

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.

- The X-rays emitted from an atom when an electron is removed from K- shell are
(A) K-lines B.L-lines C.M-lines D.N-lines
- In X-ray powder camera technique, the detector used is
(A) PMT B.Photographic film C.Bolometer D.Thermistor
- The X-ray diffraction is based upon
A.Illogic equation B.Bragg's equation C. Boltzmann equation D.Van deemter equation
- In X-ray tube _____ is used as source of electrons.
(A) anode B.cathode C.grid D.lead
- _____ method is the most commonly used for large single crystals.
(A) Debye-Scherre B.Laue C.Roentgen D.diffractionmeter
- _____ method is most suited method for determination of lattice parameters.
(A) Debye-Scherrer B.Laue C.Roentgen D.diffractionmeter
- The correct expression for Bragg's law is $n\lambda =$ _____
(A) $D\sin\theta$ B. $d\cos\theta$ C. $2d\sin\theta$ D. $2d\cos\theta$
- Which among the following elements has the highest thermal conductivity?
(A) Nitrogen B.Oxygen C.Hydrogen D.Chlorine
- plane intersects the coordinate axes at $x = \frac{2}{3}, y = \frac{1}{3}, z = \frac{1}{2}$ what is the miller index of this plane ?
(A) 9,3,2 B.4,3,2 C.4,2,3 D.3,6,4
- Debye scherrer method is used to characterize ?
(A) Polycrystalline materials B.Powders C.Single crystals D.Epitaxial thin film
- In the equation of state of an ideal gas $pV=nRT$, the value of the universal gas constant would depend only on
A. The nature of gas B.The units of the measurement C.The pressure of gas D.None of these
- Which set of conditions represents easiest way to liquify a gas?
A. Low temperature and low pressure B.High temperature and low pressure
C. High temperature and high pressure D.Low temperature and high pressure
- With the increase of pressure, the mean free path
A. Becomes zero B.Doesnot change C.Decrease D.Increase
- How will you separate mixture of two gases.
A. Osmosis B.Fractional distillation technique C.Grahams law of diffusion D.Chromatographie
- The temperature at which RMS velocity of SO_2 molecules is half that of He molecules at 300K is
A. 900 K B.150 K C.600 K D.1200 K
- Gas deviates from ideal gas nature because molecules.
A. Contain covalent bond B.Show brownian movement C.Attract each other D.Are colourless
- Actual velocity of electrons between collisions is
A. 10^{30} ms^{-1} B. 10^{20} ms^{-1} C. 10^2 ms^{-1} D. 10^5 ms^{-1}
- The loss of head per unit distance in soil is called.....
A. Velocity potential B.Velocity gradient C.Hydraulic gradient D.Stream function
- Find the number of stereoisomers for $CH_3-CHOH-CH=CH_3$
A. 1 B.2 C.3 D.4
- Which of the following is an example of optically active compounds without chirality?
A. Tartaric acid B.Diphenic acid C.Sulphonium salt D.Glyceraldehyde
- ESCA is electron spectroscopy while SIMS is _____
(a) ION spectroscopy B.Molecular spectroscopy C.Atomic spectroscopy D.All
- Fermi level is the point of _____
(a) Maximum potential energy B.Zero potential energy on the energy level
C. Maximum affinity energy D.Maximum chemical energy
- Analysis of surfaces can be achieved by _____
(a) XPS or ESCA B. UV-PES C.AES D.All
- In surface spectroscopy, the secondary beam results from _____
(a) Sputtering B.Scattering C.Emission D.Any one of these

25. All elements produce Auger electron spectra except ?
 (a) H₂ and helium B.Nitrogen C.Halogen D.Carbon
26. The experimental and theoretical aspect of PES were first pioneered by _____
 (a) Schawlow B.K. Siegbahn C.Koopman D.Zavoisky
27. An acoustic resonant frequency depends upon?
 (a) Cell length B.Tunable dye laser C.Photoacoustic cell D.Chopper
28. PAS is comparable to
 (a) Phosphorescence B.Fluorescence C.IR D.NMR
29. The best detector used in PAS is _____
 (a) Condenser microphone B.Pio electric transducer C.Photomultiplier tube D.None
- 30) The modulation frequency is between 20 Hz to _____
 (a) 200 Hz (b) 100 Hz (c) 300 Hz (d) 250 Hz
31. Which molecule shows m+1 peak?
 A) 34S B) 18O C) 18O D) 33S
32. Which ionization technique is not used for a VOLATILE Compound?
 A) CI. B.FAB C)FI D)EI
33. How many mg sample is required for FAB Method?
 A) 1– 2mg. B) 3– 4mg C) 50u-1mg. D) 10–20mg
34. MALDI is method of which spectroscopy?
 A) UV spectroscopy B) IR spectroscopy C) Mass spectroscopy D) NMR
35. Which is sample destructive technique?
 A) UV spectroscopy. B) IR spectroscopy C) Mass spectroscopy D) NMR
36. In which technique heated tube are used for ionization of sample?
 A) Tsp. B) MALDI C) CI. D) EI
37. Mass spectroscopy hard ionization technique
 A) High Energy, increase fragmentation B) Low Energy, increase fragmentation
 C) High Energy, decrease fragmentation D) Low Energy, decrease fragmentation
38. Which technique was one of the first ionization techniques developed for Mass spectroscopy?
 A. CI. B) EI C) ESI. D) FAB
39. Mass spectroscopy fragmentation takes place only at.
 A) Alpha- Hydrogen. B) Beta-Hydrogen C) Gamma-Hydrogen D) Hydrogene
40. In which state of matter Mass spectroscopy is being performed?
 A) Solid. B) liquid C) Gas. D) plasma
- 41.. Mass spectroscopy soft ionization technique
 A) High Energy, increase fragmentation B) Low Energy, increase fragmentation
 C) High Energy, decrease fragmentation D) Low Energy, decrease fragmentation
42. Full form of FAB
 A) Fast atom bombardment B) Force atom bombardment
 C) Fission atom bombardment D) Fission angle bombardment
43. Full form of ESI
 A) Electron spray ionization B) Electron spin ionization
 C) Electrophoresis spin ionization D) Electrophoresis spray ionization
44. Full form of MALDI
 A) Matrix assisted laser ionization B) Matrix atom laser ionization
 C) Mass atom laser ionization D) Matrix atom layer ionization
45. Who discovered the mass spectrometer ?
 A) Francis aston B) J.J Thomsan C) Ernest o.lawrences D) Walter kauffman
46. What are the main criteria on which mass spectrometer used to ?
 A) Composition in sample B) Relative mass of atom
 C) Concentration of element in the sample D) Properties of sample
47. As the applied voltage increases the minimum wavelength of X-radiation from metal
 A) Increases B) Decreases C) Remain same D) Vibratio with metal
48. X-Rays are generated by
 A) Geiger tube B) Gionimeter C) Coolidge tube D) Ratameter
49. The adsorption of X- rays in a material is governed by
 A) Bragg's law B) Beer lambert's law C) Stephan's law D) All
50. X-rays are produced following photoelectric process while continuous X-rays are produced as a result of
 A) Bremsstrahlung process B) Diffraction C) Interference D) Duane hunt process