

Guess Paper – 2014
Class – X
Subject – Science (Chemistry)

1. Draw the structure of ethene molecule (C₂H₄) 1
2. The position of three elements A, B and C in the periodic table are shown below : 2

Group 16	Group 17
-	-
-	A
-	-
B	C

- (a) State whether A is a metal or non - metal.
- (b) State whether C is more reactive or less reactive than A.
- (c) Will C be larger or smaller in size than B ?
- (d) Which type of ion, cation or anion, will be formed by element A ?
- 3.. What are soaps ? Explain the mechanism of the cleansing action of soaps.
4. Atomic number is considered to be a more appropriate parameter than atomic mass for classification of elements in a periodic table. Why ?
- (b) How does atomic size of elements vary on moving from :
- (i) left to right in a period ?
- (ii) top to bottom in a group ?
- Give reasons for your answers.
5. a) The atomic number has been chosen as the basis for classifying elements. Why ?
- (b) By considering their positions in the Periodic Table, which one of the following elements would you expect to have maximum metallic characteristic ?
- Na, Mg, Al.
6. A part of the Periodic Table has been shown below -

Group	I	II	XVI	XVII	XVIII
Period 1					
2		B	D	C	
3				E	

- On the basis of above table answer the following questions -
- (i) Which element will form cation ?

- (ii) Which element will have the smallest atomic size ?
- (iii) Which element will have chemical properties similar to Magnesium (atomic number 12) ?
- (iv) Write the common name of the group to which C and E belong.
7. (a) Which of the following compounds will undergo addition reaction ?
 C_2H_6 , C_3H_8 , C_3H_6 , C_2H_2 , and CH_4
- (b) What is hydrogenation ? State its industrial application.
- 8.(a) Name an element you would expect to show chemical reactions similar to sodium. State the reason in support of your answer.
- (b) Write electronic configuration of the element belonging to 3rd period and 13th group of the periodic table. Predict whether it is a metal or a non - metal. Give reason.
9. Write the name and structure of an aldehyde with 4 carbon atoms 1
10. (a) State the Modern Periodic Law. 2
- (b) Name the element which has twice as many electrons in its second shell as in its first shell. Write its electronic configuration also.
11. (a) Why do all the elements of the same group have similar chemical properties ? 2
- (b) Why do all the elements of the same period have different properties ?
- 12.. (a) An organic compound A is widely used as a preservative in pickles and has a molecular formula $C_2H_4O_2$. This compound reacts with ethanol in the presence of a mineral acid to form a sweet smelling compound B. 3
- (i) Identify the compound A.
- (ii) Which gas is produced when A reacts with sodium carbonate ? Write the balanced chemical equation for the reaction involved.
- (b) Write the names of
- (i) CH_3CH_2Br
- (ii) $CH_3-CH=CH_2$
- 13 (a) How and why does the size of an atom vary on moving from left to right in a period ? 3
- (b) Why does the chemical reactivity of metals increase on moving down a group ?
14. Name the functional group present in propanone, CH_3COCH_3 .
- 15 the elements of the third period of the periodic table are given below:
- Na Mg Al Si P S Cl Ar
- (c) Which atom is bigger Na or Mg ? Why ?

- (d) Identify the most (i) metallic and (ii) non-metallic element
- 16 This question refers to the elements of the periodic table with atomic numbers 3 to 18
- Which of them are noble gases ?
 - Which of them are halogens ?
 - Which of them are alkali metals ?
 - What is the electronic configuration of an element with atomic number 10 ?
17. (a) Draw the structures for following compounds (i) ethanoic acid, (ii) butanone, $C_2H_5COCH_3$.
- (b) Conversion of ethanol to ethanoic acid is considered an oxidation reaction. Why?
18. (a) Give a chemical test to distinguish between saturated and unsaturated hydrocarbons.
- (b) Name the products formed when ethanol burns in air.
- (c) Why is the reaction between methane and chlorine considered a substitution reaction ?
- Write the structure of Ethyl Alcohol (C_2H_5OH)
19. Account for the following :
1+1=2
- Elements C, N, O and F are all placed in the second period in the periodic table.
 - Elements of group 17 are monovalent.
- 20.(a) How does Atomic Radius change as we move from left to right in a period ? **1+1=2**
- b) The positions of three Elements P, Q and R in the Periodic table are shown below

Group 15	Group 16	Group 17
2
3 Q
.....
P	R

- Which one of the three elements is most non - metallic ?
21. On dropping a small piece of Sodium into an organic compound "A" with molecular formula C_2H_6O in a test tube a brisk effervescence is observed. On bringing a burning splinter the gas evolved burns with a pop sound. Identify 'A' and write the chemical equation.
- (b) What will happen when you heat the organic compound 'A' at 443K with excess of concentrated Sulphuric acid ?
22. Examine Elements of the third Period : Na, Mg, Al, Si, P, S, Cl, Ar and answer the

following :

Choose (i) Metals and (ii) Non - Metals out of these elements.

(b) On which side of the Periodic table can we locate (i) Metals and (ii) Non-Metals?

Name the Metalloid out of the elements given above. Where are they located in the periodic table ?

23. Name the functional group present in each of the following compounds.



24. State Modern period law. How many groups and periods are present in modern periodic table ?

25.. (a) List two medicinal use of ethanol. 3
 (b) What happens when ethanol is heated with excess of conc. H_2SO_4 at 443K (Give chemical equation) ? What role does conc. H_2SO_4 play in this reaction ?

26. Give reasons for the following : 2
 (a) Lithium atom is smaller than Sodium atom
 (b) Chlorine (Atomic Number 17) is more electronegative than Sulphur (Atomic Number 16)

27. (a) State modern periodic law. 2
 (b) State the place of metalloids in the periodic table.

28. Three elements A, B and C have atomic number 7, 8 and 9 respectively. 3
 (a) What would be their positions in the modern periodic table (Mention group and period both).
 (b) Arrange A, B and C in the decreasing order of their size.
 (c) Which one of the three elements is most reactive and why ?

29. (a) Draw the electron dot structure of - 3
 e. C_2H_2
 f. C_2H_5OH

b)What are hydrogenation reactions ? Give an example.

30.Draw the structure of the simplest ketone.

31.(a) State Modern Periodic Law.

(b) Why is position assigned to hydrogen in Periodic Table considered anomalous ?

32. Account for the following :

- (a) Elements of group 18 are called zero valent.
- (b) Elements in a group of periodic table have similar chemical properties.

33. (a) Define the term Functional group. Identify the functional group present in the following compounds :

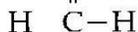
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(ii)

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- (b) What will you observe on adding a 5% alkaline potassium permanganate solution drop by drop to some warm ethanol taken in a test tube ? Write the name of the compound formed during the above chemical reaction.



34. Given below are four elements with their atomic numbers

3

Element	Atomic number
A	16
B	11
C	3
D	14

- (b) Identify the elements which belong to the same group of the Modern Periodic table.
- (c) Arrange the given elements in decreasing order of atomic size.
- (d) Write the formula of the oxide of B.
- (e) Which of the above elements is a metalloid ?



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