I Approve
The Rector of the University of Traditional Medicine

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# 2020-2021 ACADEMIC YEAR ENTRANCE EXAMINATION OF CHEMISTRY
## QUESTIONAIRE

1. What are subatomic particles?
2. Describe principal, azimuthal, magnetic and spin quantum numbers.
3. Explain chemical equilibrium. Le Chatelier`s principle
4. Explain Hess`s Law, Enthalpy of combustion and formation.
5. What are the solutions? Which factors influence on solubility?
6. Explain properties of alkali metals.
7. Explain red-ox reactions. Give examples of intermolecular and intramolecular red-ox reactions.
8. What it means ionization energy, electronagativity, electron affinity?
9. What it means sp3, sp2 and sp hybridization?
10. What are shapes of atomic orbitals (s, p, d).
11. Write electronic configuration of halogens, alkali metals.
12. Explain covalent bond types polar and non polar, based on examples
13. Write chemical properties of saturated hydrocarbons.
14. Explain how will change metallic properties in periods and in groups.
15. Give atomic structure, number of orbitals in sublevels.
16. Give definition of Hund`s rule and Pauli`s principle.
17. Give example of reducing and oxidizing agents.
18. Which factors effect on dynamic equilibrium?
19. Predict genetic bond between acid, base, oxides and salts.
20. Describe salts hydrolysis (anionic, cationic, give the examples)?
21. What it means oxides?
22. What are electrolytes and non electrolytes, give an examples?
23. What is catalyst ? Explain what is the role of catalyst?
24. What`s an Isotope?
25. Explain ionic and metallic bond formations

26. Classify inorganic reactions and give examples.
27. Write and explain electrolysis of molten salts. Based on electrolysis of $CuSO_4$ and $ZnSO_4$ in an electrolytic cell.
28. Write electrolysis of molten NaCl.
29. Write addition reaction of propene with hydrochloric acid.
30. Write examples of neutralization reactions.
31. Write homological series of saturated hydrocarbons.
32. What are alkynes, explain chemical priorities of them.
33. Write interaction of acids with metals, basic oxides and carbonates.
34. Carbohydrates classification (monosaccharide, disaccharides, and polysaccharides).
35. Write preparation unsaturated hydrocarbons. Explain structure of double bond.
36. Write red-ox reaction $KMnO_4$ in acidic medium with iron (II) sulfate.
37. Write isomers of pentane and name them according IUPAC rule.
38. Carbonyl compounds (aldehydes and ketones). Test reaction for aldehydes.
39. What are aromatic hydrocarbons?
40. Explain *cis* and *trans* isomerism based on unsaturated hydrocarbons.