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DGREE BSMLT 2nd

SECTION A

Q1; (1)Probiotics.

(2)symbiotic.

(3)antibiotic.

(4)

(5) Commensalism

(6) Bacterial conjugation

(7) Plasmid

(8) Normal flora

(9) Proteins---proteins.

Q2;

ANS; Normal flora,

 The normal flora may antagonize other bacteria through the production of substances which inhibit or kill nonindigenous species

1. Advantages;

They produce vitamin B and vitamin K in intestine

The oral bacterial flora exert microbial antagonism against nonindigenous species by production of inhibitory fatty acids peroxides bacteriocins etc

They constitute a protective host defense mechanism by occupying ecological niches.

1. Disadvantages;
	* + They can cusses disease(a) when individuals or immunocompromised or debilitated (b)when they change their usual anatomic location.
		+ Can act as opportunistic pathogen
		+ Gain access to axenic tissue
		+ Can share nutrients and drugs resistances with pathogen

Q2;

ANS: Stages of pathogenesis,

1. Transmission
	* + - * In order to begin infection and eventually cause disease pathogens must find a transmission route.
				* Transmission of an infectious agent can occur in many ways but it is typically through exposed skin (e.g a cut, abrasion, puncture or wound) or mucous membranes (e.g gastrointestinal track, respiratory track, or urogenital tract).
2. Adherence,
	* + - * Once the pathogen has gained access to the body, it must have some means of attaching itself to the host tissues
				* This attachment is called adherence and is a necessary step in pathogencity
				* Microbes contain ligands which are projections that attach host receptors or surface proteins
				* If a microorganism cannot adhere to a host cell membrane diseas will not occur
3. Invasion
	* + - * At this point microbes begin to invade the host and produce a bacterm (I.e 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 need to penetrate that barrier.
				* Once this barrier has been penetrated these pathogens can multiply without competition.
4. Colonization
	* + - * Colonization is the multiplication of pathogenic organisms where toxins are produce and the normal flora are overcome.
				* During this stage pathogens complete with normal flora for space and nutrients.
				* Pathogens usually colonize host tissue that are in contact with the external environment
5. Evasion of host defenses
	* + - * After colonization pathogens circumvent the host’s innate and adapted defenses by phagocytosis
				* Multiple mechanisms are used by pathogens to evade a host’s immune system
				* Pathogens must also utilize antigenic variation to alter the antigen structure
				* In addition pathogens can mimic host molecules which can cause disease related damage
6. Cause damage or disease to host
	* + - * Damage can occur through direct or indirect pathways
				* Direct methods’ produce toxins which are poisonous substances that prouduce toxemia within a host.
				* Three types of toxins are produced to cause damage

(a)Exotoxins;proteins secreted by pathogens that cause damage to the host (botulinum toxin , tetanus toxin)

(b) End toxins; toxic substance that are released when a cell is killed (lipolysaccharides)

(c) Exoenzymes; Enzymes that function outside the host cells or tissues

1. Exiting the host;

A pathogen must exit the body.

This occurs through various routs.

Example include sneezing,coughing,diarrhea, coitus, pus, blood, or insect 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 hardy and can survive for several weeks before a new host is found.

There are others that survive in animal reservoirs or require direct contact because they are fragile.

Q4;

ANS;

The gene transfer from one bacterium to another through conjugation, in conjugation DNA is transferred from one bacterium to another. After the donor cells pulls itself close to the recipient using a structure called a pilus DNA is transferred between cells in most cases, this is in the form of plasmid.

Requires an F factor plasmid which has all conjugation genes. the sex pilus is form directly between one bacterium and other.

Single DNA strand produced by DNA replication is transferred to F- cell through the sex pilus recipient produces 2nd strand.

When an F factor (plasmid) is transferred from a donor (F+)to a recipient (F-) the F-cell is converted into an F+ cell.

Q5;

ANS;

1. Symbiotic relationship;

 Symbiotic or symbiosis is a close relationship between two species in which at least one species benefits for the other species, the relation may be positive negative or neutral.

1. Antimicrobial drug;

 Drug that are used to treat infections with micro organisms are known as antimicrobial drugs.

1. Antimicrobial resistance;

 Antimicrobial resistance is the ability of microbes to resist the effects of drugs in same dosage. when the drug loose the ability to either kill or inhibit the growth of microbes and the microbes gain the ability to survive in the presence of drug to which they were previously susceptible this is called resistance.

1. Probiotics;

 Are often called ‘good’ or ‘helpful ‘bacteria because they help keep your gut health

Probiotics are live bacteria and yeasts that are good for and have beneficial effects on the host by improving its intestinal microbial balance.

1. Prebiotic;

 Non-digestible food ingredients that beneficially affect the host by selectively stimulating the growth and/or activity of one or a limited number of bacteria in the colon and thus improve host health.