

SEAT No. _____



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[28]

SARDAR PATEL UNIVERSITY
B. Sc. Semester- III (BIOTECHNOLOGY)
NOVEMBER 2022

US03CBIT52 - Fundamentals of Microbiology

Date: 18/11/2022, Friday

Time: 10:00am to 01:00pm

Marks: 70

Q-1 Select the Right answer

[10]

1. Who discovered the causative agents of anthrax and tuberculosis?
 - a. Robert Koch
 - b. John Needham
 - c. Joseph Lister
 - d. Theobald Smith
2. _____ is father of Microbiology.
 - a. Louis pasteur
 - b. Robert koch
 - c. Antony van Leeuwenhoek
 - d. Edward Jenner
3. According to Bergey's manual of systemic bacteriology, Prokaryotes that lack cell wall belong to which of the following group?
 - a. Gracilicutes
 - b. Firmicutes
 - c. Tenericutes
 - d. Mendosicutes
4. Flagella are made up of _____ Protein
 - a. Globuline
 - b. Flagellin
 - c. Albumin
 - d. Pilin
5. Which of the following is the nutritional characterization of *Escherichia coli*?
 - a. Chemotrophic
 - b. Organotrophic
 - c. Heterotrophic
 - d. All of the above
6. Gram positive bacteria contain thick _____ than in gram Negative bacteria.
 - a. Lipid layers
 - b. Phospholipids layers
 - c. Peptidoglycan layers
 - d. All of the above
7. Gram staining is an examples of _____
 - a. Simple staining
 - b. Negative staining
 - c. Differential staining
 - d. None of these
8. Presence of barrier filter & exciter filter are special feature of _____.
 - a. Dark field microscopy
 - b. Phase contrast microscopy
 - c. Fluorescence microscopy
 - d. Bright field microscopy
9. Which of the following non ionizing radiation used as a physical control of microorganism?
 - a. X-ray
 - b. UV rays
 - c. β rays
 - d. γ Rays
10. Which of the following is used as a solidifying agent for media?
 - a. Agar Agar
 - b. Beef extract
 - c. Peptone
 - d. Yeast extract

Q-2 Answer the following in brief (Any Ten)

[20]

- 1) Define: Fermentation.
- 2) Write difference between Eukaryotes and Prokaryotes.
- 3) Explain in brief: Bergey's Manual of Systemic Bacteriology.
- 4) Draw a labeled diagram of bacterial cell.
- 5) Give various shapes of bacteria.
- 6) Difference between primary and secondary metabolites.
- 7) Define: (a) Resolving power (b) Limit of resolution.
- 8) Write application of bright field microscopy.
- 9) Write advantages of negative staining.
- 10) Define: Axenic culture.
- 11) Define: Selective and differential media.
- 12) What is Sterilization?

- Q-3 (A) Explain in detail about contribution of Louis Pasteur. [06]**
(B) Write Koch postulate. [04]

OR

- (A) Explain in detail Major Characteristics of Microorganism [06]**
(B) Write a short note on nutritional taxonomy as general methods of classification bacteria. [04]

- Q-4 Discuss in detail structure, types and function of flagella. [10]**

OR

- (A) Write a short note on nutritional types of microorganism based on carbon source. [05]**
(B) Write a note on temperature as a physical condition required for bacterial growth. [05]

- Q-5 (A) Describe in detail about principle and working of autoclave. [06]**
(B) Write a note on role of mordant and classification in staining of bacteria. [04]

OR

Write in detail note on principle and method of Gram staining. [10]

- Q-6 (A) Write a short note on phenol coefficient. [05]**
(B) Describe in detail about non ionizing radiation. [05]

OR

Give various techniques for isolation of pure culture. [10]
