2025

M.Sc.

4th Semester Examination

CHEMISTRY

PAPER – CEM-404 (Inorganic Special)

Full Marks: 50 Time: 2 hours

(CEM 404-Chemistry in Technology)

Group A

Answer any ***four*** bits: **2×4 = 8**

1. What is the toxic effect of Pb(II).
2. What is the effect of azide ion on carbonic anhydrase enzyme activity?
3. What are the basic differences between UV and CD spectrum?
4. Write the name of two process to understand the drug-DNA interaction.
5. Write two features of keratin protein.
6. What is the primary goal of studying drug-protein interactions?

Group B

Answer any *four* bits: 4×4 = 16

7. Write the source, symptom and remedy of the As(III) toxicity.
8. What are the major differences between SEM and TEM imaging techniques.
9. How does fluorescence spectroscopy help to understand drug-DNA interaction for a non-fluorescent drug.
10. How do toxic chemicals impact enzyme activity?
11. Write the toxic effect of BPA and acrylamide.
12. What do you mean by secondary structure of protein? How does circular dichroism (CD) spectroscopy help in understanding protein structural changes during its interaction with a drug? (2+2)

Group C

Answer any ***two*** bits: **8x2=16**

13. How do UV and fluorescence spectroscopy help to understand drug-protein interaction. (4+4)
14. What is the working principle of Atomic Force Microscopy? Which study helps us to understand whether drug-DNA interaction is intercalative or groove binding? (4+4)
15. What are the sources, toxic mechanisms, kinetics, and symptoms of cyanide and mercury toxicity.
16. Explain the Spherical aberration associated with SEM imaging. Draw the block diagram of TEM instrument and write down the basic principle. (4++2+2)

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Internal Assessment-10

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Group B

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Internal Assessment-10