National Testing Agency

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B TECH EU

Group Number :	1
Group Id :	86435136
Group Maximum Duration :	0
Group Minimum Duration :	180
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	300
Is this Group for Examiner? :	No

Physics Section A

Section Id :	864351211
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	20
Number of Questions to be attempted :	20
Section Marks :	80
Mark As Answered Required? :	Yes
Sub-Section Number :	1
Sub-Section Id :	864351211
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 8643513151 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A car accelerates from rest at a constant rate α for some time after which it decelerates at a constant rate β to come to rest. If the total time elapsed is t seconds, the total distance travelled is :

Options :

8643519451. $\frac{2\alpha\beta}{(\alpha+\beta)}t^2$

8643519452. $\frac{\alpha\beta}{2(\alpha+\beta)}t^2$

8643519453. $\frac{4\alpha\beta}{(\alpha+\beta)}t^2$

8643519454. $\frac{\alpha\beta}{4(\alpha+\beta)}t^2$

Question Number : 1 Question Id : 8643513151 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

ایک کار α کے ایک مستقل شرح α سے کچھ وقت کے لئے اسراع پذیر ہوتی ہے۔اور پھر شرح β سے حالت سکون میں آتی ہے۔اگر لگنے والے کل وقت t سیکنڈ ہو تو طے کیا گیا کل فاصلہ ہوگا :

Options :

8643519451. $\frac{2\alpha\beta}{(\alpha+\beta)}t^2$

8643519452. $\frac{\alpha\beta}{2(\alpha+\beta)}t^2$

8643519453. $\frac{4\alpha\beta}{(\alpha+\beta)}t^2$

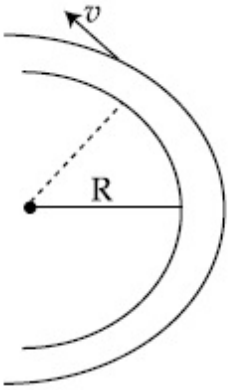
8643519454. $\frac{\alpha\beta}{4(\alpha+\beta)}t^2$

Question Number : 2 Question Id : 8643513152 Question Type : MCQ Option Shuffling : Yes Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A modern grand - prix racing car of mass m is travelling on a flat track in a circular arc of radius R with a speed v. If the coefficient of static friction between the tyres and the track is μ_s, then the magnitude of negative lift F_L acting downwards on the car is : (Assume forces on the four tyres are identical and g = acceleration due to gravity)



Options :

8643519455. $m\left(\frac{v^2}{\mu_s R} + g\right)$

8643519456. $m\left(g - \frac{v^2}{\mu_s R}\right)$

8643519457. $m\left(\frac{v^2}{\mu_s R} - g\right)$

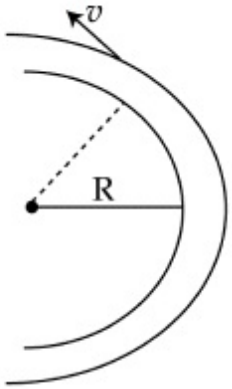
8643519458. $-m\left(g + \frac{v^2}{\mu_s R}\right)$

Question Number : 2 Question Id : 8643513152 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

ایک نئے زمانے کی گرانڈ پرکس کار جس کی کمیت m ہے ایک سپاٹ سطح پر ایک دائروی قوس میں جس کی نصف قطر R ہے v چال سے سفر کر رہی ہے۔ اگر کار کے ٹایر اور سڑک کے بیچ کا سکونی رگڑ کا ضریب μ_s ہے تب منفی قوت F_L جو کہ کار پر نیچے کی طرف لگ رہی ہے، ہوگی :

(فرض کریں کہ چاروں ٹائروں پر قوت یکساں ہے اور ثقل کی وجہ سے اسراع g ہے۔)



Options :

8643519455. $m\left(\frac{v^2}{\mu_s R} + g\right)$

8643519456. $m\left(g - \frac{v^2}{\mu_s R}\right)$

8643519457. $m\left(\frac{v^2}{\mu_s R} - g\right)$

8643519458. $-m\left(g + \frac{v^2}{\mu_s R}\right)$

Question Number : 3 Question Id : 8643513153 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A Carnot's engine working between 400 K and 800 K has a work output of 1200 J per cycle. The amount of heat energy supplied to the engine from the source in each cycle is :

Options :

8643519459. 2400 J

8643519460. $1600\ J$

8643519461. $3200\ J$

8643519462. $1800\ J$

Question Number : 3 Question Id : 8643513153 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

ایک کارناٹ انجن 400 K اور 800 K کے بیچ کام کرتا ہے اور کام کا آؤٹ پٹ 1200 J فی چکر ہے۔ ہر چکر میں انجن کو منبع کے ذریعہ دی گئی حرکتی توانائی ہوگی :

Options :

8643519459. $2400\ J$

8643519460. $1600\ J$

8643519461. $3200\ J$

8643519462. $1800\ J$

Question Number : 4 Question Id : 8643513154 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A solenoid of 1000 turns per metre has a core with relative permeability 500. Insulated windings of the solenoid carry an electric current of 5 A. The magnetic flux density produced by the solenoid is : (permeability of free space $=4\pi\times10^{-7}\ H/m$)

Options :

8643519463. $10^{-4}\pi\ T$

8643519464. $2\times10^{-3}\pi\ T$

8643519465. $\frac{\pi}{5}\ T$

8643519466. $\pi\ T$

Question Number : 4 Question Id : 8643513154 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

1000 چکروالے ایک سولی نائڈ کے اندر ایک ایک نرم لوہے کا ٹکڑا رکھا ہے جس کی نسبتی سرایت پذیری 500 ہے۔ سالی نائیڈ پر بندھے چکردار تار میں 5 A کی برقی رو بہہ رہی ہے۔ سولی نائیڈ کے ذریعہ پیدا کردہ مقناطیسی نفاذ کی کثافت ہوگی : (خلا کی سرایت پذیری $4\pi \times 10^{-7}\ \mathrm{H/m}$)

Options :

8643519463. $10^{-4}\pi\ \mathrm{T}$

8643519464. $2 \times 10^{-3}\pi\ \mathrm{T}$

8643519465. $\frac{\pi}{5}\ \mathrm{T}$

8643519466. $\pi\ \mathrm{T}$

Question Number : 5 Question Id : 8643513155 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A current of 10 A exists in a wire of crosssectional area of 5 mm^2 with a drift velocity of $2 \times 10^{-3}\ \mathrm{ms}^{-1}$. The number of free electrons in each cubic meter of the wire is _____.

Options :

8643519467. 2×10^{6}

8643519468. 1×10^{23}

8643519469. 625×10^{25}

8643519470. 2×10^{25}

Question Number : 5 Question Id : 8643513155 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

$5\ mm^2$ عمودی تراش کے رقبہ کے ایک تار میں $10\ A$ کی برقی رو بہتی ہے۔ تار میں بار آور رفتار $2\times10^{-3}\ ms^{-1}$ ہے۔ ہر مکعب میٹر میں آزاد الیکٹرانوں کی تعداد ہوگی _____

Options :

8643519467. 2×10^{6}

8643519468. 1×10^{23}

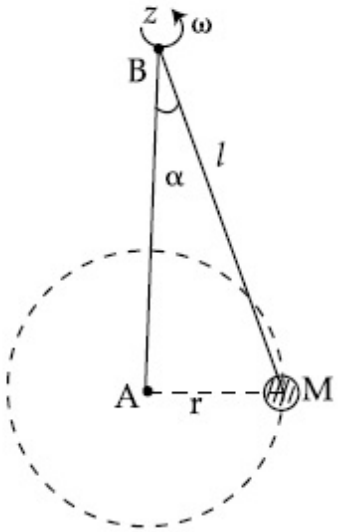
8643519469. 625×10^{25}

8643519470. 2×10^{25}

Question Number : 6 Question Id : 8643513156 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A mass M hangs on a massless rod of length l which rotates at a constant angular frequency. The mass M moves with steady speed in a circular path of constant radius. Assume that the system is in steady circular motion with constant angular velocity ω. The angular momentum of M about point A is L_A which lies in the positive z direction and the angular momentum of M about point B is L_B. The correct statement for this system is :



Options :

8643519471. L_A and L_B are both constant in magnitude and direction

8643519472. L_A is constant, both in magnitude and direction

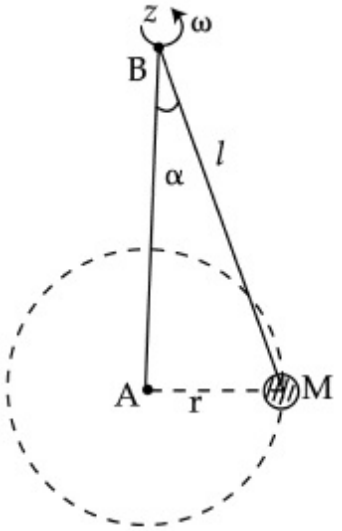
8643519473. L_B is constant, both in magnitude and direction

8643519474. L_B is constant in direction with varying magnitude

Question Number : 6 Question Id : 8643513156 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

l لمبائی کی ایک بے کمیت ڈوری سے ایک کمیت M کو باندھ کر لٹکایا گیا ہے جو مستقل زاویائی تعدد سے گردشی حرکت کرتا ہے۔کمیت M ایک یکساں چال سے ایک مستقل نصف قطر کی دائروی راہ پر حرکت کرتا ہے۔فرض کیجیے کہ نظام ایک یکساں دائروی حرکت کر رہا ہے۔جس کی مستقل زاویائی تعدد ω ہے۔نقطہ A پر زاویائی معیاراثر L_A ہے جو مثبت z سمت میں پڑتا ہے اور نقطہ B پر زاویائی معیاراثر L_B ہے۔اس نظام کے لئے صحیح بیان کیا ہوگا ؟



Options :

8643519471. L_A اور L_B دونوں عددی قدر اور سمت میں مستقل ہیں۔

8643519472. L_A عددی قدر اور سمت دونوں میں مستقل ہیں۔

8643519473. L_B عددی قدر اور سمت دونوں میں مستقل ہیں۔

8643519474. L_B سمت میں مستقل ہے لیکن اس کی عددی قدر تبدیل ہوتی ہے۔

Question Number : 7 Question Id : 8643513157 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

An AC current is given by $I = I_1 \sin\omega t + I_2 \cos\omega t$. A hot wire ammeter will give a reading :

Options :

8643519475. $\frac{I_1 + I_2}{\sqrt{2}}$

8643519476. $\frac{I_1 + I_2}{2\sqrt{2}}$

8643519477. $\sqrt{\frac{I_1^2 + I_2^2}{2}}$

8643519478. $\sqrt{\frac{I_1^2 - I_2^2}{2}}$

Question Number : 7 Question Id : 8643513157 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

ایک AC برقی رو کو $I = I_1 \sin\omega t + I_2 \cos\omega t$ کے ذریعہ ظاہر کیا جاتا ہے۔ تب ایک گرم تار والا ام پیمانہ کیا شمار دے گا ؟

Options :

8643519475. $\frac{I_1 + I_2}{\sqrt{2}}$

8643519476. $\frac{I_1 + I_2}{2\sqrt{2}}$

8643519477. $\sqrt{\frac{I_1^2 + I_2^2}{2}}$

8643519478. $\sqrt{\frac{I_1^2 - I_2^2}{2}}$

Question Number : 8 Question Id : 8643513158 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A polyatomic ideal gas has 24 vibrational modes. What is the value of γ ?

Options :

8643519479. 10.3

8643519480. 1.30

8643519481. 1.03

8643519482. 1.37

Question Number : 8 Question Id : 8643513158 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

ایک کثیر جوہری مثالی گیس میں 24 اہتزازی ہیئت ہیں۔ γ کی قدر کیا ہوگی ؟

Options :

8643519479. 10.3

8643519480. 1.30

8643519481. 1.03

8643519482. 1.37

Question Number : 9 Question Id : 8643513159 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

When two soap bubbles of radii a and b (b > a) coalesce, the radius of curvature of common surface is :

Options :

8643519483. $\frac{ab}{b-a}$

8643519484. $\frac{ab}{a+b}$

8643519485. $\frac{b-a}{ab}$

8643519486. $\frac{a+b}{ab}$

Question Number : 9 Question Id : 8643513159 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

دوصابن کے بلبلے جن کی نصف قطر a اور b (b > a) ہیں، آپس میں مل کر ایک بڑا بلبلہ بناتے ہیں۔ ان دونوں کی مشترک سطح کا کا نصف قطر ہوگا :

Options :

8643519483. $\frac{ab}{b-a}$

8643519484. $\frac{ab}{a+b}$

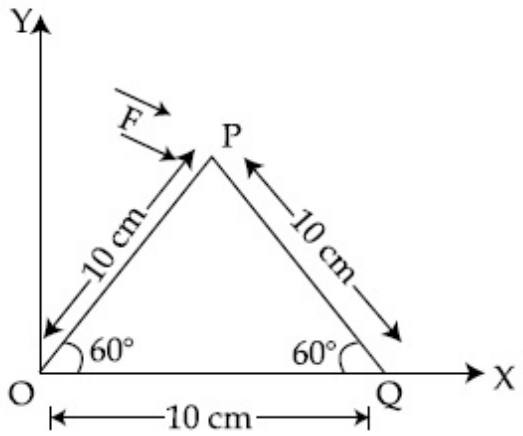
8643519485. $\frac{b-a}{ab}$

8643519486. $\frac{a+b}{ab}$

Question Number : 10 Question Id : 8643513160 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A triangular plate is shown. A force $\vec{F} = 4\hat{i} - 3\hat{j}$ is applied at point P. The torque at point P with respect to point 'O' and 'Q' are :



Options :

8643519487. $-15-20\sqrt{3},\ 15-20\sqrt{3}$

8643519488. $15+20\sqrt{3},\ 15-20\sqrt{3}$

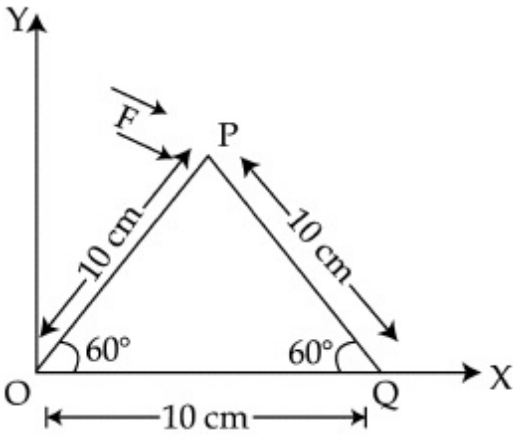
8643519489. $15-20\sqrt{3},\ 15+20\sqrt{3}$

8643519490. $-15+20\sqrt{3},\ 15+20\sqrt{3}$

Question Number : 10 Question Id : 8643513160 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

شکل میں ایک تکونی پلیٹ دکھائی گئی ہے۔نقطہ P پر ایک قوت $\vec{F} = 4\hat{i} - 3\hat{j}$ اثر پذیر ہوتی ہے۔نقاط 'O' اور 'Q' کے تعلق سے نقطہ P پر لگنے والا مروڑ (Torque) ہوگا :



Options :

8643519487. $-15-20\sqrt{3}, 15-20\sqrt{3}$

8643519488. $15+20\sqrt{3}, 15-20\sqrt{3}$

8643519489. $15-20\sqrt{3}, 15+20\sqrt{3}$

8643519490. $-15+20\sqrt{3}, 15+20\sqrt{3}$

Question Number : 11 Question Id : 8643513161 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Two identical metal wires of thermal conductivities K_1 and K_2 respectively are connected in series. The effective thermal conductivity of the combination is :

Options :

8643519491. $\frac{K_1 K_2}{K_1 + K_2}$

8643519492. $\frac{2K_1 K_2}{K_1 + K_2}$

8643519493. $\frac{K_1 + K_2}{2K_1 K_2}$

8643519494. $\frac{K_1 + K_2}{K_1 K_2}$

Question Number : 11 Question Id : 8643513161 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

دو یکساں دھاتی تار جن کی حرارتی ایصالیت بالترتیب K_1 اور K_2 ہیں سلسلہ وار طریقہ سے جوڑے گئے ہیں۔ اس نظام کی اثر انداز حرارتی ایصالیت کیا ہوگی ؟

Options :

8643519491. $\frac{K_1 K_2}{K_1 + K_2}$

8643519492. $\frac{2K_1 K_2}{K_1 + K_2}$

8643519493. $\frac{K_1 + K_2}{2K_1 K_2}$

8643519494. $\frac{K_1 + K_2}{K_1 K_2}$

Question Number : 12 Question Id : 8643513162 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A boy is rolling a 0.5 kg ball on the frictionless floor with the speed of 20 ms^{-1}. The ball gets deflected by an obstacle on the way. After deflection it moves with 5% of its initial kinetic energy. What is the speed of the ball now ?

Options :

8643519495. $1.00\ ms^{-1}$

8643519496. $4.47\ ms^{-1}$

8643519497. $14.41\ ms^{-1}$

8643519498. $19.0\ ms^{-1}$

Question Number : 12 Question Id : 8643513162 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

ایک لڑکا ایک 0.5 kg کی بال کو بے رگڑ سطح پر $20\ ms^{-1}$ کی چال سے لڑھکاتا ہے۔ بال راستہ میں پڑنے والے ایک رکاوٹ سے منتشر ہوتی ہے۔ انتشار کے بعد وہ اپنی ابتدائی حرکیاتی توانائی کے 5% کے ساتھ حرکت کرتی ہے۔ اب بال کی چال کیا ہوگی ؟

Options :

8643519495. $1.00\ ms^{-1}$

8643519496. $4.47\ ms^{-1}$

8643519497. $14.41\ ms^{-1}$

8643519498. $19.0\ ms^{-1}$

Question Number : 13 Question Id : 8643513163 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The thickness at the centre of a plano convex lens is 3 mm and the diameter is 6 cm. If the speed of light in the material of the lens is $2 \times 10^8\ ms^{-1}$. The focal length of the lens is _____.

Options :

8643519499. 30 cm

8643519500. 15 cm

8643519501. 1.5 cm

8643519502. 0.30 cm

Question Number : 13 Question Id : 8643513163 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

ایک مسطح وحدبی عدسے کی مرکز پر موٹائی 3 mm اور قطر 6 cm ہے۔ اگر نور کی چال مادہ میں $2 \times 10^8\ ms^{-1}$ ہے تو عدسے کی طول ماسکہ کیا ہوگی ؟

Options :

8643519499. 30 cm

8643519500. 15 cm

8643519501. 1.5 cm

8643519502. 0.30 cm

Question Number : 14 Question Id : 8643513164 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which level of the single ionized carbon has the same energy as the ground state energy of hydrogen atom ?

Options :

8643519503. 1

8643519504. 4

8643519505. 6

8643519506. 8

Question Number : 14 Question Id : 8643513164 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

ایک یک آئینائی کاربن (single ionized carbon) کی کون سی توانائی سطح ہائیڈروجن جوہر کی زمینی توانائی سطح کے مساوی ہوگی ؟

Options :

8643519503. 1

8643519504. 4

8643519505. 6

8643519506. 8

Question Number : 15 Question Id : 8643513165 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Two ideal polyatomic gases at temperatures T_1 and T_2 are mixed so that there is no loss of energy. If F_1 and F_2, m_1 and m_2, n_1 and n_2 be the degrees of freedom, masses, number of molecules of the first and second gas respectively, the temperature of mixture of these two gases is :

Options :

8643519507. $\frac{n_1F_1T_1 + n_2F_2T_2}{n_1 + n_2}$

8643519508. $\frac{n_1F_1T_1 + n_2F_2T_2}{F_1 + F_2}$

8643519509. $\frac{n_1F_1T_1 + n_2F_2T_2}{n_1F_1 + n_2F_2}$

8643519510. $\frac{n_1T_1 + n_2T_2}{n_1 + n_2}$

Question Number : 15 Question Id : 8643513165 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

دو مثالی کثیر جوہری گیس جو کہ درجہ حرارت T_1 اور T_2 پر ہیں، اس طرح ملائی جاتی ہیں کہ توانائی کا کوئی نقصان نہیں ہوتا۔ اگر F_1 اور F_2، m_1 اور m_2، n_1 اور n_2 بالترتیب دونوں گیسوں کے لئے ڈگری آف فریڈم، کمیتیں اور سالموں کی تعداد میں ان دونوں گیسوں کے آمیزے کے لئے درجۂ حرارت کیا ہوگا ؟

Options :

8643519507. $\frac{n_1F_1T_1 + n_2F_2T_2}{n_1 + n_2}$

8643519508. $\frac{n_1F_1T_1 + n_2F_2T_2}{F_1 + F_2}$

8643519509. $\frac{n_1F_1T_1 + n_2F_2T_2}{n_1F_1 + n_2F_2}$

8643519510. $\frac{n_1T_1 + n_2T_2}{n_1 + n_2}$

Question Number : 16 Question Id : 8643513166 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

For what value of displacement the kinetic energy and potential energy of a simple harmonic oscillation become equal ?

Options :

8643519511. $x = \pm A$

8643519512. $x = 0$

8643519513. $x = \pm \frac{A}{\sqrt{2}}$

8643519514. $x = \frac{A}{2}$

Question Number : 16 Question Id : 8643513166 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

ہٹاؤ کی کس قدر کے لئے ایک سادہ ہارمونی اہتزاز کی حرکیاتی توانائی اور توانائی بالقوی مساوی ہو جاتی ہے ہیں ؟

Options :

8643519511. $x = \pm A$

8643519512. $x = 0$

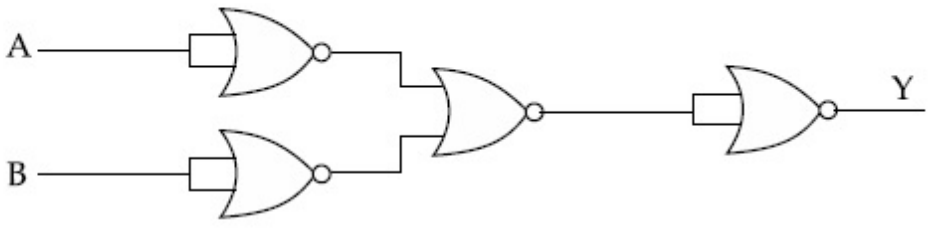
8643519513. $x = \pm \frac{A}{\sqrt{2}}$

8643519514. $x = \frac{A}{2}$

Question Number : 17 Question Id : 8643513167 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The output of the given combination gates represents :



Options :

8643519515. AND Gate

8643519516. NOR Gate

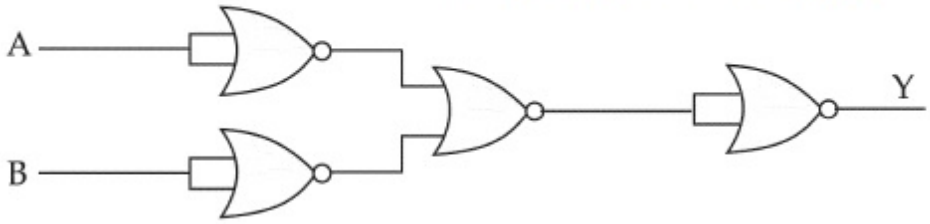
8643519517. NAND Gate

8643519518. XOR Gate

Question Number : 17 Question Id : 8643513167 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

مندرجہ ذیل لوجک سرکٹ کے مساوی گیٹ کون سا ہے ؟



Options :

8643519515. گیٹ AND

8643519516. گیٹ NOR

8643519517. گیٹ NAND

8643519518. گیٹ XOR

Question Number : 18 Question Id : 8643513168 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

An electron of mass m and a photon have same energy E. The ratio of wavelength of electron to that of photon is : (c being the velocity of light)

Options :

8643519519. $\left(\frac{E}{2m}\right)^{1/2}$

8643519520. $c\,(2mE)^{1/2}$

8643519521. $\frac{1}{c}\left(\frac{2m}{E}\right)^{1/2}$

8643519522. $\frac{1}{c}\left(\frac{E}{2m}\right)^{1/2}$

Question Number : 18 Question Id : 8643513168 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

ایک الیکٹران اور ایک فوٹان کی توانائی E مساوی ہیں۔ الیکٹران کی طول لہر کی فوٹان کی طول لہر سے نسبت ہوگی : (c نور کی رفتار ہے)

Options :

8643519519. $\left(\frac{E}{2m}\right)^{1/2}$

8643519520. $c\,(2mE)^{1/2}$

8643519521. $\frac{1}{c}\left(\frac{2m}{E}\right)^{1/2}$

8643519522. $\frac{1}{c}\left(\frac{E}{2m}\right)^{1/2}$

Question Number : 19 Question Id : 8643513169 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The vernier scale used for measurement has a positive zero error of 0.2 mm. If while taking a measurement it was noted that '0' on the vernier scale lies between 8.5 cm and 8.6 cm, vernier coincidence is 6, then the correct value of measurement is _____ cm. (least count = 0.01 cm)

Options :

8643519523. 8.58 cm

8643519524. 8.56 cm

8643519525. 8.54 cm

8643519526. 8.36 cm

Question Number : 19 Question Id : 8643513169 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

ناپ کے لئے استعمال کیے جانے والے ایک ورنیر پیمانے کی صفر '0' 0.2 mm ہے۔ایک پیمائش لیتے وقت یہ دیکھا گیا کہ ورنیر پیمانے کا 8.5 cm اور 8.6 cm کے بیچ پڑتا ہے۔ورنیر اتفاق 6 ہے۔تب پیمائش کی صحیح قدر _____ cm ہوگی۔(اقل ترین شمار = 0.01 cm)

Options :

8643519523. 8.58 cm

8643519524. 8.56 cm

8643519525. 8.54 cm

8643519526. 8.36 cm

Question Number : 20 Question Id : 8643513170 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If an electron is moving in the n^{th} orbit of the hydrogen atom, then its velocity (v_n) for the n^{th} orbit is given as :

Options :

8643519527. $v_n \propto n^2$

8643519528. $v_n \propto n$

8643519529. $v_n \propto \frac{1}{n^2}$

8643519530. $v_n \propto \frac{1}{n}$

Question Number : 20 Question Id : 8643513170 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

ایک الیکٹران ہائیڈروجن جوہر کے n^{th} مدار میں حرکت کر رہا ہے۔ تب n^{th} مدار کے لئے اس کی رفتار (v_n) ہوگی :

Options :

8643519527. $v_n \propto n^2$

8643519528. $v_n \propto n$

8643519529. $v_n \propto \frac{1}{n^2}$

8643519530. $v_n \propto \frac{1}{n}$

Physics Section B

Section Id :	864351212
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	10
Number of Questions to be attempted :	5
Section Marks :	20
Mark As Answered Required? :	Yes
Sub-Section Number :	1
Sub-Section Id :	864351212
Question Shuffling Allowed :	Yes

Question Number : 21 Question Id : 8643513171 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

For VHF signal broadcasting, _____ km^2 of maximum service area will be covered by an antenna tower of height 30 m, if the receiving antenna is placed at ground. Let radius of the earth be 6400 km. (Round off to the Nearest Integer) (Take π as 3.14)

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 21 Question Id : 8643513171 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

VHF سگنل نشریات کے لئے ایک 30 m کے اینٹینا کی مینار کے ذریعہ زیر اثر اعظم رقبہ _____ km^2 ہے۔ اگر وصولی اینٹینا کو زمین پر رکھا گیا ہے۔ مان لیجیے کہ زمین کا نصف قطر 6400 km ہے۔ (جواب قریب ترین مکمل عدد میں دیں)(π کو 3.14 لیں)

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 22 Question Id : 8643513172 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

If 2.5×10^{-6} N average force is exerted by a light wave on a non - reflecting surface of 30 cm^2 area during 40 minutes of time span, the energy flux of light just before it falls on the surface is _____ W/cm^2. (Round off to the Nearest Integer)

(Assume complete absorption and normal incidence conditions are there)

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 22 Question Id : 8643513172 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

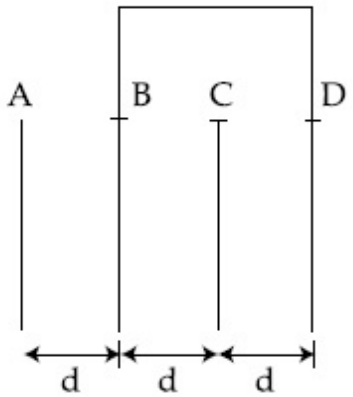
اگر ایک نور کی لہر کے ذریعہ $30\ cm^2$ رقبہ کی ایک لاانعکاس سطح پر $40\ minutes$ میں لگنے والی اوسط قوت $2.5\times10^{-6}\ N$ ہے۔ تب نور کی توانائی کا نفاذ اس کے سطح پر گرنے سے فوراً پہلے _____ W/cm^2 ہوگا۔ (جواب قریب ترین مکمل عدد میں دیں)

[فرض کریں کہ وہاں پر مکمل انجذاب اور عمودی وقوع کی شرائط پوری ہوتی ہیں]

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 23 Question Id : 8643513173 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

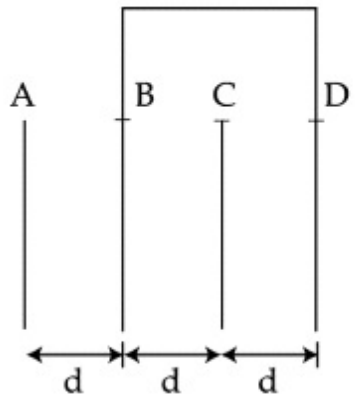
Four identical rectangular plates with length, $l = 2$ cm and breadth, $b = \frac{3}{2}$ cm are arranged as shown in figure. The equivalent capacitance between A and C is $\frac{x\varepsilon_0}{d}$. The value of x is _____. (Round off to the Nearest Integer)



Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 23 Question Id : 8643513173 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

چارمساوی چادرجن کی لمبائی $l = 2$ cm اور چوڑائی $b = \frac{3}{2}$ cm شکل میں دیے گئے طرز پر ترتیب دی جاتی ہیں۔تب A اور C کے بیچ محاصل صلاحیت $\frac{x\varepsilon_0}{d}$ ہوگی جہاں x کی قدر _____ ہوگی۔ (جواب قریب ترین مکمل عدد میں دیں)



Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 24 Question Id : 8643513174 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

The equivalent resistance of series combination of two resistors is 's'. When they are connected in parallel, the equivalent resistance is 'p'. If $s = np$, then the minimum value for n is _____. (Round off to the Nearest Integer)

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 24 Question Id : 8643513174 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

ایک دومزاحمتوں والے سلسلہ وار مجموعے کی محاصل مزاحمت 's' ہے۔جب وہ متوازی طور پر جوڑے جاتے ہیں۔تب ان کی محاصل مزاحمت 'p' ہے۔اگر $s = np$ تب 'n' کی اقل قدر _____ ہوگی۔ (جواب قریب ترین مکمل عدد میں دیں)

Response Type : Numeric
Evaluation Required For SA : Yes

Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 25 Question Id : 8643513175 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

A parallel plate capacitor whose capacitance C is 14 pF is charged by a battery to a potential difference V = 12 V between its plates. The charging battery is now disconnected and a porcelin plate with k = 7 is inserted between the plates, then the plate would oscillate back and forth between the plates with a constant mechanical energy of _____ pJ.

(Assume no friction)

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 25 Question Id : 8643513175 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

ایک مکثفہ C کو جس کی صلاحیت 14 pF ہے ایک برقی خانہ لگا کر V = 12 V کے مضمر فرق پر برقایا جاتا ہے۔ برقانے والا برقی خانہ اب ہٹا لیا جاتا ہے۔ اور مکثفہ کی چادروں کے بیچ میں k = 7 کی ایک پورسلین کی پلیٹ ڈالی جاتی ہے۔ تب وہ پلیٹ مکثفہ کی چادروں کے بیچ میں _____ pJ کی مستقل میکانیکی توانائی سے اہتزاز پذیر ہوتی ہے۔ (فرض کریں کہ کوئی رگڑ نہیں ہے)

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 26 Question Id : 8643513176 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

The radius in kilometer to which the present radius of earth (R = 6400 km) to be compressed so that the escape velocity is increased 10 times is _____ .

Response Type : Numeric

Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 26 Question Id : 8643513176 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

وہ نصف قطر جس پر زمین کو حالیہ نصف قطر $(R = 6400\ km)$ سے تبدیل کر کے سکوڑ دیا جائے کہ ایسکیپ رفتار 10 گنا ہو جائے _____ ہوگی۔

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 27 Question Id : 8643513177 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

The angular speed of truck wheel is increased from 900 rpm to 2460 rpm in 26 seconds. The number of revolutions by the truck engine during this time is _____.

(Assuming the acceleration to be uniform).

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 27 Question Id : 8643513177 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

ایک ٹرک کے پہیے کی زاویائی چال کو 26 second میں 900 rpm سے بڑھا کر 2460 rpm کر دیا جاتا ہے۔اس وقفہ میں ٹرک کے انجن کے چکر _____ ہوں گے۔

(فرض کریں کہ اسراع یکساں ہے)

Response Type : Numeric

Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 28 Question Id : 8643513178 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

Consider two identical springs each of spring constant k and negligible mass compared to the mass M as shown. Fig. 1 shows one of them and Fig. 2 shows their series combination.

The ratios of time period of oscillation of the two SHM is $T_b/T_a = \sqrt{x}$, where value of x is _____. (Round off to the Nearest Integer)

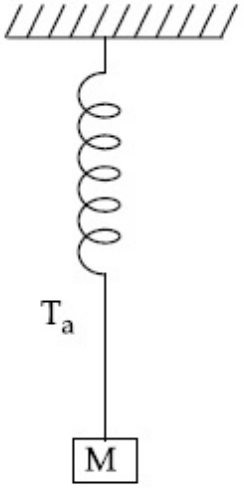


Fig 1

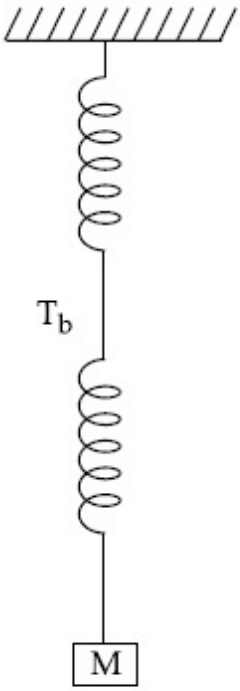


Fig 2

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 28 Question Id : 8643513178 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

شکل میں دکھائے گئے طرز پر M کمیت کو اسپرنگ مستقلہ k اور نا قابل قدر کمیت کے دو مساوی اسپرنگ سے باندھا جاتا ہے۔ شکل 1 ان میں سے ایک اور شکل 2 ان کے سلسلہ وار مجموعہ کو دکھاتی ہے۔ ان دو سادہ ہارمونی حرکت کے دور کی نسبت $T_b/T_a = \sqrt{x}$ ہوگی، جہاں x کی قدر _____ ہے۔ (جواب قریب ترین مکمل عدد میں دیں)

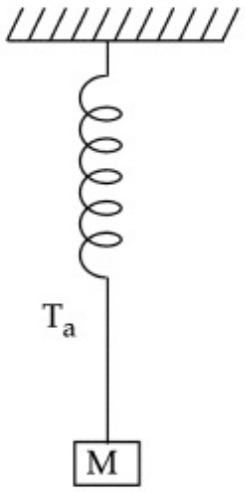


Fig. 1

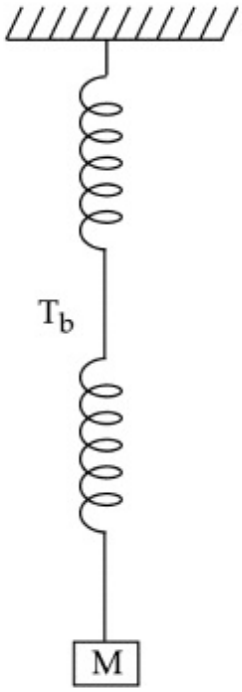


Fig. 2

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 29 Question Id : 8643513179 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

The following bodies,

(1) a ring

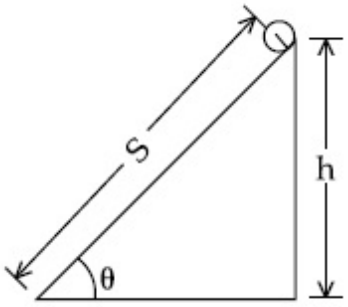
(2) a disc

(3) a solid cylinder

(4) a solid sphere,

of same mass 'm' and radius 'R' are allowed to roll down without slipping simultaneously from the top of the inclined plane. The body which will reach first at the bottom of the inclined plane is _____.

[Mark the body as per their respective numbering given in the question]



Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

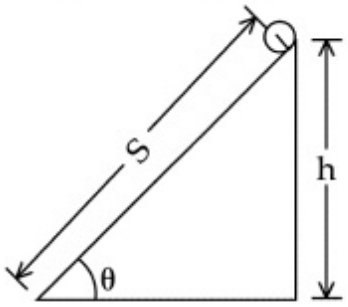
Question Number : 29 Question Id : 8643513179 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

مندرجہ ذیل اجسام

(1) ایک چھلہ (2) ایک قرص (3) ایک ٹھوس استوانہ (4) ایک ٹھوس کرہ

جن کی کمیت 'm' اور نصف قطر 'R' مساوی ہیں، ایک ساتھ ایک مائل سطح پر اوپر سے نیچے بنا پھسلے لڑھکائی جاتی ہیں۔ سب سے پہلے پہنچنے والا جسم _____ ہوگا۔

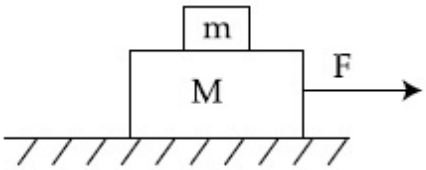
[اجسام کو ان کی نمبرنگ کے مطابق سمجھیں]



Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 30 Question Id : 8643513180 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

Two blocks (m = 0.5 kg and M = 4.5 kg) are arranged on a horizontal frictionless table as shown in figure. The coefficient of static friction between the two blocks is $\frac{3}{7}$. Then the maximum horizontal force that can be applied on the larger block so that the blocks move together is _____ N. (Round off to the Nearest Integer) [Take g as 9.8 ms^{-2}]

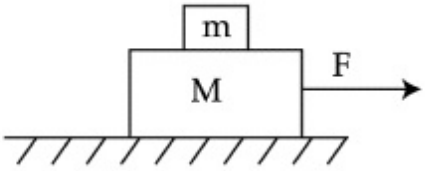


Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal

Text Areas : PlainText
Possible Answers :
100

Question Number : 30 Question Id : 8643513180 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

دو کندے ($m = 0.5\ kg$ اور $M = 4.5\ kg$) شکل میں دیے گئے طرز پر ایک افقی بے رگڑ سطح پر ترتیب دیے جاتے ہیں۔ ان دو کندوں کے بیچ سکونی رگڑ کا مستقلہ $\frac{3}{7}$ ہے۔ تب وہ اعظم افقی قوت جس کو بڑے کندے پر لگایا جائے کہ دونوں کندے ایک ساتھ حرکت کریں _____ N ہوگی۔ (جواب قریب ترین مکمل عدد میں دیں) (g کو $9.8\ ms^{-2}$ لیں)



Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Chemistry Section A

Section Id :	864351213
Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	20
Number of Questions to be attempted :	20
Section Marks :	80
Mark As Answered Required? :	Yes
Sub-Section Number :	1
Sub-Section Id :	864351213
Question Shuffling Allowed :	Yes

Question Number : 31 Question Id : 8643513181 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

A central atom in a molecule has two lone pairs of electrons and forms three single bonds. The shape of this molecule is :

Options :

8643519541. planar triangular

8643519542. T-shaped

8643519543. see-saw

8643519544. trigonal pyramidal

Question Number : 31 Question Id : 8643513181 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

ایک سالم کے مرکزی جوہر پر الیکٹرانس کے دو تنہا جوڑے ہیں۔اور یہ سالم تین واحد بند بناتا ہے۔اس سالم کی صورت کیسی ہوگی :

Options :

8643519541. ٹرائینگولر پلینر (planar triangular)

8643519542. T۔شکل (T-shaped)

8643519543. سی سا (see-saw)

8643519544. ٹرائی گونل پیرامڈل (trigonal pyramidal)

Question Number : 32 Question Id : 8643513182 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

A colloidal system consisting of a gas dispersed in a solid is called a/an :

Options :

8643519545. aerosol

8643519546. solid sol

8643519547. foam

8643519548. gel

Question Number : 32 Question Id : 8643513182 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

کونسا کولائڈل نظام گیس کو ٹھوس میں پھیلانے سے بنتا ہے :

Options :

8643519545. ایروزال

8643519546. ٹھوس سال

8643519547. فوم

8643519548. جیل

Question Number : 33 Question Id : 8643513183 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The absolute value of the electron gain enthalpy of halogens satisfies :

Options :

8643519549. $F > Cl > Br > I$

8643519550. $Cl > F > Br > I$

8643519551. $Cl > Br > F > I$

8643519552. $I > Br > Cl > F$

Question Number : 33 Question Id : 8643513183 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

ہیلوجنس کی کامل الیکٹران گین انتھلپی کے صحیح عدد کی کون سی ترتیب صحیح ہے ؟

Options :

8643519549. F > Cl > Br > I

8643519550. Cl > F > Br > I

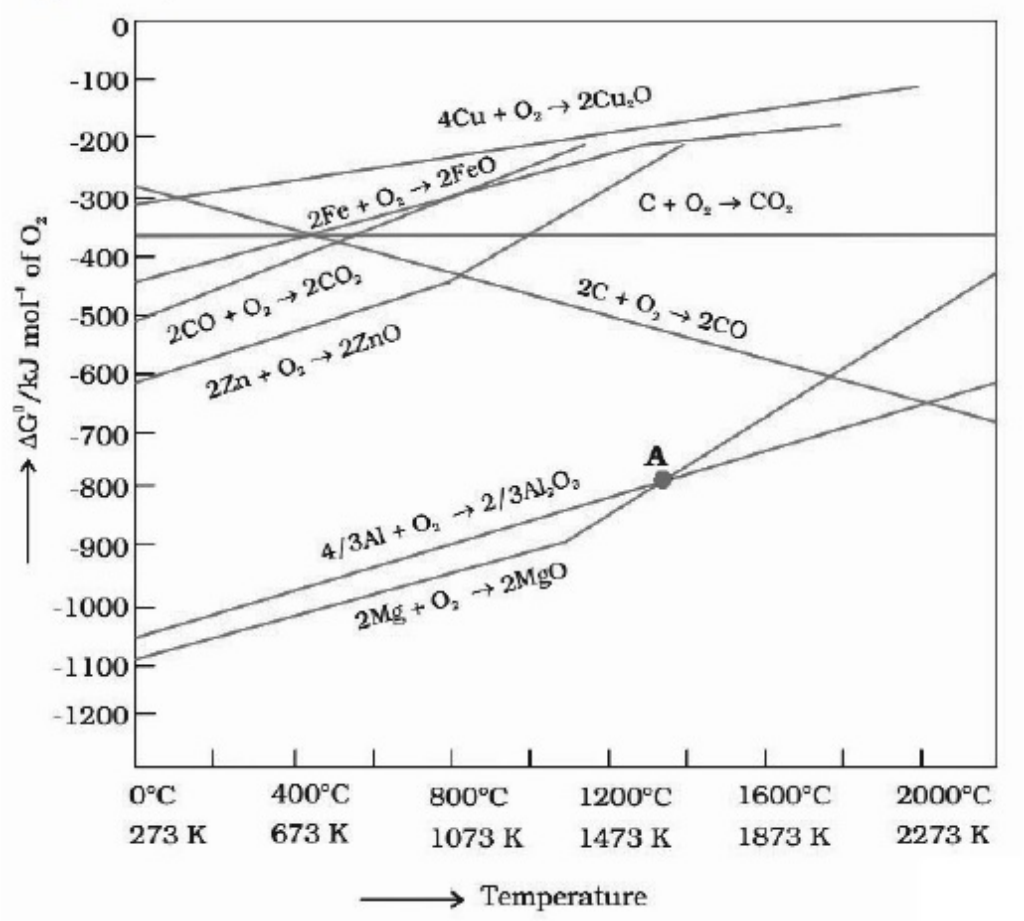
8643519551. Cl > Br > F > I

8643519552. I > Br > Cl > F

Question Number : 34 Question Id : 8643513184 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The point of intersection and sudden increase in the slope, in the diagram given below, respectively, indicates :



Options :

8643519553. $\Delta G < 0$ and decomposition of the metal oxide

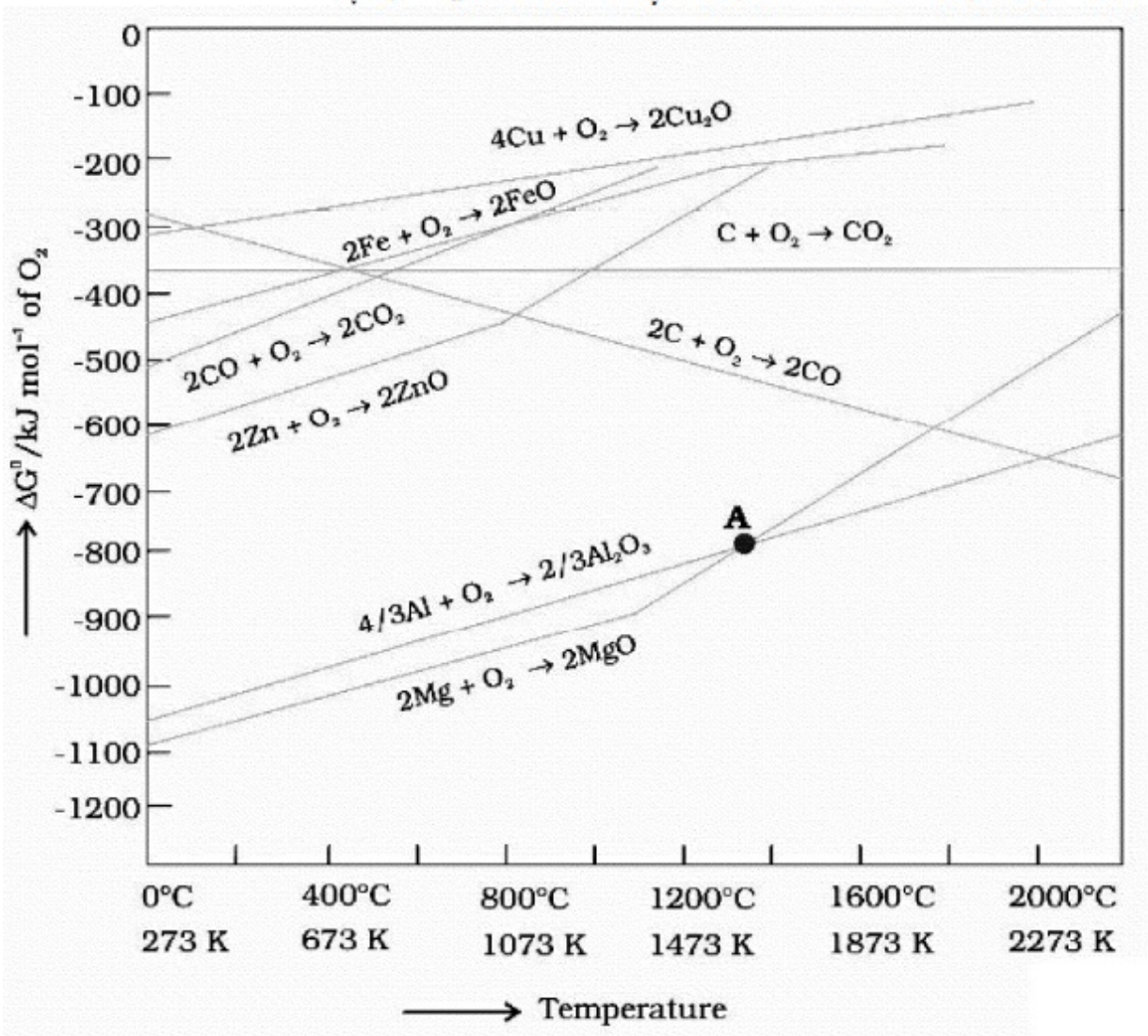
8643519554. $\Delta G > 0$ and decomposition of the metal oxide

8643519555. $\Delta G = 0$ and melting or boiling point of the metal oxide

8643519556. $\Delta G = 0$ and reduction of the metal oxide

Question Number : 34 Question Id : 8643513184 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

دی گئی تصویر میں لکیروں کے کاٹنے کا نقطہ اور لکیروں کے اچانک ڈھال بڑھنے کا کیا مطلب ہے ؟



Options :

8643519553. $\Delta G < 0$ اور میٹل آوکسائڈ کا سڑنا

8643519554. $\Delta G > 0$ اور میٹل آوکسائڈ کا سڑنا

8643519555. $\Delta G = 0$ اور میٹل آوکسائڈ کا نقطہ جوش یا نقطہ پگھلاؤ

8643519556. $\Delta G = 0$ اور میٹل آوکسائڈ کی تحویل

Question Number : 35 Question Id : 8643513185 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The INCORRECT statement(s) about heavy water is (are)

(A) used as a moderator in nuclear reactor

(B) obtained as a by-product in fertilizer industry

(C) used for the study of reaction mechanism

(D) has a higher dielectric constant than water

Choose the correct answer from the options given below :

Options :

8643519557. (C) only

8643519558. (B) only

8643519559. (D) only

8643519560. (B) and (D) only

Question Number : 35 Question Id : 8643513185 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

بھاری پانی کے بارے میں کون سا جملہ غلط ہے/ہیں :

(A) نیوکلیر اینکٹر میں اعتدال کار کی حیثیت سے استعمال ہوتا ہے۔

(B) یہ کھاد کے کارخانے کی ضمنی پیداوار ہے۔

(C) یہ تعامل کے طریق کار کو سمجھنے کے لئے استعمال ہوتا ہے۔

(D) اس کا برق ناگزار مستقلہ پانی سے زیادہ ہوتا ہے۔

صحیح جواب کا انتخاب کیجئے :

Options :

8643519557. (C) صرف

8643519558. (B) صرف

8643519559. (D) صرف

8643519560. (B) صرف (D) اور

Question Number : 36 Question Id : 8643513186 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The correct order of conductivity of ions in water is :

Options :

8643519561. $Cs^+ > Rb^+ > K^+ > Na^+$

8643519562. $Na^+ > K^+ > Rb^+ > Cs^+$

8643519563. $K^+ > Na^+ > Cs^+ > Rb^+$

8643519564. $Rb^+ > Na^+ > K^+ > Li^+$

Question Number : 36 Question Id : 8643513186 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

پانی میں ایصالیت کی صحیح ترتیب ہے :

Options :

8643519561. $Cs^+ > Rb^+ > K^+ > Na^+$

8643519562. $Na^+ > K^+ > Rb^+ > Cs^+$

8643519563. $K^+ > Na^+ > Cs^+ > Rb^+$

8643519564. $Rb^+ > Na^+ > K^+ > Li^+$

Question Number : 37 Question Id : 8643513187 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following compound CANNOT act as a Lewis base ?

Options :

8643519565. ClF_3

8643519566. PCl_5

8643519567. NF_3

8643519568. SF_4

Question Number : 37 Question Id : 8643513187 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

مندرجہ ذیل میں سے کون سا مرکب بطور لیوس (Lewis) اساس کی طرح کام نہیں کر سکتا ہے ؟

Options :

8643519565. ClF_3

8643519566. PCl_5

8643519567. NF_3

8643519568. SF_4

Question Number : 38 Question Id : 8643513188 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

What is the spin-only magnetic moment value (BM) of a divalent metal ion with atomic number 25, in it's aqueous solution ?

Options :

8643519569. 5.0

8643519570. 5.26

8643519571. 5.92

8643519572. zero

Question Number : 38 Question Id : 8643513188 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

دوگرفت والے دھاتی آئن جس کا جوہری محدد 25 ہے،اس کے پانی والے محلول میں اس کا خالص سپن مقناطیسی گردشتہ کتنا ہوگا ؟

Options :

8643519569. 5.0

8643519570. 5.26

8643519571. 5.92

8643519572. صفر

Question Number : 39 Question Id : 8643513189 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Given below are two statements :

Statement I : Potassium permanganate on heating at 573 K forms potassium manganate.

Statement II : Both potassium permanganate and potassium manganate are tetrahedral and paramagnetic in nature.

In the light of the above statements, choose the most appropriate answer from the options given below :

Options :

8643519573. Both statement I and statement II are false

8643519574. Both statement I and statement II are true

8643519575. Statement I is true but statement II is false

8643519576. Statement I is false but statement II is true

Question Number : 39 Question Id : 8643513189 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

نیچے دو جملے دیئے گئے ہیں :

جملہ۔ I : پوٹیشم پرمنگنیٹ کو 573 K تک گرم کرنے پر پوٹیشم منگنیٹ بنتا ہے۔

جملہ۔ II : دونوں پوٹیشم پرمنگنیٹ اور پوٹیشم منگنیٹ ٹیٹراہیڈرل اور پُرمقناطیس ہوتے ہیں۔

دیے گئے جملوں کی روشنی میں صحیح جواب چنیں :

Options :

8643519573. جملہ۔I اور جملہ۔II غلط ہے۔

8643519574. جملہ۔I اور جملہ۔II صحیح ہے۔

8643519575. جملہ۔I صحیح اور جملہ۔II غلط ہے۔

8643519576. جملہ۔I غلط اور جملہ۔II صحیح ہے۔

Question Number : 40 Question Id : 8643513190 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Reducing smog is a mixture of :

Options :

8643519577. Smoke, fog and O_3

8643519578. Smoke, fog and SO_2

8643519579. Smoke, fog and N_2O_3

8643519580. Smoke, fog and $CH_2=CH-CHO$

Question Number : 40 Question Id : 8643513190 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

تحویلِ سموگ (Reducing smog) کس کا آمیزہ ہوتی ہے :

Options :

8643519577. O_3 سموک، فاگ اور

8643519578. SO_2 سموک، فاگ اور

8643519579. N_2O_3 سموک، فاگ اور

8643519580. $CH_2=CH-CHO$ سموک، فاگ اور

Question Number : 41 Question Id : 8643513191 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Given below are two statements :

Statement I : Retardation factor (R_f) can be measured in meter/centimeter.

Statement II : R_f value of a compound remains constant in all solvents.

Choose the most appropriate answer from the options given below :

Options :

8643519581. Both statement I and statement II are true

8643519582. Both statement I and statement II are false

8643519583. Statement I is true but statement II is false

8643519584. Statement I is false but statement II is true

Question Number : 41 Question Id : 8643513191 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

جملہ۔I : رکاوٹی ضربہ کو میٹر / سنٹی میٹر میں ناپا جاتا ہے۔

جملہ۔ II : ایک مرکب کی R_f کی قدر سادے محلات میں مستقلہ رہے گی۔

صحیح جواب چنیے :

Options :

8643519581. دونوں جملے I اور II صحیح ہے۔

8643519582. دونوں جملے I اور II غلط ہے۔

8643519583. جملہ۔I صحیح اور جملہ۔ II غلط ہے۔

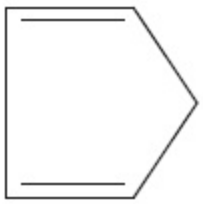
8643519584. جملہ۔I غلط اور جملہ۔II صحیح ہے۔

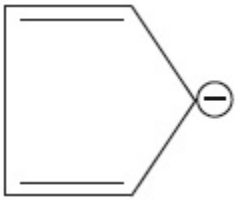
Question Number : 42 Question Id : 8643513192 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

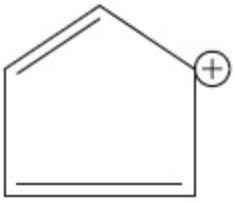
Correct Marks : 4 Wrong Marks : 1

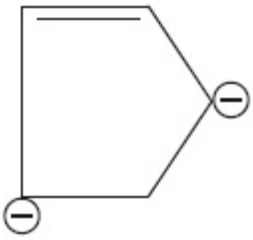
Which of the following is an aromatic compound ?

Options :

8643519585. 

8643519586. 

8643519587. 

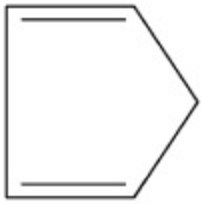
8643519588. 

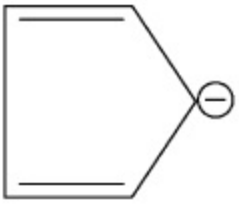
Question Number : 42 Question Id : 8643513192 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

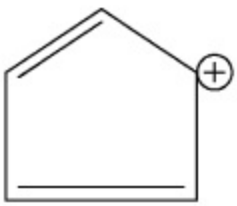
Correct Marks : 4 Wrong Marks : 1

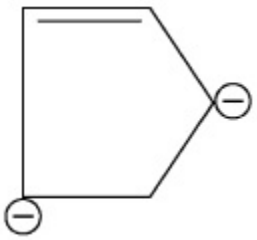
دیے گئے مرکبات میں سے ایرومیٹک کون ہے ؟

Options :

8643519585. 

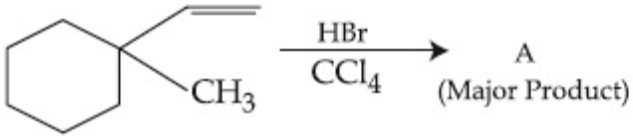
8643519586. 

8643519587. 

8643519588. 

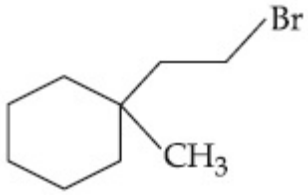
Question Number : 43 Question Id : 8643513193 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

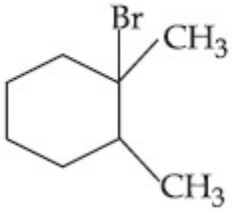
Correct Marks : 4 Wrong Marks : 1

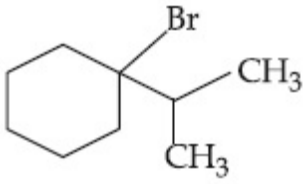


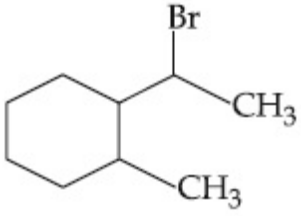
Product "A" in the above chemical reaction is :

Options :

8643519589. 

8643519590. 

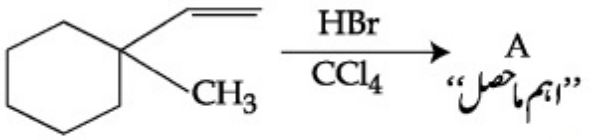
8643519591. 

8643519592. 

Question Number : 43 Question Id : 8643513193 Question Type : MCQ Option Shuffling : Yes Is

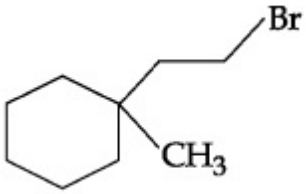
Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

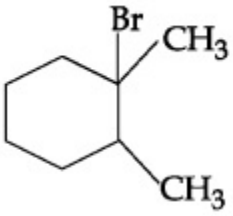


دی گئی تعامل میں ماحصل "A" کیا ہے ؟

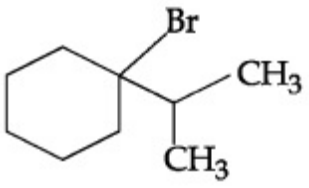
Options :



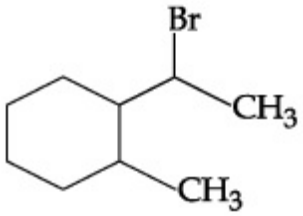
8643519589.



8643519590.



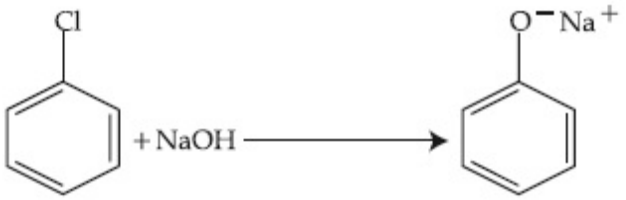
8643519591.



8643519592.

Question Number : 44 Question Id : 8643513194 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1



The above reaction requires which of the following reaction conditions ?

Options :

8643519593. 623 K, Cu, 300 atm

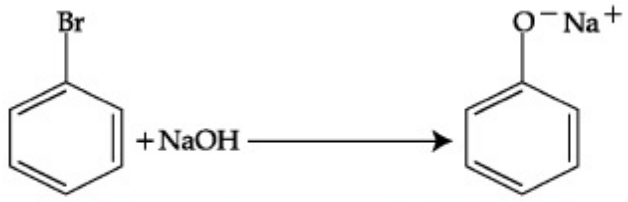
8643519594. 573 K, Cu, 300 atm

8643519595. 623 K, 300 atm

8643519596. 573 K, 300 atm

Question Number : 44 Question Id : 8643513194 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1



اوپر دی گئی تعامل کے لئے مندرجہ ذیل میں سے کون سی شرط صحیح ہے ؟

Options :

8643519593. 623 K, Cu, 300 atm

8643519594. 573 K, Cu, 300 atm

8643519595. 623 K, 300 atm

8643519596. 573 K, 300 atm

Question Number : 45 Question Id : 8643513195 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Mesityl oxide is a common name of :

Options :

8643519597. 4-Methyl pent-3-en-2-one

8643519598. 2,4-Dimethyl pentan-3-one

8643519599. 2-Methyl cyclohexanone

8643519600. 3-Methyl cyclohexane carbaldehyde

Question Number : 45 Question Id : 8643513195 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

میسٹائل آوکسائڈ کس کا عام نام ہے :

Options :

8643519597. 4۔میتھل پینٹ۔3-این2-اُون

8643519598. 2, 4۔ڈائی میتھل پینٹ۔3-اُون

8643519599. 2۔میتھل سائیکلوہیکزانون

8643519600. 3۔میتھل سائیکلوہیکزانون کاربلڈیہائڈ

Question Number : 46 Question Id : 8643513196 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

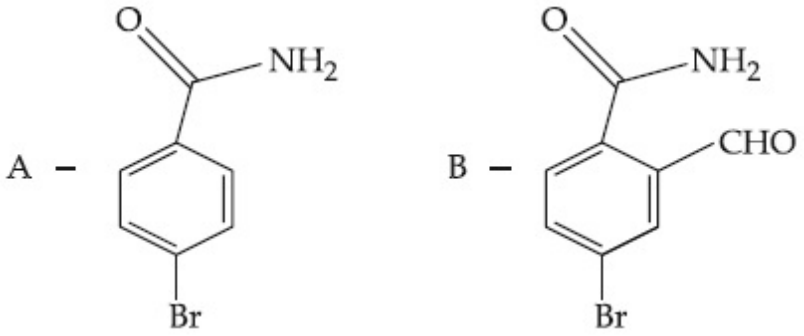
Correct Marks : 4 Wrong Marks : 1

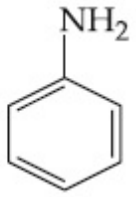
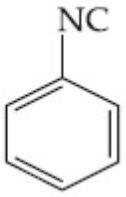
Hoffmann bromomide degradation of benzamide gives product A, which upon heating with $CHCl_3$ and NaOH gives product B.

The structures of A and B are :

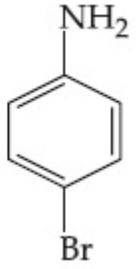
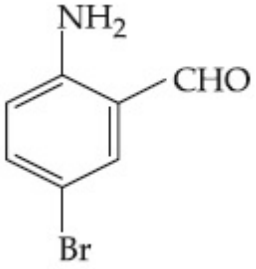
Options :

8643519601.

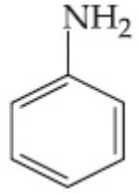
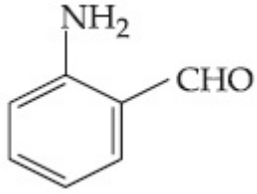


A –  B – 

8643519602.

A –  B – 

8643519603.

A –  B – 

8643519604.

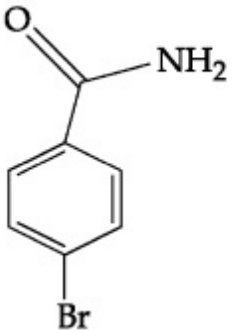
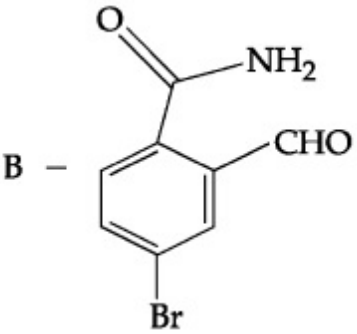
Question Number : 46 Question Id : 8643513196 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

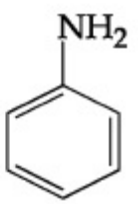
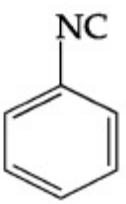
بنزامائڈ کی ہافمین برومائڈ ڈگریڈیشن ماحصل A دیتی ہے، جو $CHCl_3$ اور NaOH کے ساتھ مل کر B بناتی ہے۔

A اور B کی بناوٹ کیا ہوگی ؟

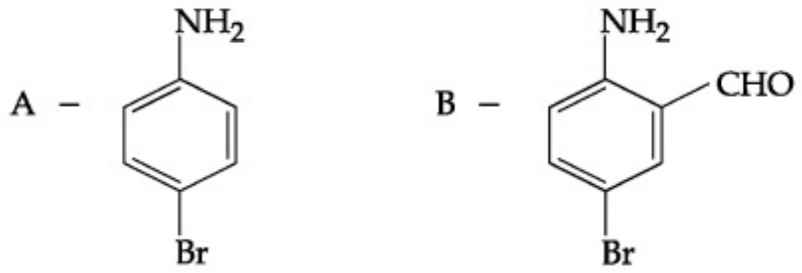
Options :

A –  B – 

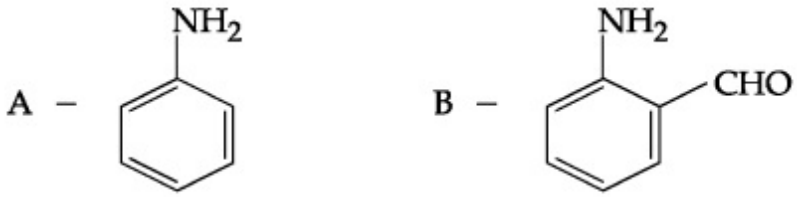
8643519601.

A –  B – 

8643519602.



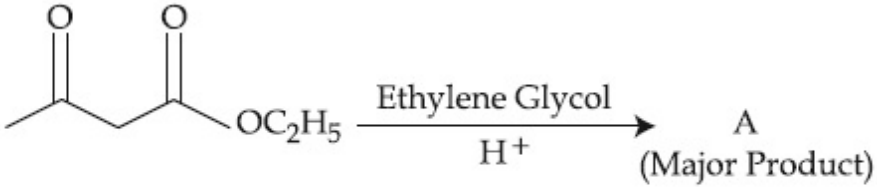
8643519603.



8643519604.

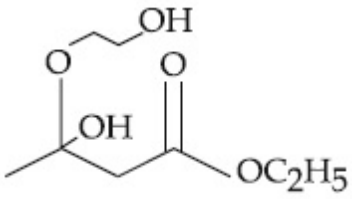
Question Number : 47 Question Id : 8643513197 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

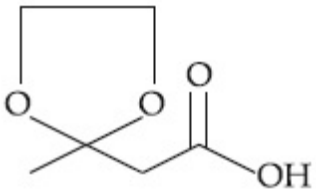


The product "A" in the above reaction is :

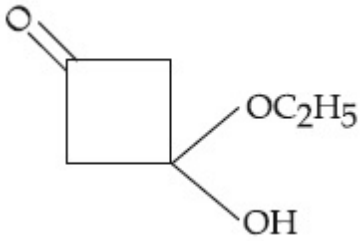
Options :

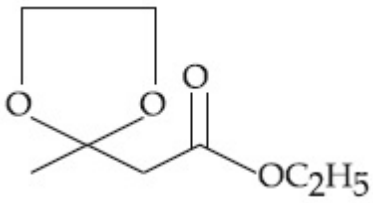


8643519605.



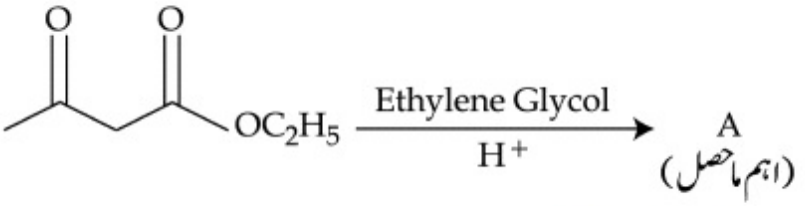
8643519606.

8643519607. 

8643519608. 

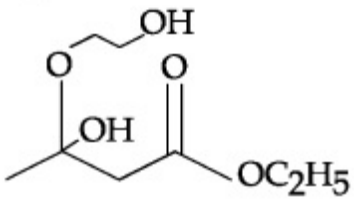
Question Number : 47 Question Id : 8643513197 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

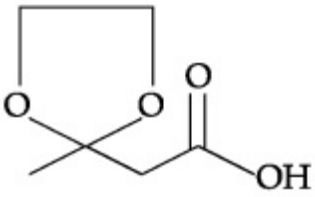
Correct Marks : 4 Wrong Marks : 1

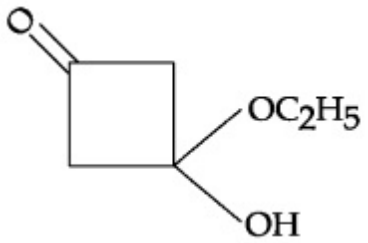


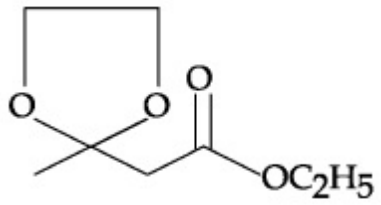
اوپر دیے گئے تعامل میں ماحصل "A" کیا ہوگا ؟

Options :

8643519605. 

8643519606. 

8643519607. 

8643519608. 

Question Number : 48 Question Id : 8643513198 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following reaction is an example of ammonolysis ?

Options :

8643519609. $C_6H_5COCl + C_6H_5NH_2 \longrightarrow C_6H_5CONHC_6H_5$

8643519610. $C_6H_5CH_2CN \xrightarrow{[H]} C_6H_5CH_2CH_2NH_2$

8643519611. $C_6H_5CH_2Cl + NH_3 \longrightarrow C_6H_5CH_2NH_2$

8643519612. $C_6H_5NH_2 \xrightarrow{HCl} C_6H_5\overset{+}{N}H_3Cl^-$

Question Number : 48 Question Id : 8643513198 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

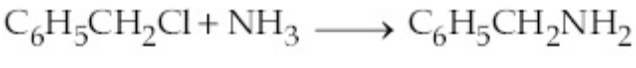
Correct Marks : 4 Wrong Marks : 1

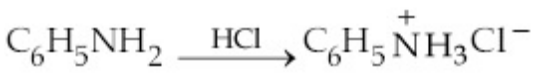
مندرجہ ذیل میں سے کون سی تعامل امینولیسس کی مثال ہے ؟

Options :

8643519609. $C_6H_5COCl + C_6H_5NH_2 \longrightarrow C_6H_5CONHC_6H_5$

8643519610. $C_6H_5CH_2CN \xrightarrow{[H]} C_6H_5CH_2CH_2NH_2$

8643519611. 

8643519612. 

Question Number : 49 Question Id : 8643513199 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

With respect to drug-enzyme interaction, identify the wrong statement.

Options :

8643519613. Competitive inhibitor binds to the enzyme's active site

8643519614. Allosteric inhibitor changes the enzyme's active site

8643519615. Allosteric inhibitor competes with the enzyme's active site

8643519616. Non-Competitive inhibitor binds to the allosteric site

Question Number : 49 Question Id : 8643513199 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

ڈرگ۔انزائم تعامل کے بمطابق غلط جملہ کون سا ہے ؟

Options :

8643519613. کمپٹیٹیو انہیبیٹر (Competitive inhibitor) انزائم کی مستعد جگہ کے ساتھ جڑتا ہے۔

8643519614. الوسٹیرک انہیبیٹر (Allosteric inhibitor) انزائم کی مستعد جگہ کو بدل دیتا ہے۔

8643519615. الوسٹیرک انہیبیٹر اور انزائم سبٹریٹ کا آپس میں مقابلہ ہوتا ہے۔

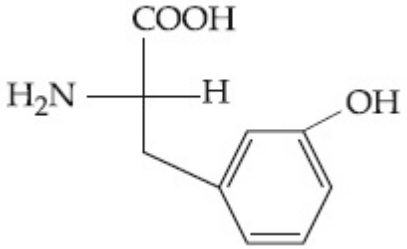
8643519616. نان کمپیٹیٹیو (Non-Competitive) انہیبیٹر الوسٹیرک جگہ کے ساتھ جڑتا ہے۔

Question Number : 50 Question Id : 8643513200 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

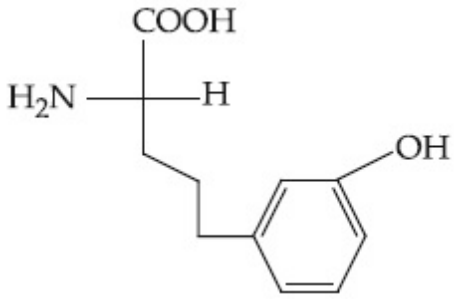
Correct Marks : 4 Wrong Marks : 1

Which of the following is correct structure of tyrosine ?

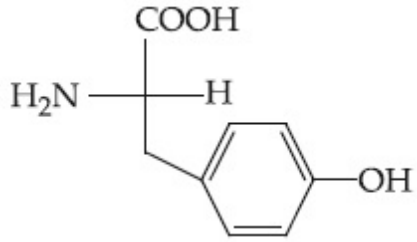
Options :



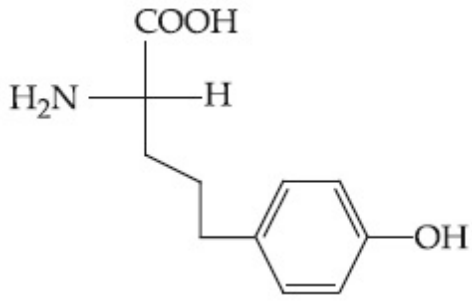
8643519617.



8643519618.



8643519619.



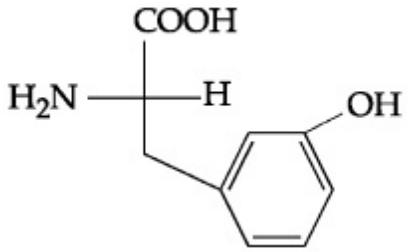
8643519620.

Question Number : 50 Question Id : 8643513200 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

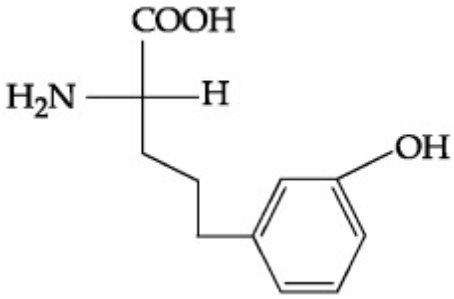
Correct Marks : 4 Wrong Marks : 1

مندرجہ ذیل میں سے ٹائروسین کی صحیح بناوٹ کیا ہے ؟

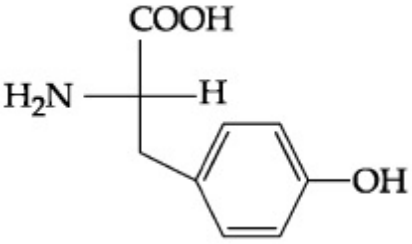
Options :



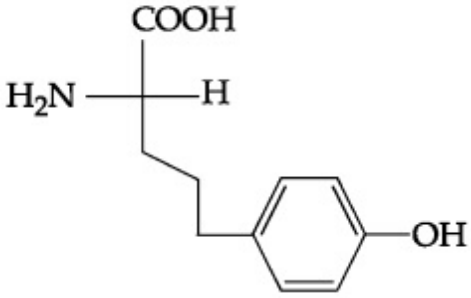
8643519617.



8643519618.



8643519619.



8643519620.

Chemistry Section B

Section Id :	864351214
Section Number :	4
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	10
Number of Questions to be attempted :	5
Section Marks :	20
Mark As Answered Required? :	Yes

Sub-Section Number : 1
Sub-Section Id : 864351214
Question Shuffling Allowed : Yes

Question Number : 51 Question Id : 8643513201 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

The mole fraction of a solute in a 100 molal aqueous solution is _____ $\times 10^{-2}$.
(Round off to the Nearest Integer).
[Given : Atomic masses : H : 1.0 u, O : 16.0 u]

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 51 Question Id : 8643513201 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

ایک منحل کے 100 مولل پانی کے محلول میں مول کثر $\times 10^{-2}$ _____ ہوگی۔
(قریب ترمکمل عدد)
[دیا گیا: جوہری وزن = H : 1.0 u, O : 16.0 u]

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 52 Question Id : 8643513202 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

The pressure exerted by a non-reactive gaseous mixture of 6.4 g of methane and 8.8 g of carbon dioxide in a 10 L vessel at 27°C is _____ kPa.
(Round off to the Nearest Integer).
[Assume gases are ideal, $R = 8.314\ J\ mol^{-1}\ K^{-1}$
Atomic masses : C : 12.0 u, H : 1.0 u, O : 16.0 u]

Response Type : Numeric

Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 52 Question Id : 8643513202 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

میتھین کے 6.4 g اور کاربن ڈائی آکسائڈ کے 8.8 g کا تعامل نہ کرنے والا گیسی آمیزہ 10 L کے برتن میں 28°C پر _____ kPa دباؤ بنائے گا۔

(قریب ترمکمل عدد)

[مانا جائے گیس مثالی گیس ہے، $R = 8.314\ J\ mol^{-1}\ K^{-1}$

جوہری کمیت = $[O : 16.0\ u, H : 1.0\ u, C : 12.0\ u]$

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 53 Question Id : 8643513203 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

A certain orbital has $n = 4$ and $m_L = -3$. The number of radial nodes in this orbital is _____. (Round off to the Nearest Integer).

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 53 Question Id : 8643513203 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

ایک اربٹل کا $n = 4$ اور $m_L = -3$ ہے۔اس میں ''ریڈیل نوڈس'' کے تعداد ہوگی _____ ۔

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 54 Question Id : 8643513204 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

The standard enthalpies of formation of Al_2O_3 and CaO are -1675 kJ mol^{-1} and -635 kJ mol^{-1} respectively.

For the reaction

$3CaO + 2Al \rightarrow 3Ca + Al_2O_3$ the standard reaction enthalpy $\Delta_r H^0 =$ _____ kJ.

(Round off to the Nearest Integer).

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 54 Question Id : 8643513204 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

Al_2O_3 اور CaO کے بننے کی ''معیاری اینتھالپی'' بالترتیب -1675 kJ mol^{-1} اور -635 kJ mol^{-1} ہے۔

$$3\,CaO + 2Al \rightarrow 3Ca + Al_2O_3$$

اوپر دی گئی تعامل کے لئے معیاری اینتھالپی $\Delta_r H^0 =$ _____ kJ ہوگی۔ (قریب ترمکمل عدد)

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 55 Question Id : 8643513205 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

The oxygen dissolved in water exerts a partial pressure of 20 kPa in the vapour above water. The molar solubility of oxygen in water is _____ $\times 10^{-5}$ mol dm^{-3}.
(Round off to the Nearest Integer).
[Given : Henry's law constant = $K_H = 8.0 \times 10^4$ kPa for O_2.
Density of water with dissolved oxygen = 1.0 kg dm^{-3}]

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 55 Question Id : 8643513205 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

پانی میں گھلا ہوا آکسیجن، پانی کے اُوپر کی بھاپ میں 20 kPa دباؤ بناتا ہے۔تو پانی میں اوکسیجن کی مولر حل پذیری _____ $\times 10^{-5}$ mol dm^{-3} ہوگی۔

(قریب ترمکمل عدد)

[ہینری کلیہ مستقلہ = $K_H = 8.0 \times 10^4$ kPa for O_2

آکسیجن سے محلول پانی کی کثافت = 1.0 kg dm^{-3}]

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 56 Question Id : 8643513206 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

0.01 moles of a weak acid HA ($K_a = 2.0 \times 10^{-6}$) is dissolved in 1.0 L of 0.1 M HCl solution. The degree of dissociation of HA is _____ $\times 10^{-5}$ (Round off to the Nearest Integer).
[Neglect volume change on adding HA.
Assume degree of dissociation <<1]

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes

Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 56 Question Id : 8643513206 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

ایک کمزور تیزاب HA ($K_a = 2.0 \times 10^{-6}$) کے 0.01 مولوں کو 1.0 L کے 0.1 M HCl میں گھولا جاتا ہے۔ HA کا علیحدگی کا درجہ _____ $\times 10^{-5}$ ہوگا۔ (قریب ترمکمل عدد)

[HA کو ملانے کے بعد حجم میں تبدیلی کو نظر انداز کریں۔ اور مان لیا جائے علیحدگی کا درجہ 1>> ہے۔]

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 57 Question Id : 8643513207 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

15 mL of aqueous solution of Fe^{2+} in acidic medium completely reacted with 20 mL of 0.03 M aqueous $Cr_2O_7^{2-}$. The molarity of the Fe^{2+} solution is _____ $\times 10^{-2}$ M. (Round off to the Nearest Integer).

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 57 Question Id : 8643513207 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

Fe^{2+} کے 15 mL آبی محلول کا تیزابی وسیلہ میں، 0.03 M آبی $Cr_2O_7^{2-}$ کے 20 mL ساتھ مکمل طور پر تعامل کرتا ہے۔ Fe^{2+} محلول کی مولاریت ہوگی _____ $\times 10^{-2}$ M ۔ (قریب ترین صحیح عدد میں جواب)

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 58 Question Id : 8643513208 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

For a certain first order reaction 32% of the reactant is left after 570 s. The rate constant of this reaction is _____ $\times 10^{-3}\ s^{-1}$. (Round off to the Nearest Integer).
[Given : $\log_{10}2 = 0.301$, $\ln 10 = 2.303$]

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 58 Question Id : 8643513208 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

ایک فرسٹ آرڈر تعامل میں 570 s کے بعد متعامل کے 32% بچتے ہیں۔اس تعامل کا شرح مستقلہ _____ $\times 10^{-3}\ s^{-1}$ ہوگا۔
(قریب ترمکمل عدد)
[دیا گیا : $\log_{10}2 = 0.301$, اور $\ln 10 = 2.303$]

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 59 Question Id : 8643513209 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

The reaction of white phosphorus on boiling with alkali in inert atmosphere resulted in the formation of product 'A'. The reaction of 1 mol of 'A' with excess of $AgNO_3$ in aqueous medium gives _____ mol(s) of Ag. (Round off to the Nearest Integer).

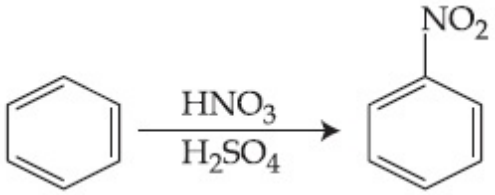
Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 59 Question Id : 8643513209 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

سفید فاسفورس اساس (alkali) کے ساتھ تعامل کر کے ماحصل 'A' بناتا ہے۔ آبی واسطہ میں 'A' کے 1 مول اور $AgNO_3$ کے زائد کے ساتھ تعامل میں Ag کے _____ mol(s) ملتے ہیں۔
(قریب ترمکمل عدد)

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 60 Question Id : 8643513210 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

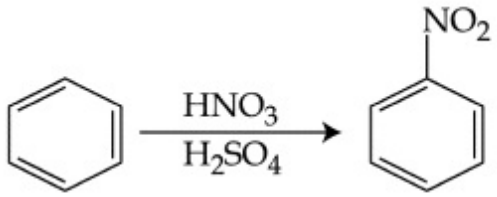


In the above reaction, 3.9 g of benzene on nitration gives 4.92 g of nitrobenzene. The percentage yield of nitrobenzene in the above reaction is _____%. (Round off to the Nearest Integer).
(Given atomic mass : C : 12.0 u, H : 1.0 u, O : 16.0 u, N : 14.0 u)

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes

Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 60 Question Id : 8643513210 Question Type : SA
Correct Marks : 4 Wrong Marks : 0



اوپر دی ہوئی تعامل میں بنزین کے 3.9 g کی نائٹریشن پر نائٹروبنزین کے 4.92 g ملتے ہیں۔اس تعامل میں نائٹروبنزین کی فصل (yield) _____ % ہوگی۔

(قریب ترمکمل عدد = C : 12.0 u, H : 1.0 u, O : 16.0 u, N : 14.0 u)

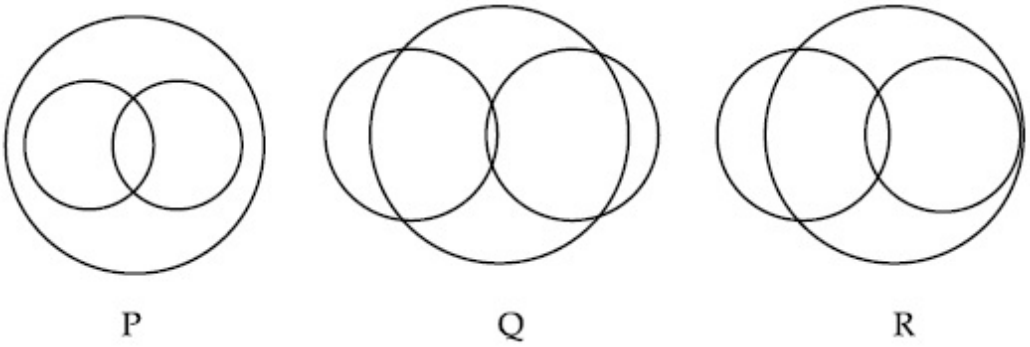
Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Mathematics Section A

Section Id :	864351215
Section Number :	5
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	20
Number of Questions to be attempted :	20
Section Marks :	80
Mark As Answered Required? :	Yes
Sub-Section Number :	1
Sub-Section Id :	864351215
Question Shuffling Allowed :	Yes

Question Number : 61 Question Id : 8643513211 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

In a school, there are three types of games to be played. Some of the students play two types of games, but none play all the three games. Which Venn diagrams can justify the above statement ?



P Q R

Options :

8643519631. P and Q

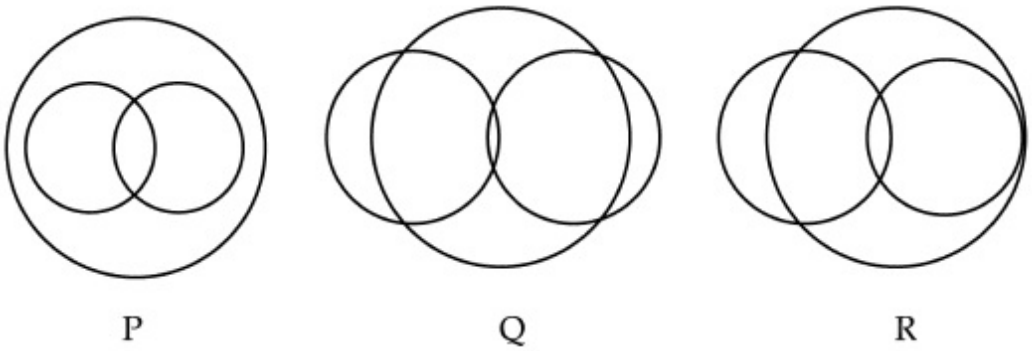
8643519632. P and R

8643519633. Q and R

8643519634. None of these

Question Number : 61 Question Id : 8643513211 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

ایک اسکول میں تین طرح کے کھیل کھیلے جاتے ہیں، کچھ طلبہ کو دو کھیل کھیلنے ہیں، لیکن کسی کو بھی تینوں کھیل نہیں کھیلنے ہیں۔ کون سا وین ڈائگرام (Venn diagrams) اوپر دیئے گئے بیانات کو مطمئن کرتا ہے۔



P Q R

Options :

8643519631. P اور Q

8643519632. P اور R

8643519633. Q اور R

8643519634. ان میں سے کوئی نہیں

Question Number : 62 Question Id : 8643513212 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The area of the triangle with vertices A(z), B(iz) and C($z+iz$) is :

Options :

8643519635. $\frac{1}{2}|z+iz|^2$

8643519636. $\frac{1}{2}|z|^2$

8643519637. $\frac{1}{2}$

8643519638. 1

Question Number : 62 Question Id : 8643513212 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

اس مثلث کا رقبہ بتائیں جس کے راس (vertices) A(z), B(iz) اور C($z+iz$) ہیں۔

Options :

8643519635. $\frac{1}{2}|z+iz|^2$

8643519636. $\frac{1}{2}|z|^2$

8643519637. $\frac{1}{2}$

8643519638. 1

Question Number : 63 Question Id : 8643513213 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If $A = \begin{pmatrix} 0 & \sin\alpha \\ \sin\alpha & 0 \end{pmatrix}$ and $\det\left(A^2 - \frac{1}{2}I\right) = 0$, then a possible value of α is :

Options :

8643519639. $\frac{\pi}{4}$

8643519640. $\frac{\pi}{3}$

8643519641. $\frac{\pi}{6}$

8643519642. $\frac{\pi}{2}$

Question Number : 63 Question Id : 8643513213 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

اگر $A = \begin{pmatrix} 0 & \sin\alpha \\ \sin\alpha & 0 \end{pmatrix}$ اور $\det\left(A^2 - \frac{1}{2}I\right) = 0$ ہے۔تب۔۔کی ممکنہ قیمت ہوگی۔

Options :

8643519639. $\frac{\pi}{4}$

8643519640. $\frac{\pi}{3}$

8643519641. $\frac{\pi}{6}$

8643519642. $\frac{\pi}{2}$

Question Number : 64 Question Id : 8643513214 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The system of equations $kx+y+z=1$, $x+ky+z=k$ and $x+y+zk=k^2$ has no solution if k is equal to :

Options :

8643519643. 0

8643519644. 1

8643519645. -1

8643519646. -2

Question Number : 64 Question Id : 8643513214 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

مساواتوں $kx+y+z=1$ ، $x+ky+z=k$ اور $x+y+zk=k^2$ کے نظام کا کوئی حل نہیں ہوگا اگر k برابر ہے کے

Options :

8643519643. 0

8643519644. 1

8643519645. -1

8643519646. -2

Question Number : 65 Question Id : 8643513215 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Team 'A' consists of 7 boys and n girls and Team 'B' has 4 boys and 6 girls. If a total of 52 single matches can be arranged between these two teams when a boy plays against a boy and a girl plays against a girl, then n is equal to :

Options :

8643519647. 2

8643519648. 4

8643519649. 5

8643519650. 6

Question Number : 65 Question Id : 8643513215 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

ٹیم 'A' میں 7 لڑکے ہیں اور n لڑکیاں ہیں۔ اور ٹیم 'B' میں 4 لڑکے ہیں اور 6 لڑکیاں ہیں۔ اگر ان دونوں ٹیموں کے درمیان اس طرح 52 میچ کھیلے جا سکتے ہیں کہ لڑکا صرف لڑکے کے مخالف کھیلے اور لڑکی صرف لڑکی کے مخالف کھیلے، تب n کی قیمت ہوگی۔

Options :

8643519647. 2

8643519648. 4

8643519649. 5

8643519650. 6

Question Number : 66 Question Id : 8643513216 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If the fourth term in the expansion of $(x + x^{\log_2 x})^7$ is 4480, then the value of x where $x \in \mathbf{N}$ is equal to :

Options :

8643519651. 1

8643519652. 2

8643519653. 3

8643519654. 4

Question Number : 66 Question Id : 8643513216 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

اگر پھیلاؤ $(x + x^{\log_2 x})^7$ (expansion) کا چوتھا رکن 4480 ہے، تب x کی قیمت کیا ہوگی جہاں $x \in \mathbf{N}$ ہے۔

Options :

8643519651. 1

8643519652. 2

8643519653. 3

8643519654. 4

Question Number : 67 Question Id : 8643513217 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The value of $4 + \cfrac{1}{5 + \cfrac{1}{4 + \cfrac{1}{5 + \cfrac{1}{4 + ... \infty}}}}$ is :

Options :

8643519655. $2 + \frac{2}{5}\sqrt{30}$

8643519656. $2 + \frac{4}{\sqrt{5}}\sqrt{30}$

8643519657. $5 + \frac{2}{5}\sqrt{30}$

8643519658. $4 + \frac{4}{\sqrt{5}}\sqrt{30}$

Question Number : 67 Question Id : 8643513217 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

$4 + \cfrac{1}{5 + \cfrac{1}{4 + \cfrac{1}{5 + \cfrac{1}{4 + ... \infty}}}}$ کی قیمت ہے۔

Options :

8643519655. $2+\frac{2}{5}\sqrt{30}$

8643519656. $2+\frac{4}{\sqrt{5}}\sqrt{30}$

8643519657. $5+\frac{2}{5}\sqrt{30}$

8643519658. $4+\frac{4}{\sqrt{5}}\sqrt{30}$

Question Number : 68 Question Id : 8643513218 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If $\cot^{-1}(\alpha)=\cot^{-1}2+\cot^{-1}8+\cot^{-1}18+\cot^{-1}32+\ldots..$ upto 100 terms, then α is :

Options :

8643519659. 1.00

8643519660. 1.01

8643519661. 1.02

8643519662. 1.03

Question Number : 68 Question Id : 8643513218 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

$\cot^{-1}(\alpha)=\cot^{-1}2+\cot^{-1}8+\cot^{-1}18+\cot^{-1}32+\ldots..$ 100 رکن تک ، تب α ہوگا۔

Options :

8643519659. 1.00

8643519660. 1.01

8643519661. 1.02

8643519662. 1.03

Question Number : 69 Question Id : 8643513219 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

The inverse of $y=5^{\log x}$ is :

Options :

8643519663. $x = 5^{\frac{1}{\log y}}$

8643519664. $x = y^{\frac{1}{\log 5}}$

8643519665. $x = 5^{\log y}$

8643519666. $x = y^{\log 5}$

Question Number : 69 Question Id : 8643513219 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

$y=5^{\log x}$ کا معکوس ہے۔

Options :

8643519663. $x = 5^{\frac{1}{\log y}}$

8643519664. $x = y^{\frac{1}{\log 5}}$

8643519665. $x = 5^{\log y}$

8643519666. $x = y^{\log 5}$

Question Number : 70 Question Id : 8643513220 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

The value of $\lim_{x\to 0^+}\frac{\cos^{-1}\left(x-[x]^2\right)\cdot\sin^{-1}\left(x-[x]^2\right)}{x-x^3}$, where $[x]$ denotes the greatest integer $\leq x$ is :

Options :

8643519667. $\frac{\pi}{4}$

8643519668. 0

8643519669. $\frac{\pi}{2}$

8643519670. π

Question Number : 70 Question Id : 8643513220 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

$\lim_{x\to 0^+}\frac{\cos^{-1}\left(x-[x]^2\right)\cdot\sin^{-1}\left(x-[x]^2\right)}{x-x^3}$ کی قیمت کیا ہوگی، جہاں $[x]$ سب سے بڑے صحیح عدد $\leq x$ کو ظاہر کرتا ہے ؟

Options :

8643519667. $\frac{\pi}{4}$

8643519668. 0

8643519669. $\frac{\pi}{2}$

8643519670. π

Question Number : 71 Question Id : 8643513221 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following statements is incorrect for the function $g(\alpha)$ for $\alpha \in R$ such that

$$g(\alpha) = \int_{\frac{\pi}{6}}^{\frac{\pi}{3}} \frac{\sin^{\alpha} x}{\cos^{\alpha} x + \sin^{\alpha} x}\, dx$$

Options :

8643519671. $g(\alpha)$ is a strictly increasing function

8643519672. $g(\alpha)$ is a strictly decreasing function

8643519673. $g(\alpha)$ has an inflection point at $\alpha = -\frac{1}{2}$

8643519674. $g(\alpha)$ is an even function

Question Number : 71 Question Id : 8643513221 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

نیچے دیئے گئے بیانات میں کونسا بیان تفاعل $g(\alpha)$ کے لئے غلط ہے، سارے $\alpha \in R$ کے لئے، اس طرح کہ

$$g(\alpha) = \int_{\frac{\pi}{6}}^{\frac{\pi}{3}} \frac{\sin^{\alpha} x}{\cos^{\alpha} x + \sin^{\alpha} x}\, dx$$

Options :

8643519671. $g(\alpha)$ سختی سے بڑھتا ہوا تفاعل ہے

8643519672. $g(\alpha)$ سختی سے گھٹتا ہوا تفاعل ہے

8643519673. $g(\alpha)$ پر نقطۂ خم $\alpha = -\frac{1}{2}$ ہے

8643519674. $g(\alpha)$ ایک جفت تفاعل ہے

Question Number : 72 Question Id : 8643513222 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is true for $y(x)$ that satisfies the differential equation $\frac{dy}{dx} = xy - 1 + x - y\,;\, y(0) = 0$:

Options :

8643519675. $y(1) = e^{-\frac{1}{2}} - 1$

8643519676. $y(1) = e^{\frac{1}{2}} - 1$

8643519677. $y(1) = e^{\frac{1}{2}} - e^{-\frac{1}{2}}$

8643519678. $y(1) = 1$

Question Number : 72 Question Id : 8643513222 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

مندرجہ ذیل میں سے $y(x)$ کے لئے کون سا سچ ہے، جو تفرقی مساوات $\frac{dy}{dx} = xy - 1 + x - y\,;\, y(0) = 0$ کو مطمئن کرتا ہے۔

Options :

8643519675. $y(1) = e^{-\frac{1}{2}} - 1$

8643519676. $y(1) = e^{\frac{1}{2}} - 1$

8643519677. $y(1) = e^{\frac{1}{2}} - e^{-\frac{1}{2}}$

8643519678. $y(1) = 1$

Question Number : 73 Question Id : 8643513223 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In a triangle PQR, the co-ordinates of the points P and Q are $(-2, 4)$ and $(4, -2)$ respectively. If the equation of the perpendicular bisector of PR is $2x - y + 2 = 0$, then the centre of the circumcircle of the ΔPQR is :

Options :

8643519679. $(1, 4)$

8643519680. $(0, 2)$

8643519681. $(-1, 0)$

8643519682. $(-2, -2)$

Question Number : 73 Question Id : 8643513223 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

مثلث PQR میں P اور Q کے مختص بالترتیب $(-2, 4)$ اور $(4, -2)$ ہیں۔
اگر PR کے ناصف عمود (perpendicular) کی مساوات $2x - y + 2 = 0$ ہو، تب ΔPQR کے حلقوی دائرہ (circumcircle) کا مرکز ہے۔

Options :

8643519679. $(1, 4)$

8643519680. $(0, 2)$

8643519681. $(-1, 0)$

8643519682. $(-2, -2)$

Question Number : 74 Question Id : 8643513224 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

The line $2x - y + 1 = 0$ is a tangent to the circle at the point (2, 5) and the centre of the circle lies on $x - 2y = 4$. Then, the radius of the circle is :

Options :

8643519683. $5\sqrt{3}$

8643519684. $5\sqrt{4}$

8643519685. $4\sqrt{5}$

8643519686. $3\sqrt{5}$

Question Number : 74 Question Id : 8643513224 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

خط $2x-y+1=0$، دائرہ کے نقاط $(2,5)$ پر مماس ہے اور دائرہ کا مرکز $x-2y=4$ پر واقع ہے۔ تب، دائرہ کا نصف قطر ہے۔

Options :

8643519683. $5\sqrt{3}$

8643519684. $5\sqrt{4}$

8643519685. $4\sqrt{5}$

8643519686. $3\sqrt{5}$

Question Number : 75 Question Id : 8643513225 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Choose the incorrect statement about the two circles whose equations are given below :

$x^2+y^2-10x-10y+41=0$ and

$x^2+y^2-16x-10y+80=0$

Options :

8643519687. Circles have two intersection points.

8643519688. Both circles pass through the centre of each other.

8643519689. Both circles' centres lie inside region of one another.

8643519690. Distance between two centres is the average of radii of both the circles.

Question Number : 75 Question Id : 8643513225 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

دو دائرے جن کی مساواتیں اس طرح ہیں

$x^2+y^2-10x-10y+41=0$ اور

$x^2+y^2-16x-10y+80=0$

ان دونوں دائروں کے بارے میں غلط بیان (statement) کو چنئے۔

Options :

8643519687. دائروں کے تقاطع کے دو نقاط ہیں۔

8643519688. دونوں دائرے ایک دوسرے کے مرکزوں سے گزرتے ہیں۔

8643519689. دونوں دائروں کے مرکز ایک دوسرے کے خطہ (region) میں واقع ہیں۔

8643519690. دونوں مرکزوں کے درمیاں کی دوری، دونوں دائروں کے نصف قطر کے اوسط کے برابر ہے۔

Question Number : 76 Question Id : 8643513226 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The equation of the plane which contains the y-axis and passes through the point (1, 2, 3) is :

Options :

8643519691. $3x+z=6$

8643519692. $x+3z=10$

8643519693. $x+3z=0$

8643519694. $3x-z=0$

Question Number : 76 Question Id : 8643513226 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

اس مستوی کی مساوات بتائیں جس کے اندر y محور (y-axis) موجود ہے اور وہ نقاط (1, 2, 3) سے گزرتا ہے۔

Options :

8643519691. $3x+z=6$

8643519692. $x+3z=10$

8643519693. $x+3z=0$

8643519694. $3x-z=0$

Question Number : 77 Question Id : 8643513227 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If the Boolean expression $(p \Rightarrow q) \Leftrightarrow (q * (\sim p))$ is a tautology, then the Boolean expression $p * (\sim q)$ is equivalent to :

Options :

8643519695. $p \Rightarrow q$

8643519696. $p \Rightarrow \sim q$

8643519697. $q \Rightarrow p$

8643519698. $\sim q \Rightarrow p$

Question Number : 77 Question Id : 8643513227 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

اگر دورکنی عبارت $(p \Rightarrow q) \Leftrightarrow (q * (\sim p))$ تکرارلفظی (tautology) ہے۔تب دورکنی عبارت $p * (\sim q)$ برابر ہے۔

Options :

8643519695. $p \Rightarrow q$

8643519696. $p \Rightarrow \sim q$

8643519697. $q \Rightarrow p$

8643519698. $\sim q \Rightarrow p$

Question Number : 78 Question Id : 8643513228 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let $\vec{a} = 2\hat{i} - 3\hat{j} + 4\hat{k}$ and $\vec{b} = 7\hat{i} + \hat{j} - 6\hat{k}$.

If $\vec{r} \times \vec{a} = \vec{r} \times \vec{b}$, $\vec{r} \cdot \left(\hat{i} + 2\hat{j} + \hat{k}\right) = -3$, then $\vec{r} \cdot \left(2\hat{i} - 3\hat{j} + \hat{k}\right)$ is equal to :

Options :

8643519699. 8

8643519700. 10

8643519701. 12

8643519702. 13

Question Number : 78 Question Id : 8643513228 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

فرض کیجئے $\vec{a} = 2\hat{i} - 3\hat{j} + 4\hat{k}$ اور $\vec{b} = 7\hat{i} + \hat{j} - 6\hat{k}$ اگر $\vec{r} \times \vec{a} = \vec{r} \times \vec{b}$،

$\vec{r} \cdot \left(\hat{i} + 2\hat{j} + \hat{k}\right) = -3$ تب $\vec{r} \cdot \left(2\hat{i} - 3\hat{j} + \hat{k}\right)$ ہوگا۔

Options :

8643519699. 8

8643519700. 10

8643519701. 12

8643519702. 13

Question Number : 79 Question Id : 8643513229 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Two dices are rolled. If both dices have six faces numbered 1, 2, 3, 5, 7 and 11, then the probability that the sum of the numbers on the top faces is less than or equal to 8 is :

Options :

8643519703. $\frac{5}{12}$

8643519704. $\frac{4}{9}$

8643519705. $\frac{17}{36}$

8643519706. $\frac{1}{2}$

Question Number : 79 Question Id : 8643513229 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

دو پانسے (dices) پھینکے گئے ہیں۔ اگر پانسے کے چھ رخ ہیں جن پر 1, 2, 3, 5, 7, 11 عدد ہیں۔ تب اس کا احتمال کیا ہوگا کہ اوپری رخ پر اعداد کا جوڑ 8 سے کم یا اس کے برابر ہے۔

Options :

8643519703. $\frac{5}{12}$

8643519704. $\frac{4}{9}$

8643519705. $\frac{17}{36}$

8643519706. $\frac{1}{2}$

Question Number : 80 Question Id : 8643513230 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The sum of possible values of x for $\tan^{-1}(x+1) + \cot^{-1}\left(\frac{1}{x-1}\right) = \tan^{-1}\left(\frac{8}{31}\right)$ is :

Options :

8643519707. $-\frac{33}{4}$

8643519708. $-\frac{32}{4}$

8643519709. $-\frac{31}{4}$

8643519710. $-\frac{30}{4}$

Question Number : 80 Question Id : 8643513230 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

$\tan^{-1}(x+1)+\cot^{-1}\left(\frac{1}{x-1}\right)=\tan^{-1}\left(\frac{8}{31}\right)$ کے لئے x کی ممکنہ قیمتوں کا جوڑ (sum) ہوگا۔

Options :

8643519707. $-\frac{33}{4}$

8643519708. $-\frac{32}{4}$

8643519709. $-\frac{31}{4}$

8643519710. $-\frac{30}{4}$

Mathematics Section B

Section Id :	864351216
Section Number :	6
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	10
Number of Questions to be attempted :	5

Section Marks :	20
Mark As Answered Required? :	Yes
Sub-Section Number :	1
Sub-Section Id :	864351216
Question Shuffling Allowed :	Yes

Question Number : 81 Question Id : 8643513231 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

The maximum value of z in the following equation $z = 6xy + y^2$, where $3x + 4y \leq 100$ and $4x + 3y \leq 75$ for $x \geq 0$ and $y \geq 0$ is _____.

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 81 Question Id : 8643513231 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

جہاں $z = 6xy + y^2$ ، $3x + 4y \leq 100$ اور $4x + 3y \leq 75$ کے لئے z کی سب سے زیادہ قیمت مندرجہ ذیل مساوات $x \geq 0$ اور $y \geq 0$ کے لئے، میں ہوگی _____ ۔

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 82 Question Id : 8643513232 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

If $A = \begin{bmatrix} 2 & 3 \\ 0 & -1 \end{bmatrix}$, then the value of $\det(A^4) + \det\left(A^{10} - (\text{Adj}(2A))^{10}\right)$ is equal to _____.

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :

100

Question Number : 82 Question Id : 8643513232 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

اگر $A = \begin{bmatrix} 2 & 3 \\ 0 & -1 \end{bmatrix}$ ہو تب $\det(A^4) + \det\left(A^{10} - (\text{Adj}(2A))^{10}\right)$ _____ کے برابر ہوگا۔

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 83 Question Id : 8643513233 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

If $(2021)^{3762}$ is divided by 17, then the remainder is _____.

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 83 Question Id : 8643513233 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

اگر $(2021)^{3762}$ کو 17 سے تقسیم کیا جاتا ہے تو باقی ہے _____

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 84 Question Id : 8643513234 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

If the function $f(x) = \dfrac{\cos(\sin x) - \cos x}{x^4}$ is continuous at each point in its domain and $f(0) = \dfrac{1}{k}$, then k is _____.

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 84 Question Id : 8643513234 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

اگر تفاعل $f(x) = \dfrac{\cos(\sin x) - \cos x}{x^4}$ اپنے ڈومین (domain) کے ہر نقطہ پر مسلسل ہے، اور $f(0) = \dfrac{1}{k}$ ہے، تب k ہوگا _____.

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 85 Question Id : 8643513235 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

If $[\cdot]$ represents the greatest integer function, then the value of $\left|\int_0^{\sqrt{\frac{\pi}{2}}} \left[[x^2] - \cos x\right] dx\right|$ is _____.

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 85 Question Id : 8643513235 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

اگر $[\cdot]$ سب سے بڑے صحیح عدد (greatest integer) کو ظاہر کرتا ہے تو $\left|\int_0^{\sqrt{\frac{\pi}{2}}}\left[[x^2]-\cos x\right]dx\right|$ کی قیمت

ہوگی _____.

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 86 Question Id : 8643513236 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

The minimum distance between any two points P_1 and P_2 while considering point P_1 on one circle and point P_2 on the other circle for the given circles' equations

$x^2+y^2-10x-10y+41=0$

$x^2+y^2-24x-10y+160=0$ is _____.

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 86 Question Id : 8643513236 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

دونقاط P_1 اور P_2 کے درمیان سب سے کم دوری، جبکہ P_1 ایک دائرہ پر ہے اور P_2 دوسرے دائرہ پر ہے۔ جن کی مساواتیں اس طرح ہیں۔

$x^2+y^2-10x-10y+41=0$

$x^2+y^2-24x-10y+160=0$ ، ہوگی _____۔

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal

Text Areas : PlainText
Possible Answers :
100

Question Number : 87 Question Id : 8643513237 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

If the equation of the plane passing through the line of intersection of the planes $2x-7y+4z-3=0$, $3x-5y+4z+11=0$ and the point $(-2, 1, 3)$ is $ax+by+cz-7=0$, then the value of $2a+b+c-7$ is _____.

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 87 Question Id : 8643513237 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

اگر دو مستویوں $2x-7y+4z-3=0$ اور $3x-5y+4z+11=0$ اور نقطہ $(-2, 1, 3)$ کے تقاطع کی خط سے گزرنے والے مستوی کی مساوات $ax+by+cz-7=0$ ہے، تب $2a+b+c-7$ کی قیمت ہوگی _____.

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 88 Question Id : 8643513238 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

Let there be three independent events E_1, E_2 and E_3. The probability that only E_1 occurs is α, only E_2 occurs is β and only E_3 occurs is γ. Let 'p' denote the probability of none of events occurs that satisfies the equations $(\alpha-2\beta)p=\alpha\beta$ and $(\beta-3\gamma)p=2\beta\gamma$. All the given probabilities are assumed to lie in the interval (0, 1).

Then, $\frac{\text{Probability of occurrence of } E_1}{\text{Probability of occurrence of } E_3}$ is equal to _____.

Response Type : Numeric

Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 88 Question Id : 8643513238 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

فرض کیجئے E_1 ، E_2 اور E_3 تین غیر پابند (independent) واقعات ہیں۔صرف E_1 کے وجود میں آنے کا احتمال α ہے،اور صرف E_2 کے وجود میں آنے کا احتمال β ہے اور صرف E_3 کے وجود میں آنے کا احتمال γ ہے۔فرض کیجئے ان سارے واقعات کے وجود میں نہ آنے کا احتمال 'p' ہے، جو تفاعل $(\alpha-2\beta)p=\alpha\beta$ اور $(\beta-3\gamma)p=2\beta\gamma$ کو مطمئن کرتے ہیں۔سارے احتمال وقفہ $(0,1)$ میں واقع ہونا فرض کئے گئے ہیں۔

تب $\frac{E_1 \text{ کے وجود میں آنے کا احتمال}}{E_3 \text{ کے وجود میں آنے کا احتمال}}$ = _____

ہوگا۔

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 89 Question Id : 8643513239 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

If $f(x)=\sin\left(\cos^{-1}\left(\frac{1-2^{2x}}{1+2^{2x}}\right)\right)$ and its first derivative with respect to x is $-\frac{b}{a}\log_e 2$ when $x=1$, where a and b are integers, then the minimum value of $|a^2-b^2|$ is _____.

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 89 Question Id : 8643513239 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

اگر $f(x)=\sin\left(\cos^{-1}\left(\frac{1-2^{2x}}{1+2^{2x}}\right)\right)$ ہے،اوراس کا پہلامشتق x کی نسبت $-\frac{b}{a}\log_e 2$ ہے جب $x=1$ ، جہاں a اور b صحیح عدد ہے،تب $|a^2-b^2|$ کی سب سے کم قیمت ہوگی۔

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 90 Question Id : 8643513240 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

If $\vec{a}=\alpha\hat{i}+\beta\hat{j}+3\hat{k}$,

$\vec{b}=-\beta\hat{i}-\alpha\hat{j}-\hat{k}$ and

$\vec{c}=\hat{i}-2\hat{j}-\hat{k}$

such that $\vec{a}\cdot\vec{b}=1$ and $\vec{b}\cdot\vec{c}=-3$, then $\frac{1}{3}\left(\left(\vec{a}\times\vec{b}\right)\cdot\vec{c}\right)$ is equal to _____.

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100

Question Number : 90 Question Id : 8643513240 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

اگر $\vec{a} = \alpha\hat{i} + \beta\hat{j} + 3\hat{k}$

اور $\vec{b} = -\beta\hat{i} - \alpha\hat{j} - \hat{k}$

$\vec{c} = \hat{i} - 2\hat{j} - \hat{k}$

اس طرح ہیں کہ $\vec{a} \cdot \vec{b} = 1$ اور $\vec{b} \cdot \vec{c} = -3$ تب $\frac{1}{3}\left(\left(\vec{a} \times \vec{b}\right) \cdot \vec{c}\right)$ ہوگا۔ _____

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
100