

- (b) Discuss the mechanism of vanadium storage and transport. 5
- (c) Hemoglobin functions as O_2 carriers but free heme group cannot perform the same function. Why ? 5

OR

- (p) Discuss structure and functions of myoglobin. 5
- (q) Why does 'Fe' atom sits 80 PM above the porphyrin ring of hemoglobin ? What is the position of 'Fe' upon oxygenation ? 6
- (r) What is Hemovanadine ? Give its chemical composition. Explain its role in marine animals. 5
5. (a) How are the metallo enzymes classified ? Give the catalytic reaction of each class and explain the role of enzymes in regulation of biochemical reactions. 6
- (b) What are peptidases ? Show the active site of carboxypeptidase in its pocket structure. 5
- (c) What is the reaction catalysed by Cyt-P-450 ? Discuss the radical mechanism in explaining the activity of the cytochrome P-450. 5

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AQ - 999

Third Semester M.Sc. (Part - II) (CBCS) Examination

CHEMISTRY

Paper - XI

Inorganic Chemistry - Special Paper - I
(Bio-Inorganic Chemistry)

P. Pages : 5

Time : Three Hours]

[Max. Marks : 80

1. (a) What is active and passive transport ? Describe the transport of Ca^{++} and its mechanism across biological membrane. 6
- (b) Discuss Na^+/K^+ pump in biological systems. 5
- (c) 'Cu, Zn and Fe show antagonism. Justify the statement using suitable example. 5

OR

- (p) What are toxic metal ions ? Describe the physiological and biochemical changes caused due to $Hg(II)$ ions in human beings. 6
- (q) Give the schematic diagram of transferrin protein and explain its role in human beings. 5

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- (r) Discuss in brief regulation and storage of trace elements in bio-systems. 5

2. (a) What are the different therapies used during the treatment of cancers ? How is chemotherapy advantageous over the other therapies ? 6
- (b) What are antiarthritic gold drugs ? Give the structure of a drug and discuss the mechanism of drug action. 5
- (c) What are antiviral agents ? Give the structure of a antiviral agent and explain its mechanism of drug action. 5

OR

- (p) Give the structure of cis and trans platin. What mechanism is being suggested for anti cancer activity of cis platin ? 6
- (q) Write brief notes on :—
- (i) Metal complexes as anti-rheumatic agents and
- (ii) Anti-inflammatory effect of Cu and Zn compounds. 5

- (r) What is the trade name of Bleomycin antibiotic ? Give its structure and explain its mechanism of drug action as anti-cancer agents. 5

3. (a) Explain the electron transport in photosystem I and II. 6
- (b) What are nucleotides ? Explain ATP cycle in cell ? Give its structure. 5
- (c) What are electron transport complexes involved in respiratory chain ? Explain in brief. 5

OR

- (p) How will you differentiate between respiration and photosynthesis ? Describe the light and dark reactions of photosynthesis. 6
- (q) What are non-heme O₂-transport proteins ? Explain. 5
- (r) Explain in brief Nitrogen fixation. 5

4. (a) Explain in brief cyanide poisoning and its treatment. 6

OR

- (p) What is $\text{Cu}_2\text{-Zn}_2$ SOD enzyme ? Give its catalytic reaction and show its active site. Why is it called as Brass enzyme ? 6
- (q) Differentiate between coenzyme, apoenzyme and holoenzyme. Explain their role in catalytic reactions. 5
- (r) Discuss synthetic model for enzyme action. 5



