



WINTER – 16 EXAMINATION

Model Answer

Subject Code:

0810

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.



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Q. No.	Sub Q.N.	Answer	Marking Scheme
1		<p>Solve any Eight of the following</p> <p>(a) Define the terms:</p> <p>i) Health Education: (1 mark)</p> <p>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 these goals and conducts professional training and research to the same end.</p> <p>ii) Communicable Diseases: (1 mark)</p> <p>These are the diseases which can be transmitted from a person to person, from animals, environment to humans, and are caused by an infectious agent.</p> <p>(b) Name the disease caused by (any two) : (1 mark each)</p> <p>i) Varicella Zoster: Chicken Pox</p> <p>ii) Bordetella Pertussis: Pertussis or Whooping Cough</p> <p>iii) Plasmodium Vivax: Malaria</p> <p>(c) Scope of First Aid: (2 marks)</p> <p>Immediate treatment given at the spot to the accident victim or a patient of sudden illness till the medical help becomes available.</p> <ol style="list-style-type: none">1. Preserve life2. Prevent complications and3. Minimize sufferings	8X2=16



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(d) **State the full form : (0.5 mark each)**

- (i) HIV: Human Immunodeficiency Virus
- (ii) TT: Tetanus Toxoid
- (iii) BCG: Bacillus Calmette Guerin
- (iv) DPT: Diphtheria Pertussis Tetanus

(e) **Write the role of pharmacist in family planning**

The pharmacist can play role in promoting family welfare/planning by following ways:
(Any 4 of the following points, ½ mark for each point)

1. Explain importance of small family norm.
2. Tell about proper spacing of children.
3. Guide the community about contraceptive devices.
4. Guide in general about health care and proper nutrition of “would be mother”.
5. Guide about bad effects of population explosion the country is facing and so the importance of population control.

Write sources and deficiency disease of Vitamin A

(f)

Sources: (1 Mark)

Yellow and orange colour vegetable and fruits, green leafy vegetables, fish, liver

Deficiency diseases: (1Mark)

Night blindness. Bitot’s Spot. Conjunctival Xerosis, Xerophthalmia



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<p>(g)</p>	<p>Define</p> <p>i) Epidemiology: (1 Mark)</p> <p>It is the study of distribution and determinants of the disease and health related events in the population and also the application of this knowledge to control health related problems.</p> <p>ii) Incubation period: (1 Mark)</p> <p>It is the time period between an entry of the infectious agent and the appearance of the symptoms.</p> <p>Write composition of balanced diet.</p>	
<p>(h)</p>	<p>COMPOSITION OF BALANCE DIET: Balanced diet should contain adequate amount of carbohydrate, proteins, fats, vitamins, minerals, fibers and water .</p>	
<p>(i)</p>	<p>Name the vitamin causing deficiency: (0.5 Marks each)</p> <p>(i) Beri-Beri: Vitamin B1</p> <p>(ii) Pellagra; Vitamin B3</p> <p>(iii)Rickets; Vitamin D</p> <p>(iv)Scurvy: Vitamin C</p>	



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Q. No.	Sub Q. N.	Answer	Marking Scheme																							
1	(j)	<p>Write Immunisation Schedule for children</p> <table border="1"> <thead> <tr> <th>Beneficiaries</th> <th>Age</th> <th>Vaccine</th> <th>No.of doses and route of administration.</th> </tr> </thead> <tbody> <tr> <td rowspan="6">Children</td> <td>6 weeks to 9 months</td> <td>DPT Polio (OPV) BCG</td> <td>3 intramuscular 3 oral 1 intradermal</td> </tr> <tr> <td>9 to 12 months</td> <td>Measles</td> <td>subcutaneous</td> </tr> <tr> <td>16 to 24 months</td> <td>DPT (I booster) Polio (I booster)</td> <td>1 intramuscular 1 oral</td> </tr> <tr> <td>5-6 years</td> <td>DT (II booster) Typhoid</td> <td>1 intramuscular, (Two doses if not immunized previously) 2 subcutaneous.</td> </tr> <tr> <td>10 years</td> <td>Tetanus toxoid Typhoid</td> <td>1 intramuscular 1 subcutaneous</td> </tr> <tr> <td>16 years</td> <td>Tetanus toxoid Typhoid</td> <td>1 Intramuscular 1 subcutaneous.</td> </tr> </tbody> </table>	Beneficiaries	Age	Vaccine	No.of doses and route of administration.	Children	6 weeks to 9 months	DPT Polio (OPV) BCG	3 intramuscular 3 oral 1 intradermal	9 to 12 months	Measles	subcutaneous	16 to 24 months	DPT (I booster) Polio (I booster)	1 intramuscular 1 oral	5-6 years	DT (II booster) Typhoid	1 intramuscular, (Two doses if not immunized previously) 2 subcutaneous.	10 years	Tetanus toxoid Typhoid	1 intramuscular 1 subcutaneous	16 years	Tetanus toxoid Typhoid	1 Intramuscular 1 subcutaneous.	
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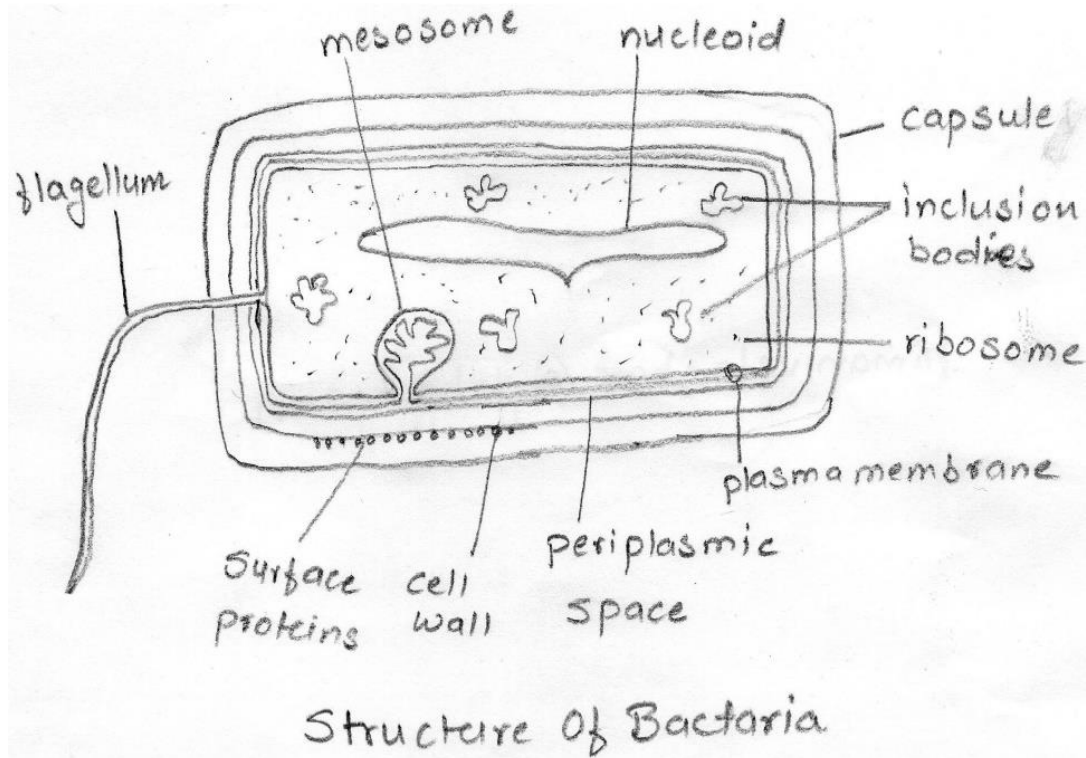
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(k) Draw well labelled diagram of Bacterial cell



(l) Differentiate between Natural and Artificial immunity.

Natural immunity is the immunity which is by birth or after exposure to the infectious agents.

Artificial immunity is developed by the body in response to the use of vaccination.



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Solve any Four of the following:

4X3=12

(a) Write any six indicators of health. (0.5 Marks each)

Different Indicators of human health are as follows: **(any 6 to be written)**

- i) Mortality indicators
- ii) Morbidity indicators
- iii) Disability rates
- iv) Nutritional status indicators
- v) Health care delivery indicators
- vi) Utilization rates
- vii) Indicators of social and mental health
- viii) Environmental indicators
- ix) Socio-economic indicators
- x) Health policy indicators
- xi) Quality of life indicators

(b) Enlist different types of fractures. Write general first aid treatment for fractures.

Types of Fractures: (1 Mark)

1. Simple Fracture
2. Compound fracture
3. Complicated fracture

First Aid Treatment for Fractures: (2 Marks)

- Reassure the patient
- Keep the patient warm
- Immobilize the fracture parts immediately by using bandages or splints.



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c)

- Cover the open fracture with sterile dressing to prevent infection and also the bleeding.
- Transfer the casualty to a hospital.

Write sources, functions and deficiency diseases of Thiamin (Vit B1)

Sources of Vit B1: (1 Mark)

Peas, Beans, Oat meal, pea nuts, Vegetables and fruits.

Functions: (1 Mark)

1. Proper utilization of carbohydrates
2. Nutrition of nerve cells

Deficiency: (1 Mark)

1. Beri beri a symptom complex with characteristic neuropathy

Name water borne diseases. Write about slow sand filter.

d)

Water borne diseases: (1 Mark)

Typhoid, Cholera, Polio, Diarrhoea, Dysentery etc. (any two)

Slow sand filter: (2Marks)

Slow sand filtration is a large scale water purification method which uses supernatant raw water, a bed of graded sand, an under drainage system and filter control valves. All these components are placed inside a box called as a filter box. The walls of the box are made of stones, bricks or cement.

Under ideal conditions, the filter reduces bacterial count by 99.9 percent. This filter is called as biological filter because the surface of the sand gets covered with slimy growth (vital layer or biological layer), which consists of thread like algae and other forms of life. This vital layer removes organic matter, holds back bacteria and oxidizes ammonical nitrogen into nitrogen and helps in yielding bacteria free water.



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The sand bed is the most important component as this is filtering the water. This consists of sand of different particle sizes and the thickness. The finest sand is on the top and comparatively coarse sand is below that. Water percolates through the beds very slowly and during this is subjected to mechanical straining, sedimentation, adsorption, oxidation and bacterial action.

Discuss Demographic cycle.

e) Demographic cycle consist of five stages-

1) **First stage (High stationary) :-**
This stage is characterized by a high birth rate and a high death rate which cancel each other and population remains stationary.

2) **Second stage (Early expanding) :-**
The death rate begins to decline while the birth rate remains unchanged.

3) **Third stage (Late expanding) :-**
The death declines still further and the births are tends to fall. The population continues to grow because births exceed deaths.

4) **Fourth stage (Low stationary) :-**
This stage is characterized by a low birth and a low death rate with the result the population becomes stationary, or zero population growth.

5) **Fifth stage (Declining) :-**
The populations being to decline because birth rate is lower that death rate.

f) **Discuss methods of solid waste disposal**

Solid wastes are the unwanted, discarded material from domestic, commercial, industrial and agricultural operations.

Solid waste is disposed off by using following methods: **(Any three of the following methods)**

1. **Dumping:** dry refuse is mainly dumped in low lying areas which help not only in disposal



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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.

2. Controlled tipping or sanitary landfill: 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.

3. Burning: Refuse can be disposed off hygienically by burning. Hospital refuse which is particularly dangerous is best disposed off by burning.

4. Composting: 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 we get compost, which is used as manure.

5. Burial: it is useful for small scale disposal like camps. In a small trench or pit the refuse is collected and at the end of each day it is covered with 20-30 cm of earth. The contents of the pit may be taken out after 4-6 months and used on the fields.

3

a)

Solve any FOUR of the following : (4X3=12)

Write note on Gram staining method.



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Grams staining method is a differential staining method for bacteria.

Procedure:

- i) Smear (thin microbial film) is prepared on clean glass slide.
- ii) Smear is air dried and fixed by gentle heating.
- iii) Crystal violet solution is applied on smear as primary stain for about 1 to 2 min.
- iv) Potassium iodide solution (Grams iodine solution) is applied on smear for 1 to 2 min
- v) Slide is gently washed with water.
- vi) Alcohol (95% soln.) now is applied on smear as decolouriser.
- vii) The secondary stain as counter stain like eosin or saffranin is applied on smear for 20 to 30 sec.
- viii) Finally slide is washed with water, air dried and observed under oil-immersion lens of microscope.

b)

Observation: Gram positive bacterial cells appear violet colored while Gram negative bacterial cells appear pink colored.

Write note on Food poisoning

Definition: Food poisoning is an acute gastroenteritis caused by ingestion of food or drink contaminated either by bacteria or their toxins or inorganic substances or poisons derived from plants or animals. Its symptoms include vomiting, diarrhea, nausea, giddiness, GI upset etc.

Types of food poisoning – Two types as

- a. Nonbacterial food poisoning – It is caused by chemicals as fertilizers or pesticides or by metals such as cadmium or mercury etc.
- b. Bacterial food poisoning – It is caused by ingestion of live bacteria or their toxins. E.g. Salmonella, Staphylococci, Cl. botulinum , B. cereus.



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Prevention and control –

1) Food sanitation: It includes inspection of meat and food animals to be free from infection.

Food handlers and cooks should maintain personal hygiene.

c) 2) Refrigeration of food.

3) Surveillance: Periodic inspection of food samples.

Define Medical Entomology. Write note on insect control.

Definition : (1 Mark)

Medical Entomology is defined as the study of the arthropods which are related with the human health particularly those which transmit diseases.

Insect Control Measures : (2 Marks)

1. Most effective method is to eliminate places of insect breeding.

2. House and its surrounding should be kept clean.

3. Everybody should maintain very good personal hygiene.

4. Insect control by use of insecticide and larvaecide sprays as DDT, malathion, lindane, fenthion, paris green, mineral oil, kerosene.

d) 5. Use of fish like Gambusia or Lebister which feeds on mosquito larvae.

6. Use of insect proof nets and mosquito repellants

Write causes, transmission and control of Tuberculosis.

Cause: *Mycobacterium tuberculosis* (1Mark)

Modes of Transmission: (1Mark)

Airborne infection transmitted by droplet from sputum of patient through coughing, sneezing and talking of the patient.



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Control Measures: (1Mark)

- e)
1. Early diagnosis
 2. Treatment for complete duration
 3. Isolation of patient
 4. Immunization by BCG vaccine
 5. Balanced diet and health education

What are sources of air pollution? Write its effect on health.

Sources of air-pollution: (2 Marks)

1. Combustion of fuels: coal, wood, petrol, diesel, etc. causes tar and gaseous pollution by oxides of sulphur and oxides of carbon.
2. Automobiles: Automobiles smoke causes pollution by carbon monoxide, nitrogen oxide and oxides of sulphur
3. Industries: Chemical, cotton, cement, asbestos industry may cause pollution by tar i.e. particulate material or by gases like carbon dioxide, carbon monoxide
4. Human and animal respiration
5. Use of insecticides and pesticides
6. Decomposition of vegetables and animal matters

Effects of air-pollution on health : (1 Mark)

- f)
1. Respiratory disorders such as bronchitis, asthma, lung cancer etc.
 2. Ill effects on organs such as heart, kidney, liver, skin, eyes etc.

Write symptoms and First-Aid treatment for shock.

Symptoms: (1 Mark)



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a)

Fall in B.P., rapid pulse, restlessness, low body temperature, pallor and thirst

First-Aid treatment for shock: (2 Marks)

1. Reassure the patient
2. Loosen the clothes of victim
3. Raise the level of legs
4. Keep the patient warm with blanket
5. Start CPR if pulse is absent and/or breathing is weak.

Solve any FOUR of the following : (4X3= 12)

Write notes on noise pollution.

Noise is defined as wrong sound at wrong place at wrong time.

Causes: Automobiles, Industry, Aircraft, Noises from loudspeaker, Radio, T.V. etc

Health Effects of Noise :

A) Auditory Effects – i) Whistling and buzzing sounds in ears.

ii) Temporary hearing loss which may lead to deafness.

B) Non-auditory Effects – Physiological changes like rise in blood pressures, heart rate, respiratory rate, headache, giddiness, nausea, fatigue, insomnia, lack of concentration

Prevention and control of Noise Pollution:

1. Control of noise at source
2. Control of noise transmission
3. Protection of personnel
4. Education of people



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5. Vehicles producing noise must periodically checked so as to reduce noise production

Write about types and prevention and control of Diabetes mellitus

b) Types of Diabetes mellitus: (1 Mark)

1. Diabetes mellitus :

- a) IDDM type 1 i.e. Insulin Dependent Diabetes Mellitus or Juvenile diabetes
- b) NIDDM type 2 i.e. Non-insulin Dependent Diabetes Mellitus or Maturity onset
- c) GDM i.e. Gestational Diabetes Mellitus

Prevention and Control: (2 Marks)

- 1. Maintenance of normal body weight
- 2. Physical exercise and dietary control.
- 3. Regular check-up of blood sugar level
- 4. Avoiding bad habits like smoking and alcohol consumption
- 5. Treatment with insulin and oral antidiabetic agents

Differentiate between case control study and cohort study of epidemiology

(c)

Sr.No	Case control study	Cohort study
1	Retrospective study as a common first approach to test causal hypothesis	Prospective study usually undertaken to obtain additional evidence to support existence of association between suspected cause and disease
2	It is study after both exposure and	It is study before (prior to) the appearance



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	outcome (disease) have occurred	of disease under investigation
3	It is study to trace cause from effects	It is study to determine disease frequency over a time period
4	It involves two populations – cases and controls	It involves a group of people who share a common character or experience within a defined time period (e.g. age, occupation)

Classify contraceptive methods with examples

(d) Following are the methods of contraception available at present –

A) Temporary Methods

1. Barrier methods

(a) Physical methods : i) Condom ii) Diaphragm iii) Vaginal sponge

(b) Chemical methods : i) Foams ii) Creams iii) Suppositories iv) Soluble films

2. Intra – uterine device (IUDs)

(a) Non-medicated IUDs : Loops as Lippes loop

(b) Medicated IUDs :

i) Metal containing IUDs : Copper- 7, Copper T – 200, T.Cu- 380 A or Ag

ii) Hormone containing IUDs : Progestasert

3. Hormonal methods

(a) Hormonal pills :

i) Combined pill : Mala –N , Mala –D

ii) Progestogen only pill



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iii) Post coital pill : Tab. Unwanted 72, Tab. I pill 72

iv) Once a month pill

v) Male pill

(b) Slow release preparations

i) Injectibles : DMPA and NET-EN

ii) Subcutaneous implants : Norplant

iii) Vaginal rings

4. Post conceptional methods

(a) Menstrual regulation

(b) Menstrual induction

(c) Abortion (MTP)

5. Miscellaneous methods

(a) Abstinence

(b) Coitus interruptus

(c) Safe period use method

(d) Basal body temperature

B) Permanent Methods

1. Male sterilization (Vasectomy)

2. Female Sterilization (Tubectomy)

(e) **Discuss sources and deficiency diseases due to proteins.**

Sources: (1 Mark)



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1. Plant sources- pulses, beans, cereals, oil seeds, nuts etc.

2. Animal sources- fish, meat, eggs, milk, cheese, etc.

Protein Deficiency: (2 Marks)

Protein Energy Malnutrition (PEM) is most common health problem of children in India. It is manifested in following forms viz.

1) Kwashiorkor-It is protein deficiency disease seen in children of group 1 to 4 years.

Symptoms: Edema, depigmentation of hair and hair loss, GI disturbances as anorexia and diarrhoea, hepatomegaly, mental changes, sometime muscle wasting, apathy, etc.

2) Marasmus-It is deficiency of proteins and calories; the disorder common in infants below 1 year.

Symptoms: Severe muscle wasting, severe retardation of growth, thinning of limbs, change in hair texture, diarrhoea, fat loss, etc.

Treatment: Adequate protein diet along with treating root cause of deficiency disorder.

Discuss Cardio-Pulmonary Resuscitation (CPR)

(f)

CPR is most important life saving first aid procedure in patients whose spontaneous respiration has stopped and/or pulse is absent.

CPR can be done by ABC Formula – where –

A – stands for Airway Clearance

B - stands for Breathing

C – stands for Circulation or Cardiac Massage

1) Airway Clearance: i)Victims' mouth is opened and cleaned by clean cloth by first aider to remove debris, impurities or secretions so as to prevent blocking airway. ii) Now head position



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of victim is changed so that airway is not blocked by tongue fall- back. iii) Crowd surrounded victim is removed and ventilation for fresh air is increased. iv) Keep patient in position with chin facing upward by lifting neck and push forehead backwards.

2) Breathing – i) If breathing is stopped, mouth to mouth respiration i.e. artificial respiration is given, after cleaning mouth. ii) First aider should pinch nose of patient tightly by one hand, breath in lungful of air and breath out entire air forcefully in patients' airway by tightly sealing mouth on patients' mouth. iii) Expansion of chest of patient by 2-5cm should be observed that confirms air entering in to victim's lungs. iv) For adult patient such 12 mouth to mouth breathing are given per minute. v) In case if victims' mouth cannot be open due to any reason, mouth to nose artificial respirations should be given by placing mouth on victims' nose.

3) Circulation or Cardiac Massage – i) If patients' pulse is missing, to revive heart working chest massage is given. ii) It is performed by pressing hard with both hands on victims' chest, two fingers above the lower end of sternum. iii) First aider should exert pressure by heel of hands keeping hands exactly perpendicular to patients' chest i.e. area of compression. iv) Pressure applied should be sufficient so that chest gets pressed by 1.5 to 4 cm. v) Such chest massage is given 60-80 times per minute continuously.

Solve any FOUR of the following (4X3=12)

a) **Write about deficiency diseases due to iron and iodine.**

i) Iron Deficiency: (1.5 Marks)

Deficiency of iron leads to anaemia.

Deficiency of iron also leads to impaired immunity and decreased resistance to infection.

ii) Iodine deficiency: (1.5 Marks)

Iodine deficiency causes Goitre. Other effects are Hypothyroidism, retardation of body growth, abortion, neurological cretinism.

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b) Write about hormonal contraceptives.

Hormonal contraceptives methods:

1. Oral pills:

- Combined pills with oestrogen and progesterone such as Mala- N and Mala-D.
- Progestogen only pill with small amount of Norethisterone or Levonorgestrel.
- Post-coital pill or emergency contraceptive pills

2. Depot (slow release) formulations —

- Injectables
- subcutaneous implants
- vaginal rings.

Mechanism of action of hormonal contraceptives:

1. Inhibition of ovulation:
2. Preventing implantation by altering endometrium so that it is not conducive for implantation

Advantages :

- i) Very effective reversible method
- ii) Method is safe and easy to use
- iii) Does not interfere with sexual pleasure.
- iv) Regulates menstrual cycle and decreases menstrual blood loss.
- v) Protects women from anemia from minimizing blood loss.

Disadvantages:

- i) Headache
- ii) Depression (sometimes severe) and mood changes.
- iii) Nausea and vomiting
- iv) No protection against Sexually Transmitted Diseases.
- v) Weight gain.

c) Write disinfection procedure for



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i) Room (1.5 Marks)

1. Floor and walls are mopped with the solution of 2-3% Cresol, 1% formaldehyde solution or conc. Solution of bleaching powder then room is washed after 4-6 hrs.
2. For operation theatre air inside room should also be disinfected with formalin fumes.
3. Potassium permanganate is added to formalin solution (200gm in 500 ml), one liter water is added in the mixture and it is boiled. Fumes generated are allowed to spread in closed room. Room is kept closed for 12 hrs. then it can be used.

ii) Sputum (1.5 Marks)

1. Sputum is collected in paper cups and disinfected by burning in case when amount is small.
2. Sputum in large amount is disinfected by boiling under pressure (20 pounds) for 30 min. and then is buried.
3. Readymade paper cups can be given carrying 5% cresol solution to spit sputum into it and after 2 hrs. contact period cups are buried or disposed by burning.

d) Write natural history of disease with its phases.

Natural history of diseases signifies the way in which the disease evolves over time from the earliest stage to its termination as recovery, disability or death.

Its phases are:

1. Prepathogenesis: (1.5 Marks)

This refers to the period before the onset of the disease. The causative agent has not yet entered the host, but the factors which favour the interaction with the human host already exist in the environment. Interaction of environment, agent and host is necessary to initiate the disease process.

2. Pathogenesis Phase: (1.5 Marks)

In this phase disease agent is entered in the body of host and sign and symptoms of disease starts appearing



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Incubation period is the Period from the entry of causative agent into the body to the appearance of first symptom of disease.

After incubation period it takes some more time to produce clear cut sign and symptoms this time is pathogenesis period. In this period if proper treatment is not given then it leads to illness, disability and even death.

By knowing the natural history of disease one can take firm steps in the prevention and the treatment of the disease.

Write causes, prevention and control of cancer.

e)

Causes of cancer: (1.5 Marks)

The major factors responsible for development of cancers are:

1. **Tobacco:** Tobacco smoking or chewing is the major cause of cancer of mouth, pharynx, oesophagus, larynx, lungs, urinary bladder and pancreas.
2. **Alcohol:** About 3% of all cancers are because of consumption of alcohol. Excessive consumption of alcoholic beverages is associated with esophageal and liver cancer; rectal cancer is observed to be because of consumption of beer.
3. **Dietary Factors:** Diet plays an important role in the development of some type of cancers. E.g. High fat diet and breast cancer, dietary fibres and intestinal cancer
4. **Occupational Exposures:** Exposure to various chemicals like benzene, arsenic, cadmium, chromium, vinyl chloride, asbestos, polycyclic hydrocarbons etc are responsible for about 1-5% of all human cancers.
5. **Viruses:** Many viruses have been found to be responsible for cancers.
6. **Others:** Numerous environmental factors such as sunlight, radiation, air and water pollution, pesticides are related to cancer.

Control of cancer: (1.5 Marks)

It is possible to control many of the causative factors of the cancer in the general population as well as in particular occupational groups by following measures:



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1. Control of tobacco and alcohol consumption.
2. Improvement of personal hygiene.
3. Reduction in the exposure to the amount of radiation.
4. Protection of workers from industrial carcinogenic chemicals.
5. Immunization against hepatitis B virus.
6. Testing of food, drugs and cosmetics for their carcinogenic activity.
7. Control of air pollution.
8. Balanced diet
9. Early detection and treatment of precancerous lesions such as warts, chronic gastritis, chronic cervicitis, etc.
10. Cancer education to motivate people for early diagnosis and early treatment.
11. Treatment facilities should be available to all cancer patients.

f)

Discuss in brief about Nosocomial infections.

Nosocomial infections or Hospital acquired infections are the infections acquired by the patients after they have been admitted to the hospital and prior to the hospital admission, the patient do not have the said infection. Common nosocomial infections include infections of urinary tract, respiratory tract, alimentary tracts, wound infections, skin infection, septicemia etc.

Factors responsible for Nosocomial infections:

1. Hospital staff suffering from infections.
2. Infected hospital staff attending the patient.
3. Persons visiting the hospitals to see the patients.
4. Due to unsterile surgical instruments, dressing.
5. Due to infected syringes and needles.
6. Lack of cleanliness
7. Decreased resistance power of the patients

Prevention and Control of Nosocomial infections:

To achieve this, a committee needs to be appointed in the hospital and they need to monitor following aspects on regular basis



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1. Cleanliness in the hospital
2. Proper sterilization of instruments and maintaining aseptic conditions wherever required
3. Controlling overuse of antibiotics
4. Maintaining Health and hygiene of hospital staff
5. Avoiding water, food contamination
6. Proper isolation of infectious patients

Write causative agent, mode of transmission, symptoms and control of following. (ANY FOUR) (4X4=16)

(causative agent- 1 mark, mode of transmission-1 mark, symptoms -1 mark and control- 1 mark)

Typhoid fever

a) Causative agent: Salmonella typhi, (Salmonella para typhi- A, Salmonella para typhi-B)

Mode of Transmission:

1. Transmitted by faeco-oral route or urine-oral route
2. Contaminated food, water, milk.
3. Indirect transmission through contaminated water, milk, food or through flies.

Symptoms: Continuous fever for 3 to 4 weeks, relative bradycardia, body pain

Control:

1. Control of reservoir, control of sanitation
2. Education of people for sanitation and personal hygiene
3. Immunization with TAB vaccine containing *S.typhi*, *S.paratyphi A* and *S.paratyphi B*.
4. Water and milk should be consumed only after proper boiling.

Filariasis

b) Causative agent: Infection with filarial parasites: W. Bancrofti, B. Malayi, B. Timori



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Mode of Transmission: By bite of infected mosquito

Symptoms: Lymphangitis, elephantiasis of scrotum, legs and arms, pulmonary eosinophilia, filarial arthritis.

Control:

1. By vector control:-Elimination of breeding places of mosquitoes by sanitation & waste water disposal
2. Chemotherapy – Diethyl carbamazine (DEC)

Syphilis

c)

Causative agent: Treponema pallidum

Mode of Transmission:

1. Sexual contact with infected person.
2. Affected mother to child.

Symptoms: Headache, sore throat, irregular fever, cutaneous rash, lesions on skin, bone, tongue, testes, liver, aorta etc.

Control:

1. Avoid unsafe sexual contact
2. Penicillin 600000 units/day

d)

Leprosy

Causative agent: Mycobacterium leprae.

Mode of Transmission:

1. Leprosy is mainly transmitted by direct or indirect contact of an infected patient.
2. Sometimes it is transmitted by droplet infection through nasal and oral secretion of the patient.
3. It may be transmitted through breast milk of lepromatous mother, by insect vectors or by tattooing needles

Symptoms: Skin patches, partial or total loss of cutaneous sensation in the affected area,



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thickening of nerve.

Control:

1. Detection of cases of leprosy and tracing the contacts especially children of the patient's house.
2. Multidrug therapy for control and cure.
3. Prevention of contact between the patient and other normal persons, especially children.
4. Selective isolation or hospitalization of the patient showing acute reactions or complications. Treatment of infected patients with dapsone.
5. Rehabilitation of the patient with suitable work. Social and psychological rehabilitation is also necessary.

e) **Trachoma**

Causative Agent:

Chlamydia trachomatis

Mode of Transmission:

1. Eye to eye transmission of direct or indirect contact of infected persons or fomites like infected finger, towel, kajal & surma.
2. Discharge of eye secretion fluid.
3. Swimming pool where water can get contaminated is also a source of infection.
4. Overcrowding also helps in transmission.

Symptoms: Trachoma produces inflammation and scarring of the conjunctiva. This lead to inward deviation of eyelashes and lid margin. The eyelashes produce abrasion of the cornea which results in corneal ulcer. Ultimately it leads to blindness.

Control:

1. Early diagnosis and treatment of cases.
2. Surgical correction of eyelid deformities
3. Common use of eye cosmetics like kajal, surma should be avoided.
4. Health education and community hygiene plays an important role in prevention and control of trachoma



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5. Chemotherapy with Tetracycline, Erythromycin.

Cholera

f)

Causative Agent: Vibrio cholerae.

Mode of Transmission:

1. Spread is mainly by contaminated food, water, milk.
2. Human being is the only reservoir of cholera infection.
3. Immediate source of infection is the stools and vomitus of cases and carriers.

Symptoms: Acute diarrhoea, vomiting, nausea, dehydration

Control:

1. Early detection of suspected cases and bacteriological examination of stools for confirmation
2. Notification to the local health authority
3. Treatment which involves rehydration of patient and administration of antibiotics like tetracycline
4. Disinfection of stools, Vomitus, clothes, bedding, rooms and utensils
5. Sanitary measures like water control fly control and disposal of excreta
6. Prevention by cholera vaccine especially during fairs and festivals
7. Health education stressing the importance of food hygiene personal hygiene and water hygiene.
8. Water and milk should be consumed only after boiling.
9. Fruits, vegetables should be thoroughly cleaned before use.



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