MODEL ANSWER

WINTER– 17 EXAMINATION

Subject Title:Health Education and Community Pharmacy **Subject Code:** 0810

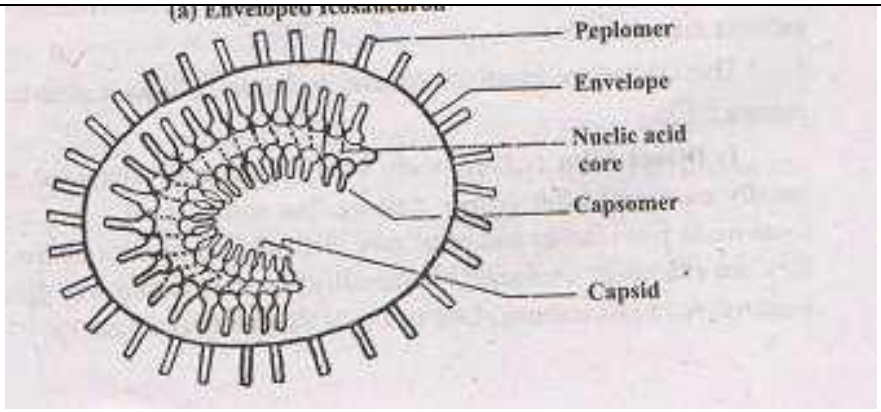
Important Instructions to examiners:

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 anyequivalent 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.

Q.1		Attempt Any EIGHT of the following	16 M (8X2M)
	a)	**Define nutrition (1 M) and classify food (1 M for any one type)** Nutrition is defined as the science of food and its relationship to the health (according to WHO). OR Nutrition is defined as the utilization of nutrients as carbohydrates, proteins, fats, minerals and vitamins by the body for growth, development, maintenance of body and for fighting diseases. **Classification of food:-** **I) By origin** A) Vegetable origin :- Green leafy vegetables, fruits B) Animal origin :- Meat, Milk, fish, eggs. **II) Classification by function :-** a) Energy giving food :- cereals, dried fruits, sugars, roots, tubers b) Body building food :- milk, meat, fish poultry, eggs c) Protective food: - Green leafy vegetable, fruits, milk, eggs, liver. **III) Classification by chemical composition:-** Carbohydrates, fats, proteins, vitamins, minerals	
	b)	**Name the sources (0.5 M) and deficiency diseases(0.5 M) of – (i) Iodine (ii) Iron** **(i) Iodine -** Sources : Sea food as fishes , sea salt , sea weeds , cod liver oil , milk , meat , vegetables etc. Deficiency diseases: Simple goiter (mostcommon), hypothyroidism,cretinism, myxedema. **(ii) Iron -** Sources:Jaggery, green leafy vegetables, dry fruits, legumes, nuts are veg sources. Liver, meat,fish, poultry birds are animal sources. Deficiency diseases : Microcytic anemia (iron deficiency anemia) ,	

	c)	**Name the vitamin causing following deficiency disease.** (i) Pernicious anemia -------- Vitamin B_{12} (Cobalmine) (ii) Blood clotting disorder ----Vitamin K (iii) Colour blindness ----------X- linked genetic disorder ***Night blindness ----------Vitamin A (Note:since color blindness is not a vitamin deficiency but is asked here as vitamin deficiency,student can get benefit of this error if he considers this as night blindness and writes Vitamin A as answer)*** (iv) Osteoporosis ----------Vitamin D	
	d)	**Name any two STD (1 M) with their causative agents (1 M)** (i) Syphilis -- *Treponemapallidum* (ii) Gonorrhoea--- *Niesseriagonorrhoae* (iii) AIDS -------- HIV *(Human Immunodeficiency Virus)* (iv) Chancroid --------- *Haemophilusducreyi* (v) LGV ----------*Chlamydia trachomatis* (vi) Donovanosis (Granuloma inguinale)---- *Calymmatobacterium granulomatis / Klebsiella granulomatis* (vii) Genital herpes -------*Herpes simplex virus* (viii) Vaginitis ----------*Candida albicans* or *Trichomonas vaginalis*	
	e)	**What do the following acronyms (0.5 M each) stand for ?** (i) BCG --- Bacille Calmette-Guerin (ii) BMR ---- Basal Metabolic Rate (iii) HIV ------Human Immunodeficiency Virus (iv) DPT -------Diphtheria Pertussis Tetanus	
	f)	**Define the terms : 1 M each** (i) **Aerobes** : All those organisms which require air i.e. molecular oxygen for survival ,	

		metabolism and growth (ii) **Anaerobes** : All those organisms which do not require air i.e. molecular oxygen for survival , metabolism and growth	
	g)	**Write two advantages (1 M) and disadvantages (1 M) of Terminal method of family planning.** Advantages :1. Failure rate is very less 2.Method available for both sexes 3. Methods very highly effective 4. Convenient surgical methods Disadvantages:1. No reversal is possible as it is permanent method of contraception 2.Spontaneous recanalisation may cause failure of vasectomy 3.Method adoption requires trained surgeon	
	h)	**Name two diseases (1 M each) of each of following** (i) Mosquito : Malaria , Dengue, Filaria , Viral encephalitis , viral yellow fever (ii) Rat : Plague , Tularaemia , Salmonellosis , Lassa fever, Haemorrhagic fever , Scrub typhus , Murine typhus , Amoebiasis , Leishmaniasis , Rat bite fever , Leptospirosis	
	i)	**Name the disease due to following causative agent (1 M each) :** (i) Treponema palladium - Syphillis (ii) Varicella Zoaster Virus - Chicken Pox	
	j)	**Name the causative agents of the following disease (1 M each):** (i) Tuberculosis - *Mycobacterium tuberculosis* (ii) Malaria - *Plasmodium malarae* or *Plasmodium vivax* or *Plasmodium falciparum* or *Plasmodium ovale*	
	k)	**Draw well labeled diagram of virus**	



l) Differentiate between communicable and non-communicable disease (any 4 points,0.5 M each)

Communicable Disease	Non-communicable Disease
It is caused due to some infectious agent.	It is caused due to multiple causes but not due to Infectious agent.
It can be transmitted from one person to anotherdirectly or indirectly	It cannot be transmitted fromperson to person directly or indirectly
It can be transmitted by any as air, water, soil, dust,food,sputum etc.	It cannot be transmitted by any agency
It possesses definite onset and Incubation period	These do not possess definite onset& may possess very long latent period
These are not genetic in origin	These can be genetic in origin eg. Diabetes or certain heart diseases
Eliminating infectious agentscan control these diseases	Avoiding risk factors as smoking,alcohol consumption, stress, etc. are some ways to control these

Q.2 **Attempt any FOUR of the following :** **4X3=12**

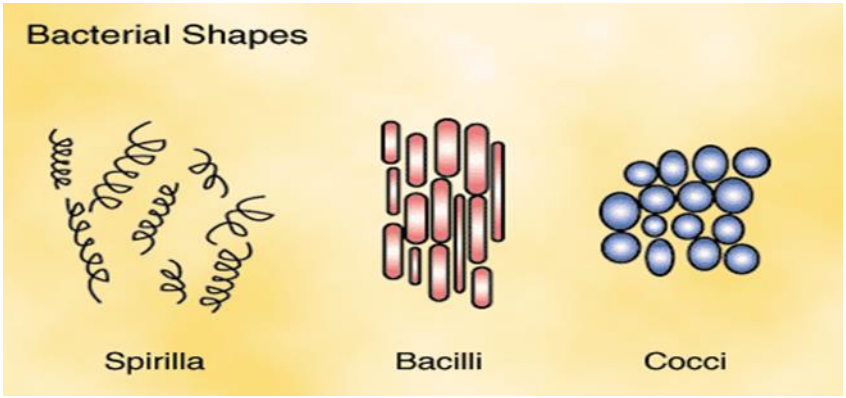
a) What is epidemiology (1M)? Explain different types of epidemiological methods. (2M)

Epidemiology is the study of the distribution and determinants of health related events and diseases in the population and also the application of this knowledge to control health problems.

		The epidemiological methods are: (Description of any two methods for 2 marks) 1. Descriptive epidemiology 2. Analytical epidemiology 3. Experimental epidemiology 1. Descriptive epidemiology: Descriptive studies are concerned with the distribution of disease or health related characteristics in human populations and identifying the characteristics with which the disease in question appears to be associated i.e. Time of the disease occurrence, place where the disease is occurring and who is affected by the disease (population). The time distribution means the study of, "when does the disease occur? For example water borne gastrointestinal infections occur more frequently during summer season. In place distribution we can study the occurrence of diseases in a particular geographical area. There may be difference in occurrence between villages, cities, states, countries.Guinea worms are more common in Rajasthan than in Jammu and Kashmir. Person distribution indicates the persons who get the disease more frequently. e.g. whooping cough is common in children. 2. The analytical studies: These comprise of two distinct types of observational studies Case control study snd Cohort study . From both these study designs one can determine whether a statistically significant association exists between, a disease and a suspected factor and if one exists, the strength of association. 3. Experimental epidemiology The aims of experimental studies are as follows: -To provide scientific proof of etiological or risk factors which may permit the modification or control of those diseases. -To provide a method of measuring the effectiveness and efficiency of health services for the prevention, control and treatment of disease and improve the health of the community. -The experimental studies can be conducted in animals or human beings.	
	b)	**What is disinfection procedure for : (1 M each)** **(i) Faeces& urine**	

		(ii) Surgical Instruments **(iii) Sputum** i) Faeces and Urine Disinfection : 1) Faeces and urine collected in an impervious container are equally mixed with 8-10 % bleaching powder solution 50 gm/ ltr for disinfection. 2) Alternatively 10% crude phenol is used 100/ltr. 3) If both these are not available 5% cresol 50 ml/ltr or 10% formalin 100ml/ltr is added and kept for 2 hrs. .iv) If no disinfectant is available boiling water in equal volume can be used. 4) Container itself is disinfected using 2-3% cresol solution or by steaming. ii) Surgical Instruments Disinfection: 1) Syringes and glass articles are disinfected by boiling for about 30 minutes. 2) Other Surgical Instruments are autoclaved so as to kill Spores effectively. 3) Plastic Surgical Instruments are disinfected by suitable chemical treatments whereas sophisticated instruments are disinfected in hot air oven or by ionizing radiation treatment. iii) Sputum Disinfection: 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 lbs. for 1 and 1/2 hrs and then is buried. 3) Readymade paper cups can be given carrying 5% cresol solution to spit sputum into it and after 2 hrs. cups are buried or disposed by burning.	
	c)	**Give sources (1 M) & functions (1 M) of Vitamin-C.Mention symptoms (1 M) of scurvy.** **Sources** of Vitamin C: Amla, fresh citrus fruits, tomato, guava, cabbage, turnip, fresh milk, fresh meat. **Functions** of Vitamin C: 1)It is necessary for tissue oxidation physiology. 2)It is needed for collagen synthesis of connective tissues 3)It is required for proper iron absorption via GIT. 4)It acts as coenzyme for enzyme catalyzed hydroxylation reaction Eg. In formation of hydroxyproline from proline. **Symptoms** of Scurvy :	

		1)Gingivitis i.e. inflammation of gums 2) Bleeding gums 3) Bleeding below skin developing red patches seen along skin surface 4)Fatigue and general weakness 5) Pain in muscles and joints 6) Delay in wound healing	
	d)	**What is composition of pure air?(1 M) How air pollution can be control? (2 M for any 4 points)** **Composition of air :** The composition of pure air may change from place to place but roughly it comprises of Nitrogen :78% , Oxygen: 21% , Carbon dioxide : 0.03 to 0.05 % where the remaining part consists of some inert gases, water vapors , suspended impurities as microbes , dust , soot etc. **Control of air pollution:** 1) Prevention at origin to stop toxic substances released from the source itself by providing enclosures. 2) The fuel sources as wood and coal should be replaced by natural gas or electricity which is nonpolluting. 3) Regular checkup of automobile vehicles for PUC as their exhaust is major source of pollution, under implementation of legislation as "Smoke Nuisance Act". 4) Very tall design of chimneys for industries so that gaseous exhaust is not released immediately surrounding the biosphere. 5) Neutralizers, cyclone chambers, filters, electrostatic precipitators can be used at release points of air pollutants. 6) Pollutants in air are diluted by promoting proper ventilation and plantation so as to decrease detrimental effects of air pollution.	
	e)	**What is family planning? (1M)Give advantages and disadvantages of condom.(2M)** Family planning (according to WHO) is defined as the way of living and thinking that is adopted voluntarily , upon the basis of knowledge, attitudes and responsible decisions by	

		individuals and couples in order to promote the health and welfare of the family and thus contributes effectively to the social development of a country. OR Family planning is the way to decide the number and timings of children in the family. **Advantages** of condom : 1) It is safe, cheap and effective method 2) It possesses very less side effects. 3) Condom use does not require medical supervision 4) It prevents transmission of STDs, including that of HIV infection to the sexual partner. **Disadvantages** of condom: 1) It may tear or slip off during sexual intercourse. 2) It may cause leakage problem leaving semen in vagina 3) It may interfere in sexual pleasure during intercourse 4) It is to be used regularly which requires constant motivation.	
	f)	**Classify bacteria according to their shape.(2 M for any 4 types, 1 Mark for relevant sketch)** Bacteria depending upon their shape are classified as- (i) Cocci- Bacteria spherical or round in shape (ii) Bacilli- Rod shaped bacteria (iii) Spirilli – Rigid spiral or spring shaped bacteria (iv) Vibrios- Comma shaped bacteria (v) Actinomycetes – Branching filamentous bacteria (vi) Mycoplasmas – Round or oval bodies as they lack cell wall. So shape is not fixed.  	

Q. 3		**ATTEMPT ANY <u>FOUR</u> OF THE FOLLOWING.**	**12M (4X3M)**
	a)	**Discuss the role of community pharmacist. (3M)** 1. He is the first point of contact for patients. 2. He has knowledge of medicines, communicable and non-communicable diseases. 3. He can guide on several aspects of health. 4. He can act as patient counselor for medications 5. Clinical pharmacist is responsible for preparation of medication history, monitoring of drug therapy, patient education, counseling and detection and reporting adverse drug reactions. **6.** He has vital role in promoting rational use of drug i.e. right drug given to right patient at a right time with right dosage and care of illiterate patients.	
	b)	**Discuss in brief hospital acquired infections. (3M)** 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 hospital acquired 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 hospital acquired infections:** 1. To achieve this, a committee needs to be appointed in the hospital and they need to monitor following aspects on regular basis	

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

c) Explain universal immunization programme.

Beneficiaries	Age	Vaccine	No.of doses and route of administration.
Infants	6 weeks to 9 months	DPT Polio (OPV) BCG	3 intramuscular 3 oral 1 intradermal
	9 to 12 months	Measles	subcutaneous
Children	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.

	d)	**What are general sign and symptoms of fractures? (1.5M) Describe general management of fractures. (1.5 M)** **General sign and symptoms of fractures:** 1. Pain at the site of injury 2. Swelling at the site of fracture 3. Unnatural mobility of affected extremities 4. Loss of function 5. Bleeding at the site of injury 6. Pain aggravated by movement **General management of fractures:** 1. Reassure the patient 2. Keep the patient warm 3. Immobilize the fracture parts immediately by using bandages or splints. 4. Cover the open fracture with sterile dressing to prevent infection and also the bleeding. 5. Transfer the casualty to a hospital.	
	e)	**Write prevention , control and management of cardiovascular diseases. (3M)** Cardiovascular disease (CVD) is a class of diseases that involve the heart or blood vessels. Cardiovascular disease includes coronary artery diseases (CAD) such as angina and myocardial infarction (commonly known as a heart attack). Prevention, control and management of cardiovascular diseases: 1. Reduction of fat intake 2. Use of Mono and Poly unsaturated fatty acids 3. Limited consumption of saturated fats 4. Reduction of Low density Lipoproteins (LDL) and increase in High density Lipoproteins (HDL). 5. Increase consumption of vegetables, fruits and whole grains. 6. Reduction of salt intake, cholesterol	

		7. Avoid alcohol, smoking 8. Reduction in Blood Pressure 9. Increase in physical activity 10. Regular body check-up, weight loss 11. Control mental stress 12. Any discomfort in chest- seek medical health	
	f)	**Define the terms: (1M each)** **i) Incubation period** It is defined as the time lapse between the entry of disease agent and appearance of the first symptom of the disease. **ii) Disinfection** Disinfection: It is the process of complete destruction of pathogenic microorganisms applied to non- living objects. **iii) Immunity** The power of the body to resist the effects of invasion of pathogens is known as immunity.	
Q. 4		**ATTEMPT ANY FOUR OF THE FOLLOWING.**	**12M (4X3M)**
	a)	**Define Vaccine. (1M) Differentiate between Active and Passive immunity. (2M)** Vaccine: Vaccines are immunological substances derived from the different biological sources to provide protection against specific disease. Antigenic substances in the vaccines stimulate antibodies production.	

Sr. No.	**Active immunity**	**Passive immunity**
1	Produced due to contact with pathogens	Produced due to Antibodies obtained from outside
2	Immunity is slowly produced	Immunity quickly produced
3	Last for long period, may be life long	Last for few days

		4	Antibodies are produced in the body	Antibodies are taken from out side	
		5	Naturally acquired after infection	Naturally acquired from mother through placenta	
		6	Very few side effects	May produce serum sickness	

b) Name various sources of water. (1M) Describe household method of water purification. (2M)

1. Surface Water
2. Rain Water
3. Ground Water

Household method of water purification (Small scale purification of water)

Methods available are as below.

a) Boiling:

i) It is most suitable and satisfactory water purification method on household basis.

ii) It kills all bacteria and almost all spores, cyst and ova; to give purified water.

iii) Water should be boiled preferably in same container, in which it is to be stored to avoid contamination during storage.

b) Chemical disinfection:

This can be achieved by using different preparations which act by liberating chlorine in water. They include bleaching powder or chlorinated lime, chlorine solution, high test hypochlorite (HTH) or perchloron which is calcium compound containing 60 – 70% available chlorine, chlorine tablets. Apart from these compounds iodine and potassium permanganate can be used for disinfection of water.

c) Filtration: i) In houses water can be filtered using ceramic filter like Berkefeld filter, Katadyn filter and Pasteur –Chamberland filter. ii) Filter candles remove bacteria from water but not viruses. iii) Impurities in water can clog filter candles so periodic cleaning by scrubbing and boiling is required.

	c)	**Define the terms: (1M each)** i) **Social health** It implies harmony and integration within the individual, between each individual and other member of society and between individuals and the world in which they live. ii) **Mental health** It is defined as a state of balance between the individual and surrounding with self-confidence, self-control and has respect for others. iii) **Physical health** Physical health 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 the body. Physical health is indicated by various signs like good complexion, clean skin sweet breath, good appetite, sound sleep etc.	
	d)	**What is solid waste? Name various methods for its disposal. Describe any one in short. (1M each)** **Solid wastes** are the unwanted, discarded material from domestic, commercial, industrial and agricultural operations. **Solid waste is disposed of by using following methods.** 1. **Dumping:** 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. 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 of hygienically by burning. Hospital refuse which is particularly dangerous is best disposed of 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.	
	e)	**What are intrauterine devices? Classify them along with their mechanism of action. (1 M each)** Intrauterine devices (IUD) are inserted into and left in the uterus to prevent effective conception. An IUD is made of plastic and/or copper that is inserted into the womb (uterus) by way of the vaginal canal. One type releases a hormone (progesterone), and is replaced each year. The second type is made of copper and can be left in place for five years. The most common shape in current use is a plastic "T" which is wrapped with copper wire. **Classification of 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 **Mechanism of action:** IUDs primarily work by preventing fertilization. The progestogen released from the hormonal IUDs may prevent ovulation from occurring but only partially. The hormone also thickens the cervical mucus so that sperm cannot reach the fallopian tubes. Copper IUDs contain no hormones, but the copper ions in the cervical mucus are toxic to sperm. They also cause the uterus and fallopian tubes to produce a fluid that	

		contains white blood cells, copper ions, enzymes, and prostaglandins, a combination that is also toxic to sperm.	
	f)	**What are types of cancer? (1M) Explain factors responsible for it. (2M)** Types of Cancer: Cancer can occur at any site or tissue in the body. Common types of cancer are: i. Oesophagial cancer ii. Cancer of cervix iii. Lung cancer iv. Breast cancer v. Bladder cancer etc. **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 oesophageal 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.	
Q.5		**Give causative agents (1 M), mode of transmission (1 M) & prevention (1 M) of any FOUR of the following diseases.** **i. Plague** **ii. Polio** **iii. Rabies** **iv. Leprosy** **v. Cholera** **vi. Diphtheria** **i.Plague** **Causative agents: -** It is caused by bacillus bacteria called Yersinia pestis. **Mode of Transmission**:- It is transmitted by the bite of infected rat flea present in house rats. The infection may be transmitted by contamination of the bite wound with the faeces of infected fleas. **Prevention**:- 1. Isolation of patient. 2. Early diagnosis & notification. 3. Adopt anti-rat measures. Rats should be trapped .Rat fleas can also be controlled by DDT & BHC. 4. Community should be immunized with plague vaccine. 5. Chemoprophylaxis with antibiotics **ii.Polio** **Causative agents: -** It is caused by virus which has three serotypes type-1, type-2 & type-3.	**4 x3 =12**

Mode of Transmission:-

It is mostly transmitted by the faecal-oral route.

The infection can spread directly through contaminated fingers or indirectly through contaminated water, milk, food & other articles of daily use.

Prevention:-

1. Isolation of patient.
2. Faeces, urine & other discharges of the patient should be properly disposed.
3. .Community should be immunized with polio vaccine.
4. Maintenance of hygienic conditions.

iii.Rabies

Causative agents: -

It is caused by lyssa virus type 1 of rhabdovirus group.

Mode of Transmission:- It is spread by bites of rabid animals like dogs.

It is also spread by licking on scratched or abraded skin or mucous of rabid animal.

Rabid animal dies within 10 days after infection but its saliva remains infective for first four days.

Prevention:-

1. Clean the bite area as early as possible with soap & water.
2. Observe the bitten animal as the animal dies or shows signs of rabies within 10 days of bite. In such case anti-rabies treatment should be given. If the animal survives or no signs within 10 days, no need of anti-rabies vaccine.
3. Dogs should be vaccinated.

iv.Leprosy

Causative agents: -

It is caused by Mycobacterium leprae which is an acid fast bacillus.

Mode of Transmission: -

It is spread through prolonged skin contact with infected person directly or indirectly through fomites.

It is also transmitted through leprosy infected mother's milk to infant.

Prevention:-

1. Isolation of patient & notification.
2. Patient's discharges, clothes should be destroyed or disinfected.
3. During birth of child it is important to isolate from lepromatous parents.
4. Chemoprophylaxis with dapsone
5. People should be given health education.

V.Cholera

Causative agents: -

It is caused by bacteria Vibrio cholerae

Mode of Transmission: -

It is spread through contaminated water, food, milk & milk products.

It is also transmitted through discharges & fomites of the patient.

Flies act as mechanical carriers.

Prevention:-

		1. Isolation of patient & notification. 2. Patient's discharges, clothes should be destroyed or disinfected. 3. Clean & safe drinking water should be used. 4. Milk must be boiled before use. 5. Anti-fly measures should be taken. **vi) <u>Diphtheria</u>** **Causative agents: -** It is caused by exotoxin produced by gram positive bacteria Corynebacteriumdiphtheriae. **Mode of Transmission**: - It is spread by droplet infection. Droplets containing the bacilli are expelled from the mouth & nose by coughing, sneezing, spitting, speaking & kissing. **Prevention**:- 1. All infants should be immunized with DPT triple vaccine 2. Early detection & isolation of patient in ventilated area. 3. Patient's discharges, clothes & other articles should be destroyed or disinfected. 4. Clean & safe drinking water should be used. 5. Milk must be boiled before use. 6. Anti-fly measures should be taken.	
Q.6		**Attempt any FOUR of the following :**	**4X4=16**
	a)	**Explain the term (1 M each)** **(i) Reservoir** **(ii) Cold chain**	

(iii) Antibody

(iv) Quarantine

(i) Reservoir-

It is the long term host of pathogen of infectious disease.Hosts often do not get the disease carried by pathogen or it is carried as subclinical infection & so it is asymptomatic and non-lethal.

(ii) Cold chain-

A cold chain is a temperature controlled supply chain of uninterrupted series of refrigerated production, storage & distribution activities of vaccines. OR

Its the maintenance of the required cold temperature right from production till the end use of the products like vaccines

Maintenance of cold chain storage of vaccine is important otherwise it causes vaccination failure as vaccine loses its potency.

Most Vaccines retain their potency intact if they are kept under temperature $+2^0$c to 8^0c continuously.

(iii) Antibody

Antibody is known as immunoglobulin (Ig) is a large, y-shaped protein produced mainly by plasma cells that is used by immune system to neutralize pathogenic bacteria and viruses.

There are five immunoglobulin classes (isotopes) of antibody molecules found in serum such as IgG, IgM, IgA, IgE&IgD.

(iv) Quarantine

It is the limitation of freedom of movement of such persons or domestics animals exposed to communicable disease.

People who have been exposed to infectious disease and may be infected but are not yet ill

		may be quarantined to prevent further spread of illness to others and to protect the people from infected person.	
	b)	**What is cardiac arrest?(1 M) Explain CPR.(3 M)** **Cardiac arrest :-** Abrupt cessation of cardiac pump function which may be reversible by a prompt intervention but will lead to death in its absence. **CPR(Cardio Pulmonary Resuscitation) is a lifesaving first aid procedure done for revival of lung and heart functioning.** 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: (1 mark) 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 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 –(1 mark) 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 beopen due to any reason, mouth to nose artificial respirations should be given by placing mouth on victims' nose. 3) Circulation or Cardiac Massage –(1 mark)	

		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.	
	c)	**Write a note on Gram Staining method.** **<u>Gram Staining method</u>** This is the method for differential staining of bacteria. It is very simple & useful method which was first used in 1884 by Gram. All bacteria stained by gram method can be grouped according to color as gram positive & gram negative. **<u>Procedure:</u>** - 1. Prepare thin film or smear of a test bacterium on slide in aseptic conditions. 2. Heats fix the film by passing through flame 2-3 times. If heat fixation is contraindicated then dip the film in alcohol for fixation. 3. Cover the fixed smear with gentian violet. Stain & allow the stain to act about one min. 4. Cover the whole slide with fresh Gram's Iodine solution & leave it as such for 1 min. 5. Wash the slide with alcohol or acetone in order to decolorize the slide. 6. Wash the slide till no color comes out. This process is very rapid & completes it in 2-3 secs. 7. Wash slide under running tap water & counter stain it with an aqueous solution of	

		fuchsin for 30 secs. 8. Wash the slide with tap water, make it dry & examine it under oil immersion lens without mounting. Those bacteria which cannot be decolorized with alcohol or acetone and retain violet color are known as Gram positive bacteria & those which are decolorized by alcohol or acetone and stains red due to fuchsin solution are known as gram negative bacteria.	
	d)	**Write "Rule of Nine" for estimation of percentage of burns (2M). Write emergency treatment of burns.(2M)** **<u>Rule of Nine</u>** It is used to assess the extent of burns in terms of body surface area. It is also known as rule of Wallace. The percentage of extent of different burning area is as follows. 1. Head & neck- 9 % 2. Burns of upper limbs- 18% 3. Anterior trunk-18% 4. Posterior trunk-18% 5. Burns of lower limbs-36 %(front & back of each limb is 9%) 6. Burns of external genitalis-1% **<u>Emergency treatment of burns.</u>** 1. Put plenty of cold water/ cloth soaked in cold water over the burnt part. 2. Do not try to remove clothing from burnt area.Try to cut it.	

		3. Do not use any antiseptic,cotton,oily substances on the burn. 4. Try to remove immediately rings, bangle, belt, and boot from the body. 5. If eyes are affected with burns wash them thoroughly and cover with sterile dressing 6. If the patient is conscious, give sips of water to him. 7. In case of chemical burns, wash the affected area with plenty of water until all chemical has been washed away. 8. In case of extensive burn, wrap the victim in a clean cloth and shift him/her immediately to the hospital.	
	e)	**Give causes (1 M), types (1 M), prevention &management (2 M) of Diabetes Mellitus.** **Causes: Diabetes develops due to** 1. Inability of pancreas to produce sufficient insulin needed for the body. Or 2. Inability of the body cells to use the insulin available. Some of the causative factors are: (Any 4 factors) 1.Pancreatic diseases, defect in the synthesis of insulin or decrease in the number of beta cells. 2. Heredity 3. Sedentary life style and lack of exercise. 4. Diet rich in carbohydrates and fats. 5. Obesity 6. Infections with viruses like rubella and mumps.	

		Types of diabetes mellitus- (any 2 types) **1. Insulin dependent diabetes mellitus(Type 1) IDDM** **2. Non-Insulin dependent diabetes mellitus(Type 2) NIDDM** **3. Gestational diabetes: Diabetes during pregnancy** **<u>Prevention and Management of Diabetes Mellitus</u>:- (Any 4 points)** 1. Weight control and balanced diet 2. Regular physical exercise 3. Regular blood sugar check up 4. Treatment of insulin by parental route for type 1 diabetes. **5.** In case of type 2 treatment with oral hypoglycemic tablets **6.** Self care measures (foot care,eye care etc)	
	f)	**Define Health (1 M). List various determinants of health (1 M). Explain any two determinants.(2 M)** **<u>Health:-</u>** Health is a state of complete physical, mental & social well-being and merely absence of disease or infirmity. **<u>Determinants of health</u>**These are all those factors, which affect positively or negatively various aspects of health of individual and society. Health determinants are: (i) Heredity (ii) Life style,	

(iii) Environment

(iv) Socioeconomic conditions

(v) Health and Family welfare services

i) Heredity:

The genetic makeup of an individual is unique and it cannot be changed. A number of diseases are of genetic origin. eg. Hemophilia,

(ii)Life style: It is the way people live. It reflects the social values, attitudes and activities of an individual. It is composed of cultural and behavioral patterns and lifelong personal habits like smoking, alcoholism etc. Health requires healthy lifestyles. Many diseases are associated with lifestyles. e.g. Obesity, heart diseases.

(iii) Environment: Health of a person depends on the Internal environment and External environment. Internal environment refers to the coordinated, harmonious functions of every component (system) of the body, which is known as homeostasis in the body. External environment refers to all the things in the surrounding of the individual to which he is exposed. Environment has direct impact on the physical, mental and social well-being of those living in it. The environmental factors range from housing, water supply, family structure, stress etc.

(v) Socioeconomic conditions: Health status is significantly determined by the socioeconomic levels which are primarily determined by, Economic status, Education, Occupation and Political system.

(vi) Health and Family welfare services: These services cover a wide spectrum of personal and community services for treatment of disease, prevention of illness and promotion of health. The purpose of health services is to improve the health status of population.
e.g. (1) Immunization, general screening programmes for infectious diseases. Family planning programmes. (2) Adequate supply of safe drinking water, proper sanitation.