

BOARD SOLVED QUESTION
WITH ANSWER

Year : 2023

Subject : Social Pharmacy

Subject Code : ER20-15T

Subject In-Charge : Pankaj Kumar Rout



DO NOT WRITE ANYTHING ON YOUR QUESTION PAPER EXCEPT YOUR ROLL NO. QUESTION PAPER CONTAINING ANYTHING WOULD BE TREATED AS MALPRACTICE

Answer the question serially and continuously

Subject: SOCIAL PHARMACY (Theory)

Full Mark -80

Time -3 Hrs.

1. **Answer any six questions :** (6x5)
- Describe about National AIDS control programme.
 - Give an account of the nutritive & calorific values of various food supplements.
 - Write the organization and function of the Directorate General of Health Services.
 - Discuss about RCH programme and its major interventions in Phase I.
 - Write the sources, functions & deficiency diseases due to fat-soluble vitamins.
 - Describe briefly about causative agent, epidemiology, clinical presentation & prevention of poliomyelitis.
 - Write a detailed note on the role of the pharmacist in Disaster management.
2. **Answer any ten questions :** (3x10)
- Define Pharmacoeconomics & explain its importance.
 - Define the term balanced diet & give an overview of micronutrients.
 - Describe different stages of the demography cycle.
 - Write down the function of the Mid-day meal programme.
 - What are the STDs? Describe its epidemiological factors.
 - What is the vaccine? Classify it.
 - Write down the causative agent, modes of transmission & clinical presentation of tuberculosis.
 - Define Nutraceuticals along with their benefits.
 - Write the functions of community health centres (CHCs).
 - Write a note on the Fortification of food.
 - Define the social impact of drug abuse like alcohol and tobacco.
3. **Answer the following:** (20x1)
- | | | | |
|---------------------|--------------------|-------------------------|--------------------|
| a) Virulence | b) Food | c) Antenatal advice | d) Cold chain |
| e) Red ribbon | f) Spore | g) Surveillance | h) Sludge |
| i) Humoral immunity | j) FSSAI | k) Swine flu | l) Noise pollution |
| m) Marasmus | n) Colostrum | o) e-cigarettes | p) Macronutrients |
| q) Crude death rate | r) Water pollution | s) Mission Indradhanush | t) Tolerance |

Social pharmacy

① Describe about National AIDS Control Programme.

Ans - The National AIDS Control Programme (NACP) is a comprehensive health program implemented by governments to prevent and control the spread of HIV/AIDS. Here's an overview of NACP:

Objectives:

- Reduce new HIV infections.
- Provide care, support, and treatment to people living with HIV/AIDS.
- Alleviate the social and economic impact of AIDS.

Key components:

① Prevention → promote safe behaviors, condom distribution, harm reduction programs for injecting drug users, and blood screening.

② Testing and counselling → expand HIV testing services, provide counselling, and link individuals to care and treatment.

③ Treatment → provide antiretroviral therapy to eligible individuals.

④ Care and support → offer medical, nutritional, and psychological support to PLHIV.

⑤ Surveillance → monitor HIV trends, track progress, and identify areas for improvement.

Strategies:

→ targeted interventions → focus on high-risk groups (e.g. sex workers, injecting drug users).

b) Behavior change communication \Rightarrow promote healthy behaviors through mass media, community outreach, and interpersonal communication.

c) Capacity Building \Rightarrow strengthen healthcare infrastructure, train healthcare providers, and build community capacity.

d) Partnerships \Rightarrow collaborate with NGOs, civil society organizations, and private sector entities.

Impact :

NACP has contributed significantly to:

- Reduced HIV prevalence.
- Increased HIV testing and treatment coverage.
- Improved health outcomes for PLHIV.
- Reduced stigma and discrimination.
- Strengthened healthcare systems.

Challenges :

- 1) Funding constraints.
- 2) Stigma and discrimination.
- 3) Limited access to services, especially in rural areas.
- 4) Emerging epidemics (injecting drug use).
- 5) Sustaining long-term commitment and engagement.

These programs demonstrate the effectiveness of a comprehensive, multi-faceted approach to controlling the HIV/AIDS epidemic.

Give an account of the nutritive & calorific values of various food supplements.

Ans → The nutritive and calorific values of various food supplements:

A) Protein Supplements →

① Whey Protein -

- Calories - 120-150 per scoop
- Protein - 23-30g
- Fat - 1-3g
- Carbohydrates - 5-10g
- Vitamins and minerals: B vitamins, Calcium, Iron

② ~~Whey~~ Casein Protein -

- Calories - 120-150 per scoop (30g)
- Protein: 20-25g
- Fat: 1-3g
- Vitamins & minerals: calcium, phosphorus, magnesium.

③ Pea Protein -

- Calories: 100-120 per scoop (25g)
- Protein: 20-25g
- Fat: 2-5g
- Carbohydrates: 5-10g

B) Vitamin and Mineral Supplement →

① Multivitamin -

- Calories: negligible
- Vitamins: A, C, D, E, K, B complex.
- Minerals: calcium, iron, magnesium, zinc, potassium.

② Calcium -

- calories : negligible
- calcium : 500-1000mg per serving
- supports bone health.

③ Omega-3 Fish oil -

- calories : 10-20 per serving
- Omega-3 fatty acids : 500-1000mg
- supports heart health and brain function.

c) Energy and endurance supplements →

① creatine -

- calories : negligible
- creatine : 3-5g per serving
- increases muscles strength and endurance.

② Beta-Alanine -

- calories : negligible
- Beta-Alanine : 2-4g per serving
- delays muscle fatigue.

③ Branched-chain Amino Acids (BCAAs) -

- calories : 10-20 per (5g)
- Leucine, isoleucine, valine 2-3g each
- supports muscles growth and recovery.

d) Herbal supplement →

① Ginseng -

- supports energy, mental clarity and immune function.

② Ashwagandha - supports stress relief, anxiety & sleep

③ Turmeric/curcumin - supports inflammation reduction and antioxidant function.

Importance ⇒

- ⇒ Always consult with a healthcare professional before adding supplements to your diet.
- ⇒ Follow recommended dosages and guidelines.
- ⇒ Ensure supplements are from reputable manufacturers.
- ⇒ A balanced diet should always be the primary source of essential nutrients.

c) Write the organization and function of the Directorate General of Health Services.

Ans ⇒

Organization ⇒

The Directorate General of Health Services (DGHS) is a apex technical body under the ministry of health and family welfare, Government of India.

The organization is headed by the Director General of Health Services, who is responsible for implementing national health policies and programs.

Functions ⇒

(1) Policy and Planning ⇒

⇒ Formulate national health policies and programs.

⇒ Develop guidelines and standards for healthcare services.

⇒ Co-ordinate with states/ for implementation of national health programs.

(ii) Public Health ⇒

⇒ Prevent and control communicable diseases.
(e.g.:- malaria, tuberculosis, HIV/AIDS).

⇒ Implement vaccination programs (e.g. - universal immunization program).

⇒ Conduct health surveillance and outbreak investigation.

(iii) Healthcare Services ⇒

⇒ Strengthen healthcare infrastructure.

⇒ Ensure quality healthcare services delivery.

⇒ Implement national health programs (e.g. - NHM, Ayushman Bharat).

(iv) Human Resource Development ⇒

⇒ Develop training program for health care professionals.

⇒ Conduct capacity building workshops.

⇒ Monitor health care workforce development.

(v) Research and development ⇒

⇒ Conduct operational research on health issues.

⇒ Collaborate with national / international organizations for research.

⇒ Develop evidence-based policies.

(vi) Monitoring and Evaluation →

- ⇒ monitor national health programs and policies.
- ⇒ evaluate program effectiveness and impact.
- ⇒ develop performance indicators.

(vii) International co-operation ⇒

- ⇒ collaborate with international organizations.
- ⇒ participate in global health initiatives.
- ⇒ facilitate international technical assistance.

(viii) Administration and Finance ⇒

- ⇒ manage administrative and financial matters.
- ⇒ oversee budget allocation and utilization.
- ⇒ ensure transparency and accountability.

Key initiatives ⇒

- ⇒ National Health Mission (NHM).
- ⇒ Universal Immunization Program (UIP).
- ⇒ National Tobacco Control Programme (NTCP).
- ⇒ National Mental Health Programme (NMHP).

The Directorate General of Health Services plays a vital role in shaping India's healthcare landscape, ensuring effective implementation of national health policies & programs and improving the overall health and well-being of the population.

d) Discuss about RCH programme and its major interventions in phase I.

Ans ⇒ The reproductive and child health (RCH) programme is a flagship program of the Government of India aimed at improving the health of women, children, and adolescents. An overview of the RCH programme and its major interventions in phase I (1997-2005).

Objectives ⇒

- ⇒ Reduce infant mortality rate (IMR) and maternal mortality ratio (MMR).
- ⇒ Improve reproductive health, child health, and nutrition.
- ⇒ Increase access to family planning services.
- ⇒ Enhance community participation and involvement.

Phase-I (1997 - 2005) Interventions :-

① Reproductive health ⇒

- 1) Family planning → Distribution of contraceptives, sterilization services.
- 2) Maternal health → Antenatal care, institutional deliveries, emergency obstetric care.
- 3) RTI/STI (Reproductive Tract Infections / Sexually Transmitted Infections) management.

(B) Child health ⇒

1) Immunization → universal immunization programme expansion.

2) child survival → oral rehydration therapy, breastfeeding promotion.

(C) Nutrition ⇒

1) Iron and Folic Acid supplementation for pregnant women.

2) Nutrition counselling and education.

Major strategies ⇒

1) Integration of RCH services with existing health infrastructure.

2) Decentralization and community.

3) Capacity building of health care providers.

Key components ⇒

⇒ RCH counsellor ⇒ Trained community health workers for counselling and services delivery.

⇒ Anganwadi centers ⇒ integrated child development services for nutrition and health.

⇒ Mobile health teams ⇒ reaching remote and underserved areas.

Outcomes ⇒

⇒ IMR declined from 79 to 60 per 1000 live births.

⇒ MMR declined from 398 to 301 per 100,000 live births.

⇒ Couple protection rate increased from 40% to 56%.

⇒ Institutional deliveries increased from 22% to 40%.

Q) Write the sources, functions & deficiency diseases due to fat-soluble vitamins.

Ans: → Overview of the sources, functions & deficiency diseases related to fat-soluble vitamins are:

Vitamin-A ⇒

Sources ⇒

- 1) Animal sources → Liver, eggs, dairy, fish.
- 2) plant sources → Sweet potatoes, carrots, dark leafy greens, fruits.

Functions ⇒

- 1) vision and eye health.
- 2) Immune system function.
- 3) skin and mucous membrane health.

Deficiency Diseases ⇒

- Night blindness.
- xerophthalmia (dry eyes).
- keratomalacia.
- skin problems (acne, hyperkeratosis).

Vitamin D ⇒

Sources ⇒

- Sunlight exposure
- Fortified foods - milk, cereals, orange juice.
- Fatty fish - salmon, mackerel, sardines.

Functions ⇒

- ⇒ Bone health and calcium regulation.
- ⇒ Immune system modulation.
- ⇒ Cell growth, gene expression.

Deficiency Diseases →

- Rickets.
- Osteomalacia.
- Osteoporosis.
- Increased risk of infections and autoimmune diseases.

Vitamin-E ⇒

Sources ⇒

- ⇒ Nuts & seeds → Almonds, Sunflower seeds, Pumpkin seeds.
- ⇒ Vegetable oils → Wheat germ, Sunflower, Sesame, Soybean.

Functions ⇒

- ⇒ Antioxidant and free radical scavenger.
- ⇒ Cell membrane protection.
- ⇒ Immune system function.

Deficiency diseases ⇒

- ⇒ Ataxia (loss of co-ordination)
- ⇒ peripheral neuropathy
- ⇒ Immune system impairment.
- ⇒ Retinal degeneration.

Vitamin-K ⇒

Sources ⇒

- Leafy greens → Spinach, Kale, Collard greens.
- Fermented foods → Sauerkraut, Kimchi.
- Fatty fish

Functions →

- Blood clotting & coagulation.

⇒ Bone health & mineralization.

Deficiency diseases ⇒

⇒ Bleeding disorders

⇒ Hemorrhaging.

⇒ Osteoporosis.

⇒ Cardiovascular disease.

Key points ⇒

⇒ Fat-soluble vitamins required dietary fat for absorption.

⇒ Deficiencies can occur due to inadequate diet, malabsorption, or increased demand e.g. - pregnancy.

⇒ Supplements should be used under medical guidance, as excessive intake can cause toxicity.

b) Describe briefly about causative agent, epidemiology, clinical presentation & prevention of poliomyelitis.

Ans ⇒

Causative agent ⇒

⇒ Poliovirus (PV) = highly infectious, RNA virus.

⇒ Three main serotypes = PV1, PV2, & PV3

⇒ Spread through:-

- fecal-oral route.

- pharyngeal-oral route.

Epidemiology ⇒

⇒ Global distribution, but endemic in only 2 countries, since 2020.

Transmission: person-to-person.

- contaminated food/water.
- Fomites.

High-risk groups:-

- children under 5.
- Immunocompromised individuals.

Clinical presentation ⇒

⇒ Asymptomatic (90-95%) - mild, self-limiting illness.

⇒ Symptomatic (5-10%) -

Minor Symptomatic:-

Fever, Headache, Sore throat, vomiting.

Major Symptomatic:-

Flaccid paralysis, Respiratory failure, cranial nerve involvement.

Prevention ⇒

⇒ Vaccination: oral poliovirus vaccine (OPV) - trivalent or bivalent.

- Inactivated poliovirus vaccine.

⇒ Additional strategies: Improved sanitation & hygiene.

- Enhanced surveillance.

- Targeted immunization campaigns.

- Border vaccination for travelers.

Vaccine schedule ⇒

⇒ WHO recommended schedule - 4 doses of OPV/IPV at 2, 4, 6-18 months & 4-6 years.

⇒ Booster doses as needed.

Key points ⇒

- ⇒ Polio is highly infectious and preventable.
- ⇒ Vaccination is crucial for individual & herd immunity.
- ⇒ Global eradication efforts require sustained commitment.

g) Write a detailed note on the role of the pharmacist in Disaster management.

Ans ⇒

Pharmacists play a vital role in disaster management, leveraging their expertise in medication management, public health, and emergency response. Their involvement is crucial in ensuring the continuity of healthcare services during and after disasters.

Pre-Disaster phase :-

- ⇒ Emergency preparedness planning → Pharmacists participate in developing emergency response plans, ensuring medication availability and accessibility.
- ⇒ Medication stockpiling → Pharmacists help maintain emergency medication stocks, including essential medicines and medical supplies.
- ⇒ Staff training → Pharmacists educate healthcare staff on emergency procedures, medication

management, and disaster response.

⇒ community education → pharmacist inform the public on disaster preparedness, medication safety, and emergency response.

During Disaster ⇒

⇒ medication management → pharmacists ensure continuity of medication therapy, managing shortages & substitutions.

⇒ emergency dispensing → pharmacist provide emergency medication supplies, vaccinations, & immunoglobulin.

⇒ information management → pharmacist maintain accurate records of medication distribution, patient information, & disaster response activities.

Post-Disaster phase ⇒

⇒ Assessment and recovery → pharmacist assess damage, restore services & replenish medication stocks.

⇒ medication monitoring → pharmacist monitor medication use, identifying potential issues & optimizing therapy.

⇒ patient counseling → pharmacist provide counseling on medication management, adherence, & potential side effects.

Specific Role ⇒

- ⇒ Disaster response team member.
- ⇒ Emergency, operations center representative.
- ⇒ Medication logistics coordinator.
- ⇒ Pharmacist-in charge at emergency shelters (or) clinics.

International Guidelines & Resources ⇒

- ⇒ World Health Organization (WHO) ⇒ emergency medicines.
- ⇒ American Society of Health System Pharmacists (ASHP) - Disaster preparedness.
- ⇒ Centers for Disease Control & Prevention (CDC) - emergency preparedness & response.
- ⇒ International Pharmaceutical Federation (FIP) - Disaster response and recovery.

Q) Define pharmacoeconomics & explain its importance.

Ans:- Pharmacoeconomics, is a field of study within health economics that evaluates the cost effectiveness of pharmaceuticals and healthcare interventions. It involves analyzing the costs & outcomes associated with different treatment options. Here's a detailed explanation of pharmacoeconomics & its importance.

Importance of Pharmacoeconomics :-

⇒ Optimizing Resource Allocation :-

Helps allocate limited healthcare resources efficiently to maximize health outcomes.

⇒ Improving Patient Access :-

Identifies cost-effective treatments, ensuring access to effective therapies for patients.

⇒ Supporting Evidence-Based Medicine :-

Provides evidence on the economic value of treatments, guiding clinical decision-making.

⇒ Sustainability of Healthcare System :-

Promotes sustainability by controlling healthcare costs while improving health outcomes.

⇒ Patient-Centered Care :-

Encourages the use of treatments that offer the best value for patients in terms of health benefits relative to costs.

b) Define the term balanced diet & give an overview of micronutrients.

Ans :- A balanced diet is one that gives your body the nutrients it needs to function correctly. To get the proper nutrition from your diet, you should consume most of your daily calories in:

1. Fresh fruits
2. Fresh vegetables
3. Whole grains
4. Legumes
5. Nuts
6. Lean proteins.

Key components of a balanced diet :->

- ① Carbohydrates -> They are the body's main source of energy. Choose complex carbohydrates like whole grains, legumes, & vegetables over simple carbohydrates like sugar & refined grains.
- ② Protein -> Essential for building & repairing tissue. Sources include lean meats, poultry, fish, eggs, beans, nuts, & seeds.
- ③ Fats -> Necessary for absorbing vitamins & providing energy. Focus on healthy fats found in olive oil, avocados, nuts & fish, & trans fats.
- ④ Vitamins & minerals -> Essential for various body functions. These can be obtained from a variety of fruits, vegetables, dairy products.
- ⑤ Fiber -> Helps with digestion & can be found in whole grains, fruits, & legumes.
- ⑥ Water -> vital for all body functions.

Benefits of a balanced diet :->

- Energy -> provides the necessary fuel for daily activities.
- Health weight -> Helps maintain a healthy weight & reduce the risk of obesity.
- Mental health -> Can improve mood & cognitive function.

micronutrients :-

micronutrients are nutrients that the body needs in smaller amounts. They are essential for various bodily functions, including immune function, bone health, & fluid balance.

micronutrients include vitamins & minerals.

c) Describe different stages of the demography cycle.

Ans :- After studying the statistical population growth data of various countries, it has been concluded in the demography cycle comprises of 5 stages of population growth.

Stages of Demographic cycle :->

i) Stage I (High stationary stage)

High birth & high death rate are characteristic of this stage, so they remain stable, India in this stage at 1920.

ii) Second stage (Early expanding stage)

Declining death & constant birth rate are the characteristics of this stage.

iii) Third stage (Late expanding stage)

Further declining death & falling birth rate & characteristics of this stage the population grows continuously during this stage.

iv) Fourth stage (Low stationary stage)
Low birth rate & low death rates are characteristics of this stage, so the population remains constant.

v) Fifth stage (Declining stage)
Lower birth rate than the death rate is the characteristic feature of this stage, thus population starts declining.

d) Write down the function of the mid-day meal programme.

Ans: → The mid-day meal programme in India is a government initiative aimed at providing free lunches to school children in primary & upper primary classes (cls 1 to 8) in government and school. The primary programme are:

① Improve nutritional status :- provide nutritious meals to children to improve their dietary intake, addressing malnutrition & related health issues, especially among underprivileged children.

② Promote school enrollment & attendance :- Encourage children from low-income families to attend school regularly by offering a free meal, which can reduce absenteeism & dropout.

③ Enhance learning & Academic performance :- Nutritional meals contribute to improved concentration, energy levels, & overall cognitive function, positively affecting student's

academic performance.

④ Social Equality :- Promote social equality by observing the same meal to all children, regardless to their caste, religion, or, socio-economic status, helping to reduce social discrimination.

⑤ Support Women's Employment :- Many schools employ local women to cook & serve the meals, providing job opportunities to women in the community.

e) What are the STDs? Describe its epidemiological factors.

Ans:- Sexually transmitted diseases (STDs) are infections primarily spread through sexual contact, though some can also be transmitted from mother to child during pregnancy, childbirth, or breast feeding, and occasionally through non-sexual means such as shared needles.

STDs can be caused by bacteria, viruses or parasites.

Epidemiological factors :-

① Age :- STDs are more common in younger populations, particularly those aged 15-24, as their group tends to engage in higher-risk sexual behaviors.

② Gender :- Gender roles & expectations can also influence STD risk, with women sometimes facing barriers to negotiating safer sex.

③ Sexual Behavior:-

Multiple sexual partners, unprotected sex, and certain sexual practices increase the risk of contracting STDs.

- Inconsistent condom use is a significant risk factor.

④ Socioeconomic Status:-

Limited access to healthcare, lower income, & lower education levels are associated with higher STD rates due to decreased access to preventive & treatment services.

- ### ⑤ Substance Use:-
- Alcohol and drug use can impair judgment, leading to higher risk behaviors such as unprotected sex & multiple partners.

⑥ Social & Cultural Factors:-

Cultural stigmas surrounding STDs often prevent individuals from seeking information, testing & treatment, thus increasing transmission rates.

- ### ⑦ Contraception Use:-
- Barrier methods like condoms help prevent STDs, whereas methods like birth control pills do not protect against STDs.

- ### ⑧ Immune Status:-
- Immunocompromised individuals are more susceptible to contracting and spreading other STDs.

F) What is vaccine? classify it.

Ans:- vaccine is a suspension or weakened, killed or fragmented microorganism, or, toxin or, antibody or, lymphocyte that is administered primarily to prevent disease.

→ vaccine stimulate the body immune system to produce antibodies.

Types of vaccines:-

a) Inactivated vaccines:-

Inactivated vaccine consists of killed version of all germ that causes a disease.

ex:- Hepatitis A, Flu, rabies.

b) Live-attenuated vaccines:-

Live attenuated use a weakened form of germ that cause disease. Because the vaccine are similar to natural infection they create a strong and long lasting immune response.

c) Toxoid vaccines:-

Toxoid vaccine use a toxin or metabolic product by the germ that cause disease.

→ they create immunity to the parts of germ that cause disease instead of germ itself.

ex:- Diphtheria, Tetanus.

d) Messenger RNA vaccine (mRNA vaccine):-

This technology is used to make some Covid-19 vaccine.

⇒ The mRNA vaccine make protein in order to trigger an immune response.

Ex: - covid-19, vaccines.

e) sub-unit, recombinant, polysaccharide & conjugate vaccines :-

It use specific type of germ-like it's protein, sugar (or) capsid.

⇒ As these vaccine use specific pieces of germ, they give very strong immune response that's targeted to the key part of the germ.

Ex: - H1N1 (Influenza type B
Disease)
Hepatitis B.

b) viral vector vaccines :-
They don't contain antigens they use body's own cell to produce them.

⇒ they do this by using modified virus to deliver genetic code for antigen, in case of covid-19 spike protein binds on the surface of the virus into human cells.

Ex: - rVSV-ZEBOV vaccine against ebola; hepatitis B.

g) write down the causative agent, modes of transmission & clinical presentation of tuberculosis.

Ans: - causative agent :-

Mycobacterium tuberculosis :- This is a slow-growing bacterium with a waxy cell wall that makes it resistant to many standard disinfectants & immune responses.

Modes of transmission :-

- Airborne transmission :- TB spreads primarily through the air when a person with active pulmonary or laryngeal TB coughs, sneezes, speaks or sings, releasing tiny droplets that contain the bacteria.
- Inhalation :- people nearby can inhale these droplets, allowing the bacteria to enter the lungs & potentially initiate infection.

Clinical presentation :-

- Primary TB :- Asymptomatic in most cases, with bacteria dormant in the lungs.
- Active TB (pulmonary) :- persistent cough, often productive & possibly with blood (hemoptysis).
 - * Fever & chills.
 - * Night sweats.
 - * Unintentional weight loss.
- Extrapulmonary TB :- Symptoms vary based on the organ involved, such as lymphadenopathy (swollen lymph nodes) in lymphatic TB, abdominal pain in gastrointestinal TB, or neurological symptoms in TB meningitis.

b) Define Nutraceuticals along with their benefits.

Ans:- Nutraceutical is a portmanteau of "nutrition" & "pharmaceuticals" refers to food products that provide health benefits beyond basic nutrition. These products may help prevent (or) treat diseases & enhance overall well-being.

Types of nutraceuticals:-

① Dietary supplements.

② Functional foods.

③ Medicinal foods.

Benefits of Nutraceuticals:-

① Disease prevention:-

Help reduce the risk of chronic diseases such as heart diseases, diabetes, & cancer.

② Health maintenance:-

Support overall health by providing essential nutrients & improving bodily functions.

③ Improved immunity:-

Enhance the immune system, helping to fight off infections and illnesses.

④ Anti-aging properties:-

Contain antioxidants that help combat oxidative stress & slow the aging process.

⑤ Enhanced physical & mental performance:-

Support physical strength & cognitive function, improving quality of life.

1) Write the functions of community health centres (CHCs).

Ans:- CHCs play a crucial role in delivering accessible healthcare services, especially in underserved and low-income communities. Here are some of their primary functions:-

- ① Primary care services ⇒ CHCs offer essential healthcare services, including preventive care, treatment for acute & chronic illnesses, immunization & general wellness check-ups.
- ② Preventive & Health Education ⇒ They provide education on topics such as nutrition, physical activity, smoking cessation, substance & mental health to promote healthy lifestyles & prevent diseases.
- ③ Maternal & Child Health ⇒ CHCs often focus on prenatal, postnatal, & pediatric care to support the health & development of children & reduce infant & maternal mortality rates.
- ④ Behavioral Health Services ⇒ Many CHCs offer mental health counseling, addiction treatment, making these services accessible to those who may not afford private care.
- ⑤ Dental care ⇒ Basic dental services, including cleanings, check-ups, extractions & preventive dental care.
- ⑥ Chronic disease management ⇒ CHCs assist patients in managing chronic illnesses like

diabetes), hypertension, & asthma through regular monitoring.

⑦ Pharmacy & medication Assistance → many centers have in house pharmacists (or) partnerships to provide affordable medications & ensure patients adhere to their treatment plans.

⑧ Access to social services → CHCs often connect patients with resources such as, housing assistance, food programs, transportation services, & job training to address social determinants of health.

j) Write note on the fortification of food.

Ans:- Food fortification is the process of adding essential vitamins & minerals to commonly consumed foods to improve their nutritional value & address public health concerns related to nutrient deficiencies.

Types of fortification:-

① mass fortification → Adding nutrients to foods commonly consumed by the general population, such as flour, rice & salt.

② Targeted fortification → Fortifying foods intended for specific groups, like infant formulas or foods for school feeding programs.

3) Market-Driven fortification → Food manufacturers voluntarily add nutrients to products to attract health-conscious consumers, like breakfast cereals & dairy products.

Benefits of Food fortification:-

1) Cost-Effective → Fortification is a relatively low-cost intervention that can have a high impact on public health.

2) Wide Reach → It can reach large segments of the population through commonly consumed staple foods.

3) Consumer Acceptance & Simplicity → Does not require changes in eating behaviour, making it an easy way to improve nutrient intake.

4) Preventive health → Helps prevent nutrient deficiencies & associated diseases before they become widespread.

Q) Define the social impact of drug abuse like alcohol and tobacco.

Ans:- The social impact of drug abuse, including alcohol & tobacco, is profound and multifaceted, affecting not only the individual user but also families, communities, healthcare system & the economy.

The primary social impacts:-

① Health consequences: - Chronic use of alcohol & tobacco can lead to serious health issues like heart diseases, liver damage, respiratory problems, & various cancers.

② Economic Burden: - Substance abuse contributes to significant economic losses due to medical expenses, loss of productivity, & work place accidents.

③ Family & Relationship Strain: -

Substance abuse can cause emotional physical, & financial stress on families, often leading to issues like domestic violence, neglect, divorce & strained parent-child relationship.

④ Mental health effects: - Drug abuse is closely linked to mental health disorders, including depression & anxiety. The social stigma associated with addiction can lead to social isolation, exacerbating mental health problems & reducing access to support network, & professional help.

⑤ Community Impact: - Widespread substance abuse in communities can lead to increased healthcare costs, higher crime rates, & lower overall quality of life.

③ a) virulence :

Ans → virulence is a term used in microbiology and medicine to describe the degree of pathogenicity (or) harm caused by a microorganism, such as bacteria, viruses & fungi, such as bacteria when it infects a host. virulence factors are the specific traits (or) mechanisms that allow a microorganism to cause diseases, such as toxins, enzymes that help it evade immune response.

b) Food :

Ans → Food is any substances consumed by living organisms, primarily humans & animals, to provide essential nutrients & energy necessary for growth, repair, & overall health. It is composed of various nutrients, including carbohydrates, proteins, fats & minerals. Food comes from multiple sources, including plants & animals.

c) Antenatal advice :

Ans → Antenatal advice refers to guidance given to pregnant individuals to promote a healthy pregnancy & proper born child birth. This advice often comes from healthcare providers, including doctors, midwives, & nurses, & covers various aspects of prenatal care such as;

- ① Nutrition,
- ② Exercise
- ③ Avoiding harmful substances
- ④ mental health & stress
- ⑤ Birth planning management

d) Cold chain:

Ans: → Cold chain is a temperature controlled supply chain that is critical for transporting & storing perishable goods, such as food, pharmaceuticals, & biological samples, to ensure they remain at safe, optimal temps from production to delivery. This chain involves specialized equipment, facilities, & procedures to prevent spoilage & maintain the quality, safety, & efficacy of temp-sensitive products.

e) Red Ribbon:

Ans: → The red ribbon is a widely recognized symbol of awareness & support for people living with HIV/AIDS. It was first introduced by the visual AIDS artists ~~collective~~ in 1991 as a way to show solidarity with those affected by the disease, to honor those who have passed, & to raise public awareness about HIV/AIDS.

b) Spore:

Ans: → A spore is a reproductive cell or structure that certain organisms, such as fungi, bacteria, algae, & plants, produce as part of their life cycle. Spores are typically single-celled and can develop into a new organism without the need for fertilization. They are highly resilient, able to survive in harsh environmental conditions like extreme heat, cold, drought & radiation due to their tough outer coating.

g) Surveillance :

Ans: → Surveillance is the systematic observation, monitoring or collection of data about individuals, groups or environments, typically to track behaviors, gather information, or ensure security and compliance. Surveillance can serve various purposes across different fields, such as public health, security, business & environmental management.

h) Sludge :

Ans: → Sludge is a semi-solid byproduct that results from industrial, agricultural, or wastewater treatment processes. It consists mainly of water, organic & inorganic materials, bacteria & potentially harmful substances, such as heavy metals, pathogens, & chemicals. Sludge is often a waste material, but can be treated and repurposed, depending on its source & composition.

i) Humoral Immunity :

Ans: → Humoral immunity is a component of the adaptive immune system that involves the production of antibodies by B cells to target and neutralize pathogens, such as bacteria & viruses, in body fluids. This type of immunity is primarily effective against extracellular pathogens, meaning those that exist outside cells.

J) FSSAI:

Ans: → The Food Safety and Standards Authority of India (FSSAI) is a statutory body established under the Food Safety and Standards Act, 2006, it is responsible for regulating & overseeing food safety and standards in India to ensure that the food available for consumption is safe, nutritious, & good quality. FSSAI works to protect consumers from foodborne diseases; enhance public health, & facilitate the safe trade of food products.

K) Swine Flu:

Ans: → Swine Flu, is also known as H1N1 influenza, is a respiratory illness caused by a strain of the influenza virus that primarily affects pigs, but can also spread to humans. It was first identified in human in 2009, leading to a global pandemic. The virus is primarily transmitted from person to person through droplets from coughing, sneezing or close contact.

L) Noise Pollution:

Ans: → Noise pollution refers to unwanted or disturbing sounds in the environment that interfere with normal activities, disrupt sleep or, negatively affect human health & well-being. It is typically caused by human activities & is prevalent in urban & industrial areas.

The sources of noise pollution include traffic, construction activities, machinery, loudspeakers, industrial machines & even loud music in public spaces.

m) marasmus:

Ans: → marasmus is a form of severe malnutrition, primarily affecting young children, resulting from a significant deficiency in caloric intake, particularly in protein and energy. It is commonly seen in areas with high poverty rates, inadequate food supply, and poor access to healthcare.

n) colostrum:

Ans: → colostrum is the first form of breast milk produced by mammals, including humans, immediately following childbirth; it is a thick, yellowish liquid that is highly nutritious and plays a crucial role in a newborn's early health. Colostrum is produced in small amounts during the first few days postpartum, usually for about 2 to 5 days, before transitioning to mature milk.

o) e-cigarettes:

Ans: → electronic cigarettes, also known as e-cigs, e-vaporizers or vases, are battery-powered devices that heat a liquid solution

to produce a vapor, often flavoured and containing nicotine.

D) macronutrients:

Ans: → macronutrients are essential nutrients required by the body in large amounts to provide energy, support growth, & maintain overall health. They include carbohydrates, proteins, & fats.

Q) crude death rate:

Ans: → crude death rate is a measure of the number of deaths in a given population over a specific period, usually one year, expressed per 1,000 people. It is a basic demographic indicator that helps assess the overall health status of a population.

Formula:-

$$\text{Crude death rate} = \left(\frac{\text{Total no. of death in a year}}{\text{Total population}} \right) \times 1000$$

r) water pollution:

Ans: → water pollution is the contamination of water bodies, including rivers, lakes, oceans, & ground waters, by harmful substances. It can be caused by various pollutants, which degrade water quality, endanger aquatic life, & make the water unsafe for human consumption & recreational use. Water pollution has widespread environmental, economic & health impacts.

Q) Mission Indradhanush :

Ans: → Mission Indradhanush is an immunization program launched by the Government of India in December 2014. Its main goal is to increase the immunization coverage among children and pregnant women, particularly in underserved and vulnerable areas. Named after the seven colors of the rainbow, the mission initially aimed to immunize children against seven vaccine-preventable diseases; diphtheria, whooping cough, tetanus, polio, tuberculosis, measles & hepatitis B, later, additional vaccines for diseases like Japanese encephalitis and Haemophilus influenzae type B were included.

T) Tolerance :

Ans: → Tolerance is the ability to accept and respect differences in others, whether in beliefs, behaviors, customs, (or) opinions, without prejudice (or) discrimination. It involves embracing diversity and maintaining an open-minded attitude, even in the face of conflicting views (or) lifestyles.