

U.G. 3rd Semester Examination - 2021

MICROBIOLOGY

[HONOURS]

Course Code : MB-H-CC-P-06

(Bioenergetics and Microbial Metabolism)

[PRACTICAL]

Full Marks : 20

Time : 2 Hours

The figures in the right-hand margin indicate marks.

Answer any **two** from the following: 10×2=20

1. What are the purpose and biological application of plotting growth curve of bacteria? Explain with reasons, how many phases of growth are observed in growth curve obtained by (i) turbidimetric method, (ii) standard plate count method. Make a comparative statement on the procedure of these two methods. 3+(2+2)+3
2. You are studying decimal reduction time at 90°C using standard plate count method. If you find 156 colonies (dilution factor 10^6) at the beginning and decimal reduction time is 5 minutes, calculate with proper explanation, the expected CFU at the end of

this time period. Discuss the principle and methodology for determination of thermal death point. 4+(3+3)

3. You are supplied with NaCl, distilled water, broth media components and required glassware, instruments etc. How can you prepare 10 ml broth tubes, containing 0.5% , 1%, 1.5%, 2% of NaCl for determining its effect on bacterial growth? Elaborate the steps and calculation. At the end of the test, if you observe highest growth at 1.5%, what can you conclude about the bacteria studied? Why does this salt dependency vary among different organisms? 6+2+2
4. Describe the principle and methodology for assessing effect of pH on bacterial growth. In this experiment why is it necessary to maintain other factors fixed? What are the precautions needed for accuracy of this experiment? (3+3)+2+2
