

# PROVISIONAL ANSWER KEY

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Question1:-Who was the leader of Karivalloor struggle ?

- A:-Accamma Cheriyan
  - B:-Kaumudi Teacher
  - C:-K. Devayani
  - D:-A. V. Kuttimalu Amma
- Correct Answer:- Option-C

Question2:-The first female Judge in India

- A:-Lalitha Prabhu
  - B:-Anna Chandy
  - C:-Margaret Pavamani
  - D:-Koothattukulam Mary
- Correct Answer:- Option-B

Question3:-In Indian constitution Directive principles of state policy are adapted from which constitution ?

- A:-Irish Constitution
  - B:-French Constitution
  - C:-Canadian Constitution
  - D:-United States Constitution
- Correct Answer:- Option-A

Question4:-P.K. Thungan Committee related which of the following ?

- A:-Planning Commission
  - B:-Panchayath Raj
  - C:-Federalism
  - D:-Judiciary
- Correct Answer:- Option-B

Question5:-Savarna Jatha organised under the leadership of

- A:-K. P. Kesava Menon
  - B:-T. K. Madhavan
  - C:-Mannath Padmanabhan
  - D:-K. Kelappan
- Correct Answer:- Option-C

Question6:-Who wrote the drama 'Pattabakki' ?

- A:-V. T. Bhattatiripad
  - B:-M. P. Bhattatiripad
  - C:-K. Damodaran
  - D:-N. Krishna Pillai
- Correct Answer:- Option-C

Question7:-A parliamentary executive means

- A:-Executive where there is a Parliament
  - B:-Executive elected by the Parliament
  - C:-Where the Parliament functions as the Executive
  - D:-Executive that is dependent on support of the Majority in the Parliament
- Correct Answer:- Option-D

Question8:-Female Oriented Poverty Reduction Scheme is

- A:-Kudumbashree
  - B:-Antyodaya Anna Yojana
  - C:-Mahila Samridhi Yojana
  - D:-Balika Samridhi Yojana
- Correct Answer:- Option-A

Question9:-'Pakanarcharitham' a social drama written by

- A:-Kalu Nair

- B:-Kannan Nair
- C:-P. Kunhiraman Nair
- D:-K. A. Keraleeyan

Correct Answer:- Option-A

Question10:-The 12<sup>th</sup> South Asian Games will be conducted the city of

- A:-Bangalore
- B:-Guwahati
- C:-Agarthala
- D:-Patna

Correct Answer:- Option-B

Question11:-Indian Press Act passed in which year ?

- A:-1908
- B:-1909
- C:-1910
- D:-1911

Correct Answer:- Option-C

Question12:-Shahmal led the revolt against British at

- A:-Kanpur
- B:-Lucknow
- C:-Barout
- D:-Delhi

Correct Answer:- Option-C

Question13:-Who was elected the first Indian Women President of the UN General Assembly ?

- A:-Sarojini Naidu
- B:-Vijayalakshmi Pandit
- C:-Suchetha Kripalani
- D:-Indira Gandhi

Correct Answer:- Option-B

Question14:-The First Governor of Reserve Bank of India

- A:-C. D. Deshmukh
- B:-B. Rama Rao
- C:-S. Jagannathan
- D:-P. C. Bhattacharya

Correct Answer:- Option-A

Question15:-The Head Quarters of UNESCO

- A:-Newyork
- B:-Paris
- C:-Janeeva
- D:-Britan

Correct Answer:- Option-B

Question16:-The first Head of the National Commission for women was

- A:-Jayanti Patnaik
- B:-Dr. V. Mohini Giri
- C:-Mamata Sharma
- D:-Lalitha Kumaramangalam

Correct Answer:- Option-A

Question17:-Who was founded the Akhila Thiruvithamcore Navika Thozhilali Sangam ?

- A:-Chattambi Swamikal
- B:-Sree Narayana Guru
- C:-Dr. Velukutty Arayan
- D:-Vagbhatananda

Correct Answer:- Option-C

Question18:-East India Association was established by

- A:-Dadabhai Naoroji
- B:-Surendranath Banarjee
- C:-W. C. Banarjee
- D:-Mahadev Govind Ranade

Correct Answer:- Option-A

Question19:-The first President of All India Muslim League was

- A:-Nawab Salim Ullah Khan
  - B:-Aga Khan
  - C:-Maulana Muhammadali Jouhar
  - D:-Muhammad Ali Jinnah
- Correct Answer:- Option-B

Question20:-The largest District in Kerala

- A:-Idukki
- B:-Malappuram
- C:-Palakkad
- D:-Ernakulam

Correct Answer:- Option-C

Question21:-Myrcene is a

- A:-Monocyclic terpenoid
- B:-Bicyclic terpenoid
- C:-Acyclic terpenoid
- D:-Sesqui terpenoid

Correct Answer:- Option-C

Question22:-Geometrical isomer of geraniol is

- A:-Nerol
- B:-Linalool
- C:-Citranellol
- D:-Citranellal

Correct Answer:- Option-A

Question23:-Gutta-Percha is

- A:-cis-polyisoprene
- B:-trans-polyisoprene
- C:-cis-polyisobutylene
- D:-trans-polyisobutylene

Correct Answer:- Option-B

Question24:-Which one of these is a quinoline alkaloid ?

- A:-Nicotine
- B:-Cocaine
- C:-Atropine
- D:-Cinchonine

Correct Answer:- Option-D

Question25:-Mercerised cotton is

- A:-Cotton treated with NaOH
- B:-Cotton treated with KOH
- C:-Cotton treated with  $\text{HNO}_3$
- D:-None of these

Correct Answer:- Option-A

Question26:-Oil of winter green

- A:-Acetyl salicylic acid
- B:-Ethyl salicylate
- C:-Methyl salicylate
- D:-None of these

Correct Answer:- Option-C

Question27:-The temperature at which second virial coefficient of a gas is zero is

- A:-Boyle temperature
- B:-Critical temperature
- C:-Boiling point
- D:-Critical temperature

Correct Answer:- Option-A

Question28:-A crystal having unit cell dimensions,  $a \neq b \neq c$ ,  $\alpha = \beta = \gamma = 90^\circ$  is

- A:-Cubic
- B:-Tetragonal
- C:-Orthorhombic
- D:-Monoclinic

Correct Answer:- Option-C

Question29:-Wavelength corresponding to maximum energy is inversely proportional to temperature. The law is

- A:-Wein displacement law
  - B:-Stefan's law
  - C:-Boltzmann law
  - D:-Rayleigh Jean's law
- Correct Answer:- Option-A

Question30:-NQR is observed in the region

- A:-UV-Visible
  - B:-X-ray
  - C:-Microwave
  - D:-Radiofrequency
- Correct Answer:- Option-D

Question31:-The ground term symbol of Lithium atom

- A:- $1S_0$
  - B:- $2S_{1/2}$
  - C:- $2S_1$
  - D:- $3S_1$
- Correct Answer:- Option-B

Question32:-Optical rotation and circular dichroism together are known as

- A:-Cotton effect
  - B:-ORD
  - C:-Frank Condon principle
  - D:-Stark effect
- Correct Answer:- Option-A

Question33:-The intensity of rotational spectral line depends on

- A:-Relative population of rotational levels
  - B:-Degeneracy of rotational level
  - C:-Both 1 and 2
  - D:-None of these
- Correct Answer:- Option-C

Question34:-Symmetric top molecules have

- A:-Two moments of inertia equal and third different
  - B:-All the three moments of inertia equal
  - C:-All the three moments of inertia different
  - D:-None of these
- Correct Answer:- Option-A

Question35:-The vibrating stretching frequency of a diatomic molecule depends on

- A:-Force constant
  - B:-Masses of two atoms
  - C:-Both 1 and 2
  - D:-None of these
- Correct Answer:- Option-C

Question36:-Identify the spectra corresponds to the frequency  $15000 \text{ cm}^{-1}$

- A:-Visible
  - B:-IR
  - C:-NMR
  - D:-Microwave
- Correct Answer:- Option-A

Question37:-Raman lines on the low frequency side of the excitation frequency are called

- A:-Stokes lines
  - B:-Antistokes lines
  - C:-Rayleigh line
  - D:-None of these
- Correct Answer:- Option-A

Question38:-The shift of an absorption maximum towards longer wavelength is known as

- A:-Hypsochromic effect
- B:-Bathochromic effect
- C:-Hyperchromic effect
- D:-Hypochromic effect

Correct Answer:- Option-B

Question39:-In Mossbauer spectroscopy, the main hyperfine interaction/s is/are

A:-Isomer shift

B:-Quadrupole splitting

C:-Nuclear Zeeman splitting

D:-All

Correct Answer:- Option-D

Question40:-A naturally occurring dye

A:-Indigo

B:-Malachite green

C:-Aniline yellow

D:-Methyl orange

Correct Answer:- Option-A

Question41:-An antimalarial drug is

A:-Chloramphenicol

B:-Pamaquin

C:-Equanil

D:-Veronal

Correct Answer:- Option-B

Question42:-Heat capacity of species is independent of temperature if it is

A:-Tetratomic

B:-Triatomic

C:-Diatomic

D:-Monatomic

Correct Answer:- Option-D

Question43:-Gold number gives

A:-The number of gold atoms present in 1g of gold

B:-The number of gold atoms required to coagulate 1g of the colloidal solution

C:-The number of gold atoms present in 1g of gold alloy

D:-None of these

Correct Answer:- Option-D

Question44:-Which of the following is incorrect ?

A:-Chemisorption is caused by bond formation

B:-Chemisorption doesnot extend beyond a monolayer

C:-Chemisorption is reversible

D:-Chemisorption increases with increase in temperature

Correct Answer:- Option-C

Question45:-Reversible adiabatic expansion of an ideal gas is an example of

A:-Isoenthalpic process

B:-Isoentropic process

C:-Isothermal process

D:-Isobaric process

Correct Answer:- Option-B

Question46:-Which of the following is a spontaneous process associated with negative entropy change ?

A:-Evaporation of a liquid

B:-Decomposition of  $\text{AgClO}_2$

C:-Dissolution of HCl gas in water

D:-Acid-base neutralization reaction

Correct Answer:- Option-C

Question47:-What happens to the equilibrium constant of a reaction if the stoichiometric coefficient in the balanced chemical equation is doubled ?

A:-Twiced

B:-Squared

C:-Halved

D:-No change

Correct Answer:- Option-B

Question48:-The maximum number of phases possessed by an invariant system consisting of three components is

A:-3

B:-2

C:-5

D:-4

Correct Answer:- Option-C

Question49:-The solution of the radial wave function of a hydrogen atom can be obtained from

A:-Legendre polynomial

B:-Associated laguerre polynomial

C:-Hermite polynomial

D:-Associated legendre polynomial

Correct Answer:- Option-B

Question50:-The number of  $^{13}\text{C}$  signals in naphthalene is

A:-5

B:-2

C:-7

D:-3

Correct Answer:- Option-D

Question51:-Which one of the following shows the highest basicity ?

A:- $\text{La}(\text{OH})_3$

B:- $\text{Nd}(\text{OH})_3$

C:- $\text{Eu}(\text{OH})_3$

D:- $\text{Lu}(\text{OH})_3$

Correct Answer:- Option-A

Question52:-In the vibrational spectrum of  $\text{CO}_2$ , the number of fundamental vibrational modes common in both infrared and Raman are

A:-3

B:-2

C:-1

D:-0

Correct Answer:- Option-D

Question53:-The electronegativity difference is highest for the pair

A:-Li, Cl

B:-K, F

C:-Na, Cl

D:-Li, F

Correct Answer:- Option-B

Question54:-The correct set of biologically essential element is

A:-Fe, Mo, Cu, Zn

B:-Fe, Cu, Co, Ru

C:-Cu, Mn, Zn, Ag

D:-Fe, Ru, Zn, Mg

Correct Answer:- Option-A

Question55:-The molecule that has  $S_4$  symmetry element is

A:- $\text{C}_6\text{H}_6$

B:- $\text{CH}_4$

C:- $\text{CO}_2$

D:- $\text{C}_2\text{H}_2$

Correct Answer:- Option-B

Question56:-Identify the point group of  $\text{PCl}_5$

A:- $\text{C}_{3v}$

B:- $\text{C}_{3h}$

C:- $\text{D}_{3h}$

D:-None of these

Correct Answer:- Option-C

Question57:-Which is an abelian group ?

A:-Cyclic group

B:-Acyclic group

C:-Square planar group

D:-Octahedral group

Correct Answer:- Option-A

Question58:-Which of the following molecules have center of symmetry ?

- A:-`CH\_4`
- B:-`SO\_2`
- C:-`C\_6H\_6`
- D:-`SF\_4`

Correct Answer:- Option-C

Question59:-Sum of squares of the dimensions of the irreducible representation of a group will be equal to

- A:-Order of the group
- B:-Character of the group
- C:-Square of the group
- D:-None of these

Correct Answer:- Option-A

Question60:-The stable end product of Uranium series is

- A:-`\_83Bi^209`
- B:-`\_82Pb^206`
- C:-`\_82Pb^207`
- D:-`\_82Pb^209`

Correct Answer:- Option-B

Question61:-Intersystem crossing is essential for

- A:-Phosphorescence
- B:-Fluorescence
- C:-Photosensitisation
- D:-Chemiluminescence

Correct Answer:- Option-A

Question62:-The lowest lattice energy among the following crystals is

- A:-NaCl
- B:-KCl
- C:-RbCl
- D:-CsCl

Correct Answer:- Option-D

Question63:-Improper rotation axis contains

- A:-Reflection and refraction
- B:-Rotation and reflection
- C:-Inversion and refraction
- D:-Center of symmetry and rotation

Correct Answer:- Option-B

Question64:-Which among the following state functions is an extensive property of the system ?

- A:-Temperature
- B:-Volume
- C:-Viscosity
- D:-Refractive index

Correct Answer:- Option-B

Question65:-The splitting of spectral lines in an electric field is called

- A:-Zeeman effect
- B:-Photoelectric effect
- C:-Stark effect
- D:-Thomson effect

Correct Answer:- Option-C

Question66:-Which is true about the isobars ?

- A:-They have same mass number and same atomic number
- B:-They have same mass number and different atomic number
- C:-They have different mass number and same atomic number
- D:-They have different mass number and different atomic number

Correct Answer:- Option-B

Question67:-`CO\_2` is isostructural with

- A:-`H\_2O`
- B:-`NO\_2`
- C:-`H\_2S`
- D:-`C\_2H\_2`

Correct Answer:- Option-D

Question68:-According to Wade's rule,  $C_2B_4H_8$  adopts

- A:-Closro-structure
- B:-Arachno-structure
- C:-Nido-structure
- D:-Hypho-structure

Correct Answer:- Option-C

Question69:-Which is more basic ?

- A:-Pyridine
- B:-Pyrimidine
- C:-Pyrrole
- D:-Piperidine

Correct Answer:- Option-D

Question70:-Chloropicrin is

- A:- $CH_3NO_2$
- B:- $Cl_3CNO_2$
- C:- $CHCl_3$
- D:-None of these

Correct Answer:- Option-B

Question71:-Which one of the following is a vat dye ?

- A:-Alizarin
- B:-Indigo
- C:-Malachite green
- D:-Martius yellow

Correct Answer:- Option-B

Question72:-Patterno-Buchi reaction is

- A:-Rearrangement of  $\alpha$ ,  $\beta$ -unsaturated ketone
- B:-Photosensitisation of butadiene
- C:-Photochemical oxidation
- D:-Cycloaddition of carbonyl compound to alkene

Correct Answer:- Option-D

Question73:-An antiredeposition agent in detergents

- A:-STPP
- B:-CMC
- C:-SDS
- D:-Sodium perborate

Correct Answer:- Option-B

Question74:-p-azoxyanisole is an example of

- A:-Semiconductor
- B:-Super conductor
- C:-Liquid crystal
- D:-None of these

Correct Answer:- Option-C

Question75:-Which of the following will occur farthest downfield in  $^1H$ -NMR spectrum ?

- A:-Benzene
- B:-Ethyne
- C:-Dimethyl ether
- D:-Formaldehyde

Correct Answer:- Option-D

Question76:-One mole of sugar is dissolved in three mole of water. The relative lowering of vapour pressure is

- A:-1/2
- B:-1/3
- C:-1/4
- D:-1/5

Correct Answer:- Option-C

Question77:-Which one of the following solutions would produce maximum elevation in boiling point ?

- A:-0.1M glucose
- B:-0.2M sucrose
- C:-0.1M  $Ba(NO_3)_2$
- D:-0.1M  $MgSO_4$

Correct Answer:- Option-C

Question78:-Isotonic solutions have

A:-Same freezing point

B:-Same boiling point

C:-Same viscosity

D:-Same osmotic pressure

Correct Answer:- Option-D

Question79:-The metal ion present in phosphotransferase enzyme is

A:-Mg

B:-Fe

C:-P

D:-Ni

Correct Answer:- Option-A

Question80:-The number of metal-meta bonds present in  $\text{Cu}_2(\text{RCOO})_4 \cdot 2\text{H}_2\text{O}$

A:-1

B:-2

C:-4

D:-0

Correct Answer:- Option-A

Question81:-Which of the following is used as an anaesthetic ?

A:- $\text{N}_2\text{O}$

B:- $\text{NO}$

C:- $\text{N}_2\text{O}_3$

D:- $\text{N}_2\text{O}_5$

Correct Answer:- Option-A

Question82:-Which of the following pairs has the highest difference in their first ionization energy ?

A:-Xe, Cs

B:-Kr, Rb

C:-Ar, K

D:-Ne, Na

Correct Answer:- Option-D

Question83:-The ligand in chromocene

A:- $\text{C}_5\text{H}_5^{2-}$

B:- $\text{C}_8\text{H}_8^{2-}$

C:- $\text{C}_6\text{H}_6$

D:- $\text{C}_4\text{H}_4^{2-}$

Correct Answer:- Option-A

Question84:-Calculate the number of microstates for 5 identical particles with their occupation numbers(1, 2, 3) in three states

A:-6

B:-12

C:-10

D:-720

Correct Answer:- Option-C

Question85:-The aggregation of surfactant molecules is known as

A:-Micelles

B:-Clustures

C:-Gel

D:-Colloid

Correct Answer:- Option-A

Question86:-In the Lindmann mechanism of unimolecular reactions, the observed order at very high pressure is

A:-0.5

B:-2

C:-1.5

D:-1

Correct Answer:- Option-D

Question87:-Which of the following is not a fermion ?

- A:-Proton
- B:-Electron
- C:-Neutron
- D:-Photon

Correct Answer:- Option-D

Question88:-An aqueous solution of NaCl and HCl is exactly neutralized by an aqueous NaOH solution. The number of components in the final mixture is

- A:-1
- B:-2
- C:-3
- D:-4

Correct Answer:- Option-B

Question89:-The interplanar distance ( $A^\circ$ ) for a (100) plane in a cubic structure with the lattice parameter of  $4A^\circ$  is

- A:-1
- B:-2
- C:-4
- D:-8

Correct Answer:- Option-C

Question90:-The hetero cyclic ring present in the aminoacid histidine is

- A:-Pyridine
- B:-Tetrahydropyrrol
- C:-Indole
- D:-Imidazole

Correct Answer:- Option-D

Question91:-The biosynthetic precursor of cholesterol is

- A:-Shikimic acid
- B:-Mevalonic acid
- C:-Gutaric acid
- D:-Cinnamic acid

Correct Answer:- Option-B

Question92:-In the IR spectrum, the absorption band due to carbonyl group in phenyl acetate appears at

- A:- $1760\text{ cm}^{-1}$
- B:- $1800\text{ cm}^{-1}$
- C:- $1710\text{ cm}^{-1}$
- D:- $1660\text{ cm}^{-1}$

Correct Answer:- Option-A

Question93:-The compound that will behave as an acid in liquid HF is

- A:- $\text{CH}_3\text{COOH}$
- B:- $\text{HNO}_3$
- C:- $\text{BF}_3$
- D:- $\text{H}_2\text{SO}_4$

Correct Answer:- Option-C

Question94:-Among the oxides of nitrogen,  $\text{N}_2\text{O}_3$ ,  $\text{N}_2\text{O}_4$  and  $\text{N}_2\text{O}_5$ , the compound(s) having N-N bond is/are

- A:- $\text{N}_2\text{O}_4$  and  $\text{N}_2\text{O}_5$
- B:- $\text{N}_2\text{O}_3$  and  $\text{N}_2\text{O}_5$
- C:- $\text{N}_2\text{O}_3$  and  $\text{N}_2\text{O}_4$
- D:- $\text{N}_2\text{O}_5$  only

Correct Answer:- Option-C

Question95:-A triclinic crystal is

- A:- $\text{KNO}_3$
- B:- $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$
- C:- $\text{NaCl}$
- D:- $\text{CsCl}$

Correct Answer:- Option-B

Question96:-The liquid crystals have

- A:-Properties of supercooled liquids

B:-Properties of amorphous solids

C:-The fluidity of a liquid and optical properties of a solid

D:-None of these

Correct Answer:- Option-C

Question97:-X-ray diffraction does not give any structural information for

A:-Metallic solids

B:-Ionic solids

C:-Molecular solids

D:-Amorphous solid

Correct Answer:- Option-D

Question98:-Among the following, an example of a green synthesis is

A:-Synthesis of malachite green

B:-Friedel-Craft's acylation of anisole with  $\text{Ac}_2\text{O}$ /anhydrous  $\text{AlCl}_3$

C:-Jones's oxidation of benzyl alcohol to benzoic acid

D:-Diel's-Alder reaction of furan and maleic acid in water

Correct Answer:- Option-D

Question99:-Monosaccharide is not react with

A:-Tollen's reagent

B:-Sodium bisulphate

C:-Acetic anhydride

D:-Hydroxylamine

Correct Answer:- Option-B

Question100:-Select the polar aprotic solvent from the following

A:-DMF

B:-DMSO

C:-THF

D:-All of these

Correct Answer:- Option-D