

U.G. 1st Semester Examination - 2021
Molecular Biology and Biotechnology
[HONOURS]
Course Code : MBBT-H-101(P)-CCR-1
(Biochemistry and Metabolism)
[PRACTICAL]

Full Marks : 20

Time : 2 Hours

The figures in the right-hand margin indicate marks.

1. Assuming you need to perform any **one** of the following experiments, write your answer:

10×1=10

- a) Suppose you have to prepare 150ml, 0.25 M Tris buffer of pH 8. Write down the principle, requirements, stepwise calculation, procedure required to be followed for preparation of this reagent. How do you adjust the pH of this buffer? (Molecular weight of Tris base is 121.44g). 2+2+2+2+2
- b) Write down the principle, requirement, procedure and possible observations for determination of optimum temperature of the supplied enzyme. 3+2+2+3

- c) Write down the principle, requirement, procedure for estimation of enzymatic activity of the supplied enzyme. Assume concentration of the product measured after 30 min incubation of enzyme with the substrate is 0.28 mg /ml. Now calculate enzymatic activity of the supplied enzyme.

3+2+2+3

- d) Write down the principle, requirement and procedure for determination of K_m and V_{max} of the supplied enzyme with double reciprocal plot.

4+3+3

- e) Write down principle, requirement, procedure for estimation of glucose concentration in the supplied blood sample through glucose oxidase method. Consider the absorbances at 505 nm of blank is 0.00, Test is 0.25, sample is 0.21. Now calculate glucose concentration of the supplied blood sample.

3+2+2+3

- f) Write down the principle, requirement and procedure for verification of Lambert-Beer's law. How would you determine relation between absorbance and % transmittance of the given sample?

3+2+2+3

[Turn Over]

g) Write down principle, requirement, procedure of determination of retardation factor of the given amino acid by paper chromatography method. Assume the distance migrated by solvent is 5.8 cm. The distance migrated by glycine, methionine, and proline is 0.9 cm, 2.1cm, 1.6 cm respectively. Now calculate retardation factor of glycine, methionine and proline. 3+2+2+3

h) How do you identify the biomolecule present in the given sample (carbohydrate or protein or lipid)? Write down the principle, requirement and procedure of the method. 3+3+4

2. Laboratory note book (Submit the scanned copy of laboratory note book) 5
 3. Viva-voce (to be conducted through any online platform). 5
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