

**The Jammu and Kashmir State Board of School Education  
Academic Division New Campus Bemina Srinagar**

**Chemistry  
PAPER A**

**Time 2:30 hrs**

*Model Question Paper*

**Max. Marks:60**

**Long Answer Type Questions**

**(5 marks each)**

Q 1: draw the M.O diagram of  $N_2^+$  and  $O_2^{2-}$  ions. Calculate their bond order.

OR

Explain the various types of intermolecular forces with an example?

Q2: discuss elevation in boiling point as a colligative property and give its expression.

OR

Derive the expression for Raoul's law in case of a solution containing non volatile solute.

Q3: How does Gibb's free energy decide the spontaneity of a process?

OR

What is the effect of temperature on the spontaneity of exothermic and endothermic reaction.

Q4: Describe Down's process for the manufacture of sodium.

OR

State and explain the laws of electrolysis

Q5: How is sulphuric acid manufactured by contact process.

OR

Draw the structure of various types of silicates.

**Short answer Type:**

**3 marks each**

Q6; calculate the momentum of a particle which has de-Broglie wave length of 0.2 nm ( $h=6.6 \times 10^{-34} \text{Kgm}^2\text{s}^{-1}$ )

Q7: Differentiate between Schottky and Frenkel defect in ionic solids.

Q8: what are the spontaneous and non-spontaneous processes. Give an example of each.

Q9: State and express Khrausch's law.

Q10. what are units of rate constant for Zero, first and second reactions.

Q11. differentiate between physisorption and chemisorption.

Q12. How is bleaching powder prepared.

**Very short Answer type questions:**

**2 marks each**

Q13: calculate the no. of particles per unit cell of a body centred cubic.

Q14: define boiling point in terms of vapour pressure>

Q15: What is activation energy?

Q16: Name the allotrophs of sulphur?

**Multiple choice questions:**

**1 marks each**

17. Bragg's equation is \_\_\_\_\_.
18. For which reaction, the units of rate constant are independent of concentration.
19. The increase in the concentration of reaction leads to a change in \_\_\_\_\_.
- lyophilic solutions are stable due to
- A) charge on the particles.
  - B) Large size of the particles
  - C) Small size of the particles
  - D) Layer of dispersion medium on the particles.
20. Smoke is an example of
- A) Colloid
  - B) \Suspension
  - C) Emulsion
  - D) None of the above.
21. Zeolites are
- A) Sodium silicates
  - B) Iron-silicates
  - C) Sodium alumino silicates
  - D) All of them

# Model Paper - B (12<sup>th</sup> - Chemistry)

(Long Answer Type)

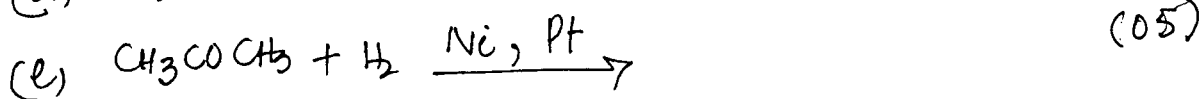
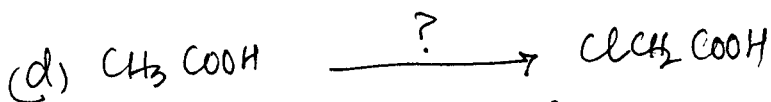
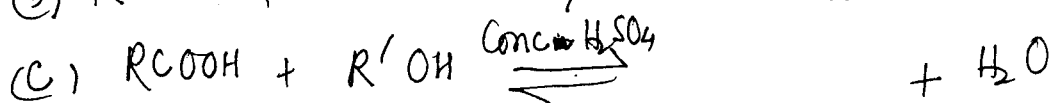
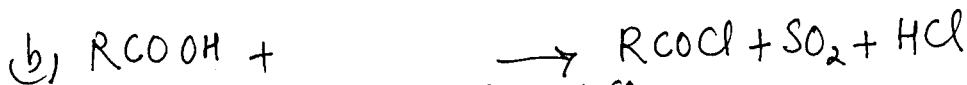
Q1:- write down the electronic configuration of first series of transition elements and explain the reasons for exceptional configurations of chromium & copper.

Discuss the chemistry of photography. (05)

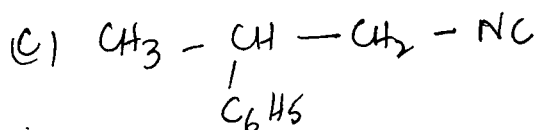
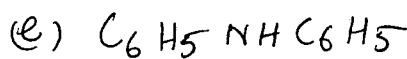
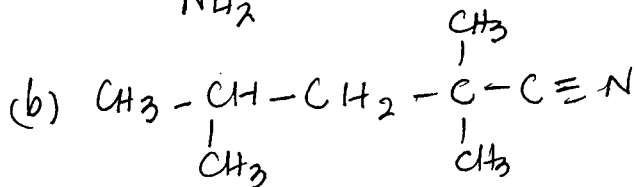
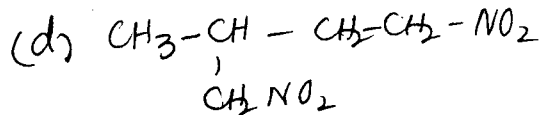
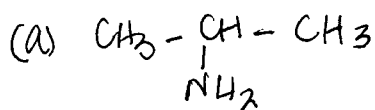
Q2:- Explain the following reactions with examples.

(a) Cannizzaro reaction      (b) Aldol condensation

OR  
Complete the following reactions



Q3) Write the IUPAC names of the following compounds.



OR

Discuss the basic nature of amines

Q4) Explain the following

(i) Anomers      (ii) Mutarotation

OR  
Explain the secondary structure of proteins.

Q5:- Write short notes on the following

- (i) ~~Resonance~~
- (ii) ~~Antacids~~
- (iii) Antacids

OR

What is a dye? How are they classified? (05)

### Short-Answer Type

Q6:- what is lanthanide contraction? what are its consequences? (03)

Q7:- Define the following.

- (i) Ligand
- (ii) coordination number (03)

Q8:- Differentiate between nuclear fission & nuclear fusion with examples. (03)

Q9:- what are enantiomers & diastereomers? (03)

Q10:- Explain in brief the acidic nature of phenols. (03)

Q11:- what is number average & weight average molecular mass of polymers? (03)

Q12:- Draw the Haworth or Fischer projection formulae of Sucrose & maltose. (03)

### Very short-Answer Type

Q13:- write the IUPAC names of  $K_4[Ni(CN)_6]$  and  $[Cr(H_2O)_3(NH_3)_3]Cl_3$  (02)

Q14) ~~write~~ Define half-life period. what is the half-life of C-14 isotope. (02)

Q15) Why do carbonyl compounds undergo nucleophilic addition reaction? (02)

Q16) Give one method for the preparation of benzene diazonium chloride. (02)

### Objective-Type

Q17) Name the ore from which silver is mainly extracted. (01)

Q18) Melting point of trans-isomer is greater than cis-isomer. Why? (01)