



Dr. Sangeeta Khanna, Ph.D

CHEMISTRY COACHING CIRCLE

S.C.O. 208 (TF) Sector 24-D, Chandigarh. Ph. No. 0172-2713289 (O), 09888007880 (M).

SAMPLE QUESTION PAPER – 2

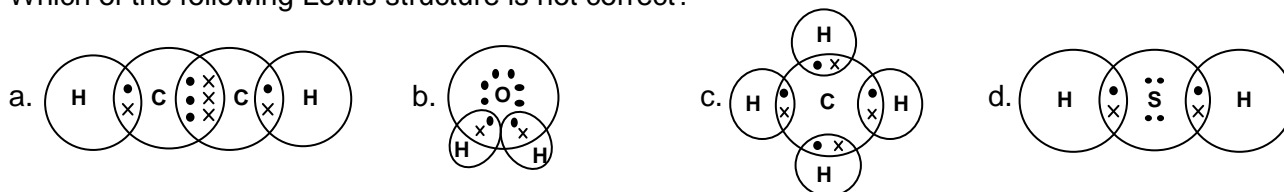
READ INSTRUCTIONS CAREFULLY

M. MARKS = 95
TIME: 30 Min.

1. Please mention your **Name, Roll No.** on the OMR Answer Sheet. Also please mention on right hand bottom of answer sheet about **other Tutors of Maths, Physics, Bio. (If finalized)**
2. Question paper carries **30 questions**.
3. **Q. No. 1 to 20 [3 Marks each (Negative Marking (-1) for wrong answer].**
Q. No. 21 to 23 [3 Marks each (More than One Answer) Negative Marking]
Q. No. 24 to 26 [3 Marks each (Negative Marking (-1) for wrong answer].
Q. No. 27 to 29 (Integer Type) No Negative Marking
Q. No. 30 (Matrix Match) - 8 Marks each (No Negative Marking)
4. Please Use **HB Pencil** for darkening the appropriate answer.
6. Any student adopting unfair means or disturbing other students or creating nuisance in the hall will be disqualified.
7. Switch off **your mobile** while in the **Examination Hall**
8. No body should leave the Hall until all Answer sheets are collected.

CHEMISTRY

1. Which of the following Lewis structure is not correct?

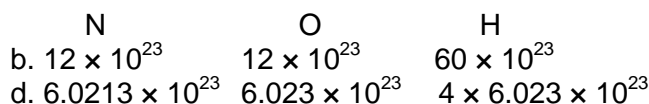
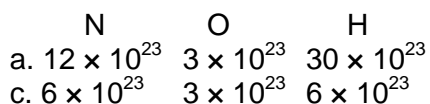


2. Which of the following is not a true statement.

- a. Metallic character increases from top to bottom in periodic table.
- b. Non-metallic character increases from left to right in periodic table.
- c. Basic strengths of oxide decreases from top to bottom.
- d. Basic strength of oxide increases from top to bottom.

3. The number of atoms of the constituent element in 70 gm NH_4OH respectively are

[At. No. of N = 14, O = 16, H = 1]



4. An element 'A' on reacting with oxygen forms an oxide AO_2 . This oxide on dissolving in water turns Red litmus to Blue. Which of the following is True for element 'A'.

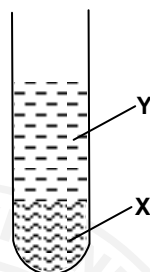
- a. Element 'A' is a metal
 b. Oxide AO_2 is Acidic
 c. Element 'A' is a noble gas
 d. Element 'A' is a non-metal

5. Which of the two sets of the chemical when reacted will produce CO_2 gas.

- I. $CH_3COOH + Na$
 II. $Na_2CO_3 + HCl$
 III. $CH_3COOH + NaHCO_3$
 IV. $CH_3COOH + Na_2CO_3$

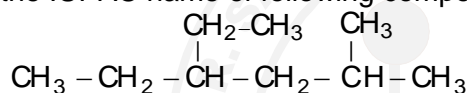
- a. II, III & IV
 b. III & IV
 c. II & III
 d. I and IV

6. In the given test tube, the solid X when reacts with solution Y, reaction takes place. Then X and Y should be



- a. Y – $ZnSO_4$, X – Ag
 b. X = Ag; Y = $CuSO_4$
 c. Y – $ZnSO_4$, X – Cu
 d. X – Fe, Y – $CuSO_4$

7. What will be the IUPAC name of following compounds



- a. 2-methyl-4-ethylhexane
 b. 3-Ethyl-5-Methylhexane
 c. Isooctane
 d. 4-Ethyl-2-methylhexane

8. What will be the formula of Aluminium permanganate if formula of Barium permanganate is $Ba(MnO_4)_2$.

- a. $AlMnO_4$
 b. $Al_2(MnO_4)_3$
 c. $Al(MnO_4)_3$
 d. $Al_3(MnO_4)_2$

9. Which of the following pair of compounds can not undergo addition reaction.

- a. C_3H_8 & C_4H_{10}
 b. C_3H_6 & C_3H_4
 c. C_3H_6 & C_2H_4
 d. C_3H_6 & C_2H_2

10. X is a metal of valency 3. Hence it will be in the same group as

- a. Ba
 b. Ga
 c. K
 d. B

11. A hydrocarbon of molecular mass 84 is

- a. An alkyne
 b. An alkene
 c. An alkane
 d. none

12. Which among the following reaction is not an oxidation – Reduction reaction?

- a. $2H_2O \xrightarrow[\text{current}]{\text{electric}} 2H_2 + O_2$
 b. $Fe(s) + 4H_2O(g) \longrightarrow Fe_3O_4(S) + H_2(g)$
 c. $C + O_2 \longrightarrow CO_2$
 d. $AlCl_3 + 3NaOH \longrightarrow Al(OH)_3(\ell) + 3NaCl$

13. Which of the following is a substitution reaction:

- a. $CH_3-CH_3 + Cl_2 \xrightarrow{\text{Sunlight}} CH_3-CH_2-Cl + HCl$
 b. $2C_4H_{10} + 9O_2 \longrightarrow 8CO + 10H_2O + \text{Heat}$
 c. $CH_2 = CH_2 + HCl \longrightarrow CH_3-CH_2-Cl$
 d. $CH \equiv CH + Cl_2 \rightarrow \begin{matrix} Cl & & Cl \\ & \backslash & / \\ & CH & - & CH \\ & / & \backslash \\ Cl & & Cl \end{matrix}$

14. The elements X, Y, A & B belong to 1, 2, 14, 17 group of periodic table. Which of the following compound will be most ionic:
- a. XY b. XA c. AB d. XB
15. The elements A, B, C and D have atomic numbers 12, 7, 1 and 9 respectively. Give the chemical formulae of the compound formed by (A and D) & (B & C):
- a. AD ; BC b. AD₂ ; BC₃ c. AD₃ ; BC₂ d. None
16. In the reaction: $I_2 + 10HNO_3 \rightarrow 2HIO_3 + 4H_2O + 10NO_2$
Iodine is:
- a. oxidized b. reduced
c. neither oxidized nor reduced d. neutralized
17. The element with the largest size in the third period is:
- a. lithium b. fluorine c. sodium d. oxygen
18. What is the percentage composition of each element in zinc phosphate Zn₃(PO₄)₂ ?
[Zn = 65.5, P = 31, O = 16.]
- | | Zn | P | O | Zn | P | O | |
|----|--------|--------|--------|----|--------|--------|--------|
| a. | 50.84% | 16.04% | 33.12% | b. | 16.04% | 50.84% | 33.12% |
| c. | 16.04% | 33.12% | 50.84% | d. | 33.12% | 50.84% | 16.04% |

Using the below table answer the following questions. (Q. No. 19 to 20)

The following table shows the position of still elements A, B, C, D, E and F in the periodic table.

	1	2	3 to 12	13	14	15	16	17	18
	A					B		C	
	G	D			E			H	F

19. Which element is a non-metal with valency 4 ?
- a. B b. E c. F d. C
20. What is the formula of sulphate of D.
- a. D₂(SO₄)₃ b. DSO₄ c. D₂SO₄ d. D₃(SO₄)₂

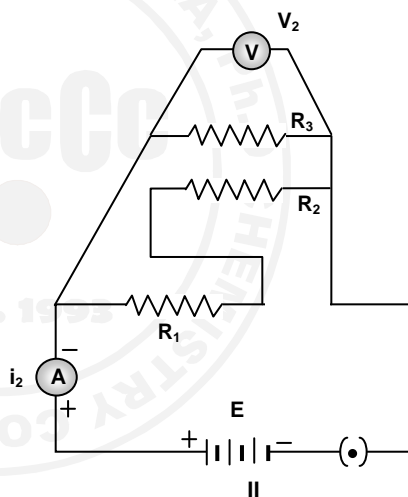
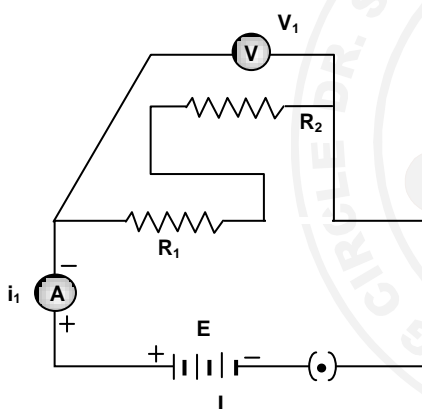
MORE THAN ONE ANSWER (Q.No. 21 to 23)

21. Which among the following statement is correct?
- a. Ethanoic acid gives a colourless and odourless gas with Na₂CO₃ which turns lime water milky
b. Ethanoic acid is soluble in water.
c. On reaction with absolute alcohol, ethanoic acid gives a sweet smelling substance, which is used for making flavouring agents & perfumes
d. It has smell of rotten eggs.

22. A student dissolves some ferrous sulphate crystal in water and adds a few drops of conc. H_2SO_4 to make the solution clear. However, the solution so obtained is not of pale green colour. Instead it has pale brown colour. Which of the following statements are correct.
- The pale brown colour is due to the auto-oxidation of Fe^{2+} to Fe^{3+} by atmospheric oxygen
 - The solution can be made pale green by boiling with a few iron filings.
 - Fe^{3+} is more stable than Fe^{2+}
 - Fe^{+2} is more stable than Fe^{+3}
23. Point out the correct statement:
- The electrode at which oxidation takes place is known as anode
 - The electrode at which reduction takes place is called cathode
 - The electrodes at which electrons are gained is called cathode
 - The electrode at which electrons are lost is called cathode

PHYSICS

24. Circuit I: ammeter reads current i_1 and voltmeter reads V_1 Circuit II: ammeter reads current i_2 and voltmeter reads V_2



The relationship between the readings is

- $i_1 > i_2; V_1 = V_2$
 - $i_1 < i_2; V_1 = V_2$
 - $i_1 > i_2; V_1 > V_2$
 - $i_1 > i_2; V_1 < V_2$
25. Two lamps, one rated 100 W at 220 V and the other 60 W at 220 V are connected in parallel to a 220 V supply. What current is drawn from the supply line?
- 7.27 A
 - 0.0727
 - 0.727 A
 - 0.342 A
26. Focal length of a convex lens is +25 cm. Its power is
- $+\frac{1}{4}D$
 - + 4D
 - $-\frac{1}{4}D$
 - 4D

INTEGER TYPE (NO NEGATIVE MARKING)

27. How many structural isomers are possible for molecular C₆H₁₄.
 28. How many moles will be present in 980 gm H₂SO₄ [At. Wt. of S = 32; O = 16; H = 1]
 29. What is pH & ROH of water at 25°?

MATRIX MATCH (NO NEGATIVE MARKING)

30. Match the Column I with Column II.

Column – I		Column – II	
(A)	$\text{Cu} + 2\text{AgNO}_3 \longrightarrow \text{Cu}(\text{NO}_3)_2 + 2\text{Ag}$	(p)	Displacement reaction
(B)	$\text{Ag}_2\text{CO}_3 \xrightarrow{\Delta} 2\text{Ag} + \frac{1}{2}\text{O}_2 + \text{CO}_2$	(q)	Redox Reaction
(C)	$\text{Pb}(\text{NO}_3)_2 \xrightarrow{\Delta} \text{PbO} + 2\text{NO}_2 + \frac{1}{2}\text{O}_2$	(r)	Decomposition Reaction
(D)	$\text{H}_2 + \text{Cl}_2 \longrightarrow 2\text{HCl}$	(s)	Combination Reaction

SAMPLE PAPER ANSWER (KEY)

1. B 2. C 3. B 4. A
 5. A 6. D 7. D 8. C
 9. A 10. D,B 11. B 12. D
 13. A 14. D 15. B 16. A
 17. C 18. A 19. B 20. B
 21. A,B,C 22. A,B,C 23. A,B,C 24. B

25. C

Sol. $P_1 = 100 \text{ W}$, $V = 220 \text{ V}$

$$P_1 = V \times I_1$$

$$I_2 = \frac{P_1}{V} = \frac{100}{220} \quad \dots(i)$$

$$R_1 = \frac{220}{\frac{100}{220}} = \frac{220 \times 220}{100} \Omega$$

$$P_2 = 60, V = 220 \text{ V}$$

$$P_2 = V \times I_2$$

$$60 = 220 \times I_2$$

$$I_2 = \frac{60}{220}$$

$$R_2 = \frac{220}{\frac{60}{220}} = \frac{220 \times 220}{60}$$

Alternate solution

$$I_1 = \frac{P_1}{V} = \frac{100}{220}$$

$$I_2 = \frac{60}{220}$$

$$I = I_1 + I_2 = \frac{160}{220}$$

$$= 0.727 \text{ A}$$

Resultant resistance in parallel

$$\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2}$$

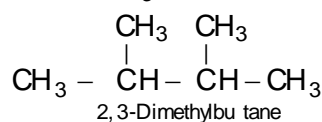
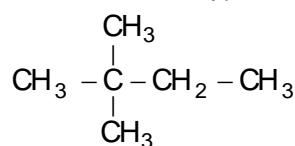
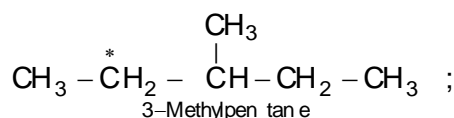
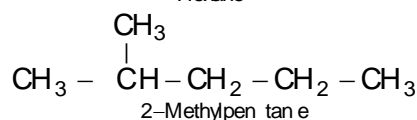
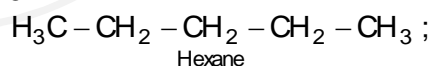
$$= \frac{100}{220 \times 220} + \frac{60}{220 \times 220} = \frac{160}{220 \times 220}$$

$$\therefore R = \frac{220 \times 220}{160}$$

$$I = \frac{V}{R} = \frac{220}{\frac{220 \times 220}{160}} = \frac{160}{220} = 0.727 \text{ A}$$

26. B

27. 5



28. 10

29. 7

30. A → p, q; B → q, r; C → q, r; D → q, s