

2020

MICROBIOLOGY — HONOURS — PRACTICAL

Paper : CC-7P

Full Marks : 30

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

1. (a) You are provided with the schematic representation of 3 types of replication.
 - (i) Of these 3 mechanisms which occurs in cellular DNA?
 - (ii) Name the experiment which proves the validity of your answer.
 - (iii) With the help of a neat diagram explain the results of the said experiment in support of your answer.
- (b) From the photograph provided, identify the macromolecule.
 - (i) Write down 3 important features of the macromolecule.
 - (ii) Give 2 biological functions of the macromolecule you have identified. ($\frac{1}{2}+\frac{1}{2}+4$)+(1+3+1)
2. (a) What is SDS-PAGE? Write down the principle of SDS-PAGE.
- (b) Write down two important differences between Agarose Gel Electrophoresis and Polyacrylamide Gel Electrophoresis.
- (c) Give one important application of SDS PAGE. 2+2+1
3. You are provided with a stock solution of DNA at a concentration of 1 mg/ml. Make 3 dilutions from this stock and measure the absorbance of the diluted samples. Taking arbitrary but logical values of the absorbance, plot a standard curve of concentration versus absorbance.
 - (a) Show the working protocol of diluting the stock solution to the given dilutions. All calculations are to be shown.
 - (b) With the values of concentration and absorbance provided to you draw a standard curve with proper markings on the axes and take appropriate scale.
 - (c) Using this standard curve calculate the unknown concentration of the solution from the value of absorbance provided to you. 2+2+1

(The centre is to provide a set of four values of absorbance against corresponding dilutions. The value of absorbance for calculation of unknown concentration is also to be provided by the centre. This value should lie in the range of values provided for drawing the standard curve.)

4. Viva voce and Lab Notebook.

10