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**Sardar Patel University**Biotechnology, 3<sup>rd</sup> Semester (NC)Wednesday, 6<sup>th</sup> January 2021**US03EMIC-01****(Fundamentals of Microbiology)**

Time: 10:00-12:00pm

Marks: 70

**Q-1 Multiple Choice Question (Attempt all)**

[10]

1. Who discovered the causative agent of anthrax and tuberculosis?
  - a) Paul Ehrlich
  - b) Robert Koch
  - c) Edward Jenner
  - d) Joseph lister.
2. \_\_\_\_ method was invented by Louis Pasteur to kill unwanted microorganism in fermentation industries.
  - a) Filtration
  - b) Tyndallization
  - c) Pasteurization
  - d) All of the above
3. An arrangement of flagella describe in *Proteus vulgaris* is \_\_\_\_\_.
  - a) Monotrichous
  - b) Amphitricous
  - c) Lophotrichous
  - d) Peritrichous
4. A metabolically dormant form of bacteria under inappropriate condition.
  - a) Endospore
  - b) Protoplast
  - c) Vacuole
  - d) Mesosome
5. \_\_\_\_ serve as a reserve source of phosphate.
  - a) Endospore
  - b) Sheath
  - c) Flagella
  - d) Metachromatic granules
6. \_\_\_\_ is father of microscopy.
  - a) Antony van Leewanhock
  - b) Robert Koch
  - c) Edward Jenner
  - d) Louis Pasteur
7. Gram positive bacteria contain thick \_\_\_\_\_ then gram negative bacteria.
  - a) Lipid layer
  - b) Peptidoglycan layer
  - c) Phospholipid
  - d) All of the above
8. A stage where reproduction rate is balanced by an equilibrium death rate.
  - a) Lag phase
  - b) Log phase
  - c) Stationary phase
  - d) Decline phase
9. Microbes which grow best within a temperature range of 25 to 40 °C.
  - a) Pscychrophiles
  - b) Mesophiles
  - c) Thermophiles
  - d) None
10. Which one is major bioelement required by microbes as nutrient source.
  - a) Carbon
  - b) Oxygen
  - c) Hydrogen
  - d) vitamins

**Q-2 Answer the following (Attempt all)**

[08]

[1]

[P.T.O.]

1. \_\_\_\_\_ is used as solidifying agent.
2. Streak plate method is also called four flame method. State true or false.
3. Source of electron microscope is \_\_\_\_\_.
4. Grams Iodine is used as Primary stain. State true or false
5. The bacterial flagella are chemically composed of \_\_\_\_\_ protein.
6. The bacterial cell produces endospore for its motility. State true or false.
7. \_\_\_\_\_ discovered the process of phagocytosis.
8. Edward Jenner is known as father of vaccination. State true or false.

Q-3

**Short question (Answer any ten)**

[20]

1. Give contribution of sergie winogradsky.
2. Define Pasteurization.
3. Give contribution of Louis Paster.
4. Give various shape of bacteria.
5. What is capsule?
6. Define Pili.
7. Define numerical aperture.
8. Why is it necessary to fix the cell in staining.
9. Give the procedure of monochrome staining.
10. Define selective and differential media.
11. What are synthetic media ?
12. What are autotrophs and hetrotrophs.

Q-4

**Long Question (Attempt any four)**

[32]

1. Write a note on germ theory of diseases.
2. Give contribution of various scientists in industrial and agricultural microbiology.
3. Discuss a detail structure,types,function of flagella.
4. Draw a neat and labeled diagram of bacterial cell and describe the function of each component.
5. Explain different parts of compound microscope with their function.
6. Give principle and Method of gram staining.
7. Give various techniques for isolation of pure culture.
8. Explain growth curve of bacteria.

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[2]