Deeper Web Paper - 2012

Part I :- Subject : Physics & Chemistry

Question Booklet Version	MHT-CET Roll No.	Question Booklet Sr. No.
(Write this number on your Answer Sheet)		(Write this number on your Answer Sheet)

Answer Sheet No.

Day and Date :
Tuesday, 08 May 2012

Duration : 10.00 am to 11.30 am
Total Marks : 100

This is to certify that, the entries of MHT-CET-12 No. and Answer Sheet No. have been correctly written and Verified

Candidate's Signature *Invigilator's / Parents Signature*

Instructions to Candidates

1. This question booklet contains 100 Objective Type Questions in the subjects of Physics (50) & Chemistry (50).
2. The question paper and OMR (Optical Mark Recognition) Answer Sheet is issued seperately at the start of the examination.
3. Section 'A' contains 50 questions in the subject of Physics, Section 'B' contains 50 Questions in the subject of Chemistry.
4. Choice and sequence for attempting questions will be as per the convenience of the candidate.
5. Candidate should carefully read the instructions printed on the Question Booklet and Answer Sheet and make the correct entries on the Answer Sheet. As Answer Sheets are designed to suit the OPTICAL MARK RECOGNITION (OMR) SYSTEM, special care should be taken to mark the entries correctly. Special care should be taken to fill QUESTION BOOKLET VERSION, SERIAL No. and **MHT-CET - 2012 Roll No.** accurately. The correctness of entries has to be cross-checked by the invigilators. The candidate must sign on the Answer Sheet and Question Booklet.
6. Read each question carefully.
7. Determine the correct answer from out of the four available options given for each question.
8. Fill the appropriate circle completely like this ●, for answering a particular question. Mark with **Black ink ball point pen** only.
9. Each answer with correct response shall be awarded **One (1) Mark**. There is **No Negative Marking.** No mark shall be awarded for marking two or more answers of same question, scraching or overwriting.
10. Use of whitener or any other material to erase/hide the circle once filled is not permitted.
11. Avoid overwriting and/or striking of answers once marked.
12. Rough work should be done only on the blank space provided on the Question Booklet. Rough work should not be done on the Answer Sheet.
13. The required mathematical tables (Log etc.) will be provided along with the question booklet.
14. Immediately after the prescribed examination time is over, the Question Booklet and Answer Sheet is to be returned to the invigilator. Confirm that both the candidate and invigilator have signed on question booklet and Answer sheet.
15. No candidate is allowed to leave the examination hall till the Paper gets over.

Section - A

Q. 1 Keeping the banking angle same, to increase the maximum speed with which a vehicle can travel on a circular road by 10 %, the radius of curvature of the road has to be changed from 20 m to _____

A) 16 m
B) 18 m
C) 24.2 m
D) 30.5 m

Q. 2 Newton's corpuscular theory could **NOT** explain _____

A) reflection
B) rectilinear propagation
C) diffraction
D) inverse square law

Q. 3 Angular frequency of a particle in circular motion increases from 120 rpm to 480 rpm in 10 s. The number of revolutions performed during this time is_____

A) 100
B) 50
C) 60
D) 10

Q. 4 An oil immersion objective is used in microscope to _____

A) increase the reflection of light at first lens
B) decrease loss of light by reflection at first lens surface
C) decrease numerical aperature
D) increase limit of resolution

Q. 5 In vertical circular motion of a particle _____

A) kinetic energy is constant
B) potential energy is constant
C) K. E. and P. E. are changing
D) K. E., P. E. both are constant

Q. 6 In Young's double slit experiment, for a given setting the 8th bright band with wavelength λ_1 is formed at distance d_1 from central bright band and 6th bright band with wavelength λ_2 is formed at d_2. Then d_1/d_2= ____

A) $\frac{4\lambda_1}{3\lambda_2}$
B) $\frac{4\lambda_2}{3\lambda_1}$
C) $\frac{3\lambda_2}{4\lambda_1}$
D) $\frac{3\lambda_1}{4\lambda_2}$

Q. 7 A satellite revolves around the earth in an elliptical path. Its speed is _____

A) same at all points on orbit
B) greatest, when it is farthest from earth
C) greatest, when it is closest to earth's surface
D) nothing can be predicted

Space for rough work

Q. 8 The equations of two interfering waves are $y_1 = b\cos\omega t$ and $y_2 = b\cos(\omega t + \phi)$ respectively. For destructive interference ϕ should have value _____

A) 0^0 B) 180^0
C) 90^0 D) 60^0

Q. 9 If mass of a planet is twice the mass of the earth and it's radius is half that of the earth, then acceleration due to gravity on the surface of the planet becomes _____

A) g / 2 B) g
C) 4g D) 8g

Q. 10 Three capacitors 10 μF, 15 μF, and 20 μF are connected in series. The equivalent capacity of the combination is _____

A) 100/65 μF B) 200/65 μF
C) 300/65 μF D) 400/65 μF

Q. 11 If earth suddenly stops rotating about its axis, then the apparent weight of a body on its surface at lattitude 45º would _____

A) increase B) decrease
C) remain unchanged D) decrease by half of its earlier value

Q. 12 A capacitor carries a charge of 3 μC at a potential of 250 V. The electrostatic energy stored in condenser is _____

A) 36.5×10^{-6} J B) 37.5×10^{-6} J
C) 36.5×10^{-5} J D) 37.5×10^{-5} J

Q. 13 The M.I. of a solid cylinder of uniform density about an axis passing through its center and perpendicular to its length will be _____

(Given M = 100 g, r = 5 cm, $l = 5\sqrt{3}$ cm)

A) 6.25×10^{-5} kg-m^2 B) 6.25×10^{-4} kg-m^2
C) 1.25×10^{-4} kg-m^2 D) 1.25×10^{-3} kg-m^2

Q. 14 The number of tubes of induction starting from unit positive charge is _____

A) one B) two
C) three D) four

Space for rough work

Q. 15 Two circular discs of same thickness and density have their radii in a ratio 1:2. Ratio of their moments of inertia about the axis passing through their centre and perpendicular to their plane is _____

A) 8 : 1 B) 1 : 4
C) 1 : 8 D) 1 : 16

Q. 16 The neutral temperature of Cu-Fe thermocouple is 270 ^{0}C. If the temperature of inversion is 510 ^{0}C then the temperature of cold junction is _____

A) 10 ^{0}C B) 20 ^{0}C
C) 30 ^{0}C D) 40 ^{0}C

Q. 17 A particle executing SHM has velocities v_1 and v_2 at distances x_1 and x_2 respectively from mean position, the frequency of oscillation of SHM is _____

A) $2\pi\sqrt{\frac{x_1^2 - x_2^2}{v_1^2 - v_2^2}}$ B) $2\pi\sqrt{\frac{x_1^2 - v_1^2}{x_2^2 - v_2^2}}$

C) $\frac{1}{2\pi}\sqrt{\frac{v_2^2 - v_1^2}{x_1^2 - x_2^2}}$ D) $\frac{1}{2\pi}\sqrt{\frac{x_1^2 - x_2^2}{v_2^2 - v_1^2}}$

Q. 18 Four resistances $8\Omega, 8\Omega, 8\Omega$ and 24Ω from a Wheatstone's network. The resistance to be connected across 24Ω to balance the network is _____

A) 6 Ω B) 12 Ω
C) 24 Ω D) 36 Ω

Q. 19 When length of simple pendulum is increased by 44 cm, its period changes by 20 %. The original length of simple pendulum is _____

A) 100 cm B) 95 cm
C) 90 cm D) 85 cm

Q. 20 In a Bi-Sb thermocouple, before inversion temperature _____

A) current flows from Sb to Bi at cold junction B) electron flows from Bi to Sb at hot junction
C) current flows from Sb to Bi at hot junction D) current flows from Bi to Sb at cold junction

Q. 21 The change in volume of a lead block of volume 1 m^3 is 12×10^{-4} m^3, when it is subjected to a pressure of 10 atmosphere. The compressibility of lead is _____

A) 4.256×10^{-9} m^2/N B) 4.256×10^{-9} N/m^2
C) 1.185×10^{-9} N/m^2 D) 1.185×10^{-9} m^2/N

Space for rough work

Q. 22 Current sensitivity of a tangent galvanometer is 6 degree/mA, when deflection is 30^0. What should be it's current sensitivity for deflection of 45^0?

A) 3 deg/mA
B) 4 deg/mA
C) 6 deg/mA
D) 12 deg/mA

Q. 23 The greatest length of a steel wire which can hang vertically without breaking under its own weight is (Given breaking stress of steel wire = 7.8×10^8 N/m^2, density of steel = 7800 kg/m^3, g = 10 m/s^2) _____

A) 10^3 m
B) 10^4 m
C) 10^5 m
D) 10^6 m

Q. 24 A moving coil galvanometer in series with high resistance can be used as _____

A) flux meter
B) an ammeter
C) voltmeter
D) ohm meter

Q. 25 A drop of mercury of radius 0.3 cm is broken into N droplets each of radius 0.1 cm. N = ?

A) 8
B) 27
C) 64
D) 125

Q. 26 The ratio of magnetic potential to magnetic induction due to short magnetic dipole at the same point is _____

A) $\frac{\cos\theta}{\sqrt{3\cos^2\theta + 1}}$
B) $\frac{r\cos\theta}{\sqrt{3\cos^2\theta + 1}}$
C) $\frac{\sqrt{3\cos^2\theta + 1}}{\cos\theta}$
D) $\frac{\sqrt{3\cos^2\theta + 1}}{r\cos\theta}$

Q. 27 The force, additional to the weight, required to lift a needle of length 2 cm from the surface of the water is _____ (S.T. of water = 0.075 N/m)

A) 150 dyne
B) 3000 dyne
C) 1500 dyne
D) 300 dyne

Q. 28 A long thin bar magnet of length L and pole strength m has magnetic moment M. If it is bent in the shape of a semicircle, the new magnetic moment becomes _____

A) $\frac{2M}{\pi}$
B) $\frac{M}{2\pi}$
C) $\frac{M}{\pi}$
D) $\frac{\pi M}{2}$

Space for rough work

Q. 29 The graph of height of a liquid column inside a capillary tube versus radius of the capillary tube is _____

A) straight line
B) ellipse
C) parabola
D) rectangular hyperbola

Q. 30 The back e.m.f. induced in an inductor is 100 V, when current flowing through the coil changes fromzero to one ampere in 0.01 second. The self inductance of the coil is _____

A) 0.1 H
B) 1 H
C) 100 H
D) 106 H

Q. 31 A set of seven tuning forks is arranged in a series of descending order of frequencies, such that each fork produces 4 beats per second with the previous one and the frequency of the first fork is twice that of the last. The frequency of the first fork is _____

A) 65 Hz
B) 48 Hz
C) 32 Hz
D) 24 Hz

Q. 32 A wire 5 m long along east-west direction is released from a height of 20m. When it is about to hit the gound what will be the e.m.f. induced in it? ($g = 10\ m/s^2$, $B_H = 4 \times 10^{-5}\ Wb/m^2$) _____

A) 4×10^{-7} V
B) 2×10^{-7} V
C) 4×10^{-3} V
D) 2×10^{-3} V

Q. 33 Two sound waves are given by $y_1 = 0.25 \sin 400\ \pi t$, $y_2 = 0.2 \sin 408\ \pi t$ (all quantities are in SI). They interfere and produce beats. The intensities of waxing and waning are respectively proportional to _____

A) $0.20\ m^2$, $0.005\ m^2$
B) $0.25\ m^2$, $0.0005\ m^2$
C) $0.20\ m^2$, $0.0025\ m^2$
D) $0.25\ m^2$, $0.005\ m^2$

Q. 34 If the peak value of a.c. voltage is 8 V then the RMS value of that a.c. voltage is _____

A) 16 V
B) 11.312 V
C) 5.656 V
D) 4 V

Q. 35 In stationary waves, the particles in adjacent loops are vibrating _____

A) in the same phase
B) out of phase
C) with continuous change in phase
D) with phase difference of $\frac{\pi}{2}$

Q. 36 A photon in motion has an equivalent mass _____

A) $\frac{h}{v}$
B) $\frac{hv}{c^2}$
C) $\frac{c}{hv}$
D) hv

Space for rough work

Q. 37 The fundamental frequency of pipe closed at one end is in unison with third overtone of open pipe. The ratio of their lengths is _____

A) 8 : 1
B) 3 : 8
C) 2 : 8
D) 1 : 8

Q. 38 A radio transmitter operates at a frequency 880 kHz and power of 10 kW. ($h = 6.63 \times 10^{-34}$ J - s) The number of photons emitted per seconds is _____

A) 1.327×10^{25}
B) 1.75×10^{31}
C) 1.327×10^{37}
D) 1.327×10^{45}

Q. 39 In Melde's experiment, when wire is stretched by empty pan, 3 loops are obtained and when 1 g weight is added in the pan, the number of loops becomes 2. The mass of pan is _____

A) 2.8 g
B) 2.0 g
C) 1.8 g
D) 0.8 g

Q. 40 The energy of electron in ground state is -13.6 eV. The energy of electron in third orbit is _____

A) - 122.4 eV
B) - 40.8 eV
C) - 4.5 eV
D) - 1.5 eV

Q. 41 A gas molecule enclosed in a cube of side of length 1 m travels with the velocity of 400 m/s and strikes on its face. The time interval between two successive collisions with the same face of cube is_____.

A) 2 milli–second
B) 2.5 milli–second
C) 5 milli–second
D) 2.5 second

Q. 42 The series limit for Balmer series is _____

A) $\lambda = \frac{4}{R}$
B) $\lambda = \frac{5}{9R}$
C) $\lambda = \frac{5}{36R}$
D) $\lambda = \frac{9}{48R}$

Q. 43 16 mg of oxygen occupies 0.025 m^3 at 27 ºC. If the universal gas constant is 8.4 J/mol K, the pressure exerted by it is _____

A) 25.2 N/m^2
B) 50.4 N/m^2
C) 100.8 N/m^2
D) 403.2 N/m^2

Space for rough work

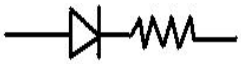
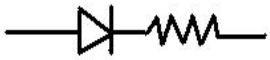
Q. 44 The ratio of speed of electron in third orbit to that in second orbit is _____

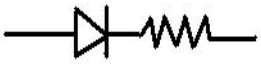
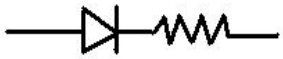
A) 4/9 B) 2/3
C) 3/2 D) 9/4

Q. 45 The temperature at which perfectly black body radiates energy at the rate of 5.67×10^4 W/m^2 is _____ ($\sigma = 5.67 \times 10^{-8}$ W/m^{2}K^4)

A) 100 ºC B) 1000 ºC
C) 100 K D) 1000 K

Q. 46 The forward biased diode is _____

A) -2V  +2V B) -4V  -3V

C) 3V  5V D) 0V  -2V

Q. 47 Coefficient of absorption of an opaque body is 0.7. The amount of heat incident on a body is 2000 J. The amount of heat reflected by it is _____

A) 300 J B) 600 J
C) 700 J D) 1400 J

Q. 48 For a transistor, current amplification factor is 4. When the transistor is connected in CE configuration, the change in collector current, if base current changes by 6 mA is _____

A) 4.8 mA B) 6 mA
C) 8 mA D) 24 mA

Q. 49 The wavelength at which a body at 327 ºC radiates maximum energy is _____ (Given Wien's constant = 2.898×10^{-3} m K) _____

A) 4.83×10^{-3} m B) 4.83×10^{-4} m
C) 4.83×10^{-5} m D) 4.83×10^{-6} m

Q. 50 In an optical fibre refractive index of the core is1.7. Which of the following can be the refractive index of cladding ?

A) 0.9 B) 1
C) 1.6 D) 1.8

Space for rough work

Section - B

Q. 51 A 500 mL solution of anhydrous sodium carbonate contains 25.8 g of the salt. If the density of the solution is 1g/ cm^3, the molality of the solution will be (Given that : atomic mass of Na = 23, O = 16, H = 1, C = 12)

A) 0.512 m
B) 0.455 m
C) 0.215 m
D) 0.125 m

Q. 52 Which of the following compound gives silver mirror test?

A) acetic acid
B) formic acid
C) corbolic acid
D) picric acid

Q. 53 Increasing order of vapour pressure for ethyl acetate,ethyl alcohol, acetone and lubricating oil is

A) Ethyl Acetate > Ethyl alcohol > Acetone > Lubricating oil
B) Ethyl Acetate > Acetone>Ethyl alcohol > Lubricating oil
C) Acetone > Lubricating oil > Ethyl acetate > Ethyl alcohol
D) Ethyl alcohol > Acetone > Lubricating oil > Ethyl acetate

Q. 54 Which of the following is a reversible reaction ?

A) $CH_3CO\,CH_3 \xrightarrow{\text{Zn-Hg/ConcHCl}}$
B) $CH_3CO\,CH_3 + NH_3 \longrightarrow$
C) $HCHO + NH_3 \longrightarrow$
D) $CH_3CHO + HCN \longrightarrow$

Q. 55 The graph of variation of vapour pressure of solution with mole fraction of volatile solvent in solution is....

A) Straight line passing through origin
B) Straight line parallel to X axis
C) Straight line parallel to Y axis
D) Parabola

Q. 56 Which of the following pair of reactants is used in preparation of 2-methoxy-2-methyl propane?

A) sodium isopropoxide and methyl iodide
B) sodium methoxide and tert-butyl bromide
C) sodium tert-butoxide and methyl iodide
D) sodium ethoxide and iso-propyl bromide

Q. 57 In Berkely-Hartley method, the solvent and solution is seperated by

A) animal bladder membrane
B) copper phospate
C) copper ferricynide
D) copper ferrocynide

Q. 58 Fehling's solution is a

A) copper sulphate solution
B) complex of tartaric acid and cupric ions
C) Na, K-tartarate in NaOH solution
D) complex of tartaric acid and cuprous ion

Space for rough work

Q. 59 Osmotic pressure for true solution is calculated by using a formula

A) $\pi = \frac{nTv}{8.314}$ B) $\pi = \frac{8.314nT}{v}$

C) $\pi = \frac{nv}{8.314T}$ D) $\pi = \frac{8.314vT}{n}$

Q. 60 In laboratory, chloroform and iodoform are separately prepared from ethanol using distillation assembly and using evaporating dish respectively, because

A) Both $CHCl_3$ and CHI_3 are liquids
B) Both $CHCl_3$ and CHI_3 are non-volatile liquids
C) $CHCl_3$ is non-volatile liquid and CHI_3 is solid
D) $CHCl_3$ is volatile liquid and CHI_3 is solid

Q. 61 Translational energy is not observed in

A) Fe
B) Ne
C) O_2
D) CO_2

Q. 62 Which of the following functional isomers are optically active?

A) Butan-2-ol and Ethoxy ethane
B) Propanone and propanal
C) Acetic acid and methyl fomate
D) Glucose & fructose

Q. 63 Intensive property among the following is

A) Mass of one potato
B) Refractive index
C) Volume
D) Enthalpy

Q. 64 Which of the following polymer is used for making magnetic tape ?

A) Dacron
B) Perlon-L
C) Nylon-66
D) PVC

Q. 65 The molar heats of camphor vapours and solid camphor are 8 and 14 $JK^{-1}Mol^{-1}$ respectively. The heat of vopourisation of camphor is $25000JMol^{-1}$ at 100^0 C. Its value at 200^0C will be

A) 24.4kJ
B) 25.3kJ
C) 25.6kJ
D) 48.8kJ

Q. 66 Esters are obtained by

A) Intermolecular dehydration of alcohols
B) Intramolecular dehydration of alcohols
C) Intermolecular dehydration of carboxylic acid and alcohol
D) Intramolecular dehydration of carboxylic acid

Space for rough work

Q. 67 The work done for a gas enclosed in a container with weightless and frictionless piston under one atmospheric pressure with change in volume as 1 ml, is

A) -1.01325×10^5 kJ
B) -1013.25 kJ
C) -101.325 kJ
D) -0.1013 kJ

Q. 68 Hydroxy benzene on treatment with bromine water gives

A) 4 - bromophenol
B) 2, 4, 6 - Tribromophenol
C) 2 - bromophenol
D) a mixture of 2 and 4 bromophenol

Q. 69 The highest heat of combustion is observed in

A) Methane
B) Ethane
C) Ethylene
D) Acetylene

Q. 70 Which of the following does **NOT** yield ethyl alcohol ?

A) $CH_3–CH_2–Br + aq.KOH \xrightarrow{\Delta}$
B) $CH_3–CH_2–Br + alc.KOH \xrightarrow{\Delta}$
C) $CH_3–CH_2–NH_2 + HNO_2 \xrightarrow[NaNO_2]{HCl}$
D) $CH_3–CH_2–Br \xrightarrow{Moist\ Ag_2O}$

Q. 71 When ammonium chloride is added in aqueous ammonia, the pH of resulting solution will

A) increase
B) decrease
C) remain same
D) become equal to 7

Q. 72 What is "A" in following sequence of reactions?

$$A \xrightarrow{red-P+Br_2} B \xrightarrow[\Delta]{alc.KOH} C \xrightarrow{Br_2} 2,3-\text{dibromobutane}$$

A) But-2-ene
B) 2-Bromobutane
C) Butan-2-ol
D) Butan-1-ol

Q. 73 The conjugate acid base pair differs by a/an

A) electron
B) proton
C) hydroxyl ion
D) hydronium ion

Q. 74 IUPAC name of $CH_3-\underset{\underset{NH_2}{|}}{CH}-\overset{\overset{CH_3}{|}}{CH}-CH_2-CH_3$ is

A) 3-ethyl butan-2-amine
B) 3-methyl pentan-4-amine
C) 3-methyl pentan-2-amine
D) 2-ethyl butan-3-amine

Space for rough work

Q. 75 The degree of dissociation of an electrolyte

A) decreases when concentration decreases
B) increases when temperature decreases
C) increases when polarity decreases
D) increases when ionic character increases

Q. 76 Which of the following ion is colourless?

A) Ce^{+4}
B) Eu^{+3}
C) Sm^{+3}
D) Pr^{+3}

Q. 77 The pH of centimolar caustic soda solution is

A) 2
B) 3
C) 11
D) 12

Q. 78 Identify 'C' in the following series of reaction,

$$\text{Acetaldehyde} \xrightarrow[\Delta]{H_2NOH} A \xrightarrow[C_2H_5OH]{Na} B \xrightarrow[HCl]{NaNO_2} C$$

A) Ethanal
B) Ethanol
C) Propan-1-ol
D) Propan-2-ol

Q. 79 When ammonium acetate undergoes hydrolysis, the pH of resulting solution will be in between (given Ka = 1.8×10^{-5}, Kb = 1.8×10^{-6})

A) 5 and 6
B) 6 and 7
C) 7 and 8
D) 8 and 9

Q. 80 In the following sequence of reactions, the product A and C respectively are.

$$\text{Ethanol} \xrightarrow[\text{dil.}H_2SO_4]{K_2Cr_2O_7} A \xrightarrow[\Delta]{P_2O_5} B \xrightarrow{\text{Ethanol}} C$$

A) ethyl acetate and acetic acid
B) methyl acetate and acetic anhydride
C) acetic anhydride and methyl acetate
D) acetic acid and ethyl acetate

Q. 81 The standard emf of a cell is positive when

A) anode and cathode have lower value of E^o reduction
B) anode has lower value of E^o reduction and cathode has higher value of E^o reduction
C) anode and cathode have higher value of E^o reduction
D) anode has higher value of E^o reduction and cathode has lower value of E^o reduction

Q. 82 A triglyceride on hydrolysis gave glycerol, one mole of stearic acid and two moles of palmitic acid. The triglyceride is _____

A) Tristearin
B) Glyceryl palmitate
C) glycerol dioleopalimitate
D) Glyceryl dipalmito stearate

Space for rough work

Q. 83 The emf of the following cell is

$$Cd_{(s)} + 2H^{+}{}_{(aq)} \rightarrow Cd^{++}{}_{(aq)} + H_{2(g)}$$

A) $Ecell = E^{o}cell + \frac{2.303RT}{2F} \times \log \frac{[Cd^{++}]}{[H^{+}]}$

B) $Ecell = E^{o}cell - \frac{2.303RT}{2F} \times \log \frac{[Cd^{++}]}{[H^{+}]}$

C) $Ecell = E^{o}cell - \frac{2.303RT}{2F} \times \log \frac{[Cd^{++}]}{[H^{+}]^{2}}$

D) $Ecell = E^{o}cell + \frac{2.303RT}{2F} \times \log \frac{[Cd^{++}]}{[H^{+}]^{2}}$

Q. 84 A protein in 10% NaOH gives reddish violet colour with .....

A) $CaSO_4$
B) $Cu(OH)_2$
C) Cu_2O
D) $CuSO_4$

Q. 85 In solar cell, the positive and negative terminals used respectively are

A) both p-type silicon surface layer
B) Both n-type silicon suface wafer
C) p-type silicon surface layer and n-type silicon wafer
D) n-type silicon wafer and p-type silicon suface layer

Q. 86 In oxime, the double bond is present in which of the following two atoms?

A) N, O
B) C, C
C) O, C
D) C, N

Q. 87 The constant 0.0591 in Nernst's equation at 298 K represents the value of

A) $\frac{RT}{nF}$
B) $\frac{RT}{F}$
C) $\frac{2.303RT}{nF}$
D) $\frac{2.303RT}{F}$

Q. 88 The latest method used for food preservation is

A) addition of sugar
B) irradiation
C) dehydration
D) refrigeration

Space for rough work

Q. 89 The volume of hydrogen liberated at NTP, when 965 C of electric charges is passed through acidified water is _____

A) 11.2 dm^3
B) 1.12 dm^3
C) 0.112 dm^3
D) 0.0112 dm^3

Q. 90 Starting from Ethyl bromide and ethyl amine which of the following set of reagent respectively will give same product?

A) (i) alc. KCN (ii) $CHCl_3$ and alc.KOH
B) (i) alc.AgCN (ii) $CHCl_3$ and alc.KOH
C) (i) alc.KOH, HCl (ii)HNO_2
D) (i) alc.KOH (ii) $CHCl_3$ and alc.NaOH

Q. 91 In the following nuclear reaction, ${}^{9}_{4}B + {}^{4}_{2}He \rightarrow {}^{b}_{a}C + {}^{1}_{0}n$ the values of a and b are respectively

A) 6,12
B) 6,13
C) 6,14
D) 6,11

Q. 92 Which of the following compound undergoes Cannizzaro's reaction ?

A) Acetone
B) Propanal
C) Tri methyl acetaldehyde
D) Ethanal

Q. 93 _____ is the synthetic element

A) ${}^{242}_{96}Cm$
B) ${}^{238}_{92}U$
C) ${}^{96}_{42}Mo$
D) ${}^{227}_{89}Ac$

Q. 94 The radioactive element of 4f-series is

A) Gadolinium
B) Praseodymium
C) Europium
D) Promethium

Q. 95 The most abundant ore of Zinc is

A) Calamine
B) Calcite
C) Willemite
D) Zincite

Q. 96 Which of the following is nonterminal branched geminal dihalide?

A) $CH_3-\overset{CH_3}{\overset{|}{C}}H-CH_2-CHCl_2$
B) $CH_3-\overset{CH_3}{\overset{|}{C}}H-\overset{Cl}{\overset{|}{\underset{Cl}{\underset{|}{C}}}}-CH_3$
C) $Cl_2CH-\overset{CH_3}{\overset{|}{C}}H-CH_2-CH_3$
D) $(CH_3)_3C-CHCl_2$

Space for rough work

Q. 97 The colour of transition metal compound can be explained on the basis of

A) completely filled d–orbital
B) incompletely filled d–orbital
C) completely filled s–orbital
D) half filled p–orbital

Q. 98 Which of the following pair of reactants is used to prepare 2-methybutan-2-ol ?

A) Propanone and ethyl magnesium iodide
B) Propanone and propyl magnesium iodide
C) Propanal and ethyl magnesium iodide
D) Ethanal and propyl magnesium bromide

Q. 99 The order of following reaction is, $CH_3CHO \rightarrow CH_4 + CO$

A) 0
B) 1
C) 3/2
D) 2

Q. 100 Isopropyl benzene is converted into cumene hydroperoxide by the action of

A) acidified dichromate
B) nitric acid
C) arial oxygen in presence of dil.H_2SO_4
D) arial oxygen in presence of Na_2CO_3 and Co.naphthenate

Space for rough work