

National Testing Agency

Question Paper Name: Online Refresher Course in Chemistry for Higher Education Faculty 30th March 2019 Shift 1
Subject Name: Online Refresher Course in Chemistry for Higher Education Faculty
Creation Date: 2019-03-30 13:12:44
Duration: 180
Total Marks: 100
Display Marks: Yes

Online Refresher Course in Chemistry for Higher Education Faculty

Group Number : 1
Group Id : 90958221
Group Maximum Duration : 0
Group Minimum Duration : 120
Revisit allowed for view? : No
Revisit allowed for edit? : No
Break time: 0
Group Marks: 100

Online Refresher Course in Chemistry for Higher Education Faculty

Section Id : 90958221
Section Number : 1
Section type : Online
Mandatory or Optional: Mandatory
Number of Questions: 100
Number of Questions to be attempted: 100
Section Marks: 100
Display Number Panel: Yes
Group All Questions: No

Sub-Section Number: 1
Sub-Section Id: 90958223
Question Shuffling Allowed : Yes

Question Number : 1 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Who won the Nobel Prize in Chemistry for the year 2017?

- Jacques Dubochet, Joachim Frank and Richard Henderson
- Jacques Dubochet, Fraser Stoddart and Joachim Frank
- Joachim Frank, Richard Henderson and Tomas Lindahl
- Jacques Dubochet, Stefan Hell and Richard Henderson

Options :

1. A
2. B
3. C
4. D

Question Number : 2 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Minnamata Convention deals with adverse effects of:

- a. Lead (II)
- b. Arsenic
- c. Chromium (VI)
- d. Mercury

Options :

1. A
2. B
3. C
4. D

Question Number : 3 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

. Synthetic diamonds designed with centers of _____ are found to be useful in bio-sensing & medical diagnosis fields.

- a. Boron
- b. Carbon
- c. Mercury
- d. Nitrogen

Options :

1. A
2. B
3. C
4. D

Question Number : 4 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Alfred Nobel made many inventions. Which of the following was not his invention?

- a. Artificial silk
- b. Synthetic leather
- c. Dynamite
- d. Fertilizers

Options :

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

Question Number : 5 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following was used as obituary statement for Alfred Nobel in a leading newspaper?

- a. "Merchant of death has died today"
- b. "Merchant of Dynamite has died today"
- c. "A man with wisdom died today"
- d. "Dynamite business man died"

Options :

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

Question Number : 6 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which is the 28th essential element of the human body?

- a. Carbon
- b. Bromine
- c. Boron
- d. Oxygen

Options :

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

Question Number : 7 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is not a characteristic of good quality e-content?

- a. Reusable
- b. Highly interactive
- c. Non-structured
- d. Multimedia enriched

Options :

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

Question Number : 8 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is false?

- a. The word chemistry has been derived from the word 'alchemy'
- b. Chemistry deals with matter and changes that take place with matter
- c. Chemistry is not a central science
- d. Chemistry concerns with structure and behavior of chemical substances

Options :

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

Question Number : 9 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The term MOOC was coined by

- a. Benjamin Bloom
- b. Steve Jobs
- c. Dave Cormier
- d. Adam Smith

Options :

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

Question Number : 10 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In order to reduce the use of chemicals, which of the following should not be adopted for performing qualitative tests?

- a. Use of Whatman filter paper
- b. Use of semi micro tubes
- c. Use of 20 mL test tubes
- d. Use of groove tiles

Options :

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

Question Number : 11 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What should be the pH of the treated waste chemicals in the waste disposal plant before throwing them in drain?

- a. 4-5
- b. 1-2
- c. 7-8
- d. 10-12

Options :

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

Question Number : 12 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Why are doctors and scientists so excited about human embryonic stem cells?

- a. To treat fever
- b. To treat back pain
- c. To treat headache
- d. To treat cancer

Options :

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

Question Number : 13 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What are the units of pH?

- a. mol L^{-1}
- b. $\text{mol}^2 \text{L}^{-2}$
- c. No Units
- d. $\text{mol}^{-1} \text{L}$

Options :

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

Question Number : 14 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

pH of neutral water at 50°C is

- a. 5
- b. 7.63
- c. 7
- d. 6.63

Options :

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

Question Number : 15 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A positive rho value in the Hammett equation usually indicates that

- a. More positive charge is accumulated in the transition state compared to the reactant
- b. More negative charge is accumulated in the transition state compared to the reactant
- c. The transition state is like free radical
- d. The reaction goes through a two-step mechanism

Options :

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

Question Number : 16 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In which one of the following polymers, was high conductivity observed accidentally on doping?

- a. Polyethene
- b. Polyester
- c. DNA
- d. Polyacetylene

Options :

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

Question Number : 17 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

An important electronic parameter which dictates the electrochemical, optical and charge transport Properties of electrically conductive polymers is

- a. Bond length
- b. Potential energy
- c. Refractivity
- d. Band gap

Options :

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

Question Number : 18 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which method of fingerprint detection is not preferred in tropical climates?

- a. Silver nitrate method
- b. Ninhydrin method
- c. Cyanocrylate method
- d. Powder method

Options :

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

Question Number : 19 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The documents on which fingerprint record is maintained is called –

- a. Fingerprint lifter
- b. Fingerprint recorder
- c. Index card
- d. Chain of custody card

Options :

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

Question Number : 20 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The first Nobel Prize awarded to Marie Curie in 1903 was shared with

- a. Antoine Henry Becquerel
- b. Neil Bohr
- c. Pierre Curie
- d. Antoine Henry Becquerel

Options :

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

Note: For this question, ambiguity is found in question/answer. Candidate will get full marks for this question if any of the correct options are chosen.

Question Number : 21 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Pick out the compound having the highest calorific value:

- a. Ethane
- b. Acetylene
- c. Ethanol
- d. Ethane

Options :

- 1. A
- 2. B

3. C

4. D

Question Number : 22 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is not a Green Fuel?

- a. Biodiesel
- b. Bioethanol
- c. Solar energy
- d. Nuclear energy

Options :

1. A

2. B

3. C

4. D

Question Number : 23 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the origin of the primary kinetic isotope effect?

- a. Greater zero-point energy of the bond with the heavier isotope
- b. Mass of the heavier isotope
- c. Solvent
- d. Temperature

Options :

1. A

2. B

3. C

4. D

Question Number : 24 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Carboxylic acids are more acidic than alcohols and phenols because of

- a. Intermolecular hydrogen bonding
- b. Formation of dimers
- c. Highly acidic hydrogen
- d. Resonance stabilization of their conjugate base

Options :

1. A

2. B

3. C

4. D

Question Number : 25 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which one of the following carboxylic acids is expected to have the lowest pK_a value?

- a. $\text{CH}_3\text{CH}_2\text{CH}_2\text{COOH}$
- b. $\text{BrCH}_2\text{CH}_2\text{CH}_2\text{COOH}$
- c. $\text{CH}_3\text{CH}(\text{Br})\text{CH}_2\text{COOH}$
- d. $\text{CH}_3\text{CH}_2\text{CH}(\text{Br})\text{COOH}$

Options :

1. A

2. B

3. C

4. D

Question Number : 26 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The ammonium ion in a salt or a mixture can be confirmed by which one of the following reagent?

- a. Dil. HCl
- b. Ammonium thiocyanate
- c. Potassium ferrocyanide
- d. Nessler's reagent

Options :

1. A

2. B

3. C

4. D

Question Number : 27 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The use of spot test is not feasible for the experiments for

- a. Qualitative Anion analysis
- b. Qualitative Cation analysis
- c. Functional group analysis
- d. Preparation of acid from amide

Options :

1. A

2. B

3. C

4. D

Question Number : 28 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which scientist led to the development of first crown ether?

- a. Donald J. Cram
- b. Jean-Marie Lehn
- c. Jean-Pierre Sauvage
- d. Charles J. Pedersen

Options :

1. A

2. B

3. C

4. D

Question Number : 29 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which one of the following scales is based on division in 100 units of equal size for 100 marks?

- a. Nominal scale
- b. Ordinal scale
- c. Interval scale
- d. Ratio scale

Options :

1. A

2. B

3. C

4. D

Question Number : 30 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

MOOC stands for

- a. Massive Open Online Course
- b. Massive Online Open Course
- c. Mass Open Online Course
- d. Massive Online Open Credit

Options :

1. A

2. B

3. C

4. D

Question Number : 31 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which one of the following can be used as a solvent for Friedel Crafts reaction between toluene and n-propyl chloride/ AlCl_3 for a better yield?

- a. Benzene
- b. Phenol
- c. Toluene
- d. Nitrobenzene

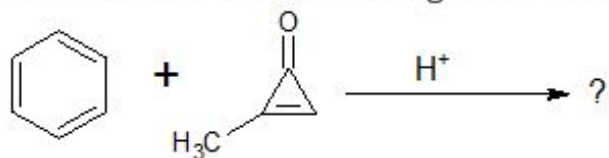
Options :

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

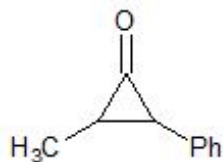
Question Number : 32 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

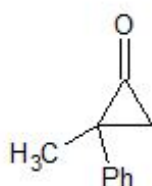
Which one of the following will be formed as a major product in the following reaction:



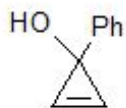
a.



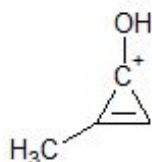
b.



c.



d.



Options :

1. A
2. B
3. C
4. D

Question Number : 33 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following techniques among the given options is used commonly for printing 3D objects and material?

- I. Printing based inkjet printers
 - II. Nozzle-based deposition systems
 - III. Laser-based writing systems
- a. I and II
 - b. Only II
 - c. I, II and III
 - d. Only III

Options :

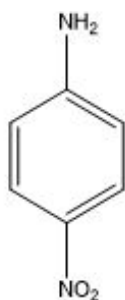
- 1. A
- 2. B
- 3. C
- 4. D

Question Number : 34 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

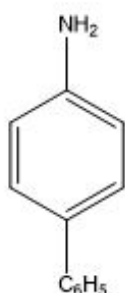
Correct Marks : 1 Wrong Marks : 0

Identify the compound with the lowest value of pK_a amongst the following

a.



b.



c. $(C_6H_5)_2NH$

d. $(C_6H_5)_3N$

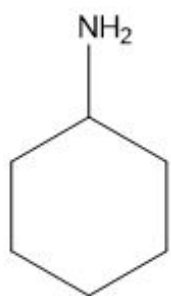
Options :

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

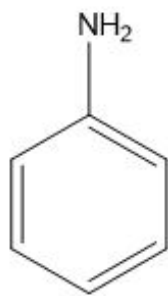
Question Number : 35 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

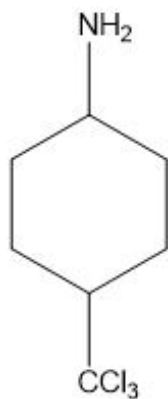
Arrange the following in increasing order of basicity



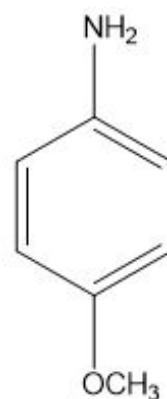
(a)



(b)



(c)



(d)

- a. $c < b < d < a$
- b. $a < c < b < d$
- c. $c < a < b < d$
- d. $b < d < c < a$

Options :

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

Question Number : 36 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which method is used for detecting fingerprints on submerged items?

- a. Silver nitrate method
- b. Small particle reagent method
- c. Powder method
- d. Iodine fuming method

Options :

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

Question Number : 37 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which parameter is used for primary classification of fingerprints?

- a. Core and delta
- b. Fingerprint characters
- c. Shape of sweat pores
- d. Outer pattern

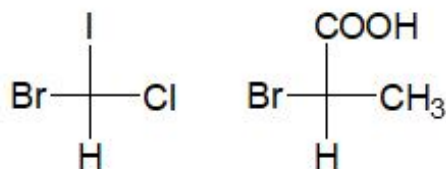
Options :

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

Question Number : 38 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Assign R and S notations to the following compounds:



- a. S,R
- b. R,R
- c. R,S
- d. S,S

Options :

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

Question Number : 39 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is not an odd electron species?

- a. Radical-anion
- b. Radical
- c. Triplet carbene
- d. Radical-cation

Options :

- 1. A
- 2. B

3. C

4. D

Question Number : 40 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following are not employed for generation of radical-anions?

- a. Metals
- b. Organometallic reagents
- c. Carbocations
- d. Carbanions

Options :

1. A

2. B

3. C

4. D

Question Number : 41 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is true about 3D printing?

- a. 3D printers can print limited materials
- b. 3D printers can print within limited size scale
- c. 3D printing has multifaceted applications like in food industries, medicines, automation etc.
- d. 3D printing cannot be used to print big objects like houses

Options :

1. A

2. B

3. C

4. D

Question Number : 42 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Pick out the most correct answer:

- a) Total energy released in a combustion reaction decreases with increase in number of carbons of the Hydrocarbon source.
- b) Total energy released in a combustion reaction decreases with decrease in oxidation state of carbon in the Hydrocarbon source.
- c) Total energy released in a combustion reaction increases with the number of carbons and oxidation state of carbon in the hydrocarbon source.
- d) Total energy released in a combustion reaction increases with the number of carbons in the hydrocarbon chain and decreases with increase in the oxidation state of carbon in the hydrocarbon source.

Options :

1. A

2. B
3. C
4. D

Question Number : 43 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What does not fall under the category of Static Content?

- a. Text
- b. Value additions
- c. Images
- d. Videos

Options :

1. A
2. B
3. C
4. D

Question Number : 44 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which one of the following practices is incorrect to ensure 3R's in a chemistry laboratory?

- a. Inorganic salt preparations must be stored for use in laboratory by other students
- b. Use ICT for demonstrating the experiments in the laboratory
- c. Use multistep analysis and synthesis to avoid wastage
- d. Throw everything at the end of laboratory in the bin

Options :

1. A
2. B
3. C
4. D

Question Number : 45 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following materials are not on RED LIST?

- a. Organonitrogen pesticides
- b. Esters
- c. Fluorides
- d. Triazine herbicides

Options :

1. A
2. B

3. C

4. D

Question Number : 46 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The Hammett equation correlates

- Rates of chemical reactions with temperature
- Rates of chemical reactions with concentration
- Rates of chemical reactions with substituent properties
- Rates of chemical reactions with solvent properties

Options :

1. A

2. B

3. C

4. D

Question Number : 47 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The parameter rho (ρ) in the Hammett equation is a property of

- The substituent
- The reaction being studied
- The reference reaction
- The enthalpy change in the reaction

Options :

1. A

2. B

3. C

4. D

Question Number : 48 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Nobel prize in Chemistry for the year 2017 was awarded for

- The directed evolution of enzymes
- The design and synthesis of molecular machines
- The development of Cryo - Electron Microscopy for the high resolution structure determination of biomolecules in solution
- Mechanistic studies of DNA repair

Options :

1. A

2. B

3. C

4. D

Question Number : 49 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

World Environment day is celebrated on

- a. 8th June
- b. 6th June
- c. 7th June
- d. 5th June

Options :

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

Question Number : 50 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which Nobel Laureate of Chemistry died at the age of 99 in 2018?

- a. Stefan W. Hell
- b. Arieh Warshel
- c. Gerhard Ertl
- d. Paul D. Boyer

Options :

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

Question Number : 51 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is not the characteristic features of the field of chemistry?

- a. It is the study of matter and the changes that takes place with matter
- b. It is the central science which connects all other fields of science
- c. It helps produce new substances (new matter)
- d. It is only an experimental science

Options :

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

Question Number : 52 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is false?

- a. There is dearth of qualified and competent faculty in India
- b. There is no formal training of our teachers in pedagogical skills
- c. We need not encourage out of box thinking amongst our students
- d. The focus of teaching-learning is mainly on rote learning and scoring high marks

Options :

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

Question Number : 53 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What does not fall under the umbrella of ICT?

- a. Internet
- b. Wireless networks
- c. Satellite communication
- d. Smart board

Options :

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

Question Number : 54 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following statements is false?

- a. India has the largest system of education in the world.
- b. There are nearly 900 universities in India
- c. Our gross enrolment ratio is only 25.5%
- d. There are nearly 50,000 colleges in India

Options :

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

Question Number : 55 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which is the MOOC coordinator for development of management courses in India?

- a. NPTEL
- b. UGC
- c. AICTE
- d. IIM – Bangalore

Options :

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

Question Number : 56 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The term pH was coined by

- a. S Hawking
- b. M Curie
- c. S P L Sorenson
- d. P Julian

Options :

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

Question Number : 57 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the pH value of 10^{-8} M HCl?

- a. 7
- b. 4.96
- c. 8
- d. 6.96

Options :

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

Question Number : 58 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following has not been traditionally used to make the polymer matrix conducting?

- a. Metal fibers
- b. Metal powders
- c. Carbon black
- d. Carbohydrates

Options :

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

Question Number : 59 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following charge carriers responsible for conduction in doped polymers carry spin?

- a. Positively charged solitons
- b. Neutral Solitons
- c. Bipolarons
- d. Negatively charged solitons

Options :

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

Question Number : 60 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Type I copolymer is the one where

- a. Energy gap of one component lies within the energy gap of another component
- b. Energy gap of one component lies below the energy gap of another component
- c. Energy gap of one component lies above the energy gap of another component
- d. Energy gap of both the components is the same

Options :

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

Question Number : 61 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

How we can study and analyze a large amount of data?

- a. MS Word
- b. MS Powerpoint
- c. MS Excel
- d. Paint

Options :

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

Question Number : 62 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is the correct order for representing stages of the development of e-content?

- a. Static content production; Multimedia enrichment; Testing; Uploading
- b. Multimedia enrichment; Testing; Uploading; Static content production
- c. Static content production; Testing; Uploading; Multimedia enrichment
- d. Static content production; Multimedia enrichment; Uploading; Testing

Options :

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

Question Number : 63 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

How to check the odour of a chemical substance?

- a. The odour must be blown towards your nose with the help of a hand and then you can check the smell of the substance
- b. Bring it near your nose and then smell it
- c. Take a pinch of it and bring it near your nose to smell it
- d. Take it in dropper and drop near your nose

Options :

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

Question Number : 64 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following are NMR active nuclei?

- a. ^1H , ^{13}C , ^{31}P , ^2H
- b. ^{12}C , ^{31}P , ^2H , ^{32}S
- c. ^1H , ^{13}C , ^{16}O , ^{32}S
- d. ^{32}S , ^1H , ^{13}C , ^{31}P

Options :

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

Question Number : 65 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For which one of the following solvents in the reaction mixture, water bath cannot be used for refluxing

- a. Ethanol
- b. Ether
- c. Acetone
- d. Toluene

Options :

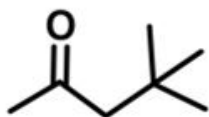
- 1. A
- 2. B
- 3. C
- 4. D

Question Number : 66 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

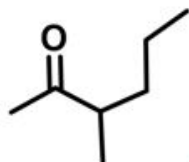
Correct Marks : 1 Wrong Marks : 0

Among the followings isomeric compounds, the compound that gives base peak at $m/z = 72$ in the EI mass spectrum is:

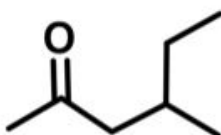
a.



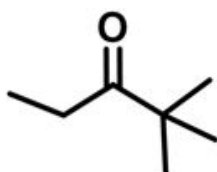
b.



c.



d.



Options :

1. A
2. B
3. C
4. D

Question Number : 67 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What was the theme of 30th anniversary of National Chemistry Week of American Chemical Society?

- a. Chemistry Rocks
- b. Chemistry for all
- c. Chemistry and Society
- d. Chemistry and development

Options :

1. A
2. B
3. C
4. D

Question Number : 68 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The Double Bond Equivalent (DBE) for the compound with molecular formulae C_6H_6 and C_6H_{12} are respectively,

- a. 4, 1
- b. 3, 2
- c. 1, 4
- d. 2, 3

Options :

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

Question Number : 69 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Graphene has very high mechanical strength due to

- a. Long sp^2 hybridised C-C intraplanar bond resisting any kind of in-plane defect or deformation
- b. Strong sp^3 hybridised C-C intraplanar bond
- c. Presence of both sp^2 and sp^3 hybridised carbon atoms
- d. Presence of both sp^2 and sp hybridised carbon atoms

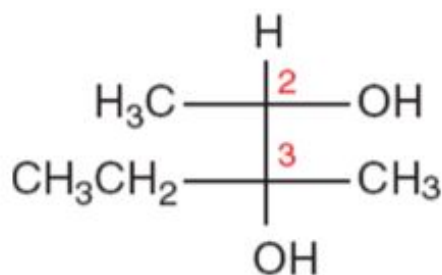
Options :

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

Question Number : 70 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the correct configuration of C-2 and C-3 carbon in the following compound?



- a. 2R, 3S
- b. 2S, 3R
- c. 2S, 3S
- d. 2R, 3R

Options :

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

Question Number : 71 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following combination should not be stored as waste together in the same container?

- Chloroform and Acetone
- Ethyl alcohol and Benzyl alcohol
- Ethanol and Acetone
- Benzaldehyde and Benzophenone

Options :

- A
- B
- C
- D

Question Number : 72 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

How is pH expressed?

- $pH = \log_{10}(C_{H^+})$
- $pH = -1/\log_{10}(C_{H^+})$
- $pH = -2 \log_{10}(C_{H^+})$
- $pH = -\log_{10}(a_{H^+})$

Options :

- A
- B
- C
- D

Question Number : 73 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the order of rotational axis in the ferrocene molecule?

- 4
- 5
- 3
- 2

Options :

- A
- B
- C
- D

Question Number : 74 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which is the most stable conformation of ethylene glycol?

- a. Anti
- b. Staggered
- c. Gauche
- d. Eclipsed

Options :

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

Question Number : 75 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following compound will not give dark colouration with neutral ferric chloride solution?

- a. 1-naphthol
- b. o-Cresol
- c. Benzyl alcohol
- d. Phloroglucinol

Options :

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

Question Number : 76 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which pedagogy for teaching has been exemplified in the Friedel Crafts reaction module?

- a. Flip-classroom model
- b. Virtual classroom model
- c. MOOCs model
- d. Face to face teaching model

Options :

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

Question Number : 77 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Integration of ^1H signal intensities (or peak area) gives information about

- The absolute number of protons corresponding to the resonance frequencies
- The ratio of the number of protons corresponding to the resonance frequencies
- The types of protons corresponding to the resonance frequencies
- Intensities of protons relative to the solvent peak

Options :

- A
- B
- C
- D

Question Number : 78 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

How many ^{13}C NMR resonances are predicted for the 1-phenyl-1-propanol?

- 6
- 7
- 8
- 9

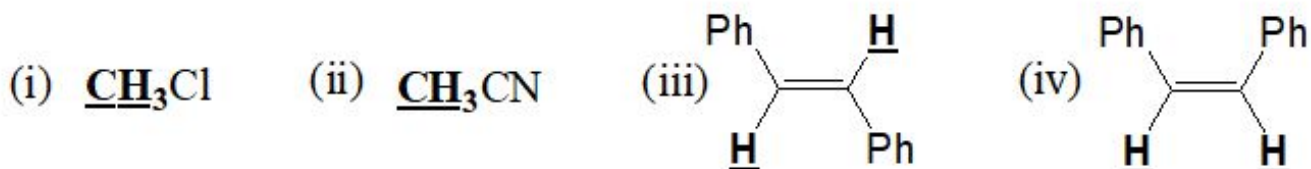
Options :

- A
- B
- C
- D

Question Number : 79 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Correct order of chemical shift of labelled protons in the following compound is



- iii > iv > i > ii
- iv > iii > i > ii
- iii > iv > ii > i
- iv > iii > ii > i

Options :

- A
- B

3. C

4. D

Question Number : 80 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following options is incorrect?

- Graphene has higher electrical conductivity than copper.
- Graphene is the thinnest material known.
- The band gap of graphene is 2.6 eV.
- Carbon atoms are sp^2 hybridized in graphene.

Options :

1. A

2. B

3. C

4. D

Question Number : 81 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A graphene sheet differs from the framework of a fullerene because:

- Graphene sheet consists of C_n rings in which $n = 5$ and 6, but in a fullerene $n = 5$
- Graphene sheet consists of C_n rings in which $n = 6$, but in some fullerenes $n = 5$
- Graphene sheet consists of C_n rings in which $n = 6$, but in fullerenes $n = 5$ and 6
- Graphene sheet consists of C_n rings in which $n = 5$ or 6, but in most fullerenes $n = 6$

Options :

1. A

2. B

3. C

4. D

Question Number : 82 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In Hummer's method the reaction is terminated using

- Sodium nitrate
- Potassium permanganate
- Hydrogen peroxide
- Sulfuric Acid

Options :

1. A

2. B

3. C

4. D

Question Number : 83 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

'Nothing is created and nothing is destroyed'-who gave this paradigm?

- Antoine Lavoisier
- Alfred Werner
- Wohler
- Victor Grignard

Options :

- A
- B
- C
- D

Question Number : 84 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Kinetic isotope effect observed in the oxidation of 2-deuterio-2-propanol with CrO_3 results from:

- Lower zero point energy of the C-D bond compared to the C-H bond
- Higher zero point energy of the C-D bond compared to the C-H bond
- Higher dipole moment of the C-D bond compared to the C-H bond
- Lower dipole moment of the C-D bond compared to the C-H bond

Options :

- A
- B
- C
- D

Question Number : 85 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Extremely large values of primary kinetic isotope effects are observed

- At high temperatures
- At room temperature
- At low temperatures
- At low temperatures and when tunneling is feasible

Options :

- A
- B
- C
- D

Question Number : 86 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The reagent used for confirmatory test of copper is?

- a. Dil. HCl
- b. Potassium chloride
- c. Potassium ferrocyanide
- d. Aq. AgNO₃

Options :

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

Question Number : 87 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which one of the following ions when reacted with dimethyl glyoxime gives bright pink-red complex?

- a. Ni²⁺
- b. Fe²⁺
- c. Cu²⁺
- d. Br⁻

Options :

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

Question Number : 88 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

How to properly heat contents of a reaction mixture to avoid bumping?

- a. Directly heat the contents in a china dish
- b. Heat the contents in a water bath in conical flask
- c. Heat the contents in a sand bath in volumetric flask
- d. Heat the contents in a round bottom flask using pumice stones

Options :

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

Question Number : 89 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the substituent has the lowest priority in the following compound?

- a. $-\text{C}_6\text{H}_5$
- b. $-\text{CH}_2\text{C}_6\text{H}_5$
- c. $-\text{C}\equiv\text{CH}$
- d. $-\text{CH}=\text{CH}_2$

Options :

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

Question Number : 90 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What did Marie Curie extract from Pitchblende?

- a. Polonium
- b. Radium
- c. Thorium
- d. Uranium

Options :

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

Question Number : 91 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which type of interactions are involved in the following molecule?



- a. $\pi - \pi$ Interactions
- b. Cation $-\pi$ Interactions
- c. Dipole-Dipole Interactions
- d. C-H $\cdots\pi$ Interactions

Options :

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

Question Number : 92 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which one of the following statements is correct regarding the principle of cation complexation?

- The ion transport efficiency of a natural ionophore across a membrane parallels the complexation strength
- The better a binding site is pre-organized, the higher the binding selectivity of the corresponding host
- The more basic the donor atoms in ionophores, the stronger their complexes with metal ion
- Rate constants for complexation and decomplexation [$k(\text{complexation})$ and $k(\text{decomplexation})$] are determined by the strength of the interaction between cation and crown ether

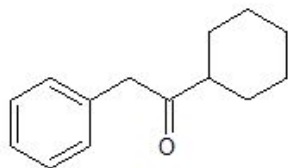
Options :

- A
- B
- C
- D

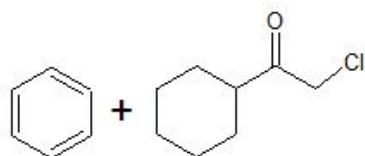
Question Number : 93 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

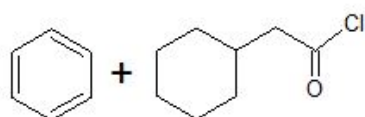
Which will be the best possible synthetic precursor for the following molecule via Friedel Crafts reaction?



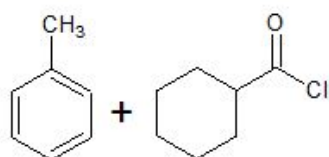
a.



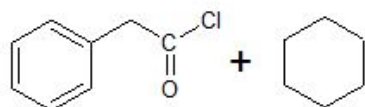
b.



c.



d.



Options :

1. A
2. B
3. C
4. D

Question Number : 94 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

105th Indian Science Congress was held in

- a. Manipur University
- b. Mumbai University
- c. Delhi University
- d. Punjab University

Options :

1. A
2. B
3. C
4. D

Question Number : 95 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Who created the first spreadsheet application VisiCalc?

- a. Steve Jobs
- b. Daniel Bricklin and Bob Frankston
- c. Bill Gates
- d. Jeff Bezos

Options :

1. A
2. B
3. C
4. D

Question Number : 96 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Name the chemical irritant that leads to tears when onions are chopped?

- a. Syn-propanethial-S-Oxide
- b. Sulphuric Acid
- c. Acetic Acid
- d. Hydrochloric Acid

Options :

1. A

2. B
3. C
4. D

Question Number : 97 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Alfred Nobel commercialized the use of dynamite as an explosive shaped into

- a. Grannular form
- b. Rod form
- c. Sheet form
- d. Liquid form

Options :

1. A
2. B
3. C
4. D

Question Number : 98 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For dilute solutions, which of the following is true about activity coefficient?

- a. $\gamma \approx 1$
- b. $\gamma > 0$
- c. $\gamma < 1$
- d. $\gamma = 0$

Options :

1. A
2. B
3. C
4. D

Question Number : 99 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which reagent may be used in vapor state for detecting latent fingerprints?

- a. Rose Bengal
- b. Eosin Y
- c. Iodine
- d. Crystal Violet

Options :

1. A
2. B

3. C

4. D

Question Number : 100 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is true about doping in polymers?

- a. Doping in polymers is a redox process
- b. Doping results in decreased conductivity
- c. Doping results in electrons and holes as charge carriers
- d. Doping results in increased stability in polyacetylene

Options :

1. A

2. B

3. C

4. D