



# UNIVERSITY OF THE PUNJAB

**B.A. / B.Sc. Part - I**  
**Annual Examination - 2018**

Roll No. ....

**Subject: Microbiology-I**  
**PAPER: A (Fundamentals of Microbiology)**

**TIME ALLOWED: 2 hrs. & 15 min.**  
**MAX. MARKS: 42**

**USE SEPARATE ANSWER SHEET PROVIDED**

**INSTRUCTIONS: Part II is Subjective. Attempt three questions from Part II. All questions carry equal marks. Maximum time for Part II is 2 hours and 15 minutes.**

PART II		Marks
Attempt any Three Questions		
Q3 a).	What were the major microbiological interests of Martinus Beijerinck and Sergei Winogradsky?	5
b).	What is the difference between a total cell count and a viable cell count?	5
c).	Briefly describe the five kingdom system and give the major characteristics of each kingdom.	4
Q4 a).	Compare various types of Light Microscopy.	6
b).	Draw a typical bacterial Growth Curve and label the various phases. Discuss those factors which determine the beginning and end of each phase.	5
c).	Discuss the nature, structure and possible functions of bacterial mesosomes.	3
Q5 a).	Describe structure and chemical composition of bacterial Cell Wall and its relevance to Gram's staining.	6
b).	Write a note on Restriction Endonucleases.	4
c).	Describe the process of Pasteurization.	4
Q6 a).	Indicate the various toxic derivative of oxygen and explain how aerobic organisms might protect themselves against these derivatives.	5
b).	Give a brief account of Glycolysis.	5
c).	What are major methods of Food Preservation?	4
Q7 a).	What is nitrogen cycle? Discuss the role played by microorganisms in Biological Nitrogen Fixation.	5
b).	Describe the water Purification procedures.	5
c).	Differentiate between food Intoxication and food Infections.	4

viii). Microorganisms that use organic compounds as energy and carbon sources are:

- (a). Chemoheterotrophs
- (b). Chemoautotrophs
- (c). Photoautotrophs
- (d). Photoheterotrophs

ix). Which one of the following is not produced during glycolysis?

- (a). ATP
- (b). NADH
- (c). Pyruvate
- (d). Glucose

x). A frameshift mutation is:

- (a). Insertion of one base
- (b). Insertion of more than one base
- (c). Deletion of one or more bases
- (d). All of the above

xi). The enzyme \_\_\_\_\_ adds complementary bases to the DNA template strand during replication.

- (a). Ligase
- (b). Helicase
- (c). DNA polymerase
- (d). RNA polymerase

xii). For bactericidal activity \_\_\_\_\_ have the ability to cause thymine dimer formation.

- (a). Ultraviolet light
- (b). X rays
- (c). Gamma rays
- (d). Microwaves

xiii). Bacteriological media that are composed of ingredients whose exact chemical composition are known are called:

- (a). Selective
- (b). Exact
- (c). Defined
- (d). Aesthetic

xiv). Enterohemorrhagic *E. coli* (EHEC) can cause:

- (a). Undulant fever
- (b). Hemolytic uremic syndrome
- (c). Guillain-Barré syndrome
- (d). Stomach ulcers