**NNAME : AHMAD RAZA**

**ID :15751**

**SECTION :A**

**SEMISTER : 2nd**

**DISP : BS. MLT**

**PAPER :MICROBIOLOGY**

**Q.1 FILL IN THE BLANKS.**

**1. probiotic**

**2. Synbiotics**

**3. Bacteriostatic**

**4. Resident flora**

**5. commensalism**

**6. transduction**

**7. plasmid**

**8. Normal flora**

**9. transcription and translation.**

**\_\_\_\_\_\_\_\_\*\_\_\_\_\_\_\_\*\_\_\_\_\_\_\*\_\_\_\_\_\_\*\_\_\_\_\_\_\_\***

**Q.2: what is normal Flora, advantages and disadvantages of**

**normal flora?**

**ANS:NORMAL FLORA:**

Normal Flora are the microorganism that live on another

living organism or inanimate object without causing disease .this

normal Flora help to prevent us becoming colonised with more

dangerous bacteria, which might lead to infection. We are covered

with comma and content within our Industries, approximately 100

trillion bacteria that form the normal Flora of our bodies.

* **Advantages of normal flora:**

The normal Flora prevent colonization by pathogens

by completing for attachment sites or for essential nutrients. This

is thought to be their most important beneficial effect, which has

been demonstrated in the oral cavity, understand, the skin, and the

vaginal epithelium.

* **Disadvantages of normal flora:**

Members of the normal Flora Mini cause endogenous

disease if they reach a site or tissue we are they cannot be restrict or

tolerated by the host defenses. many of the normal Flora are potential

pathogens, and if they gain access to a compromised tissue from which

they can inverted coma disease Mein result.

\_\_\_\_\_\_\_\_\_\*\_\_\_\_\_\_\_\*\_\_\_\_\_\_\_\_\*\_\_\_\_\_\_\_\_\*\_\_\_\_\_\_\_\*\_\_\_\_\_\_\*\_\_\_\_\_\*

**Q.3: write in detail different stages of pathogenesis.**

**ANS: Stages of pathogenesis:**

* Pathogenesis is the method by which a disease can develop.
* This can occur through food grown intoxication where the causative
* agent produced talks in in the body.
* Another route is the colonization of an invading pathogen on the host
* surface, e.g. vibrio and coryne bacterium .
* Pathogenesis can also occur by pathogen in wedding and breaching the
* body’s barrier in order to multiply for example tubercolosis is and plague.
* The relationship between a short and pathogen is dynamic.
* Production of disease occur through a process of steps.
* The first five mechanism make-up a pathogen invasiveness i.e. ability to
* invade tissue.

1. **Transmission:**

* In order to begin infection and eventually cause diseases, pathogen

must find a transmission route.

* Transmission of an infection agent can occur in many ways, but it is

typically through exposed skin for example are cut, abrasion puncture,

are found or mucous membrane for example gastrointestinal tract,

respiratory track, or urogenital tract.

1. **Adherence:**

* Once the pathogen has gained access to the body, it must have

same mean of attaching itself to the host tissues

* This attachment is called adherence and is a necessary step in

pathogenicity.

* Microbes contain legends, which projection that attach host receptors

are surface proteins.

* If a microorganism can not adhere towards host cell membrane, disease

will not occur.

1. **Invasion:**

* At this point micro begin to invade the horse and produce a bacterium

i.e. coma presence of bacteria in the bloodstream or viremia presence

of a virus in the bloodstream.

* Some bacteria are able to cause disease while remaining on the epithelial

barriers, while many needs to penetrate that barrier۔

* Once this barrier has been penetrated, this pathogen can multiply without

competition.

1. **Colonization:**

* Colonization is the multiplication of pathogenic organism we are toxin are

produced and the normal Flora are overcome.

* During this stage, pathogens compete with normal Flora for space and nutrients.
* Pathogen usually colonize Hospital shoes that are in contact with the external

environment.

1. **Evasion of host defenses:**

* After colonization, pathogen circumvent the host innate and adaptive

defenses forces by phagocytosis.

* Multiple mechanism are used by a pathogen to wait a host immune system.
* Pathogen must also avoid adapted defenses
* They can also utilize antigenic variation to alter the antigen structure.
* In addition, pathogen can mimic host molecule, which can cause disease related damage.

1. **Cause damage or disease to host:**

* Damage can occur through direct or indirect Pathways
* Direct methods produce toxin, which are poisonous substances that produce toxemia within a host
* Three Types of toxin are produced to cause damage
  + Exotics
  + Endotoxins
  + Exoenzymes

1. **Exiting the host:**

* A pathogen must exist the body
* This through various routes
* Examples include sneezing, coughing , diarrhea , blood, or insects bites.

1. **Survival outside the host:**

* Finally, a pathogen must be able to survive in the environment long enough to be transmitted to another host.
* Some are hardly and can survive for several week before a new host is found.
* There are others that survive in animal reserve are required direct contact because they are fragile.

**\_\_\_\_\_\_\_\_\*\_\_\_\_\_\_\_\_\*\_\_\_\_\_\_\_\*\_\_\_\_\_\_\_\_\*\_\_\_\_\_\_\_\_\*\_\_\_\_\_\_\_\*\_\_\_\_\_\_\_\_\_\*\_\_\_\_\_\_\_\_\_\***

**Q.4 How the gene transfer from one bacterium to another.**

**ANS:** Genetic transfer in the mechanism by which DNA is transferred from a Donor

to a recipient Donor DNA is inside the recipient crossing over can occur.

In bacteria or other organism, gene transfer mainly in two ways.

* Vertical gene transfer
* Horizontal gene transfer.

**Vertical gene transfer**

Transfer of gene from mother to daughter cell or parent to offspring

mainly occur during the reproduction between generation cell

DNA inherited from parent organism

**Horizontal gene transfer**

Transfer of gene between cell of the same generation into

different species.

DNA acquired from unrelated individual.

There are three types of horizontal gene transfer

* Transformation
* Transduction
* Conjugation

\_\_\_\_\_\_\_\*\_\_\_\_\_\_\*\_\_\_\_\_\_\_\_\_\_\*\_\_\_\_\_\_\_\_\_\_\*\_\_\_\_\_\_\_\_\_\_\_\*\_\_\_\_\_\_\_\_\_\*\_\_\_\_\_\_\_\_\_\_\*\_\_\_\_\*

**Q.5 Write a short notes on the following.**

**1. Symbiotic relationship:**

Symbiotic relationship for special type of interaction between

species sometime beneficial, sometime harmful, these relationships are

essential to many organism and ecosystems, and they provide a balance that

can only be achieved by working together

* Obligate Symbiosis

Organism cannot survive without each other.

* Facultative Symbiosis

species live together choice.

**2. Antimicrobial drug:**

A drug used to treat a microbial infection antimicrobial is a

General term that refer to a group of drug that include antibiotics, anti-fungal,

antiprotozoals, and antivirals.

**3. Antimicrobial resistance:**

Antimicrobial resistance is the ability of microbes to resist the

effects of drugs in the same does age when the drug lose the ability to either

kill or inhibit the growth of microbes and the microbes gain the ability to

survive in the presence of drugs to which they were previously acceptable

this is called antimicrobial resistance.

**4. Probiotics:**

We usually think of bacteria is sometime that cause diseases but

the body is full of bacteria, both good and bad. Probiotics are often called

good or helpful bacteria because they help keep your gut healthy. Probiotic

are live bacteria and yeast that are good for and have beneficial effects on the

host by improving its intestinal microbial balance.

**5. prebiotic:**

\*none digestible food ingredients that been officially affect the host

by selectively stimulating the growth and activity of one or Limited

number of bacteria in the colon, and thus improve host health.

* + First identified in 1995
  + Typically oligosaccharides
  + Found in:

Breast milk sorry root, leaks, onion, garlic, spray,

whole grains, beans, banana etc.

* + It should increase the number and activity of Bifidobacteria

and lactic acid bacteria

\_\_\_\_\_\_\_\_\_\*\_\_\_\_\_\_\_\_\_\*\_\_\_\_\_\_\_\_\_\*\_\_\_\_\_\_\_\_\_\*\_\_\_\_\_\_\_\_\_\*\_\_\_\_\_\_\_\_\_\*\_\_\_\_\_\_\_\_\*

***THE END.***