8thSEMESTER PAST PAPERS.

ENVIRONMENTAL CHEMISTRY .(CHEM # 402).

2014 SHORT QUESTIONS.

1.Define leaching?

2.Give the role of pH in nutrients availability in plants?

3.Give soil conservation methods to prevent soil erosion?

4.Differentiate between primary and secondary minerals?

5.What are aflatoxin?

6.Give some detrimental effects of detergents in aqueous environment?

7.What is the principle of IR spectrophotometry?

8.Why environmental monitoring is important?

9.Why PCBs were banned?

10.Why micronutrients are important for plant growt

LONG QUESTIONS

1.What is the principle of AAS? Give its role in environmental monitoring?

2.Briefly discuss persistent organic pollutants?

3.Give the mechanism ism behind nutrients assimilation by plants from soil? Give the role of pH and cation exchange capacity in this subject?

4.How soaps and detergents contribute water pollution?

5.Briefly describe soil erosion and its types?

6.Give the role of gas chromatography in air pollution analysis?

2015 SHORT QUESTIONS

1.Define eutrophication?

2.What do you mean by cation exchange capacity of soil?

3.Give the role of humus in soil conservation?

4.Differentiate between primary and secondary minerals?

5.What are aflatoxin?

6.Give the detrimental effects of pesticides in aqueous environment?

7 .Give the principle Of AAS?

8.Why environmental monitoring is important?

9.Give various classification of soil erosion caused by water?

10.Why micronutrients are important for plant growth?

LONG QUESTIONS

1.What is the principle of UV/VISGive its role in environmental monitoring?

2.Briefly describe persistent organic pollutants?

3.Discuss various sources of soil pollution?

4.How fertilisers contribute to water pollution?

5.Briefly describe soil erosion and its types?

6.Discuss a method to monitor air pollution?

2016.SHORT QUESTIONS.

1 .Define green chemistry?

2.What do you mean by cation exchange capacity of soil?

3.Give various classification of soil erosion caused by water?

4.Differentiate between primary and secondary minerals?

5.What are aflatoxin?

6.Give some detrimental effects of detergents in aqueous environment?

7.What is the principle of IR spectroscopy?

8.Why environmental monitoring is important?

9.Why PCBs were banned?

10 .Why micronutrients are important for plant growth?

LONG QUESTIONS.

1.Write a brief note on micronutrients in soil?

2.Briefly discuss persistent organic pollutants?

3.Discuss various sources of soil pollution?

4.How is AAS is employed for environmental monitoring?

5.Briefly discuss soil erosion and its types?

6.Discuss a method to monitor air pollution?

2017 MULTIPLE CHOICE QUESTIONS

1.PCBs are

a. Polychlorinated biphenyls b.polychlorinated butane

c.poly carbonated biphenyls c.poly corrosive biphenyls

2.The chemical formula for Toxaphene is

a. C10H10CL6 b.C10H10CL8 c. C10H9CL9 d.C10H9Cl10

3.Detergents are considered more detrimental than soaps due to

a. Non-biodegradabilityb.Biodegradability c.Less additives d.Natural source

4.Major source of chromium

a. FeCr2O4 b.Fe2CrO4 c.FeCrO3 d.FeCrO4

5.DDE is metabolite of

a.PCBS b.DDT c.HCB d.Toxaphene

6.Exchange of gases within soil is referred to as

a. Soil respirationb.Soil aeration c.Soil photocatalysis d.Ion exchange

7.The toxic compounds produced by fungi are

a. Aflatoxins b.Fungicides c.Herbicides d.PCBS

8.Alfatoxins has lead to .....disease in dogs

a. Kidney b.Nervousc.liver d.heart

9.Arsenic in drinking water samples is most efficiently measured using

a.GC-MS b.Cold-vapour -AAS c.Flame –AAS d.hydride generator –AAS

10.Acidic soil has pH in range

a. 4-5 b.5-6 c.5-6.5 d.6-6.5

2017.SHORT QUESTIONS.

1.Differentiate between primary and secondary minerals?

2 .Define cation exchange capacity of soil?

3.What is the principle of IR spectroscopy?

4.What are macro and micronutrients?

5.Give the role of pH in nutrient availability to plants?

6.Give various classification of soil erosion caused by water?

7.What are POPS ?Give details of any two POPS?

8.Give the role of humus in soil conservation?

9.Give impacts of chemicals on buildings and monuments?

10.What is green chemistry?

LONG QUESTIONS.

1.Explain reclamation of soil?

2.Write a note on impacts of household chemicals on human health?

3 Write a note on HPLC(Principle and applications)?

4.How fertilisers contribute the water pollution?

5.Explain mining as a source of soil pollution?

6.How AAS spectroscopy can be utilised for the environment monitoring?

2018 SHORT QUESTIONS.

1.Define eutrophication?

2.What is the importance of soil?

3 .How is industry a source of soil pollution?

4.Give two impacts of chemicals on visibility?

5.What are POPS?

6.Give impacts of silver on human beings?

7.What do you mean by cation exchange capacity of soil?

8.Differentiate between primary and secondary minerals?

9.Why environmental monitoring is important?

10.Give various classification of soil erosion caused by water?

LONG QUESTIONS.

1.Give the principle and applications of AAS in environmental monitoring?

2.Write a note on mining and littering?

3.How GC is used for pollution monitoring?

4.Give the impacts of household chemicals on human health?

2019 MULTIPLE CHOICE QUESTIONS .

1.The saline soil contains .....of sodium and potassium

a. Phosphates and sulphates b. Phosphates and chlorides

chlorides and sulphates c.Bromides and chlorides

2.A soil is made up of .....phases.

a. Two b.Four c.Three d.Five

3.Poor soil aeration results in accumulation of .....

a. CO_2 b.O_2 c.SO_2 d.H_2O

4.Acidic soil has pH in the range ....

a. 4-5 b.5-6.5 c.5-6 d.6-6.5

5.The scientific name for DDT is .....

a. Para dichlorodiphenyltrichloroethane b.1-dichlorodiphenyltrichloroethane

c.2-dichlorodiphenyltrichroethane d.dichlorodiphenyltrichlorobutane

6.Industrial ,municipal sewage and treatment plants are examples of .....

a.Diffused sources b.Point sources c.Stationary sources d.Line sources

7.Deforestatation may reduce the chances of .....

a.Rain fall b.Erosion of surface soil c.Frequent cyclones d.Frequent landslides

8.DDT belongs to.....hydrocarbons.

a.Aromatics b.Brominated c.Chlorinated d.FeCrO4

9..Mirex (C10Cl12) is a synthetic .....

A Pesticide b.Insecticide c.Herbicide d.Fungicide

10.....is a source of chlorofluorocarbons.

a.Aerosols spray foams b.Incomplete burning of wood

c.Exhaust fumes of motor vehicles d.Both A and B.

2019 SHORT QUESTIONS.

1 .Define soil and give its composition?

2.What is meant by eutrophication? Give its main reasons?

3.Differentiate between micronutrients and micronutrients giving examples?

4. How is environment affected by PCBs?

5.How does pH of soil affect the availability of nutrients?

6.Give at least 4volatile organic compounds that pollute the soil?

7.How is biodiversity is affected by the presence of pollutants?

8.Define the term of cation exchange capacity of soil?

9.How is environmental monitoring different than environmental analysis?

10.How are micronutrients beneficial for plant growth?

LONG QUESTIONS.

1.How are littering and mining helpful in increasing the soil quality?

2.Explain the soil erosion and some methods of its prevention?

3.Explain the hazardous effects of aflatoxin on environment ,especially on human health?

4.Explain the concept of green chemistry giving its principles?

5.Explain the principle and applications of UV&VIS spectroscopy for environmental analysis?

6.What is AAS? Give its role in environmental monitoring?

2020 MULTIPLE CHOICE QUESTIONS.

1.Order of the size of mineral soil matter is .

a.Gravel>sand>silt>clayb.Sand>clay>silt>gravel.

c.Gravel>silt>sand>clay d.Sand>silt>gravel>clay.

2.Technology can be used to harness renewable sources of

a.energy b.food c.light d.heat.

3.Reduce ,reuse and recycle can conserve our ..

a.environment b.food c.climate d.oxygen.

4. Green chemistry is ..

a. Sustainable chemistry b.a philosophy for all chemistry practices.

c.Safe way of thinking and practicing chemistry d.All above

5.Alfatoxin is produced by the fungus..

a. Aspergillus flavusb. aspergillus Niger

c.Pencillium marneffei d.Candida albicans

6.POPs are dangerous as.....

a.They are lipophillic b.They can travel long distance

c.Persist in environment d.All above

7.Clay minerals are .....

a. Colloidal in natureb.negatively charged c.Layered silicates d.All above

8.The quantity of DDT at each trophic level in food chain....

a. Decreases b.remains same c . increases d.changes

9.Contour bedding and terracing help to control soil erosion by

a.Water b.wind c.a&b

10.Secondary micronutrients for plants in soil are ..

a.N,P,K b.C,H,O c.Ca,Mg,S d.All above.

2020 SHORT QUESTIONS.

1.Toxicity of Cr is attributed to Cr(4) not to Cr (3),why?

2.What is CEC? Why soil can hold only cations?

3.What are major causes of soil erosion?

4.What are aflatoxin?

5.Discuss control measure for water erosion?

6.Differentiate between micronutrients and micronutrients in soil?

7.Describe the principle of UV&VIS spectroscopy?

8.Describe the main sources of lead in environment?

9.Why PCBs were banned?

10.What is atom economy?

LONG QUESTIONS.

1.What is soil pollution? What are major causes of soil pollution?

2.Briefly discuss POPS?

3.Discuss principle and applications of HPLC I environmental monitoring?

4.Briefly describe the composition of typical soil?

5.Write a note on legislation aspects of environmental pollution?

2021 SHORT QUESTIONS.

1.Discuss two impacts of chemicals on buildings?

2.What are different types of aflatoxin?

3.What is significance of soil pH?

4.Why soil can hold only cations?

5.How soil is holding water molecules?

6.Enlist micronutrients in soil?

7.Describe the principle of UV/VIS spectroscopy?

8.Write down any two principles of green chemistry?

9.Write any two contributions of AGROCHRMICALS in soil pollution?

10 .What is AAS?Which type of pollutants is analysed by AAS?

LONG QUESTIONS.

1.Discuss INDUSTRY as a source of soil pollution?

2.Briefly describe the composition of a typical soil?

3.Discuss principle and applications of HPLC in environmental monitoring?

4.Explain the impacts of household chemicals on environment?

5.How POPS affect the environment?

ANALYTICAL CHEMISTRY (Sp.Theory.1)CHEM#431.

2014 SHORT QUESTIONS.

1.Define specific and molar conductance?

2.Write names of some methods used to determine the concentration of unknown solution in classical polarography?

3.What are advantages of anodic stripping voltmeter?

4.What is diffusion current?Write mathematical form of Ficks's second law?

5.Draw 5hree types of amperometric titration?

6.Describe two methods for measurement of electrical conductance?

7.Differentiate between arc and spark?

8.Why Mercury electrode is widely used in voltammetry?

9.Explain the importance of supporting electrolyte ?

10.Diffrentiate between automated and automatic instruments?

LONG QUESTION.

1.Describe the working and advantages of dropping Mercury electrode?

2.Describe the factors affecting the conductance of solution?

3.Write down the advantages of automation process?

4.Write about the instrumentation for voltammetry?

5.Explain the characteristics of polarogram?

2015 SHORT QUESTIONS.

1.Give the types of conductometric titration?

2.What are advantages of electroanalytical techniques over other analytical methods?

3.What change in conductance is observed when NH4OH is added to HCL?

4.How voltammetric techniques are classified?

5.Give difference between equivalent conductance and molar conductance ?

6.What is the difference between cathodic and anodic current?

7.What is the role of supporting electrolyte in voltametry?

8.What is electric arc Give its uses?

9.How does electric spark occur?

10.What are advantages of polarography?

LONG QUESTIONS.

1.Discuss cyclic voltametry?

2.Describe various kinds of currents contributing to polarographiic waves?

3.Give the advantages and limitations of DME?

4.Give applications of amperometric titration?

5.Discuss electrodes in amperometry?

6.Duscyss applications of polarography in inorganic analysis?

2016 SHORT QUESTIONS.

1.Discribe the conductrometric titration of mixture of strong and weak acid with strong base?

2.What are advantages of amperometric titration?

3.How specific conductivity of solution is determined?

4.What do you know about Faradic current in voltametry?

5.Give difference between molar and specific Conductance6.What is residual current ?Give its two components?

7.What is the role of supporting electrolyte in voltametry?

8.What us electric arc? Give its uses?

9.What do you know about electric arc?

10.What are amperometric biosensors?

LONG QUESTIONS.

1.Explain anode stripping voltametry?

2.Describe various kinds of currents contributing to polarographic waves?

3.Describe the functions of two types of electrodes in classical polarography?

4.Discuss amperometric titration along with their advantages?

5.Discuss various factors affecting conductance of solution?

6.Write a note on electric spark?

2017 MULTIPLE CHOICE QUESTIONS.

1.Which of the following ion possesses the highest conduction?

a. H* bK* c.Cl d.OH

2.Qualitative analysis in polarography is obtained from.

a. Limiting current b . Halfwave potential c.Diffusion current d.Residual current

3.Which statement is wrong about glow discharge ..

a. Argon gas is used b.Sputtering occurs c.pressure is 100-200tarr d.none

4.Control loop, which is a mean of process control instrument, consists if..

a.senor b.controller c.operator d.all

5.The unit of specific conductance is..

A .S/m b.mho.m c.Ohm/ m d.Scm²

6.Which substance is used for cell constant determination....

a.NaBr b.KCl c.NaCl d.KBr

7.In polarography which gas is bubbled through the solution to remove the interference of O2?

a.N2 b.CO2 c.He d.none

8.Under which conditions, glow discharge occur

a.Low current and low voltage b.Low current and high voltage

a.High current and high voltage d.High current and low voltage

9.Which enzyme is used in glucose biosensor ..

a.Glucose anhydrase b.glucose reductase c.glucose hydrogenase d.glucose oxidase

10.Which equation represents the llkovic equation showing average current.

a.id′ =708nD^{2}/^{3} Cm^{1}/^{3}t^{3}/^{6} b.id′ =607 nD^{1}/^{2}tCm^{2}/^{3}t^{1}/^{6}

c.id′=607 nD^{1}/^{2} Cm^{1}/^{3} t^{1}/^{6} d.id′=708nD1/^{2}Cm^{2}/^{3}t^{1}/^{6}

2017 SHORT QUESTIONS.

1.What is meant by arc and spark ablation?

2.What are the advantages of amperometric titrations.

3.Whatdo you know about polarographic maxima?

4.How oxygen interferes in polarographic analysis How the problem is overcome?

5.How sputtering takes place in glow discharge?

6.Describe briefly two steps in stripping voltametry?

7.Describe the two factors that contribute to the electrochemical reactions in polarography?

8.What are advantages of conductometric titration over ordinary titration?

9.How conductance of solution changes under the influence of temperature and concentration of ions?

10.Give difference between specific and molar conductance?

LONG QUESTIONS.

1.Explain the following conductometric titration,

A.Mixture of strong acid and weak acid with strong base.

B .Precipitation titration.

2.Discuss the types of amperometric electrode system?

3.Explain instrumentation in polarography?

4.Discuss glow discharge mechanism and give its applications in chemistry?

5.Explain how conductance is measured?

6.Discuss the applications of anodic stripping voltametry?

2018 SHORT QUESTIONS.

1 .What is the effect of concentration of ionic size on conductance?

2.Distinguish between automatic devices and automated devices?

3.Distinguish between limiting current and diffusion current?

4.Give any two advantages of amperometry?

5.What do you mean by residual current?

6.What are the capillary characteristics and give factors affecting them?

7.Give difference between continuous analyser and discrete analyser?

8.What are the advantages of conductometric titration?

9.What is the role of supporting electrolyte in voltametry?

10.What do you know about electric arc?

LONG QUESTIONS.

1.Discuss the analytical application of conductometry?

2.What is diffusion current in polarographyDiscuss factors affecting it?

3.Explain different types of titration curves obtained in amperometry?

4.Discuss the influence of Kinetics of electron transfer and mass transport on Faradaic current?

5.Write a note on electric Arc?

6.Discuss amperometric biosensors?

2019 MULTIPLE CHOICE QUESTIONS .

1.At which pressure of argon gas glow discharge takes place?

a. 1-100tarr b.100-200tarr c.10-200tarr d.200-1000tarr

2.Which ion possesses the highest equivalent conductivity at infinite dilution at 25C°

a.Cl b .K* c .Na* d .H*

3 .Which is the auxiliary electrodes in polarography ..

a. Glass b.SCE c.DME d.Pt

4.Which two parameters in llkovich equation are called capillary characteristics

a.m and t b.m and D c and n d.t and D

5.Amperometry is sub class of...

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

6.Which type of materials are not analysed by arc and spark sources ..

a.mettalic solids b.alloys c.Non metallic solids d.gases

7.Which method is useful for the neutralisation titration of phenol.

a.Conductometry b.Potentiometry c.Indicator method d.Amperometry

8.The earliest voltametric technique was

a.Amperometry b.polarography

c. Anodic stripping voltametry d.cathodic stripping voltametry

9.The time for electrodeposition step in anodic stripping voltametry is

a.1-30minutes b.10-60 sec c.1-5minutes d.30-100sec

10.What happens to conductance after equivalent point in the addition of NaOH to HCl

a.decreases b.increases c.remains constant d.decreases and then constant

2019 SHORT QUESTIONS.

1.What is the effect of temperature on conductance of solution?

2.How sputtering takes place in glow discharge?

3.Give the difference between arc and spark?

4.How oxygen interferes in polarographic analysis?

5.Distinguish between specific and molar conductance?

6.What do you know about residual current polarography?

7.What are the advantages and disadvantages of conductometric titration?

8.Give the characteristics of supporting electrolyte to be used in polarography?

9.Write down the basic principle of glow discharge technique?

10.What are the limitations of amperometry?

LONG QUESTIONS.

1.Write down the principle and instrumentation of eclectic Arcs?

2.What is meant by diffusion current Discuss factors affecting it?

3.Explain conductometric titration involving

A.Strong acid with strong base.

B.Weak acid with strong base.

4.Discuss the applications of amperometry?

5.Discuss anodic stripping voltametry?

6.Discuss various types of electrodes in polarography?

2020 MULTIPLE CHOICE QUESTIONS .

1.In llkovich equation the value of k for average current is

a. 507 b.607 c.708 d.808

2.Reference electrode in polarography is

a. Polarizable bnon-polarizable c.both a&b d. none of these

3.Convection current in polarography is maintained by ....

a. Addition of KCl b.Unstirred solution c.dropping Mercury d.All of above

4.The drop life of Mercury in dropping Mercuric voltametry is...

a. 1sec b.2-5sec c. 6-8 sec d.7-10sec

5.Amperometry is applicable in the voltage range .....

a.+0.4 to -1.8V b.-0.1to +1.8V c.+0.4 to -3.8V d .-1.4to 1.8V

6.Which enzymes used in glucose biosensor ?

a.Glucose oxidase b.Glucose dehydrogenase c.Glucose hydrogenase d.both a&b

7.At infinite dilution each ion contribute definitely amount of conductance to total conductance irrespective nature of other ions is called?

a.Ohm's law b.Kohlrausch law c.Ostwald's law d.Henry law

8.If the ion size is decrease in solution .....

a.Conductance decrease b.Conductance decrease c.botha&b d.None of the above

9.In arc or spark spectroscopy non-conductive sample is mixed with..... to make it conductive .

a.Graphite b.Germanium c.Gold d.Copper

10.Arc and spark sources are used in :

a.optical emission spectroscopy b.X-Ray diffraction spectroscopy

c.IR spectroscopy d.UV/VIS SPECTROSCOPY

2020 SHORT QUESTIONS.

1.What is the effect of dilution on specific conductance? Give reason also?

2.What is the basic principle of anodic stripping voltametry?

3.What is llkovich equation Give its significance?

4.Give application of conductometry in precipitation titration?

5.What is difference between molar and specific conductance?

6.What do you mean by cyclic voltametry?

7.Give the changes in conductance in green titration of mixture of HCL and acetic acid?

8.What is cell constant What is relation between conductivity of cell and cell constant?

9.What different arc and spark sources used in spectroscopy?

10.Give three advantages of DME?

LONG QUESTIONS.

1.Discuss quantitative applications of anodic stripping voltametry?

2.Write a note on conductometric titrations of strong acid with NaOH and NH4OH?

3.Discuss electrodeposition step and voltametric completion step in voltametry?

4.Discuss half wave potential? What information's obtained from polarographic curve?

5.Write a note on spark sources?

6.Write a note on qualitative aspects of polarographic analysis?

2021 MULTIPLE CHOICE QUESTIONS .

1.What pressure is maintained in glow discharge

a. 1-2 atm b.100-200tarr c.o.1to 30tarr d. 700-1000torr

2.Maxima in polarography is observed due to ..

a. Convection current b.Residual current c.Migration current d.Kinetic current

3.Any current in electrochemical cell due to oxidation and reduction us called

a.Non-Faradaic current b.Faradaic current

c.Charging current d.Overpotential current

4.In which conductometric titration the graph becomes horizontal after the end point

A.Strong acid with strong base b.strong acid with weak base

c.Weak acid with weak base d.Weak acid with strong base

5.Which factor decreases the conductivity of electrolyte

a.increase in concentration of solution b.increase in temperature

c.increases in number of ions d.increased size of ions

6.What potential gradient is required for the generation of DC arc

a. 50-300volts b.1000-1500volts c.100-300volts d.700-1000volts

7.In polarography wave height is equal to

a.migration current b. diffusion current c.Decomposition current d.Limiting current

8.The working electrode in amperometry is

a.DME b.Cu c.Graphite d rotating platinum electrode

9.The current in electrochemical cell that is present in the absence of analyte is

a.residual current b.Faradaic current c.Cathodic current d.catalytic current

10.Which of the following factor decreases conductivity

a.High temperature b.small size of ion c.low viscosity d.high ionic charge

2021 SHORT QUESTIONS.

1.Write down any two advantages of amperometry?

2.What do you know about residual current?

3.Distinguish between Faradaic current and non-Faradaic current?

4.Briefly describe the factors affecting the capillary characteristics in polarography?

5.Differentiate between Kinetic current and catalytic current?

6.Describe the sputtering with respect to glow discharge?

7.Hiw temperature affect conductance of solution ?

8.What is the basic principle of anodic stripping voltametry?

9.Differentiate between molar and specific conductance?

10.Briefly describe spark ablation?

LONG QUESTIONS.

1.Discuss factors affecting diffusion current?

2.Discuss the instrumentation in anodic stripping voltametry?

3.Explain the construction and working of DME along with labelled diagram?

4.Discuss different types of titration curves obtained in amperometry giving Examples?

5.Discuss conductometric titration of mixture of strong and weak acid with strong base?

6.Discuss the two types of automated analysis?

ANALYTICAL CHEMISTRY (Sp.Theory.2)CHEM#432.

2014 SHORT QUESTIONS.

1.What are the main characteristics of a laser beam?

2.How does holography form 3-D image?

3.Why four level laser system is better than the three level laser system?

4.What us the difference between spontaneous and stimulated emission?

5.How is the scale of chemicals shift values formulated in NMR spectroscopy?

6.What is the cause of spin-spin coupling in NMR spectroscopy?

7.What are different modes of relaxation in NMR spectroscopy?

8.What is the difference between base peak and molecular ion peak?

9.How will you distinguish among the primary, secondary and tertiary alcohols by mass spectroscopy?

10.How can specific ions be separated by the quadrupole mass analyser?

LONG QUESTIONS.

1.Write down the construction and working of Ruby laser?

2 What us population inversion? How is it achieved in laser?

3.Explain the basic principle of NMR spectroscopy?

4.What is chemical shift ?Explain the factors affecting chemical shift values in NMR spectroscopy?

5.What is the use of NMR imaging in medicine?

6.Explain different ionisation sources in mass spectroscopy?

2015 SHORT QUESTIONS.

1.What is the difference between molecular ion peak and base peak?

2.Could negative ions be produced by bombardment process in mass spectroscopy?

3.What is nitrogen rule?Discuss its significance?

4.What is spin-flipping?

5.Why TMS used as a standard compound in NMR spectroscopy?

6.What is spin-relaxation How does it occur?

7.What are metastable ions?

8.Define coupling constant and describe its physical significance?

9.Why four level laser system is better than three level laser system?

10.What us stimulated emission?

LONG QUESTIONS.

1.Explain different ionisation sources and mass analysers in mass spectroscopy?

2 Discuss applications of NMR spectroscopy?

3 .Define chemical shift, Explain factors affecting chemical shift values in NMR spectroscopy?

4.Describe the basic principle of NMR spectroscopy?

5.How can population inversion be achieved?

6.Write down the construction and working of Ruby laser?

2017 MULTIPLE CHOICE QUESTIONS .

1.In Ruby laser Ruby crystal consist of

a.Cr2O3 b.Al2O3 c.SiO2 d. All

2.To acquire pulses in $10'^{12}$ S or $10'^{15}$ S the technique used is

a..mode locking b.Q switchingc.harmonic generation d. laser cavity modes

3.Which of the following is used as a diagnostic test for an exchange able proton

a. HCl b.NaOH c.D2O d.H2O

4.The operating wavelength of nitrogen laser is

a. 336nm b.337nm c.337pm d.335nm

5.What kind of sample is studied in mass spectrometer

a. A gas b .A liquid c.A solid d.All of these

6.Which of the following atomic nuclei does not spin

a. ^{1}H b.^{2}H c.^{14}N d.^{12}C

7.The intensity of NMR signal is proportional to gyro magnetic ratio

a. r^{1} b.r^{2} c.r^{3} d .r^{4}

8.The signal to noise ratio is 16 the number of scans of

a. 64 b.128 c.32 d.256

9.In pulsed Fourier Transform spectrometry the intensity of radio frequency RF pulses is

a. 0.1-50s b. 1-100s c.1-50s d. 10-100s

10.The most abundant isotope of carbon has spin quantum number

a. ½ b.’1/2 c.o d.1

2017 SHORT QUESTIONS.

1.Name the different methods available for ionisation of sample in mass spectroscopy ?

2.What is tandem mass spectroscopy?

3.What is meant by chemical shift?

4.Why four laser system is better than three laser system?

5.What is the basic principle of FT-NMR spectroscopy?

6.What is meant by stimulated emission?

7.What is nitrogen rule ? Give its significance?

8.Diffrentiate spun lattice relaxation and spin-spin relaxation?

9.Why TMS is used as a standard in NMR spectroscopy?

10.Draw NMR spectra of pure anhydrous ethanol?

LONG QUESTIONS.

1.Describe the basic principle of mass spectroscopy?

2.What are the characteristics of laser light?

3.Define chemical shift, explain factors affecting chemical shift values in NMR spectroscopy?

4.Explain different mass analyser used in mass spectroscopy?

5.Explain the construction and working of Ruby laser?

6.Explain principle and instrumentation of NMR spectroscopy?

2018 SHORT QUESTIONS.

1.What is the difference between molecular ion peak and base peak?

2.What is nitrogen rule Discuss its significance?

3.What are metastable ions?

4.How scale of chemical shift value is formulated in NMR spectroscopy?

5.Why TMS is used as a standard in NMR spectroscopy?

6.What is spin procession?

7.Describe spin- spin relaxation?

8.Why four level laser system is better than three level laser system?

9.What is stimulated emission?

10.What do you mean about population inversion?

LONG QUESTIONS.

1.Discuss applications of NMR spectroscopy?

2.Explain different ionisation sources in mass spectroscopy?

3.Discuss four types of detectors in mass spectroscopy?

4.Describe different factors affecting chemical shift?

5.Write down the construction and working of Ruby laser?

6.How population inversion will be achieved?

2019 MULTIPLE CHOICE QUESTIONS .

1.Which of the following is example of tuneable laser

a. CO2 LASER 2. DYE laser c.Excimer laser d.All of them

2.Fundamental process for laser action is .

a. Absorption b .stimulated emission c.spontaneous emission d.All of above

3.Excimer laser is

a. Optically pumped solid state laser b.liquid laser

c.Gas laser d.Semiconductor laser

4.Spin quantum number of ^{19}F is ?

a. 1 b.1/2 c.zero d.3/2

5.The frequency of ^{1}H as compared to ^{13}C in the same field strength is .

a. Less b.more c.same d.none of the above

6.The transition of nucleus from alpha spin to beta spin state is called

a. Spin flipping b.spin relaxation c.metastable state d. spin procession

7.Which of the proton is maximum deshielded

a. Alkyl b.CH2 c. Benzene d.OH

8. To avoid thermal decomposition sample are introduced by:

a. Cold inlet system b.Heated inlet system

c. Direct insertion probe d. Jet spray system

9.Alexandrite laser produces laser in the range of ..

a. 300-500nm b.450-600nm c.700-815nm d. None

10. Protons of benzene are deshielded due to ?

a. Magnetic anisotropy b.Resonance c. Inductive effect d. Isotropy

2019 SHORT QUESTIONS.

1.Describe ring nitrogen rule with suitable examples?

2.Write a note on fast atom bombardment (FAB) in mass spectroscopy?

3.What is difference between single focusing and double focusing analyser?

4.Define coupling constant?How it is calculated?

5.Briefly describe principle of NMR SPECTROSCOPY?

6.What is spin-spin relaxation?

7.Write down different parts of NMR spectrometer?

8.What is population inversion in laser?

9.Describe four level laser systems with diagram?

10.Why TMS is used as a internal standard in NMR?

LONG QUESTIONS.

1.Describe two applications of Mass spectrometer?

2.Prove that: $m/e^* = H^2R^2/2V$.

3.Describe McLafferty Rearrangement with example?

4.Describe different factors affecting coupling constant?

5.Discuss methods of excitation/population inversion in laser?

6.Describe the working of Alexandrite Laser?

2020 MULTIPLE CHOICE QUESTIONS .

1.Chemical shift originates from

a. Magnetic moment b.J-Coupling c.electron shielding d. Free induction decay

2.Which of the following is not a type of mass analyser

a. Frequency sweep analyser b. Magnetic sector analyser

c. Double focusing spectrometer d. Time of flight analyser

3.In stimulated absorption ,what is the life time of atoms in ground state

a. One hour b.infinityc.10sec d. One minute

4.Ruby laser is an example of

a.Gas laser b.solid state laser c. Liquid laser d.Semiconductor laser

5.Which of the following is not type of ion detector used in mass spectrometry

a. Faraday cup collector b. Photographic plates

c. Electron multiplier d. Flame emission detector

6.Radiofrequency energy is used for

a. Vibration of atoms b.vibration of molecules

c. Excitation of atoms d. Affecting nuclear spin of atoms

7.Signal splitting in NMR Arises from

a. Spin -spin coupling b.spin -spin decoupling

c. Shielding effect d .desheilding effect

8.In which region of electromagnetic spectrum a DYE laser produces laser light

a.near UV to Near IR b. UV c.IR d.Visible

9.Which nucleus is NMR inactive

a.^{13}C b.^{19}F c.^{16}O d.^{31}P

10.M*²peak for CH3CH2Br in mass spectrometry appears at m/z

a. 79 b.108 c.81 d.110

2020 SHORT QUESTIONS.

1.What is difference between continuous analyser and pulsed mass analyser?

2.Describe optical resonator as laser system component?

3.Describe nitrogen rule and even electron rule as applied in mass spectroscopy?

4.Write down the basic principle of Magnetic resonance imaging?

5.What is spin lattice relaxation process?

6.Diffrentuate between spatial and temporal coherence?

7.What are the characteristics of laser?

8.Describe spin-spin coupling?

9.Give some advantages of laser?

10.How array detector works in mass spectroscopy?

LONG QUESTIONS.

1.Discuss electron impact ionisation in mass spectroscopy?

2.Discuss inlet system of mass spectrometer?

3.Write down the analytical applications of NMR SPECTROSCOPY?

4.Discuss instrumentation of Fourier Transform NMR spectrometer?

5.Describe the construction and working of Ruby laser ?

6.Discuss the properties and applications of nitrogen laser

2021 SHORT QUESTIONS.

1.What is the difference between molecular ion peak and base peak?

2.What Is the nitrogen rule?Explain with suitable examples?

3.Why tetramethylsilane(TMS) is used as standard reference substance in NMR SPECTROSCOPY?

4.What are the characteristics of a laser beam?

5.What is spontaneous emission?

6.Describe spin-lattice relaxation process?

7.Name the various methods available for ionisation of sample in mass spectroscopy?

8.Explain spin flipping?

9.Describe coupling constant?

10.What is the basic principle of FT-NMR spectroscopy?

LONG QUESTIONS.

1.Define chemical shift? Explain the various factors affecting chemical shift value of NMR SPECTROSCOPY?

2.Discuss the principle of NMR spectroscopy?

3.Describe the McLafferty rearrangement with suitable examples?

4.Discuss different types of analysers used in mass spectroscopy?

5.Write down the construction, working and uses of Ruby laser?

6.Discuss the three level laser system and four level laser system

APPLIED CHEMISTRY (Sp .THEORY .1) CHEM# 434.

2016 SHORT QUESTIONS.

1.Write down the different problems and diseases caused by tanning industry to human?

2.Enlist the names and their sources of any four vegetable oils?

3.Write down the classification of oils?

4.Define nitration and possible products obtain from nitrates of propane?

5.Write down the process and significance of “MERCERIZATION" of cotton?

6.Write down any one method for the production of “xylene".How it can be oxidised?

7.Write down the raw materials used for polyester and write down the equation for polyester?

8.Shortly describe the process for the production of ethylene from naphtha?

9.Name different “BEAMHOUSE OPERATIONS" involved in the manufacturing of leather?

1.Differentiate between essential oils and vegetable oils?

LONG QUESTIONS.

1.Explain the vegetative tanning process with the help of flow sheet diagram ?Give its advantages and disadvantages?

2.Describe different steps involved in the refining of crude vegetable oils?

3.Differentiate between vegetable oils and essential oils. Why does rancidity occur in fats?

4.Describe the production of “nylon 66" with the help of flow sheet diagram?

5.Define fibre and comment that all fibres are not textile fibres?

2017 SHORT QUESTIONS.

1.Give reactions for the conversion of methane to acetylene?

2.What are the major uses of carbon black?

3.Write down the chemical reactions involved in manufacturing of viscous rayon?

4.Describe neutralisation and dyeing in leather industry?

5.Write down the major and minor components of fats and oil?

6.Define mercerization and briefly describe its importance in textile finishing?

7.What do you mean by emulsions and give its types?

8.Chromium salts are undesirable in leather industry comment?

9.What are important petrochemicals obtained from propane and ecetylene?

10.Enlist the raw material of Dacron .Also give the reaction of its formation?

LONG QUESTIONS.

1.Give brief description of “steps involved in converting animal skin to leather".

2.Write down the properties of synthetic fibres?

3.Discuss the refining of crude vegetable oils by alkali method?

4.Write a concise note on the “HYDROGENATION “ of vegetable oils?

5.Describe the process of manufacturing of acetate rayon?

6.Give the importance of acetylene and benzene as petrochemical?

2019 MULTIPLE CHOICE QUESTIONS.

1.....is not an example of fat?

a.Glycerol trioleate b.Vegetable ghee c.Glyceraldehyde d.Coconut oil

2.The process of stretching the wool fabrics is termed as

a.Tentering b.Crabbing c.Decating d.Stiffening

3.The leather formed firm calf skin is termed as

a.Skin b.Hides c.Kips d.None of all

4.The mercerization of cotton is done with NaOH having concentration

a.5-10% b.10-15% c.15-25% d.25-35%

5.The catalyst used in the process of converting unsaturated oil to saturated fat is

a.Sn b.Ni c.Raney Ni d.Fe

6.A leather obtained by the vegetative tanning is of

a.Brown b.Red c.Black d.White

7.The main acidification process in leather industry is

a.Pickling b.Tanning c.Deliming d.Finishing

8.The iodine number of oil/fat indicates

a. Degree of unsaturated b.Degree of saturation c.Alkinity d.Acidity

9.The Sherling may be defined as

a.Blanket with soft pipe b.Kind of sharp knife to trim hairs

c.Lamb double faced tanned intact with hairs d.None of the above

10.Nylon 66 is made by the reaction of hexamethylene diamine with

a.Succinic acid b.Malonic acid c.Hexanedioic acid d.None

2019 SHORT QUESTIONS.

1.Enlist the names and their sources of any four vegetable oils?

2.Distinguish between primary and intermediate petrochemical. Give examples?

3.Write down the process and significance of "Singeing "of cotton?

4.Name different processes used for the conversion of polymers to fibres?

5.State the role of catechol and pyrogallol in vegetative tanning?

6.Diffrentiate between simple and mixed triglycerides with one example of each?

7.Write down the chemical reactions involved in manufacturing of cellulose acetate?

8.Descrine the role of liming in chrome tanning?

9.State the need of salting in manufacturing of leather?

10.Define fibreGive the attributes of fibre?

LONG QUESTIONS.

1.Give the brief description of the different steps involved in conversion of skin to leather?

2.Describe different steps involved in the manufacturing of vegetable ghee?

3.Write a concise note on the extraction of oil by solvent extraction method?

4.Write down the process manufacturing of viscous rayon with flow sheet diagram?

5.Write down the chemistry of naphthalene and its importance as petrochemical?

2020 MULTIPLE CHOICE QUESTIONS.

1.In the formation of "hardened " fats from vegetable oils, the hydrogen

a.causes Cross linking between chainsb .causes hydrolysis to occur

cincreases the carbon chain length d.reduces the number of carbon-carbon double bond

2.The essential fatty acids for human and other animals are

a.Oleic acid and Steric acid b.Oleic acid and linoleic acid

c.Linoleic acid and linolenic acid d.None

3.The main acidification process in leather industry is

a. Pickling b.tanningc.Deliming d.Finishing

4 .Which petrochemical is not obtained from ethylene

a.Dichloroethaneb.Ethyl benzene c.Ethylene glycol d .Acetaldehyde

5.....has the lowest melting point

a.Caprylic acidb.Capric acidc.Lauric acid d.Butyric acid

6.The fibre that dissolves in 59%(w/w) sulphuric acid solution is

a.Wool b.Polypropylene c.Cottond.Viscose

7.The reaction of propyne with H_2SO_4 and $HgSO_4$ gives

a. Alkyl alcohol b.Acetone c.Vinyl alcohol d.Propionialdehyde

8.The mercerization of cotton is conducted by using

a. NaOH b.NH_4OH c.NaCl d.H_2SO_4

9.Today,80-90% of leather in the world are tanned by

a. Vegetable tanning b.Wet blue tanning c.Wet White tanning d.One of above

10.Nylon 66 is made by the reaction of hexamethylene diamine with

a. Succinic acid b. Malonic acid c.Hexanedioic acid d.None

2020 SHORT QUESTIONS.

1.Enlist major industrial chemicals produced from ethylene?

2.Give reactions for the conversion of methane to acetylene?

3.What do you mean by emulsions and give its types?

4.Differentiate between primary and mixed triglycerides with one example of each?

5.Define nitration and write down possible products obtain from nitration of propane?

6.DifferentiTe between primary and mixed triglycerides with one example of each?

7.Write down any one method for the production of “xylene" .How it can be oxidised?

8.Distinguish between primary and intermediate petrochemicals .Give examples?

9.Enlist the main tanning system ,also mention the most common systems with reasons?

10.Describe the processes during deliming and bating in leather industry?

LONG QUESTIONS.

1.Give brief description “steps involved in converting animal skin to leather".

2.What are the major pollutants of leather industry and how are these treated?

3.Describe different steps involved in the extraction of “COTTON SEED OIL".

4.Describe the process of manufacturing of acetate rayon?

5.Give the importance of acetylene and benzene as petrochemicals?

6.Write down the properties of synthetic fibres?

2021 MULTIPLE CHOICE QUESTIONS.

1.The main acidification process in leather industry is

a. Pickling b.Tanning c.Deliming d.Finishing

2.Which petrochemical is not obtained from ethylene

a. Dichloromethane b.Ethyl benzene c.Ethylene glycol d.Acetaldehyde

3.Fats have higher melting points than oils because

a. have more hydrogen bonds b .have stronger van deals Wall forces

c.are more loosely packed d .are more unsaturated

4.....has the lowest melting point

a. Caprylic acid b.Capric acid c.Lauric acid d.Butyric acid

5.....is the saturated fatty acid

a. Oleic acid b.Linoleic acid c.Linolenic acid d.Stearic acid

6.The mercerization of cotton is conducted by using

a. NaOH b.NH4OHc.NaCL d.H2SO4

7.Which kind of clothes does not contain fibres

a. Cotton b.Jute c.leather d.Kevlar

8.Nylon 66 is made by the reaction of hexamethylene diamine with

a. Succinic acid b.Malonic acid c.Hexanedioic acid d.None

9.Terylene is made by polymerization of ethylene glycol with

a. Tetraphthalic acid b.Dimethyterephthalate c.Adipic acid d.Aminohexanoic acid

10 .The reaction of propyne with H2SO4 and HgSO4 gives

a.Allyl alcohol b.Acetone c.Vinyl alcohol d.Propionialdehyde

2021 SHORT QUESTIONS.

1.Give reactions for the conversion of methane to acetylene?

2.What are the major uses of carbon black?

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