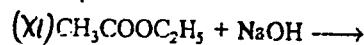
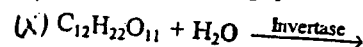
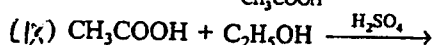
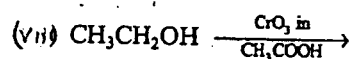
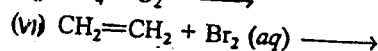
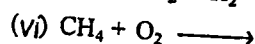
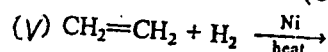
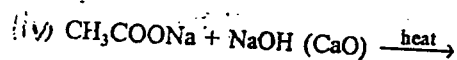
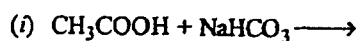


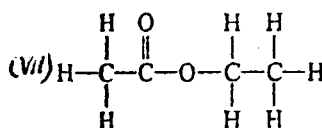
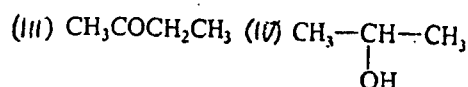
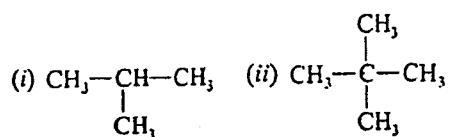
CARBON & ITS COMPOUNDS CLASS - 8

DR. ALIM KHAN

1. Complete the following reactions :



Write IUPAC names of the following :



2. Chemical compound 'A' is produced by reacting 'B' with water in presence of phosphoric acid.

'A' burns in air with blue flame to form CO_2 and H_2O . On reacting with $\text{K}_2\text{Cr}_2\text{O}_7$ it produces a compound 'C' which turns blue litmus red. Identify the compounds A, B and C.

3. An organic compound 'X' is an essential constituent of wine and beer. 'X' is responsible for the intoxication caused by these drinks. Oxidation of X yields an organic acid 'Y' which is present in vinegar. Name the compounds X and Y and write their structural formula.

4. An organic compound A of molecular formula $\text{C}_2\text{H}_6\text{O}$ on oxidation gives an acid B with the same number of carbon atoms in the molecule as A. Compound A is often used for sterilization of skin by doctors.

Name the compounds A and B. Write the chemical equation involved in the formation of B from A.

5. Two compounds 'A' and 'B' have the same molecular formula $\text{C}_4\text{H}_8\text{O}_2$. Compound 'A' is an acid and compound 'B' has a fruity smell. Suggest (i) chemical formulae and (ii) the structural formulae of compounds A and B. Name the functional group of compound B. What name would you give to the relationship between the compounds A and B?

6. An organic compound 'A' of molecular formula $\text{C}_2\text{H}_4\text{O}_2$ turns blue litmus red and gives brisk effervescence with NaHCO_3 . Identify A and give chemical reaction.

7. Write the names of the following functional groups.
 $-\text{CHO}$, $-\text{CO}-$, $-\text{OH}$, $-\text{COOH}$.

8(a) What are addition reactions? Give one example.

(b) What are saturated hydrocarbons? Give one example.

(c) What are unsaturated hydrocarbons? Give one example.

(d) What is denatured spirit?

(e) What are hydrocarbons?

(f) What is catenation?

(g) Draw three-dimensional structure of Methane.

(h) What is homologous series. Explain with example.

9. Write two examples of fossil fuels.
10. What are fossil fuels ?
11. What is coal chemically ?
12. What is meant by petroleum ? What does it contain ?
13. What kind of pollution is caused by burning of fossil fuels ?
14. Name three pollutants of air.
15. The formulae of two organic acids 'X' and 'Y' are $C_{10}H_{21}COOH$ and $C_{19}H_{39}COOH$. Which of them exists in liquid state at room temperature ?
16. Fermentation of sugar solution with enzymes is being carried out in a vessel at $20^{\circ}C$ to $30^{\circ}C$ in the presence of air. Which organic compound will be formed in this process ?
17. Why is carboxymethylcellulose added while making detergents ?
18. Why do some people add common salt during the preparation of soap ?
19. A compound has molecular formula C_2H_6O . It is usable as a fuel. Identify the compound.
20. What is soap chemically ?
21. Give formula of sodium stearate.
22. Name two fatty acids and give their formula.
23. What are fats and oils chemically ?
24. What are glycerides ?
25. Which ions are present in hard water ?
26. Does soap cause pollution ? Why ?
27. What is a detergent ?
28. Give one advantage of detergent over soap.
29. Why does soap form white precipitate with hard water ?
30. Name one domestic synthetic detergent.
31. Which type of synthetic detergents are biodegradable ?
32. Name any two products obtained from wood-tar distillation.
33. What is wood spirit ?
34. Why have detergents replaced soap as a washing agent ?
35. Write the names of two isomers represented by C_2H_6O .
36. Explain why ethene decolourises bromine water whereas ethane does not.
37. Which gas is evolved during the process of fermentation ?
38. Which alcohol is used in cough syrups and tonics ?
39. Is ethanol harmful for drinking ? If yes, why ?
40. Which alcoholic beverage contains minimum amount of alcohol ?
41. Name one substance used for denaturation of ethanol.
42. What is the effect of drinking methanol ?
43. Name the enzyme which catalyses the oxidation of ethanol by air during preparation of vinegar.
44. What is meant by decarboxylation ?
45. Give reasons for the following :
- (i) Oxidation of ethanol with CrO_3 produces ethanal while ethanol when oxidised with alkaline $KMnO_4$ produces ethanoic acid.
- (ii) Alcohol supplied for industrial purposes is mixed with copper sulphate.
46. Explain giving reasons : Detergents made up of molecules, in which branching is minimum, are preferred these days.
47. What is meant by 'fermentation' ? Write chemical equations for the two steps involved in preparing ethanol by the fermentation of molasses.
48. Define the term, 'fermentation'. Name the enzyme which converts
- (i) milk into curd (yogurt)
- (ii) cane sugar into glucose and fructose, and
- (iii) glucose into ethanol.
49. What is meant by esterification ?
50. What is meant by saponification ?
51. Give two differences between soap and synthetic detergent.
52. What is vinegar ?
Give one use of vinegar.
53. What are enzymes ?
Name the enzyme which converts glucose to ethanol.
54. What are molasses ?
55. Name two fermentation processes we come across in our daily life.
56. Explain why soaps are not effective cleansing agents in hard water.

PERIODIC CLASSIFICATION OF ELEMENTS

1. What is meant by periodicity of properties ?
2. What are periods ?
3. Which group of elements was missing from Mendeleev's original periodic table ?
4. How many elements were discovered when Mendeleev's periodic table was made ?
5. Mendeleev classified the elements on the basis of two factors. What were these two factors ?
6. State Mendeleev's periodic law.
7. State Newlands' Law of Octaves.
8. A, B, C are elements of Dobereiner's triads. If the atomic mass of A is 7, and that of B is 23, what will be the atomic mass of C ? [Ans. 39]
9. CA,, BA. Identify the missing element and calculate its atomic mass. (40) (137)
10. In how many groups and periods, is the modern periodic table of elements divided ?
11. Which one of the following is the most reactive ? F_2, Cl_2, Br_2, I_2 .
12. What are lanthanoides and actinoides ?
13. Why are lanthanoides and actinoides kept at the bottom of the periodic table ?
14. What are d-block elements ? What other name is given to them ?
15. In the modern periodic table, which are the metals among the first ten elements ?
16. By considering their position in the periodic table, which one of the following elements would you expect to have maximum metallic characteristic ? Ga, Ge, As, Se, Be
17. Which of the following statements is not a correct statement about the trends when going from left to right across the periodic table :
 (a) The elements become less metallic in nature.
 (b) The number of valence electrons increases.
 (c) The atoms lose their electrons more easily.
 (d) The oxides become more acidic.
18. Element X forms a chloride with the formula XCl_2 , which is a solid with a high melting point, 'X' would most likely be in the same group of the periodic table as
 (a) Na (b) Mg
 (c) Al (d) Si
19. How does the valency vary in going down a group ?
20. On which side of the table do you find the metals ?
21. On which side of the table do you find the non-metals ?
22. How would the tendency to lose electrons change as you go from left to right across a period ?

23. Which one of the halogens has the highest electron affinity
Which element in the second period has the highest ionisation energy ?
24. What are the names of Group 1 and Group 17 element
An element belongs to the 2nd period and Group 14. Is it metal or non-metal ? Why ?
25. How many elements are there in the 4th period ?
Name two elements whose valencies are equal to their group numbers.
26. Which one has the bigger size :
Na (11) or Cl (17); Cl (17) or F (9) ?
27. An element 'X' belongs to the second group of periodic table. What is the formula of its chloride ?
28. An element 'B' belongs to the second period and Group 14. Give the formula of its oxide.
29. How many valence electrons are present in these three elements ? (F, Cl, Br)
30. Li, Be, B, C, N, O, F and Ne are present in the second period. Do these elements also contain the same number of valence electrons ?
Do they contain the same number of shells ?
31. Where do you think hydrogen should be placed in the Modern Periodic Table ?
32. How were the positions of isotopes of various elements decided in the Modern Periodic Table ?
33. Write down the electronic configuration of the first three elements of Group I.
34. Did Dobereiner's triads also exist in the columns of Newlands' Octaves ?
35. What were the limitations of Dobereiner's classification ?
36. What were the limitations of Newlands' Law of Octaves ?
37. To which group and period should hydrogen be assigned ?
38. How were the positions of cobalt and nickel resolved in the Modern Periodic Table ?
39. Atomic radii of the elements of the second period are given below :

Period II Elements	Atomic radii (pm)
B	88
Be	111
O	66
N	74
Li	152
C	77

- (a) Arrange them in decreasing order of their atomic radii.
- (b) Are the elements arranged in the pattern of a period in the periodic table ?
- (c) Which elements have the largest and the smallest atomic radii ?
- (d) How does the atomic radius change as you go from left to right in a period ?

- 40 Explain why atomic number is more important than atomic weight in determining chemical properties.
- 41 Give the symbols for :
 (i) a metal of group 2
 (ii) a metal of group 13
 (iii) two non-metals of group 16
 (iv) most reactive non-metal of group 17.
- 42 Magnesium Oxide is MgO , Magnesium Hydroxide is $Mg(OH)_2$ and Magnesium Sulphate is $MgSO_4$.
 What would be the formula of Barium Oxide, Barium Hydroxide and Barium Sulphate if Ba belongs to the same group as Mg ?

- 43 This question refers to the elements of the periodic table with atomic numbers 3 to 18.
- (a) (i) Which of them are noble gases ?
 (ii) Which of them are halogens ?
 (iii) Which of them are alkali metals ?
 (iv) Which are the elements with valency 4 ?
- (b) An element with atomic no. 3 combines with another element with atomic number 17; what would be the formula of the compound ?
- (c) What is the electronic configuration of an element with atomic number 10 ?

44 Why is K more reactive than Li ?

45 Give four advantages of the periodic table.

46 What discrepancies were there in Mendeleev's Periodic Table ?

47 For each of the following pairs, state which one is larger in size :

(a) Na, Na^+ (b) Br, Br^- (c) Br, I (d) Li, C

(e) Li, Na (f) Cl, Br (g) Be, Mg.

48 Why does atomic size progressively become smaller (atomic radius decreases from Na to Cl) ?

49 Nitrogen (atomic number 7) and phosphorus (atomic number 15) belong to Group 15 of periodic table. Write the electronic configuration of these elements. Which of these will be more electronegative ? Why ?

50 Compare and contrast the arrangement of elements in Mendeleev's Periodic Table and the Modern Periodic Table.

- 51 (a) What happens to basic character of oxides down the group and why ?
 (b) What happens to acidic character of oxides along the period and why ?
 (c) Which group elements can lose electrons most easily and why ?

52 Which group of periodic table N (7) and P (15) belong to ? Give their valencies.

For the main groups of periodic table given as follows :

1	2	13	14	15	16	17	18
H							He
A						B	
C						D	

(a) Which element is the most metallic ?

(b) Which atom is the largest ?

53 How could the Modern Periodic Table remove various anomalies of Mendeleev's Periodic Table ?

54 Helium is an unreactive gas and neon is a gas of extremely low reactivity. What, if anything, do their atoms have in common ?

55 The position of three elements A, B and C in the periodic table are shown below :

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' ?

56 State two advantages of Mendeleev's Periodic Table.

57 Give three drawbacks (limitations) of Mendeleev's Periodic Table.

58 Define

(i) electron affinity, and

(ii) ionisation energy. : atomic radius.

59 Write the electronic configurations of atoms of

- (a) potassium (K), (b) lithium (Li), (c) fluorine (F), (d) chlorine (Cl).

60 Atomic number of K is 19, of Li is 3, of F is 9 and of Cl is 17.

Use these electronic configurations to explain why potassium is more reactive than lithium, and fluorine more reactive than chlorine.

61 What are groups and periods in the periodic table ? What are representative elements ? Which group elements are called transition metals ? What are lanthanoids and actinoids ? Why are lanthanoids and actinoids kept at the bottom of the periodic table ?

62 Classify the elements into metals and non-metals :

S, Mg, Al, P, N, Na, K