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SARDAR PATEL UNIVERSITY

M. Sc. (Integrated) Biotechnology, Second Semester Examination

Tuesday, 28th April, 2015

Time: 10:30 a.m. to 1:30 p.m.

PS02CIGB04: Microbiology I

Total Marks: 70

Q 1 Multiple Choice Questions. (All are compulsory) [08]

I Pure culture of bacteria was first obtained by

a. Robert Koch b. Joseph Lister

c. Louis Pasteur d. Leeuwenhoek

II Louis Pasteur was professor of

a. Physics b. Chemistry

c. Maths d. Biology

III The shape of *Treponema pallidum* is

a. cocci b. spiral

c. rod d. none of these

IV Flagella is made up of

a. casein b. flagellin

c. papain d. keratin

V _____ is used in electron microscopy for negative staining.

a. Crystal violet b. Phosphotungstic acid

c. Safranin d. Methylene blue

VI _____ is a type of differential staining.

a. Acid fast staining b. Gram's Staining

c. Both a and b d. None of these

VII Which organisms use CO_2 as major or sole carbon source?

a. Autotrophs b. Heterotrophs

c. Both a and b d. None of these

VIII Which of this is an isolation technique?

a. Streak plate b. Spread plate

c. Pour plate d. All of these

Q 2	**Short Questions (Attempt any seven out of nine).**	**[14]**
I	Write down Koch's postulate.	
II	Define pure culture and colony.	
III	Enlist the functions of capsule.	
IV	Write the difference between the cell wall of Gram positive and Gram negative bacteria.	
V	Define intensifier and mordant.	
VI	Give the limitations of electron microscopy.	
VII	What do you mean by neumerical aperture and limit of resolution?	
VIII	Write the types of bacteria on the basis of energy and source of electrons.	
IX	What is the role of peptone and yeast extract in media?	
Q 3A.	Explain spontaneous generation and abiogenesis in brief. List the contributions of scientists who disapproved this theory.	**[06]**
Q 3B.	Write a short note on Germ theory of disease.	**[06]**
	OR	
Q 3B.	Give a brief account on the contributions of Louis Pasteur.	**[06]**
Q 4A.	Describe the bacterial cell wall in detail.	**[06]**
Q 4B.	Explain the structure of endospore and process of sporulation.	**[06]**
	OR	
Q 4B.	Give a detailed account on bacterial flagella and its hydrodynamics.	**[06]**
Q 5A.	Discuss in detail the fluorescence microscopy and write its application.	**[06]**
Q 5B.	Explain physical and chemical theories of staining.	**[06]**
	OR	
Q 5B.	Write a note on specimen preparation for electron microscopy.	**[06]**
Q 6A.	Explain the methods for isolation of pure culture.	**[06]**
Q 6B.	Write a short note on nutritional types of bacteria.	**[06]**
	OR	
Q 6B.	Discuss the types of media.	**[06]**

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