2023

Time - 3 hours

Full Marks - 80

*Answer **ALL** questions.*
Figures in the right hand margin indicate marks.

1. (a) Discuss about the inter cellular calcium ion transportation process and calcium ion regulated processes within a cell. [10

(b) Name two copper based enzymes and describe their role in biochemical process. [10

OR

(a) Write notes on two proteins viz. Calmodulin and Troponin. Differentiate their functions. [10

(b) Give one example of enzyme containing molybdenum and iron as metal ions and discuss about its structure, function and adverse effect. [10

2. (a) Discuss the structure of hemocyanin. How they help in oxygen transportation ? [10

(b) Discuss the general aspects of cobalt in biological system. [10

OR

(a) Write a note on synthetic complexes of cobalt and their medicinal values. [10

(b) Write down about hemerythrin the oxygen transporter. How it is different from other oxygen binding proteins ? [10

3. (a) Write notes on absorption and emission spectroscopy ? Differentiate with respect to source of radiation and detectors. [10

(b) Qualitative or quantitative : which analysis for metal ions are carried out by AAS spectroscopy ? Write down the advantages and limitations in metal ion analysis by this method. [10

OR

(a) In analytical chemistry, write down the importance of atomic absorption and atomic emission spectroscopy. Give their detection process and sensitivity efficiency. [10

(b) What should be the characteristics for an ion to be detected by AAS process ? Whether both cations and anions are detected by this method ? What is about free radicals ? [10

4. Write down the principle, instrumentation and applications of fluorimetry analytical method. [20

OR

Write down the principle, instrumentation and applications of phosphorimetry analytical method. [20