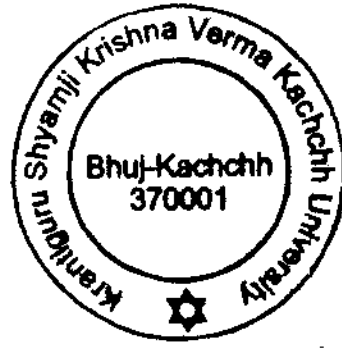


PHDKU18



Subject Code : **17-Chemistry**

તમને કહેવામાં ન આવે ત્યાં સુધી પ્રશ્નપુસ્તિકા ખોલવી નહીં.
Do not open the Question Booklet until ask to do so.



A

Booklet Sr. No.
1770161

A

ઉમેદવારનું નામ :

Candidates Name :

ઉમેદવારનો સીટ નંબર

ઉમેદવારની સહી

ખંડ નિરીક્ષકની સહી

સમય : **60 મિનિટ**

કુલ પ્રશ્નો : **50**

કુલ ગુણ : **100**

ઉમેદવારોને સૂચના

- (1) આ પ્રશ્નપુસ્તિકામાં પ્રશ્ન ક્રમાંક 1-50 સુધી કુલ 50 પ્રશ્નો છે. પ્રત્યેક પ્રશ્નનો ઉત્તર (1), (2), (3) અને (4) પૈકી કોઈ એક છે. પ્રશ્નની સાથે જ ચારેય વિકલ્પો આપવામાં આવેલ છે. તમારે બધા જ પ્રશ્નોના ઉત્તર આપવાના છે. તમારે આ સાથે અલગ આપેલ ઉત્તરવહી (OMR SHEET)માં જ ઉત્તર આપવાના છે.

ઉદાહરણ તરીકે :

ભારતનું કયું રાજ્ય સૌથી લાંબો દરિયા-કિનારો ધરાવે છે ?

- (1) મહારાષ્ટ્ર (2) તામિલનાડુ
(3) ગુજરાત (4) આંધ્રપ્રદેશ

જવાબવહી (Answer Sheet)માં

① ② ● ④

ઉપર્યુક્ત ઉદાહરણમાં સાચો જવાબ '3' છે. આથી '3'નું વર્તુળ કાળું (encode) કરેલ છે. ઉમેદવારોએ જવાબમાં "ગુજરાત" લખવું નહીં.

- (2) પ્રત્યેક પ્રશ્નના સાચા જવાબ માટે (2)બે ગુણ છે.
(3) આ પ્રશ્નપુસ્તિકામાં તમારે કશું જ લખવાનું નથી.
(4) સમય પૂર્ણ થયે પ્રશ્નપુસ્તિકા અને OMR ઉત્તરપત્ર સુપરવાઈઝરને પરત સોંપી દેવું.
(5) કસોટીની સમય મર્યાદા 60 મિનિટ છે.
(6) ઉમેદવારે વાદળી / કાળી બોલપોઈન્ટ પેનથી ઉત્તરો લખવાના છે. અન્ય શાહી, પેન કે પેન્સિલનો ઉપયોગ કરી શકાશે નહીં.

Instructions to Candidates

- (1) In this Test Booklet, there are Ques. No. 1-50, total 50 questions. The answer of each is any one out of (1), (2), (3) and (4). Four alternatives are given with the question. You have to answer all the questions. You have to answer on the **OMR Sheet** given separately to you.

For example :

Which state of India has the longest sea coast ?

- (1) Maharashtra (2) Tamilnadu
(3) Gujarat (4) Andra Pradesh

In answer sheet :

① ② ● ④

In the above example, the true answer is '3'. Hence, the circle of '3' is blackened (encoded) candidates should not write 'Gujarat' in the answer.

- (2) Each correct answer carries (2)Two marks.
(3) Do not write anything in this question paper.
(4) **Hand over Test Booklet and OMR Answer sheet to supervisor, after examination is over.**
(5) Time limit for this test is **60 minutes**.
(6) Use **blue/black ball point pen** for filling responses in Answer Sheet. Any other ink, pen or Pencil is strictly prohibited.

પરીક્ષા પૂરી થયા બાદ પ્રશ્નપુસ્તિકા તથા OMR ઉત્તરવહી વર્ગ નિરીક્ષકને પરત કર્યા બાદ જ વર્ગખંડ છોડવાનો રહેશે.
તેમ કરવામાં કસૂટ થયેથી શિસ્તભંગનાં પગલાં ગણી પરીક્ષા માટે જે તે ઉમેદવારને ગેરલાયક ઠરાવવામાં આવશે.

- 1 Who is regarded as the father of modern Chemistry ?
- (1) Rutherford (2) Einstein
(3) Lavoisier (4) C. V. Raman
- 2 The term PVC used in the plastic industry stands for
- (1) Polyvinyl chloride
(2) Polyvinyl carbonate
(3) Phosphorvanadium chloride
(4) Phosphavinyl chloride
- 3 The number of moles of solute present in 1 kg of a solvent is called its
- (1) Molality (2) Molarity
(3) Normality (4) Formality
- 4 The octane number of zero is assigned to -
- (1) 2-methyl octane (2) n-heptane
(3) Iso-octane (4) 3-methyl octane
- 5 Bleaching action of chlorine is by
- (1) Decomposition (2) Hydrolysis
(3) Reduction (4) Oxidation

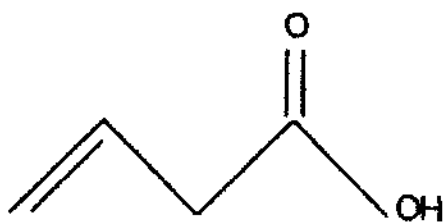
- 6 The isotope atoms differ in
- (1) Number of protons (2) Atomic number
(3) Number of electrons (4) Atomic weight
- 7 Which is also called stranger gas ?
- (1) Xenon (2) Neon
(3) Argon (4) Nitrous oxide
- 8 Which one of the following metals does not react with water to produce Hydrogen ?
- (1) Cadmium (2) Lithium
(3) Potassium (4) Sodium
- 9 Efficiency of chemical reaction can be checked by calculating
- (1) amount of limiting reactant
(2) amount of the reactant in excess
(3) amount of the product formed
(4) amount of the reactant unused
- 10 A sample of pure matter is
- (1) Element (2) Compound
(3) Substance (4) Mixture

- 11 Basic principle of crystallization is that the solute should be soluble in a suitable solution at
- (1) freezing temperature
 - (2) room temperature
 - (3) high temperature
 - (4) low temperature
- 12 Chromatography in which stationary phase is solid is called
- (1) partition chromatography
 - (2) paper chromatography
 - (3) high pressure
 - (4) adsorption chromatography
- 13 At high temperature isotherm moves away from both the axis because of increase in
- (1) pressure
 - (2) volume
 - (3) no. of moles
 - (4) all the above
- 14 Gases are ideal at
- (1) low pressure and high temperature
 - (2) low temperature and high pressure
 - (3) high pressure and high temperature
 - (4) low pressure and low temperature
- 15 Hydrocarbons which generally have high molecular masses exist in
- (1) solid form
 - (2) liquid form
 - (3) vapour form
 - (4) gaseous form

- 16 Long chain of amino acids are coiled about one another into spiral by,
- (1) covalent bond (2) ionic bond
(3) hydrogen bond (4) van der Waals forces
- 17 Molecular crystals are generally
- (1) hard (2) soft
(3) unstable (4) stable
- 18 The head overlap of p-orbitals of two atoms give rise to bond called
- (1) sigma bond (2) pi(π) bond
(3) ionic bond (4) covalent bond
- 19 During the formation of chemical bond, the potential energy of the system
- (1) decreases (2) increases
(3) does not change (4) none of these
- 20 The electron cloud density is not symmetrical along the bond axis in
- (1) sigma bond
(2) pi bond
(3) both sigma and pi bonds
(4) neither sigma nor pi bond

- 21 Strength of an acid can be determined by
- (1) pKa (2) pKp
(3) pOH (4) pKw
- 22 A basic buffer solution can be prepared by mixing
- (1) weak acid and its salt with strong base
(2) strong acid and its salt with weak base
(3) weak base and its salt with strong acid
(4) strong base and its salt with weak acid

23 The IUPAC name of



is

- (1) but-1-enoic acid (2) but-3-enoic acid
(3) prop-2-enoic acid (4) pent-4-enoic acid
- 24 _____ is a biomolecule
- (1) protein (2) enzyme
(3) lipid (4) all of above
- 25 Structure of DNA looks alike _____
- (1) spiral staircases (2) double helix
(3) twisted rope (4) all the above

- 26 What is meant by a scaffold ?
- (1) The lead compound
 - (2) The carbon skeleton of a compound
 - (3) The core structure of a molecule that is common to a series of compounds
 - (4) The pharmacophore
- 27 Which one of the following can exhibit *cis trans* isomerism?
- (1) $\text{CH}_3\text{-CHCl-COOH}$
 - (2) $\text{H-C}\equiv\text{C-Cl}$
 - (3) ClCH=CHCl
 - (4) $\text{ClCH}_2\text{-CH}_2\text{Cl}$
- 28 Which of the following contains three pairs of electrons in valence shell ?
- (1) carbocations
 - (2) carbanions
 - (3) free radicals
 - (4) none of these
- 29 Cyclic hydrocarbon molecule 'A' has all the carbon and hydrogen in a single plane. All the carbon-carbon bonds are of same length less than 1.54 \AA , but more than 1.34 \AA . The bond angle will be
- (1) $109^\circ 28'$
 - (2) 100°
 - (3) 180°
 - (4) 120°
- 30 What is the end product (B) in the following reaction sequence ?
- $$\text{Butanamide} \xrightarrow[\Delta]{\text{P}_2\text{O}_5} \text{A} \xrightarrow{\text{LiAlH}_4} \text{B}$$
- (1) n-butylamine
 - (2) n-propyl cyanide
 - (3) propyl isocyanide
 - (4) n-propylamine

- 31 Aniline first react with acetyl chloride producing "A". "A" reacts with nitric acid / sulphuric acid mixture and produce compound "B", which hydrolyses to compound "C". What is the identity of "C" ?
- (1) acetanilide (2) p-nitroaniline
(3) p-nitro acetanilide (4) sulphanilic acid
- 32 In Borax bead test, which of the following compounds is formed ?
- (1) Metaborate (2) Tetraborate
(3) Double oxide (4) Orthoborate
- 33 By passing KMnO_4 gas in acidified H_2S solution we get
- (1) K_2S (2) S
(3) K_2SO_3 (4) MnO_2
- 34 Baclofen is a / an
- (1) Analgesic drug
(2) Analgesic and anti-inflammatory drug
(3) Skeletal muscle relaxant drug
(4) Analgesic and antipyretic drug
- 35 Gas chromatography technique can be used for
- (1) Qualitative analysis only (2) Quantitative analysis only
(3) Both (1) and (2) (4) None of these

36 Molecular ion peak is also known as

- (1) Base peak (2) Daughter peak
(3) Parent ion (4) Metastable peak

37 o, m and p-isomers can be differentiated on the basis of

- (1) Chemical shift (2) Coupling constant
(3) Extinction coefficients (4) Dipole moment

38 The correct order of components of flame photometer is

- (1) Flame → Detector → Monochromator → Mirror → Read out device
(2) Flame → Monochromator → Detector → Mirror → Read out device
(3) Flame → Mirror → Monochromator → Detector → Read out device
(4) Flame → Monochromator → Mirror → Detector → Read out device

39 The one which decreases with dilution is

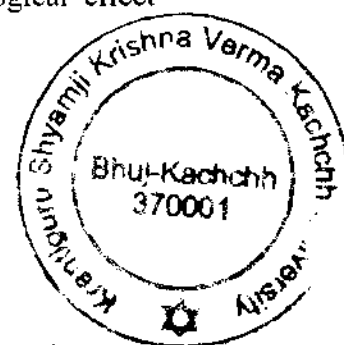
- (1) specific conductance (2) molar conductance
(3) conductance (4) equivalent conductance

40 The ketone functional group can be identified by the following spectroscopy

- (1) IR and ^1H NMR (2) IR and ^{13}C NMR
(3) ^1H NMR and ^{13}C NMR (4) None of these

- 41 Which of the following is antipyretic as well as analgesic drug ?
- (1) penicillin (2) chloroquine
(3) quinine (4) *p*-acetaminophenol
- 42 How many will be NMR signals in 2-chloropropene ?
- (1) 1 (2) 2
(3) 4 (4) 3
- 43 Green Chemistry aims to
- (1) improve atom efficiency
(2) use of catalyst in place of reagent
(3) reduce waste at source
(4) all of these
- 44 The drug which is used for treating AIDS victims is
- (1) Azidothymidine (2) Cis-platin
(3) Taxol (4) All of these
- 45 An organic compound made of C, H, and N contains 20% nitrogen.
Its molecular weight is
- (1) 70 (2) 140
(3) 100 (4) 65

- 46 Which of the following functional groups is most likely to participate in a dipole-dipole interaction ?
- (1) Aromatic ring (2) Ketone
(3) Alcohol (4) Alkene
- 47 Which of the following underlined atoms is likely to be the strongest hydrogen bond acceptor?
- (1) amide nitrogen ($R\text{NHCOR}'$) (2) aniline nitrogen ($\text{Ar}\underline{\text{N}}\text{H}_2$)
(3) amine nitrogen ($R\text{N}\underline{\text{H}}_2$) (4) carboxylate oxygen ($\text{RCO}\underline{\text{O}}_2^-$)
- 48 Identify which of the following terms refers to the overall three dimensional shape of a protein.
- (1) primary structure (2) secondary structure
(3) tertiary structure (4) quaternary structure
- 49 Which of the following terms applies to the maximum biological effect resulting from a drug binding to its target ?
- (1) affinity (2) efficacy
(3) potency (4) stability
- 50 Which of the following terms is used to describe a drug that has the same effect on a receptor as the endogenous chemical messenger ?
- (1) agonist (2) antagonist
(3) partial agonist (4) inverse antagonist



SPACE FOR ROUGH WORK

