

U.G. 1st Semester Examination - 2021**ENVIRONMENTAL SCIENCE****[HONOURS]****Course Code : ENVS-H-CC-P-02****(Environmental Chemistry and Environmental Physics)****[PRACTICAL]**

Full Marks : 20

Time : 2 Hours

*The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.*Answer any **two** of the following: $10 \times 2 = 20$

1. a) Why NaOH is considered for preparation of a secondary standard solution? How the exact strength of NaOH is determined in the laboratory?
- b) Give the detail steps and calculation for the preparation and standardization of 0.1 (N) potassium permanganate (KMnO_4) solution.
 $(2+3)+5=10$
2. a) What do you mean by alkalinity of water?

b) How do you measure the total alkalinity of water?

c) Write the principle and procedure for the determination of total hardness.
 $2+3+5=10$

3. a) What is the biological importance of copper?

b) Write the principle and procedure for the estimation of copper (Cu^{2+}) from the supplied solution by iodometric method.

c) Give the reactions involved in the above process.
 $2+6+2=10$

4. a) Define molarity and deduce the relation between molarity and normality.

b) Write the principle and procedure of the anaerobic treatment process involved in the decomposition of organic waste with a neat sketch.
 $3+(3+4)=10$

[Turn over]