**Mid term assignment**

**Pathology and microbiology (DPT 4th)**

**Instructor: Dr. Imran khan**

**Max Marks: 30**

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**Q1**: Write down any viral or bacterial disease in detail

**ANS:** viruses are a type of microorganism that cause infections there is a wide range of viral diseases that also include:

1. **Chickenpox**: it is also known as varicella most people get to recover from it in 1 to 2 weeks it is mainly caused by varicella zoster virus in this viral disease there comes a blister like rash appearing first on face and trunk then it spreads all over the body

Symptoms: malaise, aching muscles, fever, nausea , rashes, itchness.

Treatment: there is no special treatment but medical remedies can alleviate its symptoms.

Transmission: it spread from one person to other by touching the rash or coughing and sneezing.

1. **HIV:** human immunodeficiency viruses are the species of lentivirus which infects humans over time a condition of progressive failure of immune system allows life threatening opportunistic infections.

Symptoms: rapid weight loss, diarrhea, pneumonia, sores , extreme tiredness.

Treatment: the only main treatment for hiv is antiretroviral therapy which stops the virus from reproducing. However there is no proper cure for it.

Transmission: blood, semen,vaginal fluids breast milk.

Those diseases which are caused by bacteria are below

1. **Tuberculosis;**it is caused by mycobacterium tuberculosis in this the bacteria attacks the lungs but can also damage other body parts.

Symptoms: coughing, chest pain, difficulty in breathing, fever.

Treatment; antibiotics are used

Transmisson: it spreads by droplets.

1. **Cholera:** it is a infectious bacterial disease causing severe watery diarrhea if untreated can cause death.

Symptoms: watery diarrhea, odor, low blood pressure.

Treatment: rehydration and antibiotics.

Transmission: uncleaned water or food.

**Q2**: What is cancer? How cancer is diagnosed? What is the role of genetics in cancer? Also explain TNM diagnostic test for cancer

**ANS:** Cancer is uncontrollably growth of abnormal cells of body.it is caused by change in the DNA the uncontrolled dividing cells spread into the surrounding tissues.

Cancer can be diagnosed by CT scan, MRI, PET, and biopsy in this a sample is taken off from the body part to examine it.

As cancer is a genetic disease so it is caused by changes in our genes it is caused by some changes in genes that control the way our body cells function and work.

TNM: T stands for tumor that how progressed the initial tumor is grown locally.

N stands for nodes that whether the cancer has spread to local lymph nodes and M stands for metastases that whether the cancer has spreaded to other parts or not. it is a system used to identify overall cancer stage

**Q3**: Explain structure of bacterial cell. How antibiotics kill bacteria? What is the mode of action of antibiotics?

**ANS:** A bacterial cell is a jelly like matrix which is made up of enzymes water nutrients wastes and gases it has its ribosome chromosomes and plasmids it is enclosed in its cell envelope the cytoplasm is encased with all its components.bacteria are prokaryotes and lacks the well defined nuclei and has lacked membrane bounded organelles they have many shapes and sizes it also has appendages.

The antibiotics kill bacteria by killing that type of bacteria or by stopping or slowing its progression and growth the antibiotics do this by attacking wall of bacteria cell and interfering with its machinery used for reproduction

Differet antibiotics have different mode of actions depending mainly upon the nature of its structure degrees of connection to certain target sites.it mode of action includes

1. Inhibiting of protein synthesis.
2. Inhibition of nucleic acid synthesis
3. Inhibition of other metabolic processes
4. Inhibition of cell membrane functions
5. Inhibition of cell wall synthesis.

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