Salahaddin University – Erbil Subject: Microbiology

College of Education Time: 2 hours

Biology department /3th Date: 11 /4/2023

(2022-2023)

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**Q1/ Speak briefly about the following :( Only answer three question) (30mark)**

 **A**. Plasmids. **B**.Flagellar Arrangement  **C**. The effect of lysozyme on the cell wall.

 **D** .Compare between the Transformation and Transduction

 **E.** Environmental Factors That Influence Microbes

**Q2 /Choose the one best answer to each of the following questions. (16mark)**

 1--Endotoxins: A) secreted outside the bacterial cell B) part of the outer cell wall of Gram (-) bacteria C) Both of A and B

 2-- Which of the following microorganisms produces endotoxin?

 A) *Klebsiella*  *spp.* B) *Staphylococcus spp.* .C) *Streptococcus spp.*

 3--Which of the following is a characteristic of *Clostridium botulinum*?

 A) Gram negative B) does not form endospores

 C) Obligate anaerobic D) None of these E) All of these.

 4- Which of the following are made up of prokaryotic cells?

 A) Bacteria and fungi B) -Archaea and fungi C)-Bacteria and archaea

 5- The Lpid A is a ---------------------------------------------------

 A-) Part of the outer cell membrane of gram negative organisms .

 B-) Part of the inner cell membrane of gram negative organisms.

 C-) Space between the cytoplasmic membrane and the outer membrane layer .

6-\_\_\_ Fiber like structures on the surface of bacteria that aid in attachment to surfaces . A) Flagella B –glycocalyx C-pili

7-\_\_\_\_ Lipopolysaccharide (LPS) is associated with

* 1. The outer membrane of Gram-positive bacteria.
	2. The outer membrane of Gram-negative bacteria.
	3. The cytoplasmic membrane of Gram-positive bacteria.
	4. The cytoplasmic membrane of Gram-negative bacteria.

 8-The main feature of prokaryotic organism is

 A) Absence of locomotion B) Absence of nuclear envelope

 C) Absence of nuclear material D) Absence of protein synthesis

 Q3/ Draw Gram-Positive Cell Wall Bacteria (14 mark)

 Q4/ /A- Mention the causative organism(s) of each of the following diseases: (40 mark)

 ---shigellosis--- skin infection ----diarrhea---UTI

 B- What is conjugation for bacteria? In detail .

Good Luck

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