# Sahaj Adhyayan (सहज अध्ययन)

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**तर ते आम्हाला WhatsApp वर पाठवा,**

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Baramati.

# Terminal Examination Dec. – Jan. 2021-22

## Subject: - Chemistry

Std: - XI Science
Date : - 03/ 01/2022

Time:- 10:00 to 12:30 pm
Max. Marks: – 50

**General instructions: -**

i) All questions are compulsory.

ii) Question paper consist of **Q.1** to **Q.23** questions divided into **FOUR** sections **A, B, C** and **D.**

iii) **Section A: - Q.1.** consists **SEVEN** multiple choice type questions carrying **One mark** each.

**Q.2.** contains **SEVEN** very short answer type question carrying **One mark** each.

iv) **Section B: -Q.3.** to **Q.13.** contain **ELEVEN** short answer type – I questions carrying **Two mark** each.

v) **Section C: -Q.14.** to **Q.19.** contain **SIX** short answer type – II questions carrying **Three mark** each.

vi) **Section D: -Q.20.** to **Q.23.** contain **FOUR** long answer type questions carrying **Four mark** each.

vii) Use of logarithmic table is allowed.

viii) Figures to the right side indicated full marks.

ix) Physical constant $N_A = 6.022 \times 10^{23}$ Zn (Z=30), Cl (Z=17)

## Section –A

**Q.1 Select and write the most appropriate answers from alternatives given below each sub-question:** [7]

i) In three moles of methane number of moles of hydrogen is ……..

a) 3 b) 6 c) 12 d) 18

ii) The maximum number of electrons in a subshell for which l=3

a)14 b) 10 c) 8 d) 6

iii) Cyclopentane is an example of ……..compound.

a)aromatic b) alicyclic c) aliphatic d) benzenoid

iv) At present how many elements are known?

a)118 b) 114 c)108 d) 100



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v) In acetic acid functional group is.....

a) $-NH_2$ b) $-CHO$ c) $-COOH$ d) $-CONH_2$

vi) Zinc belongs to .....elements.

a)s-block b) p-block c) d-block d) f-block

vii) Electronic configuration for chlorine atom is.....

a) $[Ne]3S^2\ 3P^6$ b)$[Ne]3S^2\ 3P^5$ c) $[Ne]3S^2\ 3P^4$ d) $[Ne]3S^2\ 3P^3$

[7]

**Q.2. Answer the following**

i) How many particles are present in one mole of substance?

ii) Name the organic compound in which the ring is made up of only carbon atom

iii) What is the shape of p-orbital?

iv) How many groups of s-block elements present in periodic table?

v) Write condensed formula of propane

vi) Which series are called f-block elements?

vii) What is the orbital notation for n=2, $l$=1 ?

## Section –B

**Attempt any EIGHT** [16]

Q.3.State and explain Hund's rule of maximum multiplicity with suitable example

Q.4. Calculate the number of moles and molecules of ethane in 44.8 $dm^3$ of it measured STP.

Q.5. Predict the block and group to which the following elements belong

a) V (Z= 23) b) Na ( Z = 11)

Q.6. Draw dash formula and bond line formula for $CH_3COCH_2CH_2CHO$

Q.7. Calculate number of atoms in a) 13 mole of He b) 0.05 mole of sulfur (average atomic mass He = 4, S = 32)



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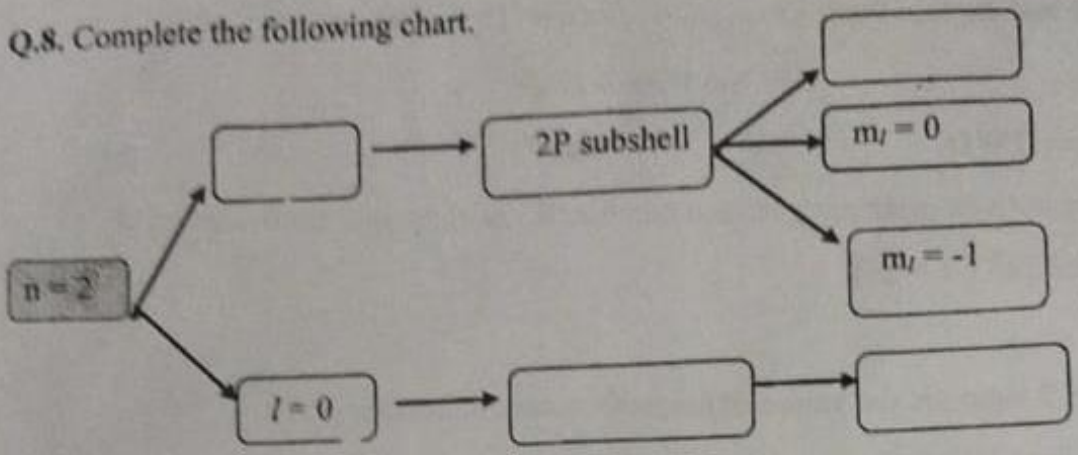
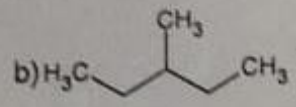
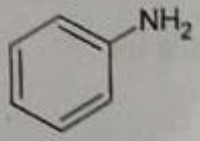
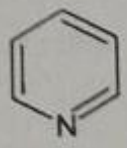
**Q.8.** Complete the following chart.




**Q.9.** Give reason – Why the first ionization enthalpy of oxygen is smaller than that of nitrogen?

**Q.10.** Classify following example into alicyclic, homocyclic aromatic, heterocyclic aromatic, aliphatic.

a)  b)  c)  d)  Hetero

**Q.11.** Define a) Ionic radius b) Electron gain enthalpy

**Q.12.** Give de-Broglie's equation and explain regarding to nature of electron.

**Q.13.** Define-Homologous series. Write first three members of alcohol family.

## Section –C

**Attempt any FOUR** **[12]**

**Q.14.** Draw the structure - a) Naphthalene b) Dimethyl ether c) Ethyl bromide

**Q.15.** Explain the periodic trend of atomic radii down the group and across the period. Mention any two factors affecting on atomic radius.

**Q.16.** Define:Isoelectronic species. Tos

Write electronic configuration of a) Sc ( Z = 21) b) Al ( Z = 13)

**Q.17.** Identify functional group and give one example of each

a) Ar-OH b) –C ≡ N c) >C = O

**Q.18.** Define mole. Calculate number of molecules and volume occupied by 5 moles of $CO_2$ gas measured at STP.



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Q.19. State and explain Pauli's exclusion principle. Draw the shape of s-orbital.

## Section – D

[8]

**Attempt any TWO**

Q.20. Write note on principle quantum number. Write electronic configuration of Fe and $Fe^{2+}$ ( Z = 26)

Q.21. If n = 2 what are the values of magnetic quantum number ($m_l$) ?

Which group element have positive electron gain enthalpy ?

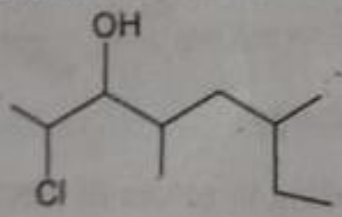
Identify isoelectronic species $Mg^{2+}$, O, N, $O^{2-}$, $Ca^{2+}$, $Al^{3+}$, $Na^{+}$

Q.22.i) Draw the structure for functional group and give one example of each.

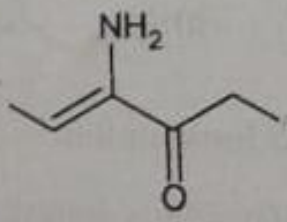
a) Primary amine b) Aldehyde

ii) Write condensed formula for

a)




b)




iii) Draw newman projection formula for ethane

Q.23. Explain anomalous behaviour of copper ( Z = 29)

Calculate the number of moles of magnesium oxide (MgO) in 80 g of the compound ( atomic mass Mg = 24, O = 16)



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