Bihar
STET

Previous Year Paper
PGT (Physics)
13 Sept, 2023 Shift 1

QUESTION PAPER
Uchcha Madhyamic Physics [SHIFT - 1]

Exam Date : 13/09/2023
Time : 03:00 PM - 05:30 PM

Subject Name : Physics
Subject Code : 214

Subject Question

Question 1
Question Id : 1

which of the following is the SI unit of electric flux?
Answer :

Option Id

(A) Weber
1001

(B) Volt /meter
1002

(C) Vm
1003

(D) Nm
1004

Right Answer :
Vm

Right Option Id : 1003

Question 2
Question Id : 55

A partical of mass m and fixed kinetic energy K is moving in a circle. The magnitude of its average velocity over a half-cycle is
Answer :

Option Id

(A) $\left(\frac{8k}{\pi^2}m\right)^{\frac{1}{2}}$
55001

(B) $\frac{2}{\pi}\left(\frac{k}{m}\right)^{\frac{1}{2}}$
55002

(C) $(2k/2)^{\frac{1}{2}}$
55003

(D) None of these
55004

Right Answer :
$\left(\frac{8k}{\pi^2}m\right)^{\frac{1}{2}}$

Right Option Id : 55001

Question 3
Question Id : 54

The mass of the bob of a simple pendulum is m. At the lower point, the bob is given such a horizontal velocity that is undergoes vertical circular motions. The difference between tension force in the string will be
Answer :

Option Id

(A) 4mg
54001

(B) 5mg
54002

(C) 6mg
54003

(D) None of these
54004

Right Answer :
6mg

Right Option Id : 54003

Question 4
Question Id : 53

The mass of an inhomogeneous ring of radius R is M. At a point in its axis, at distance x from its centre,
Answer :

Option Id

(A) The gravitational potential is $-GM/(r^2+x^2)^{\frac{1}{2}}$
53001

(B) the magnitude of gravitational field intensity is $Gmx/(r^2+x^2)^{\frac{1}{2}}$
53002

(C) the gravitional potential is $-GM/de$
53003

(D) None of these
53004

Right Answer :
The gravitational potential is $-GM/(r^2+x^2)^{\frac{1}{2}}$

Right Option Id : 53001

Question 5   **Question Id : 52**

The distance between the centres of the Earth and its satellite is d, and the masses of the Earth and the satellite are M and m, respectively. If their centre of mass be at rest, the orbital speed of the satellite will be

Answer :   Option Id

(A) $M\sqrt{\dfrac{6}{(M+m)d}}$ ○   52001

(B) $\sqrt{\dfrac{6M}{d}}$ ○   52002

(C) $m\sqrt{\dfrac{6}{(M+m)d}}$ ○   52003

(D) None of these   ○   52004

Right Answer :   **Right Option Id : 52001**

$M\sqrt{\dfrac{6}{(M+m)d}}$

Question 6   **Question Id : 51**

A torque τ is applied about the axis of a cylinder for a time interval of t. the mass and the radius of the cylinder are M and R, respectively. The angular velocity produced will be

Answer :   Option Id

(A) $2\tau t/MR^2$ ○   51001

(B) $2\tau t/MR^2$ ○   51002

(C) $2\tau T/MR^2$ ○   51003

(D) None of these   ○   51004

Right Answer :   **Right Option Id : 51001**

$2\tau t/MR^2$

Question 7   **Question Id : 50**

If the vector $\vec{r}$ of a particle turns about the origin at an angular velocity $\vec{w}(\downarrow \vec{r})$ the velocity $\vec{\vartheta}$ of the particle is given by:

Answer :   Option Id

(A) $\vec{\vartheta}=\vec{r} \times \vec{w}$ ○   50001

(B)   ○   50002
$\vec{w} =\vec{r} \times \vec{v}$

(C) $\vec{w}r= \vec{\vartheta}$ ○   50003

(D) None of these   ○   50004

Right Answer :   **Right Option Id : 50002**

$\vec{w} =\vec{r} \times \vec{v}$

Question 8   **Question Id : 49**

Which of the following the expressions represents correctly the velocity of a particle moving in XY- plane in terms of its generalized co-ordinates (r,Θ)?

Answer :   Option Id

(A) $\begin{bmatrix} \dot{x} \\ \dot{y} \end{bmatrix} = \begin{bmatrix} \cos\theta & -r\sin\theta \\ \sin\theta & -r\cos\theta \end{bmatrix} \begin{bmatrix} r \\ \dot{q} \end{bmatrix}$ ○   49001

(B) $\begin{bmatrix} \dot{x} \\ \dot{y} \end{bmatrix} = \begin{bmatrix} \sin\theta & r\sin q \\ \cos\theta & -r\cos\theta \end{bmatrix} \begin{bmatrix} r \\ \dot{q} \end{bmatrix}$ ○   49002

(C) $\begin{bmatrix} \dot{x} \\ \dot{y} \end{bmatrix} = \begin{bmatrix} -r\sin q & \cos\theta \\ r\cos\theta & \sin\theta \end{bmatrix} \begin{bmatrix} r \\ \dot{q} \end{bmatrix}$ ○   49003

(D) none of these   ○   49004

Right Answer :   **Right Option Id : 49001**

$\begin{bmatrix} \dot{x} \\ \dot{y} \end{bmatrix} = \begin{bmatrix} \cos\theta & -r\sin\theta \\ \sin\theta & -r\cos\theta \end{bmatrix} \begin{bmatrix} r \\ \dot{q} \end{bmatrix}$

Question 9   **Question Id : 48**

Select the incorrect statement :

Answer :   Option Id

(A) If the Lagrangian L is explicit function of time, the Hamiltonian is equal to total energy 48001

(B) The relationship between generalized momentum p is q° = ∂H/∂p 48002

(C) The rate of change of generalized momentum is (−∂H/∂q 48003

(D) Action is the time -integral of Lagrangian 48004

Right Answer : **Right Option Id : 48001**

If the Lagrangian L is explicit function of time, the Hamiltonian is equal to
total energy

Question 10 **Question Id : 47**

Select the incorrect statement :

Answer : Option Id

(A) The speed of light in a vaccum has the same value in all the inertial frames 47001

(B) Neither mass nor energy is conserved, but ,mass-energy is conserved 47002

(C) In different inertial frames, neither time interval nor space interval remains the same, but the square of the interval of space-time remains the same 47003

(D) If a cube moves in a direction normal to its one face, all the 12 sides of the cube get contracted 47004

Right Answer : **Right Option Id : 47004**

If a cube moves in a direction normal to its one face, all the 12 sides of the
cube get contracted

Question 11 **Question Id : 46**

The modulus of elasticity is dimensionally equivalent to:

Answer : Option Id

(A) Strain 46001

(B) Surface tension 46002

(C) stress 46003

(D) Poisson's ratio 46004

Right Answer : **Right Option Id : 46003**

stress

Question 12 **Question Id : 45**

If there is no change in the volume off wire due to change in its length on stretching, the Poisson's ratio of material of wire is:

Answer : Option Id

(A) -0.5 45001

(B) 0.5 45002

(C) -0.25 45003

(D) 0.25 45004

Right Answer : **Right Option Id : 45001**

-0.5

Question 13 **Question Id : 44**

The Young's modulus for a plastic body is:

Answer : Option Id

(A) less than 1 44001

(B) 0 44002

(C) 1 44003

(D) Infinity 44004

Right Answer : **Right Option Id : 44002**

0

Question 14 **Question Id : 43**

A liquid has only:

Answer : Option Id

(A) Bulk modulus 43001

(B) Youngs modulus   43002
(C) Shear modulus   43003
(D) All of the above   43004

Right Answer :   **Right Option Id : 43001**
Bulk modulus

Question 15   **Question Id : 42**
What do we call the maximum velocity of a fluid in a tube for which the flow remains streamlined?
Answer :   Option Id
(A) Lamellar velocity   42001
(B)   critical velocity   42002
(C) Streamlined velocity   42003
(D) Hyper velocity   42004

Right Answer :   **Right Option Id : 42002**
   critical velocity

Question 16   **Question Id : 41**
   Bernoulli's theorem deals with the principles of:
Answer :   Option Id
(A) Energy   41001
(B) Force   41002
(C) Mass   41003
(D) Momentum   41004

Right Answer :   **Right Option Id : 41001**
Energy

Question 17   **Question Id : 56**
When is a fluid called turbulent?
Answer :   Option Id
(A) High viscosity of fluid   56001
(B) Reynolds number is greater than 2000   56002
(C) Reynolds number is less than 2000   56003
(D) The density of the fluid is low   56004

Right Answer :   **Right Option Id : 56003**
Reynolds number is less than 2000

Question 18   **Question Id : 57**
An iron needle floats on the surface of water. This phenomenon is attributed to:
Answer :   Option Id
(A)   Upthrust of liquid   57001
(B) Surface tension   57002
(C)   Gravitational force   57003
(D) Nuclear force   57004

Right Answer :   **Right Option Id : 57002**
Surface tension

Question 19   **Question Id : 58**
Work done in increasing the size of a soap bubble from a radius of 3 cm to 5 cm is nearly (Surface tension of soap solution =0.03 Nm^{-1}):
Answer :   Option Id
(A) 4π mJ   58001
(B) 2π mJ   58002
(C) 0.4π mJ   58003

(D) π mJ

○ 58004

Right Answer :

0.4π mJ

Right Option Id : 58003

Question 20

Question Id : 67

With rise in temperature, the liquid height in a capillary will:

Answer :

Option Id

(A)   Increase ○ 67001

(B)   Decrease ○ 67002

(C) Remain constant ○ 67003

(D) First decrease then increase ○ 67004

Right Answer :

Right Option Id : 67002

Decrease

Question 21

Question Id : 73

The Zeroth law of thermodynamics based on which parameter?

Answer :

Option Id

(A) Temperature ○ 73001

(B) Pressure ○ 73002

(C) Density ○ 73003

(D) Velocity ○ 73004

Right Answer :

Right Option Id : 73001

Temperature

Question 22

Question Id : 72

"When two body are in thermal equilibrium with the third body, then they all are also in thermal equilibrium with each other". This statement by which law?

Answer :

Option Id

(A)   Second law of thermodynamics ○ 72001

(B) Third law of thermodynamics ○ 72002

(C) First law of thermodynamics ○ 72003

(D)   Zeroth law of thermodynamics ○ 72004

Right Answer :

Right Option Id : 72003

First law of thermodynamics

Question 23

Question Id : 71

Which of the following occurs without a change in the internal energy?

Answer :

Option Id

(A)   Isochoric process ○ 71001

(B) Isobaric process ○ 71002

(C) Steady-state process ○ 71003

(D) Isothermal process ○ 71004

Right Answer :

Right Option Id : 71002

Isobaric process

Question 24

Question Id : 70

Which of the following follows the Carnot theorem?

Answer :

Option Id

(A)   Heat engines ○ 70001

(B)   Gas turbine engines ○ 70002

(C) Gas compressors ○ 70003

(D) All of the mentioned ○ 70004

Right Answer :

Right Option Id : 70004

All of the mentioned

Question 25   **Question Id : 69**

The enthalpy and internal energy are the function of temperature for:

Answer :   Option Id

(A)   all gases   69001

(B) steam   69002

(C)   water   69003

(D)   ideal gas   69004

Right Answer :   **Right Option Id : 69004**

ideal gas

Question 26   **Question Id : 68**

Which of the following is true according to Clausius statement?

Answer :   Option Id

(A)   it is possible to construct a device that can transfer heat from a cooler body to a hotter body without any effect   68001

(B)   it is impossible to construct a device that can transfer heat from a cooler body to a hotter body without any effect   68002

(C)   it is impossible to construct a device that can transfer heat from a hotter body to a cooler body without any effect   68003

(D) none of the mentioned   68004

Right Answer :   **Right Option Id : 68002**

it is impossible to construct a device that can transfer heat from a cooler
body to a hotter body without any effect

Question 27   **Question Id : 66**

If a system undergoes a reversible isothermal process without transfer of heat, the temperature at which this process takes place is called

Answer :   Option Id

(A)   triple point of water   66001

(B)   boiling point of water   66002

(C)   absolute zero   66003

(D)   none of the mentioned   66004

Right Answer :   **Right Option Id : 66003**

absolute zero

Question 28   **Question Id : 59**

Which of the following thermodynamic law gives the concept of entropy?

Answer :   Option Id

(A) First law of thermodynamics   59001

(B) Second law of thermodynamics   59002

(C) Third law of thermodynamics   59003

(D) Zeroth law of thermodynamics   59004

Right Answer :   **Right Option Id : 59002**

Second law of thermodynamics

Question 29   **Question Id : 65**

Kelvin planks law of thermodynamics deals with:

Answer :   Option Id

(A) Conservation of work   65001

(B)   Conservation of heat   65002

(C) Conversion of heat into work   65003

(D)   Conversion of work into heat   65004

Right Answer :   **Right Option Id : 65003**

Conversion of heat into work

Question 30   **Question Id : 64**

The efficiency of a Carnot engine is 20%. The efficiency is increased to 30% when the sink temperature is reduced by 25⁰C. What will be the source temperature?

Answer :   Option Id

(A) 200⁰C   64001

(B)   450⁰C   64002

(C) 300⁰C   64003

(D) 250⁰C   64004

Right Answer :   **Right Option Id : 64004**

250⁰C

Question 31   **Question Id : 63**

If the two particles performing S.H.M. with same amplitude and initial phase angle then initial phase angle of resultant motion depends on ....

Answer :   Option Id

(A) initial phase angle only   63001

(B) initial phase angle and amplitude   63002

(C) amplitude of individual only   63003

(D) neither amplitude nor initial phase angle   63004

Right Answer :   **Right Option Id : 63001**

initial phase angle only

Question 32   **Question Id : 62**

The motion in which a body moves from one place to another with respect to time is called as..............

Answer :   Option Id

(A) vibrational motion   62001

(B) rotational motion   62002

(C) circular motion   62003

(D) translational motion   62004

Right Answer :   **Right Option Id : 62004**

translational motion

Question 33   **Question Id : 61**

A motion which repeats itself in equal interval of time is called as ....

Answer :   Option Id

(A) periodic motion   61001

(B) circular motion   61002

(C) translational motion   61003

(D) rotational motion   61004

Right Answer :   **Right Option Id : 61001**

periodic motion

Question 34   **Question Id : 60**

If the particles of the medium vibrate about their mean positions at right angles to the direction of propagation of wave, the wave is said to be.............................

Answer :   Option Id

(A) a transverse wave   60001

(B) a longitudinal wave   60002

(C) a stationary wave   60003

(D) a sound wave   60004

Right Answer :   **Right Option Id : 60001**

a transverse wave

Question 35   **Question Id : 40**

Which is a mathematical equation for a progressive wave ?

Answer :
(A) $y = a \sin(kt - \omega x)$ Option Id
(B) $y = a \sin(2\pi t - \lambda x)$ 40001
(C) $y = a \sin(\omega t - kx)$ 40002
(D) $\underline{y = a \sin(\lambda t - \phi)}$ 40003
                   40004

Right Answer :   **Right Option Id : 40003**
$y = a \sin(\omega t - kx)$

Question 36   **Question Id : 39**

The distance between two consecutive nodes or antinodes is ....

Answer :   Option Id
(A) λ 39001
(B) $\lambda / 4$ 39002
(C) 2λ 39003
(D) $\lambda / 2$ 39004

Right Answer :   **Right Option Id : 39004**
$\lambda / 2$

Question 37   **Question Id : 38**

If an external periodic force is applied on an oscillator then it executes ....

Answer :   Option Id
(A) Undamped free oscillations   38001
(B) Damped free oscillations   38002
(C) Forced oscillations   38003
(D) None of the above   38004

Right Answer :   **Right Option Id : 38003**
Forced oscillations

Question 38   **Question Id : 37**

In steady state forced vibrations, the amplitude of vibrations at resonance is ....damping coefficient.

Answer :   Option Id
(A) equal to   37001
(B) directly proportional to   37002
(C) inversely proportional to   37003
(D) independent of   37004

Right Answer :   **Right Option Id : 37003**
inversely proportional to

Question 39   **Question Id : 17**

.... in frequency (or pitch) occurs if the source of sound and the listener move with same velocity and in the same direction.

Answer :   Option Id
(A) Change   17001
(B) Increase   17002
(C) Decrease   17003
(D) No change   17004

Right Answer :   **Right Option Id : 17004**
No change

Question 40   **Question Id : 16**

The apparent change in frequency of a note (or pitch) whenever there is a relative motion between source and listener is known as ....

Answer :   Option Id
(A) Piezo electric Effect   16001
(B) Compton Effect   16002

(C) Doppler Effect 16003
(D) Seebeck Effect 16004

Right Answer : **Right Option Id : 16003**
Doppler Effect

Question 41 **Question Id : 15**

If vector field $B = x^2 \hat{\imath} - xy\hat{\jmath} - kxz\hat{k}$ represents a magnetic field then what is the value of k?

Answer : Option Id

(A) 0 15001
(B) 1 15002
(C) 2 15003
(D) 3 15004

Right Answer : **Right Option Id : 15002**
1

Question 42 **Question Id : 14**

Capacitance (in F) of a spherical conductor of radius 1m is

Answer : Option Id

(A) 1.1×10^{-10} 14001
(B) 9×10^{-9} 14002
(C) 9×10^{-6} 14003
(D) 9×10^{-3} 14004

Right Answer : **Right Option Id : 14001**
1.1×10^{-10}

Question 43 **Question Id : 13**

Three point charges +q, +2q and Q are placed at the three vertices of an equilateral triangle. What is the value of Q if the potential energy of the system is zero?

Answer : Option Id

(A) $\dfrac{2q}{3}$ 13001

(B) $\dfrac{-2q}{3}$ 13002

(C) $\dfrac{4q}{3}$ 13003

(D) $\dfrac{-2q}{3}$ 13004

Right Answer : **Right Option Id : 13002**

$\dfrac{-2q}{3}$

Question 44 **Question Id : 12**

Conservative nature of electric field means

Answer : Option Id

(A) Curl is zero 12001
(B) Divergence is zero 12002
(C) Gradient is zero 12003
(D) None of them 12004

Right Answer : **Right Option Id : 12001**
Curl is zero

Question 45

The correct relation between electric displacement D, electric field E and polarization P is

Answer :

(A) E= ε0D+P

(B) P=ε0E+P

(C) D= ε0E+P

(D) P=E+D

Question Id : 11

Option Id

○ 11001

○ 11002

○ 11003

○ 11004

Right Answer :

D= ε0E+P

Right Option Id : 11003

Question 46

The tangential component of electric field for a perfect conductor will be

Answer :

(A) Infinite

(B) zero

(C) same as normal component

(D) none of them

Question Id : 10

Option Id

○ 10001

○ 10002

○ 10003

○ 10004

Right Answer :

zero

Right Option Id : 10002

Question 47

A strong magnetic field B is applied to a stationary electron, then the electron will

Answer :

(A) move in the direction of B

(B) move in the opposite direction of B

(C) remain stationary

(D) move perpendicular to B

Question Id : 9

Option Id

○ 9001

○ 9002

○ 9003

○ 9004

Right Answer :

remain stationary

Right Option Id : 9003

Question 48

The value of magnetic field at a distance of 2 cm from a very long straight wire carrying a current of 5 A?

Answer :

(A) 5×10^{-5}T

(B) 10×10^{-5} T

(C) 5×10^{-4}T

(D) 15×10^{-6} T

Question Id : 8

Option Id

○ 8001

○ 8002

○ 8003

○ 8004

Right Answer :

5×10^{-5}T

Right Option Id : 8001

Question 49

The law which states that the line integral of the magnetic field around a closed curve is equal to the free current through a surface, is

Answer :

(A) Faradey's law

(B) Gauss' law

(C) Ampere's law

(D) Coulomb's law

Question Id : 7

Option Id

○ 7001

○ 7002

○ 7003

○ 7004

Right Answer :

Ampere's law

Right Option Id : 7003

Question 50

In order to minimize hysteresis loss, the magnetic material should have

Answer :

(A) High resistivity

Question Id : 6

Option Id

○ 6001

(B) Low hysteresis co-efficient   6002

(C) Large B - H loop area   6003

(D) High retentivity   6004

Right Answer :   **Right Option Id : 6002**

Low hysteresis co-efficient

Question 51   **Question Id : 5**

Which of the following is found using Lenz's law?

Answer :   Option Id

(A) Induced emf   5001

(B) Induced current   5002

(C) The direction of induced emf   5003

(D) The direction of alternating current   5004

Right Answer :   **Right Option Id : 5003**

The direction of induced emf

Question 52   **Question Id : 4**

The energy stored in a 70 mH inductor carrying a current of 5 A is

Answer :   Option Id

(A) 0.875 J   4001

(B) 0.556 J   4002

(C) 0.755 J   4003

(D) 0.655 J   4004

Right Answer :   **Right Option Id : 4001**

0.875 J

Question 53   **Question Id : 3**

The magnetic flux varies as per the relation $\varphi = 8 t^2 + 6t + 2$
(where φ is in milliweber and t is in second).
What is the magnitude of induced emf in the loop at t=2 seconds?

Answer :   Option Id

(A) 40 mV   3001

(B) 36 mV   3002

(C) 38 mV   3003

(D) 42 mV   3004

Right Answer :   **Right Option Id : 3003**

38 mV

Question 54   **Question Id : 18**

A magnet is brought towards a coil first (i) speedily (ii) slowly. It can be concluded that the induced emf will be :

Answer :   Option Id

(A) smaller in case (i)   18001

(B) equal in both cases   18002

(C) larger in case (i)   18003

(D) None of them equal in both cases   18004

Right Answer :   **Right Option Id : 18003**

larger in case (i)

Question 55   **Question Id : 2**

If the refractive index of the water is approximately 1.3, then the speed of light in the water is

Answer :   Option Id

(A) 1.3 c   2001

(B) 0.77 c   2002

(C) 1.1 c
(D) 1.5 c

2003
2004

Right Answer :
0.77 c

Right Option Id : 2002

Question 56
The Maxwell's first equation is obtained from
Answer :
(A) Coulomb's law
(B) Gauss Law
(C) Ampere's Law
(D) Faraday's Law

Question Id : 19

Option Id
19001
19002
19003
19004

Right Answer :
Gauss Law

Right Option Id : 19002

Question 57
The directions of the propagation vector k and the Poynting vector S for an electromagnetic wave are
Answer :
(A) parallel to each other
(B) anti-parallel to each-other
(C) normal to each other
(D) any other angle

Question Id : 21

Option Id
21001
21002
21003
21004

Right Answer :
parallel to each other

Right Option Id : 21001

Question 58
The reflection coefficient in the wave propagation when it is transmitted with the Brewster angle is
Answer :
(A) 0
(B) 1
(C) -1
(D) infinite

Question Id : 36

Option Id
36001
36002
36003
36004

Right Answer :
0

Right Option Id : 36001

Question 59
If the critical angle for total internal reflection from a medium to vacuum is 30o , then the speed of light in the medium is
Answer :
(A) 1×10^8 m/s
(B) $2 \times 10^{8/}$ m/s
(C) 1.5×10^8 m/s
(D) 2.5×10^8 m/s

Question Id : 35

Option Id
35001
35002
35003
35004

Right Answer :
1.5×10^8 m/s

Right Option Id : 35003

Question 60
When light passes (with normal incidence) from air (n1=1) into glass (n2=1.5), the reflection coefficient is
Answer :
(A) R=0
(B) R=0.04
(C) R=0.96
(D) R=1

Question Id : 34

Option Id
34001
34002
34003
34004

Right Answer :

Right Option Id : 34002

R=0.04

Question 61

Question Id : 33

The time constant of an inductive coil is 2.5 x 10 $^{-3}$ second. When 80 ohm resistance is added in series the time constant reduces to 0.5 x 10 $^{-3}$ second , the resistance of the coil is ?

Answer :

Option Id

(A) 200 ohm

◯ 33001

(B) 20 ohm

◯ 33002

(C) 50 ohm

◯ 33003

(D) None

◯ 33004

Right Answer :

Right Option Id : 33002

20 ohm

Question 62

Question Id : 32

A coil of inductauce 50H and resistance 30 ohm is connected to a 100 V Battery . How long will its take the currrent to grow one half of its final value?

Answer :

Option Id

(A) 2.15 sec

◯ 32001

(B) 4.50 sec

◯ 32002

(C) 1.15 sec

◯ 32003

(D) 0.15 sec

◯ 32004

Right Answer :

Right Option Id : 32003

1.15 sec

Question 63

Question Id : 31

A battery of 6 V and internal resistance of 0.5 ohm is joined in parallel with another battery of 10 V and internal resistance 10 ohm. The combination send a current through an external resistance of 12 ohm . If I_1 and I_2 be the currents given by two batteries , then the current through each Battery is ? or I_1 = ? and I_2

Answer :

Option Id

(A) I_1=-2.27A , I_2=2.865 A

◯ 31001

(B) I_1= 2.865 A I_2 =2.27A

◯ 31002

(C) I_1=6A , I_2=10 A

◯ 31003

(D) None of these.

◯ 31004

Right Answer :

Right Option Id : 31001

I_1=-2.27A , I_2=2.865 A

Question 64

Question Id : 30

What resistance Must be connected in series with ar inductor of 5 millihenry so that the circuit has a time constant of 2x10^{-3} sec ?

Answer :

Option Id

(A) 2.5 ohm

◯ 30001

(B) 4 ohm

◯ 30002

(C) 7.5 ohm

◯ 30003

(D) None

◯ 30004

Right Answer :

Right Option Id : 30001

2.5 ohm

Question 65

Question Id : 29

A resistor of 12 ohm, a capacitor of reactance 14 ohm and pure inductor of inductance 0.1 H are joined in series and placed across 200 V , 50 HZ Ac supply then what will be the current in the circuit and tan Ø, where Ø is the phase angle between current and voltage. choose the correct option (takeл=3)

Answer :

Option Id

(A) I=10 A and tanØ = 3/4   ○ 29001

(B) I = 10 A and tan Ø = 9/4   ○ 29002

(C) I = 10 A and tan Ø = 4/3   ○ 29003

(D) None of them.   ○ 29004

Right Answer :   **Right Option Id : 29003**

I = 10 A and tan Ø = 4/3

Question 66   **Question Id : 28**

what will be the instantaneous voltage for AC supply of 220 V and 50 Hertz ?

Answer :   Option Id

(A) 311 sin 1000 π t   ○ 28001

(B) 311 sin 10 π t   ○ 28002

(C) 311 sin 100 π t   ○ 28003

(D) None of these   ○ 28004

Right Answer :   **Right Option Id : 28003**

311 sin 100 π t

Question 67   **Question Id : 27**

choose the correct option.

Answer :   Option Id

(A) capacitor Blocks dc and allow ac.   ○ 27001

(B) capacitor offter& infinite resistance to dc.   ○ 27002

(C) Both (a) and (b) are corect.   ○ 27003

(D) All are incorrect   ○ 27004

Right Answer :   **Right Option Id : 27003**

Both (a) and (b) are corect.

Question 68   **Question Id : 26**

what is the dimensional formula of √LC ?

Answer :   Option Id

(A) $[M^0 L^0 T^1]$ ○ 26001

(B) $[M^0 L^0 T^{-1}]$ ○ 26002

(C) $[M^0 L^2 T^1]$ ○ 26003

(D) None of them   ○ 26004

Right Answer :   **Right Option Id : 26001**

$[M^0 L^0 T^1]$

Question 69   **Question Id : 25**

An alternating current of 1.5 mA and angular frequency
w = 300 Radian / sec flows through 1.0 ki10 ohm resistor
and a 0.5 μF capacitor in series .
 What is the RMS voltage across the capacitor?

Answer :   Option Id

(A) 10 V   ○ 25001

(B) 144 V   ○ 25002

(C) 1.0 V   ○ 25003

(D) None   ○ 25004

Right Answer :   **Right Option Id : 25002**

144 V

Question 70   Question Id : 24

A capacitor of 1 μF is charged with 0.01C of electricity .
How much energy is stored in it ?

Answer :   Option Id
(A) 500 J   24001
(B) 550 J   24002
(C) 50 J   24003
(D) 5.0 J   24004

Right Answer :   **Right Option Id : 24003**
50 J

Question 71   Question Id : 23

The Fraunhofer diffraction pattern on a screen through a circular aperture is of the form of

Answer :   Option Id
(A) Sine function   23001
(B) Delta function   23002
(C) Gaussian function   23003
(D) Airy pattern   23004

Right Answer :   **Right Option Id : 23004**
Airy pattern

Question 72   Question Id : 22

The ratio of intensities of two waves of same frequency is 16:25. The ratio of their amplitude will be

Answer :   Option Id
(A) 16:25   22001
(B) 4:5   22002
(C) 3:5   22003
(D) 5:4   22004

Right Answer :   **Right Option Id : 22002**
4:5

Question 73   Question Id : 74

Interference and diffraction of light supports in

Answer :   Option Id
(A) Wave nature   74001
(B) quantum nature   74002
(C) transverse nature   74003
(D) electromagnetic nature   74004

Right Answer :   **Right Option Id : 74001**
Wave nature

Question 74   Question Id : 20

In a Fabry-Perot interferometer the circular fringes formed are referred to as fringes of

Answer :   Option Id
(A) equal thickness   20001
(B) equal inclination   20002
(C) equal chromatic order   20003
(D) none of these   20004

Right Answer :   **Right Option Id : 20002**
equal inclination

Question 75

The brilliant colors in thin films of soap are due to

Answer :

(A) dispersion

(B) diffraction

(C) scattering

(D) interference

Question Id : 75

Option Id

75001

75002

75003

75004

Right Answer :

interference

Right Option Id : 75004

Question 76

In total internal reflection, when the angle of incidence is equal to the critical angle for the pair of media in contact, what will be angle of refraction ?

Answer :

(A) 180°

(B) 0°

(C) 90°

(D) equal to angle of incidence

Question Id : 78

Option Id

78001

78002

78003

78004

Right Answer :

90°

Right Option Id : 78003

Question 77

Huygens' wave theory of light cannot explain

Answer :

(A) Diffraction phenomena

(B) Interference phenomena

(C) Photoelectric effect

(D) Polarization of light

Question Id : 92

Option Id

92001

92002

92003

92004

Right Answer :

 Photoelectric effect

Right Option Id : 92003

Question 78

When Two waves of same amplitude add constructively, the intensity becomes

Answer :

(A) Double

(B) Half

(C) Four Times

(D) One-Fourth

Question Id : 93

Option Id

93001

93002

93003

93004

Right Answer :

Four Times

Right Option Id : 93003

Question 79

The laws of reflection hold good for

Answer :

(A) plane mirror only

(B) concave mirror only

(C) convex mirror only

(D) all mirrors irrespective of their shape

Question Id : 94

Option Id

94001

94002

94003

94004

Right Answer :

all mirrors irrespective of their shape

Right Option Id : 94004

Question 80

If white light is used in Young's double slit experiment, then the central fringe will be

Answer :

Question Id : 97

Option Id

(A) Red   97001
(B) Coloured   97002
(C) White   97003
(D) Blue   97004

Right Answer :   **Right Option Id : 97003**
White

Question 81   Question Id : 96

The binding energy per nucleon is maximum for the nucleus

Answer :   Option Id

(A) Fe^{56} 96001
(B) He^{4} 96002
(C) Pb^{208} 96003
(D) Mo^{101} 96004

Right Answer :   **Right Option Id : 96001**
Fe^{56}

Question 82   Question Id : 91

The electron in a hydrogen atom with a radius equal to first Bohr radius has a velocity equal to

Answer :   Option Id

(A) $\dfrac{c}{5}$ 91001

(B) $\dfrac{c}{10}$ 91002

(C) $\dfrac{c}{137}$ 91003

(D) $\dfrac{c}{125}$ 91004

Right Answer :   **Right Option Id : 91003**
$\dfrac{c}{137}$

Question 83   Question Id : 98

Bohr radius for Hydrogen is 0.53 Å.
The ground state Bohr radius for He⁺ ion will be

Answer :   Option Id

(A) 1.06Å   98001
(B) 0.53Å   98002
(C) 0.265Å   98003
(D) 0.134Å   98004

Right Answer :   **Right Option Id : 98003**
0.265Å

Question 84   Question Id : 99

The half-life of radium is 1600 years. After how much time will 1 gm radium reduce to 125 mg ?

Answer :   Option Id

(A) 1800 years   99001
(B) 1600 years   99002
(C) 3200 years   99003
(D) 4800 years   99004

Right Answer :
4800 years

Right Option Id : 99004

Question 85

Question Id : 100

The gyromagnetic ratio for the electron spin is γ times the corresponding ratio for the electron orbital momentum, where γ is

Answer :

	Option Id
(A) 1/2	○ 100001
(B) 1/3	○ 100002
(C) 2	○ 100003
(D) 3	○ 100004

Right Answer :
2

Right Option Id : 100003

Question 86

Question Id : 95

Uhlenbeck and Goudsmit introduced the concept of

Answer :

	Option Id
(A) Electron spin	○ 95001
(B) Electron charge	○ 95002
(C) Proton spin	○ 95003
(D) Neutron spin	○ 95004

Right Answer :
Electron spin

Right Option Id : 95001

Question 87

Question Id : 90

The energy of a particle in an infinite potential box is

Answer :

	Option Id
(A) proportional to length of box	○ 90001
(B) inversely proportional to Square of length of box	○ 90002
(C) inversely proportional to length of box	○ 90003
(D) none of these	○ 90004

Right Answer :
inversely proportional to Square of length of box

Right Option Id : 90002

Question 88

Question Id : 77

The concept of matter wave was suggested by_____

Answer :

	Option Id
(A) Heisenberg	○ 77001
(B) de Broglie	○ 77002
(C) Schrodinger	○ 77003
(D) Laplace	○ 77004

Right Answer :
de Broglie

Right Option Id : 77002

Question 89

Question Id : 88

de - Broglie wavelength of an electron which has been accelerated from rest through a potential difference of 100 V is

Answer :

	Option Id
(A) 12.27Å	○ 88001
(B) 1.227Å	○ 88002
(C) 15Å	○ 88003
(D) 1.5Å	○ 88004

Right Answer :

Right Option Id : 88002

1.227Å

Question 90

Question Id : 87

Which of the following can act as both a particle and as a wave?

Answer :

Option Id

(A) photon

87001

(B) electro

87002

(C)   neutron

87003

(D) all of these

87004

Right Answer :

Right Option Id : 87004

all of these

Question 91

Question Id : 89

An n-type semiconductor is -----

Answer :

Option Id

(A) Negatively Charged

89001

(B) Positively charged

89002

(C) Neutral

89003

(D) None of these

89004

Right Answer :

Right Option Id : 89003

Neutral

Question 92

Question Id : 86

The band gap of Si at 300 K is--------

Answer :

Option Id

(A) 0.53 eV

86001

(B) 0.80 eV

86002

(C) 1.12 eV

86003

(D) 1.46 eV

86004

Right Answer :

Right Option Id : 86003

1.12 eV

Question 93

Question Id : 85

The α (Current gain in common base configuration) and β (Current gain in common emitter configuration) of a transistor is related as -----

Answer :

Option Id

(A) $\beta = \frac{\alpha}{1-\alpha}$

85001

(B) $\beta = \frac{\alpha}{1+\alpha}$

85002

(C) $\beta = \frac{1+\alpha}{\alpha}$

85003

(D) $\beta = 1 - \alpha$

85004

Right Answer :

Right Option Id : 85001

$\beta = \frac{\alpha}{1-\alpha}$

Question 94

Question Id : 84

If α current gain of a transistor is 0.98.
What is the value of β current gain of the transistor.....

Answer :

Option Id

(A) 0.49   84001

(B) 4.9   84002

(C) 5   84003

(D) 49   84004

Right Answer :
49

Right Option Id : 84004

Question 95   **Question Id : 76**

Which type of feedback is used in case of an oscillator circuit?

Answer :

Option Id

(A) Positive   76001

(B) Negative   76002

(C) Unity   76003

(D) None of these   76004

Right Answer :
Positive

Right Option Id : 76001

Question 96   **Question Id : 83**

Which of the following has the greatest mobility?

Answer :

Option Id

(A) Hole   83001

(B) Electron   83002

(C) Positive ion   83003

(D) Negative ion   83004

Right Answer :
Electron

Right Option Id : 83002

Question 97   **Question Id : 82**

The truth table for two input logic gate is given below

A	B	Output
0	0	1
0	1	1
1	0	1
1	1	0

Then the logic gate is –

Answer :

Option Id

(A) NAND   82001

(B) AND   82002

(C) OR   82003

(D) NOR   82004

Right Answer :
NAND

Right Option Id : 82001

Question 98   **Question Id : 81**

De Morgan's theorem states that –

Answer :

Option Id

(A) $\overline{A+B} = \bar{A}.\bar{B}$ 81001

(B) $A+B = \bar{A}.\bar{B}$ 81002

(C) $\overline{A + B} = A \cdot \bar{B}$

(D) $A + B = \bar{A} \cdot B$

○ 81003
○ 81004

Right Answer :

$\overline{A + B} = \bar{A} \cdot \bar{B}$

Right Option Id : 81001

Question 99

Troposphere is medium for -

Answer :

(A) Surface Wave

(B) Guided Wave

(C) Sky Wave

(D) Space Wave

Question Id : 80

Option Id

○ 80001
○ 80002
○ 80003
○ 80004

Right Answer :

Space Wave

Right Option Id : 80004

Question 100

Through which mode of propagation, the radio waves can be sent from one place to another-

Answer :

(A) Ground wave propagation

(B) Sky wave propagation

(C) Space Wave propagation

(D) All of the above

Question Id : 79

Option Id

○ 79001
○ 79002
○ 79003
○ 79004

Right Answer :

All of the above

Right Option Id : 79004

Art Of Teaching

Question 101

If a child fails to answere in class the teacher will

Answer :

(A) advice to study well

(B) punish

(C) scold

(D) understand the reason of his failure

Question Id : 120

Option Id

○ 120001
○ 120002
○ 120003
○ 120004

Right Answer :

understand the reason of his failure

Right Option Id : 120004

Question 102

To ensure participation of students we use

Answer :

(A) demonstration

(B) little man's lecture

(C) discussion

(D) illustration

Question Id : 121

Option Id

○ 121001
○ 121002
○ 121003
○ 121004

Right Answer :

discussion

Right Option Id : 121003

Question 103

One of them is not a principle of coorperative learning

Answer :

(A) positive dictation

(B) face to face interation

(C) group accountalility

Question Id : 125

Option Id

○ 125001
○ 125002
○ 125003

(D) individual accountalility

○ 125004

Right Answer :
positive dictation

Right Option Id : 125001

Question 104
The use of verb for writing specific objections makes it
Answer :

Question Id : 123

Option Id

(A) measurable
(B) action oriented
(C) specific
(D) all the above

○ 123001
○ 123002
○ 123003
○ 123004

Right Answer :
all the above

Right Option Id : 123004

Question 105
The process for establishing sequence for a task is
Answer :

Question Id : 124

Option Id

(A) objective
(B) procedure
(C) strategy
(D) none of the above

○ 124001
○ 124002
○ 124003
○ 124004

Right Answer :
objective

Right Option Id : 124001

Question 106
Excursion method develops
Answer :

Question Id : 119

Option Id

(A) Cooperative attitude
(B) creative faculty
(C) direct knowledge
(D) all the above

○ 119001
○ 119002
○ 119003
○ 119004

Right Answer :
all the above

Right Option Id : 119004

Question 107
All children have the potential to learn opened
Answer :

Question Id : 117

Option Id

(A) John Deway
(B) friedrich Herbart
(C) froebel
(D) Montessori

○ 117001
○ 117002
○ 117003
○ 117004

Right Answer :
froebel

Right Option Id : 117003

Question 108
One of them is not the focal point of tripolar process of teaching
Answer :

Question Id : 126

Option Id

(A) teaching methods
(B) teacher
(C) pupil
(D) content

○ 126001
○ 126002
○ 126003
○ 126004

Right Answer :
teaching methods

Right Option Id : 126001

Question 109

A plan prepared by a teacher to teach a lesson is called

Answer :

(A) unit plan

(B) lesson plan

(C) course plan

(D) master plan

Right Answer :

lesson plan

Question Id : 127

Option Id

127001

127002

127003

127004

Right Option Id : 127002

Question 110

Selly activity and play was the most important contribution of

Answer :

(A) Pestalozzi

(B) froebel

(C) Montessori

(D) Dewey

Right Answer :

froebel

Question Id : 128

Option Id

128001

128002

128003

128004

Right Option Id : 128002

Question 111

In early childhood, growth .... And thinking is ...., while in middle childhood, growth .... And thinking is ....

Answer :

(A) slows, logical; is steady, egocentric

(B) slows, somewhat egocentric; is steady, logical

(C) is steady, somewhat egocentric; slows, logical

(D) is steady, logical; slows, egocentric

Right Answer :

is steady, somewhat egocentric; slows, logical

Question Id : 129

Option Id

129001

129002

129003

129004

Right Option Id : 129003

Question 112

One of the main characteristics of pre-operational thought according to jean piaget is .... which refers to the tendency to focus on one aspect of a situation and neglect others.

Answer :

(A) transduction

(B) causation

(C) centration

(D) decentration

Right Answer :

centration

Question Id : 108

Option Id

108001

108002

108003

108004

Right Option Id : 108003

Question 113

What is the main goal of 'assessment for learning'?

Answer :

(A) to compare student performance to a standard or benchmark

(B) to identify students who can be categorised as 'slow learners'

(C) to evaluate student performance and assign grades

(D) to provide feedback to students that can be used to improve their learning

Right Answer :

to provide feedback to students that can be used to improve their learning

Question Id : 130

Option Id

130001

130002

130003

130004

Right Option Id : 130004

Question 114

Diagnostic evaluation ascertains

Question Id : 122

Answer :

Option Id

(A) Learning progress and failures during instructions.

122001

(B) Degree of achievements of instructions at the end.

122002

(C) Students performance at the beginning of instructions.

122003

(D) Causes and remedies of persistent learning problems during instructions.

122004

Right Answer :

Causes and remedies of persistent learning problems during instructions.

Right Option Id : 122004

Question 115

Which of the following statements about teaching aids are correct

Question Id : 118

Answer :

Option Id

(A) They help students learn better

118001

(B) They make teaching learning process interesting

118002

(C) They help in retaining concepts for longer duration

118003

(D) All of the above

118004

Right Answer :

All of the above

Right Option Id : 118004

Question 116

A library is a place where

Question Id : 115

Answer :

Option Id

(A) Many books are kept

115001

(B) Many toys are kept

115002

(C) many clothes are kept

115003

(D) None of the above

115004

Right Answer :

Many books are kept

Right Option Id : 115001

Question 117

Which one of the following is a type of book?

Question Id : 116

Answer :

Option Id

(A) General text book

116001

(B) Reference book

116002

(C) Both A and B

116003

(D) None of these

116004

Right Answer :

Both A and B

Right Option Id : 116003

Question 118

Which of the following is not a quality of teachers-

Question Id : 101

Answer :

Option Id

(A) Empathy

101001

(B) Communication

101002

(C) Creativity

101003

(D) Jealous

101004

Right Answer :

Jealous

Right Option Id : 101004

Question 119

Which of the following personal qualities of a teacher affect teaching?

Question Id : 102

Answer :

Option Id

(A) Sensitivity

102001

(B) Management capacity   102002
(C) Social skills   102003
(D) None of these   102004

Right Answer :   **Right Option Id : 102001**
Sensitivity

Question 120   **Question Id : 104**
Teacher's role at higher education
Answer :   Option Id
(A) Promote self learning in students   104001
(B) Provide information to students   104002
(C) help students to solve their problem   104003
(D) None of these   104004

Right Answer :   **Right Option Id : 104001**
Promote self learning in students

Question 121   **Question Id : 105**
Evaluation process is related to-
Answer :   Option Id
(A) Whole learning process   105001
(B) Examinatino   105002
(C) Test   105003
(D) Measurement   105004

Right Answer :   **Right Option Id : 105001**
Whole learning process

Question 122   **Question Id : 106**
Which of the following is not a tool of evaluation?
Answer :   Option Id
(A) Rating scale   106001
(B) Project report   106002
(C) Check list   106003
(D) Cumulative record   106004

Right Answer :   **Right Option Id : 106002**
Project report

Question 123   **Question Id : 107**
A portfolio is a tool for-
Answer :   Option Id
(A) Collection of student's works over a period of time   107001
(B) Collection of student's marks over a period of time   107002
(C) Collection of student's grade over a period of time   107003
(D) All of the above   107004

Right Answer :   **Right Option Id : 107001**
Collection of student's works over a period of time

Question 124   **Question Id : 103**
The Purpose of Sports is
Answer :   Option Id
(A) Physical development   103001
(B) Moral Development   103002
(C) Both of the above   103003
(D) None of the above   103004

Right Answer :   **Right Option Id : 103003**
Both of the above

Question 125   **Question Id : 109**
Psychological foundation plays its role in the devlopment of curriculum keeping in view-
Answer :
                                                        Option Id
(A) Student's emotion   109001
(B) Student's nature   109002
(C) Student's happiness   109003
(D) student's needs   109004

Right Answer :   **Right Option Id : 109004**
student's needs

Question 126   **Question Id : 110**
The Characteristic of the Indian society
Answer :
                                                        Option Id
(A) conservative   110001
(B) unscientific   110002
(C) open   110003
(D) stratified   110004

Right Answer :   **Right Option Id : 110004**
stratified

Question 127   **Question Id : 111**
which of the following is not the cause of getting ?
Answer :
                                                        Option Id
(A) Mental conflict   111001
(B) Desire to remember   111002
(C) Defective methods of remembering   111003
(D) All the above   111004

Right Answer :   **Right Option Id : 111002**
Desire to remember

Question 128   **Question Id : 112**
Which of the these factors does not affect the learning process -
Answer :
                                                        Option Id
(A) Intelligence   112001
(B) Interest   112002
(C) Readiness   112003
(D) Goal setting   112004

Right Answer :   **Right Option Id : 112004**
Goal setting

Question 129   **Question Id : 113**
Audio-visual aid facilitate-
Answer :
                                                        Option Id
(A) Multi-sensory   113001
(B) Only visual   113002
(C) Only Audio   113003
(D) None of the above   113004

Right Answer :   **Right Option Id : 113001**
Multi-sensory

Question 130

Dienes block is used in-

Answer :

Option Id

(A) Addition ⚪ 114001

(B) Substraction ⚪ 114002

(C) Both of the above ⚪ 114003

(D) None of the above ⚪ 114004

Right Answer :   **Right Option Id : 114003**

Both of the above

Other Skills

Question 131   **Question Id : 149**

Lala Lajpat Rai was also known as :

Answer :

Option Id

(A) Sher-e-Bengal ⚪ 149001

(B) Sher-e-Maharastra ⚪ 149002

(C) Sher-e-Kashmir ⚪ 149003

(D) Sher-e-Punjab ⚪ 149004

Right Answer :   **Right Option Id : 149004**

Sher-e-Punjab

Question 132   **Question Id : 148**

Which of the following Monsoons account for most of the rainfall in India?

Answer :

Option Id

(A) North East Monsoon ⚪ 148001

(B) South West Monsoon ⚪ 148002

(C) South East Monsoon ⚪ 148003

(D) East Asia Monsoon ⚪ 148004

Right Answer :   **Right Option Id : 148002**

South West Monsoon

Question 133   **Question Id : 147**

Which country has the largest number of internet users in the world?

Answer :

Option Id

(A) China ⚪ 147001

(B) USA ⚪ 147002

(C) India ⚪ 147003

(D) Brazil ⚪ 147004

Right Answer :   **Right Option Id : 147001**

China

Question 134   **Question Id : 146**

Under whose leadership in Bihar, All Party boycotted the Simon Commission?

Answer :

Option Id

(A) Anugrah Narayan Sinha ⚪ 146001

(B) Ramvriksh Benipuri ⚪ 146002

(C) Phanishwar Nath Renu ⚪ 146003

(D) Rajendra Prasad ⚪ 146004

Right Answer :   **Right Option Id : 146001**

Anugrah Narayan Sinha

Question 135   **Question Id : 145**

As per the recent notification of CERT-In, what is the time limit to report the cyber incidents after its detection?

Answer :

Option Id

(A) 2 days 145001
(B) 1 day 145002
(C) 12 hours 145003
(D) 6 hours 145004

Right Answer :
6 hours

Right Option Id : 145004

Question 136

Question Id : 144

Bronze is an alloy made by melting the following:

Answer :

Option Id

(A) Zinc and tin 144001
(B) Tin and copper 144002
(C) Copper and zinc 144003
(D) Aluminium and zinc 144004

Right Answer :
Tin and copper

Right Option Id : 144002

Question 137

Question Id : 143

Select the correct statements about elephants from the following:
A. A three-month-old baby elephant generally weighs about 100 kg.
B. An adult elephant can eat more than 200 kg of leaves and twigs in one day.
C. Elephants do not rest very much; they sleep for only two to four hours in a day.
D. Elephants like to play with mud and water.

Answer :

Option Id

(A) C and D 143001
(B) B and D 143002
(C) A and B 143003
(D) A and C 143004

Right Answer :
C and D

Right Option Id : 143001

Question 138

Question Id : 142

Select from the following the best period of the year for the people of Bihar to start a bee-keeping programme:

Answer :

Option Id

(A) August to October 142001
(B) October to December 142002
(C) February to April 142003
(D) April to June 142004

Right Answer :
October to December

Right Option Id : 142002

Question 139

Question Id : 141

Read the following statements and choose the correct option:
Assertion (A) On applying pressure, gas can be compressed easily.
Reason (R) When we apply pressure to a gas, the intermolecular space between gaseous particles decreases and it gets compressed.

Answer :

Option Id

(A) (A) is true, but, (R) is false. 141001
(B) (A) is false, but (R) is ture. 141002
(C) Both (A) and (R) are true and (R) is the correct explanation of (A) 141003
(D) Both (A) and (R) are true, but (R) is not the correct explanation of (A) 141004

Right Answer :
Both (A) and (R) are true and (R) is the correct explanation of (A)

Right Option Id : 141003

Question 140   **Question Id : 131**

Consider the following Statements A and B:

Statement A In Manali, houses are constructed with wood, slanting roofs and elevated on strong bamboo pollars.

Statement B Manali receives a lot of rain and snowfall.

Choose the correct Option :

Answer :   Option Id

(A) A is correct, but B is incorrect   ○   131001

(B) A is incorrect, but B is correct   ○   131002

(C) Both A and B are corect   ○   131003

(D) Both A and B are incorrect   ○   131004

Right Answer :   **Right Option Id : 131002**

A is incorrect, but B is correct

Question 141   **Question Id : 139**

To develop appreciation for mathematics among children, a teacher performs the following activities in the class. Choose the one which is not effective to achieve her objective.

Answer :   Option Id

(A) She establishes a mathematics corner in her class where students can perform various mathematical activities.   ○   139001

(B) She always praises the student who achieves highest marks in the class in the term-end examination.   ○   139002

(C) She shows to children the videos on Indian mathematicians and their contributions.   ○   139003

(D) She gives mathematical puzzles and magic squares to be solved in the class.   ○   139004

Right Answer :   **Right Option Id : 139002**

She always praises the student who achieves highest marks in the class in the term-end examination.

Question 142   **Question Id : 138**

Which of the following statements about nature of mathematics are most appropriate?

A. It helps the child to be creative.

B. It helps in nurturing the child's imagination.

C. It is based on deductive reasoning.

D. It is always convergent.

Choose the correct option:

Answer :   Option Id

(A) A and B   ○   138001

(B) A, B and C   ○   138002

(C) B and C   ○   138003

(D) A and C   ○   138004

Right Answer :   **Right Option Id : 138002**

A, B and C

Question 143   **Question Id : 137**

Who among the following has worked in the field of mathematical astronomy?

Answer :   Option Id

(A) Mahavira   ○   137001

(B) Aryabhata   ○   137002

(C) Bhaskara   ○   137003

(D) Ramanujan   ○   137004

Right Answer :   **Right Option Id : 137002**

Aryabhata

Question 144   **Question Id : 136**

A vegetable seller was selling spinach for ₹ 60 per kg. Sonu purchased 350 g of spinach for which the vegetable seller took ₹ 21 (₹ 6 + ₹ 6 + ₹ 6 + ₹ 3) from Sonu. Which of the following statements is/are true regarding the mathematical skills used by the vegetable seller?

Choose the correct option :

A. This mathematical skill is vague.

B. This skill is not beneficial for solving mathematical problems in class.

C. Such skills are helpful in developing alternative methods of solving mathematical problems.

Answer :   Option Id

(A) Only C   ○   136001

(B) A and B   136002
(C) Only A   136003
(D) Only B   136004

Right Answer :   **Right Option Id : 136001**
Only C

Question 145   **Question Id : 135**
Which of the following statements is not correct?
Answer :   Option Id
(A) Errors of the students should be overlooked as pointing errors will demotivate them.   135001
(B) Errors of the students give information about their thought process.   135002
(C) Errors in mathematics are part of learning.   135003
(D) Errors in mathematics help teachers in planning their lessons.   135004

Right Answer :   **Right Option Id : 135001**
Errors of the students should be overlooked as pointing errors will
demotivate them.

Question 146   **Question Id : 134**
Monday : April : : Friday : ?
Answer :   Option Id
(A) July   134001
(B) Saturday   134002
(C) August   134003
(D) Tuesday   134004

Right Answer :   **Right Option Id : 134003**
August

Question 147   **Question Id : 133**
Choose the word which is least like the other words in the group.
Answer :   Option Id
(A) Kidney   133001
(B) Heart   133002
(C) Lung   133003
(D) Ear   133004

Right Answer :   **Right Option Id : 133002**
Heart

Question 148   **Question Id : 132**
60,30,120,15,240?
Answer :   Option Id
(A) 30   132001
(B) 120   132002
(C) 140   132003
(D) 71/2   132004

Right Answer :   **Right Option Id : 132004**
71/2

Question 149   **Question Id : 140**
In a certain code, if BAD is written as YZW and SAID is written as HZRW, then LIFE will be written as:
Answer :   Option Id
(A) ORUV   140001
(B) OSUV   140002
(C) OQVU   140003
(D) ORVW   140004

Right Answer :   **Right Option Id : 140001**
ORUV

Question 150   **Question Id : 150**
Pointing towards Sita, Nikhil said, "I am the only son of her mother's son". How is Sita related to Nikhil?
Answer :   Option Id
(A) Aunt   ◯   150001
(B) Niece   ◯   150002
(C) Mother   ◯   150003
(D) Cousin   ◯   150004

Right Answer :   **Right Option Id : 150001**
Aunt