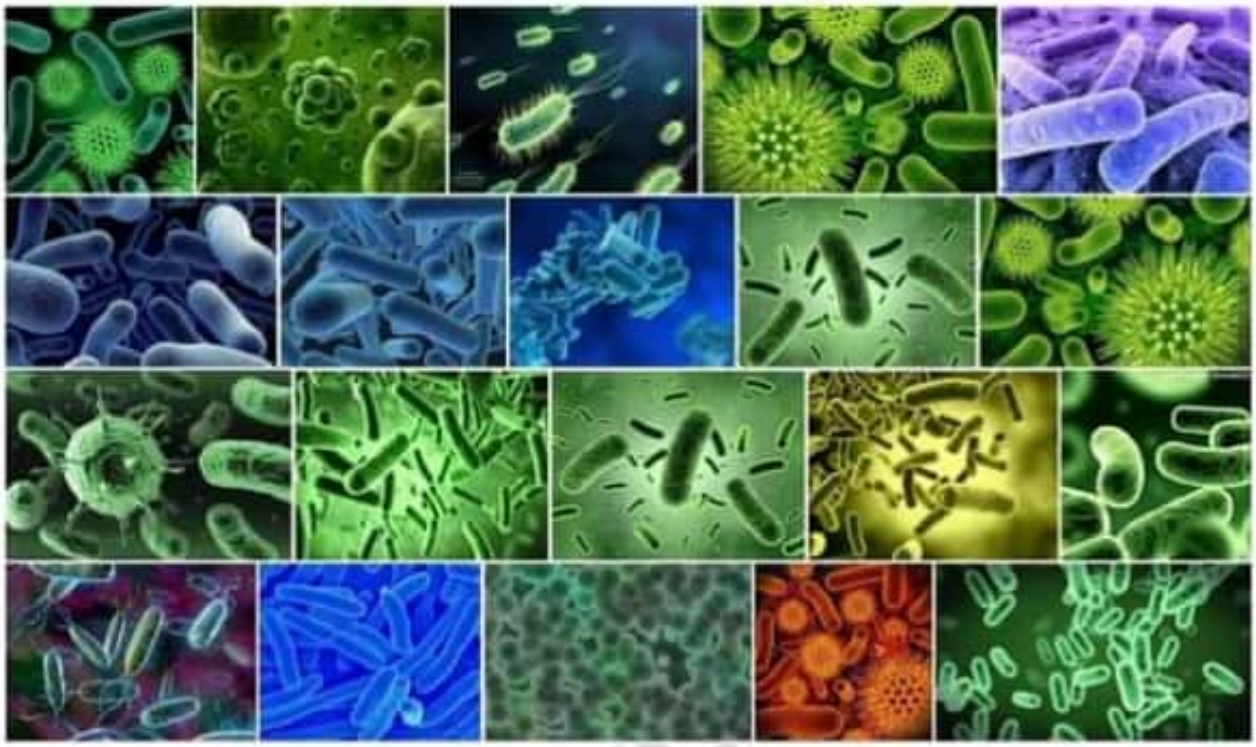
CHAP# 6 Prokaryotes



<table>
<tr><th>S.No</th><th>Questions</th><th>Answers</th></tr>
<tr><td colspan="3">PROKARYOTES</td></tr>
<tr><td>640.</td><td>Nostoc are involved in fixation of</td><td>Atmospheric Nitrogen</td></tr>
<tr><td>641.</td><td>The oxgen producing bacterias</td><td>Cyanobacteria
ETEA-2013</td></tr>
<tr><td>642.</td><td>A capsule that is less tightly bound to bacteria is called</td><td>Glycocalyx</td></tr>
<tr><td>643.</td><td>The resistant of gram negative bacteria from gram pasative bacteria is</td><td>more</td></tr>
<tr><td>644.</td><td>Flagella is made of protein called</td><td>Flagellin</td></tr>
<tr><td>645.</td><td>Cholera, Typhoid fever, Tuberculosis, Pneumonia are</td><td>Bacterial diseases
ETEA-2011</td></tr>
<tr><td>646.</td><td colspan="2">
<table>
<tr><th>Process</th><th>Temperature</th><th>Time</th><th></th></tr>
<tr><td>Pasteurization</td><td>72 degree</td><td>15 sec</td><td>ETEA-2014</td></tr>
<tr><td>Ultra high temperature</td><td>140 degree</td><td>3 sec</td><td></td></tr>
<tr><td>Sterilization</td><td>170 degree</td><td>2 hour</td><td></td></tr>
<tr><td>Heating</td><td>100 degree</td><td>10 min</td><td></td></tr>
</table>
*72-15—140-3
</td></tr>
<tr><td>647.</td><td>Pilli is made of protein called</td><td>Pillin</td></tr>
<tr><td>648.</td><td>The domain is also called</td><td>Super kingdom</td></tr>
<tr><td>649.</td><td>No of prokaryotes to which scientific names are given</td><td>6300 species</td></tr>
<tr><td>650.</td><td>Three distinct domains of life are</td><td>Bacteria, Archaea &Eukaryotes</td></tr>
</table>

651.	It's believed that archaea and bacteria have same	Ancestors
652.	Archaea living in extreme conditions are called	Extremophilic **ETEA-2016**
653.	Archaea living in moderate conditions are called	Methanogens
654.	Extremophilic are of two types	Halopiles & thermophiles
655.	Extreme halopiles live in	High-salt environment
656.	Extreme thermophiles live in	Hot environments
657.	The most abundant organism is	Bacteria
658.	Bacteria is used as agent in	Bioremediation
659.	Human insulin which is produced by recombinant technology is	Humulin
660.	Bacteria living in guts of herbivorous plants and help in digestion of	Cellulose
661.	Diphtheria, Tuberculosis, Pneumonia and Whooping cough are	Airborne Bacterial diseases
662.	Typhoid fever, Gastreoenterites, Dysentry, and Cholera are	Waterborne Bacterial diseases
663.	Botulism is	Foodborne Bacterial diseases
664.	Cholera is caused by gram negative bacteria called	Vibrio Cholera
665.	Typhoid fever is caused by rod shaped gram negative bacteria called	*Salmonella Typhi* **ETEA-2010**
666.	Tuberculosis is caused by acid-resistant bacillus bacterium called	*Mycobacterium tuberculosis*
667.	Pneumococcal pneumonia is caused by gram positive bacterium called	*Streptococcus Bacteria*

CLASSIFICATION OF BACTERIA

668. **Classification of bacteria:**

S.No	Types	Main characteristics
1	Proteobacteria	Gram negative bacteria Includes photoautotrophs, chemoautotrophs & heterotrophs Contain both aerobic & anaerobic bacteria
2	Chlamydias	Gram negative bacteria Parasitc bacterias
3	Spirochetes	Helical heterotrophic spiral bacterias
4	Gram-positive bacteria	Contain both solitary & colonial Subgroups: a: Actinomycetes (decomposers) B: Streptomyces (antibodies) Example : Mycoplasma
5	Cyanobacteria	Oxygen producing bacteria (1% to 21%) Example: Nostoc (nitrogen fixing bacteria)

Types pf Protobacteria :

Types	

		Alpha Bacteria	Symbiotic association **ETEA-2017**
		Beta Bacteria	Nitrogen recycling
		Gamma Bacteria	Sulphur Bacteria **ETEA-2016-ETEA-2019**
		Delta Bacteria	Slime secreting myxobacteria
		Epsilon Bacteria	Pathogenic

STRUCTURE OF BACTERIA

669.	The only genus of bacteria which lack cell walls	Mycoplasma (Gram-positive)
670.	The tight covering around the bacteria is called	Capsule
671.	A capsule which is less tightly bound to cell is called	Glycocalyx
672.	Cell wall of bacteria is made of peptidoglycan which is	Carbohydrate-protein complex

673. **Number of genes:**

HIV	9
Bacterium	500
yeast	6000
Human beings	20,000 – 25,000

674.	Division(Gram +ive and Gram -ive) of bacteria was done by	Hans Christian Gram (1884)
675.	Cell wall of gram negative bacteria is externally covered by	Layer of lipopolysaccharides

676. **Types of bacteria**

Types	Flagella
Atrichious	No
Monotrichious	Single
Lophotrichious	Groups of flagella at one end **ETEA-2019**
Amphitrichious	Groups of flagella at both ends
Peritrichious	Groups of flagella at all ends

677.	Cell membrane invaginates into cytoplasm to form pocket like projection called	Mesosomes
678.	In bacteria, chromosomes is located at specific region of cytoplasm called	Nucleoid
679.	Extra chromosomal rings found in bacteria are called	Plasmids

SIZE AND SHAPE OF BACTERIA

680.

Forms	Motion	Shape	Pairs	Chains
Cocci	Non-motile	Spherical	Diplococcic	Streptococci
Bacilli		Rod	Diplobacilli	streptobacilli
Spirilla	Motile	Screw		

681.	Some spirilla have less than one complete twist and are called	Vibrios
682.	Endospore are produced by	Gram positive bacteria

683.	Saprobes are also called recyclers of nutrients or	Scavengers of earth
684.	Parasitic bacteria which caused diseases are called	Pathogens
685.	Bacteria is hydrogen sulphide while cyanobacteria like plants get hydrogen from	Water
686.	The disease symptoms appear during	Log phase **ETEA-2015** **ETEA-2019**
687.	Streptococcus bacteria has two strains	S and R types
688.	Chemoautotrophs obtain their energy from	Inorganic substances
689.	Heterotrophic obtain their food from	Organic compounds
690.	Recyclers of nutrients or scavengers of earth are used for	Saprophytic Bacteria
691.	The recombinant DNA formed from bacteria and phage DNA is called	Prophage
692.	Archaeologists found live endospore from 7518 years old sediments of	Minnesota's lake
693.	Biotin(vitamin), Methionine(amino acid).Leucine(amino acid) and Theronine(amino acid) are essential for	Growth of bacteria
694.	In photoautrophs bacteria, the chlorophyll is dispersed in infolded region of	Cell membrane **ETEA-2015**
695.	The association of Rhizobium radiciola to roots of leguminous plants are	Symbiotic **ETEA-2017**
696.	A golden rice contain Beta carotene, a precursor of	Vitamin A

BACTERIAL DISEASES

697.	Bacteria used to produce transgenic plant is	*Agrobacterium tumefaciens*
698.	Bacteri uses for gene cloning is	*E.coli*

699.	**Disease**	**Cause**
700.	Bacterial leaf spot	*Pseudomonad spp.*
701.	Bacterial wilt	*Ralstonia solanacearum*
702.	Bacterial soft rot	*Erwinia carotovora*
703.	Bacteria galls	*Agrobacterium tumefaciens*
704.	Bacterial blight	*Xanthomonas campestris Pv. Phaseoli*

705.	TB patient are largely treated with Isonicotinylhydrazine(INH), rifampin, ethambutal and	Streptomycin
706.	Vaccine for TB is	Bacille Calmatte Guerin(BCG)
707.	Typhoid fever is transmitted by flies, food, fingers, feces and fomites or	5 fs
708.	The drug given to pneumonia patient is penicillin with tetracyaline or	Chloramphenicol
709.	Bacteria reproduce asexually by	Binary Fission **ETEA-2014** **ETEA-2019**
710.	Bacteria reproduce sexually by	Transformation, Transduction & Conjugation

		ETEA-2019
711.	Salmonella typhi causing typhi and Chlostridium tetani causing tetanus are	Bacilli bacteria
712.	Cholera, typhoid fever, tuberculosis(TB), pneumonia ,diphtheria, tetanus	Bacterial diseases
713.	The simplest oxygen producing organisms are	Cyanobacteria **ETEA-2010**
714.	When anopheles mosquito bites a healthy person, It injects	Sporozoites
715.	The pneumococcuc strain used by Griffah in his experiment was	Atrichous **ETEA-2006**
716.	Ascospore is produced as a result of	Sexual reproduction
717.	Gonorrhea is a sex diseases caused by	Bacteria
718.	The role of bacteria population in large intestine of man is	Cellulose breakdown **ETEA-2005**
719.	Bacteria is hydrogen sulphide while cyanobacteria get hydrogen from	Water
	GROWTH IN BACTERIA	
720.	Bacteria contain chlorophyll a while cyanobacteria contain chlorophyll a, phycocyanin, aalophycocyanin and	Phyceoerythrine
721.	In case of bacteria growth means increase in the	Total population
722.	Temperature, availibity of nutrients, PH and ionic concentration can effect	Growth in bacteria
723.	Under favorable conditions, bacteria divides after every	20 minutes
724.	The number of cells doubles ate the end of each division ,it is called	Exponential growth
725.	The growth of bacteria is	Exponential growth
726.	The duration between two successful divisions is called	Generation time **ETEA-2015**
727.	In division the growth does not appears in	Lag phase
728.	The lag phase is followed by period of fast growth called	Log phase **ETEA-2015**
729.	In asexual reproduction, mitotic structure	Does not form
730.	The genetic variation in bacteria is either achieved by	Mutation or genetic variation
731.	A fragment of DNA of recipient is replaced by DNA of donor, recipient is now	Called Recombinant cell
732.	Endotoxin is produced by bacteria when it dies in	Decline phase **ETEA-2017**
	SEXUAL REPRODUCTION IN BACTERIA	
733.	<table><tr><th>Injected strain</th><th>Mouse then</th></tr><tr><td>R type</td><td>Live</td></tr><tr><td>S type</td><td>Die</td></tr><tr><td>Heat killed S type</td><td>Live</td></tr><tr><td>Heat killed S & R live</td><td>Die</td></tr></table>	
734.	Piece of DNA is transported from one bacteria to another through a third party in	Transduction
735.	Phages which cause lytic cycle are called	Virulent phages
	BACTERIAL DISEASES	

<table>
<tr><td>736.</td><td>Phages which cause lysogenic cycle are called</td><td>Temperate phage</td></tr>
<tr><td>737.</td><td>Conjugation was first studied by Luderberg & Tatum in</td><td>Escherichia coli</td></tr>
<tr><td>738.</td><td>In cholera, in untreated cases the mortality may reaches to</td><td>70 %</td></tr>
<tr><td>739.</td><td>The test used for diagnosis of typhoid fever is</td><td>Widal test</td></tr>
<tr><td>740.</td><td>Immunization vaccine against cholera gives protection for</td><td>6 months</td></tr>
<tr><td>741.</td><td>Vaccines used for tubersulosis is</td><td>Bacille Calmette Guerin (BCG)</td></tr>
<tr><td>742.</td><td>The pneumonia is commonly called</td><td>Pneumococcal pneumonia</td></tr>
<tr><td>743.</td><td>About 80 strains of streptococcus bacteria causes pneumonia, vaccine is available for</td><td>Only 23 strains</td></tr>
<tr><td>744.</td><td colspan="2"><table>
<tr><th>Disease</th><th>Cause (Bacteria)</th></tr>
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<tr><td>745.</td><td>Refrigeration at temperature 0^0 C to 7^0 C reduce activity of Microbes, this effect is</td><td>Bacteriostatic effect</td></tr>
</table>