give me the repetitive questions related to (Chapter 5,6,7,8,9) (mosty in the year of 2024,2023,2022,2020,2021,2019) from the provided sources, including the year, question number, and marks where available

Here are the repetitive questions related to Chapters 5, 6, 7, 8, and 9 from the provided sources, focusing on the years 2019-2024:

**Chapter 5: Coordination Complex**

1. **Differentiate between double salt and complex salt.**
   * **2023:** Q3 (4 marks)
   * **2019:** Q6 (part of 4+8 marks)
   * **Assignment:** Q7
2. **Explain the postulates of Valence Bond Theory (VBT) and how it explains the formation of various complex geometries (tetrahedral, square planar, octahedral) with suitable examples. Also, discuss its limitations and the differences between inner and outer orbital complexes.**
   * **2022:** Q6. What are the postulates of valence bond theory? How does VBT explain the formation of tetrahedral and square planar complexes with suitable examples of each. (6+5+5 marks)
   * **2021:** Q5. What are co-ordination compounds? How does Valence Bond theory explain the formation of [Fe(CN)6]4- and [CoF6]3- ions?. Also predict its geometry and magnetic behavior with reasons. Give the differences between low spin complexes and high spin complexes. (2+5+5+4 marks)
   * **2019:** Q6. State the postulates of valence bond theory for the formation of co-ordination compound. (part of 4+8 marks)
   * **2018:** Q6(b). State the postulates of valence bond theory for the formation of coordination compounds. Explain why octahedral complexes of Ni2+ ion are outer octahedral complex. (6+2 marks)
   * **2017:** Q5(b). Write the postulate of VBT and explain its limitation. (3+3 marks)
   * **2016:** Q5. Mention the differences between inner orbital and outer orbital complexes. How does VBT explain the formation of [Co(NH3)6]3+ [CoF6]3-. (6+10 marks)
   * **Assignment:** Q4. Write down the postulates of VBT and explain the formation of [Co(NH3)6]3+ and [CoF6]3-
   * **Assignment:** Q5. What is meant by complex ion? Differentiate between outer octahedral and inner octahedral complex.
   * **Assignment:** Q10. How does valence bond theory explain the formation of octahedral, tetrahedral, and square planar complexes? Give one example of each.
3. **Explain Werner's theory of coordination compounds, including primary and secondary valences, and its application to specific complex structures.**
   * **2019:** Q7(a). Write short notes on Werner’s theory. (part of 8 marks)
   * **2017:** Q5. What are primary and secondary valences of metal? Explain the structure of K4 [Fe(CN)6] and [Co(NH3)6] Cl3 on the basis of werner’s co-ordination theory. (6+4 marks)
   * **2016:** Q7(a). Write short notes on Werner’s co-ordination theory. (part of 8 marks)
   * **Assignment:** Q1. What are coordination compounds? Explain the Werner’s theory of coordination compound.

**Chapter 6: Stereoisomerism**

1. **Differentiate between enantiomers and diastereomers, providing examples.**
   * **2024:** Q2. What are diastereomers? Give examples. (4 marks)
   * **2022 (K.C.C. Pre-Board):** Q8. Differentiate between enantiomers and diastereomers. (part of 4 marks)
   * **2018:** Q9(a). Distinguish between enantiomers and diastereomers. (part of 2+4+1+3 marks)
   * **2022:** Q9. Also explain the optical isomerism showing enantiomers and diastereomers. (part of 4 marks)
   * **Assignment:** Q7. What is meant by enantiomers and diastereomers? Explain with examples.
2. **Explain why cis-isomers are less stable than trans-isomers.**
   * **2023:** Q8. "cis-isomer is less stable than trans-isomer". Give reason. (part of 1+2+1 marks)
   * **Assignment:** Q2. Why is cis-isomer less stable than trans-isomer?
3. **What is a racemic mixture, and how can it be separated? (e.g., by biochemical method). Also, differentiate between a meso compound and a racemic mixture.**
   * **2024:** Q10. Write differences between enantiomers and meso compounds. (4 marks)
   * **2019:** Q8(b). What do you mean by racemic mixture? How can it be separated by biochemical method? (2+4 marks)
   * **Assignment:** Q5. Differentiate between meso compound and racemic mixture.
   * **Assignment:** Q6. What is meant by racemic modification? Explain methods of separation of enantiomers present in racemic mixture.
4. **Explain optical isomerism, including conditions for its exhibition and examples like tartaric acid.**
   * **2022:** Q9. Write the criteria for the compound to exhibit optical isomerism. Also explain the optical isomerism showing enantiomers and diastereomers. (4 marks)
   * **2018:** Q9(a). Show all optical isomers of (i) 3 Bromo 2-butanol and (ii) Tartaric acid. Also show optically inactive meso form of tartaric acid. Explain why 3 Bromo 2 butanol does not exist in meso form. (part of 2+4+1+3 marks)
   * **2017:** Q9. What are conditions necessary to exhibit geometrical and optical isomerism? Explain the isomers of tartaric acid and 2, 3-dichloropentane. (6+10 marks)
   * **2019:** Q8(a). What do you mean by stereoisomerism? What do you mean by optical activity of a compound? What are the necessary conditions for a compound to show optical isomerism? Illustrate your answer with examples. (2+2+6 marks)
   * **Assignment:** Q3. Define optical activity. What are the conditions for a compound to be optically active? Differentiate between optical isomerism and geometrical isomerism.
   * **Assignment:** Q8. Explain the optical isomerism shown by tartaric acid and mention the conditions for optical isomerism.

**Chapter 7: Types of Organic Reactions**

1. **Differentiate between E1 and E2 elimination reactions, explaining their mechanisms, and discuss how elimination differs from substitution reactions.**
   * **2024:** Q12. What are elimination reactions? Differentiate between E1 and E2 reactions giving examples. (8 marks)
   * **2023:** Q14. Write the mechanism of E1 and E2 reaction with suitable examples. (part of 2+6 marks)
   * **2022:** Q8(b). Write E1 and E2 reaction. (4 marks)
   * **2021:** Q8(a). How does elimination reaction differ from substitution reaction? Explain the mechanism and orientation of E1 and E2 reaction. (4+6 marks)
   * **2019:** Q9(a). Explain the mechanism of E1 and E2 reaction with suitable examples. (8 marks)
   * **2018:** Q8(a). Write the mechanism of unimolecular elimination reaction. How does it differ from bimolecular elimination reaction? (6+2 marks)
   * **2022 (Model Question):** Q14. How do you distinct nucleophilic substitution and elimination reaction. Give the mechanism of hydrolysis of tertiary butyl bromide in the presence of aqueous alkali. (2+6 marks)
   * **Assignment:** Q4. Define elimination and substitution reaction. Explain the mechanism of E1 and E2 reaction. Give an account of Saytzeff rule.
   * **Assignment:** Q7. How does elimination reaction differ from substitution reaction?
2. **Explain SN1 and SN2 nucleophilic substitution reactions, including their mechanisms, kinetics, reactivity, and stereochemistry, and their differences.**
   * **2022:** Q14. What do you mean by SN reactions? Explain the reaction mechanism for hydrolysis of primary alkyl halide by aqueous sodium hydroxide. (2+6 marks)
   * **2018:** Q8. Describe the mechanism involved in the reaction between a tertiary alkyl halide and aqueous caustic potash. How does SN2 reaction differ from SN1 reaction? (10+6 marks)
   * **2018:** Q8(b). Why does haloalkane favour SN1 reaction? Explain why there is only inversion product in SN2 reaction and both inversion and retention products in SN1 path. (2+3+3 marks)
   * **2022 (Model Question):** Q14. How do you distinct nucleophilic substitution and elimination reaction. (part of 2+6 marks)
   * **Assignment:** Q1. Differentiate between SN1 and SN2 reaction.
   * **Assignment:** Q5. What is nucleophilic substitution reaction? Briefly explain SN1 and SN2 paths of such reaction in haloalkane describing kinetics, reactivity and stereochemistry.
   * **Assignment:** Q10. What is SN reaction? Explain the reaction mechanism of hydrolysis of tertiary alkyl halide by aqueous NaOH.
   * **Assignment:** Q12. Why is inversion product more than retention product in SN1 reaction?
3. **Explain Markovnikov's rule and peroxide effect (Anti-Markovnikov's rule) with suitable examples.**
   * **2022:** Q8(a). Write Addition reaction. Suggest Markovnikov’s rules and peroxide effect. (4+4 marks)
   * **2019:** Q9(b). State and explain Markovnikov’s rule and peroxide effect with suitable examples. (8 marks)
   * **Assignment:** Q3. Write short note on Markovnikov rule and peroxide effect.

**Chapter 8: Organometallic Compound, Explosives, and Paint**

1. **What is Grignard’s reagent? Explain its preparation, synthetic uses (e.g., for alcohols, alkanes), and reactions (e.g., with water, carbon dioxide).**
   * **2023:** Q9. How can you obtain different alcohols from Grignard’s reagent? (4 marks)
   * **2022:** Q10(a). Synthetic uses of Grignard reagent. (8 marks)
   * **2021:** Q9. What is Grignard reagent? By using Grignard’s reagent how will you obtain (i) Primary secondary & tertery alcohol. (ii) Alkane. (9 marks)
   * **2019:** Q10(c). Write short notes on Grignard reagent. (No marks)
   * **2018:** Q9(b). Write down the synthetic uses of Grignard’s reagent. (6 marks)
   * **2017:** Q10(a). Write short notes on Chemistry of Grignard’s reagent. (8 marks)
   * **2022 (Model Question):** Q8. What are Grignard’s reagent? How is it prepared? How does ethyl magnesium bromide react with methanol and carbon dioxide? (4 marks)
   * **Assignment:** Q1. Give the method of preparation and synthetic utilities of Grignard’s reagent.
   * **Assignment:** Q4. Explain different properties of Grignard’s reagent in the synthesis of different compounds.
   * **Assignment:** Q7. Write down the reaction of Grignard’s reagent with (i) water (ii) Aldehyde (iii) ketone (iv) Carbon dioxide.
2. **Define paint, and describe the characteristics of a good paint. Also, differentiate between various types of paints like emulsion paint and enamel.**
   * **2024:** Q3. What are paints and enamels? (4 marks)
   * **2022 (K.C.C. Pre-Board):** Q9. What is paint? Write down the characteristics of good paints. (4 marks)
   * **Assignment:** Q1. What is paint? Write down the characteristics of good paint.
   * **Assignment:** Q4. Differentiate between emulsion paint and enamel.
3. **Define explosives, describe their characteristics, and differentiate between high and low explosives.**
   * **2019:** Q10(a). Write short notes on Explosives. (No marks)
   * **2018:** Q10(b). Write short notes on TNT and TNG. (No marks)
   * **2017:** Q10(b). Write short notes on Explosive. (No marks)
   * **Assignment:** Q2. Define explosive. What are the main characteristics of good explosives?
   * **Assignment:** Q3. Write short notes on high explosive and low explosive.
   * **Assignment:** Q11. Differentiate between low and high explosives.

**Chapter 9: Polymers and Applied Chemistry**

1. **What are rubbers? Discuss synthetic rubber (e.g., Buna-S, Buna-N) and the importance of vulcanization.**
   * **2024:** Q11. What are rubbers? Discuss examples of any two rubbers with their applications. (4 marks)
   * **2022 (K.C.C. Pre-Board):** Q10. What are the characteristics of vulcanized rubber? (part of 4 marks)
   * **2023:** OR to Q14. What is synthetic rubber? Give the preparation and uses of Buna-S and Buna-N rubber. (2+3+3 marks)
   * **2022 (Model Question):** Q10. Why do natural rubber differ from polythene? (4 marks)
   * **Assignment:** Q13. What is rubber? Write down the monomers of natural and synthetic polymer.
   * **Assignment:** Q14. What is meant by vulcanization? Write its importance.
2. **Differentiate between homopolymers and copolymers, or addition and condensation polymers, with examples.**
   * **2023:** Q10. What are Homopolymer and Hetero polymers? Explain with examples. (4 marks)
   * **2019:** Q10(b). Write short notes on Copolymer and homopolymer. (No marks)
   * **2018:** Q10(c). Write short notes on Addition polymer and condensed polymer. (No marks)
   * **Assignment:** Q2. Define polymerization. Differentiate between copolymer and homopolymer.
   * **Assignment:** Q5. Differentiate between addition polymer and condensation polymer with examples of each.
3. **Discuss the classification of polymers based on structure, and the preparation and applications of specific synthetic polymers like silicones, FRP, Teflon, and Nylon 6,6.**
   * **2022:** OR to Q14. Write down the classification of polymers on the basis of structure. give the preparation and application of silicones and FRP. (Not numbered)
   * **2021:** Q10(b). Preparation, properties and uses of Teflon and Nylon6,6. (8 marks)
   * **2022 (Model Question):** Q10. Give one preparation of Teflon and its two important applications. (part of 4 marks)
   * **2022 (Model Question):** OR to Q14. Write the classification of polymers on the basis of composition. Give the preparation and application of Nylon 6,6 and FRP. (2+3+3 marks)
   * **Assignment:** Q3. Write down the method of preparation, properties and uses of Teflon and nylon-6,6.
   * **Assignment:** Q11. What is meant by FRP? write down the uses of FRP.
   * **Assignment:** Q12. What is silicone? How is it prepared? Write down the properties and uses of silicones.
4. **Write short notes on Bakelite and polythene, or discuss their chemistry and properties.**
   * **2022:** Q10(b). Write short notes on Chemistry of Bakelite and PVC. (No marks)
   * **Assignment:** Q4. Write short note on Bakelite and polythene.
5. **Write safety measures in Petroleum refineries and LPG bottling plant.**
   * **2024:** Write safety measures in Petroleum refineries and LPG bottling plant. (Not explicitly numbered, appears as an alternative option)
   * **Syllabus:** 9.4 Hazards and their chemical control in petroleum refineries and LPG bottling plants, basic concept and safety measure only.