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قسم النبات كلية العلوم امتحان بكتيريا تخلفات من الفرقتين
الثالثة و الرابعة قديم

Benha University	Old Plan	Time: 2Hours
Faculty of Science	Bacteriology	23-12-2013
Botany Department		

Answer three questions only

1- Compare between spheroplast and protoplast

2- Discuss the functions of two of the following:

a) cell wall

b) mesosomes

c) pilli

3- Complete

a) The bacterial cell divided by several methods which are:

a).....b)..... c).....

b) Three types of growth can be observed in bacteria on the basis of capsule

1).....2).....3).....

c) Factors affecting bacterial growth are.....
and.....

4- Explain the nutritional types of bacterial growth.

GOOD LUCK

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Model Answers

1-

Spheroplast

- a) the cell wall is partially removed.
- b) formed in gram negative bacteria
- c) the mesosomes do not extrude outside the cell due to the presence of microcapsule
- d) it can regenerate the cell wall

Protoplast

- a) the cell wall is completely removed
- b) formed in gram positive bacteria
- c) the mesosomes extrude outside the cell
- d) it cannot rebuild a new cell wall

2-

a) function of the cell wall

- 1- the bacterial cell wall is composed of subunits not found in other place
- 2- it sometimes causes symptoms of diseases
- 3- it sometimes causes sensitivity to certain antibiotics
- 4- it is the reason of gram reaction
- 5- it determine the shape of the cell
- 6- it protects the bacterial cell from any osmotic shock

b) function of mesosomes

- 1- they are the sites of respiratory activities
- 2- they are synthesized transverse walls at cell division
- 4- they play a role in endospore formation and the separation of the two strands of the bacterial chromosomes during cell division

c) function of pili

- 1- special type of pili (F pili) or sex pili serves as the port of entry of genetic material DNA from one cell to another during bacterial mating
- 2- other pili may serve to keep bacteria near the surface of liquid or oxygen
- 3- in certain pathogenic bacteria, pili are the antigens which causes the disease

3- Complete

- a) 1- binary fission 2- budding 3- fragmentation
4- formation of conidiospores
- b) 1- mucoid (M) 2- smooth (S) 3- Rough (S)
- c) physical factors and nutritional factors

4- Nutritional types of bacterial growth

phototrophs which represent photolithotrophs and photoorganotrophs

chemotrophs which represent chemolithotrophs and chemoorganotrophs

photolithotrophs and chemolithotrophs are autotrophs

photoorganotrophs and chemoorganotrophs are heterotrophs