SET 2

INTERNATIONAL INDIANSCHOOLBURAIDAH

TERM EXAMINATION 2019-20

Subject: Chemistry **Max: marks: 70**

Class: XI **Time: 3hours**

General Instructions

1.All questions are compulsory
2.Question numbers1 to 20 are very short answer questions carry1 mark each.
3.Question numbers 21 to 27 are short answer questions carry 2marks each.
4.Questions numbers28 to 34 are also short answer questions carry 3marks each.
5.Questionsnumbers 35 to 37 are long answer type questions, carry 5marks each.
6.Use log tables if necessary use of calculator is not permitted.

1. Write all the possible values of magnetic quantum number for l=3. 1

2. What is the nature of oxides formed by s-block elements? 1

3. What will be the shape of $SiCl_4$ by VSEPR theory? 1

4. What is Bohr frequency condition? 1

5. State Avogadro's law. 1

6. Give the structure of 2,3-dibromo-3-ethyl heptane. 1

7. Write the condensed structural formula for 3-ethyl cyclohexane. 1

8. What would be the IUPAC name and symbol for the element with atomic number 120? 1

9. Which bond parameterhelps to determine the shape of a molecule? 1

10. Why is 4s orbitals filled before 3d orbitals? 1

11. Electron gain enthalpy of Be and Mg are positive. Why? 1

12. Write the general outer electronic configurationof f-block elements. 1

13. What is the decreasing order of repulsion of various electron pairs according to VSEPR theory? 1

14. Draw the Lewis symbol of Mg^{2+} ion. (Z=12) 1

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15. What is the atomic number of the element whose outer electrons are represented by $3d^6$? 1

16. What is the shape of the $H_2C{=}O$ and CH_3-F? 1

17. Define I mol. 1

18. Which quantum number does not follow from the solution of Schrodinger Wave equation? 1

19. The bond order value is an important property of a molecule. How is bond order related to bond length? 1

20. How many electrons are present in all sub shells with $n + l = 5$? 1

21. What is the general trends ofatomic radius in a group and why? 2

22. What do you know about 'expanded octet'? explain with suitable example. 2

23. Write the similarity and differences between 1S and 2S orbital. 2

24. Calculate the number of nodes in 3s and 4p orbital. 2

25. How many 'σ' and 'π' bonds are present in the following compounds? 2

i) CH_3-CH_2-CH_3

ii) CH_3-C≡CH

26. Write the IUPAC name of the following compounds 2

(a)

(b)

27. Write the resonating structure of CO_3^{2-}. 2

28. Which of the following sets of quantum numbers are not possible? 3

1) n = 2, l = 2, m= 0, s = + ½
2) n=1, l = 0, m= 0, s = - ½
3) n = 3, l = 2, m= -3, s= + ½
4) n = 2, l = 1, m = 1, s = + ½

Justify your answer.

29. Give the main postulates of Bohr model of atom. 3

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30.1. Which one of the following has high dipole moment NH_3 or NF_3. Why? 3

2. First ionization enthalpy of N is higher than that of O. Why?

31. Write the structures of the following organic compounds. 3

a) 2,5,6 – Trimethyloctane.

b) Hexane-2,4-dione.

c) 5-oxohexanoic acid.

32. Calculate the molarity of NaOH in the solution prepared by dissolving Its 4g in its enough water to form 250ml of the solution. 3

33.1. Why noble gases have positive electron gain enthalpy? 3

2. Alkali metals have least ionization enthalpy. Why?

34. Calculate the uncertainty in position of dust particle with mass equal to 1mg if the uncertainty in its velocity is $5.5 \times 10^{-20} ms^{-1}$. 3

35. An inorganic compound gave the following percentage composition. Na=29.11%, S=40.51% and O=30.38%. Calculate the empirical formula of the compound. (At: mass: Na=23u, S=32u, O=16u) 5

Or

a) Define limiting reagent.

b) 50kg of $N_2(g)$ and 10kg of $H_2(g)$ are mixed to produce $NH_3(g)$. Calculate the $NH_3(g)$ formed. Identify the limiting reagent in the production of NH_3 in this solution.

36.1. Define ionization enthalpy. 5

2. Among the elements B, Al, C and Si, find out the suitable element for the following characteristics.

a. Highest first ionization enthalpy.

b. Most electron gain enthalpy.

c. Largest atomic size.

d. Most metallic character.

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3. What are the factors influence the magnitude of electron gain enthalpy?

4. The second ionization enthalpy of the elements of the second period are given below.

Element	IE_2(KJ/mol)
Li	7294
Be	1756
B	2430
C	2354
N	2856
O	3396
F	3377
Ne	3966

a.IE_2 of Li is so much higher than that of all other elements. Why?
b. What is the general trend from Be to Ne?
c. IE_2 of F is less than that of O. Why?

37.a. Which energy level does not have a p-orbital? 5
b. Which is the first energy level containing f-orbital?
c. Which orbital does not have directional characteristics?
d. What are degenerate orbitals?
e. Which d-orbital does not have four lobes?

Or

f. Quantum numbers give the address of an electron. Explain all the four quantum numbers.