



➤ KEEPING MOBILE PHONE/ANY ELECTRONIC GADGETS, EVEN IN 'OFF' POSITION IS TREATED AS EXAM MALPRACTICE
 ➤ DON'T WRITE ANYTHING ON THE QUESTION PAPER

General Instruction: Draw the diagrams where ever necessary

Answer ALL Questions

(10 X 10 = 100 Marks)

1. Comment and summarize the significant discoveries that led to the development of microbiology as engineering applied science.
2. Which microscope is used to differentiate viable from dead microbial cells and discriminate types of light microscopes with various applications?
3. Which staining/microscopy is appropriate for the following? Give reasons.
 - a) Corona Virus [2]
 - b) Biopolymers [2]
 - c) Capsules of *Klebsiella* [2]
 - d) Bacterial resistant forms [2]
 - e) Hepatitis virus [2]
4. Interpret and describe the various techniques used to isolate pure cultures of industrially important bacteria.
5. Critically review the merits and demerits of the five kingdom and three domain systems of classification in detail.
6. Define the following. Give example if necessary. [10x1=10]

a) Algal blooms	b) Lichens	c) phages
d) Diatoms	e) Phytoplankton	f) Limulus amoebocyte assay
g) Smith classification	h) negative staining	i) double stranded RNA
j) cold sterilization.		
7. Sketch the possible fermentation pathway by taking two different carbon sources for the following microbes.
 - a) *Streptococcus lactis* [2]
 - b) *Bacillus subtilis* [2]
 - c) *Saccharomyces cerevisiae* [2]
 - d) *Lactobacillus plantarum* [2]
 - e) *Aspergillus niger* [2]

8. Explore the salient features of diauxic type growth curve in *E.coli* by using glucose and lactose as carbon sources.
- 9.a) Define acme phase and explain in detail about the salient features of pathogenic cycle in bacteria?

OR

- 9.b) Interpret and summarize the types of infections and diseases in human beings.
- 10.a) Generalize the various techniques used for the identification of bacteria and virus in human serum samples.

OR

- 10.b) Comment and differentiate the types of cultures and culture media in detail.

⇔⇔⇔ C/L/TX ⇔⇔⇔