

FINAL ANSWER KEY

Question Paper Code:	1/2017/OL
Category Code:	427/2015
Exam:	HSST Chemistry Junior SR For SC/ST
Medium of Question:	English
Date of Test	09-01-2017
Department	Higher Secondary Education
Alphacode	A

Question1:-Who translated the whole of the Mahabharata into Malayalam in an incredibly short time ?

- A:-Thunchath Ramanujan Ezhuthachan
- B:-Kodungallur Kunhikuttan Thampuran
- C:-Kerala Varma Valiya Koil Thampuran
- D:-A.R. Raja Raja Varma

Correct Answer:- Option-B

Question2:-Who unveiled the statue of Ayyankali at Kowdiar square, Thiruvananthapuram in 1980 ?

- A:-Rajeev Gandhi
- B:-Indira Gandhi
- C:-K. Karunakaran
- D:-EMS Namboothiripad

Correct Answer:- Option-B

Question3:-Who was the martyr of Paliyam Satyagraha at Kochi, in 1948 ?

- A:-C.V. Kunjuraman
- B:-T.K. Madhavan
- C:-A.K. Gopalan
- D:-A.G. Velayudhan

Correct Answer:- Option-D

Question4:-The first completely printed in Malayalam language was :

- A:-Unnunili Sandesam
- B:-Unnithiruthevi Charitam
- C:-Samkshepa Vedartham
- D:-Khathaka Vadam

Correct Answer:- Option-C

Question5:-First to start mirror consecration in South India :

- A:-Sree Narayana Guru
- B:-Ayyankali
- C:-Brahmananda Shiva Yogi
- D:-Vaikunda Swamikal

Correct Answer:- Option-D

Question6:-In which year India and Pakistan signed the Indus Water Treaty ?

- A:-1948
- B:-1950
- C:-1960
- D:-1947

Correct Answer:- Option-C

Question7:-Who is the author of the novel 'The Ministry of Utmost Happiness' ?

- A:-Arundhati Roy
- B:-Salman Rushdi
- C:-Shantanu Guha Ray
- D:-Arundhati Bhattacharya

Correct Answer:- Option-A

Question8:-Which Airport in Kerala is all set to launch a 'Taxi App' using the fleet of 600 cars that operates on its premises ?

- A:-The Karipur International Airport
- B:-The Cochin International Airport
- C:-Thiruvananthapuram International Airport
- D:-The Kannur International Airport

Correct Answer:- Option-B

Question9:-'Pradhan Mantri Ujjwala Yojana' is welfare programme intended to :

A:-Clean India and Healthy India

B:-Pledge to provide electricity to villages

C:-To get to empower rural women by helping them from self help group

D:-Free LPG gas connection for poor women

Correct Answer:- Option-D

Question10:-Who won the first prize for Swachch Bharat short film award 2016 ?

A:-Katyayan Shivapuri

B:-Sudhanshu Sharma

C:-K.V.K. Kumar

D:-Akshay Danavale

Correct Answer:- Option-A

Question11:-The process of delineating, obtaining and providing useful information for judging decision alternative is known as :

A:-Evaluation

B:-Measurement

C:-Achievement

D:-Test

Correct Answer:- Option-A

Question12:-A simple laundry list type of device consisting of a prepared list of items is known as :

A:-Check list

B:-Rating scale

C:-Anecdotal record

D:-Sociogram

Correct Answer:- Option-A

Question13:-Which is the Oldest Visual Aids that provide learning experiences which are real and life like ?

A:-Radio

B:-Television

C:-Field trip

D:-Computer

Correct Answer:- Option-C

Question14:-In which method pupils are led from particular instances to general conclusions and it is a method of logical process and thinking ?

A:-Source method

B:-Deductive method

C:-Project method

D:-Inductive method

Correct Answer:- Option-D

Question15:-Which one is designed to convey an idea by means of caricature, humour, stereotype, oversimplification, exaggeration and satire ?

A:-Cartoon

B:-Poster

C:-Pictures

D:-Models

Correct Answer:- Option-A

Question16:-What will be called when certain variables are carefully controlled or manipulated and the focus is on variable relationships ?

A:-Historical Research

B:-Experimental Research

C:-Quasi Research

D:-Action Research

Correct Answer:- Option-B

Question17:-Which is the oldest teaching method given by the philosophy of idealism ?

A:-Lecture Method

B:-Project Method

C:-Problem solving Method

D:-Source Method

Correct Answer:- Option-A

Question18:-Participants present to the audience their views about various aspects of a selected problem or topic through speeches or proper reading is :

A:-Seminar

- B:-Debate
- C:-Brainstorming
- D:-Symposium

Correct Answer:- Option-D

Question19:-The systematic and objective analysis and recording of controlled observations that may lead to the development of generalizations, principles and theories resulting in prediction and possible ultimate control of events is known as :

- A:-Teaching
- B:-Analysis
- C:-Predicting
- D:-Research

Correct Answer:- Option-D

Question20:-Persons have to engage in some productive task out of which something tangible can be created in :

- A:-Seminar
- B:-Symposium
- C:-Workshop
- D:-Debate

Correct Answer:- Option-C

Question21:-The plane of symmetry perpendicular to the principal axis of rotation in BF_3 is :

- A:-0
- B:-1
- C:-2
- D:-3

Correct Answer:- Option-B

Question22:-The number of degrees of vibrational freedom in C_2H_2 is :

- A:-9
- B:-8
- C:-7
- D:-6

Correct Answer:- Option-C

Question23:-Who was the first scientist to make an attempt at deriving an equation for distribution of radiation density in terms of the classical laws of mechanics ?

- A:-Lord Rayleigh
- B:-Boltzmann
- C:-Max Plank
- D:-Einstein

Correct Answer:- Option-A

Question24:-Isomers which differ by rotation about single bonds and which can be isolated at room temperature are :

- A:-Stereoisomers
- B:-Enantiomers
- C:-Diastereomers
- D:-Atropisomers

Correct Answer:- Option-D

Question25:-The Miller indices are often used in the area of :

- A:-Single crystal
- B:-Polymer
- C:-Solution
- D:-Surface Chemistry

Correct Answer:- Option-A

Question26:-The law of constancy of interfacial angle is called :

- A:-Hauy's law
- B:-Law of symmetry
- C:-Steno's law
- D:-Miller's law

Correct Answer:- Option-C

Question27:-Which of the following complex ions would have the smallest crystal field splitting ?

- A:- $[\text{Co}(\text{NH}_3)_6]^{3+}$
- B:- $[\text{Rh}(\text{NH}_3)_6]^{2+}$
- C:- $[\text{Ir}(\text{NH}_3)_6]^{2+}$
- D:- $[\text{Co}(\text{NH}_3)_6]^{2+}$

Correct Answer:- Option-D

Question28:-A plot of $\log[A]$ Vs time(t) gives a straight line with negative slope. The order of the reaction is :

- A:-0
- B:-1
- C:-2
- D:-3

Correct Answer:- Option-B

Question29:-The nature of electronic spectra of 'd' block elements is mainly due to :

- A:-Incomplete d-orbitals
- B:-Term splitting in different crystal field geometry
- C:-Presence of hydrated ions
- D:-Removal of degeneracy of d-orbitals

Correct Answer:- Option-A

Question30:-How many Bravais lattices can exist in nature ?

- A:-32
- B:-17
- C:-14
- D:-7

Correct Answer:- Option-C

Question31:-How many ESR lines are observed if an unpaired electron when closed to two non-equivalent protons is placed in magnetic field ?

- A:-2
- B:-4
- C:-6
- D:-8

Correct Answer:- Option-B

Question32:-For which one of the following process is inter system crossing (ISC) essential ?

- A:-Fluorescence
- B:-Radioactive decay
- C:-Chemiluminescence
- D:-Phosphorescence

Correct Answer:- Option-D

Question33:-The molecules of H_2O belongs to the point group :

- A:- D_{4h}
- B:- C_{3v}
- C:- C_{2v}
- D:- C_{3h}

Correct Answer:- Option-C

Question34:-Which one of the following types of bonding is true for ferrocene ?

- A:-Localised Fe-C bond
- B:-Delocalised Fe-C bond
- C:-Ionic bond having Fe^{2+} (C_5H_5) $_2$
- D:-Hydrogen bridge bonding

Correct Answer:- Option-B

Question35:-What is the effect of hydrogen bonding on the IR absorption of N-H group ?

- A:-It shifts to lower wave number
- B:-It shifts to higher wave number
- C:-No change is observed
- D:-None of these

Correct Answer:- Option-A

Question36:-A symmetry element which distinguishes maleic acid from fumaric acid is :

- A:- C_2
- B:-I
- C:- S_4
- D:-None of the above

Correct Answer:- Option-A

Question37:-How many hyperfine lines in ESR spectrum are shown by Mn^{2+} ?

- A:-6
- B:-5

C:-4

D:-3

Correct Answer:- Option-A

Question38:-A is the stereoisomer of the compound B, Therefore A and B differ in their :

A:-Composition

B:-Steric Hindrance

C:-Configuration

D:-Constitution

Correct Answer:- Option-C

Question39:-The hybridization of the central carbon in allenes is :

A:- dsp^2

B:- sp^3

C:- sp^2

D:-sp

Correct Answer:- Option-D

Question40:-High quantum yields of photochemical reactions are due to :

A:-Lowering of activation energy

B:-Accompanying side reactions

C:-Formation of free radicals

D:-High frequency of collision

Correct Answer:- Option-B

Question41:-What is the eigen value of $\sin^2 x$ which is not an eigen function of the operator d/dx but of d^2/dx^2 ?

A:-2

B:- -2

C:-4

D:- -4

Correct Answer:- Option-D

Question42:-In first order reaction $A(g) \rightleftharpoons B(g) + C(g)$, the initial pressure is 11200 Pa and half life period of the reaction is 29.93 min. What is the total pressure at the end of 16 minutes ?

A:-14667 Pa

B:-15656 Pa

C:-16235 Pa

D:-14555 Pa

Correct Answer:- Option-A

Question43:-Predict the number of translational, rotational and vibrational degrees of freedom in neon :

A:-3, 0, 1

B:-3, 1, 0

C:-3, 0, 0

D:-3, 1, 1

Correct Answer:- Option-C

Question44:-How many diastereomers are shown by the molecules $CH_3CH=CHCH=CH-C_2H_5$?

A:-1

B:-4

C:-3

D:-2

Correct Answer:- Option-B

Question45:-The term 'quantum mechanics' was first introduced by :

A:-Schrodinger

B:-Max Born

C:-Bohr

D:-Einstein

Correct Answer:- Option-B

Question46:-Which of the following radiation has the longest wavelength ?

A:-UV

B:-Micro wave

C:-Cosmic wave

D:-Radio wave

Correct Answer:- Option-D

Question47:-Transmittance in spectroscopy analysis is a function primarily of the :

- A:-Optical path
 - B:-Monochromator
 - C:-Velocity of light
 - D:-Barometric pressure
- Correct Answer:- Option-C

Question48:-Which of the following properties of transition metal complexes can be explained on the basis of crystal field theory ?

- A:-Colour
- B:-Magnetic moment
- C:-Dipole moment
- D:-Both (1) and (2)

Correct Answer:- Option-D

Question49:-Which of the following symmetry elements is not possessed by trans-dichlorobenzene ?

- A:- C_2
- B:- i
- C:- S_4
- D:- S_h

Correct Answer:- Option-C

Question50:-The number of vibrational degrees of freedom in toluene is :

- A:-39
- B:-40
- C:-9
- D:-24

Correct Answer:- Option-A

Question51:-Decomposition of $KClO_3$ in the presence of MnO_2 is an example of :

- A:-Homogeneous catalysts involving solid reactants
- B:-Heterogeneous catalysts involving solid reactants
- C:-Homogeneous catalysts involving liquid reactants
- D:-Heterogeneous catalysts involving liquid reactants

Correct Answer:- Option-B

Question52:-Identify the non-benzenoid aromatic compound in the following :

- A:-Phenanthrene
- B:-Pyrene
- C:-Coronene
- D:-Ferrocene

Correct Answer:- Option-D

Question53:-During polarographic analysis in which medium Molybdenum gives two waves at -0.37 V and -0.30 V.

- A:- HNO_3
- B:- H_2SO_4
- C:-HCl
- D:-HF

Correct Answer:- Option-A

Question54:-The order 'n', initial concentration a_0 and time of half reaction $t_{1/2}$ for a reaction are related as :

- A:- $\ln t_{1/2} = \ln n + \ln (\text{constant}) - \ln a_0$
- B:- $t_{1/2} \ln n = \ln (\text{constant}) - \ln a_0$
- C:- $\ln t_{1/2} = n \ln a_0$
- D:- $\ln t_{1/2} = \ln (\text{constant}) - (n-1) \ln a_0$

Correct Answer:- Option-D

Question55:-Who used silica gel packed column as a support for a stationary phase and were awarded Nobel Prize in 1952 ?

- A:-David day and Mikhail tswett
- B:-Kirtchevesky and Tiselius
- C:-Martin and Synge
- D:-Consden and Gorden

Correct Answer:- Option-C

Question56:-Mossbauer effect is also related with resonance fluorescence of :

- A:- x-rays
- B:- gamma-rays
- C:- beta-rays
- D:- alpha-rays

Correct Answer:- Option-B

Question57:-Which of the following is microwave inactive ?

- A:-`Cl_2`
- B:-NO
- C:-HCl
- D:-CO

Correct Answer:- Option-A

Question58:-The polarographic limiting current which are controlled not only by the rate of diffusion of the reactive species, but also by the rate of some chemical reaction related to the electrode process are known as :

- A:-Diffusion current
- B:-Residual current
- C:-Migration current
- D:-Kinetic current

Correct Answer:- Option-D

Question59:-Addition of `Br_2` to methyl acetylene yielding trans 1,2-trans 1,2-dibromopropene is :

- A:-Stereoselective and stereospecific
- B:-Stereospecific
- C:-Stereoselective
- D:-None of these

Correct Answer:- Option-C

Question60:-Who proposed the dead stop end point method in amperometry ?

- A:-Bawden
- B:-Fouk
- C:-Neuberger
- D:-Cooke

Correct Answer:- Option-B

Question61:-The best method to determine the size of the Au nanoparticles is :

- A:-STM
- B:-SEM
- C:-AFM
- D:-LFM

Correct Answer:- Option-B

Question62:-The valency of an element can be determined by coulometry using the equation :

A:-
$$W = \frac{AQ}{n \times 96500}$$

B:-
$$W = \frac{AQ \times 96500}{n}$$

C:-
$$W = \frac{n \times 96500}{AQ}$$

D:-
$$W = \frac{96500}{AQ \times n}$$

Correct Answer:- Option-A

Question63:-The chromatographic process in which the separation of the sample components takes place according to molecular size are called :

- A:-Adsorption chromatography
- B:-Partition chromatography
- C:-Exclusion chromatography
- D:-Ion exchange chromatography

Correct Answer:- Option-C

Question64:-Which method detects the smallest particles ?

- A:-LFM
- B:-AFM
- C:-SEM
- D:-STM

Correct Answer:- Option-D

Question65:-Which is an example for natural inorganic anion exchanger ?

- A:-Wood

B:-MgO

C:-Dolomite

D:-Polymeric resin

Correct Answer:- Option-C

Question66:-STM shows images of atoms based on :

A:-The thickness of the atom

B:-The mass of the atom

C:-Friction caused by rubbing the tip of the atom

D:-The amount of tunneling current

Correct Answer:- Option-D

Question67:-In which method the voltage applied across the indicator electrode and reference electrode is kept constant and the current passing through the cell is measured and plotted against the volume of reagent ?

A:-Amperometry

B:-Voltametry

C:-Polarography

D:-Conductometry

Correct Answer:- Option-A

Question68:-Name the effect which says that the wavelength of an X-ray increases when it is scattered by an atomic electron.

A:-Zeeman

B:-Compton

C:-Jahn Teller

D:-Stark

Correct Answer:- Option-B

Question69:-The characteristic absorption bands of the carbonyl group in IR spectra are given below. Which one is incorrect ?

A:- CH_3CHO -1740 cm^{-1}

B:- CH_3COCH_3 -1700 cm^{-1}

C:- CH_3COOH - 1650-1700 cm^{-1}

D:- $\text{C}_6\text{H}_5\text{CHO}$ -1700 cm^{-1}

Correct Answer:- Option-C

Question70:-Which of the options given below represents eigen equation ?

A:-H

B:-H*

C:-H

D:-H

Correct Answer:- Question Cancelled

Question71:-Which of the following molecules will show an absorption in UV/Visible region ?

A:- CH_3OH

B:- CCl_4

C:- CH_4

D:- $\text{CH}_2=\text{O}$

Correct Answer:- Option-D

Question72:-Atomic force microscopy shows images of surfaces through :

A:-Current that flows from the surface to the tip

B:-The force of the surface on the tip

C:-Diffraction of electrons around the molecules of the surface

D:-Movement of the laser along the surface

Correct Answer:- Option-B

Question73:-Identify the non-aromatic compound in the following :

A:-Cyclodecapentene

B:-Annulene

C:-Cyclooctatetraene

D:-Cyclopropenyl anion

Correct Answer:- Option-A

Question74:-Wave function in quantum mechanics represents :

A:-Probability of the system

B:-Shape of the system

C:-Energy of the system

D:-A state of the system

Correct Answer:- Option-D

Question75:-The point group symmetry of the staggered form of ethane molecule is :

A:- C_{3v}

B:- D_{3d}

C:- D_{3h}

D:- D_3

Correct Answer:- Option-B

Question76:-The plane symmetry is also called :

A:- σ -plane

B:- σ_h -plane

C:- σ_v -plane

D:- σ_d -plane

Correct Answer:- Option-C

Question77:-Which of the following heterocyclic compound is not aromatic ?

A:-Pyridine

B:-Pyrrole

C:-Furan

D:-Piperidine

Correct Answer:- Option-D

Question78:-Free radicals are detected by the :

A:-Mass spectra

B:-U.V. spectra

C:-CIDNP

D:-Mossbauer spectra

Correct Answer:- Option-C

Question79:-A class of pericyclic reaction is :

A:-Hydroboration reaction

B:-Reimer - Tiemann reaction

C:-Grignard reaction

D:-Diels - Alder reaction

Correct Answer:- Option-D

Question80:-In the R-S notation, the prefixes R and S stands for :

A:-Rectus-Simianus

B:-Rectus-Sinister

C:-Rotamer-Simianus

D:-Rotamer-Sinister

Correct Answer:- Option-B

Question81:-Which among the following will be paramagnetic ?

A:- $Cr(CO)_6$

B:- $Fe(CO)_5$

C:- $Fe_2(CO)_9$

D:- $V(CO)_6$

Correct Answer:- Option-D

Question82:-The difference between the potential of the electrode when the gas evolution was actually observed and the theoretical reversible value of the same solution was called :

A:-Electrode potential

B:-Over potential

C:-Decomposition potential

D:-None of these

Correct Answer:- Option-B

Question83:-In atomic absorption spectroscopy the addition of Sr or La reduce the contents of :

A:- PO_4^{3-}

B:- SO_4^{2-}

C:- Al^{3+}

D:-Si

Correct Answer:- Option-A

Question84:-The crystal field splitting energy for octahedral(o) and tetrahedral complex() is related as :

A:-.....

B:-.....

C:-` 4/9`

D:-` 4/9`

Correct Answer:-**Question Cancelled**

Question85:-Enantiotropic groups reacts with chiral reagents :

A:-At different rates

B:-At the same rate

C:-Same rate at the first and different rates later

D:-Do not react at all

Correct Answer:- Option-A

Question86:-Which element is used for making a thin window at one end of the tube in Geiger counter ?

A:-Li

B:-Be

C:-B

D:-C

Correct Answer:- Option-B

Question87:-Name the first space-based Michelson Interferometer designed for detecting gravitational waves.

A:-VISA

B:-MISA

C:-NISA

D:-LISA

Correct Answer:- Option-D

Question88:-Which compound gives two distinct peaks in its NMR spectrum ?

A:-` C_6H_6`

B:-` C_2H_5OH`

C:-` (CH_3)_3COH`

D:-` CH_3OCH_3`

Correct Answer:- Option-C

Question89:-The electron transition between which two levels release the most energy ?

A:-Second to first

B:-Fourth to ninth

C:-Sixth to third

D:-First to third

Correct Answer:- Option-A

Question90:-What is the function of iron in the Haber process ?

A:-It shifts the position of equilibrium towards the products

B:-It decreases the rate of the reaction

C:-It provides an alternative reaction pathway with lower activation energy

D:-It reduces the enthalpy change of the reaction

Correct Answer:- Option-C

Question91:-The total number of nominated members to both houses of Indian Parliament is :

A:-15

B:-12

C:-18

D:-14

Correct Answer:- Option-D

Question92:-For the last time a joint session of Indian Parliament was held in the year :

A:-2002

B:-2012

C:-2014

D:-2015

Correct Answer:- Option-A

Question93:-Which of the following pairs have become the Vice-President of India for two consecutive terms ?

A:-K.R. Narayanan and V.V. Giri

B:-Dr. S. Radhakrishnan and Sankar Dayal Sharma

C:-Hamid Ansari and Dr. S. Radhakrishnan

D:-Dr. Zakir Hussain and Justice M. Hidayathulla

Correct Answer:- Option-C

Question94:-In which year the award for Best Parliamentarian had been constituted ?

- A:-1978
- B:-1984
- C:-1995
- D:-2010

Correct Answer:- Option-C

Question95:-Which of the following was in the position of Prime Minister for minimum period ?

- A:-Deve Gowda
- B:-S. Chandrasekhar
- C:-Lal Bahadur Shastri
- D:-Charan Singh

Correct Answer:- Option-D

Question96:-Which of the constitutional amendments has been described as a 'mini revision' of the Indian Constitution ?

- A:-The 24th Amendment
- B:-The 42nd Amendment
- C:-The 44th Amendment
- D:-The 73rd Amendment

Correct Answer:- Option-B

Question97:-Right to Information Act was enacted from :

- A:-2001
- B:-2003
- C:-2005
- D:-2007

Correct Answer:- Option-C

Question98:-Bill of Protection of Women on Domestic Violence was passed in the year :

- A:-1985
- B:-2006
- C:-2009
- D:-2013

Correct Answer:- Option-B

Question99:-Which of the following can be donated by a live donor ?

- A:-Kidney
- B:-Heart
- C:-Eye
- D:-Lung

Correct Answer:- Option-A

Question100:- A Kisan Credit Card (KCC) Scheme was introduced in the year :

- A:-1995
- B:-1996
- C:-1997
- D:-1998

Correct Answer:- Option-D