

MODEL QUARTERLY EXAMINATION 2022-2023

Std 11

Max.Mark:70

Chemistry

Time: 3:00

I. Choose the correct answer**15 X 1 = 15**

- Molecular mass is defined as the
 - mass of one atom compared with the mass of one molecule
 - mass of one atom compared with the mass of one atom of hydrogen
 - mass of one molecule of any substance compared with the mass of one atom of C-12
 - None of the above.
- Bohr's model is not able to account for which of the following.
 - Stability of atom.
 - Spectrum of neutral Helium atom.
 - Energy of free electron at rest.
 - Calculation of radii of the stationary states.
- Choose the correct codes for the following statements related to *s*-block elements. Here 'T' stands for true and F stands for false statement.
 - They are all reactive metals with low ionization enthalpies.
 - Their metallic character and reactivity increase as we go down the group.
 - They are found in pure form in nature.
 - All the compounds of *s*-block elements are ionic in nature.
 - TFFF
 - TTFT
 - TTTF
 - TFFF
- Splitting of spectral lines in an electric field is called
 - Zeeman effect
 - Shielding effect
 - Compton effect
 - Stark effect
- For a person travelling to the peak of the mountain which of the following statement(s) is/are correct ?
 - Oxygen level goes on decreasing.
 - Gas law can be applied to this situation.
 - Both (i) and (ii)
 - Only (i)
 - Only (ii)
 - Neither (i) nor (ii)
- Assertion** : An exothermic process which is nonspontaneous at high temperature may become spontaneous at a low temperature.
Reason : There occurs a decrease in entropy factor as the temperature is decreased.
 - Assertion is correct, reason is correct; reason is a correct explanation for assertion.

II. Answer any six questions. But question no 22 is compulsory**6 X 2 = 12**

16. Calculate the empirical and molecular formula of a compound containing 76.6% carbon, 6.38 % hydrogen and rest oxygen its vapour density is 47 .
17. What are isoelectronic ions? Give examples.
18. Give the uses of heavy water.
19. A balloon filled with air at room temperature and cooled to a much lower temperature can be used as a model for Charle's law.
20. State the first law of thermodynamics.
21. State Le-Chatelier principle.
22. Give the structure for the following compound.
- tertiary butyl iodide
 - 1,3,5- Trimethyl cyclohex - 1 -ene
 - 2,2-dimethyl-1-chloropropane
 - 3 - Chlorobutanal
23. Write short notes on Resonance
24. Mention the following represent a set of nucleophiles?
- (a) CN^- , RCH_2^- , ROH , H_2O , NH_2^-

III. Answer any six questions. But question no33 is compulsory**6 X 3 = 18**

25. Describe the Aufbau principle
26. Explain the Pauling method for the determination of ionic radius.
27. How do you convert parahydrogen into ortho hydrogen ?
28. State Gay Lussac's law.
29. If an automobile engine burns petrol at a temperature of 816°C and if the surrounding temperature is 21°C , calculate its maximum possible efficiency.
30. Derive the relation between K_p and K_c .
31. Give a brief description of the principles of Fractional distillation.
32. What are electrophiles and nucleophiles? Give suitable examples for each.
33. 0.30 g of a substance gives 0.88 g of carbon dioxide and 0.54 g of water calculate the percentage of carbon and hydrogen in it.

IV. Answer all the question**5 X 5 = 25**

- 34.a. Explain briefly the time independent Schrodinger wave equation?

OR

- b. (i) Explain the periodic trend of ionisation potential.
- (ii) Why the first ionisation enthalpy of sodium is lower than that of magnesium while its second ionisation enthalpy is higher than that of magnesium?
- 35.a. (i) Compare the structures of H_2O and H_2O_2 .
- (ii) A compound on analysis gave $\text{Na} = 14.31\%$, $\text{S} = 9.97\%$, $\text{H} = 6.22\%$ and $\text{O} = 69.5\%$ calculate the molecular formula of the compound if all the hydrogen in the compound is

present in combination with oxygen as water of crystallization. (molecular mass of the compound is 322).

OR

b. Balance the following equation by using oxidation number & ion electron method.



36.a. Write the Van der Waals equation for a real gas. Explain the correction term for pressure and volume.

OR

b. List the characteristics of internal energy.

37.a. State the various statements of second law of thermodynamics.

OR

b. Deduce the Vant Hoff equation.

38.a. Explain various types of constitutional isomerism (structural isomerism) in organic compounds

OR

b. i) Explain inductive effect with suitable example.

ii) Give examples for the following types of β - elimination reactions

PREPARE BY

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