Paper code: 6006

M.Sc sem. 3 Examination

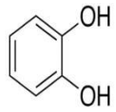
July-sep -2021

Subject : Physical chemistry

Paper CHNN – 602 (New course)

કુલ સમય :– ૬૦ મીનીટ કુલ પ્રશ્નો : ૫૦ વિદ્યાર્થીએ ટીક કરવાના પ્રશ્નો : ૩૫

નોંધ : વિદ્યાર્થીએ માત્ર ૩૫ પ્રશ્નો જ ટીક કરવાના રહેશે. જો વધારે ટીક કરેલ હશે તો પ્રથમ ૩૫ પ્રશ્નો જ ગણતરીમાં લેવામાં આવશે.

1. Amalgum cell shape…….
(A) T-shape b.Z-shape C.A-shape D.H-shape
2. Amalgum cell known as……..
(A) Concentration cell B.Volumetry cell C.Thermal cell D.None of these
3. According to debyehuckelonsagar equation ^m =_____
(A)^m° + b√c (B)^m° - b√c (C) A and B both (D)None of these
4.The Conductance of weak electrolytic solution____with the increase in solution.
(A)Decrease (B)Increase (C)None of these (D)A and B both
5.The theoritical explanation of wein effect has been proposed by.....
(A)Debye (B)Onsagar (C)Huckel (D)None of above
6.The_____effect is the experimentally observed increase in ionic mobility or conductivity of electrolytes at very high gradiant of electrical potential.
(A) Field effect (B) Direct effect (C) wein effect (D) None of these
7. Unit of ionic mobility is…….
(A) Ohm–1 Cm² (B) V–1 S–1 Cm² (C) None of these (D) A and B both
8. Hydroquinone also none as……
(A)Benzene (B)Phenol (C)Benzene 1,4 diol (D)None of these
9. The name “hydroquinone” was wined by……
(A) Vander vaals B.Friedrich wolher (C) Thomson (D)Debye-huckel
10.Hydroquinone molecular structure……..
(A) B. C. D. 
11. In dissociation constants of polybasic acid the ionization occur in increasing dilution shows that.....
(A)K1<K2<K3 (B)K1>K2>K3 (C)K1<K2>K3 (D)K1>K2<K3
12. What is protophilic solvents.....
(A)Solvents which have greater tendancy the accept protons
(B)Solvents which have lower tendancy the accept protons
(C)Solvents which have the tendancy to produce protons (D)None of these
13.What is monobasic acid.....
(A)Have one replaceable hydrogen atom per one acid molecule (B)Have no stepwise dissociation
(C)Have only one dissociation constant (D)all of these
14.Colourimetric determination of dissociation constants function.....
(A)CH•CHA/CA– (B)CH•CA–/CHA (C)CHA•CH/CA– (D)CHA•CA–/CH
15.In colouremetric determination of dissociation constants the values of the function in different solution may be extrapolated to.....
(A)One ionic strength (B)Two ionic strength (C)Three ionic strength (D)Negative ionic strength
16.What is aprotic solvent.....
(A)Does not have H atom and attached to electronegative atom
(B)Have H atom and attached to electronegative atom
(C)Have a H atom and attached to electropositive atom
(D)Does not have H atom and attached to electropositive atom
17.The electrostatic attraction between two oppositely charged particles.....
(A)Increasing with increasing dielectric constant
(B)Decreasing with decreasing dielectric constant
(C)Decreasing with increasing dielectric constant (D)Both are equal
18.The Pka value for ammonium ion acid for in water and in methanol is.....
(A)9.3 and 11.0 (B)11.0 and 9.3 (C)11.3 and 9.0 (D)10.3 and 11.0
19.The specific conductance of the water found to be.....
(A)0.43×10–3 Ω–1 (B)0.0043×10–3 Ω–1 (C)0.040×10–3 Ω–1 (D)0.043×10–3 Ω–1
20.What is isoelectric point.....
(A)When concentration of positive ions is equal to negative ions
(B))When concentration of positive ions is greater than to negative ions
(C))When concentration of negative ions is greater than to positive ions (D)None of these
21.A window which can transmit all the incident light without any reflection is called…
a) Polarized window b.Malus window c.Brewster window d.Non-reflecting window

22. What should be the phase difference between the two plane polarized waves vibrating at right angles to each other, to produce Circularly polarized right?

a) $\pi/6$ b.$\pi/2$ c.$\pi/4$ d.$\pi/3$

23. Which of the following is a Uniaxial crystal?

a) Borax b.Mica c.Quartz d.Selenite

24. If the phase difference between two rays is $\pi/2$ and the angle of incidence is not equal to $\pi/4$ the emergent light is…

a) Linearly polarized b.Elliptically polarized c.Circularly polarized d.Non- polarized

25. The velocity of light in water is 1.5×10^8 m/s what is the polarizing angle of incidence?

a) 47.23° b.51.02° c.53.74° d.63.43°

26. The electro magnetic beam has an intensity $28W/m^2$ and is linearly polarized vertically what is the intensity of the transmitted beam, if the angle of incidence on the Polarioide is 45°vertical?

a) 10W/m b.12W/m c.14W/m d.16W/m

27. What should be the thickness of quarter wave plate for *u* light of wave langth 5890A° if u_e =1.553 and u_0=1.544

a) 1.33×10^{-3} cm b.1.43×10^{-3} cm c.1.53×10^{-3} cm d.1.63×10^{-3} cm

28. A plate which induces the desired amount of phase difference between two rays is known as…

a) Polaroid b.Phasor plates c.Retardation plates d.Quarts plates

29. What does the effectiveness of the catalyst in the initiation process of anionic polymerization of depend on?

a) Acidity of the monomer b.Basicity of the catalyst

c.All of the mentioned d.None of the mentioned

30. Which of the following monomers is more prone to form law molecular weight polymer when Polymerized in liquid ammonia?

a) Acrylonitrile b.Metha-acrylonitrile c.Styrene d.Methyl metha-acrylonitrile

31. A linearly polarized wave is always…

a) In X-Y plane b.In transfers wave c.In longitudinal wave d.In Y-Z pplane

32. How the termination in anionic polymerization most probably does take place?

a) Unimolecular termination b.Bimolecular

b) Termination by solvent transfer d.All of the mentioned

33. Which of the following nature of solvent can exhibit the growth of polymer in anionic polymerization?

a) Acidic b.Basic c.Neutral d.None of this

34. Which of the following can assist as a catalyst in anionic polymerization?

a) Sulphuric Acid b.Boron triflueride c.Grignard reagent d.All of the mmentioned

35.Styrene is polymerized using amide catalyst in liquid ammonia, anionically how will the rate of reaction change, if the monomer concentration is doubled?

a) Doubled b.Halved c.Quadrupled d.No change

36. The auxiliary electrode in polarography is …….

a.Dropping mercury b.Mercury pool c.Graphite d.Rotating platinum electrode

37.The electroanalytical technique that involves the measurement of electricity consumed in a Redox reaction of theanalyte is……..

a.Potentiometry b.Conductometry c.Polarography d.Coulometry

38. Electrophoresis was developed by

(A)Tswett (B)Tsvedberg (C)Tiselius (D)sanger

39. In polarography the Mercury drop is issued from the capillary by

(A)a constant Pressure Pump B)Gravity C)Reciprocal pump D)Pneumatic pump

40.Maxima in polarography curve is observed due to...

A)Migration current B) Convection current C)Residual Current D) Diffusive current

41.The Drop life of mercury in dropping mercury voltammetry is

A)<2sec B)2-5 sec C)5-7 sec D)5-10 sec

42. The ratio of concentration of titration to the concentration of analyte in amperometric titration ideal should be..

A)2 B)5 C)10 D)0.5

43. The current is due to concentration gradient of Electro active species in polarography is

A)diffusion current B)migration current C) convection current D) residual current

44. Secondary colorimetric titration involves

A)Addition of titrant B)Titrant Precursor C)use of secondary standards D) constant potential

45.What is diameter DEM?

A)10-30 micrometer B) 20-50 micrometer C)0-5 micrometer D) 20-30 micrometer

46. which of the following is not a type of electrochemical cell ?

A) Voltaic cell B) Photovoltaiv cell C) Electrolytic cell D) Fuel cell

47. Wien effect is very important at…..

A) Very hige electrical fields B) Very low electrical fields C) A & B both D) None

48 Which statement is true for wieneffect ?

A) Decrease with ionic mobility b.Increase in ionic mobility c.Increase in conductivity d.B & C both

49. The diffusion current in polarography is expressed by the equation

A) Beer- Lamber law B) Bolts man equation C) Ilkovik equation D)Braggs equation

50. Which technique seprates charged particals using electrified ?

A) Hydrolysis B) Electrophoresis C) Protein synthesis D) Protein denaturing