JEE-Main-29-07-2022-Shift-2 (Memory Based)

Physics

Question: Two plate have charge q_1, q_2 ($q_1 > q_2$) they are used to make capacitor. Find potential difference?

Options:

(a) $q_1 + q_2 / C$

(b) $(q_1 - q_2) / 2C$

(c) $q_1 - q_2 / C$

(d) $q_1 + q_2 / 2C$

Question: Linear momentum is increased by 20% then increase in kinetic energy?

Options:

(a) 40%

(b) 44%

(c) 50%

(d) 60%

Question: What is ratio of time t_1 and t_2 if t_1 is time travelled from highest point to half of distance and t_2 the remaining half distance.

Options:

(a) $t_1 = \sqrt{2} t_2$

(b) $t_1 = (\sqrt{2} - 1) t_2$

(c) $t_1 = (\sqrt{2} + 1) t_2$

(d) $t_2 = (\sqrt{2} - 1) t_1$

Question: A current carrying wire x of 50 cm carring current 2A is parallel to another wire y of length 5m and 3A current, has separation of 2m find force on wire y due to x.

Options:

(a) 1.4 x 10^{-5} N towards x

(b) 1.3 x 10^{-5} N towards y

(c) 1.4 x 10^{-5} N towards y

(d) 1.2 x 10^{-5} N towards x

Question: Gravitation ka tha ki 1g ki body ko 3R from surface leke gye toh gain in potential energy?

Options:

(a) 48 mJ

(b) 24 mJ

(c) 30 mJ

(d) 26 mJ

Question: Time period of pendulum 10s. Its relative density is 5 it is immense in water. If new time period is $5\sqrt{x}$ s. Find x.

Options:

(a) 5

(b) 3

(c) 2

(d) 4

Question: If α particle and proton are accelerated from same potential difference then the ratio of their linear momenta.

Options:

(a) $2\sqrt{2}:1$

(b) $2\sqrt{2}:3$

(c) $\sqrt{2}:1$

(d) $\sqrt{2}:2$

Question: Light ray from air enters a medium with 45° angle and it deviates 15° from its original path. Find the refractive index of the medium.

Options:

(a) 2.314

(b) 1.414

(c) 1.314

(d) 1.333

Question: Wire length of 1 m divided in x and y wire x stretched to twice, then stretched wire is twice the resistance of y.

Options:

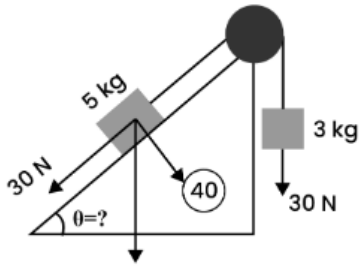
(a) 2: 1

(b) 1:2

(c) 4:1

(d) 1:4

Question: At equilibrium Reaction force by inclined place.



Options:

(a) 30

(b) 40

(c) 50

(d) 10

Question: Match the following

A – Torque, 1 – Nms^{-1}

B – Stress, 2 – Jkg^{-1}

C – Latent, 3 – Nm

D- Power, 4 – Nm^{-2}

Options:

(a) A→1, B→4, C→3, D→2

(b) A→3, B→4, C→2, D→1

(c) A→1, B→3, C→2, D→4

(d) A→2, B→1, C→4, D→3

Question: Assertion: Constantan and magainin are used in resistance coil.

Reason: their temperature coefficient of resistance is low

Options:

(a) If both assertion and reason are true and the reason is the correct explanation of the assertion.

(b) If both assertion and reason are true, but the reason is not the correct explanation of the assertion.

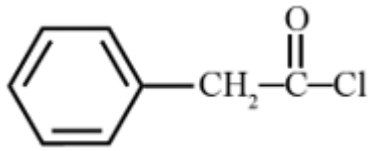
(c) If assertion is true, but reason is false.

(d) If both the assertion and reason are false.

Chemistry

Question: Which of the following is not a natural polymer?
Options:
(a) Protein
(b) Rayon
(c) Starch
(d) Rubber

Question: Hinsberg's reagent is-
Options:
(a)



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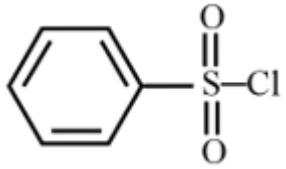

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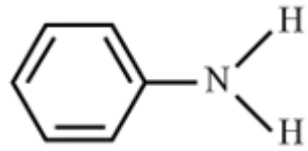

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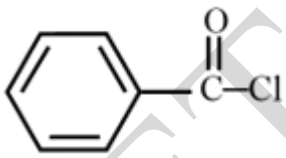

Question: In portland cement what enhances the settling time?

Options:
(a) $CaSO_4$, $\frac{1}{2}H_2O$
(b) $CaSO_4$, $2H_2O$
(c) $CaCO_3$
(d) $CaSO_4$

Question: Ethanol on reaction with conc. H_2SO_4 gives A, which on further reaction with Baeyer's reagent will give:
Options:
(a) Ethane-1,2-diol
(b) Formaldehyde
(c) Formic acid
(d) Ethanoic acid

Question: The sum of oxidation state (magnitude only) and coordination number of cobalt in $Na[Co(bpy)Cl_4]$
Options:
(a) 3
(b) 6
(c) 9
(d) 5

Question: Which of the following compound has O–O linkage
Options:
(a) H_2SO_4
(b) $H_2S_2O_8$
(c) $H_2S_2O_7$
(d) H_2SO_3

Question: 200 ml of 0.01 M of HCl and 400 ml of 0.01 M of H_2SO_4 are mixed. What is the final pH?
Options:
(a) 2
(b) 1
(c) 3
(d) 4

Question: Which of the following ions has lowest value of hydration enthalpy in magnitude?
Options:
(a) Cr^{2+}
(b) Mn^{2+}
(c) Fe^{2+}
(d) Co^{2+}

Question: $HNO_3 + KCl \rightarrow KNO_3 + Cl_2 + NOCl + H_2O$. Find amount of HNO_3 required to make 110 g KNO_3
Options:
(a) 91.5g
(b) 56.4g
(c) 14.7g
(d) 67.2g

Question: Number of chlorine atoms in Bithionol is

Question: How many among the following are sp^3d^2 hybridised?
BrF_5, $[ICl_4]^-$, ICl_3, ICl_5, SF_6, PCl_5

Question: Weight of O_2 is x gram and for Ne is 200 g. Total pressure is 25 bar and Partial pressure of Ne 20 bar Find x =?

Mathematics

Question: The value of $\sum_{r=1}^{20}\left(r^2+1\right)\cdot r!$ is:

Options:

(a) $22!-2\cdot(20)!$

(b) $(22)!-2(21)!$

(c) $(22)!$

(d) $2(21)!$

Question: If $|\vec{a}||\vec{b}||\vec{c}|=14$ and $(\vec{a}\times\vec{b})\cdot(\vec{b}\times\vec{c})+(\vec{b}\times\vec{c})\cdot(\vec{c}\times\vec{a})+(\vec{c}\times\vec{a})\cdot(\vec{a}\times\vec{b})=168$ and $\vec{a},\vec{b},\vec{c}$ are coplanar, concurrent and make equal angles with each other, then $|\vec{a}|+|\vec{b}|+|\vec{c}|$ is equal to:

Options:

(a) 14

(b) 16

(c) 10

(d) 12

Question: A perpendicular drawn from (1, 2, 3) to the plane $x+2y+z=14$ and intersect plane at Q. R be a point on plane such that PR makes an angle $60°$ with the plane, then area of ΔPQR is:

Options:

(a) $\sqrt{3}$ sq. units

(b) 3 sq. units

(c) $\frac{\sqrt{3}}{2}$ sq. units

(d) 4 sq. units

Question: The number of solution of the equation $2\cos\left(\frac{x^2+x}{6}\right)=4^x+4^{-x}$ is/are:

Options:

(a) 1

(b) 0

(c) 3

(d) Infinite

Question: Let $\vec{a},\vec{b}$ are two vectors and $\vec{a}\cdot\vec{b}=3$, $\left|\vec{a}\times\vec{b}\right|^2=75$, and $\left|\vec{a}+\vec{b}\right|^2=\left|\vec{a}\right|^2+2\left|\vec{b}\right|^2$, then $\left|\vec{a}\right|^2$ is equal to ____.

Question: If sum and product of mean and variance in a binomial distribution are 82.5 and 1350 respectively, then n is equal to ___.
(where n is number of trial in binomial distribution).

Question: The number of numbers lying between 1024 and 23146 which are divisible by 55 and made from 2, 3, 4, 5, 6 without repetition, is ____.