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| **Salahaddin University-Erbil** |  |  | **Microbial Physiology** |
| **College of Science** |  | **Duration: 2 hours** |
| **Department of Biology** |  | **Final Examination** |
| **3rd Stage /General Biology** |  |  **Second trail 2023** |
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**Q1/ Fill the blanks in the following sentences: (30 Marks)**

1. In Passive diffusion the diffusion depends on **……………. , ……………. , …………….** and **…………….**
2. **…………….** is a mycotoxin which produces by *Claviceps purpurea.*
3. Glycolysis is a metabolic pathway that occurs in **…………….** of eukaryotic organisms and in **…………….** of prokaryotic cells.
4. **…………….** is an antifungal agents which produce by **…………….** its mechanism of action is **…………….**
5. **…………….** and **…………….** are critical enzymes in the pentose phosphate pathway.
6. In aerobic respiration, some oxidation–reduction enzymes interact with molecular oxygen to give rise to **……………. , …………….** and **…………….**  all of which are extremely toxic.

**……………………………………………………………………………………………… Q2/ Answer by indicating (✓) or (✕) for the following sentences: (20 Marks)**

1. Almost all human pathogens are mesophiles.
2. The green bacteria (*Anabaena*) contain bacteriochlorophyll a or b.
3. In anaerobic respiration, the ATP yield is less than in aerobic respiration.
4. UV light is used to sterilize drugs and medical supplies that are sensitive to heat.
5. Piezophiles are organisms that can withstand high pressures.
6. Certain Archaea reproduce by producing chains of conidiospores carried externally at the tips of the filaments.
7. Carbohydrates are a less useful source of energy than lipids or proteins but may be utilized when these are in short supply.
8. Most deep-sea microorganisms are barotolerant.
9. In fermentation an external terminal electron acceptor is absent.
10. Phospho-ketolase pathway is known to be widespread among gram-negative bacteria as well as some archaea.

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**Q3/ Give an example for 5 FIVE of the followings: (20 Marks)**

1. Sulfur-oxidizing Bacteria
2. Microaerophilic M.O.
3. Hyper thermophilic M.O.
4. Actinomycetes
5. A fungus that produces toxin
6. Chemoautotrophic M.O.

**………………………………………………………………………………………………….**

**Q4/ Answer 2 TWO of the following: (30 Marks)**

1. Define Embden-Meyerhof-Parnas (Glycolysis) pathway? What are the critical enzymes in this pathway? Mention about the importance and purposes of this pathway?
2. Enumerate mycotoxins which produce by *Aspergillus* spp? Mention about one of them?
3. Define Antibiotics? Mention about an antibiotic that inhibits protein synthesis?

**…………………………………………………………………………………………………**

Good luck

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|  | ***Lecturer:*** |
|   | Assist. Prof. Dr. **Hero M. Ismael** |