

# Banaras Hindu University

**Question Paper Name:** 472 14th May 2019 Shift 2  
**Subject Name:** 472  
**Creation Date:** 2019-05-14 17:57:33  
**Duration:** 120  
**Total Marks:** 360  
**Display Marks:** Yes  
**Share Answer Key With Delivery Engine:** Yes  
**Actual Answer Key:** Yes

## MSc Forensic Science

**Group Number :** 1  
**Group Id :** 54310773  
**Group Maximum Duration :** 0  
**Group Minimum Duration :** 120  
**Revisit allowed for view? :** No  
**Revisit allowed for edit? :** No  
**Break time:** 0  
**Group Marks:** 360

## Section A General Science and General Nature

**Section Id :** 543107134  
**Section Number :** 1  
**Section type :** Online  
**Mandatory or Optional:** Mandatory  
**Number of Questions:** 80  
**Number of Questions to be attempted:** 80  
**Section Marks:** 240  
**Display Number Panel:** Yes  
**Group All Questions:** No

**Sub-Section Number:** 1  
**Sub-Section Id:** 543107174  
**Question Shuffling Allowed :** Yes

**Question Number : 1 Question Id : 5431079184 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**  
**Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes**

**Correct Marks : 3 Wrong Marks : 1**

Question Label : Multiple Choice Question

Forensic analysis techniques may include :

Options :

1. Principle of Exchange

2. Law of Individuality
3. Law of probability
4. All of the three

Question Number : 2 Question Id : 5431079185 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

"Forensic" comes from the word :

Options :

1. Fraud
2. Forum
3. Firearm
4. Fixed evidence

Question Number : 3 Question Id : 5431079186 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

'Swabbing' is a method for :

Options :

1. collection of big particles of biological fluid
2. collection of minute particles of biological fluid
3. deposition of minute particles of biological fluids on body
4. collection of evidence from a large and open area

Question Number : 4 Question Id : 5431079187 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Serum is the liquid component of blood left behind :

Options :

1. before clotting of the blood
2. after clotting of the blood
3. before decomposition of the blood
4. after decomposition of the blood

Question Number : 5 Question Id : 5431079188 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Skid marks are :

Options :

1. the friction between the tyre and road
2. the friction between two vehicles
3. the friction between the adjoining roads
4. the friction between the break of a vehicle and the road

Question Number : 6 Question Id : 5431079189 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Strangulation can be defined as :

Options :

1. deprivation of food and fluid which is necessary to maintain life
2. a form of asphyxial death caused by obstruction of air to the lungs without compression of neck
3. a form of violent death where the constricting force on the neck is applied from outside by some ligature material

- the compressions of the neck due to organ failure during blood circulation
- in the body

Question Number : 7 Question Id : 5431079190 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Detonation proceeds with :

Options :

- a reaction propagated by high temperature and low pressure in a shock wave
- a reaction propagated by low temperature and high pressure in a shock wave
- a reaction propagated by high temperature and high pressure in a shock wave
- a reaction propagated by low temperature and low pressure in a shock wave

Question Number : 8 Question Id : 5431079191 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Cyanosis reflects :

Options :

- yellowish colour of skin and mucous membranes because of lack of oxygen in the blood
- bluish colour of skin and mucous membranes because of lack of oxygen in the blood
- black colour of skin and mucous membranes because of lack of oxygen in the blood
- pale-yellow colour of skin and mucous membranes because of lack of oxygen in the blood

Question Number : 9 Question Id : 5431079192 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Antemortem means :

Options :

1. After the death or after the life of an organism
2. During the life of an animal
3. Just at the time of death of an organism
4. Before the death or during the life of an organism

Question Number : 10 Question Id : 5431079193 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Algor mortis is the :

Options :

1. heating of the body which takes place after death
2. cooling of the body which takes place after death
3. decomposition of the body which takes place after death
4. normal temperature of body which maintains even after death

Question Number : 11 Question Id : 5431079194 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Dolirium is :

Options :

1. Ordered physical state of the body
2. Disordered mental state with excitement and incoherent speech



3. Pain in the stomach due to the gaseous evolution
4. Drunken state of the mind with incoherent speech

Question Number : 12 Question Id : 5431079195 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Deontology is a :

Options :

1. branch of anatomical science which deals with teeth
2. branch of anatomical science which deals with brain
3. branch of anatomical science which deals with leg bones
4. branch of anatomical science which deals with finger bones

Question Number : 13 Question Id : 5431079196 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Tranquilizers are :

Options :

1. Drugs those can be used for the treatment of bone cancers
2. Drugs those stimulate central nervous system
3. Drugs those induce calmness and reduce anxiety
4. Drugs those slow down brain activity

Question Number : 14 Question Id : 5431079197 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Putrefaction relates to :

Options :

1. preservation of matters effected largely by microorganisms
2. decomposition of matters effected largely by microorganisms
3. purification of matters largely effected by microorganisms
4. collection of matters that are not found due to microorganisms

Question Number : 15 Question Id : 5431079198 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Gait pattern refers to :

Options :

1. a series of footprints or impressions which are formed due to walking or running of a person
2. a series of footprints or impressions which are formed while committing crime
3. a series of propellant coming out when a cartridge is fired
4. a series of burning pattern in the shape of a funnel opening upward

Question Number : 16 Question Id : 5431079199 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

'Heavy water' is used in which of the following fields ?

Options :

1. Textile Industry
2. Cement Industry

3. Iron and steel Industry

4. Nuclear Power Industry

Question Number : 17 Question Id : 5431079200 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of the following phenomenon is the most important cause of current  
'Global warming' ?

Options :

1. Green house effect

2. Dry farming

3. Monsoon

4. Fire and coal mines

Question Number : 18 Question Id : 5431079201 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Water will not be vaporized if :

Options :

1. the temperature is  $0^{\circ}\text{C}$

2. the humidity is 0%

3. the humidity is 100%

4. the temperature is  $100^{\circ}\text{C}$

Question Number : 19 Question Id : 5431079202 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1



Question Label : Multiple Choice Question

The Bhopal Gas Tragedy was caused by the gas :

Options :

1. Phosgene
2. Carbon monoxide
3. Methyl isocyanate
4. Chlorine

Question Number : 20 Question Id : 5431079203 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of the following is a property of diffusion ?

Options :

1. Slowest in liquids
2. Fastest in gases
3. Based on motion of particles
4. All of the three

Question Number : 21 Question Id : 5431079204 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The pitch of sound depends on :

Options :

1. frequency
2. intensity
3. velocity

amplitude

4.

Question Number : 22 Question Id : 5431079205 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Bakelite is a copolymer of phenol and :

Options :

1. Formaldehyde
2. Acetaldehyde
3. Benzaldehyde
4. Cinnaldehyde

Question Number : 23 Question Id : 5431079206 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which one of the following is a conductor of electricity ?

Options :

1. Rubber
2. Pure water
3. Salt water
4. Benzene

Question Number : 24 Question Id : 5431079207 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

A tree like structure of records in a database is :

Options :

1. Network model
2. Hierarchical model
3. Relational model
4. Multi-dimensional model

Question Number : 25 Question Id : 5431079208 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of the following indicator is used in determination of hardness ?

Options :

1. Phenolphthalein
2. Methyl Orange
3. Eriochrome Black T
4. Thymol blue

Question Number : 26 Question Id : 5431079209 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

When a spoon is to be electroplated with nickel, the spoon is :

Options :

1. dipped in a nickel sulphate solution
2. made anode and a pure nickel rod, the cathode
3. made cathode and pure nickel rod, the anode
4. Coated with nickel sulphate and dried

Question Number : 27 Question Id : 5431079210 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Magnifying Glass is basically a :

Options :

1. plano-concave lens
2. concave lens
3. convex lens
4. cylindrical lens

Question Number : 28 Question Id : 5431079211 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of the following writs can lie only against a person holding a public office ?

Options :

1. Habeas Corpus
2. Mandamus
3. Prohibition
4. Certiorari

Question Number : 29 Question Id : 5431079212 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The only bird that flies backward is :

Options :

1. Sparrow

2. Cuckoo
3. Siberian crane
4. Humming bird

Question Number : 30 Question Id : 5431079213 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Railway tracks are banked at the curves so that :

Options :

1. necessary centrifugal force may be obtained from the horizontal component of the weight of the train
2. no frictional force may be produced between the tracks and the wheels of the train
3. necessary centripetal force may be obtained from the horizontal component of the weight of the train
4. the train may not fall down inwards

Question Number : 31 Question Id : 5431079214 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

'Crop milk' is produced by :

Options :

1. Birds
2. Reptiles
3. Mammals
4. All of the three



Question Number : 32 Question Id : 5431079215 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which one of the following crops is affected by the "early blight" disease ?

Options :

1. Rice
2. Sugarcane
3. Potato
4. Wheat

Question Number : 33 Question Id : 5431079216 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

When the cut stems of two different plants are joined together in such a way that the two stems join and grow as a single plant, it is called :

Options :

1. Grafting
2. Cutting
3. Layering
4. None of the three

Question Number : 34 Question Id : 5431079217 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

'Thumba' India's Rocket launching centre is located in :

Options :

1. Haryana

2. Maharashtra
3. Tamil Nadu
4. Kerala

Question Number : 35 Question Id : 5431079218 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of the following is a mineral ?

Options :

1. Isabgol
2. Camphor
3. Tobacco
4. Nickel

Question Number : 36 Question Id : 5431079219 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which term is used in Physics ?

Options :

1. Credit
2. Absolute zero
3. Liquidity
4. Rabies

Question Number : 37 Question Id : 5431079220 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of these is not an output device ?

Options :

1. Inkjet Printer
2. Plotter
3. Optical Character Recognizer
4. Speaker

Question Number : 38 Question Id : 5431079221 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

A computer programmer :

Options :

1. does all the thinking for a computer
2. can enter input data quickly
3. can operate all types of computer equipments
4. can draw only flow chart

Question Number : 39 Question Id : 5431079222 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which one of the following metals occurs in a free state ?

Options :

1. Aluminium
2. Gold
3. Iron

#### 4. Copper

Question Number : 40 Question Id : 5431079223 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Who discovered 'Solar System' ?

Options :

1. Galileo
2. J. L. Baird
3. Copernicus
4. Kepler

Question Number : 41 Question Id : 5431079224 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Where was the World Wide Web created and in which year ?

Options :

1. Gik II, 1993
2. CLUSTER, 1995
3. Photonics 21, 1989
4. CERN, 1990

Question Number : 42 Question Id : 5431079225 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Laxmi travels 8 m towards the East, she then takes a left turn and travels 3 m. She takes another left and travels 5 m before taking a final left turn. Towards which direction is Laxmi facing ?

Options :

1. North-West

2.

West

3.

East

4.

South

5.

**Question Number : 43 Question Id : 5431079226 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes**

**Correct Marks : 3 Wrong Marks : 1**

Question Label : Multiple Choice Question

What will be the product of the third digit of the second highest number and the first digit of the lowest number ? The digits are given below :

728, 653, 914, 269

Options :

1. 16

2. 10

3. 9

4. 11

**Question Number : 44 Question Id : 5431079227 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes**

**Correct Marks : 3 Wrong Marks : 1**

Question Label : Multiple Choice Question

How many meaningful English words can be formed with the letters O, T, E using each letter once ?

Options :

1. None

2. One



3. Two

4. Three

Question Number : 45 Question Id : 5431079228 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Four of the following are alike in a certain way and so form a group. Which is the one that does not belong to that group ?

Options :

1. Finger ring

2. Necklace

3. Jewellery

4. Bracelet

Question Number : 46 Question Id : 5431079229 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of the following will come in the place of the question mark (?) according to the English Alphabetical series ?

BDE, GIJ, ?, QST

Options :

1. MOP

2. LNO

3. MNP

4. MNO

Question Number : 47 Question Id : 5431079230 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The ratio between the number of the boys and the girls in a class is 4 : 3, respectively. What is the approximate percentage of the girls in the class ?

Options :

1. 58

2. 33

3. 25

4. 42

Question Number : 48 Question Id : 5431079231 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The standard reduction potential of  $Cu^{2+}/Cu$  and  $Cu^{2+}/Cu^+$  are 0.337 V and 0.153 V, respectively. The standard electrode potential of  $Cu^{2+}/Cu$  half cell is :

Options :

1. 0.184 V

2. 0.827 V

3. 0.521 V

4. 0.490 V

Question Number : 49 Question Id : 5431079232 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

A proton, a deuteron and an  $\alpha$ -particle having the same kinetic energy are moving in circular trajectories in a constant magnetic field. If  $r_p$ ,  $r_d$  and  $r_\alpha$  denote respectively the radii of the trajectories of these particles, then :

Options :

1.  $r_\alpha = r_p < r_d$

2.  $r_{\alpha} > r_d > r_p$

3.  $r_{\alpha} = r_d > r_p$

4.  $r_p = r_d = r_{\alpha}$

Question Number : 50 Question Id : 5431079233 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

A closed compartment containing gas is moving with some acceleration in horizontal direction. Neglecting the effect of gravity, the pressure in the compartment is :

Options :

1. same everywhere

2. lower in front side

3. lower in rear side

4. lower in upper side

Question Number : 51 Question Id : 5431079234 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Biofuel is obtained from the seed of :

Options :

1. Jamun

2. Jacaranda

3. Jatropha

4. Juniper

Question Number : 52 Question Id : 5431079235 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which gas in the atmosphere absorbs ultraviolet rays ?

Options :

1. Ozone
2. Methane
3. Nitrogen
4. Helium

Question Number : 53 Question Id : 5431079236 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The first cloned animal 'Dolly' was a :

Options :

1. Dog
2. Rabbit
3. Cat
4. Sheep

Question Number : 54 Question Id : 5431079237 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Alexander Fleming is associated with the discovery of :

Options :

1. Circulation of blood
2. Law of heredity

3. Tubercle bacillus

4. Penicillin

Question Number : 55 Question Id : 5431079238 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Permanent hardness of water is due to the presence of :

Options :

1. Chlorides of calcium and sodium

2. Chlorides and carbonates of calcium and magnesium

3. Chlorides and sulphates of calcium and magnesium

4. Carbonates of calcium and sodium

Question Number : 56 Question Id : 5431079239 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

HCF and LCM of two numbers are respectively 8 and 1728. How many such pairs of number are there :

Options :

1. 2

2. 3

3. 4

4. 5

Question Number : 57 Question Id : 5431079240 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1



Question Label : Multiple Choice Question

How many megabytes make a gigabyte ?

Options :

1. 1024
2. 128
3. 256
4. 512

Question Number : 58 Question Id : 5431079241 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

To be able to 'boot', the computer must have a(n) :

Options :

1. compiler
2. loader
3. operating system
4. assembler

Question Number : 59 Question Id : 5431079242 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The binary system is a number system to the base :

Options :

1. 2
2. 4

3. 8

4. 10

Question Number : 60 Question Id : 5431079243 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

JLN : SQO :: PRT : ?

Options :

1. UYW

2. UTV

3. YWU

4. VUT

Question Number : 61 Question Id : 5431079244 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

At the end of a business conference the ten people present all shake hands with each other once. How many handshakes will there be altogether ?

Options :

1. 20

2. 45

3. 55

4. 90

Question Number : 62 Question Id : 5431079245 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Today is Varun's Birthday. One year from today he will be twice as old as he was 12 years ago. How old is Varun today ?

Options :

1. 20 years
2. 22 years
3. 25 years
4. 27 years

Question Number : 63 Question Id : 5431079246 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Study the following five numbers and answer the questions that follow :

517, 325, 639, 841, 792

What will be the first digit of the second highest number after the positions of only the second and the third digits within each number are interchanged ?

Options :

1. 2
2. 7
3. 8
4. 9

Question Number : 64 Question Id : 5431079247 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Study the following five numbers and answer the questions that follow :

517, 325, 639, 841, 792

What will be the last digit of the third number from top when they are arranged in descending order after reversing the positions of the first and third digits within each number ?

Options :

1. 3

2. 2

3. 5

4. 7

Question Number : 65 Question Id : 5431079248 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Study the following five numbers and answer the questions that follow :

517, 325, 639, 841, 792

What will be the middle digit of the second lowest number after the positions of only the first and second digits within each number are interchanged ?

Options :

1. 2

2. 3

3. 5

4. 7

Question Number : 66 Question Id : 5431079249 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Bharati is 8 ranks ahead of Divya who ranks twenty sixth in a class of 42. What is Bharati's rank from the last ?

Options :

1. 9th
2. 24th
3. 25th
4. 34th

Question Number : 67 Question Id : 5431079250 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The number of boys in a class is three times the number of girls. Which one of the following numbers cannot represent the total number of children in the class ?

Options :

1. 48
2. 44
3. 42
4. 40

Question Number : 68 Question Id : 5431079251 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

A pineapple costs ₹ 7 each. A watermelon costs ₹ 5 each. X spends ₹ 38 on these fruits. The number of pineapples purchased is :

Options :

1. 2

2. 3

3. 4

4. Data inadequate

Question Number : 69 Question Id : 5431079252 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

If 100 cats kill 100 mice in 100 days, then 4 cats would kill 4 mice in how many days ?

Options :

1. 1 day

2. 4 days

3. 40 days

4. 100 days

Question Number : 70 Question Id : 5431079253 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Find the next number in the sequence :

Options :

1. 110

2. 170

3. 511



4.

Question Number : 71 Question Id : 5431079254 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

RQP, ONM, \_, IHG, FED, find the missing letters :

Options :

1. CDE
2. LKI
3. LKJ
4. BAC

Question Number : 72 Question Id : 5431079255 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

PETAL : FLOWER

Options :

1. Pen : Paper
2. Engine : Car
3. Cat : Dog
4. Ball : Game

Question Number : 73 Question Id : 5431079256 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

It was Sunday on Jan. 1, 2006. What was the day of the week Jan. 1, 2010 ?

Options :

1. Sunday

2. Saturday

3. Friday

4. Wednesday

Question Number : 74 Question Id : 5431079257 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Looking at the portrait of a man, Kamal said, "His mother is the wife of my father's son and I have no brother and sister". At whose portrait was Kamal looking ?

Options :

1. His nephew

2. His son

3. His cousin

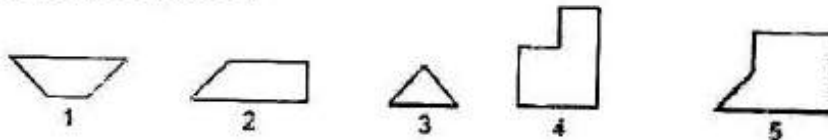
4. None of the three

Question Number : 75 Question Id : 5431079258 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Select three figures out of the following five figures which when fitted into each other would form a square :



Options :

1. 1, 2, 4

2. 1, 2, 5

5, 3, 1

3.

2, 3, 4

4.

Question Number : 76 Question Id : 5431079259 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Below are some words translated from an artificial language.

*migenlasan* means cupboard

*lasanpoen* means boardwalk

*cuopdansa* means Pullman

Which word could mean "walkway" ?

Options :

Poenmigen

1.

Cuopeisel

2.

Lasandansa

3.

Poenforc

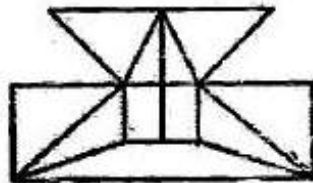
4.

Question Number : 77 Question Id : 5431079260 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Find the minimum number of straight lines required to make the given figure ?



Options :

16

1.

2. 17

3. 18

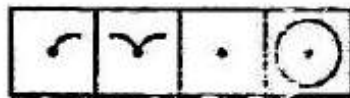
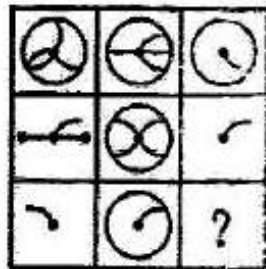
4. 19

Question Number : 78 Question Id : 5431079261 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Select a suitable figure from the four alternatives that would complete the figure matrix :



(1) (2) (3) (4)

Options :

1. 1

2. 2

3. 3

4. 4

Question Number : 79 Question Id : 5431079262 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

If  $3\sqrt{5} + \sqrt{125} = 17.88$ , then what will be the value of  $\sqrt{80} + 6\sqrt{5}$  ?

Options :

1. 13.41

2. 20.46
3. 21.66
4. 22.35

Question Number : 80 Question Id : 5431079263 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which number will replace the question mark in the following ?

17	11	19
12	13	16
25	4	?

Options :

1. 36
2. 9
3. 25
4. 64

#### Section B Physics

Section Id : 543107135  
Section Number : 2  
Section type : Online  
Mandatory or Optional: Optional  
Number of Questions: 40  
Number of Questions to be attempted: 40  
Section Marks: 120  
Display Number Panel: Yes  
Group All Questions: No

Sub-Section Number: 1  
Sub-Section Id: 543107175

Question Number : 81 Question Id : 5431079264 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

A 520 m long (measured when the spaceship is stationary) spaceship passes by the Earth. What length would an observer will observe on Earth when it passed the Earth with speed  $0.80 c$  relative to the observer ?

Options :

1. 312 m

2.

2. 123 m

3.

3. 734 m

4.

4. 456 m

5.

Question Number : 82 Question Id : 5431079265 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

How much energy is contained in a particle that has a mass =  $1\mu\text{g}$  ?

Options :

1.  $6.9 \times 10^7$  Joules

2.

2.  $9 \times 10^7$  Joules

3.

3.  $2.7 \times 10^5$  Joules

4.

4.  $3.4 \times 10^4$  Joules

5.

Question Number : 83 Question Id : 5431079266 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question



Two wires A and B are of the same material. Their lengths are in the ratio of 1 : 2 and the diameters are in the ratio of 2 : 1. If they are pulled by the same force, then the increase in length ratio will be :

Options :

1. 1 : 8
2. 1 : 4
3. 1 : 6
4. 3 : 4

Question Number : 84 Question Id : 5431079267 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The rain drops are spherical in shape due to :

Options :

1. Surface tension
2. Viscosity
3. Diffusion
4. Pressure

Question Number : 85 Question Id : 5431079268 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Calculate the Young's modulus in the cantilever depression method. The length is 1 m which is suspended with a load of 150 gm. The depression is found to be 4 cm. The thickness of the beam is 5 mm and breadth is 3 cm :

Options :

1.  $2.45 \times 10^9 \text{ N/m}^2$
2.  $9.4 \times 10^{10} \text{ N/m}^2$

3.  $4.5 \times 10^{10} \text{ N/m}^2$

4.  $1.24 \times 10^{10} \text{ N/m}^2$

Question Number : 86 Question Id : 5431079269 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The mean distance of Earth from the Sun is  $149.6 \times 10^6 \text{ km}$  and the mean distance of Mercury from the Sun is  $57.9 \times 10^6 \text{ km}$ . The period of Earth's revolution is 1 year, what is the period of Mercury's revolution ?

Options :

1. 0.32 years

2. 0.24 years

3. 1.2 years

4. 1.8 years

Question Number : 87 Question Id : 5431079270 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

In an oscillatory circuit  $L = 0.5 \text{ H}$ ,  $C = 1.8 \mu\text{F}$ . What is the maximum value of resistance to be connected so that the circuit may produce oscillations ?

Options :

1. 1034 ohm

2. 1054 ohm

3. 1086 ohm

4. 1094 ohm

Question Number : 88 Question Id : 5431079271 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Quality factor is directly proportional to :

Options :

1. Time Period
2. Frequency
3. Capacitance
4. Inductance

Question Number : 89 Question Id : 5431079272 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Viscosity of a gas is due to the transport of :

Options :

1. Momentum
2. Energy
3. Mass
4. Temperature

Question Number : 90 Question Id : 5431079273 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

RMS speed of an ideal gas molecule is inversely proportional to the square root of its :

Options :

1. Temperature
2. Mass
3. Volume
4. None of the three

Question Number : 91 Question Id : 5431079274 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

What is the wavelength at which human body radiates maximum energy ?

Options :

1.  $9.35 \times 10^{-6} \text{ m}$

2.  $5.57 \times 10^{-7} \text{ m}$

3.  $7.15 \times 10^{-4} \text{ m}$

4.  $3.65 \times 10^{-3} \text{ m}$

Question Number : 92 Question Id : 5431079275 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The number of modes in a chamber of volume 50 cc in the frequency range  $4 \times 10^{14}$  and  $4.01 \times 10^{14}$  Hz is :

Options :

1.  $7.5 \times 10^{12}$

2.  $8.6 \times 10^{11}$

3.  $4.9 \times 10^9$

4.  $3.5 \times 10^{13}$

Question Number : 93 Question Id : 5431079276 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The radiant emittance of a black body at a temperature of 400 K ( $\sigma = 5.672 \times 10^{-8}$  MKS units) is :

Options :

1.  $1234 \text{ Watts/m}^2$

2. 1452 Watts/m<sup>2</sup>
3. 1344 Watts/m<sup>2</sup>
4. 1098 Watts/m<sup>2</sup>

Question Number : 94 Question Id : 5431079277 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Net entropy change of a system in Carnot's cycle is :

Options :

1. Zero
2. Positive
3. Negative
4. More than 1

Question Number : 95 Question Id : 5431079278 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The electron charge was measured for the first time in the :

Options :

1. Cathode ray experiment
2. Photoelectric effect experiment
3. Oil drop experiment
4. Electron diffraction from aluminium foil

Question Number : 96 Question Id : 5431079279 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of the following are emitted by the nucleus during radioactive decay ?

Options :

1. Alpha particles
2. Beta particles
3. Gamma rays
4. All of the three

Question Number : 97 Question Id : 5431079280 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The temperature of inversion ( $T_i$ ) of a gas is :

Options :

1.  $a/Rb$
2.  $2a/Rb$
3.  $8a/27Rb$
4.  $27Rb/8A$

Question Number : 98 Question Id : 5431079281 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

'Good absorbers are good emitters' – The statement is known as :

Options :

1. Prevost's law
2. Kirchhoff's law
3. Stefan's law



4. Wien's law

Question Number : 99 Question Id : 5431079282 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

According to special theory of relativity which one is an absolute quantity ?

Options :

1. Time
2. Mass
3. Length
4. None of the three

Question Number : 100 Question Id : 5431079283 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

An observer watches water waves passing a stationary boat causing it to move up and down. The time for one complete cycle of this motion is 10s and the distance from top to bottom is 2 m. If the wavelength of the waves is 5 m, their velocity is :

Options :

1. 20 m/sec
2. 0.5 m/sec
3. 0.2 m/sec
4. 5 m/sec

Question Number : 101 Question Id : 5431079284 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

What force is required to stretch a steel wire having  $0.5 \text{ cm}^2$  cross section to double its length ? Young modulus ( $Y$ ) =  $2 \times 10^{11} \text{ N/m}^2$

Options :

1.  $2 \times 10^4 \text{ N}$
2.  $10^7 \text{ N}$
3.  $3.4 \times 10^6 \text{ N}$
4.  $5.7 \times 10^8 \text{ N}$

Question Number : 102 Question Id : 5431079285 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The volume of a solid does *not* vary with pressure. The value of Poisson's ratio for the solid is :

Options :

1. 0.3
2. 0.5
3. 0.4
4. 0.2

Question Number : 103 Question Id : 5431079286 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The velocity of efflux is :

Options :

1.  $\sqrt{2gh}$

2.  $\sqrt{3gh}$

3.  $\sqrt{7gh}$

4.  $\sqrt{5gh}$

Question Number : 104 Question Id : 5431079287 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Calculate the numerical aperture of an optical fiber whose core and cladding are made of materials of refractive indices 1.6 and 1.5, respectively :

Options :

1. 0.55677

2. 55.77

3. 0.2458

4. 0.647852

Question Number : 105 Question Id : 5431079288 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Dimension of  $\frac{1}{\sqrt{\mu_0 \epsilon_0}}$  is:

Options :

1.  $M^0 L T^{-1}$

2.  $M L T^{-1}$

3.  $M^0 L^2 T^{-1}$

4.  $M L T^{-2}$

Question Number : 106 Question Id : 5431079289 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The divergence of which quantity will be zero ?

Options :

1. E
2. D
3. H
4. B

Question Number : 107 Question Id : 5431079290 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Find the electric flux density of a material with charge density 16 units in unit volume :

Options :

1.  $1/16$
2. 160
3. 16
4. 162

Question Number : 108 Question Id : 5431079291 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

A lamp is placed 0.50 m from a converging lens. The power of the lens is +5.0D. What is the distance from the lens to the focused image ?

Options :

1. 0.43 m

0.56 m

2.

0.33 m

3.

0.14 m

4.

Question Number : 109 Question Id : 5431079292 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

If  $m_H$  is the atomic mass of Hydrogen,  $m_n$  is the mass of a neutron, and  $M$  is the atomic mass of the atom, which of the following is the mass defect formula ?

Options :

1.  $\Delta m = Z m_H + N m_n - M$

2.  $\Delta m = Z m_H + N m_n + M$

3.  $\Delta m = Z m_H - N m_n - M$

4.  $\Delta m = Z m_H - N m_n + M$

Question Number : 110 Question Id : 5431079293 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

A 100 g sample of a radioactive element has a half life of 5 days. How many grams of radioactive material will remain after 15 days ?

Options :

1. 100 g

2. 50 g

3. 25 g

4. 12.5 g

Question Number : 111 Question Id : 5431079294 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Short-sight defect could be corrected by a :

Options :

1. Convex lens
2. Concave lens
3. Plano-convex
4. None of the three

Question Number : 112 Question Id : 5431079295 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

In a full wave rectifier circuit operating from 50 Hz mains frequency, the fundamental frequency in the ripple would be :

Options :

1. 100 Hz
2. 50 Hz
3. 150 Hz
4. 200 Hz

Question Number : 113 Question Id : 5431079296 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

If the distance between plates of a parallel plate capacitor is doubled and area is halved, the capacitance becomes :

Options :

1. one-fourth



four times

2.

half

3.

double

4.

Question Number : 114 Question Id : 5431079297 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

An observer on Earth sees an alien spaceship approaching at  $0.60c$ . The Enterprise comes to the rescue overtaking the spaceship at  $0.90c$  relative to the alien spaceship. How fast would the observers on earth measure the Enterprise to be travelling at ?

Options :

0.853 c

1.

0.974 c

2.

0.342 c

3.

0.834 c

4.

Question Number : 115 Question Id : 5431079298 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The modulus of rigidity and Poisson's ratio of the wire are  $2.87 \times 10^{10} \text{ N/m}^2$  and  $0.379$ , respectively. What is the value of Young's modulus of the material of the wire ?

Options :

$1.08773 \times 10^{10} \text{ N/m}^2$

1.

$7.915 \times 10^{10} \text{ N/m}^2$

2.

3.  $7.5725 \times 10^{10} \text{ N/m}^2$

4.  $0.1403 \times 10^{10} \text{ N/m}^2$

Question Number : 116 Question Id : 5431079299 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Gibbs potential is defined as :

Options :

1.  $G = U - PV + TS$

2.  $G = U + PV - TS$

3.  $G = U - PV - TS$

4.  $G = U + PV + TS$

Question Number : 117 Question Id : 5431079300 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

According to the classical theory, the average energy of an oscillator is :

Options :

1.  $\frac{1}{2} K_B T$

2.  $K_B T$

3.  $\frac{3}{2} K_B T$

4. None of the three

Question Number : 118 Question Id : 5431079301 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Heisenberg's Uncertainty Principle states :

Options :

1. The more precise a particle's energy can be measured, the less precise its position can be measured
2. A particle's position can be measured exactly
3. The more precise a particle's momentum can be measured, the less precise its position can be measured
4. The more precise a particle's momentum can be measured, the less precise its energy can be measured

Question Number : 119 Question Id : 5431079302 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

When an electron falls from an orbit where  $n = 2$  to  $n = 1$  :

Options :

1. A photon is emitted
2. A photon is absorbed
3. No change in atomic energy
4. The atomic energy decreases to zero

Question Number : 120 Question Id : 5431079303 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

How does the energy of a photon change if the wavelength is doubled ?

Options :

1. Doubles
2. Quadruples
3. One-half
4. One-fourth

Section B Chemistry

Section Id :	543107136
Section Number :	3
Section type :	Online
Mandatory or Optional:	Optional
Number of Questions:	40
Number of Questions to be attempted:	40
Section Marks:	120
Display Number Panel:	Yes
Group All Questions:	No

Sub-Section Number:	1
Sub-Section Id:	543107176
Question Shuffling Allowed :	Yes

Question Number : 121 Question Id : 5431079304 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The magnetic moment of  $Lu^{3+}$  in its complexes is :

Options :

1. 1.72 BM
2. 2.83 BM
3. 0.0 BM
4. 3.98 BM

Question Number : 122 Question Id : 5431079305 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which one of the following ions has same number of electrons in its 'f' orbitals as  $\text{Eu}^{3+}$  has ?

Options :

1.  $\text{Am}^{2+}$

2.  $\text{Tb}^{3+}$

3.  $\text{Ce}^{3+}$

4.  $\text{Cf}^{3+}$

Question Number : 123 Question Id : 5431079306 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of the following statements is *true* ?

Options :

1.  $\text{LiF}_3$  shows hyperfine structure and  $\text{NdF}_3$  does not show

2.  $\text{NdF}_3$  shows hyperfine structure and  $\text{LiF}_3$  does not show

3.  $\text{NdF}_3$  and  $\text{LiF}_3$  both show hyperfine structure

4.  $\text{NdF}_3$  and  $\text{LiF}_3$  both do not show hyperfine structure

Question Number : 124 Question Id : 5431079307 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which one is the most reactive interhalogen ?

Options :



1.



2.



3.



4.

Question Number : 125 Question Id : 5431079308 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Spin-crossover phenomenon does not depend on :

Options :

1. Nature of metal ion

1.

2. Curie Weiss law

2.

3. Temperature

3.

4. Crystal field splitting

4.

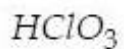
Question Number : 126 Question Id : 5431079309 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which one of the following is the strongest oxyacid ?

Options :

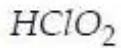


1.

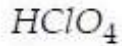


2.





3.



4.

Question Number : 127 Question Id : 5431079310 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The most stable dihalide is :

Options :



1.



2.



3.



4.

Question Number : 128 Question Id : 5431079311 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which one of the following is used in the production of rubber ?

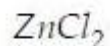
Options :



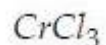
1.



2.



3.



4.

Question Number : 129 Question Id : 5431079312 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

What is the spin state of iron in oxyhaemoglobin ?

Options :

1. high spin state
2. low spin state
3. equilibrium between high spin and low spin
4. high spin and low spin both

Question Number : 130 Question Id : 5431079313 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of the following shows  $Z$  – in type of Jahn-Teller distortion ?

Options :

1.  $Ti(H_2O)_6^{3+}$
2.  $Fe(H_2O)_6^{2+}$
3.  $CoF_6^{3-}$
4.  $CuF_2$

Question Number : 131 Question Id : 5431079314 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Symmetry number ( $\sigma$ ) for  $CH_4$  molecule is :

Options :

1. 4

8

2.

12

3.

24

4.

Question Number : 132 Question Id : 5431079315 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

A solution of  $AgNO_3$  was electrolysed between silver electrodes. The speed ratio of silver and nitrate ions was found to be 0.9. The transport numbers of the silver and nitrate ions are :

Options :

0.453 and 0.547

1.

0.474 and 0.526

2.

0.826 and 0.174

3.

0.264 and 0.736

4.

Question Number : 133 Question Id : 5431079316 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The amount (mole) of ester will be formed when 0.5 mole of ethyl alcohol is mixed with 1.0 mole of acetic acid is (Given  $K_C = 4$  at  $25^\circ C$ ) :

Options :

0.311

1.

0.423

2.

0.577

3.

0.757

4.

Question Number : 134 Question Id : 5431079317 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The pure rotational spectrum of  $^{12}\text{C}^{14}\text{N}$  molecule in gaseous phase shows series of equally spaced lines with interspacing  $3.8 \text{ cm}^{-1}$ . The internuclear distance ( $\text{pm}$ ) of CN molecule is :

Options :

1. 88

2. 107

3. 117

4. 142

Question Number : 135 Question Id : 5431079318 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The moment of inertia ( $\text{kg m}^2$ ) of  $\text{H}_2\text{O}$  molecule around the axis defined by the bisector of HOH angle is (Given : HOH angle =  $104.5^\circ$ , the O-H bond length =  $95.7 \text{ pm}$ ,  $\sin^2 52.25^\circ = 0.625$ ) :

Options :

1.  $1.11 \times 10^{-49}$

2.  $1.41 \times 10^{-48}$

3.  $1.91 \times 10^{-47}$

$$1.41 \times 10^{-46}$$

4.

Question Number : 136 Question Id : 5431079319 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Change in entropy ( $\Delta S$ ) when 5 moles of an ideal gas are heated from a temperature of 500 k to a temperature of 1000 k at constant pressure. Assume that  $C_p = 5/2R$ .

Options :

1.  $2.16 R$

1.

2.  $4.33 R$

2.

3.  $8.66 R$

3.

4.  $17.32 R$

4.

Question Number : 137 Question Id : 5431079320 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The required concentration of  $O_2$  in water to support aquatic life is about 4 mg/L. So, the required minimum partial pressure (Torr) of oxygen in the atmosphere to achieve this concentration is (Given Henry's law constant for oxygen in water at 25°C is  $3.3 \times 10^7$  Torr) :

Options :

1. 74.25

1.

2. 50.14

2.

3. 49.86

3.

30.14

4.

Question Number : 138 Question Id : 5431079321 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

A cell consists of glass electrode coupled with 1.0 M KCl calomel electrode :  
 $\text{Pt(s), 1.0 N HCl} \mid \text{Glass} \mid \text{solution(pH = unknown)} \parallel \text{1.0 M calomel electrode.}$   
Determine the pH of the solution. Given : cell potential  $E_{\text{cell}} = 0.375 \text{ V}$ , standard  
glass electrode potential,  $E^\circ_G = 0.48 \text{ V}$ ,  $E_{\text{SCE}}(1.0 \text{ M KCl}) = 0.28 \text{ V}$  at 298 K :

Options :

4.4

1.

5.5

2.

6.6

3.

7.7

4.

Question Number : 139 Question Id : 5431079322 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The values of  $d_{200}$  and  $d_{111}$  in lead having fcc structure with  $a = 4.95 \text{ \AA}$  are :

Options :

2.475 and 5.70  $\text{\AA}$

1.

4.95 and 2.85  $\text{\AA}$

2.

4.95 and 5.70  $\text{\AA}$

3.

2.475 and 2.85  $\text{\AA}$  (chloroacetic)

4.

Question Number : 140 Question Id : 5431079323 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes



Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

In a photochemical reaction, after irradiating the aqueous solution of chloroacetic acid at 253.7 nm for 837 mins, 34.36 J of energy was adsorbed and  $2.296 \times 10^{-5}$  mol of HCl were formed. The quantum yield of the reaction is :

Options :

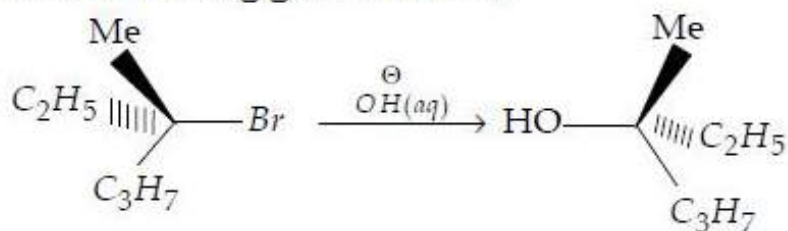
- 0.315
- 0.425
- 0.585
- 0.665

Question Number : 141 Question Id : 5431079324 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

In the following given reaction,



If the concentration of both the reagents is doubled, then the rate of the reaction :

Options :

- remains unchanged
- gets quadrupled
- gets reduced to one fourth
- gets doubled

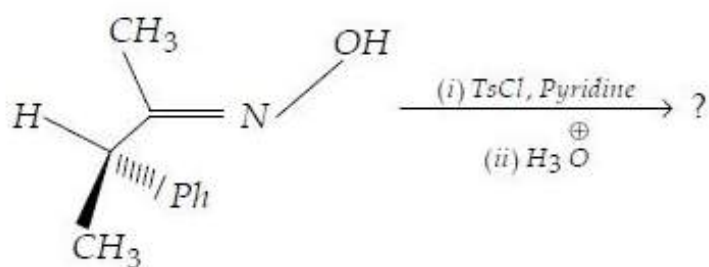
Question Number : 142 Question Id : 5431079325 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

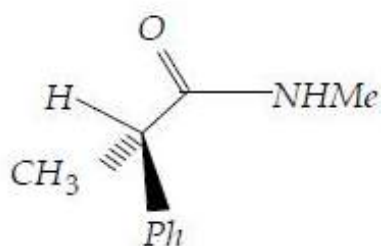
Question Label : Multiple Choice Question

The major product obtained in the following given Beckmann rearrangement

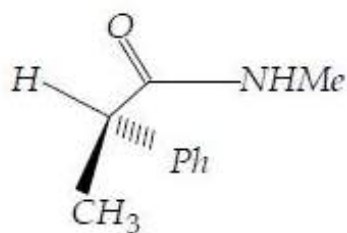
is :



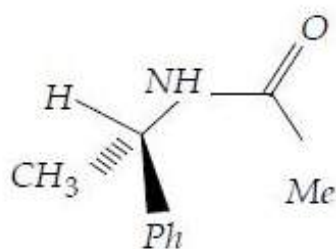
Options :



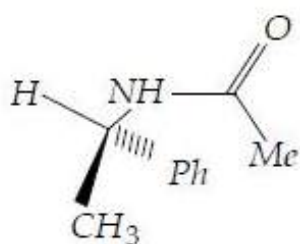
1.



2.



3.



4.

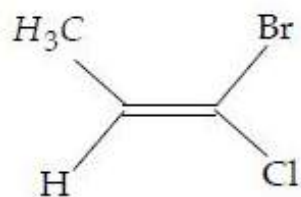
Question Number : 143 Question Id : 5431079326 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

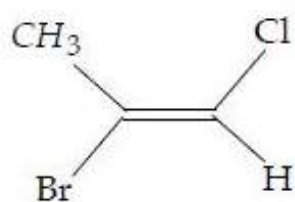
Question Label : Multiple Choice Question

Which of the following compound is an example of "z-isomer" ?

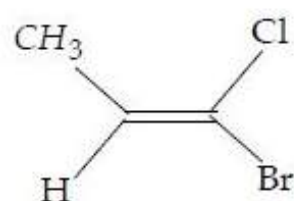
Options :



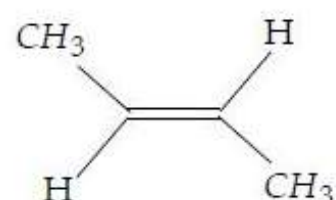
1.



2.



3.



4.

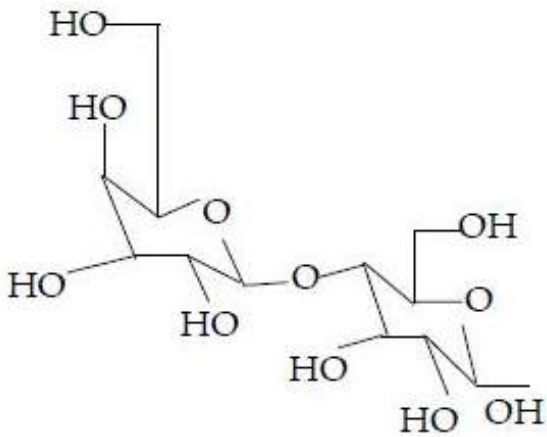
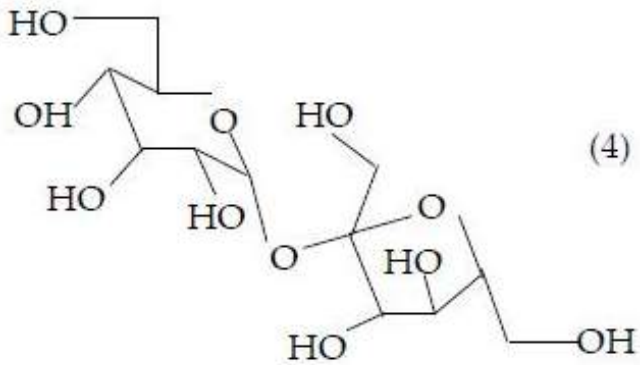
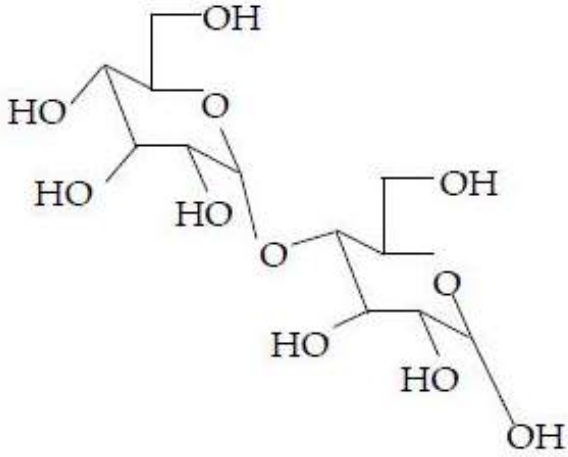
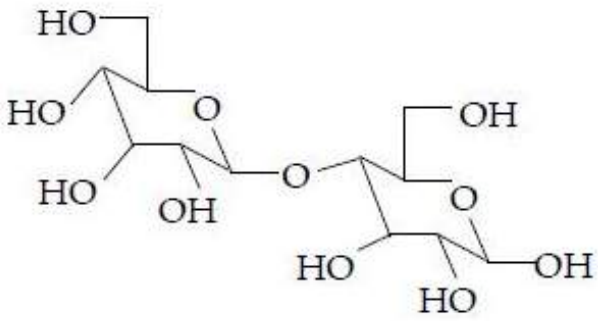
Question Number : 144 Question Id : 5431079327 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

A disaccharide (A) does not give a positive test for Tollen's reagent. Upon acidic hydrolysis, compound (A) gives an equimolar mixture of two different monosaccharides, both of which can be oxidized by Bromine/Water ( $Br_2 / H_2O$ ). Thus, disaccharide(A) is :

Options :



Question Label : Multiple Choice Question

Among the following, the group which is Benzene ring deactivating, but o/p directing is :

Options :

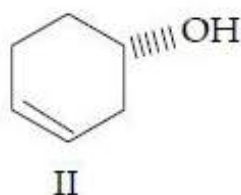
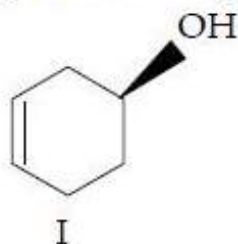
1.  $-OCH_3$
2.  $-N=O$
3.  $-NO_2$
4.  $-COCH_3$

Question Number : 146 Question Id : 5431079329 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Among the following given compounds I and II; both are :



Options :

1. Enantiomers
2. Diastereomers
3. Identical
4. Epimers

Question Number : 147 Question Id : 5431079330 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Among the following given  $\alpha$ -amino acid, which one is optically inactive ?

Options :

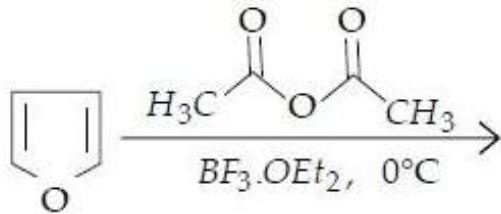
1. Glycine
2. Lucine
3. Cysteine
4. Serine

Question Number : 148 Question Id : 5431079331 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
 Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

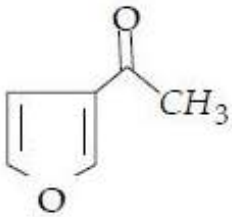
Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

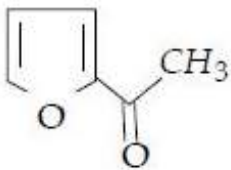
The major product obtained in the following reaction is :



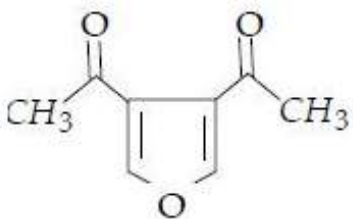
Options :



1.

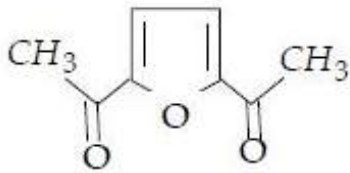


2.



3.





4.

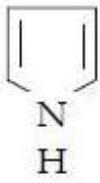
Question Number : 149 Question Id : 5431079332 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

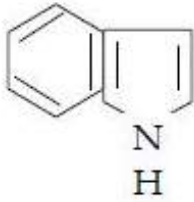
Question Label : Multiple Choice Question

The correct order of the basicity of the following given heterocyclic compound

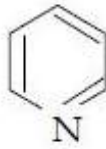
(I-IV) is :



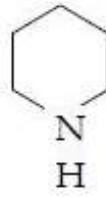
I



II



III



IV

Options :

III > IV > I > II

1.

IV > III > II > I

2.

IV > III > I > II

3.

III > IV > II > I

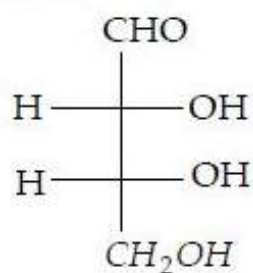
4.

Question Number : 150 Question Id : 5431079333 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

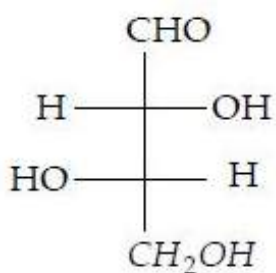
Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

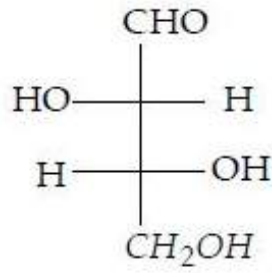
For the following Aldotetroses I-IV, the combination of true statements among P-T is :



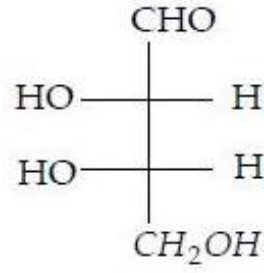
(I)



(II)



(III)



(IV)

Code :

P = I and II are diastereomers; and II and III are enantiomers

Q = I and IV are mesomers and are optically inactive

R = I and III can be interconverted by a base catalysed isomerization

S = Only I and IV are  $\text{HIO}_4$  cleavable

T = I and III are D-Sugars and II and IV are L-sugars

Options :

1. Q, R, T
2. P, Q, S, T
3. P, R, T
4. Q, R, S, T

Question Number : 151 Question Id : 5431079334 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

For an irreversible reaction, the rate will be affected by changes in all of these factors except :

Options :

1. surface area of a solid reactant
2. temperature
3. concentration of products
4. presence of a catalyst

Question Number : 152 Question Id : 5431079335 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Half life of  $^{14}\text{C}$  is 5730 years. Approximately how long will it take for 94% of sample to decay ?

Options :

1. 5730
2. 11460
3. 22920
4. 28650

Question Number : 153 Question Id : 5431079336 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

IR frequency of DCI is shifted from that of HCl. This is due to differences in their :

Options :

1. dipole moment
2. polarizability
3. force constant
4. reduced mass

Question Number : 154 Question Id : 5431079337 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

A steam engine in a nuclear power plant operates between 800 ( $T_2$ ) and 330 ( $T_1$ ) K with an efficiency of 58.8%. Its efficiency could be raised by :

Options :

1. raising  $T_1$
2. lowering  $T_2$
3. lowering  $T_1$  and raising  $T_2$
4. raising  $T_1$  and lowering  $T_2$

Question Number : 155 Question Id : 5431079338 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The spacing between successive energy levels of a particle-in-a one-dimensional box decreases with :

Options :

1. increasing the length of the box
2. decreasing the length of the box
3. lowering the mass of the particle
4. increasing the quantum number of the lower level

Question Number : 156 Question Id : 5431079339 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of the following molecules does not show microwave spectra ?

Options :

1.  $HCl$
2.  $CH_3Cl$
3.  $CH_2Cl_2$
4.  $CH_4$

Question Number : 157 Question Id : 5431079340 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of the following nuclei is *not* NMR active ?

Options :

1.  $^{14}\text{N}$
2.  $^{15}\text{N}$
3.  $^{17}\text{O}$
4.  $^{18}\text{O}$

Question Number : 158 Question Id : 5431079341 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The Delye-Hückel limiting law for water in the form :  $\ln \gamma_{\pm} = -2.04\sqrt{I}$  (where  $I$  is the electrolyte ionic strength in mol/kg) applies to a dilute solution of :

Options :

1.  $\text{KCl}$
2.  $\text{CaCl}_2$
3.  $\text{MgSO}_4$
4.  $\text{LaCl}_3$

Question Number : 159 Question Id : 5431079342 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of the following expressions is correct for a n-component open system ?

Options :

1.  $\left(\frac{\partial u}{\partial n_1}\right)_{p,T,n_2,\dots} = \mu_1$

2.  $\left(\frac{\partial H}{\partial n_1}\right)_{p,T,n_2,\dots} = \mu_1$

3.  $\left(\frac{\partial S}{\partial n_1}\right)_{p,T,n_2,\dots} = \mu_1$

4.  $\left(\frac{\partial G}{\partial n_1}\right)_{p,T,n_2,\dots} = \mu_1$

Question Number : 160 Question Id : 5431079343 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
 Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
 No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The standard e.m.f. of a propane/oxygen fuel operating reversibly (given the cell reaction :  $C_3H_8 + 5O_2 \rightarrow 3CO_2 + 4H_2O$  's standard  $\Delta G^\circ = -2108 \text{ kJ mol}^{-1}$ ) is :

Options :

1. 22 V
2. 10.5 V
3. 1.1 V
4. 2.2 V

#### Section B Biology

Section Id :	543107137
Section Number :	4
Section type :	Online
Mandatory or Optional:	Optional
Number of Questions:	40
Number of Questions to be attempted:	40
Section Marks:	120
Display Number Panel:	Yes
Group All Questions:	No

Sub-Section Number:	1
Sub-Section Id:	543107177
Question Shuffling Allowed :	Yes

Question Number : 161 Question Id : 5431079344 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
 Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
 No Control Enable : Yes



Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The first set of genes to be activated for axis specification of *Drosophila* during early embryonic development is :

Options :

1. Gap genes
2. Pair rule genes
3. Segment polarity gene
4. Homeotic selector genes

Question Number : 162 Question Id : 5431079345 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

During gastrulation the movement of ectodermal cells to cover the entire embryo is known as :

Options :

1. Delamination
2. Invagination
3. Ingression
4. Epiboly

Question Number : 163 Question Id : 5431079346 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of the following examples illustrates multiple allelism ?

Options :

1. Attached ear lobe
2. Turner syndrome
3. Sepia eye colour of *Drosophila*
4. ABO blood group in human

Question Number : 164 Question Id : 5431079347 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which type of primary sex determination mechanism is followed in human ?

Options :

1. X : A ratio determines the sex
2. Presence of one or two X chromosome determines the sex
3. Y-chromosome determines male sex
4. Haplo-diploidy during early embryonic development determines sex

Question Number : 165 Question Id : 5431079348 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

An allele is considered dominant if its phenotype is expressed :

Options :

1. Only in heterozygous condition
2. In homo- as well as heterozygous condition
3. Only in homozygous condition
4. Only in hemizygous condition

Question Number : 166 Question Id : 5431079349 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The maximum frequency during crossing-over that can occur is :

Options :

1. 100%
2. 75%
3. 50%
4. 25%

Question Number : 167 Question Id : 5431079350 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Somatic recombination in immunoglobulin gene accounts for :

Options :

1. Antibody diversity
2. Allelic exclusion
3. Affinity maturation
4. Increased expression of IgG gene

Question Number : 168 Question Id : 5431079351 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Most abundant antibody in blood circulation is :

Options :

1. *IgM*
2. *IgA*
3. *IgG*
4. *IgE*

Question Number : 169 Question Id : 5431079352 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The frequencies of two alleles M and N in a population are 0.4 and 0.6, respectively. If the population is in equilibrium, the frequency of the MN heterozygote in the population will be :

Options :

1. 0.16
2. 0.36
3. 0.24

4. 0.48

Question Number : 170 Question Id : 5431079353 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

A living fossil is :

Options :

1. A fossil preserved in almost live condition
2. An organism which is newly evolved and living
3. An organism which has survived without any substantial evolutionary changes over a long period of time
4. An organism which just died

Question Number : 171 Question Id : 5431079354 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Species inhabiting the same geographical area are known as :

Options :

1. Sympatric
2. Allopatric
3. Stasipatric
4. Parapatric

Question Number : 172 Question Id : 5431079355 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

A person takes 10 units of insulin injection daily at 8 AM. One day his son gave him 15 units of insulin at 8 AM considering the father will go to the party and eat more during lunch. The father also avoided breakfast as he planned to eat more during lunch. Which one of the following condition will occur ?

Options :

1. Father will be normoglycemic



2. Father will be hypoglycemic before lunch
3. Father will be hyperglycemic before lunch
4. Blood glucose of father will be low after taking lunch

Question Number : 173 Question Id : 5431079356 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of the following is an enzyme that is associated with a membrane channel function ?

Options :

1. Aconitase
2. Dehydrogenase
3. Fumarase
4. ATPase

Question Number : 174 Question Id : 5431079357 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

What organelle processes and packages proteins before sending them out of cell during secretion ?

Options :

1. Outer membrane of nucleus
2. Endoplasmic reticulum
3. Golgi complex
4. Plasma membrane

Question Number : 175 Question Id : 5431079358 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The membrane phospholipids form bilayer, due to :

Options :

1. Its amphipathic nature
2. Presence of only unsaturated fatty acids
3. Presence of only saturated fatty acids
4. Presence of cholesterol conjugated to phospholipids

Question Number : 176 Question Id : 5431079359 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Aquatic primary productivity was measured using Light and Dark bottle method. If the initial Oxygen concentration was  $I$  and the final oxygen concentration in light bottle was  $L$  and that in dark bottle was  $D$ , the net productivity in terms of oxygen released will be :

Options :

1.  $I - D$
2.  $L - I$
3.  $L + D$
4.  $L - D$

Question Number : 177 Question Id : 5431079360 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The main producers in an aquatic ecosystem are :

Options :

1. Sponges
2. Zooplankton
3. Phytoplankton
4. Detrivores

Question Number : 178 Question Id : 5431079361 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1



Question Label : Multiple Choice Question

In Urochordata notochord is :

Options :

1. Confined in head region
2. Present throughout the life
3. Present only in larval tail region
4. Replaced by vertebral column

Question Number : 179 Question Id : 5431079362 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of the following is the feature of Mammalia ?

Options :

1. Presence of paired pharyngeal gill slits
2. Cranium and vertebral column is cartilaginous
3. Presence of mid digital hair
4. Presence of mammary glands

Question Number : 180 Question Id : 5431079363 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

In which animal two chambered heart is present :

Options :

1. Crocodile
2. Toad
3. Scoliodon
4. Pigeon

Question Number : 181 Question Id : 5431079364 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of the following is a poisonous plant ?

Options :

1. *Rauwolfia serpentina*
2. *Withania somnifera*
3. *Calotropis procera*
4. *Helianthus annuus*

Question Number : 182 Question Id : 5431079365 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of the following plant causes skin allergy ?

Options :

1. *Parthenium hysterophorus*
2. *Vinca rosea*
3. *Nerium indicum*
4. *Argemone mexicana*

Question Number : 183 Question Id : 5431079366 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Seeds of which plant are used to adulterate mustard oil :

Options :

1. *Papaver somniferum*
2. *Argemone Mexicana*
3. *Lantana camara*
4. *Parthenium hysterophorus*

Question Number : 184 Question Id : 5431079367 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

*Cuscuta reflexa* is an example of :

Options :

1. Saprophytic plant
2. Total stem parasite
3. Partial stem parasite
4. Insectivorous plant

Question Number : 185 Question Id : 5431079368 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The plant used for bronchitis and asthma is :

Options :

1. *Adhatoda vasica*
2. *Ruellia tuberosa*
3. *Withania somnifera*
4. *Vinca rosea*

Question Number : 186 Question Id : 5431079369 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of the following is known as 'Biodiesel plant' ?

Options :

1. *Jatropha curcas*
2. *Taxus baccata*
3. *Aloe vera*
4. *Calotropis procera*

Question Number : 187 Question Id : 5431079370 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of the following is partial root parasite ?

Options :

1. *Cuscuta reflexa*
2. *Cycas revolula*
3. *Santalum album*
4. Orchids

Question Number : 188 Question Id : 5431079371 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Respiratory roots are found in :

Options :

1. Mangroves
2. Orchids
3. *Opuntia*
4. Hydrophytes

Question Number : 189 Question Id : 5431079372 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Abnormal secondary growth is found in the stem of :

Options :

1. *Nyctanthes*
2. *Bignonia*
3. *Nerium*
4. *Argemone*

Question Number : 190 Question Id : 5431079373 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Golden rice is a rich source of :

Options :

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

Question Number : 191 Question Id : 5431079374 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The most important antigens are :

Options :

1. Steroids
2. Proteins
3. Nucleotides
4. Triglycerides

Question Number : 192 Question Id : 5431079375 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

There is no immunization against :

Options :

1. Measels
2. Tyhoid
3. Small pox
4. Amoebiosis

Question Number : 193 Question Id : 5431079376 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

*Spirulina* is a source of :

Options :

1. Biopesticide
2. Single cell protein
3. Biofertilizer
4. Alcohol

Question Number : 194 Question Id : 5431079377 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

A bacterium containing prophage is called as :

Options :

1. Lytic
2. Lysogen
3. Lytogen
4. Chitosan

Question Number : 195 Question Id : 5431079378 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of the following is an example of RNA virus ?

Options :

1. TMV
2. T4 phage
3. SV 40
4. Mu

Question Number : 196 Question Id : 5431079379 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1



Question Label : Multiple Choice Question

Penicillin is commercially produced by :

Options :

1. *P. notatum*
2. *P. chrysogenum*
3. *P. citrinum*
4. *P. roquefortii*

Question Number : 197 Question Id : 5431079380 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Heating milk or water at 65°C and then cooling suddenly is called as :

Options :

1. Pasteurization
2. Sterilization
3. Preservation
4. Refrigeration

Question Number : 198 Question Id : 5431079381 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Taxol an anticancer drug is extracted from :

Options :

1. *Taxus*
2. *Ginkgo*
3. *Ephedra*
4. *Cycas*

Question Number : 199 Question Id : 5431079382 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

70S Ribosome breaks into which of the following :

Options :

1. 60S and 40S
2. 50S and 30S
3. 50S and 20S
4. 45S and 25S

Question Number : 200 Question Id : 5431079383 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Pioneer to indicate the significance of blue-green algae in relation to nitrogen fixation in Indian agriculture is :

Options :

1. R. N. Singh
2. Y. Bharadwaj
3. P. K. De
4. F. E. Fogg

#### Section B Mathematics

Section Id :	543107138
Section Number :	5
Section type :	Online
Mandatory or Optional:	Optional
Number of Questions:	40
Number of Questions to be attempted:	40
Section Marks:	120
Display Number Panel:	Yes
Group All Questions:	No

Sub-Section Number:	1
Sub-Section Id:	543107178
Question Shuffling Allowed :	Yes

Question Number : 201 Question Id : 5431079384 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The equation of plane passing through  $(-1, 3, 2)$  and perpendicular to each of the two planes  $x + 2y + 2z = 5$  and  $3x + 3y + 2z = 8$  is :

Options :

1.  $2x - 4y + 3z + 8 = 0$
2.  $x - 3y + 2z + 6 = 0$
3.  $3x + 2y - z - 1 = 0$
4.  $2x - 3y + 5z + 6 = 0$

Question Number : 202 Question Id : 5431079385 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The length of the perpendicular from  $(1, 2, 3)$  to the line  $\frac{x-6}{3} = \frac{y-7}{2} = \frac{z-7}{-2}$  is :

Options :

1. 3
2. 5
3. 7
4.  $\sqrt{66}$

Question Number : 203 Question Id : 5431079386 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The three planes  $2x - y + z = 4$ ,  $5x + 7y + 2z = 0$  and  $3x + 4y - 2z = 0$  intersect in :

Options :

1. A point
2. A line
3. A prism

4. None of the three

Question Number : 204 Question Id : 5431079387 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The values of  $k$  for which the plane  $x + y + kz = 3$  is tangent to the sphere  $x^2 + y^2 + z^2 - 4x + 6y + 9 = 0$  are equal to :

Options :

1.  $\pm\sqrt{2}$

2.  $-\sqrt{2}, 3$

3.  $3, 5$

4. None of the three

Question Number : 205 Question Id : 5431079388 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The plane  $ax + by + cz = 0$  cuts the cone  $yz + zx + xy = 0$  if :

Options :

1.  $a + b + c = 0$

2.  $\frac{1}{a} + \frac{1}{b} + \frac{1}{c} = 0$

3.  $(a + b + c)\left(\frac{1}{a} + \frac{1}{b} + \frac{1}{c}\right) = 0$

4.  $\frac{a}{b} + \frac{b}{c} + \frac{c}{a} = 0$

Question Number : 206 Question Id : 5431079389 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

If a curve is defined by parametric coordinates  $x = l \cos t, y = m \sin t$ . Then the radius of curvature at any point  $t$  is given by :

Options :

1.  $l^2 \sin^2 t + m^2 \cos^2 t$

2.  $\frac{1}{lm} (l^2 \sin^2 t + m^2 \cos^2 t)^{\frac{3}{2}}$

3.  $\frac{1}{lm} (l^2 \cos^2 t + m^2 \sin^2 t)^{\frac{3}{2}}$

4.  $\sin^2 t \cos^2 t$

Question Number : 207 Question Id : 5431079390 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The chord of curvature through the pole of the curve  $r = ae^{m\theta}$  is :

Options :

1.  $ar$

2.  $r$

3.  $2r$

4.  $\frac{r}{2}$

Question Number : 208 Question Id : 5431079391 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

If  $\vec{r} = x\hat{i} + y\hat{j} + z\hat{k}$ , then :

Options :

1.  $\text{div } \vec{r} = 1, \text{curl } \vec{r} = 0$

2.  $\text{div } \vec{r} = 2, \text{curl } \vec{r} = 1$

3.  $\text{div } \vec{r} = 3, \text{curl } \vec{r} = 0$

4.  $\text{div } \vec{r} = 4, \text{curl } \vec{r} = 1$

Question Number : 209 Question Id : 5431079392 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

A particle moves along the curve  $x = t^3 + 1$ ,  $y = t^2$ ,  $z = 2t + 5$  where  $t$  is time.  
The component of acceleration at  $t = 1$  in the direction  $\hat{i} + \hat{j} + 3\hat{k}$  is given as :

Options :

1. 8
2.  $\frac{8}{\sqrt{11}}$
3.  $\frac{8}{\sqrt{13}}$
4.  $\frac{8}{\sqrt{17}}$

Question Number : 210 Question Id : 5431079393 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

If  $\vec{a}(x, y, z)$  and  $\vec{b}(x, y, z)$  are two differentiable vector functions, then :

Options :

1.  $\text{curl}(\vec{a} \times \vec{b}) = \vec{a} \text{div} \vec{b} - \vec{b} \text{div} \vec{a} + (\vec{b} \cdot \nabla) \vec{a} + (\vec{a} \cdot \nabla) \vec{b}$
2.  $\text{curl}(\vec{a} \times \vec{b}) = \vec{b} \text{div} \vec{a} - \vec{a} \text{div} \vec{b} + (\vec{b} \cdot \nabla) \vec{a} - (\vec{a} \cdot \nabla) \vec{b}$
3.  $\text{curl}(\vec{a} \times \vec{b}) = \vec{a} \text{div} \vec{b} - \vec{b} \text{div} \vec{a} + (\vec{b} \cdot \nabla) \vec{a} - (\vec{a} \cdot \nabla) \vec{b}$
4.  $\text{curl}(\vec{a} \times \vec{b}) = \vec{b} \text{div} \vec{a} - \vec{a} \text{div} \vec{b} + (\vec{b} \cdot \nabla) \vec{a} - (\vec{a} \cdot \nabla) \vec{b}$

Question Number : 211 Question Id : 5431079394 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The matrix  $A = \begin{bmatrix} -5 & -8 & 0 \\ 3 & 5 & 0 \\ 1 & 2 & -1 \end{bmatrix}$ , then  $A^2$  is :

Options :



1. Idempotent
2. Nilpotent
3. Periodic
4. Involutory

Question Number : 212 Question Id : 5431079395 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The order and degree of the differential equation  $y = x \frac{dy}{dx} + \sqrt{1 + \left(\frac{dy}{dx}\right)^2}$  are :

Options :

1. 2, 2
2. 2, 1
3. 1, 1
4. 1, 2

Question Number : 213 Question Id : 5431079396 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The integrating factor of the differential equation  $(1 + y^2)dx = (\tan^{-1} y - x) dy$  is :

Options :

1.  $y^3$
2.  $\frac{1}{y^3}$
3.  $e^{\tan^{-1} y}$
4.  $\tan^{-1} y$

Question Number : 214 Question Id : 5431079397 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The solution of the differential equation  $(x^3D^3 + 2x^2D^2 + xD)y = 0$  is :

Options :

1.  $a + b(\log x) + c(\log x)^2$
2.  $a + b(\log x)^{-1} + c(\log x)^{-2}$
3.  $a(\log x) + b(\log x)^2 + c(\log x)^3$
4.  $a + bx + cx^2$

Question Number : 215 Question Id : 5431079398 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The family of the curve orthogonal to the family of curve  $ay^2 = x^3$  (where  $a$  is a parameter) is :

Options :

1.  $3y^2 - 2x^2 = c$
2.  $2x^2 - 3y^2 = c$
3.  $3y^2 + 2x^2 = c$
4.  $2x^2 - 3y^2 = c$

Question Number : 216 Question Id : 5431079399 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The solution of differential equation  $\frac{dy}{dx} + (\cos x)y = \sin x \cos x$  is :

Options :

1.  $y(x) = (\sin x - 1) + Ce^{-\sin x}$
2.  $y(x) = (\sin x + 1) + Ce^{-\sin x}$

3.  $y(x) = (\sin x - 1) + Ce^{\sin x}$

4.  $y(x) = (\sin x + 1) + Ce^{\sin x}$

Question Number : 217 Question Id : 5431079400 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The solution of the differential equation  $\frac{d^2y}{dx^2} - \frac{dy}{dx} - 2y = 3e^{2x}$ , where  $y(0) = 0$   
and  $y'(0) = -2$  is :

Options :

1.  $y(x) = e^{-x} - e^{2x} + xe^{2x}$

2.  $y(x) = e^x - e^{-2x} - xe^{2x}$

3.  $y(x) = e^{-x} + e^{2x} + \frac{x}{2}e^{2x}$

4.  $y(x) = e^x - e^{-2x} + \frac{x}{2}e^{2x}$

Question Number : 218 Question Id : 5431079401 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

If  $L^{-1}$  denotes the inverse Laplace transform, then  $L^{-1}\left(\frac{1}{s(s^2 + w^2)}\right)$  :

Options :

1.  $\frac{1 - \cos(wt)}{w^2}$

2.  $\frac{1 - \sin(wt)}{w^2}$

3.  $\frac{1 - \cos(wt)}{w}$

4.  $\frac{1 - \sin(wt)}{w}$

Question Number : 219 Question Id : 5431079402 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Find the Laplace transform of  $5e^{-at} \sin(\omega t)$  :

Options :

1.  $\frac{5\omega}{(s+a)^2 - \omega^2}$

2.  $\frac{5\omega}{(s+a)^2 + \omega^2}$

3.  $\frac{5\omega}{(s-a)^2 + \omega^2}$

4.  $\frac{5\omega}{(s-a)^2 - \omega^2}$

Question Number : 220 Question Id : 5431079403 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

If the Laplace transform of  $Y(t)$  is  $y(s)$ , then for initial value problem

$\frac{d^2Y}{dt^2} - Y = t, Y(0) = 1, \frac{dY}{dt} = 1$ , when  $t = 0$ , the value of  $y(s)$  is :

Options :

1.  $\frac{1}{s-1} + \left( \frac{1}{s^2-1} - \frac{1}{s^2} \right)$

2.  $\frac{1}{s+1} + \left( \frac{1}{s^2-1} - \frac{1}{s^2} \right)$

3.  $\frac{1}{s-1} + \left( \frac{1}{s^2-1} + \frac{1}{s^2} \right)$

4.  $\frac{1}{s-1} + \left( \frac{1}{s^2+1} + \frac{1}{s^2} \right)$

Question Number : 221 Question Id : 5431079404 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

If  $L\{f(t)\} = F(s)$ , where  $L$  denotes the Laplace transform, then  $L\{e^{at} f(t)\}$  is :

Options :

1.  $F(s + a)$

2.  $aF(s)$

3.  $F(s - a)$

4.  $F(as)$

Question Number : 222 Question Id : 5431079405 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The function  $f(x) = |x - 1| + |x - 2|$  is not desirable at :

Options :

1.  $x = 0$

2.  $x = 1$

3.  $x = 3$

4.  $x = 1, x = 2$

Question Number : 223 Question Id : 5431079406 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Sequence  $\left\{ \frac{1}{1.2} + \frac{1}{2.3} + \dots + \frac{1}{n.(n+1)} \right\}$  is :

Options :

1. convergent

2. divergent

3. oscillatory

4. none of the three

Question Number : 224 Question Id : 5431079407 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

If the sequence  $\{a_n\}_{n=1}^{\infty}$  of elements in the interval  $(-1, 1)$  is given, then which one of the following is true ?

Options :

1. Every limit point of  $\{a_n\}$  is in  $(-1, 1)$
2. Every limit point of  $\{a_n\}$  is in  $[-1, 1]$
3. The limit points of  $\{a_n\}$  can only be in  $\{-1, 0, 1\}$
4. The limit points of  $\{a_n\}$  cannot be in  $\{-1, 0, 1\}$

Question Number : 225 Question Id : 5431079408 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

If  $u = e^{xyz}$ , then  $\frac{\partial^3 u}{\partial x \partial y \partial z}$  is equal to :

Options :

1.  $(x^2 + y^2 + z^2 + 3xyz)e^{xyz}$
2.  $(1 + x^2 y^2 z^2 + 3xyz)e^{xyz}$
3.  $(1 + x^2 + y^2 + z^2)e^{xyz}$
4.  $(3x + 3y + 3z + x^2 y^2 z^2)e^{xyz}$

Question Number : 226 Question Id : 5431079409 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question



For the function  $f(x, y) = \begin{cases} \frac{x^2 y}{x^2 + y^2}, & \text{if } (x, y) \neq (0, 0) \\ 0, & \text{if } (x, y) = (0, 0) \end{cases}$ . Which of the following is

not true ?

Options :

1.  $\lim_{x \rightarrow 0} f(x, 0) = f(0, 0)$

2.  $\lim_{y \rightarrow 0} f(0, y) = f(0, 0)$

3.  $\lim_{(x, y) \rightarrow (0, 0)} f(x, y) = f(0, 0)$

4.  $\lim_{(x, y) \rightarrow (0, 0)} f(x, y) \neq f(0, 0)$

Question Number : 227 Question Id : 5431079410 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The function  $f(x) = \begin{cases} x & , \text{ if } x \text{ is rational} \\ \sin x & , \text{ if } x \text{ is irrational} \end{cases}$  is continuous at :

Options :

1.  $x = 0$

2.  $x = 1$

3.  $x = 2$

4.  $x = \frac{1}{2}$

Question Number : 228 Question Id : 5431079411 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

$\lim_{(x, y) \rightarrow (\log 2, 0)} e^{2x+y}$  is :

Options :

1. 1

2. 2

3. 3

4. 4

Question Number : 229 Question Id : 5431079412 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The function  $f(z) = |z|^2$  is :

Options :

1. differentiable everywhere

2. differentiable only at the origin

3. not differentiable anywhere

4. differentiable on real  $x$ -axis

Question Number : 230 Question Id : 5431079413 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The domain of the function  $f(x) = \frac{1}{\log_{10}(1-x)} + \sqrt{x+3}$  is :

Options :

1.  $(-\infty, 1]$

2.  $[-3, 1]$

3.  $[-3, 1] \setminus \{0\}$

4. None of the three

Question Number : 231 Question Id : 5431079414 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The partial differential equation for the surface  $z = ax + by$  is :

Options :

1.  $z = py + qx$

2.  $z = py - qx$

3.  $z = px + qy$

4.  $z = px - qy$

Question Number : 232 Question Id : 5431079415 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The solution of partial differential equation  $(D^2 + 2D'D + D'^2)z = e^{2x+3y}$  is :

Options :

1.  $z = \phi_1(y-x) + x\phi_2(y-x) + \frac{1}{25}e^{2x+3y}$

2.  $z = x\phi_1(y-x) + y\phi_2(y-x) + \frac{1}{5}e^{2x+3y}$

3.  $z = \phi_1(y-x) + x\phi_2(y-x) + \frac{1}{5}e^{2x+3y}$

4.  $z = x\phi_1(y-x) + y\phi_2(y-x) + \frac{1}{25}e^{2x+3y}$

Question Number : 233 Question Id : 5431079416 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The complete integral of equation  $pqz = p^2(xq + p^2) + q^2(yp + q^2)$  is given by :

Options :

1.  $pqz = p^2(xq - p^2) + q^2(yp - q^2)$

2.  $abz = a^2(xb - a^2) + b^2(ya + b^2)$

3.  $abz = a^2(xb + a^2) + b^2(ya - b^2)$

4.  $abz = a^2(xb + a^2) + b^2(ya + b^2)$

Question Number : 234 Question Id : 5431079417 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The differential equation  $5\frac{\partial^2 z}{\partial x^2} + 6\frac{\partial^2 z}{\partial y^2} = xy$  is classified as :

Options :

1. elliptic
2. parabolic
3. hyperbolic
4. none of the three

Question Number : 235 Question Id : 5431079418 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

A particle describes a hyperbola  $\frac{l}{r} = 1 - e \cos \theta$  under a force to its pole. Then law of force is proportional to :

Options :

1.  $r$
2.  $\frac{1}{r^2}$
3.  $r^2$
4.  $\frac{1}{r}$

Question Number : 236 Question Id : 5431079419 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The radial and transverse velocities of a particle are non zero constants. Then the path of the particle is :

Options :

1. a spiral
2. a circle
3. cardioid

4. an ellipse

Question Number : 237 Question Id : 5431079420 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Let  $P$  be a particle whose radial and transverse velocities as well as radial and transverse accelerations are respectively proportional. If  $r$  is the radial distance, then velocity is proportional to :

Options :

1.  $r$
2.  $\log r$
3. some power of radius vector
4.  $\exp(r)$

Question Number : 238 Question Id : 5431079421 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The speed  $v$  of a particle moving along the axis of  $x$  is given by the relation

$v = n(8ax - x^2 - 12a^2)^{\frac{1}{2}}$ . The motion is simple harmonic with amplitude :

Options :

1.  $2a$
2.  $4a$
3.  $6a$
4.  $2an$

Question Number : 239 Question Id : 5431079422 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

If two forces  $P$  and  $Q$  acting at a particle, then their maximum resultant will be :

Options :

1.  $2(P + Q)$

2.  $\sqrt{P^2 + Q^2}$

3.  $P + Q$

4. None of the three

Question Number : 240 Question Id : 5431079423 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The radial acceleration is given by :

Options :

1.  $\frac{1}{r} \frac{d}{dr} \left( r^2 \frac{d\theta}{dt} \right)$

2.  $r^2 \frac{d\theta}{dt}$

3.  $\frac{d^2 r}{dt^2} - r \left( \frac{d\theta}{dt} \right)^2$

4.  $\frac{d^2 r}{dt^2} + r \left( \frac{d\theta}{dt} \right)^2$