Padasalai.Net's Special – Centum Coaching Team Question Paper (2016-17)

STD: XII **MARKS: 150**

SUB: CHEMISTRY **TIME: 3 HRS**

I choose the correct answer **30 x 1 = 30**

1. The wave length associated with a particle of mass 3.313 x10^{-31} kg moving with the velocity 10^3 m/s is
   a) 2 x 10^{-6}m B) 2 x 10^{-6} cm c) 2 x 10^{-7}m d) 2 x 10^{-7} cm
2. The factor that decreases the boiling point of a compound is
   a) Stability b) explosive nature c) chelation d) reactivity
3. The effective nuclear charge experienced by the valence electron of potassium atom is
   a) 19 b) 16.8 c) 4.4 d) 2.2
4. Which of the following molecule is T-Shaped
   a) IF_7 b) BrF_5 c) ClF_3 d) ClF
5. Reaction of copper with conc.HNO_3 gives cupric nitrate and ____
   a) NO_2 b) N_2O c) NO_2 d) N_2
6. The Compound used to prepare marking inks and hair dyes
   a) Silver nitrate b) copper sulphate c) zinc carbonate d) potassium dichromate
7. The oxidation state of uranium in UO_2Cl_2 is
   a) +4 b) +7 c) +6 d) +5
8. The existence of actinide series similar to lanthanide series was proposed by
   a) Mendeleev b) John Dalton c) Werner d) Neils Bohr
9. Valence bond theory does not explain the property of complex compound
   a) Geometry b) magnetic c) nature of ligand d) colour
10. Which one of the following particles used to bombard $_{13}Al^{27}$ to give $_{15}p^{30}$ and a neutron
    a) α particle b) deuteron c) proton d) neutron
11. Who suggested that crystal can used as three dimensional diffraction grating for X rays?
    a) W.L. Bragg b) W.H. Brag c) Both a and b d) Laue
12. The entropy change of an engine that operates at 100^0C when 453.6 K.Cal of heat is Supplied to it is
    a) 453.6 cal.K^{-1} b) 0.2205 K^{-1}.$Kcal^{-1}$ c) 0.8223 K.Cal^{-1} d) 1216.08 Cal.K^{-1}
13. Entropy change of vaporization of a liquid is given by
    a) Octet rule b) Phase rule c) Entropy rule d) Trouton's rule
14. In the Equilibrium reaction $N_2 + 3H_2 \rightleftharpoons 2NH_3$, K_P
    a) Equal to K_C b) greater than K_c c) less than K_C d) equal to ½
15. The yield of ammonia in Haber's process
    a) 97% b) 45% c) 37% d) 100%

16. If 25 % of the radioactive element left after 40 days then its half life period is
a) 4 days b) 10 days c) 20 days d) 80 days
17. The induced catalyst used in the oxidation of sodium arsenite is
a) Sodium chloride b) Sodium sulphite c) Sodium sulphate d) Sodium hydroxide
18. The colloidal antimony is used in curing
a) Malaria b) Jaundice c) Kalazar d) Head ache
19. Cheese is an example of
a) Foam b) gel c) aerosol d) solid sol
20. A solution which is resistant to change pH on addition of small amount of acid or base
a) Buffer solution b) True solution c) isohydric solution d) ideal solution
21. The intermediate compound formed when $C_2H_5OC_2H_5$ obtained by treating C_2H_5OH with Con. H_2SO_4 is
a) Ethyl sulphite b) ethyl sulphate c) Ethyl hydrogen sulphite d) Ethyl hydrogen sulphate
22. The functional isomer of methyl n-propyl ether is
a) $CH_3CH_2CH_2CH_2OH$ b) $CH_3CH_2CH_2CHO$ c) $CH_3COCH_2CH_3$ d) $CH_3CH_2CH_2OH$
23. When phenol is distilled with Zn dust it gives
a) Benzaldehyde b) Benzoic acid c) Toluene d) Benzene
24. The compound which doesn't reduce Fehling solution
a) Formaldehyde b) acetaldehyde c) benzaldehyde d) propinaldehyde
25. The least reactive acid derivative is
a) Acetic anhydride b) ethyl acetate c) acetyl chloride d) acetamide
26. When a primary amine reacts with $CHCl_3$ and KOH , then the product formed is
a) An isocyanide b) an aldehyde c) a cyanide d) an alcohol
27. Which among the following dissolves in NaOH?
a) CH_3NO_2 b) $(CH_3)_3$ C-NO_2 c) $C_6H_5NO_2$ d) C_6H_5-O-N=O
28. The IUPAC name of CH_3CN is
a) Methyl cyanide b) aceto nitrile c) ethyl isocyanide d) ethane nitrile
29. Oxide bridges in polysaccharides are called as
a) Peptide linkages b) hydride linkages c) glycosidic linkages d) nitride linkages
30. Oxidation of fructose with con.HNO_3 yields
a) a fructonic acid b) glycolic acid c) tartaric acid d) both b and c

II. Answer any 15 of the following **15 x 3 = 15**

31. What is the significance of negative electronic energy?
32. The inter nuclear distance d(C-Cl) is 1.76A°and r(Cl) is 0.99A°.Calculate r(C).
33. Why is HF not stored in silica or glass bottles? Write the equation
34. Write a note on plumbo solvency.
35. Explain the electrolytic refining of copper
36. What is spitting of silver? How is it prevented?
37. Calculate the decay constant for Ag^{108} if its half life is 2.31 minutes.
38. Write a note on Metal deficiency defect
39. What types of substances deviate from trouton's Rule?

40. Why is equilibrium reaction referred to as dynamic equilibrium?
41. What is a pseudo first order reaction? Give example.
42. What are parallel reactions? Give an example.
43. What are promoters and catalytic poisons? Give an example
44. What is ionic product of water?
45. Write the cis and trans isomers of 2-pentane.
46. Why is glycol more viscous than ethanol?
47. Write the dye test for phenol.
48. Write the any two tests for aldehyde.
49. Mention the uses of salicylic acid and acetamide.
50. Explain diazotization with a suitable example.
51. What are food preservetives? Give example

III. Answer any seven questions. Choose atleast two questions from each section 7 x 5 = 35

SECTION-A

52. Discuss the shape of s, p, d orbitals.
53. How is gold extracted from its chief ore?
54. What is actinide contraction? Explain the consequences.
55. Apply VB theory to calculate the hybridization and magnetic moment of the following complexes
i) $[FeF_6]^{4-}$ ii) $[Fe(CN)_6]^{4-}$

SECTION-B

56. What is free energy? Discuss the characteristics of free energy
57. Derive the expression K_C and K_p for decomposition of PCl_5.
58. Explain the experimental determination of rate constant of acid hydrolysis of methyl acetate.
59. Calculate the e.m.f. of the cell having the cell reaction. $2Ag^+ + Zn \rightleftharpoons 2Ag + Zn^{2+}$
E^0cell = 1.56 at 25^0C when concentration of Zn^{2+} = 0.1 M and Ag+ = 10 M in the solution.

SECTION-C

60. What happens when diethyl ether reacts with
a) O_2/ long contact b) PCl_5 c) dil H_2SO_4 d) excess of HI
61. Write the mechanism of claisen-schimidit reaction.
62. Explain the reducing nature of formic acid.
63. Write a note on Buna rubbers.

IV. Answer any 4 questions. Question no.70 is compulsory and answer any 3 from the remaining questions. 4 x 10 = 40

64. a) Explain Mullikan scale of elctronegativity.
b) How does fluorine differ from other halogens?
65. a) Write the postulates of valence bond theory about coordination compound
b) Explain nuclear fission reaction with suitable example.
66. a) Explain all the four types of crystals With example.
b) What is electrophoresis? How will you determine the charge of sol particles?
67. a) Write the postulates of Arrhenius theory

b) Write Notes on IUPAC conventions of representation of a cell

68. a) Distinguish enantiomers and diastereomers

b) How will you convert the following?

i) Lactic acid to Lactyl chloride ii) succinic acid to succinic anhydride

iii) Methyl acetate to acetamide

69. a) Explain the reduction of nitro benzene in different conditions?

b) Outline the classification of carbohydrates giving example for each.

70. a) An organic compound A having molecular formula C_6H_6O gives violet colour with neutral ferric chloride. Compound A give two isomers B and C when treated with CCl_4 and NaOH. Compound A also reacts with phthalic anhydride in the presence of Con. H_2SO_4 to give D. Compound D gives pink colour when treated with NaOH. Identify A, B, C and D. Explain the reactions.

b) An element A occupies group number 11 and period number 5.This metal is extracted from its mixed sulphide ore B. A reacts with dil.H_2SO_4 in presence of air and forms C which is colourless. With water C gives a blue compound D. Identify A,B and C. and Explain the reactions.

(OR)

c) An organic compound A has the molecular formula C_3H_6O. It does not reduce Fehling's solution and undergo Iodoform test. Compound A with con HCl vapours gives B ($C_6H_{10}O$) and C ($C_9H_{14}O_2$). Compound A also reacts with Con.H_2SO_4 gives D an aromatic compound which is isomeric with cumene. Identify A, B, C & D. explain the reactions.

d) 0.04 N solution of a weak acid has a specific conductance 4.23 x 10-4 mho.cm^{-1}. The degree of dissociation of acid at this dilution is 0.0612. Calculate the equivalent conductance of weak acid at infinite solution.

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Post Your Answer Script to This Address

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மாணவர்கள் செய்ய வேண்டியது என்ன?

1. ***Click Here & Enter Your Details (Students Only)***
2. நமது பாடசாலை வலைதளத்தில் வழங்கப்படும் சிறப்பு வினாத்தாளை பிரிண்ட் எடுத்து விடுமுறை நாட்களில் முழுமையான, முறையான தேர்வு எழுதி வினாத்தாள் தயாரித்து வழங்கிய ஆசிரியருக்கு அனுப்பி வைக்க வேண்டும்.
3. A4 Size (Or) Legal Size உள்ள துணிக்கவர்கள் இரண்டு வாங்கிக்கொள்ள வேண்டும். ஒரு தாளில் வினாத்தாள் தயாரித்த ஆசிரியர் முகவரியை "பெறுநர்" பகுதியில் குறிப்பிட்டு அதில் தங்கள் விடைத்தாளை வைக்க வேண்டும்.
4. மற்றோரு கவரில் மாணவர்கள் தங்கள் சுயமுகவரியை "பெறுநர்" எனும் இடத்தில் எழுதி அதற்கு தேவையான அளவில் ஸ்டாம்ப்களையும் ஒட்டிய பிறகு, அக்கவரையும் விடைத்தாள் எழுதி அனுப்பும் கவருக்குள்ளேயே வைத்து அனுப்ப வேண்டும்.
5. ஒன்றுக்கும் மேற்பட்ட மாணவர்கள் இணைந்து விடைத்தாளை அனுப்பினால் மொத்தமாக ஒரே கவரில் அனுப்பலாம். ஆனால் ஒரு கவரில் மூன்று விடைத்தாள்களுக்கு மேல் இருக்கக்கூடாது.
6. ஆசிரியர்கள் தங்கள் விடைத்தாளை திருத்திய பிறகு தங்கள் சுயவிலாசமிட்ட கவரில் (Return Cover) வைத்து தங்களுக்கு விரைவில் திருப்பி அனுப்புவார்.
7. தங்கள் விடைத்தாளை உரிய ஆசிரியருக்கு அனுப்பி வைத்த தேதியிலிருந்து 3 வாரங்களுக்குள் தங்களுக்கு மீள கிடைக்காவிடில் இங்கு தரப்பட்டுள்ள "புகார் பதிவு படிவத்தில்" தங்கள் விவரத்தை பதிவு செய்யவும். **Click Here for Complaint Box!**
8. Slow Learners மீது மட்டும் கவனம் செலுத்தாமல் மீத்திறன் மிகுந்த மாணவர்களுக்கும் உதவும் நோக்கில், மாணவர்களின் நலன் கருதி, இச்சேவையில் தங்களை இணைத்துக்கொண்டுள்ள பாடசாலை ஆசிரியர் குழுவினை, மாணவர்கள் மிகுந்த பணிவுடன் தொடர்பு கொண்டு திருத்தப்பட்ட விடைத்தாள் குறித்த தங்கள் சந்தேகங்களையும், ஆலோசனைகளையும் அலைபேசி மூலமாக பெறலாம்.

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