

QUICK REVISION SERIES FOR PUBLIC HEALTH DENTISTRY IN SHORT



FIRST EDITION



QUICK REVISION SERIES FOR PUBLIC HEALTH DENTISTRY

‘IN sHORT’

First Edition



**MES DENTAL COLLEGE AND HOSPITAL
PERINTHALMANNA, KERALA**

ACKNOWLEDGEMENT

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Thanking God Almighty for all mercies!

FOREWORD

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MES DENTAL COLLEGE AND HOSPITAL



It's a pleasure to present the book 'IN SHORT' by Interns of MES Dental College. Many books are available as reference in the subject; however there has been a need for a comprehensive manual, detailing the ways. I am sure the book fulfils the need to a large extent. The manual is specially prepared to help the students of undergraduate studies in Dentistry for quick revisions.

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✧ Based on the syllabus prescribed by Kerala University of Health Science (KUHS)

I. INTRODUCTION TO DENTISTRY

SHORT ESSAYS:

1. Indian Dental Association
2. Alma Ata Declaration (May 2021)

SHORT NOTES:

1. Indian Dental Association (Feb 2017)
2. Functions of IDA
3. Functions of DCI (Feb 2017)
4. DCI
5. Definition of Dentistry

ANSWER KEY

SHORT ESSAYS: -

1. INDIAN DENTAL ASSOCIATION



- Previous name – All India Dental Association by Dr. R. Ahmed
- Formed in 1949

FUNCTIONS: -

- Meetings and conferences
- Publishing Journals
- Opening of Libraries
- Protect public from Unethical treatment
- Exemption from Custom duty
- Express views to Indian legislation
- Conducting educational Campaign
- Publishing research papers
- Encourage Research

MNEMONIC

**MJ met LUCI in
CAMPAIGN at PaRis**

MEMBERSHIP OF IDA: -

- Honorary Members
- Life Members
- Annual Members
- Direct Members
- Student Members
- Affiliate Members

OFFICE BEARERS: -

- President
- President-Elect
- Vice Presidents
- Honorary General Secretary
- Honorary Joint Secretary
- Honorary Assistant Secretary
- Honorary Treasurer
- Editor
- Chairman
- Honorary Secretary

2. ALMA ATA DECLARATION: -

- Has outlined 8 essential components of primary health care
 - 1) Health Education and methods of prevention
 - 2) Promotion of food supply and proper nutrition
 - 3) Adequate supply of safe water and basic sanitation
 - 4) Maternal and child health care, including family planning
 - 5) Immunization
 - 6) Prevention and control of endemic diseases
 - 7) Appropriate treatment of common diseases and injuries
 - 8) Provision of essential drugs

SHORT NOTES: -

1. IDA-Refer Short Essay Question Number -1
2. FUNCTIONS -IDA Refer Short Essay Question Number -1
3. FUNCTIONS -DCI Refer Short Note Question Number -4

4. DENTAL COUNCIL OF INDIA



- ❖ Maintain standard of dental education
- ❖ Formed in **12th April 1949**

FUNCTIONS:

Maintain:

- Minimum education, standard, physical requirement, staff pattern
- Basic qualification and teaching experience
- Dental facilities, duration of course, selection of students
- Examination scheme
- Dental curriculum

5. DEFINITION-DENTISTRY

- ✓ The performance of any operation and
- ✓ The treatment of any disease, deficiency or lesion of human teeth or jaws and
- ✓ The performance of radiographic work
- ✓ In connection with human teeth or jaws or the oral cavity.

6. **COMPOSITION-DCI**

- a) 4 Head of Colleges, recognized by DCI
- b) 1 member-from Medical Council
- c) 1 member-State Government
- d) 1 member-University recognized by DCI
- e) 6 members-Government of India

7. **COMPOSITION-STATE DENTAL COUNCIL**

- a) 4 members-from Part A of State Register
- b) 4 members-from Part B of State Register
- c) Heads of dental college (State)
- d) 1 member- Medical Council
- e) 3 members- State Government
- f) The Chief Medical Officer (State)

II. PUBLIC HEALTH

SHORT ESSAYS:

1. Definition of public health. Write a note about changing concepts in public health (Aug 2018)
2. Definition of public health. Write a note on changing concepts of health
3. Write a note on concepts of prevention
4. Primary Health Care-Definition, principles and characteristics (Aug 2015, Jan 2022)
5. Epidemiological triad (Aug 2018)

SHORT NOTES:

1. WHO definition of Health
2. Web of causation
3. Iceberg of disease (Jan 2022)
4. Natural history of disease (Aug 2017)
5. The germ theory of disease (Feb 2019)
6. Changing concepts of health care (Feb 2019) (May 2021)

ANSWER KEY

SHORT ESSAYS

1. DEFINITION(Winslow-1920)

The science and art of

preventing disease,

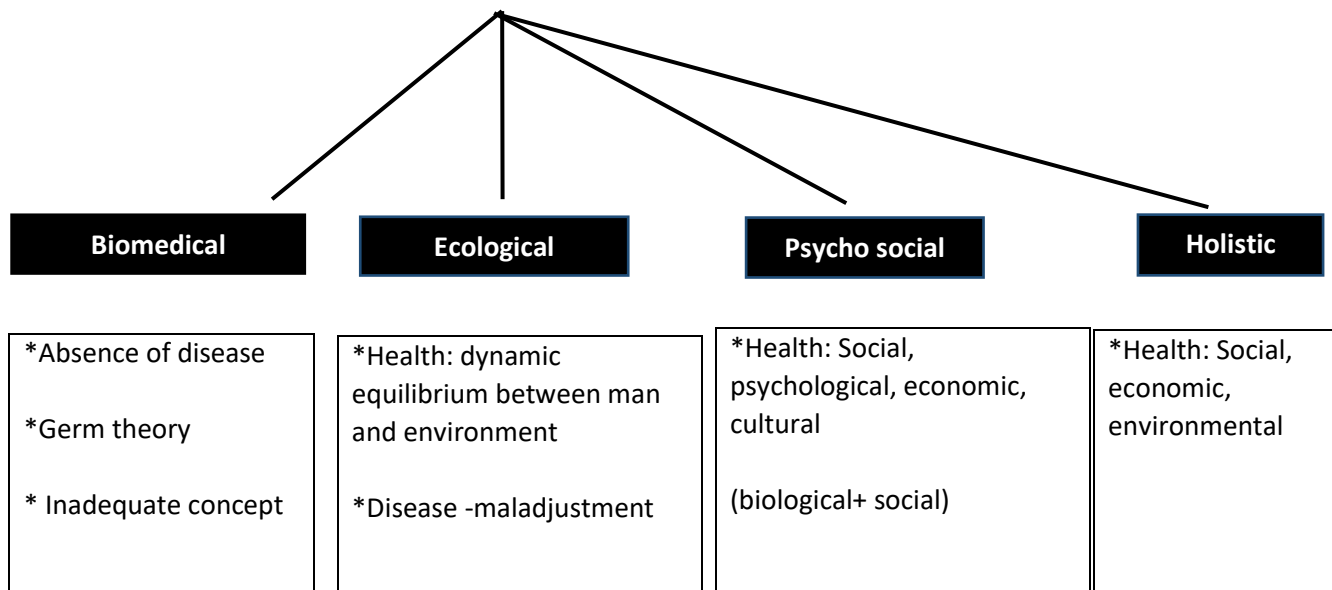
prolonging life and

promoting physical and mental efficiency

through organized community effort for,

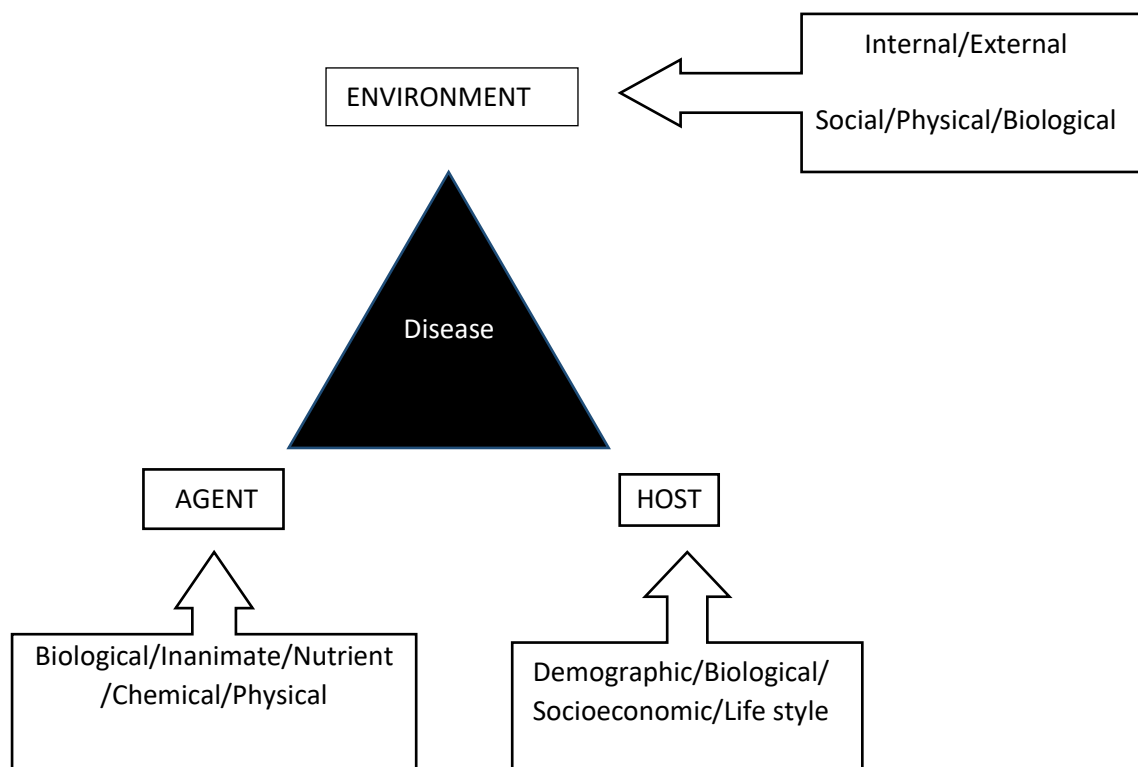
- Sanitation of environment,
- The control of communicable infections,
- The education of individual in personal hygiene,
- The organisation of medical and nursing services for early diagnosis and preventive treatment of disease
- And development of social machinery to insure everyone a standard of living adequate for maintenance of health,
- So, organizing these benefits as to enable every citizen to realise his birth right of health and longevity.

CHANGING CONCEPTS OF HEALTH



CONCEPTS OF CAUSATION

1) EPIDEMIOLOGICAL TRIAD:



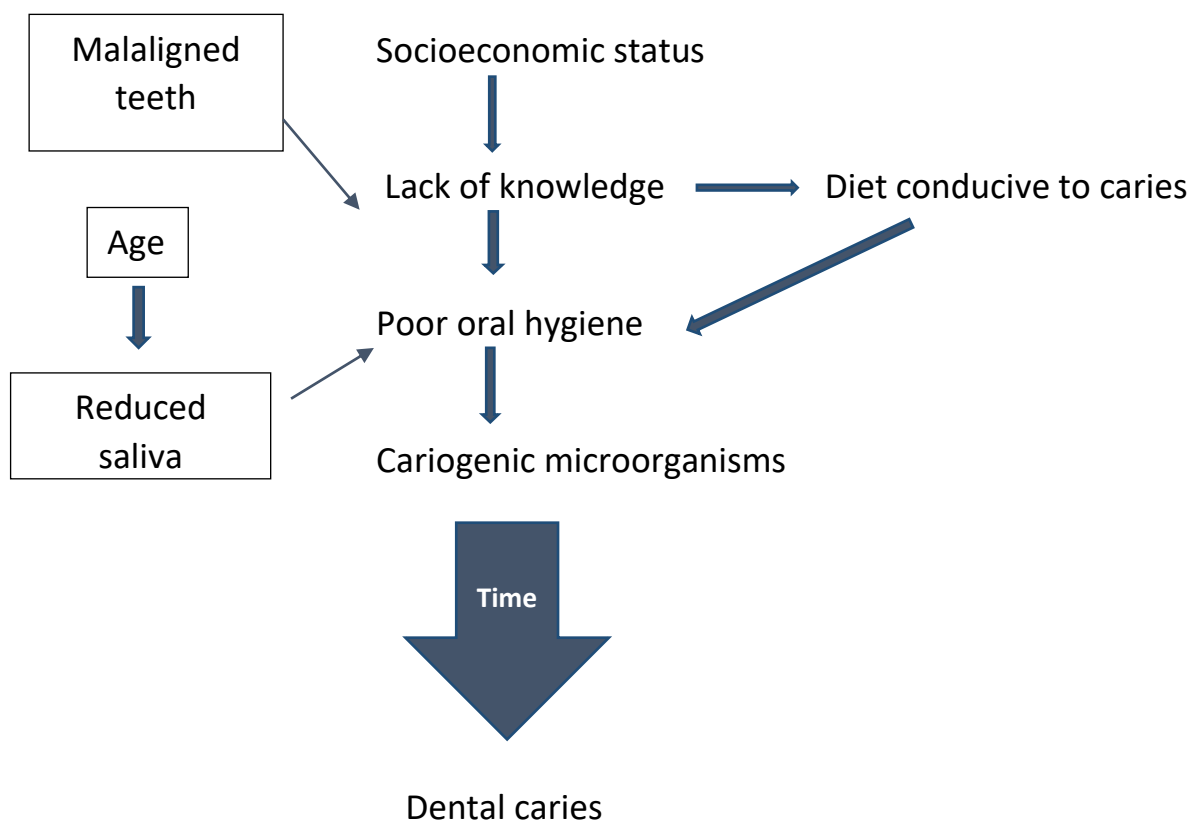
2) MULTIFACTORIAL CAUSATION

- Pettenkofer of Munich
- 1819-1901
- **“Modern”** disease of civilization
- **Not** on basis of ‘single cause idea’

3) NATURAL HISTORY OF DISEASE

- Period of pre-pathogenesis-In environment /not yet entered man.
- Period of pathogenesis-In man/into human/recovery, disability, death.

4) WEB OF CAUSATION

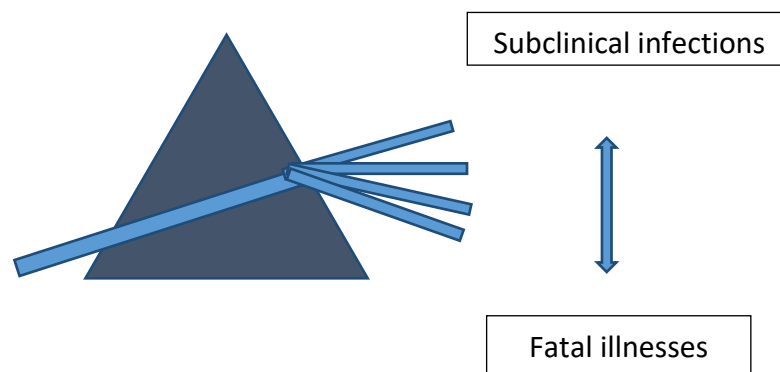


5) RISK FACTORS & RISK GROUPS

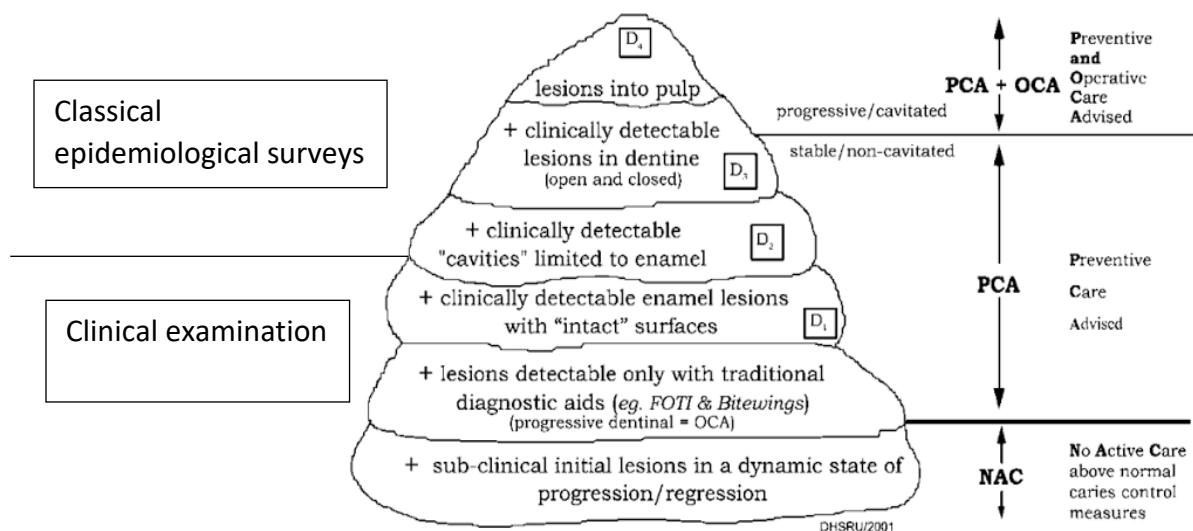
- RISK FACTORS-Exposure associated with development of disease.
- RISK GROUPS-Those who exposed to risk factors.
- RISK APPROACH-To identify the “**risk groups**”/ “**target groups**”.

6) SPECTRUM OF DISEASE

- Graphic representation
- From time of contact to ultimate outcome
- Decelerated or halted by preventive or therapeutic measures.




7) ICEBERG OF DISEASE



2. Definition- Refer Short Essay Question Number- 1

CHANGING CONCEPTS OF PUBLIC HEALTH

- DISEASE CONTROL PHASE (1880-1920)
 - Sanitary legislation & sanitary reforms.
 - Physical environment-water supply, sewage disposal etc.
- HEALTH PROMOTIONAL PHASE (1920-1960)
 - **Personal health services**- mother and child health services, school health services, industrial, mental health and rehabilitation services.
 - Health service through medium of **primary health centres & sub centres, rural** and urban areas- **Lord Dawson of England** (1920).
 - **Community development program** for village development through active **participation of whole community** & on **initiation of community.**
- SOCIAL ENGINEERING PHASE (1960-1980)
 - **“RISK FACTORS”** as determinants of diseases.
 - New health problems-chronic diseases-new challenges-reorientation towards social objectives.
 - Public health  **Community health**
- HEALTH FOR ALL PHASE (1981-2000)
 - 10-20% of population -Ready access to health services.
 - 30th**World Health Assembly**-May 1977-WHO attained by all citizens of world-by 2000, socially, economically productive life.
 - **WHO-UNICEF International Conference, Alma-Ata** (12th sept 1978)- **Primary Health Care as a way to achieve “Health for All”.**

3. CONCEPTS OF PREVENTION

PRIMORDIAL PREVENTION: -Primary prevention and Risk factor prevention.
Main intervention is Health Education.

PRIMARY PREVENTION	SECONDARY PREVENTION	TERTIARY PREVENTION
<p>*Action taken prior to onset of disease</p> <p>*Positive health</p> <p>*Holistic approach</p> <p><u>Advantages: -</u></p> <p>*Low cost</p> <p>*Safe</p> <p>*Not exposed to pain, suffering</p> <p><u>Approaches: -</u></p> <p>*Primordial prevention- prevent development of risk factors</p> <p>*Population(mass) strategy-whole population irrespective of individual</p> <p>*High risk strategy- preventive care to special risk individuals</p> <p><u>Modes of intervention: -</u></p> <p>*Health promotion</p> <p>*Specific protection</p>	<p>*Action halts the progress of disease at incipient stage & prevents complications</p> <p><u>Advantages: -</u></p> <p>*Reduce high mortality, morbidity</p> <p><u>Disadvantages: -</u></p> <p>*Expensive</p> <p>*Subjected to pain</p> <p>*Loss of productivity</p>	<p>*Intervention in late pathogenesis</p> <p>*Disease</p> <p>↓</p> <p>Impairment</p> <p>↓</p> <p>Handicap</p> <p>↓</p> <p>Disability</p> <p><u>Modes of intervention: -</u></p> <p>*Disability limitation</p> <p>*Rehabilitation- medical/psychological/ Vocational/social</p>

4. PRIMARY HEALTH CARE

DEFINITION/CHARACTERISTICS

- Essential health care based on practical, scientifically sound and socially acceptable methods & technology.
- Made universally accessible to individuals & families in community through their full participation.
- At a cost that the community and country can afford to maintain at every stage of their development in spirit of self-determination.

PRINCIPLES

MNEMONIC

IN FACE

1. Equitable distribution: -
 - Health service must be **equally shared by all**.
 - **'Social injustice'**
 - Shifting the centre of gravity of health care to rural areas.
2. Community participation: -
 - Planning, implementation, maintenance of health services.
 - Village health guides & trained dais.
 - In China- **'bare foot doctors'**
3. Intersectoral coordination (multi sectorial approach): -
 - **'Planning'** with other sectors
 - Include oral health in general health
4. Appropriate technology :-
 - **Scientifically sound/adaptable/acceptable/can be maintained/effective/local culture/easily understood**
5. Focus on prevention:-
 - Service not only curative but also **promote health/healthy lifestyles/prevention**

5. EPIDEMIOLOGICAL TRIAD: Refer Short Essay Question Number -1

SHORT NOTES

1. **HEALTH** (WHO 1948)-Health is a state of complete physical, mental, social well-being & not merely the absence of disease or infirmity.

2. **WEB OF CAUSATION** : Refer Short Essay Question Number -1

3. **ICEBERG OF DISEASE** : Refer Short Essay Question Number -1

4. **NATURAL HISTORY OF DISEASE**

- Disease evolves over time from period of its earliest stage to its termination as recovery or death.
- Two phases:-
 - 1) Period of pre-pathogenesis-agent not yet entered man but favour its interaction.
 - 2) Period of pathogenesis-process in man. Agent entry into host

5. **GERM THEORY OF DISEASE**

- Cause of disease microorganisms
- Dr. John Snow-1854-London-drinking water vessel for disease transmission
- Cholera-“father of public health”

6. **CHANGING CONCEPTS OF HEALTH CARE**: - Refer to Short Essay Question Number-2

III. DENTAL PUBLIC HEALTH

SHORT ESSAYS:

1. What are the procedural steps in Dental Public Health?
2. Difference between Private Practice and Public Health Dentistry
3. Duties of public health dentist (May 2021)

SHORT NOTES:

1. Definition of Dental Public Health
2. Duties of public health dentist (July 2019)(January 2020)
3. Tools of dental public health (Jan 2020)
4. Difference between Private Practice and Public Health Dentistry (Aug 2014)
5. Characteristics of public health method (Aug 2017)

ANSWER KEY

MNEMONIC

SA P2 FP

SHORT ESSAYS

1. PROCEDURAL STEPS IN DENTAL PUBLIC HEALTH

a) Survey	<ul style="list-style-type: none"> • Based on chief complaint • Data analysing, evaluating • Socioeconomic status • Nature of Distribution • Available Resources • Attitude of Community
b) Analysis	<ul style="list-style-type: none"> • Characteristics of health problems • Computers are resorted for data analysing
c) Programme planning	<ul style="list-style-type: none"> • Should be accepted by community • Community is well informed • Participate in all steps
d) Programme operation	<ul style="list-style-type: none"> • Executing the program • Health team in various disciplines • Water fluoridation in caries incidence
e) Financing	<ul style="list-style-type: none"> • Provided by government/local/state authorities • Identify source for securing funds • Plan for management of same
f) Programme appraisal	<ul style="list-style-type: none"> • Effectiveness is assessed • Efficiency/appropriateness/adequacy/side effects

2. DIFFERENCE BETWEEN PRIVATE DENTAL PRACTICE & PUBLIC HEALTH DENTISTRY

CHARACTERISTICS	PRIVATE DENTAL PRACTICE	PUBLIC HEALTH DENTISTRY
TARGET	Individual patient	Community/group
INFORMATION COLLECTION	History taking & oral examination	Analysis of available records
INVESTIGATIONS	Radiography, blood test, biopsies	Epidemiological surveys
CONCLUSIONS	Diagnosis	Situational analysis & utilization of service
REMEDY	Based on diagnosis, patient attitude, affordability	Based on demand, available resources, priorities
MAJOR EMPHASIS	Curative, restorative care	Promotive & preventive care
REQUIREMENTS FOR SUCCESS	Patient's consent, cooperation	Community participation
SERVICE PROVIDER	Alone/with assistant	Health team/para professionals/ community volunteers
INTERVENTION	Appropriate procedure	Pro motive, Preventive measure
SUPPORTIVE DISCIPLINES	Psychology	Sociology, psychology, epidemiology, Bio statistics
ORGANISATION & MANAGEMENT	Not relevant	Very relevant

PERSPECTIVE	Immediate	Long term
EVALUATION & RESULTS	Relief of symptom, restore function	Formal programme evaluation
AFTER CARE	Recall, further sittings	Self-care, continuing care
FUNDING	By patient	By government/local authorities

3. **Definition** -Refer Short Note Question Number- 1

Refer Short Note Question Number- 2

SHORT NOTES

1. **DEFINITION OF DENTAL PUBLIC HEALTH –**

- The science and art of **preventing** and **controlling dental disease** and **promoting dental health** through organized community efforts.
- It is that form of dental practice which **serves the community** as a patient rather than the individual.
- It is concerned with the **dental health education** of the public, with applied dental research and with the administration of group dental care programs as well as the prevention and control of dental diseases on a community basis.

2. DUTIES OF PUBLIC HEALTH DENTIST:

- i) **H** Health education and motivation
- ii) **D** Delivering dental treatment
- iii) **P** Providing dental prophylaxis
- iv) **A** Application of caries preventive measures
- v) **D**emonstration of new dental preventive methods and procedures to community
- vi) **C**onducting dental public health activities and field experiences to dental students
- vii) **P**articipating in community activities

Mnemonic

HD PAD CP

3. TOOLS IN DENTAL PUBLIC HEALTH-

a) **E**pidemiology:-

- Study of distribution and determinants of health-related events
- Minimize chances of occurrence of disease
- To identify etiologic factors
- To provide data for planning and evaluation

b) **B**iostatistics:-

- Concerned with mathematical data relating to biological events
- Difference between two populations, regarding a particular attribute
- To evaluate efficacy of vaccine, sera and etc.
- To fix priorities

c) **S**ocial sciences:-

- Sociology/cultural anthropology/psychology
- When effort and effect do not match each other

d) **P**inciples of **A**dministration:-

- Way people are arranged into working groups
- Handling of personnel & operations

Mnemonic

Pre B A S E

e) Preventive dentistry:-

- Primary prevention-health promotion, specific protection
- Secondary prevention-early diagnosis, prompt treatment
- Tertiary prevention-disease control

4. DIFFERENCE BETWEEN PRIVATE DENTAL PRACTICE & PUBLIC HEALTH DENTISTRY - Refer Short Essay Question Number - 2

5. CHARACTERISTICS -

- Efficacy in reduction of the targeted disease
- Medically and dentally safe
- Easily and efficiently implemented
- Administered by non-dental personnel
- Accessible to large number of individuals
- Inexpensive
- Uncomplicated
- Maximum acceptance

IV. WATER

LONG ESSAYS:

1. Define potable water. Describe in detail the various methods of purification of water (Feb 2017)
2. What are the methods of purification of water? Discuss in detail on large scale purification of water.(May 2021)-2010 scheme

SHORT ESSAYS:

1. Purification of water on large scale.
2. Purification of water on small scale (Aug 2015)
3. What is safe and wholesome water? Enumerate methods of purification of water at community level. Add a note on rapid sand filtration method (Aug 2014)
4. Define potable water. Describe water purification using rapid sand filters. Add a note on backwashing (Feb 2016)
5. Enumerate the steps in water purification. Describe rapid sand filtration method (Aug 2017)
6. Explain different studies in Community Water Fluoridation.

SHORT NOTES:

1. Potable water (May2021)-2016 scheme
2. Chlorination (Feb 2015)
3. Rapid sand filtration (Feb 2018)
4. Vital layer (Feb 2019)
5. Break point chlorination (July 2019)
6. Filter bed
7. Back washing
8. Double pot method of purification
9. Break point chlorination (Jan 2020)

ANSWER KEY

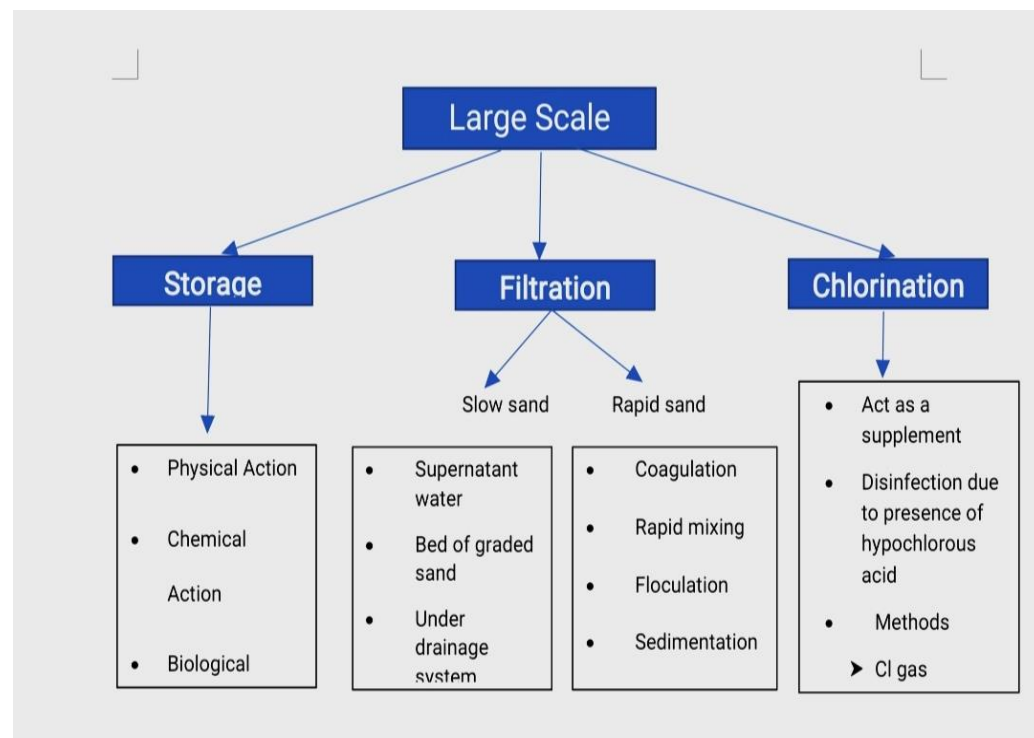
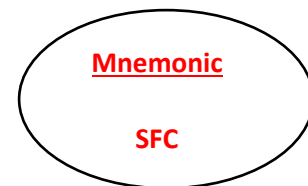
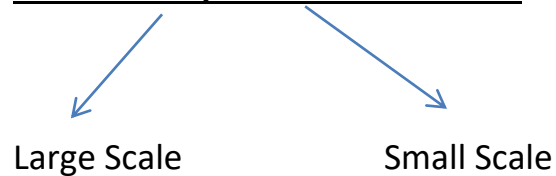
LONG ESSAY

1. POTABLE WATER

Definition - Water that is:

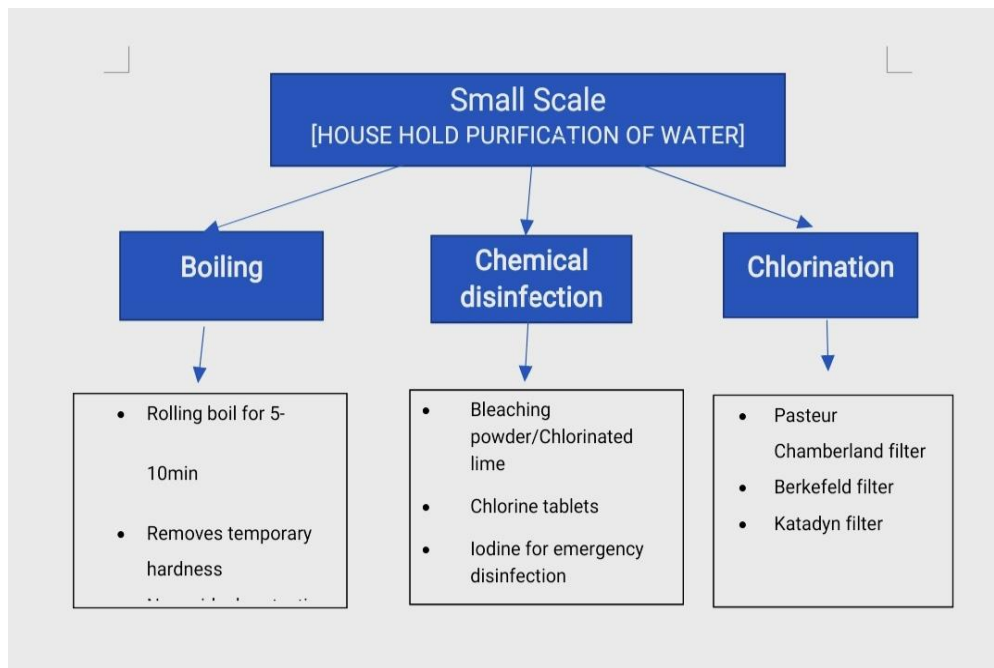
- *Free from pathogenic agents
- *Free from harmful chemical substances
- *Pleasant to taste, free from color and odour
- *Useful for all domestic needs

Methods of purification of water



Mnemonic

BCC



SHORT ESSAYS

1. **Purification of water on large scale** -Refer Long Essay Question Number- 1
2. **Purification of water on small scale** - Refer Long Essay Question Number- 1
3. **SAFE AND WHOLESOME WATER** :Refer Long Essay Question Number- 1 and Short Essay Question Number - 4
4. **POTABLE WATER**-Refer Long Essay Question Number 1

METHODS OF PURIFICATION of water at community level:

RAPID SAND FILTRATION method

Steps:-

- 1) **Coagulation**: Water treated with alum
- 2) **Rapid mixing**: Violent agitation of treated water in mixing chamber
- 3) **Flocculation**: Slow and gentle stirring of water

4) **Sedimentation**: Treated water led to sedimentation tank for 2-6 hours

5) **Filtration**: Subjected to rapid sand filtration

❖ **Backwashing**

- Depends on loss of head
- Reversing the flow of water through sand bed
- Dislodges the impurities
- Takes about 15 minutes
- Washing stopped when water is clean.

5. **Water purification and Back washing** -Refer Long Essay Question Number- 1 and Short Essay Question Number- 4

SHORT NOTES

1. **POTABLE WATER** -Refer Long Essay Question Number -1

2. **CHLORINATION**

- Is a supplement not a substitute
- Kills pathogenic bacteria, oxides of iron, manganese, controls algae, aids coagulation
- Estimate chlorine demand of water.
- Break point chlorination
- Sum of chlorine demand + free residual chlorine = correct dose of chlorine to be applied

Methods

- Chlorine gas
- Chloramines
- Perchloron

3. **RAPID SAND FILTRATION**. -Refer Short Essay Question Number- 4

4. **VITAL LAYER**

- Also known as **Schmutzdecke vital layer/zoogeleal layer/biological layer**
- Refers to slimy growth covering the sand bed surface

- Consists of algae, plankton, diatoms and bacteria
- Extends 2-3cm into top portion of sand bed
- Ripening of filter
- Heart of slow sand filter

5. **BREAKPOINT CHLORINATION**

- Estimate the chlorine demand of water
- Point at which the chlorine demand of water is met: Break point
- Addition of further chlorine beyond this point: Chlorine appears in water

6. **FILTER BED**

- Surface : 80-90 m²
- Sand : filtering medium
- Size of sand particles : **0.4 - 0.7mm**
- Depth of sand bed : 1m
- 30 - 40 cm deep layer of graded gravel
- Depth of water on top of bed : **1 – 1.5m**
- Rate of filtration : 5 - 15 m³/m²/hr

7. **BACKWASHING**- Refer Short Essay Question Number- 4

8. **DOUBLE POT METHOD OF PURIFICATION**

- Designed by NEERI (National Environmental Engineering Research Institute)
- Uses 2 cylindrical pots (one placed inside)
- A hole 1cm diameter is made in each pot
- Inner pot hole - upper portion
- Outer pot hole- 4cm above bottom
- Inner pot filled with mixture of 1kg bleaching powder & 2kg coarse sand
- Inner pot is introduced into outer one
- Mouth of outer pot closed with polyethylene foil
- Pot is lowered into well by rope

V. WASTE MANAGEMENT

SHORT ESSAYS:

1. What is composting. Explain the steps in anaerobic methods of composting (Feb 2019)
2. Classify biomedical wastes. Write in detail about the treatment of biomedical waste. (May 2021)-2010 scheme

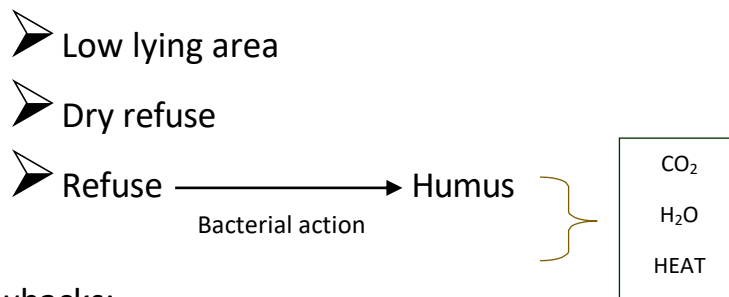
SHORT NOTES:

1. Bangalore method (Feb 2015) (May 2021)-2016 scheme
2. Composting (Aug 2015, Feb 2018)
3. Incineration (Feb 2016, Feb 2017)
4. Methods of solid waste disposal (Aug 2017); (Jan 2022) 2010 scheme
5. Categories of biomedical waste (July 2019) (Jan 2020)
6. Chemical disinfection
7. Colour coding for hospital waste management
8. Biomedical waste

ANSWER KEY

SHORT ESSAYS

1. COMPOSTING:



Drawbacks:-

- Exposed to flies
- Nuisance
- Dispersed
- Pollution
- Unsanitary method

❖ Anaerobic Method- Refer Short Note Question Number- 1

2. CLASSIFICATION OF BIOMEDICAL WASTE:

- 1) **C**hemical waste
- 2) **R**adioactive waste
- 3) **I**nfectious waste
- 4) **S**harps
- 5) **P**athological waste
- 6) **P**harmaceutical waste
- 7) **P**ressurized container
- 8) **G**enotoxic waste
- 9) Waste with high content of heavy **m**etal

MNEMONIC

CRIS P-3 GM

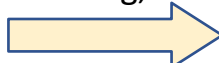
Treatment of biomedical waste:-

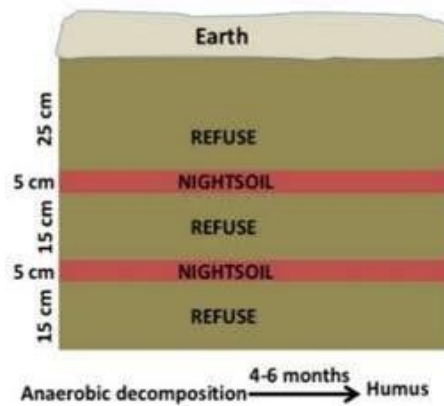
- 1) Incineration- Refer Short Note Number -3
- 2) Chemical disinfection -Refer Short Number- 7

- 3) Wet thermal treatment/Steam disinfection
 - * Based on exposure of shredded infectious waste to high temperature, high pressure steam
 - * Cannot be used for treatment of anatomical or animal carcasses
- 4) Microwave irradiation
 - * Frequency - about 2450 MHz
 - * Wavelength- 12.24 cm
 - * Disadvantage - High costs and maintenance problems
- 5) Encapsulation
 - * Involves filling containers-metal drums with waste
 - * Simple, low cost, safe method
 - * Not recommended for sharp infectious waste
- 6) Safe Burying
 - * Burial site - lined with clay
 - * Only hazardous health care waste should be buried
 - * Burial site - covered with layer of earth
- 7) Inertization
 - * Mixing waste with cement and other substances before disposal
 - * Suitable for pharmaceutical and for incineration ashes
 - * Inexpensive method

SHORT NOTES

1. BANGALORE METHOD/ANEROBIC METHOD

- Hot fermentation process
- 3ft deep/5-8ft broad/15-30ft long/800mtrs from town limits
- Alternate layers of MSW & night soil
- Final soil cover to prevent fly breeding, entry of rainwater
- Decompose for 4-6months  Compost



2. **COMPOSTING**-Refer Short Essay Question Number -1

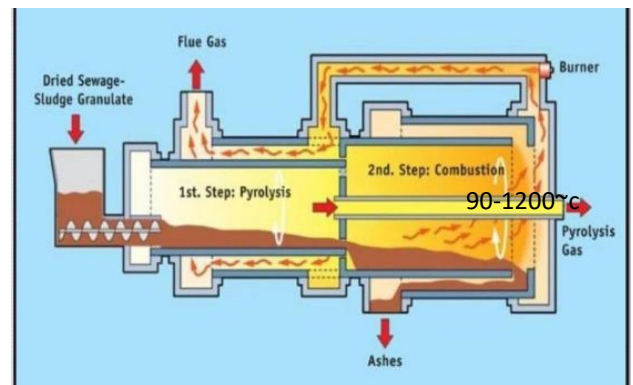
3. **INCINERATION**

- Organic and combustible waste into Inorganic, incombustible waste by oxidation process at high temperature.
- Types**:- pyrolytic/single-chamber/rotary kiln

PYROLYTIC INCINERATOR

Drawbacks:-

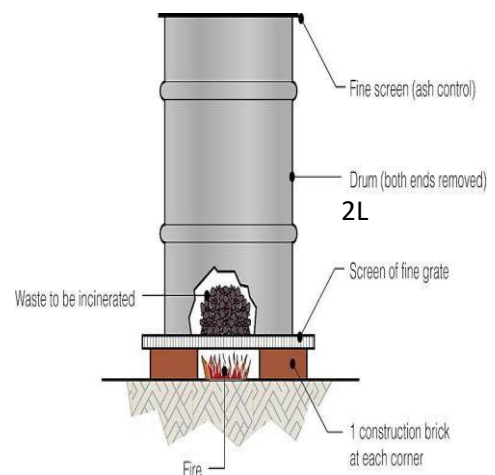
- *Expensive equipment and maintenance.
- *Well trained personnel



SINGLE-CHAMBER INCINERATOR

Drawbacks:

- *Chemical, pharmaceutical residue persist
- *Emission of black smoke, fly ash, toxic gas
- *Air pollution

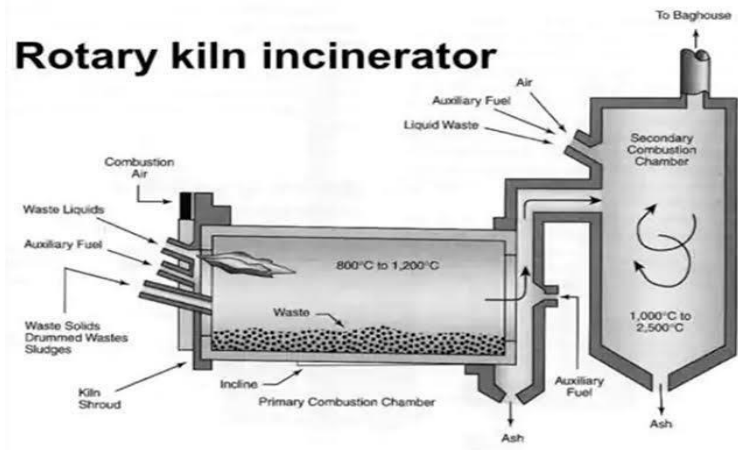


ROTARY KILN

Disadvantages: -

*well trained personnel, expensive, energy consumption, corrosive waste

Capacity = 0.5 – 3 tones / hour

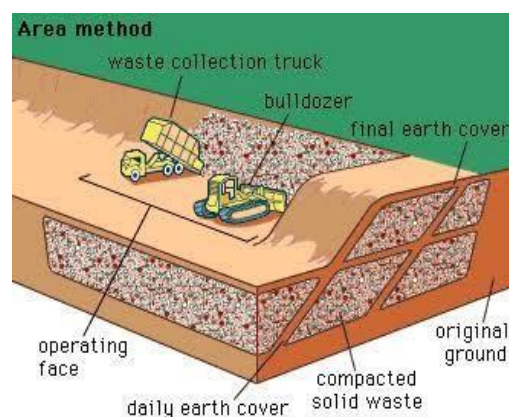
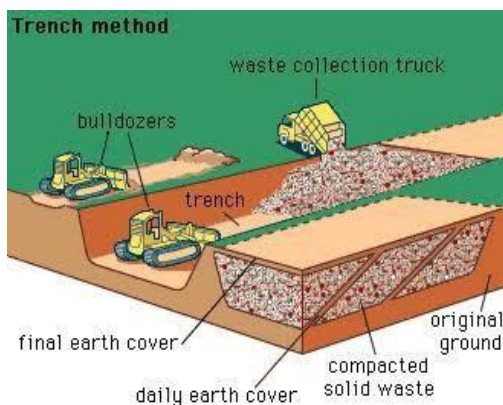


4. METHODS OF SOLID WASTE DISPOSAL

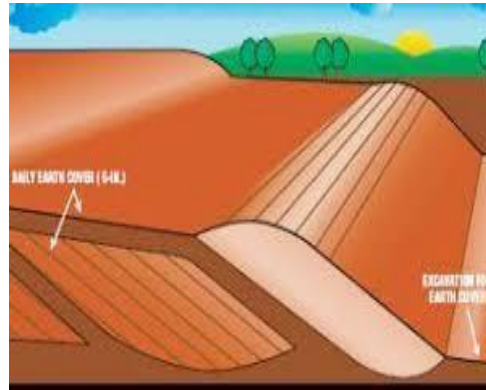
1) CONTROLLED TIPPING (SANITARY LANDFILL)

- Most satisfactory method
- Three methods: Trench/ramp/area

6-10ft deep/12-36 feet wide

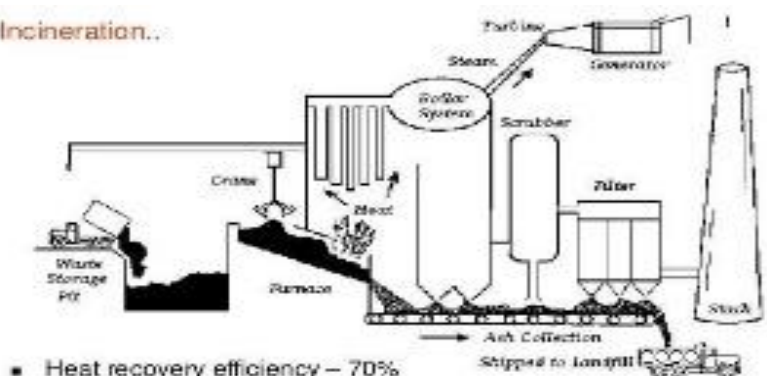


Ramp method



2) INCINERATION

• Incineration..



- Heat recovery efficiency – 70%
- Amount of steam produced varies from 1.0 to 3.5 kg/kg of MSW

3) BANGALORE METHOD – Refer Short Note Question Number - 1

4) BURIAL

- Trench is excavated
- Filled with earth and compacted
- For small camps

5) MANURE PITS

- Garbage, cattle dung, straw, leaves
- Covered with earth
- In 5-6 months, refuse converted into manure

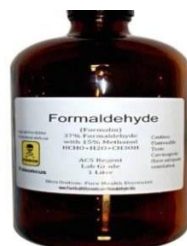
6) COMPOSTING –Refer Short Essay Question Number- 1

5. CATEGORIES OF BIOMEDICAL WASTE



6. CHEMICAL DISINFECTION


FORMALDEHYDE	GLUTERALDEHYDE
Contact time-45mins	Contact time-5mins
Against bacteria, virus, bacterial spore	Against bacteria, parasite eggs
Protective aids should be used	2% Aqueous sol with acetate buffer
Human carcinogen	Protective aids should be used
	Never discharged in sewers

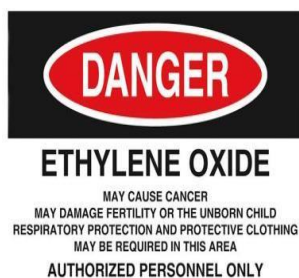


SODIUM HYPOCHLORITE

- Against bacteria , viruses, spores
- Protected from sunlight
- Reacts with acid
- Irritant to skin , eyes, respiratory tract
- Use protective aids



ETHYLENE OXIDE	CHLORINE DIOXIDE
Against bacteria, viruses, spores	Reddish-yellow gas
Irritant to skin, eyes	Against bacteria, viruses, spores
Protective aids should be used 	Irritant to skin, eyes, respiratory tract
Human carcinogen	Drinking
Not recommended	Water, sanitation, waste management



7. COLOUR CODING FOR HOSPITAL MANAGEMENT



8. Biomedical waste- Refer Short Note Question Number 5 & 7

VI. SOCIAL SCIENCE AND HEALTH BEHAVIOUR

SHORT NOTES:

1. Taboo (Jan 2022)
2. Contingency management
3. Tell show do
4. Theories of behaviour change
5. Social norms (May 2021)-2016 scheme

ANSWER KEY

SHORT NOTES

1. TABOO

- It's a vehement prohibition of an action based on behalf that such behaviour is

Either **too sacred or too accursed** for **ordinary individuals** to undertake, under threat of **supernatural punishment**.

Common taboos:-

Religious

Reproduction

Infanticide

Cultural

Ritual

Dietary laws

Cannibalism etc.

2. CONTINGENCY MANAGEMENT

- Definition: It is a method of modifying the behaviour of children by presentation or withdrawal of reinforcers.
- These reinforcers can be :
 - A) Positive reinforce
 - B) Negative reinforce

- Types of reinforcements:
 - A) Social - e.g.: Praise positive facial expressions
 - B) Material -e.g.: toys, sweets
 - C) Activity reinforces -e.g.: Watching a TV show or special programs
 - Behaviour Therapy
 - Individuals are '**reinforced**' or '**rewarded**' for positive behavioural change
 - Vouchers, Inexpensive Gifts

3. TELL SHOW DO

- Child is **told** about the treatment, **showed** the instruments & treatment is **performed**
- **TELL** -Verbal explanations
- **SHOW**-Demonstrate the **visual, auditory, tactile, olfactory** aspects of procedure
- **DO** -Without deviating from explanation & demonstration completion of
Procedure

Communication skills & positive reinforcement

- Concept : Addlestone (1959)
- Tell and show every step and instrument and explain what is going to be done

- Indications :
 - A) First visit
 - B) New dental procedure
 - C) Fearful child
 - D) Apprehensive child
- Effective in children - more than 3 years of age

4. THEORIES OF BEHAVIOUR CHANGE

- Psychodynamic Theory

1. Classical psychoanalytical theory by Sigmund Freud

Developmental stages

- a) Oral stage - 1st year
- b) Anal stage - 1-3 years
- c) Phallic stage -3-4 years
- d) Latency stage -6-12 years
- e) Genital stage - Puberty

2. Developmental tasks theory by Erik Erikson

Stages:

- a) Trust versus Mistrust
- b) Autonomy versus shame /doubt
- c) Initiative versus guilt
- d) Industry versus inferiority
- e) Identity versus role confusion
- f) Intimacy versus Isolation
- g) Generativity versus Stagnation
- h) Integrity versus Despair

- Behaviour learning theory

1. Classical conditioning theory by Ivan Pavlov
2. Operant conditioning theory by B.F Skinner
3. Theory of Cognitive Development by Jean Piaget
4. Social Learning Theory by Albert Bandura

5. **SOCIAL NORMS**

- These are the rules that a group uses for appropriate and inappropriate values, beliefs, attitude and behaviours
- Failure to stick to rules- Severe punishments
- Indicates approved way doing things, of dress, of speech and of appearance
- Three types of norms:
 - i) Folkways**
 - ii) Mores**
 - iii) Taboos**

VII. GENERAL EPIDEMIOLOGY

LONG ESSAYS:

1. Define and classify epidemiology. Explain the experimental epidemiology in detail (Feb 2017)
2. Define epidemiology. Describe in detail on analytical Epidemiology (January 2020)
3. Define epidemiology. Discuss host, agent and environmental factors in relation to dental caries.
4. Define epidemiology. Discuss in detail about the epidemiological triad of dental caries. Add a note on time factor.
5. Define epidemiology. Discuss in detail about descriptive epidemiology.

SHORT ESSAYS:

1. Define and explain in detail about cohort study (Feb 2015)
2. Define epidemiology and classify epidemiological methods. Discuss the steps in randomised controlled trials (Aug 2016)
3. Define epidemiology. Discuss in detail about the host, agent and environmental factors affecting dental caries (Feb 2018)
4. Epidemiological triad
5. Experimental epidemiology (Aug 2015)
6. Uses of epidemiology

SHORT NOTES:

1. Bias (Feb 2018) and Berksonian Bias (May 2021)- 2016 scheme
2. Difference between case control study and cohort study
3. Epidemiological triad
4. Principles of epidemiology
5. Prevalence (Feb 2015)
6. Time trends in epidemiology
7. Incidence (Feb 2017, Jan 2020)
8. Tools of measurement in epidemiology
9. Types of randomised controlled trial
10. Relationship incidence and prevalence (May 2021)-2010 scheme
11. Odds ratio
12. Blinding and types
13. Community intervention trial
14. Parallel and cross over study

ANSWER KEY

LONG ESSAYS

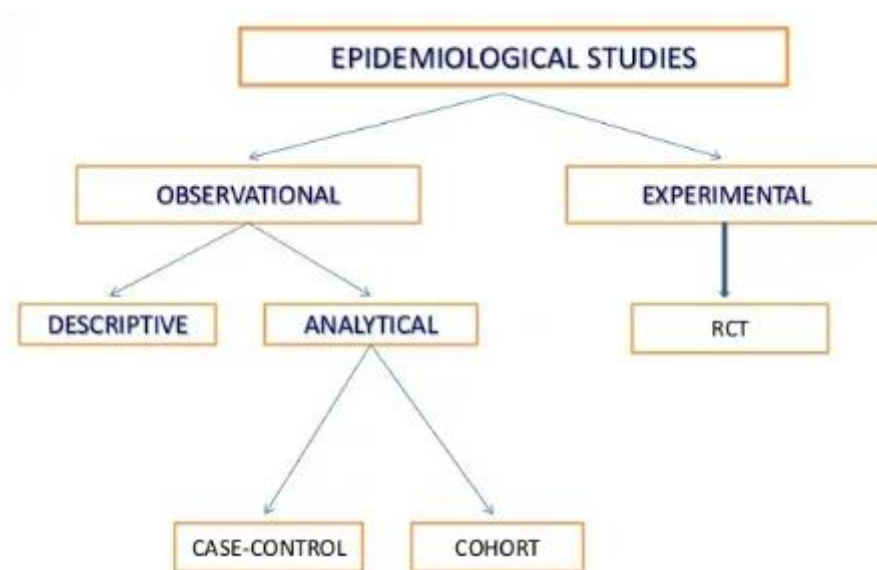
1. Definition-EPIDEMIOLOGY

JOHN M. LAST (1988):-

- The study of the distribution and determinants of health-related states.
- Events in specified populations and the application of this study to the control of health problems.

EPIDEMIOLOGICAL METHODS - CLASSIFICATION

1. Descriptive epidemiology (observational studies)
2. Analytical epidemiology
3. Experimental epidemiology



EXPERIMENTAL EPIDEMIOLOGY

- Intervention or experimental study involves attempting to **change a variable** in subjects under study
- The effects of an intervention are measured by **comparing the outcome** in the **experimental group** with that in a **control group**

OBJECTIVES OF EXPERIMENTAL STUDIES

- To provide a **scientific proof** of etiological of disease and risk factor which may prevent **modification or control those** of disease.
- To provide a method of measurement for effectiveness and efficiency of **therapeutic / preventive measure of disease**.
- To provide a method of measurement for the efficiency **health services** for prevention, control and treatment of disease.

TYPES OF EXPERIMENTAL STUDIES

1. Randomized control trials
2. Non randomized or non-experimental trials

2. DEFINITION –Refer Long Essay Question Number- 1

ANALYTICAL EPIDEMIOLOGY

- Analysing relationships between health status and other variables
- Subject of interest is individual, but inference applied to population

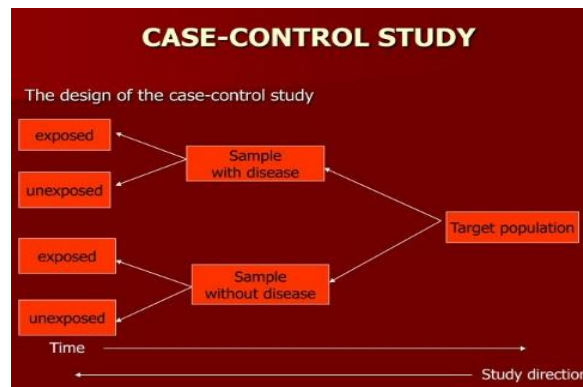
TYPES:

- **Case control studies** (case referent studies / retrospective)
- **Cohort studies** (forward looking / prospective / longitudinal / incidence)

CASE-CONTROL STUDIES

Three features:-

- 1) Both **exposure and outcome (disease)** has occurred
- 2) Study proceeds backwards from **effect to cause**
- 3) It uses a **control group** to **support or refuse** interference



BASIC STEPS IN CASE-CONTROL STUDY

- Selection of cases and controls
 - Matching
 - Measurement of exposure
 - Analysis and interpretation
3. Definition - Refer Long Essay Question Number -1 and Refer Long Essay Question Number- 2 of chapter Epidemiology of Dental caries.
 4. **Epidemiological triad**- Refer Short Essay 5 of chapter Public Health.
- Time factor** -Refer Long Essay Number 1 on Epidemiology of dental caries

SHORT ESSAYS

1. COHORT STUDIES

- Cohort is a group of people with **similar characteristics**
- Begins with a group of people who are **free of disease**
- Whole cohort is **followed up** to see the effect of exposure

TYPES OF COHORT STUDY

- **P**rospective cohort study (current cohort study)
- **R**etrospective cohort study (historical cohort study)
- **C**ombination of retrospective and prospective cohort study (ambispective)

MNEMONIC

CPR

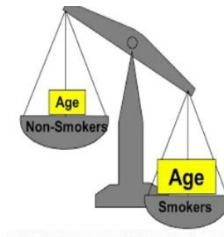
ELEMENTS OF COHORT STUDY

- Selection of study subjects
- Obtaining data on exposure
- Selection of comparison groups

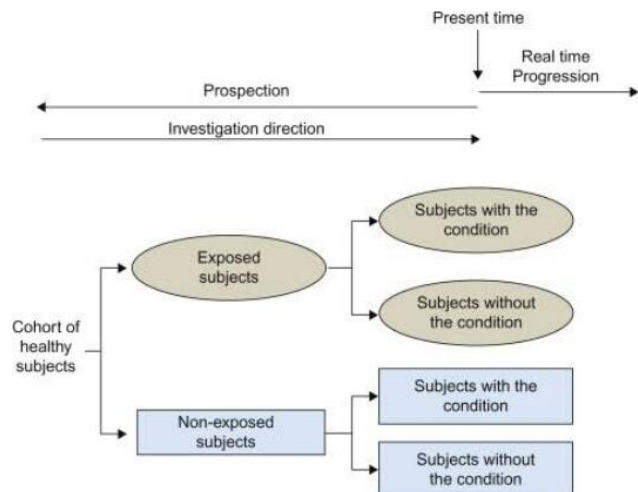
- Follow-up
- Analysis

BIAS IN COHORT STUDIES

- Selection bias: occurs when a group studied does not reflect the same distribution of characteristics.



Information bias: occurs when there is an error in the classification of individuals with respect to the outcome variable



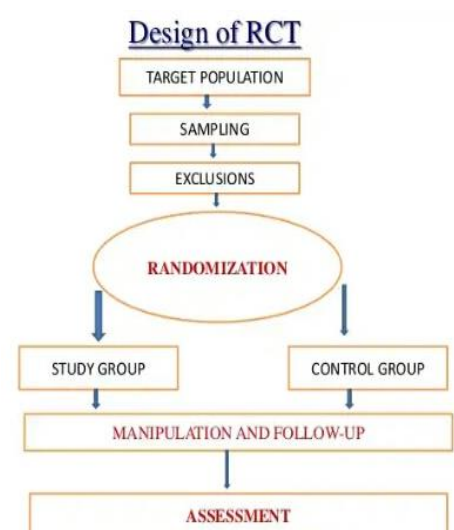
- Confounding bias: occurs when other factors those are associated with the outcome and exposure variable do not have the same distribution in the exposed and unexposed groups.
- Post hoc bias (false cause): The testing of hypothesis that the study was not designed to test.

2. Definition-Refer Long Essay Question Number- 1.

RANDOMIZED CONTROL TRIALS (RCT)

BASIC STEPS IN RCT

- Drawing up a protocol
- Selecting reference and experimental populations
- Randomization
- Manipulation/intervention
- Follow-up
- Assessment of outcome



3. Definition-Refer Long Essay Question Number- 1 and Refer Long Essay Question Number- 2 of chapter Epidemiology of Dental caries.

4. **Epidemiological triad**-Refer Short Essay Question Number- 5 of chapter Public Health

5. **Experimental Epidemiology** - Refer Long Essay Question Number- 1

6. Uses of Epidemiology

A) Community Diagnosis

- Collection, description, analysis and distribution of disease
- Determining factors of disease:-
 - *Age and Sex
 - *Race and Nativity
 - *Geographic area
 - *Socioeconomic factor

B) Rise and fall of Disease

- One epidemic follows a previous one
- Causing agent will differ over time

C) Planning and Evaluation

- Rational allocation of limited resources
- Whether measures taken to reduce disease are effective

D) Evaluation of individuals' risk

- To estimate specific illness that occur to specific individuals
- By careful collection and critical analysis

E) Syndrome identification

- To distinguish similar disorders and aid in differential diagnosis

F) Search for causes/risk factors

- To determine all details of natural history and prevention

G) Completing the natural history of disease

- Population analysis to complete the clinical picture

SHORT NOTES

1. BIAS:-

- Bias may arise from the errors of assessment of outcome due to human element
- 3 sources
 - 1) Bias on part of subject
 - 2) Observer bias
 - 3) Bias in evaluation

BERKSONIAN BIAS:-

- Due to selective factors of admission to hospitals
- Occurs in hospital-based studies
- Causes of bias : burden of symptoms, access to care
- More common in observational studies - case control studies

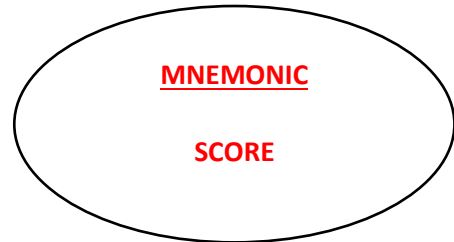
2. DIFFERENCE BETWEEN CASE CONTROL AND COHORT STUDY

Case control study	Cohort study
<ol style="list-style-type: none"> 1. From <i>effect to cause</i>. 2. Starts with disease. 3. Tests whether the suspected factor associated more with diseased. 4. First approach to <i>testing the hypothesis</i>. 5. fewer no of subjects. 6. Suitable for <i>rare disease</i>. 7. Only estimates <i>Odds ratio</i>. 8. Relative inexpensive. 	<ol style="list-style-type: none"> 1. From <i>cause to effect</i>. 2. Starts with people exposed to risk factors. 3. Tests whether disease occur more in those who exposed to risk factor. 4. Reserved for <i>precisely formulated hypothesis</i>. 5. Large no of subjects. 6. Inappropriate when exposure is rare. 7. Yeilds <i>IR, RR, AR</i>. 8. Expensive.

3. **Epidemiological triad**- Refer Short Essay Question Number- 5 of Chapter Public Health

4. PRINCIPLES OF EPIDEMIOLOGY

- **E**xact Observation
 - **C**orrect Interpretation
 - **R**ational Explanation
 - **S**cientific Construction



5. PREVALENCE

Prevalence is **total no. of existing cases (old + new)** in a **defined population** at a particular point in time or over a period of time.

Prevalence = total no of cases at a given point of time / estimated population at time x 100

- Point prevalence- prevalence for a given point of time
- Period prevalence- prevalence for specified period

6. TIME TRENDS –Refer Long Essay Question Number -1 on Epidemiology of Dental Caries

7. INCIDENCE

“Number of new cases occurring in a **defined population** during a **specified period of time**”

Incidence = number of new cases of a specific disease during given period of time / Population at risk x 1000

- Episode incidence
- Cumulative incidence

8. TOOLS OF MEASUREMENT IN EPIDEMIOLOGY

1) Rates-

Crude Rates

Specific Rates
Standardized Rates

2) Ratio

3) Proportion

9. TYPES OF RCT

A) Clinical trials

*Phase 0 trial

*Phase I trial

*Phase II trial

*Phase III trial

*Phase IV trial

*Phase V trial

B) Preventive trials

C) Risk factor trials

D) Cessation experiments

E) Trial of etiological agents

F) Evaluation of health services

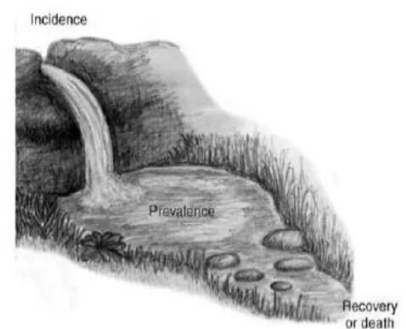
G) Community intervention trials

10. Relation between incidence and prevalence

Prevalence= incidence x mean duration.

$$P = I \times D$$

Relation between Incidence & Prevalence



11. ODDS RATIO (cross product ratio)

- It is the estimation of risk of disease with exposure

$$\text{ODDS RATIO} = ad/bc$$

12. BLINDING

3 types:-

- Single blind trial- Participant not aware of group
- Double blind trial- Neither investigator nor participant is aware of the group
- Triple blind trial- Participant, investigator and person analysing the data are **blind**

13. COMMUNITY INTERVENTION TRIAL (CIT)

- In hospitals and clinics
- Classic example- testing a vaccine
- Done on communities rather than individuals
- Community diagnosis
- Design evaluation
- Process evaluation
- Impact evaluation
- System evaluation

14. PARALLEL AND CROSS OVER STUDY

Parallel	Crossover
Groups assigned different treatments	Each patient receives both treatments
Shorter duration	Longer
Sample size- large	Smaller
No carryover effect	Carryover effect
Acute cases	Not in acute, Chronic, stable

VIII. EPIDEMIOLOGY, ETIOLOGY AND PREVENTION OF DENTAL CARIES

LONG ESSAYS:

1. Define epidemiology. Discuss in detail about the epidemiological triad of dental caries. Add a note on time factor. (Aug 2015, July 2019)
2. Define epidemiology. Discuss host, agent and environmental factors in relation to dental caries. (Aug 2017)

SHORT ESSAYS:

1. Define prevention. Discuss various measures for prevention of dental caries. (Feb 2015)
2. Define epidemiology. Discuss the theories of caries aetiology.
3. Discuss in detail the host factors in etiology of dental caries. (May 2021)- 2010 scheme

SHORT NOTES:

1. Cariogram (Feb 2016)
2. Snyder's test (Jan 2020)
3. Dietary studies
4. Caries risk assessment
5. Dental caries vaccine (Jan 2022)
6. Caries activity test

ANSWER KEY

LONG ESSAYS

1. EPIDEMIOLOGY

DEFINITION:-

- The study of the distribution and determinants of health-related states or events in specified populations, and the application of this study to the control of health problems. (John M Last)

EPIDEMIOLOGICAL TRIAD OF DENTAL CARIES

I. A SUSCEPTIBLE HOST TISSUE

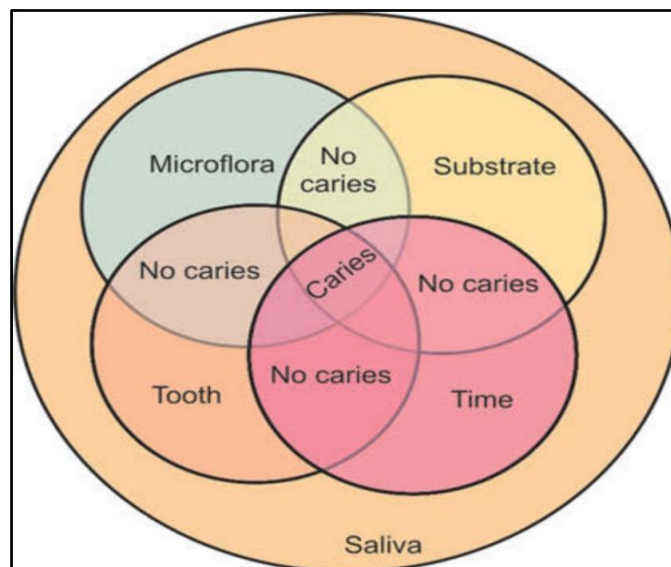
1. Tooth
2. Saliva
 - a. pH
 - b. Quantity of saliva
 - c. Viscosity
 - d. Antibacterial properties
 - Lactoperoxidase
 - Lysozyme
 - Lactoferrin
 - IgA
3. Other host factors
 - a. Age
 - b. Gender
 - c. Race

- d. Socioeconomic factor
- e. Familial and genetic patterns

II. MICROFLORA WITH A CARIOGENIC POTENTIAL

III. A SUITABLE LOCAL SUBSTRATE

- Diet and nutritional factors
 - Physical properties of food- food clearance and retention
 - Nature- soft refined foods are more cariogenic
 - Carbohydrate content
 - Vitamin content



DIETARY STUDIES

- VIPEHOLM STUDY

(Gustaffson et al)

- 5-year investigation
- 7 groups
 - A control group
 - A sucrose group

- A bread group
 - A chocolate group
 - A caramel group
 - An 8-toffee group
 - A 24-toffee group
- HOPEWOOD STUDY
(Sullivan and Harris)
 - Children between 7 to 14 years of age residing at Hopewood House, Bowral, New South Wales.
 - Studied for 10 years
- TURKU SUGAR STUDY
 - Scheinin and Makinen
 - Carried out in Turku, Finland
 - Aim: to compare the cariogenicity of sucrose, fructose, xylitol
- HEREDITARY FRUCTOSE INTOLERANCE
- TRISTAN DA CUNHA STUDY
- ANIMAL STUDIES

TIME FACTOR

Fourth factor in development of dental caries.

- Time is another significant factor in the development of dental caries.
- If the tooth surface has been exposed to the acid produced by the bacteria of the dental plaque for a long period, this acid will harm and demineralise tooth surface.

2. **Epidemiological triad**- Refer Long Essay Question Number- 1

SHORT ESSAYS

1. PREVENTION OF DENTAL CARIES

DEFINITION:-

Prevention of caries is based on breaking the chain of events that promote the formation of caries:

By modifying the cariogenic bacterial flora

By altering the substrate on which these bacteria survive

By rendering the tooth less susceptible

LEVELS OF PREVENTION

- PRIMARY PREVENTIVE MEASURES
- SECONDARY PREVENTION
- TERTIARY PREVENTION

PRIMARY PREVENTION

Primary prevention is defined as action taken prior to onset of the disease, which removes the possibility that the disease will even occur.



PRIMARY PREVENTION

Preventive services	Health promotion	Specific protection
Services provided by the individual	<ul style="list-style-type: none"> •Diet planning, •Periodic visits to the dental office 	<ul style="list-style-type: none"> •Appropriate use of fluorides, •Ingestion of sufficient fluoridated water •Use of fluoride dentifrices •Oral hygiene practices
Services provided by the community	<ul style="list-style-type: none"> •Dental health education programs, •Promotion of research 	<ul style="list-style-type: none"> •Community or school water fluoridation •School fluoride mouth rinse •Tablet and sealant programs
Services provided by the dental professionals	<ul style="list-style-type: none"> •Patient education, •Plaque control programs •Diet counseling •Dental caries activity test 	<ul style="list-style-type: none"> •Topical application of fluorides •Fluoride supplements and rinses •Pits and fissure sealants

SECONDARY PREVENTION

Secondary prevention is defined as actions which halt the progress of a disease at its incipient stage and prevents complications.



SECONDARY PREVENTION

Preventive services	Early diagnosis and prompt treatment
Services provided by the individual	<ul style="list-style-type: none"> • Self examination and referral • Use of dental services
Services provided by the community	<ul style="list-style-type: none"> • Periodic screening and referral •Provision of dental services
Services provided by the dental professionals	<ul style="list-style-type: none"> • Complete examination •Prompt treatment of incipient lesions •Preventive resin restoration •Simple restorative dentistry •Pulp capping

TERTIARY PREVENTION

TERTIARY PREVENTION

Preventive services	Disability limitation	rehabilitation
Services provided by the individual	• Use of dental services	• Use of dental services
Services provided by the community	• Provision of dental services	• Provision of dental services
Services provided by the dental professionals	• Complex restorative dentistry • Pulpotomy • Root canal therapy • Extractions	• Removable and fixed prosthodontics • Implants

Tertiary prevention involves a treatment phase aimed at maximum limitation of disability and maximum rehabilitation.

2) **DEFINITION** -Refer Long Essay Question Number- 1

THEORIES OF CARIES ETIOLOGY

A. EARLY THEORIES OF CARIES FORMATION

- a. The legend of worms

B. ENDOGENOUS THEORIES

- a. Humoral theory
- b. Vital theory

C. EXOGENOUS THEORIES

- a. Chemical (acid) theory
- b. Parasitic (septic) theory
- c. Miller's chemicoparasitic theory (acidogenic theory)
 - Stephan curve
- d. Proteolytic theory
- e. Proteolysis chelation theory

D. OTHER THEORIES OF CARIES ETIOLOGY

a. Autoimmune theory

SHORT NOTES

1. CARIOGRAM

- Cariogram shows if the patient overall is at high, intermediate or at low risk for caries.
- It shows the caries risk only, it does not take into account problems such as fractures of teeth, fillings or discolorations that may make new fillings necessary.

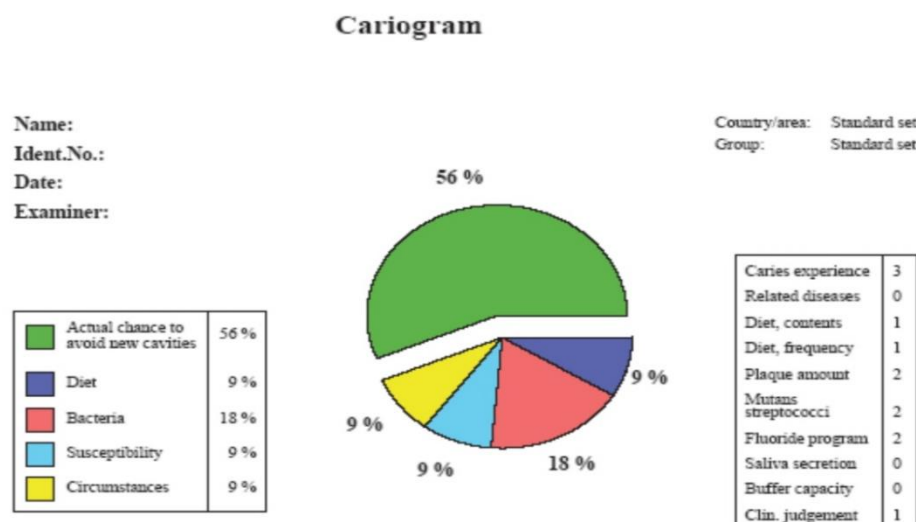


Fig. 1. Example of the Cariogram® caries risk diagram for one individual in the sample .

2. SNYDER'S TEST

- Principle

It measures the ability of salivary microorganisms to form organic acids from a carbohydrate medium.

- Procedure

- Saliva is collected by chewing paraffin wax
- Snyder glucose agar is melted and cooled
- 0.2 mm saliva pipetted into tube and mixed
- Allowed to solidify

- Interpretation

	TIME		
	24 hrs	48 hrs	72 hrs
COLOUR	<u>YELLOW</u>	<u>YELLOW</u>	<u>YELLOW</u>
CARIES ACTIVITY	MARKED	DEFINITE	LIMITED
COLOUR	<u>GREEN</u>	<u>GREEN</u>	<u>GREEN</u>
CARIES ACTIVITY	CONTINUE TEST	CONTINUE TEST	INACTIVE

- Advantage

- Simple
- Cost is moderate

- Disadvantages

- Time consuming
- Color changes may not be clear

3. DIETARY STUDIES

STUDIES	FINDINGS
VIPEHOLM STUDY	
i. Caries increase	<ul style="list-style-type: none"> • Increase consumption of sugar • Consumption of sticky food • Consumption between meals • Varies from individual to individual
ii. Caries decrease	<ul style="list-style-type: none"> • Withdrawal of sugar rich foods with maximum restriction of natural sugars & carbohydrates
HOPEWOOD HOUSE STUDY	i. Significant caries reduction on diet restriction inspite of poor oral hygiene & low F consumption ii. No special protection
TURKU SUGAR STUDY	Caries prevalence Sucrose > Fructose > Xylitol (anticariogenic)
TRISTAN DA CUNHA STUDY	Caries increase on consumption of refined carbohydrates
HEREDITARY FRUCTOSE INTOLERANCE	Avoiding fructose & sucrose reduces dental caries
WORLD WAR II	Caries increase on consumption of refined carbohydrates

The Vipeholm study:-

- The Vipeholm study was conducted shortly after the Second World War in an adult mental institution in Sweden between 1945 and 1953
- The aim of the Vipeholm Study was to determine the relationship between diet, frequency of sugar intake and dental caries. The variables included the type of sugar ingested (sticky or non-sticky form) and the frequency of sugar intake (at meals or in between meals). The subjects (436 patients) were split into one control group and six main test groups, where the 'bread' and '24-toffee' groups were further divided into two separate groups according to gender.

4. CARIES RISK ASSESSMENT

FACTOR	HIGH RISK	LOW RISK
1. Amount of plaque	Large amount of plaque on the teeth, meaning many bacteria that can produce acids (low pH, demineralization)	Few bacteria = "good" oral hygiene
2. Type of bacteria	Large proportion of cariogenic types of bacteria, resulting in lower pH and sticky plaque and also prolonged acid production.	Low proportion of cariogenic types
3. Type of diet	High in carbohydrates, in particular sucrose; "sticky" diet leading to low pH, longer time.	Low sugar content; non sticky type of diet.
4. Frequency of carbohydrates	High sugar frequency resulting in longer time per day with low pH.	Low sugar frequency
5. Saliva secretions	Reduced saliva flow leading to prolonged sugar clearance time and to a reduced amount of other saliva protective systems.	Optimal, helps to wash out sugars and acids.
6. Saliva buffer capacity	Low buffer capacity resulting in prolonged time with low pH.	Optimal, shorter time with low pH
7. Fluorides	Absent : reduced remineralisation	Available : increased remineralisation

5. DENTAL CARIES VACCINE

- Vaccination against Dental caries
- The process of caries development can be interfered by the presence of an effective immune response.
- Vaccines may be prepared from
 - Live modified organisms
 - Inactivated or killed organisms
 - Extracted cellular fractions, toxoids or combination of these

6. CARIES ACTIVITY TEST

i) COLORIMETRIC SNYDER TEST-Refer short note question number- 2

ii) LACTOBACILLUS COLONY COUNT TEST

- Saliva collected by chewing paraffin
- 0.1cc of sample is withdrawn from specimen
- Dilute and undiluted samples-Spread over Agar plate
- Incubation period- 4 Days

iii) THE SWAB TEST

- Swabbing buccal surface of teeth
- Incubated

<u>pH in 48 hours</u>	<u>Caries activity</u>
≤ 4.1	Marked caries activity
4.2 TO 4.4	Active
4.5 TO 4.6	Slightly Active
>4.6	Caries Inactive

iv) S.MUTANS LEVEL IN SALIVA

v) DIP SLIDE METHOD

vi) SALIVARY BUFFER CAPACITY TEST

vii) SALIVARY REDUCTASE TEST

viii) ALBAN TEST

ix) S.MUTANS SCREENING TEST

x) FOSDICK CALCIUM DISSOLUTION TEST

xi) ORA TEST

IX.EPIDEMIOLOGY, ETIOLOGY AND PREVENTION OF PERIODONTAL DISEASE

LONG ESSAY:

1. Define dental plaque and plaque control. Classify plaque control methods. Tabulate the levels of prevention at individual, community and professional level for periodontal diseases. (Feb 2016)

SHORT ESSAYS:

1. Describe dental plaque control and classify the methods of plaque control. Explain the detail mechanical plaque control methods.
2. The role of tooth brush in plaque control (Aug 2015)
3. Describe mechanical plaque control (Feb 2017)
4. Describe chemical plaque control (Feb 2018)
5. Classify mechanical plaque control methods. Discuss in detail about modified bass technique.

SHORT NOTES:

1. Chlorhexidine and its mechanism (Jan 2020) (May 2021) -2010 scheme
2. Dental floss (Aug 2014)
3. Changing concepts of health care (Feb 2019)
4. Oral irrigation (Aug 2016)
5. Classification of Chemical plaque control aids (July 2019, Jan 2020)

ANSWER KEY

LONG ESSAY

1. **Dental plaque** is defined as highly **specific variable** structural entity formed by **sequential colony** of microorganism **on tooth surface, epithelium, and restoration.**

DENTAL PLAQUE CONTROL: It is the removal of microbial plaque and prevention of its accumulation on the teeth and adjacent gingival tissue.

TYPES OF PLAQUE CONTROL METHOD:

1. **Mechanical** plaque control: most dependable form.
2. **Chemical** plaque control: used only as an adjunct to mechanical means and not substitute.

LEVELS OF PREVENTION OF PLAQUE CONTROL:

	Primary		Secondary	Tertiary	
Levels of prevention	Health Promotion	Specific Protection	Early Diagnosis and Prompt Treatment	Disability Limitation	Rehabilitation
Services provided by the Individual	Periodic visits to dental office Demand for preventive services	Oral hygiene practices	Self examination and referral Utilization of dental services	Utilization of dental services	Utilization of dental services
Services provided by the community	Dental health education programs Promotion of research	Provision of oral hygiene aids, Supervised school brushing programs	Periodic Screening and referral Provision of dental services	Provision of dental services	Provision of dental services
Services provided by the dental professional	Patient education Recall reinforcement	Plaque control program Correction of mal-aligned teeth, Prophylaxis	Complete examination, Scaling and curettage, Corrective restorative and occlusal services	Deep curettage Root planing and splinting Periodontal surgery, Selective extractions	Removable or fixed partial dentures Minor tooth movement

SHORT ESSAYS:

1. **Dental plaque definition and methods of plaque control**-Refer Long Essay
Question Number-1

MECHANICAL PLAQUE CONTROL AIDS:-Refer Short Essay Question Number- 3

2. **TOOTH BRUSHES:**

- Most widely used
- Principle instrument
- To promote cleanliness of teeth and oral cavity

OBJECTIVES OF TOOTH BRUSHING:

- To clean teeth, tongue and Interdental spaces of remnants, debris and stains etc.
- To prevent plaque formation
- To disturb and remove plaque
- To stimulate and massage gingival tissue

TYPES OF TOOTH BRUSHES:

- 1) **Manual** tooth brush
- 2) **Powered** tooth brush
- 3) **Sonic and ultrasonic** tooth brush
- 4) **Ionic** tooth brush

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SIMP

PARTS OF TOOTHBRUSH:

➤ POWERED TOOTH BRUSH:

- Automatic mechanical or electric tooth brushes
- Mimics the action of manual tooth brush
- Faster and efficient

INDICATIONS:-

- In young children
- Handicapped patients
- Individual lacking manual dexterity

- Patient with prosthodontic or endo-osseous implant
- Orthodontic patient
- Patient on supportive periodontal therapy

3. MECHANICAL PLAQUE CONTROL

- Tooth brush and **d**entifrice
- **I**nter-dental aids
 - a) Dental floss
 - b) Inter-dental brushes
 - c) Wooden tips
- Aids for **g**ingival stimulation
 - a) Gingival massage
 - b) Water irrigation device
- **T**ongue **s**crapers

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➤ DENTIFRICE: Substance used with a toothbrush for cleaning the accessible surface of teeth.

COMPOSITION:-

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AGENTS	MATERIAL USED	FUNCTIONS
Polishing/abrasive agents	Calcium carbonate, Silica, Alumina	Remove plaque and stains
Binding/thickening agents	Water soluble agents: Alginate Water insoluble: Colloidal silica	Control stability and consistency of toothpaste
Detergents/surfactants	Sodium lauryl sulphate	Foam production helps in removal of food debris
Humectants	Glycerin, sorbitol	Reduces loss of moisture from toothpaste
Flavouring agents	Peppermint oil	Pleasant taste
Sweeteners & colouring agents	Saccharine	Sweetener
Anti-bacterial agents	Triclosan, delmophinol	Kills bacteria
Anti-caries agents	Sodium fluoride, stannous flouride	Prevent caries
Anti-calculus agents	Zinc chloride, zinc citrate	Inhibit the mineralization of plaque
Desensitizing agents	Sodium flouride, Potassium nitrate	Reduce sensitivity

FUNCTIONS OF TOOTHPASTE

- Minimizing plaque build up
- Anti-caries action
- Removal of stains
- Mouth freshener

TOOTHBRUSHING TECHNIQUE

1. The **B**ass method or Sulcus cleaning method
2. **M**odified **B**ass technique
3. **M**odified **S**tillman's technique
4. **F**one's method or circular/scrub method
5. **V**ertical method
6. **C**harters method
7. **S**crub brush method
8. The **R**oll technique
9. Physiologic method

MNEMONIC

BA, MBA, MS

Fo Ve Chart Sc-Roll Phy

➤ THE INTERDENTAL CLEANING AIDS

a) DENTAL FLOSS

- 1) To remove plaque from interproximal tooth surface

2) Forms:

Multifilament- twisted / non twisted
Bonded / non bonded
Thick / thin
Waxed / non waxed

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WIND

b) INTERPROXIMAL OR INTERDENTAL BRUSHES

- Cone or cylindrical brushes made of bristles mounted on a handle
- Inserted through inter proximal spaces- moved back and forth- short strokes.

c) WOODEN TIPS

- Manufactured from orange wood
- Triangular in cross section

- Inserted into the gingival embrasure
- GINGIVAL MASSAGE :- Tooth brushing or Interdental cleansing with various aids or simple finger massage which leads to
 1. Increased keratinization
 2. Increased blood flow
 3. Increased flow of gingival crevicular fluid
- WATER IRRIGATION DEVICES
 - Beneficial in the removal of unattached plaque and debris
 - Composed of built-in pump and a reservoir
 - Deliver antimicrobial agents e.g.: chlorhexidine subgingivally
- TONGUE SCRAPERS
 - Process of removing debris from the surface of tongue
 - Technique:
 - 1) Brushing
 - 2) Tongue cleaning devices

4. CHEMICAL PLAQUE CONTROL:

- Agents proven to be an ideal adjunct to mechanical control procedure.
- ADA has accepted two agents :
 1. Chlorhexidine rinse
 2. Oil rinse

Ideal requisite of Anti-plaque agent:

- Reduce plaque and gingivitis
- Prevent growth of pathogenic bacteria
- Compatible with oral tissue
- Should not stain teeth
- Inexpensive and easy to use

CHLORHEXIDINE GLUCONATE (0.2%)

- Cationic bisbiguanide
- Effective against both gram positive and gram-negative microorganisms
- Exhibit both anti-plaque and antibacterial properties

Mechanism of action:

- Substantivity: superior anti-plaque activity due to its property of sustained availability
- **Bacteriostatic** at low concentration and **bactericidal** at high concentration
- Chlorhexidine inhibit plaque by
 - Preventing pellicle formation
 - Preventing adsorption of bacterial cell wall
 - Preventing binding of mature plaque

Adverse effects of chlorhexidine:

- Brownish staining of teeth
- Loss of taste sensation
- Rarely hypersensitivity
- Stenosis of parotid duct

➤ OTHER PLAQUE CONTROL AGENTS

1. **Triclosan**
2. **Delmopinol**
3. **Metallic ions**
4. **Qua**ternary ammonium compounds: Sanguinarine
5. **En**zymes
6. **Antibiotic**

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5. **Mechanical plaque control methods**- Refer Short Essay Question Number- 3

Modified Bass Technique:

- Vibratory and circular movements of the Bass technique + sweeping motion of the Roll technique
- Bristles of tooth brush are held in 45° to gingiva.
- Bristles gently vibrated by moving brush handle in back-and-forth motion
- Bristles are swept over the sides of teeth towards their occlusal surfaces in a single motion.

SHORT NOTES:-

1. **Chlorhexidine**-Refer Short Essay Question Number- 4
2. **Dental floss**-Refer Short Essay Question Number - 3
3. **Changing concepts of health care**- Refer Short Essay Question Number-2 of Chapter Public Health
4. **Oral irrigation**-Refer Short Essay Question Number-3
5. **Chemical plaque control**- Refer Short Essay Question Number-4

X. EPIDEMIOLOGY, ETIOLOGY AND PREVENTION OF ORAL CANCER

LONG ESSAY:

1. Define epidemiology. Describe in brief the epidemiology of oral cancer. Current status of oral cancer in India. (May 2020)- 2016 scheme

SHORT ESSAYS:

1. Explain the various smoking and smokeless tobacco used in India.(July 2019)
2. Prevention and control of oral cancer.

SHORT NOTES:

1. Regulatory approach in prevention and control of oral cancer (Aug 2018)
2. Nicotine replacement therapy (Jan 2022) 2010 scheme
3. Constituents in tobacco
4. 5 A's in tobacco cessation counselling

ANSWER KEY

SHORT ESSAY

1. SMOKED AND SMOKELESS TOBACCO

SMOKED TOBACCO

- i. Bidi
- ii. Chillum
- iii. Chutta
- iv. Cigarettes
- v. Dhumti
- vi. Hookah
- vii. Hookli

SMOKELESS TOBACCO

- i. Khaini
- ii. Mainpuri tobacco
- iii. Mawa
- iv. Mishra/masheri
- v. Paan
- vi. Snuff
- vii. Zarda
- viii. Gutka
- ix. Paan masala
- x. Gudakhu

BIDI

- *0.2-0.3 gms sun dried tobacco flakes
- *60% leaf wrapper
- *Length- 60mm (regular), 80mm (long)
- *Nicotine-1.7-3mg
- *Tar-45 to 50mg



CHUTTA

- *Cured tobacco wrapped in dried tobacco leaf
- *"cigar"/"cheroor"
- *Cheroor-single bind



CIGARETTES

1 gm of tobacco cured in the sun or artificial heat is covered with a paper

Nicotine 1-1.4mg
Tar 19-27mg



DHUMTI

Rolled leaf tobacco is used inside a leaf of jack fruit tree



KHAINI

*Powdered sun-dried tobacco, slaked lime

*Vigorously mixed with thumb & placed in premolar region of mandibular groove

PAAN

*Betel leaf/quid

*Quid- arecanut, lime, cloves, aniseed, cardamom, cinnamon, coconut, sugar, tobacco.

MAINPURI TOBACCO

*Slaked lime, tobacco, finely cut arecanut, camphor, cloves

*Oral cancer, leukoplakia

- Cigars
 - A combination of chewing and smoking
 - Peaked in popularity in 1920
 - The introduction of the cigarette-rolling machine spurred cigarette consumption because cigarettes became cheaper than cigars.



2. PREVENTION AND CONTROL OF ORAL CANCER

Three approaches :-1) Regulatory approach
2) Service approach
3) Educational approach

Regulatory approach

- **1975-Cigarette Act**-print warnings on cigarette packets.
- **1985-National Cancer Control Program**
- **2003-Cigarette and other Tobacco Products Act**-to prohibit advertisement.
- **2004-WHO's Framework Convention on Tobacco Control(WHO FCTC)**

Service approach

- Screening-search for disease among healthy people

Educational approach

- Role of Dentist:-counsel the patient, inform about dangers of tobacco during pregnancy, reinforce messages, promote oral health, effective advocates for tobacco control in community.

Counselling Those Unwilling to Quit

The **5 A's**
to Quit Tobacco

Ask _____
to quit at every visit.

Advice _____
to quit tobacco at every visit.

Assess _____
willingness to quit at every visit.

Assist _____
quitting within 2 weeks with
pharmacotherapy or counseling.

Arrange _____
follow-up contact in 1st week
after quitting.

5A'S STRATEGY FOR BRIEF INTERVENTION

ASK	Identify and document tobacco use status for every patient at every visit, including the adolescents. Where appropriate, ask the caretaker of the patient about tobacco use or exposure to tobacco smoke.
ADVISE	Advise in a clear, strong and personalized manner urge every tobacco user to quit.
ASSESS	Is the tobacco user willing to make a quit attempt at this time? If the patient clearly states he or she is unwilling to make a quit attempt at this time, provide a motivational intervention built around the "5 R's": Relevance, Risks, Rewards, Roadblocks, and Repetition.
ASSIST	Assist in quit attempt for patients who are willing to make a quit attempt, use counselling with pharmacotherapy (when indicated) to help him or her quit. Apply STAR method in preparations for quitting (see below).
ARRANGE	Follow-up should occur soon after the quit date, preferably during the first week. Subsequent follow-ups are recommended weekly within the first month, and then every two weeks for the 2nd and 3rd month, and monthly after that up to 6 months.

5R'S APPROACH FOR PATIENTS WHO ARE UNWILLING TO QUIT

Relevance	Encourage the patient to indicate why quitting is personally relevant, being as specific as possible.
Risks	Ask the patient to identify potential negative consequences of tobacco use.
Rewards	Ask the patient to identify potential benefits of stopping tobacco use.
Roadblocks	Ask the patient to identify barriers or impediments to quitting and provide treatment that could address barriers.
Repetition	Repeat motivational intervention every time an unmotivated patient visits the clinic setting.

SHORT NOTES

1. **REGULATORY APPROACH**-Refer Short Essay Question Number- 2

2. **NICOTINE REPLACEMENT THERAPY** (NRT)

- Nicotine gum
- Nicotine patch
- Nicotine inhaler
- Nicotine nasal spray
- Nicotine lozenges

Contraindications: -pregnancy, lactation, cardiovascular disease, peripheral vascular disease, endocrine disorder, inflammation of mouth and throat

Nicotine gum:-

- Used under medical supervision
- 1gum=4mg nicotine → Heavily dependent tobacco users
- Chew slowly for five minutes
- Seed mixtures (saunf) used as substitute

3. TOBACCO CONSTITUENTS

TOBACCO

Derived from *Nicotiana tabacum* and *Nicotiana rusticum*.

CONSTITUENTS:

Nicotine
Tar
Carbon monoxide
Nitrogen oxide
Hydrogen cyanide and other ciliotoxics
Metals
Radioactive compounds

Components of tobacco smoke

Component	Operation mechanism	Effects
Nicotine	Affects cholinergic receptors in the nervous system, indirectly causes release of neurotransmitters.	Pleasant feelings, decreases fear and stress, increases arterial blood pressure, accelerates heartbeat, causes physical addiction.
Carbon monoxide	Damages the epithelium of blood vessels by increasing its permeability, inhibits the operation of tissue respiratory enzymes.	Accelerates the flow of carcinogenic substances to blood, inhibits the functioning of the tissue respiratory enzymes, causes oxygen deficiency in the tissues and organs.
Tar	Accumulates in the bronchi of the smoker.	Increases the risk of cancer development.
Radioactive compounds	Accumulate in the bronchi of the smoker.	Increase the risk of cancer development.

XI. EPIDEMIOLOGY, ETIOLOGY AND PREVENTION OF MALOCCLUSION

SHORT NOTES:

1. Angle's system classification
2. Space regainer
3. Fixed maintainers

ANSWER KEY

SHORT NOTES

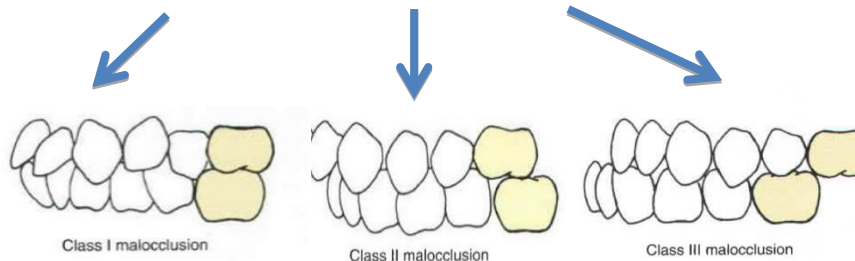
1. ANGLE'S SYSTEM OF MALOCCLUSION

Edward Angle – 1899

Criteria used:

- Based on the mesio-distal relation of the teeth, dental arches and jaws.
- First permanent molar as key of occlusion.
- Based on relation of the lower first permanent molar to upper first permanent molar.
- Maxillary first permanent molar occludes in buccal groove of mandibular first molar

ANGLE'S CLASSIFICATION



CLASS I

- ◆ MESIOBUCCAL CUSP OF MAXILLARY FIRST PERMANENT MOLAR OCCLUDES IN BUCCAL GROOVE OF MANDIBULAR FIRST MOLAR

CLASS II

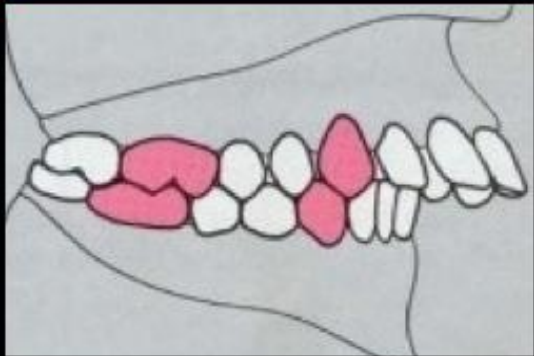
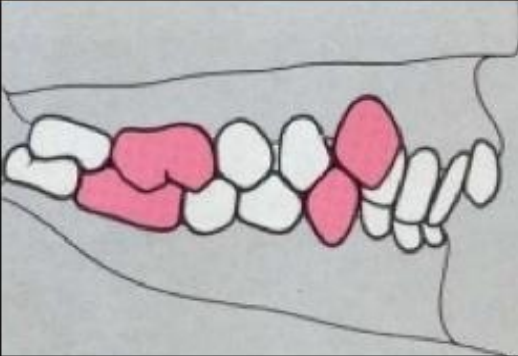
- ◆ DISTOBUCCAL CUSP OF MAXILLARY FIRST PERMANENT MOLAR OCCLUDES IN BUCCAL GROOVE OF MANDIBULAR FIRST MOLAR

CLASS III

- ◆ MESIOBUCCAL CUSP OF MAXILLARY FIRST PERMANENT MOLAR OCCLUDING IN THE INTERDENTAL SPACE BETWEEN THE MANDIBULAR FIRST AND SECOND MOLARS

CLASS II DIV I

CLASS II DIV II

Class II Division 1	Class II Division 2
 <ul style="list-style-type: none"> • PROCLINED UPPER INCISORS • ABNORMAL MUSCLE ACTIVITY- HYPOTONIA OF UPPER LIPS & HYPERACTIVE MENTALIS • TYPICAL FEATURE – LIP TRAP • V SHAPED UPPER ARCH 	 <ul style="list-style-type: none"> • LINGUALLY INCLINED UPPER CENTRAL INCISORS & LABIALLY TIPPED LATERAL INCISORS • NORMAL MUSCLE ACTIVITY • DEEP ANTERIOR OVERBITE • SQUARE SHAPED ARCH

2. SPACE REGAINER

DEFINITION

A fixed or removable appliance capable of moving displaced permanent teeth into its proper position in dental arch.

INDICATION

- Missing one or more primary teeth
- Space loss in the arch due to mesial drift of the first permanent molar

METHODS

FIXED

REMOVABLE



- OPEN COIL SPACE REGAINER-
HERBST SPACE REGAINER
- JACKSCREW REGAINER
- GERBER SPACE REGAINER

- UPPER AND LOWER HAWLEY'S
APPLIANCE WITH HELICAL
SPRING
- HAWLEY'S APPLIANCE WITH
SPLIT ACRYLIC DUMB BELL
SPRING
- HAWLEY'S APPLIANCE WITH
SLING SLOT ELASTIC
- HAWLEY'S APPLIANCE WITH
PALATAL SPRING
- HAWLEY'S APPLIANCE WITH
EXPANSION SCREWS

3. FIXED SPACE MAINTAINERS

Space maintainers that are fixed or fitted onto the teeth are called fixed space maintainers.


ADVANTAGES

- Minimum or no teeth preparation
- No interference - eruption of abutment teeth
- Jaw growth- not hampered
- Succedaneous teeth- free to erupt
- Used in uncooperative patients

DISADVANTAGES

- Elaborate instrumentation with expert skill needed
- Decalcification of tooth materials under the band
- Supraeruption of opposing teeth- pontics not placed
- Interference for eruption of tooth- pontics placed

HINRICHSSEN CLASSIFICATION

<p>1. FIXED SPACE MAINTAINER</p> <div style="text-align: center;">  </div> <p>CLASS I CLASS II</p> <p>i. Non-functional types i. Cantilever type</p> <ul style="list-style-type: none"> ◆ Bar type ◆ Loop type <p>ii. Functional types</p> <ul style="list-style-type: none"> ◆ Pontic type ◆ Lingual arch type 	<p>2. REMOVABLE TYPE</p> <ul style="list-style-type: none"> • Acrylic partial dentures <div style="border: 1px solid orange; border-radius: 50%; padding: 10px; margin: 10px auto; width: 80%;"> <p style="text-align: center;"><u>MNEMONIC</u></p> <p style="text-align: center;">Ba Loo -N</p> <p style="text-align: center;">Po Li - F</p> </div>
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BAND AND LOOP SPACE MAINTAINER



LINGUAL ARCH SPACE MAINTAINER

Commonly used fixed space maintainers include: -

- Band and loop space maintainer
- Crown and loop space maintainer
- Lingual arch space maintainer
- Transpalatal arch
- Distal shoe space maintainer

XII. HEALTH EDUCATION AND PROMOTION

LONG ESSAYS

1. Define dental health education. Discuss its principle and classify its barrier. Add a note on audio-visual aids used in dental health education. (Aug 2014)
2. Define health education. Explain its principles and barriers. How do you overcome these barriers? (Feb 2015)
3. Define health, health education and propaganda. Describe the various methods of dental health education at individual, group and mass approach. (Aug 2015, Jan 2022)
4. Define health education. Describe the principles of health education. (Aug 2017)
5. Define health and public health. Prepare a television talk for improving oral health for school children. (Feb 2018)
6. Define health education. Describe in detail about the various methods of health communication. (Jan 2018)

SHORT ESSAYS

1. Classify the various audio-visual aids used in dental health education. (Feb 2016)
2. Define dental health education. Discuss the objectives of dental health education.
3. Define dental health education. Describe in detail about the various approaches to achieve health.

SHORT NOTES

1. Barriers in communication (Aug 2015)
2. Audio-visual aids (Feb 2015)
3. Mass media (Feb 2017),(May 2021)-2016 scheme
4. Principles of health education (May 2021)-2016 scheme

ANSWER KEY

LONG ESSAYS

1. Definition -HEALTH EDUCATION:

Health education is a process that informs, motivates and helps people to adopt and maintain healthy practices and lifestyles, advocates environmental changes as needed to facilitate this goal and conducts professional training and research to the same end – National Conference on Preventive Medicine in USA.

Principles of Health Education

- **C**redibility
- **I**nterest
- **P**articipation
- **M**otivation
- **C**omprehension
- **R**einforcement
- **L**earning by doing
- **K**nown to unknown
- **S**etting an example
- **G**ood human relations
- **F**eedback
- **C**ommunity leaders

Barriers in Health Education

- a) **P**sychological barriers
- b) **P**hysiological barriers
- c) **E**nvironmental barriers
- d) **C**ultural barriers

MNEMONIC

CPIM conducted Camp &
Reinforced that **Learning by**
doing helps Known to Unknown
people to **Set an example** which
leads to **Good human relations**
& gives good **Feedback** about
Community leaders

OR

CPIM joined – **CR** Seven &
have **KFC** Licking Good

PPE kit CULTURed

Audio-visual aids in Health Education

- a) Televisions
 - b) Tape and slide combinations
 - c) Video cassette players and recorders
 - d) Motion pictures or cinemas
 - e) Multimedia Computers
- Traditional media such as:
- i) Folk dances
 - ii) Songs
 - iii) Puppet shows
 - iv) Dramas

2. Refer to Long Essay Question Number-1




Barriers in health education can be overcome by:

- I) **Psychological barriers:** Special methods and utmost care should be adopted in order to convey the message to them.
- II) **Physiological barriers:** The channels of communication should be selected specifically for special groups like deaf, dumb, or blind.
- III) **Environmental barriers:** By making small groups and using appropriate channels of communication.
- IV) **Cultural barriers:** Taking consideration of the cultural factors like patterns of behaviour, habits, beliefs, customs, attitudes, religion, etc.

3. Definition of **HEALTH**: Health is a state of complete physical, mental and social well – being and not merely the absence of disease or infirmity – WHO

- Propaganda is merely a publicity campaign aimed at presenting a particular thing or a concept in a favourable light in such a way that the public may accept it without thinking about it analytically.

METHODS OF HEALTH EDUCATION

<p><u>INDIVIDUAL APPROACH</u></p> 	<p><u>GROUP APPROACH</u></p> 	<p><u>MASS APPROACH</u></p> 
<ul style="list-style-type: none"> Can be used by public health personnel, since they will be visiting homes and can interact with individual and their families 	<ol style="list-style-type: none"> Chalk and talk Symposium Group Discussions Panel Discussions Workshop Conferences or seminars Role playing / Socio Drama Demonstrations 	<ol style="list-style-type: none"> Television Radio Newspapers/Press Documentary Films Posters Health Exhibition Health Magazines Health Information Booklets Internet

4. Refer to Long Essay Question Number-1

5. **TELEVISION TALK** for improving oral health of school children:

Cavities (also known as caries or tooth decay) are one of the **most common** chronic diseases of childhood. Untreated cavities can cause pain and infections that may lead to problems with eating, speaking, playing, and learning.

Fluoride varnish can prevent about **one-third (33%) of cavities** in the primary (baby) teeth. Similarly, children who brush daily with fluoride toothpaste will have fewer cavities. **Dental sealants** can also prevent cavities for many years. Applying dental sealants to the chewing surfaces of the back teeth **prevent 80% of cavities**.

For **babies**, parents can **wipe gums** twice a day with a **soft, clean cloth** in the morning after the first feeding and right before bed to wipe away bacteria and sugars that can cause cavities

For **children** brush their teeth **twice a day** with fluoride toothpaste. Ask your child's dentist to apply dental sealants when appropriate.

If your child is **younger than 6, watch them brush**. Make sure they use a **pea-sized** amount of toothpaste and always spit it out rather than swallow. Help your child brush until they have good brushing skills.

6. Refer to Long Essay Question Number-3

SHORT EESSAY

1. Refer to Long Essay Question Number-1

2. **OBJECTIVES AND PRINCIPLES** -Refer to Long Essay Question Number-1

3. **APPROACHES TO ACHIEVE HEALTH**

- a) Regulatory or legal approach
- b) Administrative or service approach
- c) Educational approach
- d) Primary health care approach

SHORT NOTES

1. Barriers in communication- Refer to Long Essay Question Number -1 & 2

2. Audio visual aids-Refer to Long Essay Question Number-1

3. **MASS APPROACH** - Refer to Long Essay Question Number-3

4. Principles of Health Education- Refer to Long Essay Question Number-4

XIII. NUTRITION AND ORAL HEALTH

LONG ESSAYS:

1. Describe nutrition and oral health in detail. (Feb 2015)
2. Define diet and nutrition. Discuss epidemiologic studies in relation to diet and dental caries. Add a note on sugar substitutes. (Aug 2016)

SHORT ESSAYS:

1. Define nutrition. Outline the classification of nutrients. Discuss the role of trace elements in dental caries. (Aug 2014)
2. The role of diet in dental caries. (Jan 2020)

SHORT NOTES:

1. Sugar substitutes (Feb 2019)
2. Balanced diet

ANSWER KEY

LONG ESSAYS

1. DEFINITION- NUTRITION

- It is defined as the sum of the processes by which an individual takes in and utilizes food.

MNEMONIC

1. CONSERVE
2. PERIO
3. ORAL PATHO
4. ORTHO

Effect of nutrition on oral tissues

1. Nutrition and Dental caries	2. Nutrition and periodontal disease	3. Nutrition and Oral cancer	4. Nutrition and Malocclusion
<ul style="list-style-type: none"> Pre-eruptive effects Post-eruptive effects Trace elements in dental caries 	<ul style="list-style-type: none"> Iron Protein Vitamin A, C, K, E, B complex Calcium and phosphorous Amino acids 	<ul style="list-style-type: none"> Factors against tumerogenesis Vitamin A and Retinoids Beta Carotene Vitamin C, E, B complex Food stuffs 	<ul style="list-style-type: none"> Chronic postnatal malnutrition leads to stunted jaw development Class I malocclusions

2. Definition-

Diet -The types and amount of food taken daily by an individual

Nutrition- Refer Long Essay Question Number-1

Epidemiologic studies

- Vipeholm studies-

- *Nutritious Diet
- *Little sugar
- * No provision for between meals snacks
- *Four meals daily

*1 Control and 6
Experimental groups

*Dental caries rate
relatively low

Findings: -

- a) Time Factor
- b) Frequency
- c) Consistency
- d) Form

- Hopewood House studies

- *7 -14 year children- Hopewood House- 10 year study
- *Natural diet-vegetarian diet-except egg yolk
- ***Absence of meat**
- ***Restriction of refined carbohydrate**
- *Supplements-Vitamin concentrate, nuts, honey

Findings: -

- a) 53% at Hopewood House -Caries free
- b) Only 0.4% at State School-Caries free

- **Turku sugar studies**

- * Compare cariogenicity of sucrose, fructose and xylitol.
- * 2 year - 125 young adults- 3 groups (sucrose, fructose and xylitol group)

Findings:

- *After 1 year

- Sucrose, Fructose: - Equal cariogenicity

- Xylitol: -Almost no caries

- * By the 2nd year

- Sucrose: - Caries increases
 - Fructose: - Remained unchanged
 - Xylitol: - Almost no caries

- **Hereditary fructose intolerance**

- *Caused by reduced levels of hepatic fructose-1-phosphate aldolase
- *Symptoms-Nausea, Vomiting, Malaise, Tremor, Excessive Sweating

- **Tristan Da Cunha Study**

- *Remote island
- *1932 - 1966
- * Prevalence of caries in first permanent molar of 6-19 years of old

Sugar substitutes

- Aspartame
- Acesulfame potassium
- Xylitol
- Saccharin
- Sucralose
- Sorbitol
- Neotame
- Stevia

SHORT ESSAYS

1. Definition-Refer Long Essay Question Number- 1

Classification of Nutrients

(a) Macro nutrients:-

Proteins
Fats
Carbohydrates

(b) Micronutrients:-

Vitamins
Minerals

➤ Trace elements:

Cariostatic elements-F, P

Mildly cariostatic - Mo, V, Cu, Sr, B, Li, Au

Doubtful -Be, Co, Mn, Sn, Zn, Br, I

Caries inert -Ba, Al, Ni, Fe, Pd, Ti

Caries promoting -Se, Mg, Cd, Pt, Pb, Si

2. **Definition** -Refer Long Essay Question Number- 2

SHORT NOTES

1. **Sugar substitutes**-Refer Long Essay Question Number-2

2. **Balanced diet**

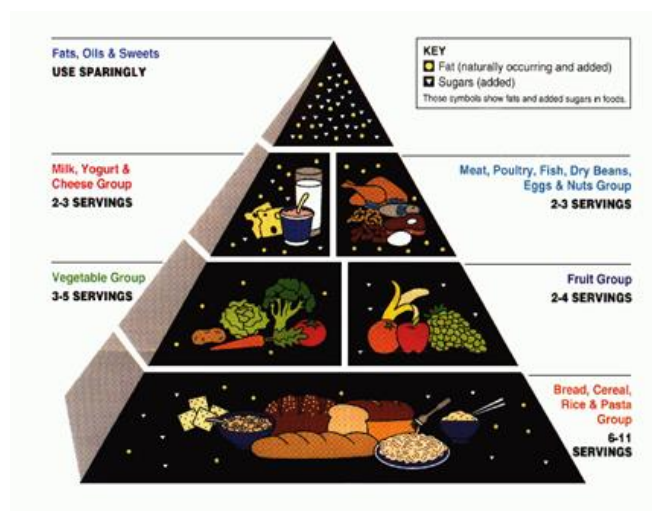
- Food in such quantities and proportion that needed for: -

- *Energy
- *Vitamins
- *Minerals
- *Carbohydrate
- * Fat

- For maintaining: -

- * Health
- *Vitality
- *General well being

Food guide pyramid



XIV. SCHOOL ORAL HEALTH PROGRAMME

SHORT ESSAYS:

1. Describe the aims and objectives of school dental health programme and add a note on the concept of incremental dental care. (Feb 2017)
2. Differentiate incremental and comprehensive dental care .(Aug 2018)

SHORT NOTES:

1. Define school oral health programme
2. Blanket referral (Aug 2015)
3. Aspects of school health service
4. Advantages of school oral health programme
5. Components of school oral health programme
6. Tattle tooth programme
7. Askov dental demonstration
8. THETA Program (May 2021)-2016 scheme
9. Colgate's bright smile, bright future
10. Incremental dental care (Feb 2016)
11. Comprehensive care

ANSWER KEY

SHORT ESSAYS

1. AIMS

MNEMONICS

In **School**, there are **first aid & emergency care**, and **curative services**; also, there is **Health app** for **counseling** and also to **maintain school health records**.

Health appraisal: Total health status of child through teacher, nurse observations, screening test, medical, dental and psychological examinations.

Health counselling: Procedure by which nurse, teachers, physicians, guidance personnel interpret to pupils and parents and aid them in formulating a plan of action which leads to solution of the problem.

Emergency care & first aid: Teachers should be trained in handling simple emergencies like traumatic injuries to teeth during contact sports.

School health education: providing learning experience ➡
Personal hygiene, environmental health, family life.

Maintenance of school health records: useful in analysing and evaluating school health program also provide useful link between the home, school and community.

Curative services: Regular dental check-ups & prompt treatment wherever possible and referral for special problems.

OBJECTIVES

- The importance of a healthy mouth
- Relationship of dental health to general health
- Personal care and professional care, proper diet, oral habits
- Total school health program
- Development of resources
- Dentists to perform health services

2. INCREMENTAL CARE

- Increments of dental disease treated at the **earliest time** with proper diagnosis and operating efficiency.
- No accumulation of **dental needs** beyond the minimum.
- In private practise, **six month** is the interval between visits.
- In public health program, **one year** is the interval between visits.
- Avoid high **expenditure**.
- Topical and other preventive measures are maintained on **periodic basis**.
- Lesions of dental caries treated **before pulpal involvement**.
- **Time** consuming.
- Attention to **deciduous teeth**.

COMPREHENSIVE CARE

- Detection and correction of dental disease on a semi-annual basis.
- To eliminate pain and infection, also restore function.
- Replace missing teeth.
- Control of early lesions.
- Provide preventive measures.

SHORT NOTES

1. DEFINITION

Procedures established

- To appraise health status of pupils & school personnel
- To counsel pupils, parents concerning appraisal findings
- To encourage correction of remedial defects
- To assist in identification & education of handicapped children
- To help prevent & control disease
- To provide emergency service for injury

2. BLANKET REFERRAL

All children are given referral card to take home & subsequently to dentist, who sign upon completion of examination, treatment. Then cards are returned to school nurse or teacher who plays an important role in following up the referrals with child and parents.

3. ASPECTS OF SCHOOL HEALTH SERVICE

Health appraisal:



Health counselling:



Emergency care & first aid:



School health education:



Maintenance of school health records:

Curative services:

4. **ADVANTAGES**

- **Comprehensive** dental care including preventive measures.
- Familiar surrounding hence **less threatening** than private clinics.
- Easy to maintain dental health in **adult** life.
- Regular dental attendance will be **continued after school** age.
- **Reduce the cost.**

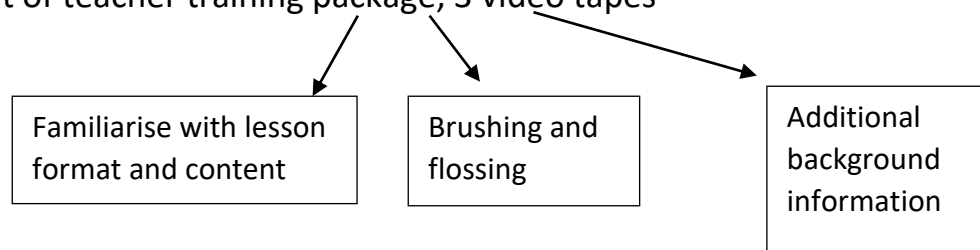
5. **COMPONENTS/ELEMENTS**

- Improving school-community relation -To appraise dental needs, promotion and importance of oral health.

- Conducting dental inspection -Builds a positive attitude towards dentist. It's a fact-finding experience. Sometimes tends to discourage visiting dentists. Desire for parents to be present is not always feasible.
 - Conducting dental health education –
Dental health instructions/Dental health services/Dental health treatment (preventive procedure)
 - Performing specific programmes –
Tooth brushing program/classroom-based fluoride program/school water fluoridation program/Nutrition /sealants placement/science fair.
 - Referral for dental care –
If only emergency treatment is provided then parent should be informed and make them understand to take proper dental treatment.
- **BLANKET REFERRAL**:-Refer Short Note Question Number- 2.
- Follow-up of dental inspection.

6. **TATTLETOOTH PROGRAM**

- Developed in 1974-76/cooperative effort between Texas dental health professional Organisations, Texas department of health and Texas Education Agency.
- Pilot tested in 1975/field tested in 1976.
- In 1989-Tattle tooth II, a new generation for grades K-6.
- As a part of teacher training package, 3 video tapes



- Six elements:-anticipatory set, setting the objectives, input modelling, for understanding, guided practise and independent practise.
- Demonstrate brushing and flossing in classroom.

- Filed trip to dental office for kindergarten children.
- Bulletin board suggests, book list, films, videotapes for appropriate grade levels.

7. ASKOV DENTAL DEMONSTRATION

- Small farming community/high incidence of dental caries in initial surveys made in **1943&1946**.
- **1949-57**, demonstration school dental program in ASKOV, including caries prevention & control, dental health education, dental care.
- With exception of communal water fluoridation.
- Dental care was rendered by group of five dentists.
- Findings through a 10year period revealed-28% reduction in dental caries in deciduous/34% caries reduction in permanent teeth of 6-12yrs/14% reduction in permanent teeth of 13-17 years/improvements in filled tooth ratios.

8. TEENAGE HEALTH EDUCATION TEACHING ASSISTANTS PROGRAM (THETA Program)

- Developed by National Foundation for prevention of oral disease.
- Train high school children to teach preventive dentistry to elementary school children.
- To give knowledge and skills to young children.
- Introduces them to career opportunities.

9. COLGATES BRIGHT SMILE,BRIGHT FUTURE



- To teach children positive oral health habits.
- To encourage dental professionals, public health officials, civic leaders, parent the importance of oral health.
- The Teachers Training programme is an integral part to promote preventive dental health care.

10. **INCREMENTAL CARE**-Refer Short Essay Question Number -2
11. **COMPREHENSIVE CARE**-Refer Short Essay Question Number- 2

XV. FLUORIDES

LONG ESSAYS:

1. Define Defluoridation. Classify the methods of Defluoridation. Explain in detail about Nalgonda technique. Write in detail about systemic fluoride delivery methods (Aug 2016) (Jan 2021)
2. Define water fluoridation. Discuss different methods of water fluoridation. (Feb 2019, Jan 2022)
3. Define Defluoridation. Describe in detail about Nalgonda technique of Defluoridation. (Jan 2020)

SHORT ESSAYS:

1. Define Defluoridation .Explain in detail about Nalgonda technique. (Feb 2016)
2. Classify systemic fluorides and write in detail about the systemic fluoridation. (Feb 2017)
3. Define dental Fluorosis. Discuss Dean's fluorosis index. (Aug 2017)
4. What is safely tolerated dose and certainly lethal dose for fluoride. Explain briefly about acute and chronic fluoride toxicity. (July 2019)
5. Write in detail about professionally applied topical fluorides.
6. Studies in community water fluoridation.(May 2021)-2010 scheme
7. Shoe leather survey (May 2021)-2016 scheme

SHORT NOTES:

1. Acidulated phosphate fluoride application (Aug 2016)
2. Knutson's technique (Feb 2016)
3. Fluoride toxicity (Aug 2017)
4. Fluoride varnish (Aug 2018)
5. Shoe leather survey
6. Mechanism of action of fluoride
7. Dentrifice
8. Community water fluoridation (Jan 2022)
9. Types of equipment for water fluoridation
10. Dental fluorosis

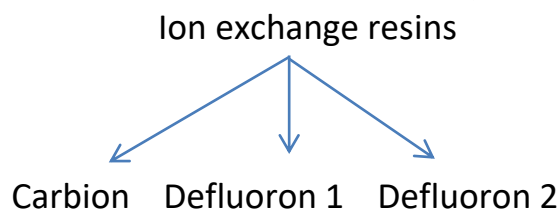
ANSWER KEY

LONG ESSAYS

1. DEFLOURIDATION :

- Process of removing excess naturally occurring fluoride from drinking water in order to reduce the prevalence and severity of dental fluorosis.
- **Nalgonda technique**-Developed by **NEERI** (National Environmental Engineering Research Institute)
- **Methods of Defluoridation**

- Ion exchange process
- Addition of chemicals (**Nalgonda technique**)



Mnemonic

Rapi Flo Sedi Fi

Nalgonda technique (Developed by **NEERI** (National Environmental Engineering Research Institute))

Rapid mix

- Coagulant is rapidly dispersed
- Rapidly mixed for 30-60s
- Mixing speed: 10-20rpm
- Formation of microflocs

Flocculation

- 2nd stage
- Gentle and prolonged mixing for 10-15mins
- Speed : 2-4rpm

Sedimentation

- Gravitational settling of suspended particles
- Factors influencing :

*Size, shape, density of particles

*Viscosity and temperature of water

*Velocity of flow, effective depth

Filtration

- a) Filtration of water through porous media.
- b) Flocculated water is allowed to settle.
- c) Filtered through fuller's earth candle overnight.

2. WATER FLOURIDATION

Definition : The **upward adjustment** of concentration of Fluoride ion in a public water supply in such a way that the **concentration of fluoride ion in the water may be consistently maintained at 1ppm** by weight to prevent dental caries with minimum possibility of causing dental fluorosis.

Methods of water fluoridation:

COMPOUNDS USED

- Fluorspar
- Sodium fluoride
- Silicofluoride
- Sodium silicofluoride
- Hydrofluosilicic acid
- Ammonium silicofluoride

FLOURIDATION EQUIPMENTS

- The Saturator system
- The dry - feeder system
- The solution - feeder system

Saturator system

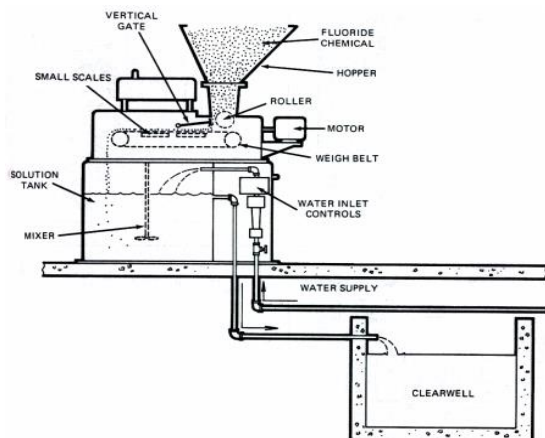
- 4% saturated solution of NaF injected at the water distribution source

Solution feeder system

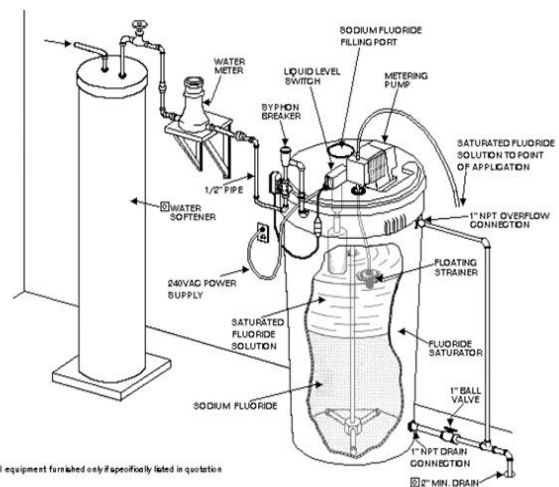
- Permits the addition of Hydrofluosilicic acid

Dry feeder system

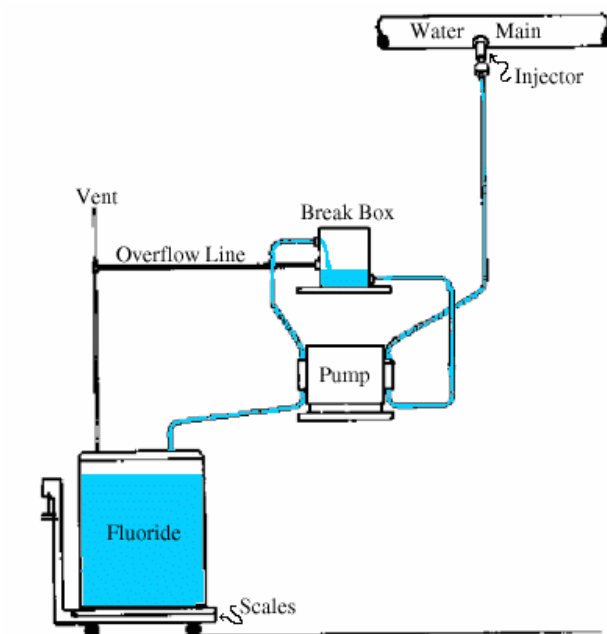
- NaF or silicofluoride powder introduced into a dissolving basin
- Venturi fluoridator system
- Saturation suspension cone



Dry feeder system



Saturator system



Solution feeder system

Mnemonic

Dry Sad Soul

3. **DEFLOURIDATION AND NALGONDA TECHNIQUE**- Refer Long Essay Question Number- 1

SHORT ESSAYS

1. **DEFLOURIDATION AND NALGONDA TECHNIQUE**- Refer Long Essay Question Number-1

2. **CLASSIFICATION of SYSTEMIC FLUORIDES**

- Community water fluoridation
- School water fluoridation
- Salt fluoridation
- Milk fluoridation
- Fluoride tablets/drops/ lozenges

METHODS OF WATER FLUORIDATION


Community water fluoridation

Definition: Refer Long Essay Question Number-2

School water fluoridation

- Children consume fluoridated water during school days.
- Recommended level of Fluoride : **4.5 - 6.3ppm**
- Advantages : effective, economical, target population - school children

Salt fluoridation

- Controlled addition of sodium fluoride/ potassium fluoride to salt.
- Recommended level of Fluoride: **200, 250, 350mg/kg salt.**
- Involves 2 processes : 
 - Batch processing
 - Continuous processing
- **Batch processing** : fixed amount of fluoride added to fixed amount of salt

- **Continuous processing** : concentrated fluoride solution sprayed on to salt passing through conveyor belt

Milk Fluoridation

- Addition of measured quantity of fluoride to bottled or packaged milk to be drunk by children. Fluoride tablets/drops/ lozenges
- Sodium fluoride most commonly used
- Fluoride drops - convenient for infants
- Tablets and lozenges should be chewed, swished and swallowed.

3. DENTAL FLOUROSIS

- Caused by excessive intake of fluoride during tooth development.

DEAN'S FLUOROSIS INDEX

CLASSIFICATION	CRITERIA – description of enamel
Normal	Smooth, glossy, pale creamy – white translucent surface.
Questionable	A few white flecks or white spots
Very mild	Small opaque, paper white areas covering less than 25% of the tooth surface.
Mild	Opaque white areas covering less than 50% of the tooth surface.
Moderate	All tooth surfaces affected; marked wear on biting surface; brown stain may be present.
Severe	All tooth surface affected, discrete or confluent pitting; brown staining present.

4. FLOURIDE SAFELY TOLERATED DOSE: 8-16mg of fluoride / kg body wt.

CERTAINLY, LETHAL DOSE: 32- 64 mg of fluoride / kg body wt.

Acute fluoride toxicity

- Rapid ingestion of fluoride at one time
- Symptoms :
 - Abdominal cramps
 - Vomiting
 - Diarrhoea
 - Increased salivation
 - Dehydration and thirst

Chronic fluoride toxicity

- 2 types:- **DENTAL FLUOROSIS**
SKELETAL FLUOROSIS

Dental fluorosis



- Lustreless opaque white patches in the enamel
- Mottled areas of enamel get stained
- Hypoplastic areas present

Skeletal fluorosis

- Results from ingestion of very high amounts of fluoride for a long period of time.

Symptoms:

- Severe pain in joints
- Outward bending of legs and hands
- Calcification of blood vessels
- Crippling fluorosis – severe stage

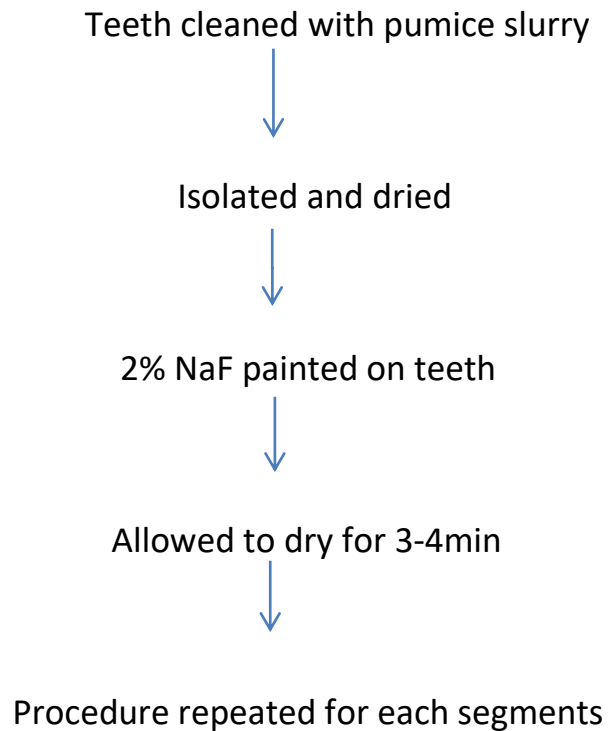
5. PROFESSIONALLY APPLIED TOPICAL FLUORIDES

- First compound to be used

- 4 visit procedure for **ages 3, 7, 11, 13 years.**

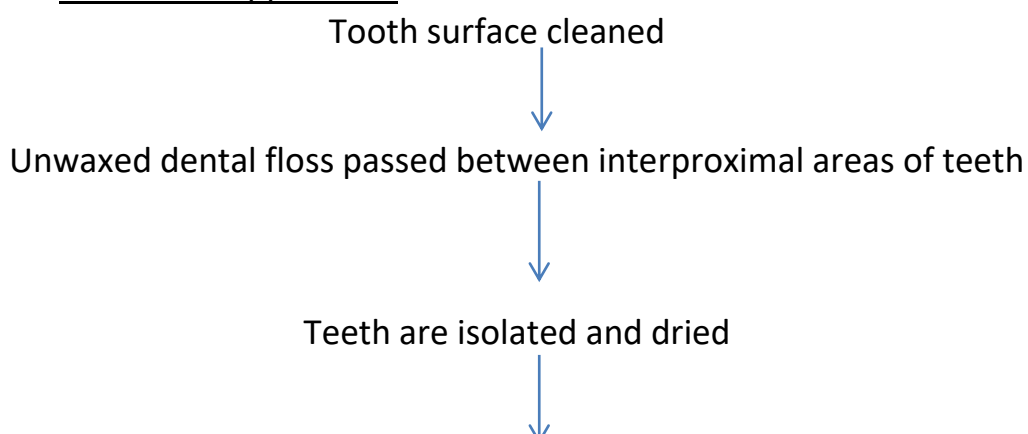
Sodium fluoride

Method of application: - (KNUTSON'S TECHNIQUE)



Stannous Fluoride (MUHLER'S TECHNIQUE)

- **8% Stannous fluoride** used.
- Repeated applications made in 6 months interval - if caries susceptibility more
- Method of application:-



Stannous fluoride applied using paint on technique



Kept for 4min

Acidulated phosphate fluoride

- Introduced by **Brudevold**
- Method of application:-

Patient seated upright



Oral prophylaxis done



Teeth are completely isolated and dried



Fluoride gel taken in disposable foam lined tray



Tray positioned, excess saliva evacuated and kept for 4mins

Amine fluoride

- Cariostatic agent
- 2g of gel / tray used
- Applied for 4min
- Patient instructed to expectorate thoroughly for 30s - 1min

6. STUDIES IN COMMUNITY WATER FLOURIDATION

- I) Grand Rapids-Muskegon study
 - Sodium fluoride - added to Grand Rapids water supply

- Results after 6 1/2 years- caries experience reduced half- of six-year-old

II) Newsburgh - Kingston study

- Sodium fluoride- added to Newburgh water supply.
- Results after 10 years- DMF rate reduced to 13.9%

III) The Brantford Sarnia -Stratford fluoridation caries study

- Fluoride added- Brantford water supply
- Results after 17 years- 55% caries experience reduced.

IV) Evanston -Oak Park study

- Fluoridation experiment in Evanston-control town Oak Park
- Results after 14 years- 49% reduction of DMF values

V) Tiel-Culemborg fluoridation study

- Flouridation in Tiel-control town Culemborg
- Results after 13 years- 50% reduction of dental caries.

7.Shoe leather survey-Refer Short Note Question Number -5

SHORT NOTES

1. **Acidulated phosphate fluoride**- Refer Short Essay Question Number- 5

2. **Knutson s technique**-Refer Short Essay Question Number- 5

3. **Fluoride toxicity**-Refer Short Essay Question Number 4

4. **FLOURIDE VARNISH**

FLUORPROTECTOR****

- Polyurethane based product
- Contains **7000ppm** of fluoride
- Consists of polyurethane lacquer dissolved in chloroform and difluorosilane

CAREX

- Low fluoride concentration

DURAPHAT

- First fluoride varnish
- Viscous, yellow
- Consists of Sodium fluoride in neutral colophonium base
- Contains **22600ppm** fluoride

Mnemonic

Dura Care Protector

5. SHOE LEATHER SURVEY

- Historical study conducted by **Trendley H Dean** Observations

Fluoride concentration	Mottling of enamel
High	Severe
3 ppm	Wide spread
4 ppm	Mottling & discrete pitting
2.5 - 3ppm	Less
1 ppm	No mottling

6. MECHANISM OF ACTION of fluoride

- Increase enamel resistance and rate of post eruptive maturation
- Incipient lesion - remineralisation
- Plaque - microorganism - interference
- Tooth morphology modification

7. DENTIFRICES

Fluoride dentifrices play major role in caries prevention.

Sodium fluoride dentifrice

- No significant caries reduction
- Fluoride concentration : **650ppm**. **Stannous fluoride**
- Causes staining of teeth
- Pigmentation of hypo plastic teeth
- Metallic taste. **Monofluorophosphate**
- Less toxic
- No staining

- Rules: **0.564 – 0.884%** with fluoride concentration greater than or equal to 800ppm.

Amine fluoride dentifrice

- Foams less
 - Superior properties
 - Long range toxic effects

8. **Community Water flouridation**- Refer Long Essay Question Number- 2

9. **Water flouridation**-Refer Long Essay Question Number -2

10. **Dental fluorosis**-Refer Short Essay Question Number -3

XVI. PIT AND FISSURE SEALANTS

SHORT ESSAYS:

1. Define pit and fissure sealants. What are different generations in pit and fissure sealants. Discuss the steps in sealant application. (Aug 2016)
2. Classify pit and fissure sealants. Explain steps in pit and fissure sealant application. (July 2019); (Jan 2022) 2010 scheme

SHORT NOTES:

1. Preventive Resin Restoration (Aug 2018)

ANSWER KEY

SHORT ESSAYS

1. DEFINITION

A fissure sealant is a material that is placed in the pits and fissures of teeth in order to prevent or arrest the development of dental caries.

CLASSIFICATION

I. BASED ON CURING METHOD

1. FIRST GENERATION

Polymerized with U V light of 350 nm wavelength

2. SECOND GENERATION

Self-cured or chemically cured

3. THIRD GENERATION

Visible light cured 430 -490 nm wavelength

4. FOURTH GENERATION

With addition of fluoride

II. BASED ON PRESENCE OF FILLER

- i. Unfilled- better flow
- ii. Semi filled –strong and resistant to wear

III. BASED ON COLOUR

- i. **T**inted –for easy identification
- ii. **C**lear –difficult to detect
- iii. **O**paque – for easy identification
- iv. **P**ink – better fluoride release

MNEMONIC

T C O P

STEPS IN SEALANT APPLICATION

1. TIME TO SEAL – After all permanent teeth erupted.



2. POLISH THE TOOTH SURFACE - Without polishing- interferes with acid etching sealant penetration.



3. ISOLATE AND DRY THE TOOTH SURFACE – Rubber dam–best isolation.



4. ACID ETCHING -

- 30 – 50% orthophosphoric acid
- In liquid form for 30- 60 seconds.



(a)



(b)



(c)



5. RINSE THE TOOTH - For 30 seconds.



6. ISOLATE AND DRY THE TOOTH- With compressed air



Dried until – chalky, frosted appearance



7. MATERIAL APPLICATION -According to manufacturer directions & polymerized



8. EVALUATE THE SEALANT- Evaluated visually & tactically using explorer



9. CHECK OCCLUSION-Check for occlusal high points & if present correct them



10. RETENTION AND PERIODIC MAINTENANCE-Re-evaluate sealants- at recall visits

2. **CLASSIFICATION**-Refer Long Essay Question Number- 1

STEPS IN SEALANT APPLICATION –Refer Long Essay Question Number- 1

SHORT NOTES

1. PREVENTIVE RESIN RESTORATION

- Natural extension of occlusal sealants
- Integrates preventive approach of sealant therapy + Therapeutic restoration of incipient caries with composite.

Simonsen -1978 Classification

TYPE A

- Suspicious pits and fissures where caries removal limited to enamel.
- LA – Not required
- Slow speed round bur
- Sealant is placed

TYPE B

- Incipient lesion in dentin –small & confined
- No LA needed
- Base –Composite- Sealant applied

TYPE C

- More extensive dentinal involvement- restoration with posterior composite material
- LA is required
- Base placed over dentin-sealant applied

XVII. ATRAUMATIC RESTORATIVE TREATMENT (ART)

SHORT NOTES:

1. ART (Feb 2015, 2016)
2. Advantages of ART (July 2019, Jan 2020)
3. Indications and contraindications of ART

ANSWER KEY

SHORT NOTES

1) Definition

Principles -1.Removing carious tooth tissues using hand instruments

2. Restoring with a material that stick to the tooth

Indications-small cavities

-accessible to hand instruments

-public health programs

Contraindications- swelling/fistula

-pulp exposure

-pain

-inaccessible to hand instruments

-cavity in proximal surface

Advantages - Biological approach

-Painless

-Simplified infection control

-No expensive dental equipment

-Simple to train non dental personnel

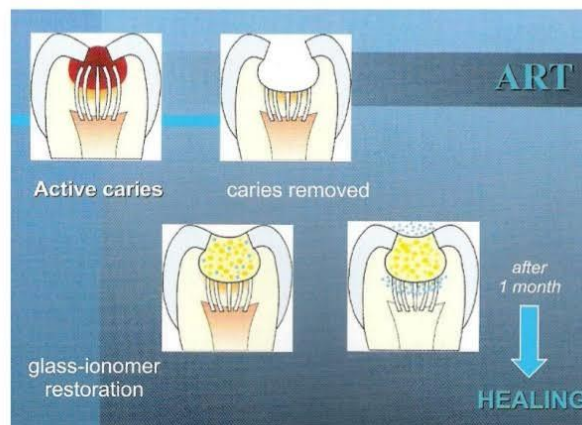
-Cost effective

-Friendly procedure

-Accessible for all population groups

Procedure-

1. Arrange a good working environment		2. Hygiene and control of cross infection	3. Restoring the cavity
Outside the mouth	Inside the mouth	<ul style="list-style-type: none"> Universal infection control procedures should be followed 	<ul style="list-style-type: none"> Conditioning the prepared cavity Mixing Restoring the cavity
<ul style="list-style-type: none"> Operators work Posture and position Assistance Working alone Patient position Operating light 	<ul style="list-style-type: none"> Control saliva 		



2. **Advantages of ART** :- Refer Short Note Question Number -1

3. **Indications and Contraindications:-** Refer Short Note Question Number -1

XVIII. SURVEY PROCEDURES IN DENTISTRY

LONG ESSAY:

1. Define survey. Discuss in detail the various steps in survey. Enumerate pathfinder survey. Add a note on index age groups (Aug 2014, Feb 2016, July 2018, Feb 2019); (Jan 2022) 2010 scheme

SHORT NOTES:

1. Pathfinder survey (Feb 2015)
2. Sampling methods (Feb, Aug 2016)
3. Index age groups (Feb 2017)
4. Training and calibration of examiners (Aug 2017)
5. Non probability sampling (Aug 2017)

ANSWER KEY

LONG ESSAYS

1. DEFINITION OF SURVEY: -

Survey is a non-experimental type of research that attempts to gather information about the status quo for a large number of people by describing present conditions without directly analysing their causes.

TYPES

- Descriptive or analytic
- Cross sectional or longitudinal

USES

1. Monitoring trends in oral health and disease
2. Policy development
3. Program evaluation
4. Assessment of dental needs
5. Providing visibility for dental issues

STEPS IN SURVEYING

1. Establishing the objectives
2. Designing the investigation
3. Selecting the sample
4. Conducting the examination
5. Analysing the data
6. Drawing the conclusions
7. Publishing the results

PATHFINDER SURVEY

This type of survey design is suitable for the collection of data for the planning and monitoring of services in all countries whatever the level of disease, availability of resources or complexity of services.

INDEX AGE GROUPS

- 5
- 12
- 15
- 35-44
- 65-74

SHORT NOTES

1. **PATHFINDER SURVEY** – Refer Long Essay Question Number- 1

2. **SAMPLING METHODS**

A) Nonprobability sampling

- Quota sampling
- Purposive sampling
- Convenience sampling

B) Probability sampling

- Simple random sampling
 - i. Lottery method
 - ii. Table of random numbers
- Systematic sampling
- Stratified sampling
- Cluster sampling

C) Other sampling methods

- Multiphase sampling
- Multistage sampling

NON-PROBABILITY SAMPLING

- Not truly representative
- Less desirable
- Used when other methods are not possible
- 3 types
 - Quota sampling
 - Purposive sampling
 - Convenience sampling

3. **INDEX AGE GROUPS** – Refer Long Essay Question Number- 1

4. **TRAINING AND CALIBRATING EXAMINERS**

Objectives

- To ensure uniformity
- To ensure each examiner can examine consistently
- To measure inter examiner variability -**Reproducibility test**

PRECAUTION

- Keep the number of examiners minimum
- Discuss interpretation of borderline problems
- Discard dull explorers
- Have all members examine a few cases
- Circulate among examiners any rules or systems
- Supervisor should recheck

- Subtle changes in interpretation should be guarded against

5. Refer Short Note Question Number- 2

6. **Types of examination**

- ADA has standardized 4 types of examination :

Type 1: complete examination:

- * Using mouth mirror and explorer
- * Adequate illumination - through roentgenographic survey
- * When indicated percussion, pulp vitality test etc.

Type 2: limited examination:

- * Using mouth mirror and explorer
- * Adequate illumination - posterior bitewing roentgenograms
- * When time and money permits this method is of great value – for public health programs.

Type 3 inspection:

- * Using mouth mirror and explorer
- * Adequate illumination
- * Most used method in public health surveying

Type 4 screening:

- * Using tongue depressor and available illumination
- * Identifies individuals in urgent need for treatment
- * Not reliable for public health surveying

XIX. PLANNING AND EVALUATION

LONG ESSAY:

1. Define planning. Discuss in detail about steps in the planning process.
(July 2019)

SHORT ESSAY:

1. Define evaluation. Explain the steps in evaluating the public health program.(Jan 2020)

SHORT NOTE:

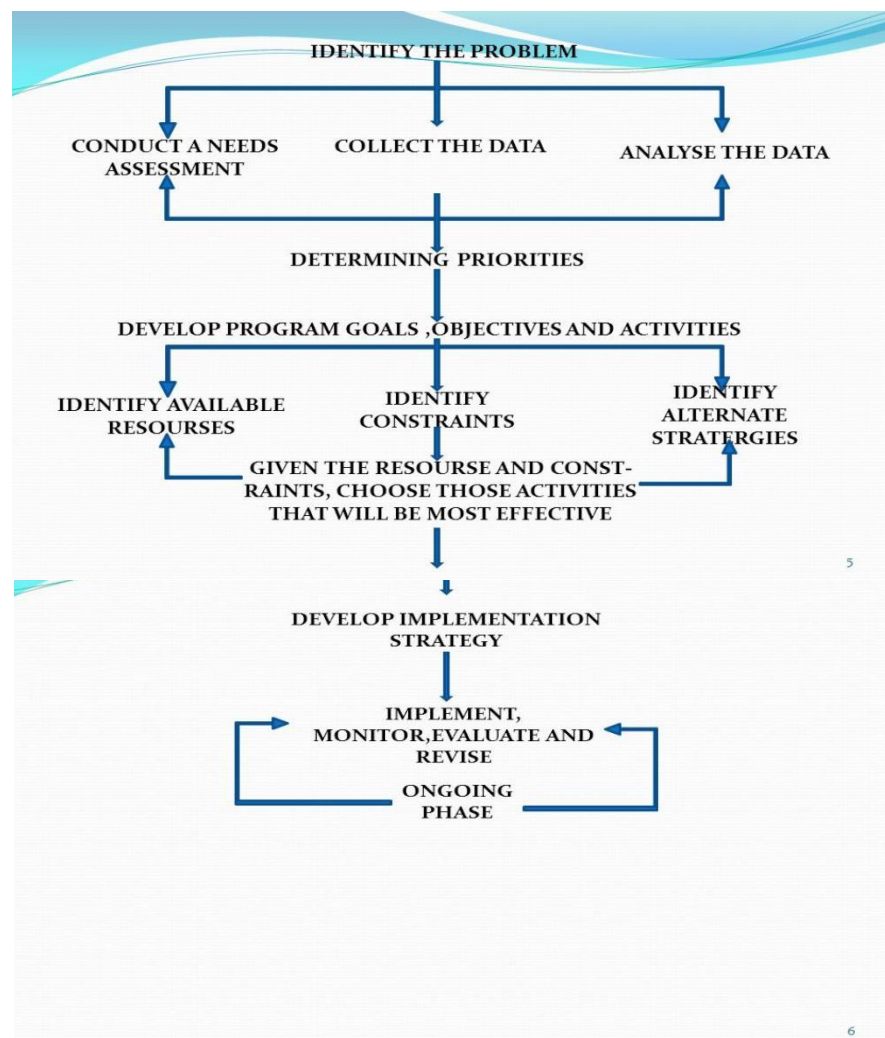
1. Evaluation types. (May 2021)- 2010 scheme

ANSWER KEY

LONG ESSAY

1. PLANNING :

Planning is a systematic approach to **defining the problem, setting priorities, developing specific goals and objectives** and determining alternative strategies and method of implementation.



SHORT ESSAY

1. EVALUATION:

Evaluation measures the degree to which objectives and targets are fulfilled and the quality of the results obtained. It measures the productivity of available resources in achieving clearly defined objectives. It measures how much output or cost effectiveness is achieved. It makes possible the reallocation of priorities and of resources on the basis of changing health needs. (WHO 1967)

Basic steps in evaluating a public health program

Determine what is to be evaluated



Establish standards and criteria



Plan the methodology



Gather information



Analyse the results



Take Action



Re-evaluate

SHORT NOTE

1. TYPES OF EVALUATION :-

Formative evaluation

- Refers to internal evaluation of a program
- Aids in the development of a program in its early phase
- Used primarily by the program developers

Summative evaluation

- Judges merit or worth of program after it has been in operation
- Aimed at program decision makers
- Attempt to determine whether a fully operational program is meeting for which it was developed

Other types of evaluation

- Relevance evaluation
- Process evaluation
- Effectiveness evaluation
- Impact evaluation
- Efficiency evaluation

XX. INDICES IN DENTAL EPIDEMIOLOGY

SHORT ESSAYS:

1. Describe CPITN with its objectives, scoring system, advantages and limitations. (Feb 2017)
2. Describe the ideal characteristics of indices. Explain in detail about Russell's periodontal index. (Feb 2015)
3. Define index. What are the ideal requisites of an index? (Aug 2018)
4. Define oral hygiene. Discuss simplified oral hygiene index. (Feb 2015)

SHORT NOTES:

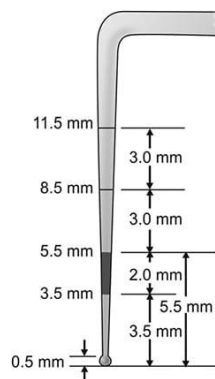
1. DMFT Index (Aug 2015)
2. Ideal requisites of an index (Aug 2016)
3. Oral hygiene index
4. WHO Probe
5. Dean's fluorosis index (May 2021)-2016 scheme

ANSWER KEY

SHORT ESSAYS

1. COMMUNITY PERIODONTAL INDEX OF TREATMENT NEEDS (CPITN)

- Developed for joint **working committee of WHO and FDI**.
- Objective
 - Screening procedure for periodontal disease both in community and individual.
 - Determining present periodontal status
- Advantages
 - Simplicity
 - Speed
 - International uniformity
- Limitations
 - Does not record position of gingival margin
 - Doesn't provide assessment of past periodontal breakdown
- Scoring system
 - CPITN probe used

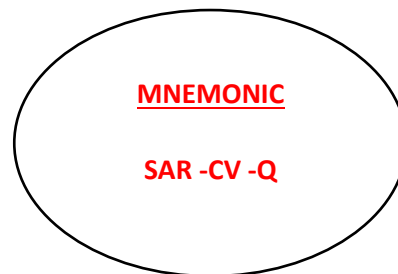


CPITN INDEX-

CODE X	only one teeth present
CODE 4	pocket of 6 mm or more , black area of CPITN probe not visible
CODE 3	pocket of 4 -5 mm present , gingival margin is on black area of probe
CODE 2	presence of supra or sub gingival calculus
CODE 1	gingival bleeding after probing
CODE 0	No sign of disease

2. IDEAL CHARACTERISTICS of indices

- **C**larity , Simplicity and Objectivity
- **V**alidity
- **R**eliability
- **Q**uantifiability
- **S**ensitivity
- **A**ceptability

**RUSSELL'S PERIODONTAL INDEX**

- Developed by **Russell** in **1956**
- Estimate deeper periodontal disease
- Used in Large population

- Record both reversible changes due to gingivitis and destructive and irreversible changes.

Methods:

- All teeth examined
- Gingival tissue surrounding each tooth

Instruments used:

- Mouth mirror
- Plain probe

Scoring criteria:

- Score 0
- Score 1
- Score 2
- Score 4
- Score 6
- Score 8

Russell's rule:-

- When in doubt assign lesser score

Calculation of index

$$\text{PI score per person} = \frac{\text{Sum of individual score}}{\text{Number of teeth present}}$$

3. INDEX

- A numerical value describing the relative status of a population on a graduated scale with definite upper and lower limit, which is designed to permit and facilitate comparison with other population classified by same criteria and method.
- Ideal requirement of an index-Refer Short Essay Question Number-2

4. ORAL HYGIENE INDEX (OHI)

- By **John C Greene and Jack R Vermillion 1960**
- To study inflammation in relation to degree of mental retardation in children.
- Sensitive simple and rapid method

Simplified oral hygiene index

- Developed by **John C Green and Jack R Vermillion 1964**
Surfaces of teeth examined
 - 16 (Buccal)
 - 11 (Labial)
 - 26 (Buccal)
 - 36 (Lingual)
 - 31 (Labial)
 - 46 (Lingual)

Debris index - simplified (DI-S)

■ Scoring criteria

- 0- No debris or stain
- 1- Not more than $\frac{1}{4}$ of tooth surface
- 2- Soft debris more than $\frac{1}{3}$ but not more than $\frac{2}{3}$
- 3-Soft debris more than $\frac{2}{3}$

Calculus index - (CI -S)

■ Scoring criteria

- 0 - Not more than $\frac{1}{3}$
- 1 - Supragingival calculus more than $\frac{1}{3}$, less than $\frac{2}{3}$
- 2 - Supragingival calculus more than $\frac{2}{3}$, subgingival

DI -S = total score / no: of surface

CI - S= total score / no:of surfaces

- For DI - S and CI -S
 - Good - 0.0 to 0.6
 - Fair - 0.7 to 1.8
 - Poor - 1.9 to 3.0
- For OHI - S
 - Good - 0.0 to 1.2
 - Fair - 1.3 to 3.0
 - Poor - 3.1 to 6.0

SHORT NOTES: -

1. DMFT INDEX

- Developed by **HENRY.T.KLEIN, CAROLL .E. PALMER, KNUTSON J .W**
- Advantages:-
 - Simple
 - Rapid
 - Versatile
 - Universally accepted
- Examination method
 - **D** decayed
 - **M** missing
 - **F** filled
- Individual DMFT
 - D+M+F

2. IDEALREQUISITES OF AN INDEX -Refer Short Note Question Number-2

3. ORAL HYGIENE INDEX (OHI) -Refer Short Essay Question Number- 4

4. WHO probe



- CPITN PROBE
- First describe by WHO (TRS 621 - 1978)
- Pocket depth and detection of **subgingival calculus**
- Colour coding -**Black** mark starting at **3.5 mm** and ending at **5.5mm**
- Ball tip - **0.5 mm** diameter
- Light weight - **5gms**
- Variant have 2 additional line - at **8.5mm** and **11.5 mm**

5. DEAN'S FLUOROSIS INDEX

- By Trendley H. Dean in 1934

CRITERIA

- Based on 7-point ordinal scale:
 1. Normal
 2. Questionable
 3. Very mild
 4. Mild
 5. Moderate
 6. Moderately severe
 7. Severe
- Dean's Fluorosis Index - Original Criteria (1934)
 - Normal:
 - Enamel has usual translucent semi-vitriform type structure
 - Smooth glossy appearance
 - Questionable
 - Slight aberrations in translucency of enamel
 - White flecks to occasional white spots

- Very Mild:
 - Small, opaque , paper white areas scattered or streaked on the surface
 - Involve labial and buccal surfaces
 - Affect less than 25% of tooth surface
 - Mild:
 - **White opaque** areas on tooth surface
 - Affect half of the tooth surface
 - Faint **brown stains** on upper incisors
 - Surfaces of molar bicuspid and cuspid subject to **attrition**
 - Moderate:
 - Tooth surfaces are subjected to attrition
 - Minute pitting on **labial and buccal** surfaces
 - Brown stain
 - Moderately Severe:
 - **Smoky white** appearance
 - **Pitting** is more frequent
 - **Brown stain** with deeper hue
 - Severe:
 - Appears as mild pathologic incisal-occlusal abrasion
 - Deeper pits
 - Chocolate **brown to black** stains
- Dean's Fluorosis Index – Modified Criteria (1942)

XXI. HEALTH CARE DELIVERY

LONG ESSAYS:

1. Describe in detail, the dental health care delivery systems in India (Feb 2018)

SHORT ESSAYS:

1. Define health. Describe in detail, the dental health care delivery systems in India. (Feb 2019)

SHORT NOTES:

1. Tiers of health systems in India (July2019) (Jan 2020)
2. Primary Health Centre
3. WHO (Jan 2020)
4. Structural Organisation of WHO

ANSWER KEY

LONG ESSAYS

1. Health system administration in India: 3 main tiers of health system in India:

<u>CENTRE</u>	<u>STATE</u>	<u>DISTRICT</u>
<ul style="list-style-type: none"> • Ministry of health and family welfare • Directorate general of health services • Central council of health and family welfare 	<ul style="list-style-type: none"> • State ministry of Health • State Health Directorate 	<ul style="list-style-type: none"> • Sub -division • Tehsils (Talukas) • Community development blocks • Municipalities and corporations • Villages- Panchayats

MNEMONIC

1) V SC PHC

2) CHC R D S T

Public health sector

- Primary health care
 - **V**illage level workers
 - **S**ub- **C**entres
 - **P**rimaries **H**ealth **C**entres(PHC)
- Hospitals/health centres
 - **C**ommunity **H**ealth **C**entres(CHC)
 - **R**ural, **D**istrict, **S**pecialist and **T**eaching hospitals
- Health insurance schemes
 - **E**mployees State Insurance
 - **C**entral Government Health Scheme
 - **U**niversal Health Insurance Scheme(UHIS)
- Other agencies
 - Defence , Railways

Private Sector

- Private hospitals, polyclinics, Nursing homes, dispensaries
- General Practitioners and clinics

Indigenous system of Medicine

- Ayurveda ,Unani ,Siddha ,Homeopathy(AYUSH)

Voluntary Health Agencies

National Health Programs

1) VILLAGE LEVEL WORKERSa) Village Health Guides Scheme

- Main objective- Provide preventive , promotive and curative health services - **Mostly women**
They should be,
- Local resident
- Formal education –VI standard
- Acceptable
- 2-3 hours daily work

Duties assigned include:

- First aid
- Mother and child health
- Health education

b) Local Dias:

- Traditional birth attendants –Women
- Provided with delivery kit

c) Anganwadi worker:

- Anganwadi covers a population of 1000 in rural and 700 in urban areas – run by anganwadi worker

Services provided by Anganwadi worker:

- Supplementary nutrition
- Immunization
- Health check-up
- Referral services
- Preschool education
- Nutrition and health education

For children and pregnant women

d) Accredited Social Health Activist (ASHA)

Key components of ASHA:

- Local resident-Woman - age group - 25 to 45 years
- Formal education - class VIII
- Drug kit to deliver first contact healthcare
- First port of call for any health-related demands
- Health activist –create awareness on health
- Promoter of good health practices
- Counsel women on birth preparedness
- Facilitate them in accessing health services
- Depot holder for essential provisions

2) SUB CENTRE LEVEL:

- Most peripheral contact point of community for every-
 - 50000 population in plain areas
 - 3000 population in hilly areas
- Recommended staffing pattern- 2 ANM and one health worker male for type A sub centre

3) PRIMARY HEALTH CENTRE:-

- The Bhore committee in 1946 – Concept of PHC
 - Typical PHC covers a population of
 - i) 20,000 in hilly, tribal, or difficult areas
 - ii) 30,000 in plain areas with 4-6 indoor observation beds.
- Act as referral unit for 6 sub-centres and refer out cases to CHC

4) COMMUNITY HEALTH CENTRE:

- 4 PHC are included under each CHC
- Functions of CHC:
 - i) Care of routine and emergency cases in surgery and Medicine
 - ii) 24-hour delivery services
 - iii) Family planning
 - iv) New born care
 - v) Routine and emergency care of sick children

5) **HOSPITALS:**

- I. **Rural hospitals-** are rural dispensaries providing allopathic or traditional systems of medicine.
- II. **District hospitals-** proposed to convert into district health centers by the government.

6) **HEALTH INSURANCE:**a. **Employees state insurance(ESI) scheme-**

- It is an **integrated social security scheme** tailored to provide **social protection to workers and their dependents** in the organized sector, in contingencies such as, **sickness, maternity and death or disablement** due to an employment injury or occupational hazard.

b. **Central Government Health Scheme(CGHS)-**

Main components include:

- Dispensary services
- Maternal and child healthcare services
- Specialist consultation facilities
- Hospitalization and health education

c. **Universal health insurance scheme:**

- Government sponsored community -below poverty line families.
- Provides reimbursement –up to Rs.30000 towards hospitalization.

7) **OTHER AGENCIES:**

a. **Defence medical services:** It has their own organization for medical care.

b. **Health care of railway employees:** Indian railway medical services (**IRMS**) are an organized service of the government of India.

8) PRIVATE SECTOR:

- 70% of the medical profession are under this sector and tend to congregate in urban areas.

9) INDIGENOUS SYSTEMS OF MEDICINE:

- The practitioners of this system – Ayurveda, Yoga, Naturopathy, Unani, Siddha and Homeopathy (AYUSH).
- AYUSH - now integrated into Community Health Centers and the Central Government Health Scheme (CGHS).

10) VOLUNTARY HEALTH AGENCIES:

- Some of the voluntary agencies in India include:
 - Indian **Red Cross** Society
 - Indian Council for **Child Welfare**
 - **Tuberculosis** Association of India

11) NATIONAL HEALTH PROGRAMMES IN INDIA:

- Some of the programmes are
 - Anti-**malarial** programme
 - National **Tuberculosis** Programme
 - National **AIDS** control programme

SHORT ESSAYS

1. Definition of **Health**— Health is a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity-WHO. Refer Long Essay Question No.1

SHORT NOTES

1. Refer Long Essay Question Number- 1

2. PRIMARY HEALTH CENTRE

- The Bore committee in 1946 – Concept of PHC
- Typical PHC covers a population: -
 - 20,000 in hilly, tribal, or difficult areas
 - 30,000 in plain areas with 4-6 indoor observation beds
- Act as referral unit for 6 sub-centres and refer out cases to CHC
- Two types of PHC-depending upon the delivery case load- Type A and Type B. Type A -PHC with delivery load of less than 20 deliveries in a month.

3. WHO-

- Established in **1948**
- Initiated to discuss importance of plague in Europe

Agenda

- Promoting development
- Fostering health security
- Strengthening health systems
- Harnessing research ,information and evidence
- Enhancing partnership
- Improving performance

Work of WHO

- Directing and coordinating authority on international health work
- Prevention and control of specific diseases
- Comprehensive health services
- Family health
- Environmental health
- Health statistics
- Bio medical research
- Health literature and information
- Cooperation with other organisation

REGIONAL OFFICE OF WHO	HEADQUARTERS
1.African region 2.Region of the Americas 3.South East Asia Region 4.European Region 5.Eastern Mediterranean Region 6.Western Pacific Region	Brazzaville, Congo Washington D.C,USA New Delhi, India Copenhagen, Denmark Cairo, Egypt Manila, Philippines

Structural Organization of WHO

I. The World Health Assembly (or Parliament)

- Supreme decision-making body for WHO-
- Meets in Geneva in May each year
- Attended by delegations from all 193 Member States

II. The Executive Board (or Cabinet)

- Composed of 34 members technically qualified in the field of health

III. The Secretariat

- Staffed by 8000 health and other experts and support staff on fixed term appointments, working at headquarters, in the six regional offices, and in six countries

4. STRUCTURAL ORGANISATION OF WHO-

Refer to Short Note Question Number- 3

XXII. DENTAL MANPOWER

SHORT ESSAYS:

1. Define and classify dental auxiliary. Enlist the functions of dental therapist. (Aug 2014, Jan 2022)
2. Define dental auxiliary. Explain the various dental auxiliaries and its functions. (Feb 2018)
3. Explain the duties of non-operating and operating dental auxiliaries. (July 2019)
4. Enlist all the dental manpower involved in provision of oral health care services. Add a note on the role of dental hygienist. (Jan 2020)

SHORT NOTES:

1. Dental hygienist (Feb 2015)
2. EFDA (Jan 2022) 2010 scheme
3. Denturist
4. School dental nurse

ANSWER KEY

LONG ESSAYS

1) and 2)

DEFINITION

A dental auxiliary is a person who is given responsibility by a dentist so that he or she can help the dentist render dental care, but who is not himself or herself qualified with a dental degree. The duties undertaken by dental auxiliaries range from simple tasks such as sorting instruments to relatively complex procedures which form part of the treatment of patients.

CLASSIFICATION

WHO (1967)

1. Non-operating auxiliaries
 - a) Clinical
 - b) Laboratory
2. Operating auxiliary

REVISED CLASSIFICATION

1. Non-operating auxiliaries
 - a) Dental **S**urgery **A**ssistant
 - b) Dental **SEC**retary /receptionist
 - c) Dental **LAB**oratory technician
 - d) Dental **health** educator

MNEMONIC

SA Sec Lab

2. Operating auxiliaries

- a) School dental nurse
- b) Dental therapist
- c) Dental hygienist
- d) Expanded function dental auxiliaries

Functions of dental therapist:

- 1. Clinical caries diagnosis
- 2. Cavity preparation in deciduous and permanent teeth
- 3. Vital pulpotomy under rubber dam in deciduous teeth
- 4. Extraction of deciduous teeth under LA

Role of dental hygienist

- 1) Scaling
- 2) Preliminary examination
- 3) Complete prophylaxis
- 4) Apply and remove periodontal pack
- 5) Apply fissure sealants

3. NON-OPERATING AUXILIARIES

a. Clinical: It's a person who assists dentist in his clinical work but doesn't carry out any independent procedures in oral cavity.

b. Laboratory: It's a person who assists the dentist by carrying out certain laboratory procedures.

OPERATING AUXILIARIES

It's a person who not being a professional is permitted to carry out certain treatment procedures in the mouth under the direction and supervision of a professional.

4.DENTAL MANPOWER IN ORAL HEALTH SERVICES

- Dental surgery assistant
- Dental secretary/ receptionist
- Dental laboratory technician
- Denturist
- Dental health educator
- School dental nurse
- Dental therapist
- Dental hygienist
- Expanded function dental auxiliaries
- Frontier auxiliaries
- Dental licentiate
- Dental aids

DENTAL HYGIENIST

Operating auxiliary licensed and registered to practise dental hygiene under the laws of appropriate state, province, territory or nation.

Assists the dental surgeon in chair side work and manages the office.

He/she shall work under the supervision of dental surgeon.

SHORT NOTES

1. Refer Long Essay Question Number- 4

2. EXPANDED FUNCTION DENTAL AUXILIARIES

A dental assistant or dental hygienist in some cases who has received further training in duties related to the direct treatment of patients though still working under the supervision of a dentist.

Duties:

- Placing and removing rubber dams, temporary restorations, and matrix bands
- Condensing and carving amalgam restorations in previously placed teeth
- Placing of acrylic restorations in previously prepared teeth
- Applying the final finish and polish to the previously listed restoration

3. DENTURIST

That dental laboratory technician who are permitted to fabricate dentures directly for patients without prescription of dentist.

ADA defines Denturism “as the fitting and dispensing of dentures illegally to the public”

4. SCHOOL DENTAL NURSE

Operating auxiliary who is permitted to diagnose dental disease and to plan and carry out certain specified preventive and treatment measures in school children.

Duties:

- Oral examination
- Prophylaxis
- Topical fluoride application
- Advice on dietary fluoride supplements
- Administration of local anaesthetic
- Cavity preparation and placement of amalgam filling in primary and permanent teeth.
- Pulp capping
- Extraction of primary teeth
- Individual patient instruction in tooth brushing and oral hygiene
- Classroom and parent-teacher dental health education
- Referral of patient to private practitioner for more complex services

XXIII. FINANCE IN DENTAL CARE

SHORT ESSAY:

1. Explain in detail about various mechanism of payment for dental care. (Feb 2015).

SHORT NOTES:

1. Health maintenance Organisation (Aug 2015)
2. Insurable risk (Aug 2016)
3. Capitation fee (Feb 2017)
4. 90th percentile (Aug 2017)
5. Post payment plans in finance (Feb 2019)
6. Financing dental health services in India (July 2019) (Jan 2020)
7. Delta dental plan (May 2021)-2010 scheme

ANSWER KEY

SHORT ESSAYS

1. MECHANISM OF PAYMENT FOR DENTAL CARE

1. Private fee for service
2. Post payment plans
3. Private third-party prepayment plans
 - a. Commercial insurance companies
 - b. Non-profit health service corporations

E.g.:- Delta dental plans

Blue Cross/ blue shield

 - c. Prepaid group practice
 - d. Capitation plans
4. Salary
5. Public programs

SHORT NOTES

1. HEALTH MAINTENANCE ORGANISATIONS (HMO)

DEFINITION

A legal entity which provides a prescribed range of health services to each individual who has enrolled in the organisation, in return for a prepaid, fixed and uniform payment

2. INSURABLE RISK

A risk that conforms to the norms and specifications of the insurance policy in such a way that the criterion for insurance is fulfilled is called insurable risk.

3. CAPITATION PLANS

- The basis of Capitation is that the contracting provider, whether an HMO, group practice, IPA or Individual dentist receives an established, negotiated sum on a monthly or yearly basis for each eligible patients.
- Money is paid regardless the patient utilises the care or not.

4. THE 90th PERCENTILE

The percentiles of a data set divide the total frequency into hundredths, so that 90th percentile is that value below which 90 % of observations lie.

5. POST PAYMENT PLANS

- Budget payment plan
- Mechanism for individual purchase of service
- Patient borrows money from the bank or finance company to pay dentist fee
- Treatment done —> application given to bank/finance company —> Application is approved by the institution —> entire fee is paid

6. FINANCING DENTAL HEALTH SERVICES IN INDIA

1. Fee for service
 - Private hospitals

- Private doctors
 - Facilities of private firms/enterprises
 - Medical education /research or training in the private sector
2. Dental insurance
 3. Free or discounted rates

7. DELTA DENTAL PLAN

- ◆ Delta service corporation
- ◆ Legally constituted non-profit organisation incorporated on a state-by-state basis and sponsored by constituent dental society to negotiate and administer contracts for dental care.
- ◆ Subject to insurance laws

XXIV. RESEARCH METHODOLOGY

SHORT ESSAYS:

1. Define research. Explain the steps in research methodology. (Aug 2017)
2. The various methods of presentation of data. (Jan 2020)
3. Measures of central tendency. (May 2021-2016 scheme)

SHORT NOTES:

1. Probability and sampling technique (Feb 2015)
2. Methods of collection of data (Aug 2015)
3. Methods of presentation of data (Feb 2017)
4. Non probability sampling
5. Normal curve. (May 2021)- 2010 scheme

ANSWER KEY

SHORT ESSAYS

1. **RESEARCH** - Continual search for truth using scientific method.

Steps in research methodology

- Scientific method
 - Problem formulation
 - Hypothesis formulation
 - Data collection
 - Analysis and interpretation
 - Writing a report
- Preparing protocol
 - Document that explicitly states the reasoning behind and structure of research report.
- Sampling and sample designs
 - Part of population called **universe, reference or parent.**
 - Advantage
 - i. Reduce cost of investigation
 - ii. Thorough investigation
 - iii. In- depth coverage
- Collection of data
 - Details of population size , geographic distribution ethnic groups , socioeconomic factors and trends over time

- Types of data
 - i. Qualitative data
 - ii. Quantitative data
- Collection of data
 - i. Primary source
 - ii. Secondary source
- Presentation of data
 - Two methods
 - i. Tabulation
 - ii. Charts and diagrams
- Writing the report
 - After analysis and interpretation, final report is written
 - Purpose is to communicate the research process and observed finding to professional community

2. **MEASURES OF PRESENTATION OF DATA** -Refer Short Essay Question Number- 1 in the chapter Biostatistics

3. **MEASURES OF CENTRAL TENDENCY**- Refer Short Essay Question Number- 3 in the chapter Biostatistics

SHORT NOTES

1. PROBABILITY AND SAMPLING METHOD

1. Non probability sampling

- Not truly representative , less desirable
- Three types are
 - i. Quota sampling - Decided in advance
 - ii. Purposive sampling - constructed to serve a very specific need or purpose
 - iii. Convenience sampling - randomly obtained

2. Probability sampling

- Individual unit in total population has a known probability of being selected
- Four types
 - i. **Simple random sampling**- each and every unit has equal chance
 - Lottery method
 - Table of random numbers
 - ii. **Systematic sampling**- obtained by selecting one unit at random and then selecting additional units
 - iii. **Stratified sampling** - divided into sub groups or strata
 - Stratified random sampling-
 - a. Sub groups and strata ,each group is homogenous
 - b. Simple random sample is then selected from each stratum
 - Stratified systematic sampling- eliminate sample variation
 - iv. **Cluster sampling** -
 - Used in villages, wards or schools
 - Administratively simple

2. **METHODS OF COLLECTION OF DATA**

Data can be collected through:

1. Primary source
 - Investigator itself collected
 - First-hand information
2. Secondary source
 - Already recorded data utilized
 - E.g.:- OP of dental clinics

Primary data can be obtained by

1. Direct personal interviews
2. Oral health examination
3. Questionnaire method

3. **METHODS OF PRESENTATION OF DATA-** Refer Short Essay Question Number- 1 in the chapter Biostatistics

4. **NON-PROBABILITY SAMPLING**-Refer Short Note Question Number-1

5. **NORMAL CURVE:** - Refer Short Note Question Number -1 on chapter Biostatistics.

XXV. BIOSTATISTICS

SHORT ESSAYS:

1. Define Biostatistics. Describe different methods of presentation of data.
(Feb 2019)

SHORT NOTES:

1. Normal curve/Normal distribution/Gaussian distribution (Feb/Aug 2016)
2. Measures of dispersion (Feb 2017, Jan 2022), (Jan 2022) 2010 scheme
3. Measures of central tendency (Aug 2017)

ANSWER KEY

SHORT ESSAYS

1. Definition

Bio-statistics is that branch of statistics concerned with mathematical facts and data related to biological events.

METHODS OF PRESENTATION OF DATA: -

a. Tabulation

The proportion of damaged/cavity/sore teeth	The proportion of dental and oral utilization					
	Low (5.10-8.16)		Middle (5.10-8.16)		High (5.10-8.16)	
	N	%	N	%	N	%
Low (36.50-43.90)	4	36.4	6	50.0	2	18.2
Middle (43.91-48.16)	4	36.4	1	8.3	6	54.5
High (48.17-60.40)	3	27.3	5	41.7	3	27.3
Total	11	100	12	100	11	100

- i. Used for presentation of statistical data
- ii. Simple
- iii. Single large table containing details or variables
- iv. Data according to size or importance
- v. Self-explanatory Codes abbreviations or symbols
- vi. Columns and rows
- vii. Types of table
 - **Master** table
 - **Simple** table
 - **Frequency distribution** table

b. Charts and diagrams

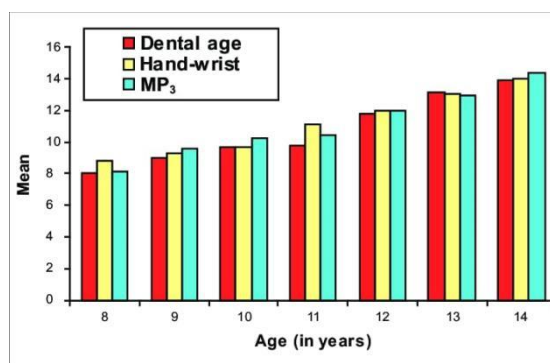
Convincing and appealing ways for statistical report

- Attractive
- Bird eye view
- Lasts in mind of layman
- Comparison of time period and region

MNEMONIC

BP2 Low & High Frequency Spots

i. Bar chart



1. **Simple bar** chart -represents only one variable

E.g.:- Age wise prevalence of dental caries

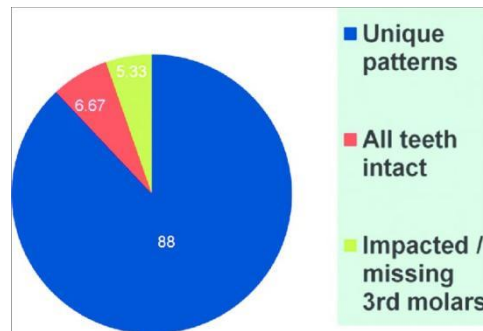
2. **Multiple bar** chart- sets of bars of same width

E.g.:- Prevalence of dental caries based on age and gender

3. **Proportional / Component bar** chart - compare sub group between major groups

E.g.: -Prevalence of dental caries based on age and gender

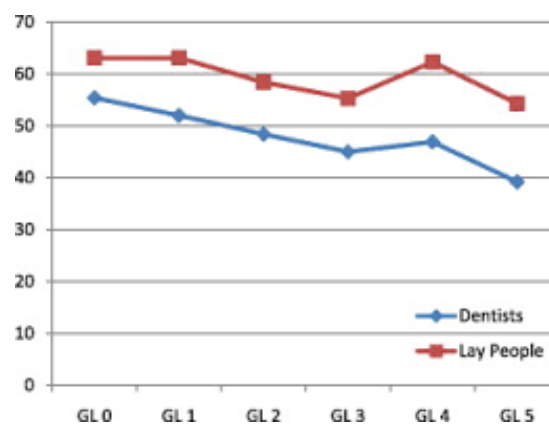
ii. Pie diagram / chart



1. Graph looks like a **pie**
2. Total angle at circle **360 degree**
3. Segments with different **shades or colors**

E.g.:- Distribution of dental disease in 30-40yrs old

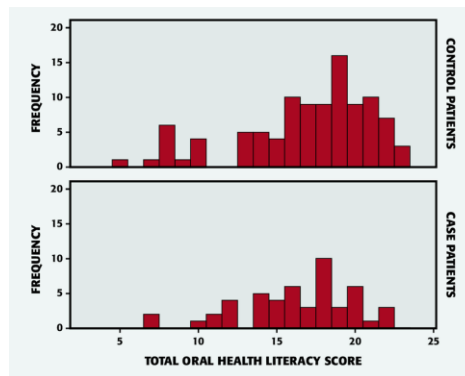
iii. Line diagram



Study changes of values in variable over time

E.g.: - Age wise prevalence of dental disease

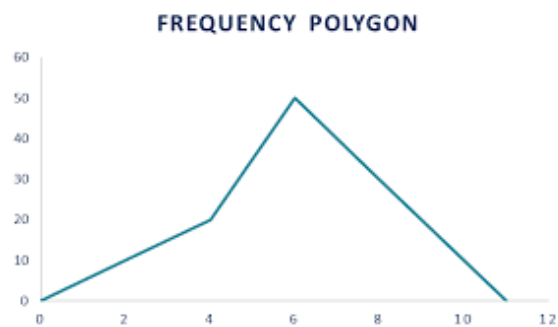
iv. Histogram



Pictorial diagram of frequency distribution

E.g.: - Age wise prevalence of dental caries

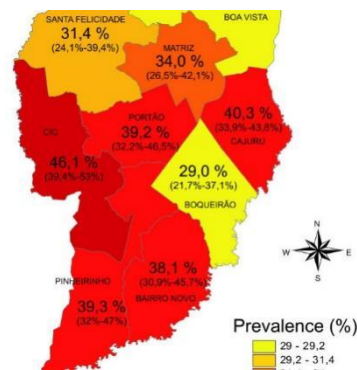
v. Frequency polygon



1. Pictorial diagram
2. Points marked over blocks
3. Blocks connected by straight lines

E.g.:- Age wise prevalence of dental caries

vi. Cartogram/Spot map/Shaded map



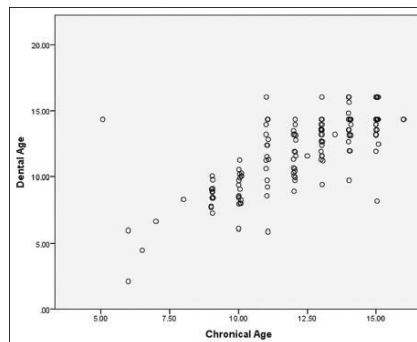
1. Geographical distribution
2. Oral cancer by geographic area
3. Shades used-shade map

vii. Pictogram

1. Small pictures or symbols
2. For common man

E.g.: - Population per physician

viii. Scatter diagram

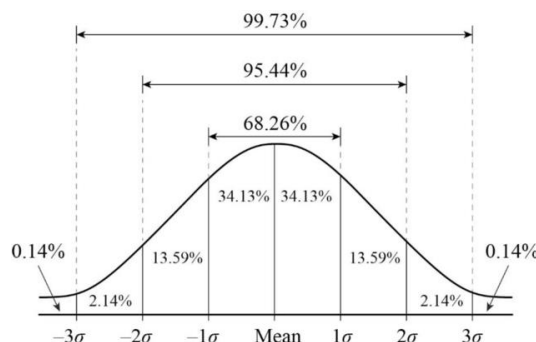


Relationship between two variables

E.g.:- Relationship between sugar intake (x axis) and dental caries prevalence (y axis).

SHORT NOTES

1 .NORMAL CURVE / Normal distribution/Gaussian distribution



- Data collected and frequency distribution with narrow class interval
- Resulting curve is smooth, symmetrical-**normal curve**
- In a normal curve,
 - Area between **one** standard deviation on either side of mean - **68%**
 - Area between **two** standard deviation on either side of mean - **95%**
 - Area between **three** standard deviation on either side of mean - **99.7%**

Standard normal curve

- Bell shaped
- Perfectly symmetrical on large number of observation
- Total Area of curve is one
 - Mean is zero
 - Standard deviation is one
- Central tendency, mean, median and mode coincide
- If mean > 2 standard deviation, values are normally distributed

2. MEASURES OF DISPERSION

- To know how widely observations are spread
- Most common measures are:
 - a. Range
 - Simplest method
 - Difference between values of largest and smallest item
 - b. Mean deviation
 - Given by

Mean Absolute Deviation
Formula

$$\frac{\sum |x - \bar{x}|}{n}$$

c. Standard deviation

- Most widely used
- Root mean square deviation

- Greater the S.D greater will be magnitude of dispersion from the mean

$$SD = \sqrt{\frac{\sum |x - \bar{x}|^2}{n}}$$

3. MEASURES OF CENTRAL TENDENCY / Statistical average

- To condense the entire mass data and to facilitate comparison
 - Easy to understand
 - Based on every item
 - Should not affected by extreme observation
 - Sampling stability
- Common measures of central tendency are
 - Arithmetic mean
 - Adding individual observation and divided by total number of observation
 - Median
 - Middle value in distribution
 - Mode
 - Series of observations that occurs with the greatest frequency
 - Mode = 3 median - 2 mean

XXVI. ESTABLISHING AND MAINTAINING A DENTAL OFFICE

SHORT NOTES:

1. Selection of equipment for dental practise (Aug 2016)
2. Place and locality of dental practise (Feb 2019)
3. Maintenance of dental records

ANSWER KEY

SHORT NOTES

1. SELECTION OF EQUIPMENT FOR DENTAL OFFICE

- * Basic instruments
- * Based on finance
- * Priority to reputation of company and after sale service
- * Autoclavable instruments

2. PLACE AND LOCALITY OF DENTAL PRACTISE

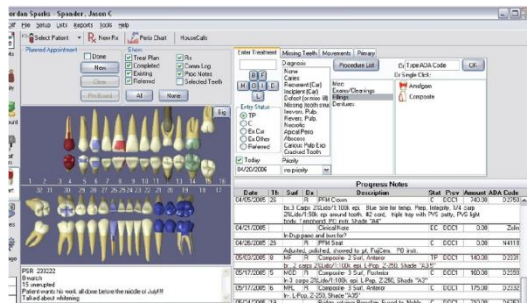
- * No. Of dentists practicing
- * Town/country - transportation facilities
- * Cities - shopping complex areas
- * Close to government offices
- * Residential areas
- * Keep safety in mind

3. MAINTENANCE OF DENTAL RECORDS

- Records should be systematically maintained .
- Written records: case history, dental and periodontal charts etc.
- Non written records : dental photographs , radiographs, cephalometric records etc.

XXVI. Establishing And Maintaining A Dental Office

- Receptionist should maintain a book of accounts – bills, purchase records of instruments and equipments.
- Dental software programs available for patient record and data management.



XXVII. ETHICS IN MEDICINE AND DENTISTRY

SHORT ESSAYS:

1. Define ethics. Enumerate principles of ethics. Add a note on unethical practise. (Aug 2014, Feb 2016); (Jan 2022) 2010 scheme

SHORT NOTES:

1. Autonomy (Aug 2015)
2. Confidentiality (Feb 2017)
3. Ethical principles (Feb 2018)
4. Informed consent (Aug 2018)
5. Nuremberg code
6. Professional negligence (May 2021) - 2010 scheme

ANSWER KEY

SHORT ESSAYS

1. DEFINITION

Ethics is the philosophy of human conduct, a way of stating and evaluating principles by which problems of behaviour can be solved. Ethics is concerned with standards judging whether actions are right or wrong.

ETHICAL PRINCIPLES

1. To do no harm (non-maleficence)
2. To do good (beneficence)
3. Respect for persons
4. Justice
5. Veracity or truthfulness
6. Confidentiality

UNETHICAL PRACTICES

1. Practice by unregistered persons employed by the dentist.
2. Dentist signed under his name and authority issuing any certificate which is untrue, misleading or improper.
3. Dentist advertising whether directly or indirectly, for the purpose of obtaining patients or promoting his own professional advantage.
4. Use of bogus diplomas
5. Allowing commission
6. Paying or accepting commissions
7. Undercutting of charges in order to solicit patients

8. If the planned treatment is beyond the dentist's skill, the patient is not referred to a consultant.
9. In case of an emergency consultation during the temporary absence of the patient's dentist, temporary service is provided and the patient is not sent back.
10. If consulted, the dentist accepts charge of the case without request of referring dentist.

SHORT NOTES

1. AUTONOMY

Autonomy is a principle that dictates that health care professionals respect the patient's right to make decisions concerning the treatment plan.

- primary way to respect individuals - - - > To abide by their choices
- Autonomous person - - - > individual capable of deliberation about personal goals.
- Paternalism

2. CONFIDENTIALITY

Patients have the right to expect that all communications and records pertaining to their care will be treated as confidential.

3. ETHICAL PRINCIPLES- Refer Short Essay Question Number- 1

4. INFORMED CONSENT

- Informed consent, both a legal and an ethical concept, is an essential component of a patient's right to autonomy.
- First stated and largest principle of Nuremberg code
- Consent must be

- Voluntary
- Legally competent
- Informed
- Comprehending
- 2 step process
 - First : presented to parent by doctor
 - Second: patient satisfies himself or herself
- Contents of informed consent

5. **NUREMBERG CODE**

- It is a set of research ethical principles for human experimentation set as a result of the Nuremberg Trials at the end of Second World War.
- It contains 10 principles

6. **PROFESSIONAL NEGLIGENCE**

- Definition: Breach of duty caused by the omission to do something which a reasonable man would do or doing something which a prudent and reasonable man would not do.

- To achieve success in action for negligence:

*Doctor owed him a duty to conform to a particular standard of professional conduct

* Doctor breached that duty

* Patient suffered actual damage

* Doctor's conduct was direct or proximate cause of the damage

XXVIII. MEDICAL JURISPRUDENCE

SHORT NOTE

1. Consumer Protection Act (COPRA) (May 2021) - 2016 scheme

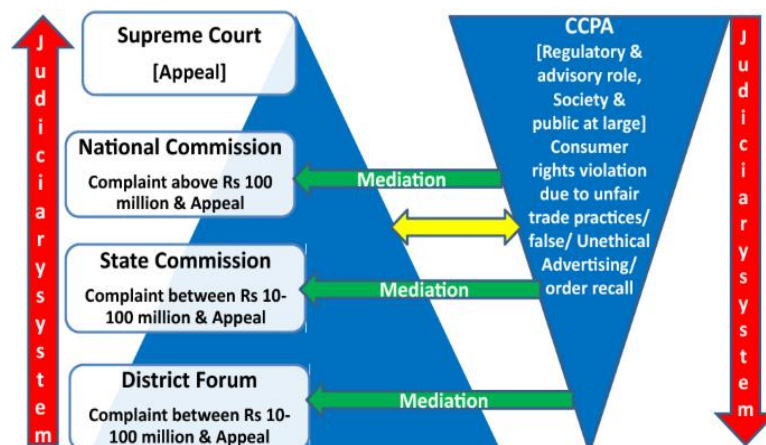
ANSWER KEY

SHORT NOTE

1. CPA/COPRA

- **Consumer protection act**
 - On **15th April 1987**
 - Legislation for protection of consumers
- **Liable**
 - All medical and dental practitioners unless rendering only free service
 - Private hospital charging all patients
 - All Hospital having free as well as paying patients
 - Medical or dental practitioners and hospitals paid by an insurance firm

STRUCTURE OF CPA (2002)



SUPREME COURT

(Final appeal)

|

NATIONAL COMMISSION

(Appellate authority over state commission original jurisdiction over Rs.1 crore)

|

STATE COMMISSION

(Appellate authority for District Forum Suo moto Revision

Original jurisdiction over Rs.20 lakh to Rs1 crore)

|

DISTRICT FORUM

Original jurisdiction up to 20 lakhs

XXIX. PALLIATIVE CARE

SHORT NOTES

1. Define palliative care
2. Principles of pain therapy
3. Trigeminal neuralgia
4. Break through pain
5. Analgesics in pain management
6. Drugs and dosage in WHO ladder
7. Palliative care nutrition
8. Dentists role in palliative care

ANSWER KEY

SHORT NOTES

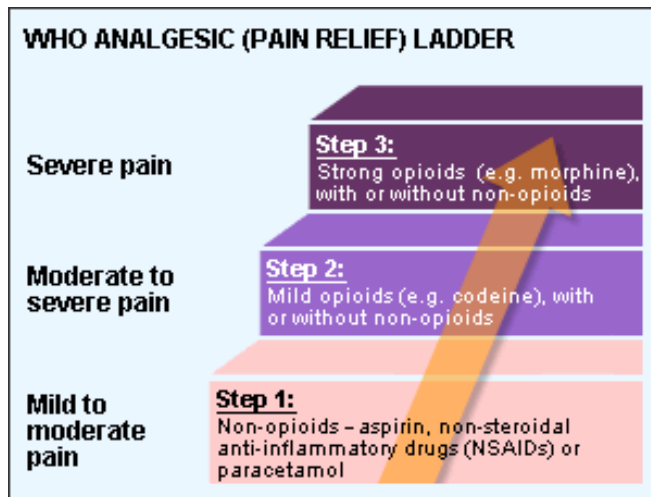
1. PALLIATIVE CARE -DEFINITION

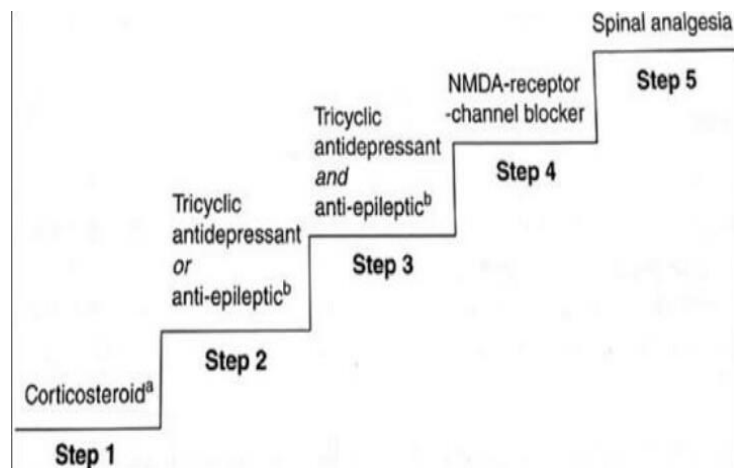
- Active total care whose disease is not responding to curative treatment.
- Improving quality of life of patient, families facing problems associated with life threatening illness.

2. PAIN THERAPY

PRINCIPLES

- By the mouth
- By the clock
- By the ladder
- By the individual
- Adjuvant drugs





3. **TRIGEMINAL NEURALGIA**

Sudden, usually unilateral, severe, brief, stabbing, lancinating, paroxysmal, recurring pain.

FEATURES: - “TRIGGER POINTS”

- Pain confined to one division of nerve
- Pain rarely crosses midline
- Paroxysm occurs in cycles
- “Frozen or mask like face”
- Attacks do not occur during sleep

MANAGEMENT: -Carbamazepine 100-200 mg, phenytoin-primary drug.

SURGICAL MANAGEMENT-Percutaneous glycerol rhizolysis

- Percutaneous balloon compression
- Radiofrequency trigeminal rhizotomy
- Gamma knife radiosurgery
- Micro vascular decompression

4. **BREAKTHROUGH PAIN**



5. **ANALGESICS in pain management**

a) OPIOID ANALGESIC

- Morphine:
 - Analgesic
 - Sedation
- It affects:
 - Respiratory centre
 - Cough centre
 - Temperature regulation centre
 - Vasomotor centre
 - CTZ
 - Pupils
 - GIT
- Oral morphine:
 - Gold standard
 - 5-10 mg PO 4th hourly
 - Can be increased by 50% every 24 hrs.
 - No standard dose

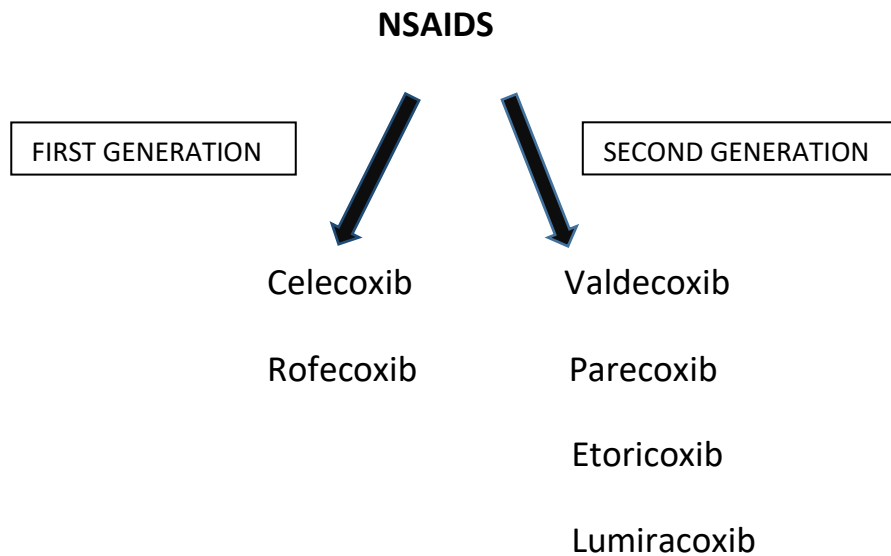
Side effects:

- Nausea and vomiting
- Mild drowsiness
- Constipation
- Renal and hepatic toxicity
- Morphine toxicity
- Alternatives to morphine:
 - Fentanyl transdermal patch (tdp)
 - Methadone and Oxycodone
 - Buprenorphine

b) ADJUVANT (CO ANALGESICS)

- Corticosteroids
- Anti – depressants
- Muscle relaxants
- Anti – spasmodic
- Antibiotics
- Antiemetics
- Antitussives
- Psychotropic medications
- Anxiolytics

6. DRUG AND DOSAGE IN WHO LADDER



Ibuprofen: 200-400 mg T.D.S. (PO)

Diclofenac: 500 mg T.D.S. (oral, IM, or suppository)

Naproxen: 250-500 mg B.D. (PO or suppository)

Ketorolac: 10-30 mg Q.D.S. (SC/PO)

- **OPIOID ANALGESICS**

Corticosteroids: Dexamethasone oral / SC / IV 2 mg

Prednisolone oral / rectal 15 mg

Hydrocortisone oral / IV 60 mg

Methyl prednisolone oral / IV 12 mg

7. PALLIATIVE CARE NUTRITION

IMPORTANCE-

- Enjoy overall well-being and quality of life
- Maintain strong immune system
- Cope with the demand of illness
- Get help for any pain and other physical symptoms
- Get help for mental, social, spiritual problems

KEY ISSUES –

- Anorexia
- Weight loss

OPTIMIZING NUTRITION –

- High protein meal and snack
- High calorie ingredients to meals, drinks, desserts, snacks

FIVE FOOD GROUPS EVERYDAY

- Meat, chicken, fish, nuts and legumes
- Dairy foods
- Bread, cereals, whole grains and rice

VEGETARIAN DIETS

- Lower in protein and energy than animal based foods

8. Dentist role in palliative care

ORAL LESION / CONDITION	CLINICAL FEATURES	DENTIST ROLE
<i>Xerostomia</i>	Dry mouth	Specialized oral hygiene
	Mucositis	Salivary substitutes.
	Dental caries	Oral balance gel.
	Coated tongue	Nonalcoholic mouth wash.
	Salivary gland hypofunction	Ice to suck.
		Sugar free chewing gum.
<i>Oral candidiasis</i>		Cold unsweetened drinks.
	Creamy white patches or multiple white to yellow soft plaques	Dentures to be examined, cleaned thoroughly.
<i>Angular cheilitis</i>	Taste alterations	Scaling and polishing.
	Areas may bleed and burn	Clean and fit dentures.
	Cracking, fissuring irritation with red areas at corner of mouth	
<i>Mucositis</i>	Painful mouth opening	
	Pain	Mouths wash as per need.
	Burning sensation	Clinical pictures of the lesion.
	Inflammation and bleeding of the oral soft tissues of lips, cheeks, gums, and tongue	0.15% Benzydamine hydrochloride. Topical analgesics
<i>Dysphagia</i>	Inability to hold or	Specialized oral hygiene
	Control food	Oral physiotherapy
	Incompetent lip Risk for choking	Avoiding use of removable prosthesis

SAMPLE QUESTION PAPER -1

PUBLIC HEALTH DENTISTRY

Time: 3hours

Max Marks: 70

Essays

(2x10=20)

1. Discuss the mechanism of action of systemic fluorides. Write in detail about professionally applied topical fluorides.
2. Discuss in detail prevention of oral cancer.

Short essays

(4x5=20)

1. Case control study
2. Probability sampling
3. Large scale purification of water
4. Steps in planning

Brief notes

(10x3=30)

1. Chemical plaque control method
2. WHO
3. Dean's fluorosis index
4. Levels of prevention
5. Pathfinder survey
6. Types of examination
7. Define palliative care
8. Blinding
9. Specificity
10. Dentist's act

SAMPLE QUESTION PAPER - 2

PUBLIC HEALTH DENTISTRY

Time: 3hours

Max Marks: 70

Essays

(2x10=20)

1. Classify dental auxiliaries. Discuss in detail different types of auxiliaries in dentistry.
2. Classify sampling methods. Discuss in detail various sampling methods in dental research

Short notes

(4x5=20)

1. Brudevold's solution
2. Discuss principles of ethics
3. Categories of hospital waste
4. Evaluation

Brief notes

(10x3=30)

1. Uses of epidemiology
2. Measures of dispersion
3. Dental insurance
4. Small scale purification of water
5. UCR fees
6. Sugar substitutes
7. Comprehensive dental care
8. Index age group
9. Principles of pain therapy
10. Define pandemic

SAMPLE QUESTION PAPER - 3
PUBLIC HEALTH DENTISTRY

Time: 3hours

Max Marks: 70

Essays **(2x10=20)**

1. Define epidemiology. Discuss host factors in epidemiology of dental caries and periodontal diseases
2. Define survey. Steps in survey

Short notes **(4x5=20)**

1. Atraumatic restorative treatment (ART)
2. Oral hygiene index – simplified (OHI-S)
3. Defluoridation
4. Tobacco cessation counselling

Brief notes **(10x3=30)**

1. Social norms
2. Types of consent
3. Appropriate technology
4. Barriers in health education
5. Primordial prevention
6. Principles of primary health care
7. APF gel
8. Unethical dental practice
9. Standard deviation
10. Break through pain

SAMPLE QUESTION PAPER - 4
PUBLIC HEALTH DENTISTRY

Time: 3hours

Max Marks: 70

Essays **(2x10=20)**

1. Define health. Write in detail about healthcare system in India
2. Define pit and fissure sealant. Classify pit and fissure sealant. Write in detail the procedure of pit and fissure sealant application

Short notes **(4x5=20)**

1. Methods of waste disposal
2. Tools of dental public health
3. Measures of dispersion
4. Define planning. Outline the steps in planning process

Brief notes **(10x3=30)**

1. Palliative care nutrition
2. Normal curve
3. Consumer protection act
4. Trace elements
5. Iceberg phenomenon
6. DMFT Index
7. Visual aids in health education
8. Duties of dental therapist
9. Changing concepts of health
10. Third party payment plans

SAMPLE QUESTION PAPER - 5
PUBLIC HEALTH DENTISTRY

Time: 3hours

Max Marks: 70

Essays **(2x10=20)**

1. Define health education. Write in detail methods of health education
2. Classify toxicity of fluorides. Write in detail on the Nalgonda technique of Defluoridation.

Short notes **(4x5=20)**

1. Hopewood house study
2. Stephan's curve
3. Measure of central tendency
4. Functions of IDA

Brief notes **(10x3=30)**

1. New Zealand school dental nurse
2. Incineration
3. Dentists role in palliative care
4. Mortality and morbidity indicators
5. Randomized control test
6. Delta dental plan
7. Difference between slow sand filtration and rapid sand filtration.
8. Changing concepts of health
9. Multistage sampling
10. CPITN index

IMPORTANT UNIVERSITY VIVA VOCE QUESTIONS

1. Define health?
2. What is co-insurance?
3. What are the different methods of presentation of data?
4. When is no tobacco day celebrated?
5. Classify the different modalities of Fluoride Delivery?
6. What is Epidemic, Endemic and Pandemic?
7. What are the Principles of ethics?
8. Who is the Father of epidemiology?
9. Mention some chemical methods of plaque control?
10. Name some School Dental Health Programmes?
11. Define Public Health?
12. What are the uses of epidemiology?
13. What is Post Payment Plan?
14. What is Multi Stage Sampling?
15. What is critical pH?
16. What is incineration?
17. Name a few precancerous lesions and conditions?
18. What are the ingredients of tooth paste?
19. What is Stephan's curve?
20. What are the different types of examination?
21. Define water fluoridation and fluoridation?
22. What is Nizel's Rule?
23. What is epidemic curve?
24. Explain the Iceberg Phenomenon?
25. What are the Determinants of health?
26. Mention different types of blinding?
27. What is mean?
28. Name environmental factors related to epidemiology?
29. What are the functions of a public health dentist?
30. Name some Third-Party payment plans?
31. What is the amount of fluoride added in school water fluoridation?
32. Define disease agent?
33. What is choking off effect?
34. What are the barriers of Health Education?
35. Enumerate methods of solid waste disposal?

36. What are the different types of Bias?
37. What is Median?
38. Enumerate the principles of Health Education?
39. What is Knutson's technique?
40. What are the Changing concepts of health?
41. What is the ADA specification of a Tooth Brush?
42. What is the quantity of fluoride present in a tooth paste?
43. What are the Functions of DCI?
44. Mention some studies on Diet and Dental caries?
45. What is NRT? Give examples?
46. Define Dental Public Health?
47. How is the Bangalore method of waste disposal carried out?
48. What is negligence?
49. Mention the uses of epidemiology?
50. What are the functions of IDA?
51. What is cross sectional study?
52. What is mode?
53. Mention the Aims of Epidemiology?
54. What is the formula for standard deviation?
55. What is HMO?
56. Enumerate the classical studies in community Water Fluoridation?
57. Definition of health education?
58. What is consent?
59. Name the levels of prevention with example?
60. What are the different steps of survey?
61. Mention briefly the history of water fluoridation?
62. Concepts of health?
63. What do you mean by Dental manpower? Who are all included?
64. What is Pathfinder survey?
65. What are the Changing concepts of public health?
66. Cohort study – mention 3 characteristics?
67. What are the duties of New Zealand Dental Nurse?
68. What is void theory?
69. What are the types of evaluation?
70. What is Delta Dental Plan?
71. What are the different sources of fluoride?
72. Define dental auxiliary?
73. Difference between a Public Health Dentist and a Private practitioner?

- 74.Determinants of health?
- 75.Mention briefly history of water fluoridation?
- 76.What is the method of application of fluoride varnish?
- 77.What is the formula of Chi-Square test?
- 78.Types of preventive resin restoration?
- 79.What is Brudevold's solution?
- 80.THETA programme?
- 81.Shoe leather survey?
- 82.Alma Ata declaration?
- 83.What is Gaussian Distribution/Normal curve?
- 84.Multistage sampling?
- 85.Types of examination?
- 86.CPITN probe?
- 87.Milk fluoridation?
- 88.ASHA worker?
- 89.Concepts of public health?
- 90.What are the elements of PHC?
- 91.Classification of dental auxiliaries?
- 92.Types of Survey?
- 93.Caries activity tests?
- 94.Tiers of Health system in India?
- 95.Educational aids in health education?
- 96.OHI-S?
- 97.Topical Fluorides?
- 98.Steps in planning?
- 99.Modified stillman technique?
- 100.Attributable risk?

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