**IQRA NATIONAL UNIVERSITY**

**DEPARTMENT OF ALLIED HEALTH SCIENCES**

**Final-Term Examination 2020**

**Course Title: ,Medical microbiology DT 4th Instructor: Muhammad sohail**

**Time: 6 hours Total Marks: 50**

**Name: *Junaid Ali* ID *15093***

Q1. What do you know about parasites explain endo and ecto parasites in details

Ans :- The study of parasite is called Parasitology . Parasite is an organism that live in another organism that called Host, and often harm it. Parasite is depending of its Host for survival .

Without a Host parasite cannot live, growth, and multiply. Therefor its rarely kills the Host.

**Classification of Parasite :** -

**1:- Ectoparasite:-** Ectoparasite is that parasite which is live on the outer surface or in the superficial surface of the Host. Infection caused by Ectoparasite is called Infestation. E.g Flea . Lice .

**2 :- Endoparasite :-** Endoparasite is that parasite which is live in the tissue or organ of their Host . Invasion by such parasite is called infection . E.g. Tapeworm , Leishmania.

**Different types of Endoparasite :-**

**A :- Obligate Parasites :-** The parasites which can not exist without a Host are called Obligate Parasites .

**B :- Facultative Parasite :-** Facultative parasite are those parasite which can survive as free living organism but become parasitic when they mistakenly enter a living Host .

**C :- Accidental Parasites :-** Accidental Parasites are those parasites that attack an unusual host are called Accidental parasites

D :- **Aberrant Parasites :-** Aberrant Parasite are those parasites that reach a site during durning migration where they can not live .

**Examples of Endoparasites :-**

**I :- Obligate Parasites :-** Toxoplasma gonodia

**II :- Facultative Parasite :-** Naegleria fowleri

**III :- Accidental Parasites :-** Echinococcus granulosus

**IV :- Aberrant Parasites :-** Toxocara types

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Q2. Explain protozoa, its characteristics and morphology, also classify protozoa on the basis of motility and reproduction into its types

Ans :- **Protozoa :-** Protozoa are eukaryotic organism which mean that they have a membrane-bounded nucleus and organelles . They are also hetrotropic meaning they rely on the environment for their nutrition .

Protozoa consist a large group of species . Most of which are harmless free living

**Characteristic of protozoa :-**

1 :- They are unicellular.

2 :- Most of microscopic .

3 :- all symmetries are present .

4 :- No germ layer are present .

5 :- They are motile and have locomotive organelles .

6 :- They include free living mutualistic .

**Morphology :-**

Protozoa are eukaryotic same to animal cell .

**Size :-** Microscopic in size less than 50 micrometer .

Their organelles are high specilized for feeding .

**Ectoplasm & Endoplasm :-** The cytoplasm of protozoa are divided an outer layer called Ectoplasm and an divide an inner layer called Endoplasm .

**Flagella & cilia :-** Protozoa have flagella and cilia which help in the movement .

**Vaculoes :-** They have Vaculos which help to pump out the excess of water from the protozoa.

**classification of protozoa on the basis of motility and reproduction :-**

They are classified into 4 main types .

 Flagellates ciliates Sarcodina Sporozoates .

**1 :- Flagellates :-** Flagellates move by the help of flagella which is tail like structure and one or two in numbers . Examples are

 Trypnosoma , Leishmenia , giardia , trichomonas .

**2 :- Ciliates :-** Ciliates move by the help of cilia which is small hairs like structure and many in numbers . Most of harmless . Cilia may be develop into cirri by their joining

**3 :- Sarcodina :-** → Ameobiod organism .

→ Locomotion through pseudopodia .

→ Temporary cell extension .

→ For feeding and locomotion .

**Reproduction :-** Two kind of nuclei

**a :- Micronuclei :-** One or more genetic reserve

**b :- Macronuclei :-** Polyploid , metabolic activities .

→ Ciliates through binary fusion , sometimes by budding in suctorians .

→ Sexually by conjugation , conjugates

→ Macronucleus do not participates in genetic exchange .

→ Macronucleus break durning conjugation

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.Q3. Write down names of organelles and its functions present in paramecium and euglena

Ans :- **Euglena organelles and its functions :-**

**1:- Flagella :-** A long mobile filament that the euglena uses to propel itself in its enviroment .

**2:- Stigma :-** A light sensitive spot that allow to euglena to detect the light .so its may move toward it in order to conduct photosynthesis .

**3:- Chloroplast :-** Organelle that allow the organism to conduct photosynthesis .

**4:- Nucleus :-** Stiff membrane made of protein and somewhat flexible , can be also used for locomotion when crunching up and down .

**paramecium organelles and its functions :-**

**1:- Cilia :-** Hair like appendages that help the paramecium move food into the oral groove .

**2:- Cytoplasm :-** Innercellular fluid needed to contain vital cell parts .

"Cyto" meaning CELL

"Plasm" meaning BLOOD

**3:- Food vacuole :-** Storage pocket for food .

**4:- Contractile Vacuole :-** Contract and forces the extra water out of the cell .

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Q4. What is antibiotic resistance? Explain the mechanism of bacterial resistance. Its causes and solutions to the problem

Ans :- Antibiotic resistance :- The ability of micro organism to avoid the harmful effects of an organism of an antibiotic by destroying it .Transporting it out of the cell or undergoing changes that block its effects .

**Mechanism of bacterial restance :-**

→ Change the antibiotic structure so that is no longer able to perform its structure .

→ Break down the antibiotic

→ Pump the antibiotic out of the cell

**Causes :-**

→Over-prescription of antibiotics

→Patients not finishing the entire antibiotic course

→Overuse of antibiotics in livestock and fish farming

→Poor infection control in health care settings

→Poor hygiene and sanitation

→Absence of new antibiotics being discovered

**Solution :-**

**1:- Vaccine :-** Manufacturing vaccine for resistant strain bacteria .

**2:- Bacteriophage therapy :-** The therapeutic use of lytic bacteriophage to treat bacterial infection .

**3:- Responce to use of antibiotic :-**

→ Only use when prescribed for a bacterial infection

→ Use exactly as instructed donot stop treatment early .

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Q5. Explain the mechanism of bacterial pathogenicity. Write down at least two bacterial diseases in detail.

**Ans :- Pathogenecity :-** Is the ability to produce disease in a host organism .

**Mechanism of bacterial pathogenicity :-**

Two broad qualities of pathogenic bacteria underline the means by which they cause disease

**1 :- Invasiveness :-**

→ It is the ability to invade the tissue .

→ Tissue obstruction : flesh eating bacteria clostridium prefrigens

→ Obstruction : Cytic fibrosis

**2: Toxignesis :-** Is the ability to produce toxin .

→ Bacterial components that directly harm tissue or trigger disease sympt .

→ Endotoxin :- Lipopolysaacharides

→ Exotoxin :- A-B toxin

**Immunopathogensis :-**

→ Excess immune responce

→ Autoimmunity

Disease no 1 :- **Helicobacter pylori Infection :-** Helicobacter pylori (H. pylori) infection is a bacterial infection that causes stomach inflammation (gastritis), peptic ulcer disease, and certain types of stomach cancer. The infection is caused by a type of bacteria called Helicobacter pylori (H. pylori).

Disease no 2 :- **Pneumonia :-** Pneumonia is an infection in one or both lungs. Bacteria, viruses, and fungi cause it. The infection causes inflammation in the air sacs in your lungs, which are called alveoli. The alveoli fill with fluid or pus, making it difficult to breathe.

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 Thank You