



**Please answer the following questions:**

Q1: Write full account on the following :

[ 5 marks]

- a- Bacterial **virulence**. [1]
- b- Bacterial **capsule**. [1]
- c- Koch's postulates. [1]
- d- Methods of gene transfer in bacteria. [2]

Q2:- A] Discuss briefly

[ 6 marks, 2 each]

- 1- Phagocytosis.
- 2- Microbial barriers of innate immunity.
- 3- Factors affecting immunogenicity.

B] In a table differentiate between :

[ 5 marks, 2.5 each]

- 1- Differences between 1<sup>ry</sup> & 2<sup>ry</sup> Immune response.
- 2- Different types of IgA.

Q3: Write on

[ 9 marks, 3 each]

- 1- Growth curve of bacteria ( draw in **details**).
- 2- Differences between exotoxins & endotoxins ( in **a table** ) .
- 3- Comparison of the detailed structure of **Gram-positive** and **Gram-negative** of bacterial cell wall ( in **a table** ) .

**With my best wishes**

**Signature**

**Prof. Amgad A. Moawad**

## ■ Please answer All questions:

**A- Choose "T" for true or "F" for false for the following questions: (5 marks, 0.2 each)**

1. During the lag phase of bacterial growth, division occurs at a maximum speed. (F)
2. Thermophilic bacteria grows at 14°C. (F)
3. Pathogenic bacteria grow at slightly acidic pH. (F)
4. Microaerophilic can grow in the absence of O<sub>2</sub>. (F)
5. The replication of bacteria is asexual. (T)
6. Fungal cell contains mitochondria. (T)
7. Fungal cell wall contains chitin. (T)
8. Zygomycetes are characterized by septated hyphae. (F)
9. *Microsporum canis* is a zoophilic species of dermatophytes (T)
10. Ring worm is caused by *Trichophyton* spp. (T)
11. The Stationary phase of bacterial growth is the period of adaptation to the environment. (F)
12. Zygomycosis is a fungal disease in human and animals. (T)
13. Fungi grow well at neutral pH. (F)
14. Sporangiospore is a type of sexual spore. (F)
15. Yeast is a multicellular fungi. (F)

**B-Choose the correct answer for the following multiple choice questions: (20 marks, 0.2 each)**

1-Size of bacteria is measured by:

a- Centimeter	b- Millimeter	c- Micrometer	d- Nanometer
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2- Fungi are belonged to:

a- Eukaryotes	b- Prokaryotes	c- Plants	d- Animals
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3- Prokaryotic means:

a. Primitive nucleus	b- True nucleus	c- No nucleus	d- Thick cell wall
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4- Nucleolus is not present in:

a- Prokaryotic cell	b- Eukaryotic cell	c- Fungi cell	d- Plant cell
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5- Bacterial chromosome is mostly:

a- Circular	b- Linear	c- Multiple	d- Different shapes
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6- Bacterial genome includes:

a- Chromosome only	b- Chromosome and plasmid	c- Plasmid only	d- DNA and RNA
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7- Bacterial genes are:

a- Diploid	b- Haploid	c- Diploid and Haploid	d- None of them
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8- Bacterial chromosome contains:

a- Histone protein	b- Histone like protein	c- Polypeptides	d- No protein
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9- Plasmids in bacteria:

a- Essential	b- Share in reproduction	c- Carry virulence genes	d- Share in metabolism
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10- Respiration in bacteria is carried by:

a- Mitochondria	b- Mesosome	c- Ribosomes	d- Cell wall
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11- Cell wall of Gram-positive bacteria contains:

a- Thick peptidoglycan	b- Thin peptidoglycan	c- No peptidoglycan	d- LPS
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12- Cell wall of Gram-negative bacteria contains:

a- Thick peptidoglycan	b- Histone like protein	c- No peptidoglycan	d- LPS
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13- The structure of bacterial capsule is mostly:

a- Polysaccharides	b- Polypeptides	c- Lipids	d- Carbohydrates
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14- The function of inclusion granules in bacteria:

a- Respiration	b- Reproduction	c- Storage of nutrients	d- Virulence
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15- The function of fimbriae in bacteria is:

a- Motility	b- Reproduction	c- Respiration	d- Attachment
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16- The axial filament (pseudoflagellum) is present in :

a- Gram +ve bacteria	b- Gram -ve bacteria	c- Both Gram +ve and -ve	d- Spirochaetes
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17- The function of bacterial spores is:

a- Protection	b- Reproduction	c- Antiphagocytosis	d- Nutrition
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