

# Banaras Hindu University

**Question Paper Name:** 493 20th May 2019 Shift 2  
**Subject Name:** 493  
**Creation Date:** 2019-05-20 18:36:31  
**Duration:** 120  
**Total Marks:** 360  
**Display Marks:** Yes  
**Share Answer Key With Delivery Engine:** Yes  
**Actual Answer Key:** Yes

## MSc. Bioinformatics

**Group Number :** 1  
**Group Id :** 45489322  
**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 Mathematics

**Section Id :** 45489322  
**Section Number :** 1  
**Section type :** Online  
**Mandatory or Optional:** Mandatory  
**Number of Questions:** 24  
**Number of Questions to be attempted:** 24  
**Section Marks:** 72  
**Display Number Panel:** Yes  
**Group All Questions:** No

**Sub-Section Number:** 1  
**Sub-Section Id:** 45489322  
**Question Shuffling Allowed :** Yes

**Question Number : 1 Question Id : 4548932481 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 one zero of the quadratic polynomial  $x^2 + 3x + k$  is 2, then value of  $k$  will be :

Options :

1. 10

2. -10

3. 5

4. -5

Question Number : 2 Question Id : 4548932482 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 sum of the digits of a two digit number is 9. If 27 is added to it, the digits of the number get reversed, number will be :

Options :

1. 45

2. 72

3. 63

4. 36

Question Number : 3 Question Id : 4548932483 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 tenth term of the series 5, 8, 11, 14, ..... which is in Arithmetical Progression is :

Options :

1. 32

2. 35

3. 38

4. 42

Question Number : 4 Question Id : 4548932484 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 matrix  $A = \begin{bmatrix} \alpha & \beta \\ \gamma & -\alpha \end{bmatrix}$  is such that  $A^2 = I$ , then :

Options :

1.  $1 + \alpha^2 + \beta\alpha = 0$
2.  $1 - \alpha^2 + \beta\gamma = 0$
3.  $1 - \alpha^2 - \beta\gamma = 0$
4.  $1 + \alpha^2 - \beta\gamma = 0$

Question Number : 5 Question Id : 4548932485 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  $f : N \rightarrow N$ , given by  $f(1) = f(2) = 1$  and  $f(x) = (x - 1)$ , for every  $x > 2$  is :

Options :

1. one to one and onto
2. constant
3. one to one and into
4. onto but not one to one

Question Number : 6 Question Id : 4548932486 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

Value of determinant  $\begin{vmatrix} x+y & y+z & z+x \\ z & x & y \\ 1 & 1 & 1 \end{vmatrix}$ , will be :

Options :

1.  $x + y + z$
2. 0

3.  $y + z$

4.  $x + y$

Question Number : 7 Question Id : 4548932487 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 digits can be repeated, two digit even numbers formed from the digits 1, 2, 3, 4, 5 are :

Options :

1. 10

2. 5

3. 2

4. 6

Question Number : 8 Question Id : 4548932488 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 tangents inclined at an angle  $60^\circ$  are drawn to a circle of radius 3 cm then length of each tangent is equal to :

Options :

1.  $\frac{3}{2}\sqrt{3}$  cm

2. 6 cm

3. 3 cm

4.  $3\sqrt{3}$  cm

Question Number : 9 Question Id : 4548932489 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

Mean Deviation about Median for the following data :

3, 9, 5, 3, 12, 10, 18, 4, 7, 19, 21 will be :

Options :

1. 5.45
2. 5.27
3. 9.37
4. 7.02

Question Number : 10 Question Id : 4548932490 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

Mean of annual income of the number of persons given below :

Income (in lakhs)	0-5	5-10	10-15	15-20	20-25
No. of Persons	4	13	6	2	5

will be :

Options :

1. 11
2. 10.6
3. 10.8
4. 11.4

Question Number : 11 Question Id : 4548932491 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

Mean deviation about mean for following data :

Marks obtained	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Number of Students	2	3	8	14	8	3	2

will be :

Options :

1. 9.5
2. 9
3. 10
4. 10.5

Question Number : 12 Question Id : 4548932492 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 variance of following data :  
 6, 8, 10, 12, 14, 16, 18, 20, 22, 24 will be :

- Options :
1. 33
  2. 30
  3. 22
  4. 11

Question Number : 13 Question Id : 4548932493 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 median of data given below :

Class Interval	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	4	5	7	10	12	8	4

will be :

- Options :
1. 37.2
  2. 39
  3. 38

4. 38.6

Question Number : 14 Question Id : 4548932494 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

Age distribution of the patients admitted in a hospital during a month is

Age (in years)	5-15	15-25	25-35	35-45	45-55	55-65
No. of Patients (f)	6	11	21	23	14	5

Mode of age is :

Options :

1. 35 Years
2. 23 Years
3. 36.81 Years
4. 35.21 Years

Question Number : 15 Question Id : 4548932495 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

Second quartile of a given data is its :

Options :

1. Mean
2. Median
3. Mode
4. Variance

Question Number : 16 Question Id : 4548932496 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

Quartile deviation of following data :

20, 28, 40, 12, 30, 15, 50 will be :

Options :

1. 12.5
2. 12
3. 6
4. 6.80

Question Number : 17 Question Id : 4548932497 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 commonly used network card is :

Options :

1. Wi-Fi
2. Bluetooth
3. Ethernet network card
4. Broadband

Question Number : 18 Question Id : 4548932498 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 statement is *incorrect* about memory and storage devices ?

Options :

1. Cache memory makes memory transfer rates higher and thus raises the speed of the processor
2. A storage device is a hardware component that writes data to and reads data from a storage medium



3. ROM loses its data when you turn off the computer

4. Hard discs can be divided into one or more logical disks called partitions

Question Number : 19 Question Id : 4548932499 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

Word ASCII stand for :

Options :

1. American Standard Code for Information Interchange

2. Association of Software Coding and Information

3. American Standard Computing and Information Institute

4. American Scientists Convention for Information Interchange

Question Number : 20 Question Id : 4548932500 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

Collection of information stored in an organized way is known as :

Options :

1. Database

2. Datasheet

3. Report

4. Text

Question Number : 21 Question Id : 4548932501 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 memory is meant for permanent storage ?

Options :

1. RAM
2. ROM
3. Secondary memory
4. SRAM

Question Number : 22 Question Id : 4548932502 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 data type has the largest storage capacity in MS-Access 2016 ?

Options :

1. Short Text
2. Long Text
3. Number
4. Currency

Question Number : 23 Question Id : 4548932503 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 among the following properties of a label determines whether the control is visual or hidden ?

Options :

1. Visible
2. Display
3. View
4. Text

Question Number : 24 Question Id : 4548932504 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 data type is used to store integer values, ranging from  $-32768$  to  $+32767$  ?

Options :

1. String
2. DOB
3. Integer
4. Date

#### Section B Chemistry

Section Id :	45489323
Section Number :	2
Section type :	Online
Mandatory or Optional:	Mandatory
Number of Questions:	32
Number of Questions to be attempted:	32
Section Marks:	96
Display Number Panel:	Yes
Group All Questions:	No

Sub-Section Number:	1
Sub-Section Id:	45489323
Question Shuffling Allowed :	Yes

Question Number : 25 Question Id : 4548932505 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 wave character of electrons was experimentally verified by :

Options :

1. de Broglie
2. Max Planck
3. Einstein

4. Davisson and Germer

Question Number : 26 Question Id : 4548932506 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 Schrödinger's wave equation  $H\psi = E\psi$ , the symbol  $\psi$  represents :

Options :

1. Energy of the spherical wave
2. Frequency of the spherical wave
3. Amplitude of the spherical wave
4. Laplacian operator

Question Number : 27 Question Id : 4548932507 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 configuration  $1s^2, 2s^2, 2p^5, 3s^1$  shows :

Options :

1. excited state of  $O^{2-}$
2. excited state of Ne atom
3. excited state of F atom
4. ground state of F atom

Question Number : 28 Question Id : 4548932508 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

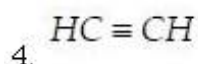
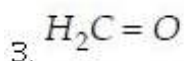
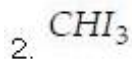
Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of the following compounds has bond angles nearest to  $120^\circ$  ?

Options :

1.  $O = C = S$



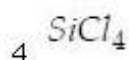
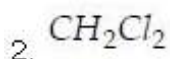
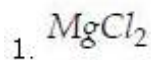
Question Number : 29 Question Id : 4548932509 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of the following molecules would you expect to be ionic ?

Options :



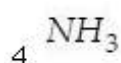
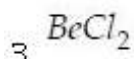
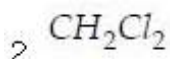
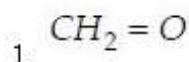
Question Number : 30 Question Id : 4548932510 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of the following molecules would be expected to have a dipole moment of zero ?

Options :



Question Number : 31 Question Id : 4548932511 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 shape of  $IF_3$  molecule is :

Options :

1. T-shaped
2. Trigonal planar
3. Tetrahedral
4. Trigonal pyramidal

Question Number : 32 Question Id : 4548932512 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 oxyacids cannot be manufactured ?

Options :

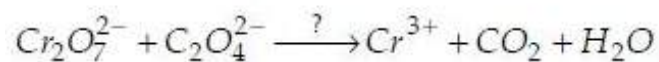
1.  $HNO_3$
2.  $H_2S_2O_4$
3.  $HClO_4$
4.  $H_3PO_4$

Question Number : 33 Question Id : 4548932513 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 protons involved in the following reaction :



would be :

Options :

1. 4
2. 8
3. 12

4. 14

Question Number : 34 Question Id : 4548932514 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

Low ionization energy is characteristic of a/an :

Options :

1. metal
2. non-metal
3. metalloid
4. inert gas

Question Number : 35 Question Id : 4548932515 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 unpaired electrons present in the complex ion  $[FeF_6]^{3-}$  is :

Options :

1. three
2. four
3. five
4. six

Question Number : 36 Question Id : 4548932516 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 coloured compounds are formed by :

Options :

1. alkali metal ions

2. alkaline earth metal ions
3. boron family metal ions
4. transition metal ions

Question Number : 37 Question Id : 4548932517 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 about the value of equilibrium constant ( $K$ ) is wrong ?

Options :

1.  $K$  is independent of the initial concentration of reactants.
2.  $K$  is independent of temperature.
3.  $K$  is independent of the presence of catalyst.
4.  $K$  is independent of the presence of inert materials.

Question Number : 38 Question Id : 4548932518 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 buffer solution of  $CH_3COOH$  and  $CH_3COONa$ , the ratio of salt to acid concentrations is increased 10 times. The pH of the solution will increase by :

Options :

1. 1
2. 4
3. 7
4. 10

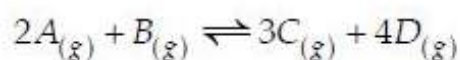
Question Number : 39 Question Id : 4548932519 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1



Question Label : Multiple Choice Question

Consider the following reaction :



Two moles of each A and B were taken in a 1 litre flask. Which of the following is true at equilibrium ?

Options :

1.  $[A] = [B]$

2.  $[B] = [C]$

3.  $[A] < [B]$

4.  $[A] > [B]$

Question Number : 40 Question Id : 4548932520 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

Adsorption of gases on solid surface is generally exothermic because :

Options :

1. Enthalpy is positive

2. Entropy decreases

3. Entropy increases

4. Free energy increases

Question Number : 41 Question Id : 4548932521 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

First law of thermodynamics is a statement of :

Options :

1. conservation of energy

2. conservation of heat

3. conservation of momentum
4. conservation of work

Question Number : 42 Question Id : 4548932522 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 effect of temperature on heat of reaction is given by :

Options :

1. Clausius-Clapeyron equation
2. Joule-Thomson equation
3. Gibbs-Helmholtz equation
4. Kirchhoff's equation

Question Number : 43 Question Id : 4548932523 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

Active Mass is defined as :

Options :

1. number of g equivalents per unit volume
2. number of g moles per litre
3. number of g moles in 100 litres
4. amount of substance in grams per unit volume

Question Number : 44 Question Id : 4548932524 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 half life period of a radioactive element is 20 days. If 64 g of this element is stored for 100 days, the amount of remaining radioactive element would be :

Options :

1. 16 g

2. 6 g

3. 2 g

4. 8 g

Question Number : 45 Question Id : 4548932525 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 any reaction the catalyst :

Options :

1. increases the energy of activation

2. lowers the energy of activation by acquiring a new path

3. does not affect the energy of activation

4. supplies energy of activation

Question Number : 46 Question Id : 4548932526 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 salts cannot be hydrolysed ?

Options :

1.  $CH_3COONa$

2.  $NH_4Cl$

3.  $CH_3COONH_4$

4.  $KCl$

Question Number : 47 Question Id : 4548932527 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 rate of multi-step reaction is determined by the :

Options :

1. primary process
2. overall reaction
3. slowest step
4. mechanism of reaction

Question Number : 48 Question Id : 4548932528 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

Lock and Key type mechanism has been proposed for reactions catalyzed by :

Options :

1. Acids
2. Bases
3. Enzymes
4. Metals

Question Number : 49 Question Id : 4548932529 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

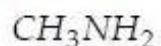
Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

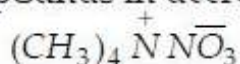
Rank the basicities of the following compounds in decreasing order :



(A)



(B)



(C)

Options :

1. B > A > C
2. B > C > A
3. C > A > B

4.  $C > B > A$

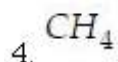
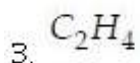
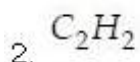
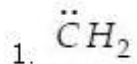
Question Number : 50 Question Id : 4548932530 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The species which is neither an electrophile nor a nucleophile is :

Options :

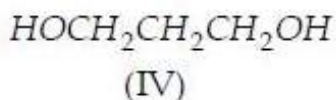
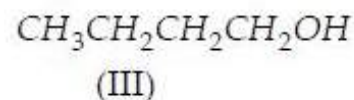
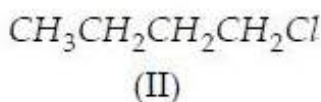
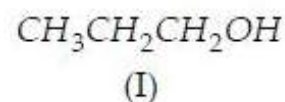


Question Number : 51 Question Id : 4548932531 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

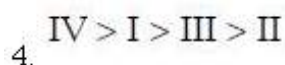
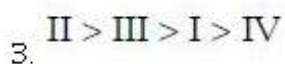
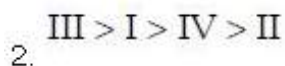
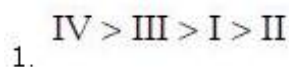
Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Rank the following compounds in order of decreasing solubility in water :



Options :

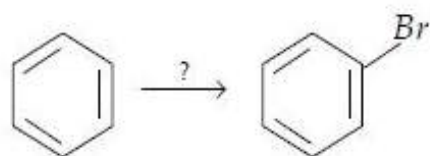


Question Number : 52 Question Id : 4548932532 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load :  
No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which set of reagents will be most suitable to carry out the conversion shown below ?



Options :

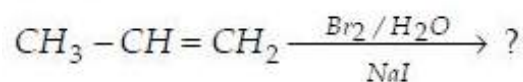
1.  $HBr$ , peroxide
2.  $Br_2$ ,  $FeBr_3$
3.  $Br_2$ ,  $H_2O$
4.  $Br_2$ ,  $CCl_4$

Question Number : 53 Question Id : 4548932533 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 products will *not* be formed in the given addition reaction ?



Options :

1.  $CH_3 \underset{\begin{array}{c} | \\ Br \end{array}}{CH} - CH_2Br$
2.  $CH_3 \underset{\begin{array}{c} | \\ OH \end{array}}{CH} - CH_2Br$
3.  $CH_3 - CHI - CH_2Br$
4.  $CH_3CHBr - CH_2I$

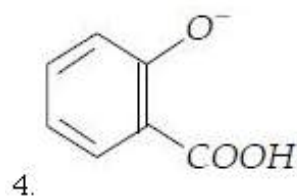
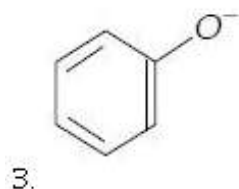
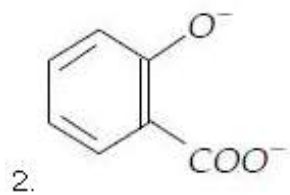
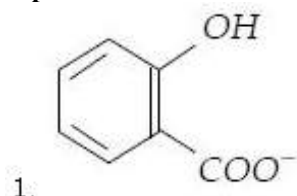
Question Number : 54 Question Id : 4548932534 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of the following ions is formed on treatment of salicylic acid with excess of  $NaHCO_3$  ?

Options :



Question Number : 55 Question Id : 4548932535 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 compounds would *not* give iodoform test with  $I_2$  and aqueous  $NaOH$  ?

Options :

1. Ethanol

2. Isopropanol

3. Acetophenone

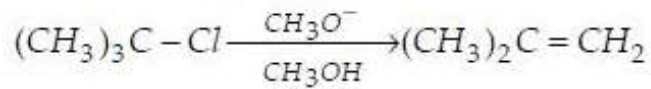
4. Diethylketone

Question Number : 56 Question Id : 4548932536 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 reaction given below :



is an example of the following process :

Options :

1. E2
2. E1
3. SN<sup>2</sup>
4. SN<sup>1</sup>

#### Section B Biology

Section Id :	45489324
Section Number :	3
Section type :	Online
Mandatory or Optional:	Mandatory
Number of Questions:	32
Number of Questions to be attempted:	32
Section Marks:	96
Display Number Panel:	Yes
Group All Questions:	No

Sub-Section Number:	1
Sub-Section Id:	45489324
Question Shuffling Allowed :	Yes

Question Number : 57 Question Id : 4548932537 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

Coelom is formed from :

Options :

1. Ectoderm
2. Mesoderm
3. Endoderm
4. Notochord



Question Number : 58 Question Id : 4548932538 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 pelvic bone ?

Options :

1. Scapula
2. Clavicle
3. Ilium
4. Ulna

Question Number : 59 Question Id : 4548932539 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

Metanephric kidney is found in :

Options :

1. Amniotes
2. Agnatha
3. Anamniotes
4. Gnathostomata

Question Number : 60 Question Id : 4548932540 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

Bipolar neurons are observed in :

Options :

1. Cornea
2. Retina
3. Lens

4. Iris

Question Number : 61 Question Id : 4548932541 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

Phosphatidylcholine is a type of :

Options :

1. Carbohydrate

2. Protein

3. Lipid

4. Nucleic acid

Question Number : 62 Question Id : 4548932542 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

Five prime capping is mostly found on :

Options :

1. tRNA

2. rRNA

3. mRNA

4. siRNA

Question Number : 63 Question Id : 4548932543 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

Type of ribosome present in mitochondria is :

Options :

1. 70S

2. 80S

3. 55S

4. 65S

Question Number : 64 Question Id : 4548932544 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

Amount of haemoglobin is reduced but structure is normal during :

Options :

1. Thalessemia

2. Sickel cell anemia

3. Diabetes

4. Fever

Question Number : 65 Question Id : 4548932545 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 has higher pH ?

Options :

1. Pancreatic juice

2. Gastric juice

3. Saliva

4. Bile

Question Number : 66 Question Id : 4548932546 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

Renin is secreted by :

Options :

1. Juxtaglomerular cells

2. Proximal tubule
3. Distal tubule
4. Macula

Question Number : 67 Question Id : 4548932547 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 DNA-polymerase has highest processivity ?

Options :

1. DNA-polymerase-I
2. DNA-polymerase-II
3. DNA-polymerase-III
4. DNA-polymerase-IV

Question Number : 68 Question Id : 4548932548 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 RNA-polymerase transcribe ribosomal RNA ?

Options :

1. RNA-polymerase-I
2. RNA-polymerase-II
3. RNA-polymerase-III
4. RNA-polymerase-IV

Question Number : 69 Question Id : 4548932549 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

Milk sugar is :

Options :

1. Sucrose
2. Maltose
3. Lactose
4. Fructose

Question Number : 70 Question Id : 4548932550 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 example of poly-unsaturated fatty acid is :

Options :

1. Lauric acid
2. Oleic acid
3. Palmitic acid
4. Eicosa Pentenoic acid

Question Number : 71 Question Id : 4548932551 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 directly involved in apoptosis ?

Options :

1. Cytochrome c
2. Nitric acid synthase
3. Glucose oxidase
4. Adenylyl cyclase

Question Number : 72 Question Id : 4548932552 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

Shine-Dalgarno sequences are important for :

Options :

1. Transcription
2. Translation
3. Replication
4. Mutations

Question Number : 73 Question Id : 4548932553 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 among the following statements is *correct* ?

Options :

1. The smallest stable particles of matter are protons, neutrons and electrons
2. pH scale is not a logarithmic scale
3. Buffer does not act as a reservoir of  $H^+$  ions
4. Water is neither a cohesive nor an adhesive

Question Number : 74 Question Id : 4548932554 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

Complete the following statement by choosing the correct option :

Diffusion is the kinetic movement of molecules or ions from .....

Options :

1. an area of high concentration to an area of low concentration
2. an area of low concentration to an area of high concentration
3. an area of moderate concentration to an area of moderate concentration
4. the concentration gradient has no role in diffusion

Question Number : 75 Question Id : 4548932555 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 *not* a subunit of ATP molecule ?

Options :

1. A five carbon sugar-ribose
2. Adenine
3. Triphosphate group
4. Allosteric inhibitor

Question Number : 76 Question Id : 4548932556 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 *not* a part of the process of glycolysis ?

Options :

1. Conversion of glucose into two molecules of pyruvate
2. Conversion of two molecules of ADP into ATP
3. Conversion of two molecules of  $\text{NAD}^+$  into NADH
4. Oxidation of pyruvate

Question Number : 77 Question Id : 4548932557 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

$\text{C}_4$  photosynthetic pathway operates in which one of the following ?

Options :

1. Sorghum
2. Pea
3. Tomato

4. Potato

Question Number : 78 Question Id : 4548932558 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

Choose the *incorrect* statement :

Options :

1. All biological catalyts are proteins
2. The RNA catalyts are called 'ribozymes'
3. The activity of enzyme is influenced by both temperature and pH
4. ATP is the primary energy currency of all cells

Question Number : 79 Question Id : 4548932559 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 two unrelated individuals or lines are crossed, the performance of  $F_1$  hybrid is often superior to both the parents. This phenomenon is called :

Options :

1. Inbreeding depression
2. Heterosis
3. Heterocaryosis
4. Mutation breeding

Question Number : 80 Question Id : 4548932560 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 constitute the space food ?

Options :

1. *Gelidium* and *Gracilaria*



2. *Laminaria* and *Porphyra*

3. *Dictyota* and *Polysiphonia*

4. *Chlorella* and *Spirulina*

Question Number : 81 Question Id : 4548932561 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

Choose the *correct* statement from amongst the following :

Options :

1. Thallus and prothallus are found in Bryophytes

2. Homospory and heterospory are characteristics of liverworts

3. Sporophylls form compact strobile in *Selaginella* and *Equisetum*

4. Pteridophytes lack Xylem and Phloem

Question Number : 82 Question Id : 4548932562 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

'Late blight of Potato' is caused by :

Options :

1. *Phytophthora infestans*

2. *Albugo candida*

3. *Phythium debaryanum*

4. *Alternaria solanii*

Question Number : 83 Question Id : 4548932563 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 nature of vascular cambium in dicot root is :

Options :

1. Primary
2. Secondary
3. Tertiary
4. Intermediary

Question Number : 84 Question Id : 4548932564 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

Heterocyst which can fix atmospheric nitrogen is found in :

Options :

1. *Anabaena*
2. *Chlorella*
3. *Ulothrix*
4. *Spirogyra*

Question Number : 85 Question Id : 4548932565 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 higher fungi, karyogamy is *not* followed immediately by meiosis but there is present an intervening stage called :

Options :

1. Monocaryophase
2. Dikaryophase
3. Syncaryophase

#### 4. Heterocaryosis

Question Number : 86 Question Id : 4548932566 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

Citric acid is produced by :

Options :

1. *Candida utilis*
2. *Aspergillus niger*
3. *Streptococcus lactis*
4. *Acetobacter suboxydans*

Question Number : 87 Question Id : 4548932567 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

Interforons are :

Options :

1. Antiviral proteins
2. Antibacterial proteins
3. Anticancer proteins
4. Synthetic chemicals

Question Number : 88 Question Id : 4548932568 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 production of haploid from anther culture of *Datura innoxia* was first reported by :

Options :

1. F. C. Steward

2. Nitsche and White
3. Guha and Maheshwari
4. Stooage and Murashige

Section B Physics

Section Id :	45489325
Section Number :	4
Section type :	Online
Mandatory or Optional:	Mandatory
Number of Questions:	32
Number of Questions to be attempted:	32
Section Marks:	96
Display Number Panel:	Yes
Group All Questions:	No

Sub-Section Number:	1
Sub-Section Id:	45489325
Question Shuffling Allowed :	Yes

Question Number : 89 Question Id : 4548932569 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 mechanism of heat transfer is involved in heat flow from Sun to Earth ?

Options :

1. Convection
2. Conduction
3. Radiation
4. Induction

Question Number : 90 Question Id : 4548932570 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 efficiency of a Carnot engine depends on :

Options :

1. working substance
2. temperatures of source and sink
3. type of fuel fired
4. design of engine

Question Number : 91 Question Id : 4548932571 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 of minimum to maximum wave-lengths in Balmer series is :

Options :

1.  $\frac{1}{4}$

2.  $\frac{5}{9}$

3.  $\frac{3}{8}$

4.  $\frac{1}{8}$

Question Number : 92 Question Id : 4548932572 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 relationships between the acceleration  $a$  and the displacement  $x$  of a particle involve simple harmonic motion ?

Options :

1.  $a = -10x^2$

2.  $a = 14.4x$

3.  $a = -12x$

4.  $a = -15x^3$

Question Number : 93 Question Id : 4548932573 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  $\frac{1}{4}$  of a spring having length  $l$  is cut, then what will be the spring constant of remaining part ?

Options :

1.  $\frac{4}{3}k$

2.  $4k$

3.  $\frac{3}{4}k$

4.  $3k$

Question Number : 94 Question Id : 4548932574 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 colours is scattered minimum ?

Options :

1. green

2. blue

3. red

4. violet

Question Number : 95 Question Id : 4548932575 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 value of acceleration due to gravity :

Options :

1. is least on poles
2. is same on equator and poles
3. is least on equator
4. increases from pole to equator

Question Number : 96 Question Id : 4548932576 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 electric dipole placed with its axis in the direction of a uniform electric field experiences :

Options :

1. a force but no torque
2. a torque but no force
3. a force as well as a torque
4. neither a force nor a torque

Question Number : 97 Question Id : 4548932577 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 continuity equation is the result of application of the following law to the flow field :

Options :

1. First law of thermodynamics
2. Conservation of energy
3. Newton's second law of motion
4. Conservation of mass

Question Number : 98 Question Id : 4548932578 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 zero point energy for simple harmonic oscillator is :

Options :

1.  $\frac{1}{2} \hbar \omega$
2. 0
3.  $\frac{3}{2} \hbar \omega$
4.  $\hbar \omega$

Question Number : 99 Question Id : 4548932579 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 P-type and N-type semiconductors are joined to form a PN junction :

Options :

1. The electrons are transferred from P-region to N-region and Fermi energy level of both regions decreases
2. The electrons are transferred from P-region to N-region and Fermi energy level of both regions increases
3. The electrons are transferred from N-region to P-region and Fermi energy level of both regions attains equilibrium
4. The electrons are transferred from N-region to P-region and Fermi energy level of both regions increases

Question Number : 100 Question Id : 4548932580 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 body of moment of inertia of  $5 \text{ kg m}^2$ , rotating with an angular velocity of 6 rad/s, has the same kinetic energy as a mass of 20 kg moving with a velocity of :

Options :

1. 3 m/s



2. 4 m/s
3. 9 m/s
4. 8 m/s

Question Number : 101 Question Id : 4548932581 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 temperature of a wire is doubled, the Young's modulus of elasticity :

Options :

1. will also double
2. will become four times
3. will remain same
4. will decrease

Question Number : 102 Question Id : 4548932582 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 viscous force acting on a solid ball moving in air with terminal velocity  $v$  is directly proportional to :

Options :

1.  $\sqrt{v}$
2.  $2v$
3.  $v^2$
4.  $v$

Question Number : 103 Question Id : 4548932583 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 object is placed 12 cm from a convex lens whose focal length is 10 cm, the image must be :

Options :

1. virtual and enlarged
2. real and enlarged
3. real and reduced
4. virtual and reduced

Question Number : 104 Question Id : 4548932584 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 dimensional formula of  $RT$  in Van der Waals equation of state

$$\left(P + \frac{a}{V^2}\right)(V - b) = RT \text{ is same as :}$$

Options :

1. Force
2. Specific heat
3. Energy
4. Latent heat

Question Number : 105 Question Id : 4548932585 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  $|\vec{a} \times \vec{b}| = \vec{a} \cdot \vec{b}$ , find out the angle between  $\vec{a}$  and  $\vec{b}$  :

Options :

1.  $90^\circ$
2.  $60^\circ$
3.  $45^\circ$

4.  $30^\circ$

Question Number : 106 Question Id : 4548932586 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

Consider two vectors  $\vec{A} = 2\hat{i} + 3\hat{j}$  and  $\vec{B} = \hat{i} + \hat{j}$ . The component of vector  $\vec{A}$  along vector  $\vec{B}$  is :

Options :

1.  $\frac{5}{\sqrt{2}}$

2.  $\frac{3}{\sqrt{2}}$

3.  $\frac{1}{\sqrt{2}}$

4.  $\frac{7}{\sqrt{2}}$

Question Number : 107 Question Id : 4548932587 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 particles having masses  $m_1$  and  $m_2$  are moving in a circular path of radii  $r_1$  and  $r_2$  respectively. Find out the ratio of their angular velocities, if they have same periods :

Options :

1.  $\frac{r_1}{r_2}$

2.  $\sqrt{\frac{r_2}{r_1}}$

3.  $\frac{r_2}{r_1}$

4. 1

Question Number : 108 Question Id : 4548932588 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 coefficient of viscosity is :

Options :

1.  $ML^{-1}T^{-1}$

2.  $MLT^{-1}$

3.  $ML^2T^{-1}$

4.  $ML^{-1}T^{-2}$

Question Number : 109 Question Id : 4548932589 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

Small liquid drops take the spherical shape because of :

Options :

1. Gravitational force

2. Adhesion

3. Surface tension

4. Pressure from all directions

Question Number : 110 Question Id : 4548932590 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

Ideal gas in an adiabatic process follow the relation :

Options :

1.  $PV^{\gamma-1} = \text{constant}$

2.  $\left(P + \frac{a}{V^2}\right)(V - b) = RT$

3.  $PV^\gamma = \text{constant}$

4.  $PV = RT/2$

Question Number : 111 Question Id : 4548932591 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 efficiency of a Carnot engine is 50%. If the temperature of the heat sink is  $27^\circ\text{C}$ , find out the temperature of heat source :

Options :

1.  $457^\circ\text{C}$

2.  $227^\circ\text{C}$

3.  $327^\circ\text{C}$

4.  $600^\circ\text{C}$

Question Number : 112 Question Id : 4548932592 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 simple harmonic wave  $y = 3 \sin\left(25\pi t - \frac{\pi x}{2}\right)$ , find the ratio of maximum particle velocity to the wave velocity :

Options :

1.  $3\pi$

2.  $2\pi$

3.  $\frac{3}{2}\pi$

4.  $\frac{2}{3}\pi$

Question Number : 113 Question Id : 4548932593 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 fundamental tone is produced from a pipe of length  $l$ , closed at one end, the wavelength of the stationary wave is :

Options :

1.  $4l$
2.  $2l$
3.  $l$
4.  $l/2$

Question Number : 114 Question Id : 4548932594 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

Light passes from air into a liquid and is deviated  $15^\circ$  when the angle of incidence is  $60^\circ$ . The refractive index of the liquid is :

Options :

1. 1.45
2. 1.22
3. 1.33
4. 1.55

Question Number : 115 Question Id : 4548932595 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 relationship between nuclear radius (R) and mass number (A) can be expressed as :

Options :

1.  $R \propto A^{2/3}$
2.  $R \propto A^{1/3}$
3.  $R \propto A^{1/2}$

4.  $R \propto A^{3/2}$

Question Number : 116 Question Id : 4548932596 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 will not deflect due to magnetic field ?

Options :

1.  $\beta^+$  -rays

2.  $\beta^-$  -rays

3. gamma rays

4.  $\alpha$ -rays

Question Number : 117 Question Id : 4548932597 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 Bravais lattices in crystal systems is :

Options :

1. 12

2. 7

3. 18

4. 14

Question Number : 118 Question Id : 4548932598 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

Planck's constant can be directly measured using the experiment :

Options :

1. Milikan's oil drop

2. A. C. Josephson effect
3. Photoelectric effect
4. Michelson-Morley

Question Number : 119 Question Id : 4548932599 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 energy of the level with quantum number  $n = 3$  for hydrogen atom is :

Options :

1.  $-1.51 \text{ eV}$
2.  $-3.4 \text{ eV}$
3.  $12.1 \text{ eV}$
4.  $3.4 \text{ eV}$

Question Number : 120 Question Id : 4548932600 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 two charges is doubled, the electrostatic force between the charges will :

Options :

1. Increase by two times
2. Decrease by two times
3. Decrease by four times
4. Increase by four times