTS** DEFINITION OF ABRASION AND POLISHING AGENTS NEED FOR ABRASION AND POLISHING TYPES OF ABRASIVES—FINISHING, POLISHING AND CLEANING TYPES OF ABRASIVES—DIAMOND, EMERY, ALUMINIUM OXIDE, GARNET, PUMICE, KIESELGURH, TRIPOLI, ROUGE, TIN OXIDE, CHALK, CHROMIC OXIDE, SAND, CARBIDES, ZINC OXIDE, ZIRCONIUM SILICATE DESIRABLE PROPERTIES OF AN ABRASIVE, RATE OF ABRASION, SIZE OF PARTICLE PRESSURE AND SPEED GRADING OF ABRASIVE AND POLISHING AGENTS BINDERS PROCEDURES OF POLISHING TECHNICAL CONSIDERATIONS — MATERIAL AND PROCEDURE USED FOR ABRASION AND POLISHING ELECTROLYTIC POLISHING AND BURNISHING

17	**DENTAL IMPLANT MATERIALS** HISTORY TYPES, DIFFERENT DESIGNS, BIOLOGIC PROPERTIES
18	**MISCELLANEOUS** INFECTION CONTROL SEPARATING MEDIA ARTIFICIAL TOOTH MATERIAL DIE SPACERS TRAY ADHESIVES DENTIFRICES BURS ARTICULATING PAPER PRESSURE INDICATING PASTES

PRACTICAL EXERCISES

GYPSUM PRODUCTS - MANIPULATION AND POURING IMPRESSIONS-IDENTIFYING SETTING TIME AND WORKING TIME AND WORKING TIME WITH REFERENCE TO PROPORTION, WATER TEMPERATURE AND SPATULATION TIME

IMPRESSION MATERIALS - MANIPULATION AND MAKING IMPRESSION AND IDENTIFYING SETTING TIME AND DEFECTS AND PREPARATION OF CASTS, MODELS ETC.

SELF CURE AND HEAT CURE ACRYLIC RESIN - MANIPULATION AND CURING

CEMENTS - MANIPULATION AND SETTING TIME AND WORKING TIME FOR LUTING, BASE AND RESTORATION CONSISTENCY- 30HOURS

SILVER AMALGAM— MANIPULATION, TRITURATION, CONDENSATION & SETTING & WORKING TIME