

**Important Instructions to examiners:**

- 1) The answers should be examined by key words and not as word-to-word as given in the model answer scheme.
- 2) The model answer and the answer written by candidate may vary but the examiner may try to assess the understanding level of the candidate.
- 3) The language errors such as grammatical, spelling errors should not be given more Importance (Not applicable for subject English and Communication Skills).
- 4) While assessing figures, examiner may give credit for principal components indicated in the figure. The figures drawn by candidate and model answer may vary. The examiner may give credit for any equivalent figure drawn.
- 5) Credits may be given step wise for numerical problems. In some cases, the assumed constant values may vary and there may be some difference in the candidate's answers and model answer.
- 6) In case of some questions credit may be given by judgement on part of examiner of relevant answer based on candidate's understanding.
- 7) For programming language papers, credit may be given to any other program based on equivalent concept.
- 8) As per the policy decision of Maharashtra State Government, teaching in English/Marathi and Bilingual (English + Marathi) medium is introduced at first year of AICTE diploma Programme from academic year 2021-2022. Hence if the students write answers in Marathi or bilingual language (English +Marathi), the Examiner shall consider the same and assess the answer based on matching of concepts with model answer.

| Q. No. | Sub No. | Answers   | Marking Scheme |
|--------|---------|---|----------------|
| 1      |         | Answer any <u>SIX</u> of the following:   | 30M            |
| 1      | a       | <p>Write in detail about causative agent, mode of transmission, symptoms, prevention, and treatment of Typhoid.</p> <p><b>Marking Scheme:</b> Causative agent-1M, Mode of transmission-1M, Symptoms-1M, Prevention-1M and Treatment-1M.</p> <p><b>Answer:</b></p> <p><b>Causative agent:</b></p> <p>It is caused by the bacterium <i>Salmonella typhi</i>, <i>Salmonella paratyphi</i>.</p> <p><b>Mode of Transmission:</b></p> <ul style="list-style-type: none"><li>→ Transmitted by faecal-oral route or urine-oral route.</li><li>→ Contaminated food, water, milk.</li><li>→ Flies also act as mechanical carriers.</li><li>→ It is also transmitted by contaminated fingers.</li></ul> <p><b>Symptoms:</b></p> <ul style="list-style-type: none"><li>→ Severe headache,</li><li>→ Fever,</li><li>→ Stomach Pain,</li><li>→ Diarrhoea or constipation</li><li>→ Cough,</li><li>→ Weakness</li><li>→ Loss of appetite and weight loss.</li></ul> <p><b>Prevention and control:</b></p> <ul style="list-style-type: none"><li>→ Control of the reservoir.</li><li>→ Early diagnosis by culture of stool and blood.</li></ul> | 5M             |



| Q. No. | Sub No. | Answers   | 2015<br>Marking Scheme |
|--------|---------|---|------------------------|
|        |         | <p>→ Isolation of the patient to prevent the spread of infection.</p> <p>→ Disinfection of stool and urine.</p> <p>→ Water and milk should be consumed only after proper boiling.</p> <p>→ Education of people for sanitary measures like safe drinking water, food and personal hygiene.</p> <p>→ Immunization with TAB vaccine containing S. typhi, S. paratyphi A and S. paratyphi B.</p> <p><b>Treatment:</b></p> <p>→ Antibiotics – Fluoroquinolones, Chloramphenicol</p> <p>→ Oral Rehydration Salt (ORS) – management of dehydration</p>   |                        |
| 1      | b       | <p><b>State in detail about principal solid waste disposal (refuse) methods highlighting its advantages.</b></p> <p><b>Marking Scheme:</b> Methods of solid waste disposal – 1M; Explanation of any four of the following methods: 4M (1M for each method).</p> <p><b>Answer:</b></p> <p><b>Solid Waste Disposal (Refuse) Methods</b></p> <ol style="list-style-type: none"><li>1) Dumping</li><li>2) Sanitary landfill or Controlled tipping</li><li>3) Burning or Incineration</li><li>4) Composting</li><li>5) Burial</li></ol> <p><b>1) Dumping:</b></p> <p>Dry refuse is mainly dumped in low lying areas which help not only in disposal but also in reclamation of land. By the action of bacteria, the volume of the refuse decreases considerably in volume and is converted gradually into humus. It is not an ideal method. It causes public nuisance; attracts insects and animals it causes air and water pollution.</p> <p><b>Advantages:</b></p> <p>→ Inexpensive</p> <p><b>2) Controlled tipping or sanitary landfill</b></p> <p>This is the most satisfactory method of refuse disposal. In this method a trench is dug. The refuse is compactly dumped in these pits and at the end of each working day is covered with earth, when the trench is full, again it is covered with earth and is compacted. In this method the chemical and bacteriological processes decompose the refuse into simple substances with generation of heat. The refuse is fully decomposed at the end of 6 months and can be used as manure.</p> <p><b>Advantages:</b></p> <p>→ Volume can increase with little addition of people/equipment.</p> | 5M                     |



| Q. No. | Sub No. | Answers  | 20115<br>Marking Scheme |
|--------|---------|--|-------------------------|
|        |         | <p>→ Filled land can be reused for other community purposes.</p> <p><b>3) Incineration or Burning:</b></p> <p>Refuse can be disposed of hygienically by burning. It requires special equipment called as incinerator. It is a hollow cylinder made of metal, the refuse is put on the land and covered with the incinerator. Hospital refuse, which is particularly dangerous eg Infectious material, is best disposed of by burning.</p> <p><b>Advantages:</b></p> <ul style="list-style-type: none"><li>→ Requires minimum land.</li><li>→ Can be operated in any weather.</li><li>→ Produces stable odor-free residue.</li><li>→ Refuse volume is reduced by half.</li></ul> <p><b>4) Composting:</b></p> <p>It is a method of combined disposal of refuse and night soil. The basic principle is, when the refuse and night soil (excreta) are dumped in a pit and covered with earth there is anaerobic decomposition. The heat produced during decomposition kills the organisms and ultimately compost is obtained, which is used as manure. In a big trench, layers of 15cm refuse alternating with 5cm layer of excreta are placed on one another till it is full.</p> <p><b>Advantages:</b></p> <ul style="list-style-type: none"><li>→ Reduces landfill waste.</li><li>→ Creates rich soil nutrients.</li><li>→ Saves water in gardening.</li><li>→ Lowers greenhouse gas emissions.</li><li>→ Cuts down waste disposal costs.</li></ul> <p><b>5) Burial:</b></p> <p>Small trench is dug and refuse is put in it and covered with earth every day and when full, it is covered with earth and another trench is used. It is useful as short term method.</p> <p><b>Advantages:</b></p> <ul style="list-style-type: none"><li>→ Cheap method</li></ul> |                         |
| 1      |         | <p><b>cEnumerate ongoing National Health Programmes in India. Explain National Iodine Deficiency Disorder Control Programme and National Mental Health Programme.</b></p> <p><b>Marking Scheme: List-1 M; National Iodine Deficiency Disorder Control Programme-2M; National Mental Health Programme-2 M</b></p>   | 5M                      |

**Answer:****National Health Programmes in India-****Reproductive, Maternal, Neonatal, Child and Adolescent health**

- Janani Shishu Suraksha Karyakaram (JSSK)
- Rashtriya Kishor Swasthya Karyakram(RKSK)
- Rashtriya Bal Swasthya Karyakram (RBSK)
- Universal Immunisation Programme
- Mission Indradhanush (MI)
- Janani Suraksha Yojana (JSY)
- Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA)
- Navjaat Shishu Suraksha Karyakram (NSSK)
- National Programme for Family planning
- Laqshya' programme (Labour Room Quality Improvement Initiative)

**National Nutritional Programmes**

- National Iodine Deficiency Disorders Control Programme
- MAA (Mothers' Absolute Affection) Programme for Infant and Young Child Feeding
- National Programme for Prevention and Control of Fluorosis (NPPCF)
- National Iron Plus Initiative for Anaemia Control

**Communicable diseases**

- Integrated Disease Surveillance Programme (IDSP)
- Revised National Tuberculosis Control Programme (RNTCP)
- National Leprosy Eradication Programme (NLEP)
- National Vector Borne Disease Control Programme (NVBDCP)
- National AIDS Control Programme (NACP)
- Pulse Polio Programme
- National Viral Hepatitis Control Program (NVHCP)
- National Rabies Control Programme
- National Programme on Containment of Anti-Microbial Resistance (AMR)

**Non-communicable diseases**

- National Tobacco Control Programme (NTCP)
- National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases & Stroke (NPCDCS)
- National Programme for Control Treatment of Occupational Diseases
- National Programme for Prevention and Control of Deafness (NPPCD)
- National Mental Health Programme
- National Programme for Control of Blindness & Visual Impairment (NPCB&VI)



- Pradhan Mantri National Dialysis Programme (PMNDP)
- National Programme for the Health Care for the Elderly (NPHCE)
- National Programme for Prevention & Management of Burn Injuries (NPPMBI)
- National Oral Health programme

**National Iodine Deficiency Disorder Control Programme**

- Iodine is an essential micronutrient required daily at 100-150 micrograms for normal human growth and development. Deficiency of iodine can cause physical and mental retardation, cretinism, abortions, stillbirth, deaf mutism, squint & various types of goiter.
- Realizing the magnitude of the problem, the Government of India launched a 100 per cent centrally assisted National Goitre Control Programme (NGCP) in 1962. In August 1992 the National Goitre Control Programme (NGCP) was renamed as National Iodine Deficiency Disorders Control Programme (NIDDCP) with a view of wide spectrum of Iodine Deficiency Disorders like mental and physical retardation, deaf mutisim, cretinism, still births, abortions etc. The programme is being implemented in all the States/UTs for entire population.

**Objectives:**

- Surveys to assess the magnitude of Iodine Deficiency Disorders in the districts.
- Supply of iodized salt in place of common salt.
- Resurveys to assess iodine deficiency disorders and the impact of iodized salt after every 5 years in the districts.
- Laboratory monitoring of iodized salt and urinary iodine excretion.
- Health Education and Publicity.

**National Mental Health Programme**

- The National Mental Health Program (NMHP) is a national health program in India that was launched in 1982 with the aim of providing mental healthcare services to all citizens. The program is focused on promoting mental health, preventing mental illness, and providing treatment and rehabilitation services for people with mental illness.

**The objectives of the NMHP are:**

- To ensure the availability and accessibility of minimum mental healthcare for all.
- To encourage the integration of mental health into primary healthcare.
- To promote community participation in the planning, implementation, and monitoring of mental health services.
- To enhance human resources for mental health services.
- To encourage research in the field of mental health.



Q. No.

Sub No.

Answers

**The functioning of the NMHP involves a range of activities such as:**

- Providing mental health services through primary healthcare centres, district hospitals, and medical colleges.
- Conducting community-based interventions and awareness campaigns to promote mental health and prevent mental illness.
- Setting up de-addiction centres to provide rehabilitation services for people with substance abuse problems.
- Training healthcare professionals and community health workers in the management of mental illness.
- Providing financial assistance to states for the development of mental health infrastructure.

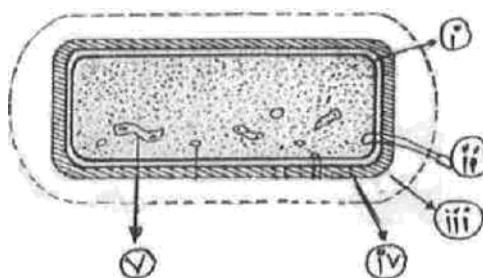
1

d

**Identify the components given in figure No.1 and give specific functions of labelled parts.**

**Marking Scheme: Identification-2.5M (0.5 M for each component); Function-2.5M (0.5 M for each component)**

**Answer:**



**Fig No. 1.**

- i. Cytoplasmic membrane
- ii. Flagella
- iii. Capsule
- iv. Cell wall
- v. Plasmid

- i. **Cytoplasmic membrane-** The most important function of cytoplasmic membrane of bacteria is to form a permeable barrier, regulating the passage of solutes between the cell and the outer environment.
- ii. **Flagella-** It helps an organism in movement. They act as sensory organs to detect temperature and pH changes.
- iii. **Capsule-** It protects bacteria from toxic compounds and desiccation and allowing them to adhere to surfaces and to escape the immune system of the host.



| Q. No. | Sub No. | Answers   | 2015<br>Marking Scheme |
|--------|---------|---|------------------------|
|        |         | <p>iv. <b>Cell wall-</b> It gives the cell its shape and surrounds the plasma/cytoplasmic membrane, protecting it from the environment.</p> <p>v. <b>Plasmid:</b> Plasmids are small, circular fragments of DNA that are found in the cytoplasm of bacterial cells. They act as delivery vehicles, or vectors, to introduce foreign DNA into bacteria.</p>  |                        |
| 1      | e       | <p><b>Define the term, Health. Discuss various dimensions of Health.</b></p> <p><b>Marking Scheme: Define-1M; Enlist-1 M; Explanation of any 3 dimensions- 3M (1M for each dimension)</b></p> <p><b>Answer:</b></p> <p><b>Health:</b></p> <p>“A state of complete physical, mental and social well being and not merely an absence of disease or infirmity”.</p> <p>OR</p> <p>“A condition or quality of the human organism expressing the adequate functioning of the organism in given conditions, genetic and environmental’.</p> <p><b>Dimensions of Health:</b></p> <ol style="list-style-type: none"><li>1) Physical health</li><li>2) Mental health</li><li>3) Social health</li><li>4) Spiritual health</li><li>5) Emotional health,</li><li>6) Socioeconomic health,</li><li>7) Environmental health,</li><li>8) Educational health</li><li>9) Nutritional health.</li></ol> <p><b>1. Physical health:</b></p> <p>It is the perfect functioning of the body i.e., a state in which every cell and every organ is functioning at optimum capacity and in perfect harmony with the rest of body. The signs of physical health are:</p> <ul style="list-style-type: none"><li>• Good complexion, clear skin, bright eyes</li><li>• Lustrous hair with a body clothed with firm flesh, not too fat.</li><li>• Sweet breath, sound sleep</li><li>• Smooth, easy, coordinated body movements.</li><li>• Good appetite, regular activity of bowel and bladder</li><li>• All the organs of the body are of unexceptional size and function normally.</li></ul> | 5M                     |



**2. Mental health:**

It is defined as a state of balance between the individual and surrounding world, a state of harmony between oneself and others, has self-esteem, self-confidence, self-control and has respect for others.

**Characteristics:**

- They feel good about themselves.
- They do not become overwhelmed by emotions, such as fear, anger, love, jealousy, guilt, or anxiety.
- They have lasting and satisfying personal relationships.
- They feel comfortable with other people.
- They can laugh at themselves and with others.
- They should be able to cope up with anxiety and stress, and so they are able to face the problems and solve them intelligently.
- They can accept life's disappointments.
- They make their own decisions.

**3. Social health:**

It is ability of an individual to adjust with the society. It implies harmony and integration within the individual, between each individual and other members of society and between individuals and the world in which they live.

Factors affecting social health are: Economic tension, poverty, illiteracy, unemployment, and adverse social relations etc.

Characteristics of Social health is:

- Possession of social skills
- Proper social functioning within the community
- Ability of oneself to see as a member of the society.

**4. Spiritual health:**

It plays a role in health and disease. It refers to that part of the individual which reaches out and strives for meaning and purpose in life.

Spiritual health includes:

- Integrity
- Principles
- Ethics
- Commitment to some higher being.

**5. Other: emotional health, socioeconomic health, environmental health, educational health nutritional health.**

*(Explanation of any three dimensions should be considered)*





| Q. No. | Sub No. | Answers   | 20115<br>Marking Scheme |
|--------|---------|---|-------------------------|
| 1      | f       | <p><b>State the meaning of Contraceptive methods. Classify them with examples. Describe method of male sterilisation.</b></p> <p><b>Marking Scheme: Meaning-1M; Classification - 3M; Male sterilisation-1 M.</b></p> <p><b>Answer:</b></p> <p><b>Contraceptive methods:</b></p> <p>Contraceptive methods are artificial techniques or devices that prevent pregnancy.</p> <p>OR</p> <p>These are the methods used for contraception i.e the use of medicines, devices, or surgery to prevent pregnancy.</p> <p><b>Methods of contraception:</b></p> <p>Following are the methods of contraception available at present.</p> <p><b>A) Temporary Methods</b></p> <p><b>a. Barrier methods:</b></p> <ol style="list-style-type: none"><li>Physical methods: i) Condom ii) Diaphragm iii) Vaginal sponge</li><li>Chemical methods: i) Foams ii) <u>Creams</u> iii) Suppositories iv) Soluble films</li></ol> <p><b>b. Intra – uterine device (IUDs):</b></p> <ol style="list-style-type: none"><li>First generation non-medicated IUDs: Loops as Lippes loop</li><li>Second generation Medicated IUDs: Metal containing IUDs: Copper- 7, Copper T – 200, T. Cu- 380 A or Ag</li><li>Third Generation Hormone containing IUDs: Progestasert</li></ol> <p><b>c. Hormonal methods:</b></p> <ol style="list-style-type: none"><li>Hormonal pills:<br/>Combined pill: Mala –N, Mala –D<br/>Progestogen only pill (POP)<br/>Post coital pill: Tab. Unwanted 72, Tab. I pill<br/>72 Once a month pill<br/>Male pill<br/>Saheli (Centchroman)</li><li>Slow-release preparations:<br/>Injectable: DMPA (Depot – medroxyprogesterone acetate) and NET-EN (norethisterone enanthate)<br/>Subcutaneous implants: Norplant<br/>Vaginal rings</li></ol> | 5M                      |



| Q. No. | Sub No. | Answers  | Marking Scheme |
|--------|---------|--|----------------|
|        |         | <p><b>d. Post conceptional methods</b></p> <ul style="list-style-type: none"><li>i. Menstrual regulation</li><li>ii. Menstrual induction</li><li>iii. Abortion (MTP)</li></ul> <p><b>B) Permanent Methods:</b></p> <ul style="list-style-type: none"><li>a. Male sterilization (Vasectomy)</li><li>b. Female Sterilization (Tubectomy).</li></ul> <p><b>C) Miscellaneous methods</b></p> <p><b>a. Behavioural methods</b></p> <ul style="list-style-type: none"><li>i. Abstinence</li><li>ii. Coitus interruptus</li><li>iii. Safe period use method</li><li>iv. Vaginal washing method</li></ul> <p><b>b. Natural family planning method</b></p> <ul style="list-style-type: none"><li>i. Basal <u>body</u> temperature</li><li>ii. Cervical mucus method / Billing's method</li><li>iii. Prolonged Lactation method / LAM Method (lactational amenorrhea)</li><li>iv. Symptothermal method.</li></ul> <p><b>Male sterilization (Vasectomy)</b></p> <ul style="list-style-type: none"><li>• Vasectomy (male sterilization) is a surgical procedure to cut or seal the tubes that carry a man's sperm to permanently prevent pregnancy.</li><li>• During the procedure, the tubes that carry a man's sperm i.e vasa deferentia are cut and tied or sealed to prevent sperm from entering the urethra and thereby prevent fertilization of a female through sexual intercourse.</li></ul> |                |
| 1      | g       | <p><b>What is AIDS? Give its causative agent, mode of transmission, symptoms. How Pharmacist can help in prevention and control of AIDS.</b></p> <p><b>Marking Scheme: AIDS-1M; causative agent-1M, mode of transmission-1M, symptoms-1 M; Role of pharmacist in prevention and control-1M.</b></p> <p><b>Answer:</b></p> <p><b>AIDS-</b></p> <p>Acquired immunodeficiency syndrome (AIDS) is a chronic, potentially life-threatening condition caused by the human immunodeficiency virus (HIV).</p> <p><b>Causative organism:</b></p> <p>AIDS is a viral infection caused by Human Immunodeficiency virus (HIV)</p>  | 5M             |



| Q. No. | Sub No. | Answers   | Marking Scheme |
|--------|---------|---|----------------|
|        |         | <p><b>Mode of transmission:</b></p> <ul style="list-style-type: none"><li>• Through sexual contact with the infected person, it is transmitted through vaginal, anal, or oral sex.</li><li>• Through contaminated needles and syringes especially those used by drug addicts.</li><li>• Maternal transmission through placenta.</li><li>• Blood contacts through transfusion of contaminated blood and blood products.</li></ul> <p><b>Symptoms</b></p> <ul style="list-style-type: none"><li>• Recurring fever or profuse night sweats</li><li>• Rapid weight loss</li><li>• Extreme and unexplained tiredness</li><li>• Prolonged swelling of the lymph glands in the armpits, groin, or neck.</li><li>• Diarrhoea that lasts for more than a week.</li><li>• Sores of the mouth, anus, or genitals</li><li>• Pneumonia</li><li>• Red, brown, pink, or purplish blotches on or under the skin or inside the mouth, nose, or eyelids</li><li>• Memory loss, depression, and other neurologic disorders</li></ul> <p><b>Pharmacist can help in prevention and control of AIDS by-</b></p> <ul style="list-style-type: none"><li>• <b>Increasing awareness:</b> Pharmacists can educate people about HIV risk and prevention and encourage testing for early detection.</li><li>• <b>Providing clinical justification:</b> Pharmacists can provide clinical justification for prior authorizations.</li><li>• <b>Dispensing HIV prevention medication:</b> Pharmacists can dispense HIV prevention medication without direct patient-physician contact.</li><li>• <b>Providing counselling:</b> Pharmacists can provide counselling to help end the HIV epidemic.</li><li>• Treatment and prevention of opportunistic infections</li><li>• Providing preventative care</li></ul> | <b>20115</b>   |
| 2      |         | <b>Answer any <u>TEN</u> of the following:</b>  | <b>30 M</b>    |
| 2      | a       | <p><b>Write about Sources, hazards and prevention of water pollution.</b></p> <p><b>Marking Scheme: Sources - 1M; Hazards - 1M; Prevention-1M.</b></p> <p><b>Answer:</b><br/>The main water pollutants include bacteria, viruses, parasites, fertilizers, pesticides, pharmaceutical products, nitrates, phosphates, plastics, fecal waste and even radioactive substances.</p> <p><b>Source of Water Pollution: (Any 2) 1M</b></p> <p>→ Rapid urbanization and industrialization</p>   | <b>3M</b>      |



- Water from sewage system which contain pathogenic microorganism.
- Waste of Industries and agricultural wastes contain pathogenic microorganism and toxic chemicals. (Chemical waste from industries)
- Household wastes are one of the sources which contaminate or pollute the water. Wastes contain substances like vegetables peels, rotten materials and other food wastes.
- Industry is one of the sources of water pollution. They pollute water by draining the waste material into the river or in water sources.
- Chemical fertilizer and pesticides also pollute the water.
- Some human activities like washing clothes, bathing animals in river and other water sources also cause water pollution.
- High amount use of detergent and soap also contaminate the water.

**Hazards Of Water pollution: (Any 2) 1M****→ Destruction of biodiversity –**

Water pollution depletes aquatic ecosystems and triggers excessive growth of phytoplankton (microalgae) in lakes due to eutrophication (excessive presence of nitrates, phosphates etc).

**→ Contamination of the food chain –**

Fishing in polluted waters and the use of wastewater for livestock farming and agriculture can introduce toxins into foods which are harmful to our health when eaten.

**→ Lack of potable water –**

The UN says that billions of people around the world have no access to clean water to drink or sanitation, particularly in rural areas.

**→ Diseases –**

The WHO estimates that about 2 billion people have no option but to drink contaminated water. It leads to several diseases such as cholera, hepatitis A, dysentery, diarrhoea, giardiasis, typhoid and several other GI infections.

**Prevention of Water Pollution: (Any 2) 1M**

- Protecting water resources
- Legislation, strict implementation, and monitoring for proper disposal of industry waste, agricultural waste, pharmaceutical waste, radioactive waste, plastic etc
- Avoiding bathing of animals, humans in water resources
- Avoiding defecation near water resources
- Purification of water on a large scale and household level.



| Q. No. | Sub No. | Answers   | Marking Scheme |
|--------|---------|---|----------------|
| 2      | b       | <p><b>Define Epidemiology. Give its applications.</b></p> <p><b>Marking Scheme: Definition-1M; Applications-2M</b></p> <p><b>Answer:</b></p> <p><b>Epidemiology:</b></p> <p>Epidemiology is the study of the distribution and determinants of health-related events and diseases in the population and the application of knowledge to control health problems.</p> <p><b>Applications of Epidemiology:</b></p> <ul style="list-style-type: none"><li>→ Epidemiological studies provide information about risk factors, causative agents, a host or carrier, and environmental contributors to the spread of the disease.</li><li>→ It helps in the identification of diseases which regularly occur in a community.</li><li>→ It provides logical data for the choice of drug, duration of exposure and dose to stop the spread of disease.</li><li>→ It helps to devise strategies to treat and prevent diseases in a population.</li></ul>   | 3M             |
| 2      | c       | <p><b>State various ill effects of junk food.</b></p> <p><b>Marking Scheme: Any 6 ill effects – for 3M; 0.5 M for each ill effect</b></p> <p><b>Answer:</b></p> <p><b>Ill effects of Junk Food:</b></p> <ul style="list-style-type: none"><li>→ Excess consumption of junk foods leads to inadequate growth and development of the body.</li><li>→ Junk foods contribute to an increased risk of obesity, diabetes, cardiovascular disease, and many other chronic health conditions.</li><li>→ Lack of proper nutrition affects immunity.</li><li>→ High intake of junk foods tends to suppress the function of the brain that helps in learning and memory formation.</li><li>→ It may lead to loss of appetite and problems in digestion.</li><li>→ Junk food has a negative impact on energy level and emotional well-being.</li><li>→ Junk food also has a mental impact which leads to mental depressions.</li><li>→ Causes fluctuations in blood sugar levels.</li><li>→ Can cause kidney or liver damage.</li><li>→ It causes fatigue and weakness.</li><li>→ It affects the brain function.</li><li>→ Affects the microflora in the gut.</li></ul> | 3M             |



| Q. No. | Sub No. | Answers  | 20115<br>Marking Scheme |
|--------|---------|--|-------------------------|
| 2      | d       | <p><b>Describe causative agents, mode of transmission and clinical symptoms of COVID-19. Write about various precautionary measures of COVID-19.</b></p> <p><b>Marking Scheme: Causative Agent-0.5M, Mode of Transmission-0.5M, Clinical Symptoms-1M, Precautionary Measures-1M)</b></p> <p><b>Answer:</b></p> <p><b>Causative Agent:</b></p> <p>Infection with severe acute respiratory syndrome coronavirus 2, also called SARS-CoV-2, causes coronavirus disease 2019 (COVID-19)</p> <p><b>Mode of Transmission: Covid 19 spreads in any of the following ways.</b></p> <ul style="list-style-type: none"><li>→ Person-to-person transmission during close contact with infected person.</li><li>→ Contact with fomites then touching the mouth, nose, or eyes.</li><li>→ Transmission through asymptomatic carrier.</li></ul> <p><b>Clinical Symptoms: (Any 2 symptoms 1M)</b></p> <ul style="list-style-type: none"><li>→ Cough and headache, Tiredness, and fever.</li><li>→ Difficulty breathing or shortness of breath loss of speech or mobility, or confusion.</li><li>→ Loss of taste or smell.</li><li>→ Rash on the skin or discolouration of fingers or toes.</li></ul> <p><b>Precautionary Measures: (Any 2 Measures 1M)</b></p> <ul style="list-style-type: none"><li>→ Getting vaccinated with COVID-19 vaccination is the most effective way to prevent infection.</li><li>→ Washing hands regularly with soap and water or clean with alcohol-based hand sanitizer.</li><li>→ Staying at home and self-isolation when feeling unwell.</li><li>→ Wearing a properly fitted mask.</li></ul> | 3M                      |
| 2      | e       | <p>→ Covering mouth and nose while coughing or sneezing.</p> <p><b>Define and classify determinants of health. Explain any ONE determinant in detail.</b></p> <p><b>Marking Scheme: (Definition-1M, Classification-1M, Explanation of Determinant- Any 1 - 1M)</b></p> <p><b>Answer:</b></p> <p><b>Determinants of health</b></p> <p>The multiple factors working individually or in a group that influence the health of humans to determine one's wellbeing are called determinants of health.</p> <p>OR</p> <p>Health is influenced by several factors which exist within the individual and the society. The important factors which determine health are:</p> <p><b>1. Individual factors</b></p> <p>a. Heredity</p>  | 3M                      |



| Q. No. | Sub No. | Answers  | Marking Scheme |
|--------|---------|--|----------------|
|        |         | <p>b. Lifestyle</p> <p><b>2. Environment</b></p> <p>a. Internal environment</p> <p>b. External environment</p> <p><b>3. Socio-economic conditions</b></p> <p>a. Income</p> <p>b. Education</p> <p>c. Nutrition</p> <p>d. Occupation</p> <p><b>4. Health related systems</b></p> <p><b>1) Heredity:</b></p> <p>→ The health of an individual to some extent depends on his genetic constitution.</p> <p>→ The genetic makeup of an individual is unique, and it cannot be changed.</p> <p>→ Several diseases are of genetic origin.</p> <p>→ e.g. diabetes, mental retardation.</p> <p><b>2) Lifestyle:</b></p> <p>→ Means ‘the way people live’.</p> <p>→ It reflects the social values, attitudes, and activities of an individual.</p> <p>→ It includes culture, behaviour and habits like smoking and alcoholism.</p> <p>→ Several diseases like heart diseases, cancer and diabetes are related to lifestyle.</p> <p>→ Good life – style like good food, sleep and exercise promotes better health.</p> <p><b>3) Environment:</b></p> <p>→ Diseases are caused by changes in environment like air, water, climate etc.</p> <p>→ Environment is of two types: Internal and External</p> <p>→ <b>Internal environment</b> relates to each tissue, organ and system of the body and their harmonious functioning.</p> <p>→ <b>External environment</b> is the physical, biological, and other surrounding components to which an individual is exposed.</p> <p>→ Environment has a direct influence on the physical, mental, and social wellbeing of an individual. This includes housing, family structure, water supply, stress etc.</p> <p><b>4) Socio – economic conditions:</b></p> <p>→ Includes income, education, nutrition, and occupation.</p> <p>→ <b>Income:</b> Rich peoples have capacity to seek better medical care. So, they are healthy. But rich people are inactive and sedentary, so they are prone for heart diseases, obesity, diabetes etc.</p> |                |





| Q. No. | Sub No. | Answers   | Marking Scheme |
|--------|---------|---|----------------|
|        |         | <p>→ <b>Education:</b> Education especially female education has an influence on health. Education helps people to understand the importance of clean environment and maintaining good health.</p> <p>→ <b>Nutrition:</b> starvation has an adverse effect on health. Good nutrition is essential for normal growth and for resistance against infection.</p> <p>→ <b>Occupation:</b> Employment provides income. Employed people enjoy good health. Due to lack of income unemployed people do not have access to health care.</p> <p><b>5) Health Services:</b></p> <p>→ Aim of health and family welfare services is to treat diseases, prevent illness and promotion of health.</p> <p>→ The purpose of health services is to improve the health status of population. Health services like</p> <ul style="list-style-type: none"><li>○ safe water supply,</li><li>○ proper sanitation,</li><li>○ immunization,</li><li>○ general screening programme for infectious diseases,</li><li>○ family planning</li></ul> <p><b>6) Other health related systems:</b></p> <p>→ It includes agriculture, education, industry, and rural development. They have an impact on health by raising the standards of living.</p> |                |
| 2      | f       | <p><b>What do you mean by pharmaco-economic? Why is there a need for it? Give its applications.</b></p> <p><b>Marking Scheme: Pharmaco-economics Meaning: 0.5M, Need- 0.5M, Applications 2M; 0.5M for each application.</b></p> <p><b>Answer:</b></p> <p><b>Pharmaco-economics</b></p> <p>→ Pharmaco-economics is Field of study that evaluates the behaviours of individuals, firms and markets relevant to use of pharmaceutical products, services and programs, and which frequently focuses on the costs and consequences of that use.</p> <p>→ It is defined as the analysis of the cost of drug therapy to health care system and society.</p> <p><b>Need of Study:</b></p> <p>→ A Pharmaco-economics study evaluates the cost (expressed in monetary terms) and effects (expressed in terms of monetary value, efficacy, or enhanced quality of life) of a pharmaceutical product.</p> <p>→ Pharmaco-economics studies serve to guide optimal healthcare resource allocation, in a standardized and scientifically grounded manner.</p>   | <b>3M</b>      |



| Q. No. | Sub No. | Answers   | Marking Scheme |
|--------|---------|---|----------------|
|        |         | <p>→ Pharmacoeconomics refers to the scientific discipline that compares the value of one pharmaceutical drug or drug therapy to another.</p> <p>→ Pharmacoeconomics analysis helps in determining the cost impact of innovative treatments and helps in granting more recognition by health care providers, policy makers and public.</p> <p><b>Applications:</b></p> <p>→ Fixing the price of a new drug and re-fixing the price of an existing drug.</p> <p>→ Drug development and clinical trials.</p> <p>→ Finalizing a drug formulary.</p> <p>→ Introduction of new schemes and programs in hospital pharmacy and clinical pharmacy.</p> <p>→ Including a drug in the medical/insurance reimbursement schemes.</p> <p>→ Creating data for promotional materials of medicines.</p> |                |
| 2      | g       | <p><b>Question Statement: Identify and name the disease caused which is caused due to the following micro-organisms.</b></p> <p>i) P. Vivax<br/>ii) Treponema pallidum<br/>iii) Brugia malayi</p> <p>iv) Hansen bacillus<br/>v) Myxovirus<br/>vi) Varicella zoster</p> <p><b>Marking Scheme: 0.5 M for each disease.</b></p> <p><b>Answer:</b></p> <p>i. P. Vivax - Malaria</p> <p>ii. Treponema pallidum - Syphilis</p> <p>iii. Brugia malayi - Filariasis</p> <p>iv. Hansen bacillus - Leprosy</p> <p>v. Myxovirus - Common cold, mumps and measles in humans.</p> <p>vi. Varicella zoster - Chicken pox</p>  | 3M             |
| 2      | h       | <p><b>State Sources and functions of protein. Explain any one deficiency disease of protein.</b></p> <p><b>Marking Scheme: Sources -0.5M, Functions-1M, Explanation of deficiency disease anyone - 1.5M)</b></p> <p><b>Answer:</b></p> <p><b>Sources of Proteins:</b></p> <p>→ <b>Animal Proteins (First Class proteins):</b> Milk, meat, egg, and fish.</p> <p>→ <b>Vegetable sources (Second Class proteins):</b> Pulses, cereals, beans, and nuts.</p> <p><b>Functions of Proteins: Any 2 Functions 1M</b></p> <p>→ Repair and maintenance of body tissues.</p>  | 3M             |



| Q. No. | Sub No. | Answers   | Marking Scheme |
|--------|---------|---|----------------|
|        |         | <p>→ Synthesis of bioactive substances and other vital molecules e.g. Enzymes, antibodies, plasma proteins and hemoglobin.</p> <p>→ Body - building.</p> <p>→ Maintenance of osmotic pressure</p> <p>→ Provision of Energy: Secondary function becomes important only when there is not enough carbohydrate in the diet and fat stores are depleted.</p> <p><b>Deficiency of Proteins</b></p> <p>It is a common health problem in India. It is more common in children due to inadequate diet and infections.</p> <p>Protein Energy Malnutrition manifested by followings forms.</p> <ol style="list-style-type: none"><li>1. Kwashiorkor</li><li>2. Marasmus</li></ol> <p><b>1. Kwashiorkor:</b></p> <p>→ It is severe protein deficiency disease seen in children of group 1 to 4 years.</p> <p>→ <b>Symptoms</b></p> <ul style="list-style-type: none"><li>○ Edema</li><li>○ Depigmentation of hair and hair loss</li><li>○ GI disturbances as anorexia and diarrhoea</li><li>○ hepatomegaly</li><li>○ mental changes</li><li>○ sometime muscle wasting,</li><li>○ apathy</li></ul> <p>→ The patients suffering from Kwashiorkor have an emaciated appearance all over the body. They have a type of swelling in the ankles, feet and belly.</p> <p>→ Kwashiorkor is most common in rural areas, especially in the sub-urban regions and areas with low food supply are more prone to this disease.</p> <p>→ <b>Treatment:</b> Adequate protein diet along with treating root cause of deficiency disorder</p> <p style="text-align: center;">OR</p> <p><b>2. Marasmus:</b></p> <p>→ It is deficiency of proteins and calories; the disorder common in infants under 1 year.</p> <p>→ Symptoms: Severe muscle wasting, severe retardation of growth, thinning of limbs, change in hair texture, diarrhea, fat loss, etc.</p> <p>→ Treatment: Adequate diet, treating infections and by promoting health education.</p> |                |



| Q. No. | Sub No. | Answers  | Marking Scheme |
|--------|---------|--|----------------|
| 2      | i       | <p><b>Explain the objectives and outcomes of Janani Suraksha Yojana (J.S.Y) of Govt of India.</b></p> <p><b>Marking Scheme: Objectives – 1.5M (0.5M for each); Outcomes – 1.5M (0.5M for each)</b></p> <p><b>Answer</b></p> <p><b>Janani Suraksha Yojana</b></p> <p>Janani Suraksha Yojana (JSY) is a safe motherhood intervention under the National Health Mission. The scheme, launched on 12<sup>th</sup> April 2005 by the Hon'ble Prime Minister, is under implementation in all states and Union Territories (UTs), with a special focus on Low Performing States (LPS).</p> <p><b>Objectives of the JSY:</b></p> <ul style="list-style-type: none"><li>→ Reducing the maternal mortality ratio and infant mortality rate</li><li>→ Increasing institutional deliveries in BPL families</li><li>→ Providing cash assistance to eligible pregnant women</li></ul> <p><b>Outcomes of the JSY:</b></p> <p>The Janani Suraksha Yojana (JSY) is a cash transfer program that provides benefits to pregnant women who have antenatal checkups and deliver in health centers or hospitals. The program has had several outcomes, including:</p> <ol style="list-style-type: none"><li><b>1) Increased institutional delivery:</b><br/>The program has increased institutional delivery by at-risk mothers, which can reduce maternal mortality and morbidity, improve child survival, and ensure equity in maternal healthcare.</li><li><b>2) Improved antenatal care:</b><br/>The program has had large, positive effects on antenatal care, institutional delivery, and skilled birth attendance.</li><li><b>3) Reduced perinatal and neonatal deaths:</b><br/>The program has also led to a small, but statistically significant, reduction in perinatal and neonatal deaths.</li><li><b>4) Improved contraception, breastfeeding, and postnatal checkups</b><br/>JSY beneficiaries have consistently higher rates of contraception, early initiation of breastfeeding, and postnatal checkups than non-beneficiaries.</li><li><b>5) Increased beneficiaries</b><br/>The number of beneficiaries has increased from 7.39 lakhs in 2005-06 to 106.48 lakhs in 2013-14.</li></ol> | 3M             |





| Q. No. | Sub No. | Answers   | Marking Scheme |
|--------|---------|---|----------------|
|        |         | <b>Prevention and Control:</b><br>→ <b>Food sanitation:</b><br>○ It includes inspection of meat and food animals to be free from infection.<br>○ Food handlers and cooks should maintain personal hygiene.<br>→ <b>Refrigeration of food.</b><br>→ <b>Surveillance:</b> Periodic inspection of food samples.  | 1M             |
| 3      |         | <b>Attempt ALL questions</b>  | 20 M           |
|        |         | <b>Important Instructions: In case, multiple answer options are observed for the same sub question of question No. 3, the option (Answer) appearing first in the answer book shall be treated as answer and assessed accordingly.</b>   |                |
| 3      | a       | <b>Head quarter of NACO in India is located at _____</b><br><b>Marking Scheme: 1M for correct answer</b><br><b>Answer: New Delhi</b>  | 1M             |
| 3      | b       | <b>State the meaning of Isolation.</b><br><b>Marking Scheme: 1M for correct answer (Consider anyone meaning for 1M)</b><br><b>Answer:</b><br>Isolation separates sick people with a contagious disease from people who are not sick.<br>OR<br>The act of separating somebody/something.<br>OR<br>Isolation is a public health practice that separates people with communicable diseases from those who are healthy.<br>OR<br>In microbiology, isolation is the process of separating a strain from a mixed population of living microbes.<br>OR<br>Isolation of the microorganisms in microbiology is the process of developing a pure culture by separating one species of microbe from a mixture of many other species. | 1M             |
| 3      | c       | <b>SDG stands for _____</b><br><b>Marking Scheme: 1M for correct answer</b><br><b>Answer:</b><br><b>Sustainable Development Goals</b>   | 1M             |
| 3      | d       | <b>Compare advantages of condom over IUD.</b><br><b>Marking Scheme: Consider any two advantages of condom over IUD for 1M.</b>  | 1M             |



| Q. No. | Sub No. | Answers  | Marking Scheme |
|--------|---------|--|----------------|
|        |         | <b>Answer:</b><br>→ Safe and easy method.<br>→ No special skills required.<br>→ Condoms do not physically alter the fertility of the person using them.<br>→ Provide protection against STDs.  |                |
| 3      | e       | <b>Universal Immunization programme in India was launched in the year _____</b><br><b>Marking Scheme: 1M for correct answer</b><br><b>Answer:</b><br>Year 1985   | 1M             |
| 3      | f       | <b>Vibrio's have _____ shape.</b><br><b>Marking Scheme: 1M for correct answer</b><br><b>Answer:</b><br>Curved-rod shape or comma shape.  | 1M             |
| 3      | g       | <b>Give full form of F.I.P</b><br><b>Marking Scheme: 1M for correct answer</b><br><b>Answer:</b><br>International Pharmaceutical Federation (FIP)  | 1M             |
| 3      | h       | <b>Which one of the following is not arthropod borne disease.</b><br>i) Chikungunya ii) Dengue iii) Filariasis iv) None of the above.<br><b>Marking Scheme: 1M for correct answer</b><br><b>Answer:</b><br>iv) None of above   | 1M             |
| 3      | i       | <b>Define the term Drug abuse.</b><br><b>Marking Scheme: 1M for anyone correct definition.</b><br><b>Answer:</b><br>Drug abuse is when a drug is used for a different purpose than intended, or in excessive amounts.<br>OR<br>Excessive use of psychoactive drugs, such as alcohol, pain medications or illegal drugs. It can lead to physical, social, or emotional harm.<br>OR<br>The excessive, or addictive use of drugs for nonmedical purposes despite social, psychological, and physical problems that may arise from such use. | 1M             |





| Q. No. | Sub No. | Answers   | Marking Scheme |
|--------|---------|---|----------------|
| 3      | j       | <p><b>State the meaning of Health insurance.</b></p> <p><b>Marking Scheme: 1M for anyone correct definition</b></p> <p><b>Answer:</b></p> <p>Health insurance is a contract between an insurance company and a policyholder that provides financial help in case of a medical emergency.</p> <p>OR</p> <p>A contract that requires health insurer to pay some or all the health care costs in exchange for a premium.</p> <p>OR</p> <p>Health insurance is a type of insurance that covers medical expenses that arise due to an illness.</p> <p>OR</p> <p>Health insurance is an agreement in which an insurance company agrees to pay for some or all medical expenses in exchange for a monthly premium payment.</p> | 1M             |
| 3      | k       | <p><b>What happen when tetracycline given with milk?</b></p> <p><b>Marking Scheme: 1M for correct answer (Consider anyone)</b></p> <p><b>Answer:</b></p> <p>Milk interferes with tetracyclines absorption by 50 to 90% or even more.</p> <p>OR</p> <p>The administration of tetracycline with milk or dairy products can interfere with the absorption of the medication and reduce its effectiveness.</p>  | 1M             |
| 3      | l       | <p><b>When did G.O.I Launched national urban health mission as sub-mission under NHM.</b></p> <p><b>Marking Scheme: 1M for correct answer</b></p> <p><b>Answer:</b> 1<sup>st</sup> May 2013</p>   | 1M             |
| 3      | m       | <p><b>As per WHO which infectious disease was completely irradiated from India.</b></p> <p><b>Marking Scheme: 1M for correct answer</b></p> <p><b>Answer:</b> Smallpox</p>  | 1M             |
| 3      | n       | <p><b>Increased level of Air pollution can result in _____</b></p> <p>i) Soil erosion                      ii) Global Warming</p> <p>iii) Respiratory Problem        iv) All of the above</p> <p><b>Marking Scheme: 1M for correct answer</b></p> <p><b>Answer:</b></p> <p>iv) All of the above</p>   | 1M             |
| 3      | o       | <p><b>What does 'D.O.T.S.' stand for?</b></p> <p><b>Marking Scheme: 1M for correct answer</b></p> <p><b>Answer:</b> Directly Observed Treatment, Short course (DOTS)</p>  | 1M             |



| Q. No. | Sub No. | Answers  | Marking Scheme |
|--------|---------|--|----------------|
| 3      | p       | <p><b>Govt. of India started Nondiabetic control programme in 1987 in 3 states except,</b></p> <p>i) Tamilnadu            ii) J and K<br/>iii) Maharashtra        iv) Karnataka</p> <p><b>Marking Scheme: 1M for correct answer</b></p> <p><b>Answer: iii) Maharashtra</b></p>   | 1M             |
| 3      | q       | <p><b>Which chemical substance is produced by plants which breakdowns starch into sugar and fruits get ripened.</b></p> <p>i) Ethylene                ii) Calcium carbide<br/>iii) Chlorophyll        iv) All of the above</p> <p><b>Marking Scheme: 1M for correct answer</b></p> <p><b>Answer: i) Ethylene</b></p>   | 1M             |
| 3      | r       | <p><b>Define occupational disease.</b></p> <p><b>Marking Scheme: 1M for correct answer</b></p> <p><b>Answer:</b></p> <p>Occupational disease defines any disease that is caused due to work or occupation.<br/>OR<br/>An occupational disease is any illness or health condition that is caused by exposure to hazards in the workplace. These hazards can be physical, chemical, biological, or psychosocial.</p> | 1M             |
| 3      | s       | <p><b>Which one of the following is not MDG.</b></p> <p>i) Improve maternal health<br/>ii) Combat HIV<br/>iii) Develop local partnership in state<br/>iv) Ensure environmental sustainability</p> <p><b>Marking Scheme: 1M</b></p> <p><b>Answer:</b></p> <p>iii) Develop local partnership in state.</p>   | 1M             |
| 3      | t       | <p><b>In 1995, _____ programme was launched by government of India.</b></p> <p><b>Marking Scheme: 1M for correct answer</b></p> <p><b>Answer:</b></p> <p>The Midday Meal Scheme<br/>OR<br/>National Programme of Nutritional Support to Primary Education (NP-NSPE)</p>  | 1M             |