CLASS: B.Sc. CHEMISTRY | 15A / 76

St. JOSEPH'S COLLEGE (AUTONOMOUS) TIRUCHIRAPPALLI – 620 002

SEMESTER EXAMINATIONS – APRIL 2015

TIME: 40 Minutes | MAXIMUM MARKS: 30

SEM	SET	PAPER CODE	TITLE OF THE PAPER
II	2014	14UCH230202	GENERAL CHEMISTRY – II

SECTION - A

Answer all the questions: **30 × 1 = 30**

Choose the correct answer:

1. The number of isomers for C_4H_{10} are
   a) 2 b) 3
   c) 4 d) 5
2. Metal used as catalyst in the reaction
   $CH_2 = CH_2 + H_2 \xrightarrow{200-300^\circ} CH_3CH_3$ is
   a) Hg b) Fe
   c) Ni d) all the above
3. The reactivity of alkanes with halogens is in the order
   a) $F_2 > Cl_2 > Br_2 > I_2$ b) $I_2 > Br_2 > Cl_2 > F_2$
   c) $F_2 > Cl_2 > I_2 > Br_2$ d) $Br_2 > I_2 > F_2 > Cl_2$
4. Angle strain in cyclohexane is
   a) $+5°16'$ b) $-5°16'$
   c) $+44'$ d) $-44'$
5. Hybridization found in Carbon atom of Cycloalkanes
   a) sp b) sp^2
   c) sp^3 d) sp^3d

6. Among the following which is a gas?

a) cyclobutane b) cyclopentane

c) cyclohexane d) all the above

7. An oxide ore is

a) Magnesite b) bauxite

c) calamine d) gypsum

8. Froth flotation process can be done for

a) Galena b) Copper pyrites

c) Zinc blend d) all the above

9. During electrolytic refining of metals, pure metal deposits on

a) Anode b) Cathode

c) Both a and b d) none of the above

10. Alkali metals belong to _____ block.

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

11. Among the following which has the greater ionisation energy.

a) Li b) Na c) K d) Rb

12. Berillym shows diagonal relationship with

a) Li b) Na c) Al d) B

13. A β-particle is

a) ${}^{0}_{+1}e$ b) ${}^{4}_{2}He$ c) ${}^{1}_{1}H$ d) ${}^{0}_{-1}e$

14. The missing product in the nuclear reaction ${}^{226}_{88}Ra \longrightarrow {}^{222}_{86}Rn^{+}$ _____ is

a) ${}^{1}_{1}H$ b) ${}^{4}_{2}He$ c) ${}^{2}_{1}D$ d) ${}^{1}_{0}n$

15. Among the following which is the correct relation?

a) $t_{1/2} = \frac{0.693}{\lambda}$ b) $\tau = \frac{1}{\lambda}$ c) $\tau = 1.44 \times t_{1/2}$ d) all the above

16. Mass number of tritium is

a) 1 b) 2

c) 3 d) 4

17. The nuclear reaction: ${}^{16}_{8}O + {}^{2}_{1}H \longrightarrow {}^{14}_{7}N + {}^{4}_{2}He$ is an example for _____ type of reaction.

a) (D, α) b) (P, γ)

c) (D,P) d) (P, α)

18. Atom bomb is based on nuclear

a) Fusion b) fission

c) spallation d) all the above

19. If a system can exchange energy only with the surroundings, then it is _____ system.

a) open b) closed

c) isolated d) all the above

20. An example for macroscopic property is

a) pressure b) viscosity

c) density d) all the above

21. If during a process volume is kept constant, it is

a) Isothermal b) Adiabatic

c) Isochoric d) Isobaric

22. Heat capacity at constant volume, C_v is

a) $\left(\frac{\partial E}{\partial T}\right)_V$ b) $\left(\frac{\partial E}{\partial T}\right)_P$

c) $\left(\frac{\partial H}{\partial T}\right)_P$ d) $\left(\frac{\partial V}{\partial T}\right)_P$

23. Which is true for an adiabatic process?

a) $\Delta E = q - w$ b) $q > 0$ c) $q = 0$ d) $\Delta H = \Delta V$

24. Inversion temperature can be calculated from

a) $\frac{Rb}{2a}$ b) $\frac{2a}{b}$

c) $\frac{R}{a}$ d) $\frac{2a}{Rb}$

25. During the titration between Mohr salt and $KMnO_4$, a brown coloured _____ is formed.

a) MnO_2 b) $MnO_2.H_2O$

c) $MnSO_4$ d) Mn

26. An example for external indicator is

a) $KMnO_4$ b) diphenylamine

c) $K_3[Fe(CN)_6]$ d) Methyl orange

27. Eriochrome black T is used for _____ titrations.

a) Complexometric b) Redox

c) iodometry d) acid-base

28. A test solution when added with Nessler's reagent, if given brown precipitate, the basic radical in the solution is

a) Ca b) Ba

c) Zn d) Ammonium

29. The chemical used in separating group IV cations is

a) NaOH b) HCl

c) $NH_4Cl + NH_4OH + H_2S$ d) $NH_4Cl + NH_4OH + (NH_4)_2CO_3$

30. In flame test, Crimson red flame is given by

a) Strontium b) Baium

c) Calcium d) Cobalt

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