

Question one

Mark the following statements True or False and
Correct the false one:

18 Marks

No.	Statement	Answer
1	Prokaryotic cells contain 80 s ribosomes.	
2	The term Tetrads is used to describe the bacterial cell shapes.	
3	Bacterial pili are involved in motility.	
4	The 70 S ribosomes consist of A 50S and a 20S subunit.	
5	Both prokaryotes and eukaryotes have Mitochondria.	
6	The bacterial cell membrane composed of phospholipids, carbohydrates and protein.	
7	During the simple diffusion, as temperature decrease the rate of diffusion decrease	
8	During the facilitated diffusion, the charged molecules pass across the cell membrane.	
9	Bacterial capsules can prevent desiccation of bacterial cells.	
10	Carrier proteins are required for both facilitated transport and active transport.	

11	Psychrophiles is a term referring to organism that best grow at High temperatures.	
12	An organism is capable of photosynthesis but use organic matter as carbon source. This organism is Chemoorganotrophic.	
13	Osmophiles and Xerophiles are organisms that can grow in Low sugar concentration and Dehydrated environments respectively:	
14	An organism is capable of oxidizing fatty acids to obtain energy, hydrogen, electrons and carbon. This organism is Photolithotrophic.	
15	The endospore layer containing calcium and dipicolinic acid is the Exosporium.	
16	Starvation proteins are produced by a culture during decline phase of the growth curve.	
17	A culture of bacteria produces 5 generations in 2 hours. The generation time for this bacterium under those conditions is 15 minutes.	
18	<i>Bacillus cereus</i> was inoculated in a culture medium with exactly 100 bacterial cells. After 3 hours, the bacterial cells became 6400 cells. The generation time for this bacterium is 20 minutes.	

Question two

Complete the following statements:

10 Marks

No.	Statement	Answer
A	During the .....(1)..... phase of bacterial growth the bacterial cells are dividing regularly by binary fission.	1-
B	Endospore formation is common among .....(2)..... bacteria.	2-
C	During the .....(3)..... phase of bacterial growth dead bacterial count is more than viable count.	3-
D	Viruses can reproduce .....(4)..... the host cells.	4-
E	The region at which the arms of the antibody molecule forms a Y is called .....(5).....	5-
F	.....(6)..... are specific proteins formed in the body in response to antigenic stimulation.	6-
G	.....(7)..... can be used for the treatment of viruses.	7-
H	The .....(8)..... immune response involves antibodies and other proteins found in body fluid.	8-
I	.....(9)..... immune response involves the activation of phagocytes, antigen-specific cytotoxic T-lymphocytes.	9-
J	.....(10)..... is a substance that increase the response of the immune system to immunogens.	10-
K	Aflatoxins are examples of mycotoxins that are produced by the .....(11)..... species.	11-

L	Prion is .....(12).....	12-
M	.....(13)..... T-cells secrete granules containing chemicals that destroy a targeted cell.	13-
N	The part of immunoglobulin that binds to the antigenic is named .....(14).....	14-
O	.....(15)..... Ab found in secretions as a dimer.	15-
P	Helper T cells detect infection and secrete signals called ...(16)..... that trigger the proliferation of both T cells and B cells.	16-
Q	.....(17)..... are good immunogenic agents.	17-
R	.....(18)..... refers to the strength of binding between a single antigenic determinant and an individual antibody combining site.	18-
S	.....(19)..... refers to the overall strength of binding between multivalent Ag's and Ab's.	19-
T	.....(20)..... are thread-like structures used to adhere bacteria to one another during mating.	20-

Question three

By drawing only illustrate each of the following:

12 Marks

1- Bacterial growth curve indicting the growth phases.

2- Coats of the bacterial endospore.

3- Types of flagella in bacteria.

4- Structure of immunoglobulin.

Question four

Give the scientific name of following statements:

5 Marks

No.	Statement	Answer
1	An apparatus used for the continuous cultivation of microorganisms.	
2	The process by which the bacterial cell releases its waste products.	
3	Viruses which can infect the bacteria leading to bacterial death.	
4	Proteins produced by some bacteria, which are lethal for other bacterial members.	
5	Diffusion of water through a selectively permeable membrane from high to low concentration.	
6	Bacteria that lose their cell wall under antibiotic therapy pressure & regain their cell wall after antibiotic withdrawal.	
7	The most common technique used to isolate bacterial mixtures.	
8	Bacteria which are highly resistant to acids, staining and treatment.	
9	The ingestion of dissolved materials by endocytosis.	
10	Antigens which can directly stimulate the B cells to produce antibody without the requirement for T cell help.	

Question five

Answer the following questions:

5 Marks

1- In a tabular form compare between bacterial endospore and fungal spores.

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2- What is the role of 10% KOH during staining of fungi?

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3- Enumerate the steps of viral life cycle (viral replication).

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Best of Luck