

Sub: Chemistry 2nd paper (Creative)

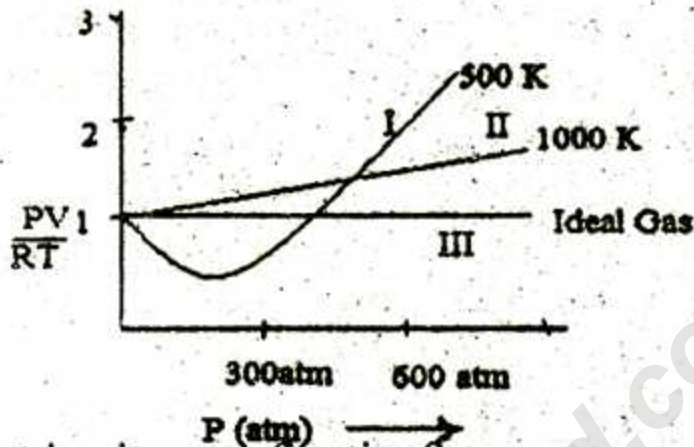
Sub Code : **177**

Time: 2 Hrs 10 min

Full marks: 40

[Answer any four questions]

1. ► X is real gas which molecular mass is 28. At two different temperature $\frac{PV}{RT}$ VS P Curve of 'X' gas and a curve of an ideal gas are shown below?



- a. What is nitrogen fixation? 1
- b. Why the value of COD is always greater than BOD? 2
- c. Calculate the kinetic energy of one molecule 'X' gas at its highest temperature. 3
- d. Analyze the reasons for the variation of curve I and II with the curve III. On what conditions they will behave like curve III? 4
2. ► A and B are the functional group isomers of a compound of the formula C_3H_6O . Both isomers react with 2,4 DNP and give yellow-orange precipitation. When 'A' is oxidized in presence of $K_2Cr_2O_7$ and H_2SO_4 Produces another compound 'C' Compound 'A' forms silver mirror with Tlens reagent but B does not.
- a. What is Zwitterion? 1
- b. Why butyne-1 is acidic but butene-2 is neutral? Explain 2
- c. How will you prepare the compound 'B' from propyne? Explain with reaction 3
- d. Both 'A' and B give nucleophilic addition reaction but the compound 'C' doesn't give such type of reaction? Analyze the statement. 4
3. ► i. $Na_2 S_2 O_3 + I_2 \rightarrow Na_2 S_4 O_6 + NaI$
- ii. $NaOH + Cl_2 \xrightarrow{15^\circ C} NaCl + NaOCl + H_2O$

- a. What is Beer's Law? 1
- b. Why H_2SO_4 is called secondary standard substance? 2
- c. Balance the reaction (i) by using ion-electron method. 3
- d. Reaction no (ii) is a disproportion reaction -Explain with reasons. 4

4. ► Two compounds A and B, Both the compound contains -OH group. Aqueous solution of A can turn blue litmus paper into red but 'B' can't do the same, B is used for the preparation of rayon on the other hand 'A' is used to prepare Bakelite plastic and medicine.

- a. What is glycoside bond? 1
- b. Protein is condensation polymer of amino acid -Explain with reaction. 2
- c. How will you prepare Paracetamol by using the compound 'A'? Write with reaction. 3
- d. "Compound 'A' is acidic but 'B' is neutral" - Explain. 4

50 ml	100 ml
Semimolar H_2SO_4	decimolar NaOH

Solution-I

Solution-II

- a. What is molarity? 1
- b. Ammonia is Lewis base-Explain? 2
- c. How much volume decimolar KOH is required to neutralize the solution-I? Calculate with neutralization reaction. 3
- d. When solution I and II are mixed together in a beaker, it is found that the nature of the solution becomes acidic-Why? Analyze Mathematically? 4

6. ► i. $Fe(s)/Fe^{2+}(aq) || Cu^{2+}(aq)/Cu(s)$
 ii. $Ag/Ag^+(aq) || Zn^{2+}/Zn$

Here, $E^\circ_{Fe/Fe^{2+}} = + 0.44 V$ and $E^\circ_{Cu^{2+}/Cu} = 0.34V$ and

$E^\circ_{Ag/Ag^+} = - 0.799 V$ and $E^\circ_{Zn^{2+}/Zn} = - 0.76V$

- a. What is superconductivity? 1
- b. What is meant by the electrochemical equivalent of silver is 0.00118 g/Coulomb? 2
- c. If 5 ampere current passes through the circuit of the cell No(i) for 10 minutes then calculate the amount of metal deposits at the electrode of cathode chamber. 3
- d. Cell reaction of which of the above cell occurs spontaneously? Give an answer through determining the EMF of both cell. 4

Model Question of HSC Examination 2017 (All Board)

Sub – Chemistry (MCQ)

Sub Code : 177

Time : 35 Minutes

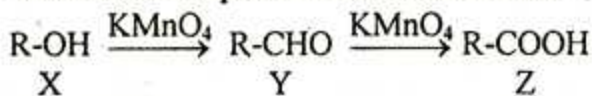
Full Marks : 35

[N.B. Fill the circle of the correct answer with a black ball point pen. Each question bears 1 mark.]

- 1. 44g CO₂ Means—**
 i. 1 mole CO₂
 ii. Equal to Avogadro's number
 iii. 22.4L
Which one of the following is correct?
 (a) i (b) i & ii
 (c) ii & iii (d) i, ii & iii
- 2. What is the oxidation number of the central element of K₂Cr₂O₇?**
 (a) +6 (b) -6
 (c) +12 (d) -12
- 3. Which is aliphatic compound?**
 (a) Phenol (b) Aniline
 (c) Toluene (d) Ethelene oxide
- 4. Which is the formula of gypsum?**
 (a) CaSO₄ (b) ZnSO₄
 (c) CaSO₄.2H₂O (d) ZnSO₄.2H₂O
- 5. Which is more reactive?**
 (a) Na (b) Cs
 (c) Ba (d) Ca
- Observe the following reaction & give the answer of the questions number 6 & 7.**
 $Zn + Cu^{2+} \dots \rightarrow Zn^{2+} + Cu, E_{cell} = 1.01V$
- 6. The reaction in the stem applicable for which cell?**
 (a) Denial cell
 (b) Dry cell
 (c) Lacklance cell
 (d) Lead storage cell
- 7. In the cell reaction—**
 i. Oxidation Occur in Zn
 ii. Zn is reducing agent
 iii. Cu except electron
Which one of the following is correct?
 (a) i (b) i & ii
 (c) ii & iii (d) i, ii & iii
- 8. Which is reducing agent?**
 (a) Cu²⁺ (b) Fe²⁺
 (c) Sn⁴⁺ (d) Na⁺
- 9. Which is secondary standard substance?**
 (a) HCl (b) Na₂CO₃
 (c) K₂Cr₂O₇ (d) Na₂C₂O₄
- 10. N₂ + 3H₂ —————→ X, X compound is—**
 i. It is used for production of urea
 ii. It is covalent compound
 iii. It is used as fertilizer
Which one of the following is correct?
 (a) i (b) i & ii
 (c) ii & iii (d) i, ii & iii
- 11. How many mL of 0.1M HCl solution? 0.2M NaOH needed to neutralize 10ml of 0.1M HCl Solution.**
 (a) 2 mL (b) 5mL
 (c) 4 mL (d) 8 mL
- 12. How many molecule present in 16g O₂?**
 (a) 32 (b) 16
 (c) 6.023×10^{23} (d) 3.011×10^{23}
- 13. Between the reaction of NaOH & HCl, indicator use—**
 i. Methyl orange
 ii. Methyl red
 iii. Phenophthalein
Which one of the following is correct?
 (a) i (b) i & ii
 (c) ii & iii (d) i, ii & iii
- 14. Critical temperature of CO₂ is—**
 (a) 31.1°C (b) -31.1°C
 (c) 13.1°C (d) 298°K
- Observe the following stem & give the answer of the question number 15 & 16.**
 $NH_3 + CO_2 \longrightarrow \text{Ammonium carbonate} \longrightarrow X$
- 15. Which is the X compound?**
 (a) (NH₄)₂CO₃ (b) NH₂-CO-NH₂
 (c) NH₄HCO₃ (d) NH₂-CO-NH₄
- 16. X compound is—**
 i. It is used as fertilizer
 ii. Main component is N₂
 iii. Its molecular mass is 60
Which one of the following is correct?
 (a) i (b) i & ii
 (c) ii & iii (d) i, ii & iii
- 17. Which functional group is more reactive?**
 (a) -OH (b) -CHO
 (c) -CO (d) -COOH

18. Which is natural polymer?
 (a) Polyester (b) Nylon
 (c) Polythene (d) Cellulose
19. How many percent of N_2 present in urea?
 (a) 42.44 (b) 44.22
 (c) 46.66 (d) 48.50

Observe the following stem & give the answer of the question number 20 & 21.



20. Which is used for identification of Z compound?
 (a) Tollen's reagent
 (b) Fehlling's reagent
 (c) Grignard reagent
 (d) Sodium bicarbonate
21. X compound is—
 i. Neutral
 ii. Basic
 iii. Acidic

Which one of the following is correct?

- (a) i (b) i & ii
 (c) ii & iii (d) i, ii & iii
22. Which is used for production of PVC?
 (a) Benzene (b) Ethyne
 (c) Ethene (d) Ethane

23. By the carbilamine test, identify—
 i. Amine
 ii. Chloroform
 iii. Alkane

Which one of the following is correct?

- (a) i (b) i & ii
 (c) ii & iii (d) i, ii & iii
24. Which is used for preparation of explosive?
 (a) Benzene (b) Aniline
 (c) Phenol (d) Toluene

25. In a redox reaction oxidizing agent is—
 (a) Oxidized by excepting electron
 (b) Oxidized by donating electron
 (c) Reduced by excepting electron
 (d) Reduced by donating electron

26. For production of glass which is used

as flux?

- (a) SiO_2 (b) K_2O
 (c) CaO (d) Cullet

27. Which is Tollen's reagent?

- (a) $[Ag(NH_3)_3]OH$
 (b) $[Ag(NH_3)_2]OH$
 (c) $[Ag(NH_3)_4]OH$
 (d) $[Ag(NH_3)]OH$

28. Which metal used for preparation of Grignard reagent?

- (a) Na (b) K
 (c) Mg (d) Al

29. Fossil fuels are—

- i. Coal
 ii. Natural gas
 iii. Alcohol

Which one of the following is correct?

- (a) i (b) i & ii
 (c) ii & iii (d) i, ii & iii

30. Which is the component of Portland cement?

- (a) Fe_2O_3 (b) Pb_2O_3
 (c) Al_2O_3 (d) Cr_2O_3

31. Which is used filling agent for production of paper?

- (a) Na_2CO_3 (b) Na_2SO_4
 (c) Cl_2 (d) $Ca(OCl)Cl$

32. Sugar is—

- i. Eletrolyte
 ii. Non electrolyte
 iii. Covalent compound

Which one of the following is correct?

- (a) i (b) i & ii
 (c) ii & iii (d) i, ii & iii

33. Which act as both of oxidizing & reducing agent?

- (a) $FeSO_4$ (b) $CuSO_4$
 (c) H_2 (d) SO_2

34. General formula of alkyl radical is—

- (a) C_nH_{2n+1} (b) C_nH_{2n+2}
 (c) C_nH_{2n} (d) C_nH_{2n-2}

35. Clinker word used for which industry?

- (a) Paper (b) Cement
 (c) Glass (d) Leather

1	(d)	2	(a)	3	(d)	4	(c)	5	(c)	6	(a)	7	(d)	8	(b)	9	(a)	10	(b)	11	(b)	12	(d)	13	(d)	14	(b)	15	(b)	16	(d)	17	(d)	18	(d)	19	(c)	20	(d)
21	(a)	22	(d)	23	(b)	24	(d)	25	(c)	26	(d)	27	(b)	28	(c)	29	(b)	30	(c)	31	(b)	32	(c)	33	(d)	34	(a)	35	(b)										