

JEE Main 25th Feb Shift 1 Memory-Based Questions – CollegeDekho

Find the total number of numbers lying between 100 and 1000 formed using 1, 2, 3, 4, 5 and divisible by either 3 or 5.

Q. A man on top of a vertical tower see a boat headed straight towards the foot of the tower at a point A, the angle of depression of the boat at the point is 30° . Boat measure with uniform speed and ignore height of the mass. After 20 s, the angle of depression change to 45° at point B. Find time taken by boat to reach foot of the tower from B, foot of the tower at same level.

(A) $10(\sqrt{3} + 1)$
 (B) $10(\sqrt{3} - 1)$
 (C) 10
 (D) $10\sqrt{5}$

Answer A

The coefficients a, b, c of quadratic equation $ax^2 + bx + c = 0$ are obtained by throwing a dice thrice. The probability that it has equal roots is

(A) $\frac{1}{36}$ (B) $\frac{1}{72}$ (C) $\frac{1}{54}$ (D) $\frac{5}{216}$

Answer D

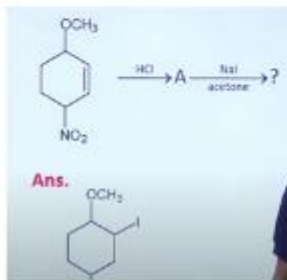
Locus of centre of a circle which touches $x^2 + y^2 - 6x - 6y - 14 = 0$ externally and also touches y-axis

$A \rightarrow (B \rightarrow A)$ equal to

(A) $A \rightarrow (A \vee B)$
 (B) $A \rightarrow (A \wedge B)$
 (C) $A \rightarrow (A \rightarrow B)$
 (D) $A \rightarrow (A \leftrightarrow B)$

Answer A

Q. If $A = \begin{bmatrix} x & y & z \\ y & z & x \\ z & x & y \end{bmatrix}$ (x, y, z) are real mass and $(x + y + z) > 0$ and $xyz = 2$ $A^2 = I$, then find: $x^3 + y^3 + z^3 =$ ___



If $\frac{dy}{dx} = \frac{x^2 - 4x + 8 + y}{x - 2}$, if curve passes through origin, then it also passes through

(A) (5, 5) (B) (4, 5) (C) (5, 4) (D) (4, 4)

Answer A

$$\int \frac{\sin \theta \cdot \sin 2\theta (\sin^6 \theta + \sin^4 \theta + \sin^2 \theta) \sqrt{2\sin^4 \theta + 3\sin^2 \theta + 6}}{1 - \cos 2\theta}$$

Probability density curve for 3s orbital



Ans. $\frac{x}{m} \propto kp^x$ find the value of x
 Ans. $x \Rightarrow \frac{1}{n} (n > 1)$

Q. $A \rightarrow (A \rightarrow B)$ is equivalent to :

Answer C

- (A) $A \rightarrow (B \rightarrow A)$
- (B) $A \rightarrow (A \leftrightarrow B)$
- (C) $A \rightarrow (A \wedge B)$
- (D) $A \rightarrow (A \vee B)$

$$\lim_{n \rightarrow \infty} \left[1 + \frac{1 + \frac{1}{2} + \frac{1}{3} + \dots + \frac{1}{n}}{n^2} \right]^n$$

(A) 0 (B) $\frac{1}{e}$ (C) $\frac{1}{2}$ (D) 1

Answer D

Statement 1: CeO_2 is used for oxidation of aldehyde and ketone

Statement 2: Aqueous solution of EuSO_4 acts as strong reducing agent

A. Both statement true
 B. Statement 1 true 2 false
 C. Statement 2 true 1 false
 D. Both statement are false

Ans. A

Q) $\lim_{n \rightarrow \infty} \left(1 + \frac{1 + \frac{1}{2} + \dots + \frac{1}{n}}{n^2} \right)^n$

$e^{\lim_{n \rightarrow \infty} n \left(\frac{1}{n^2} + \frac{1}{2n^2} + \dots + \frac{1}{n^3} \right)}$

$e^{\lim_{n \rightarrow \infty} n \left(\frac{1}{n} + \frac{1}{2n} + \dots + \frac{1}{n^2} \right)}$

(A) ✓ (B) $1/e$ (C) $1/2e$ (D) 0

If $\frac{x^2}{a} + \frac{y^2}{b} = 1$ and $\frac{x^2}{c} + \frac{y^2}{d} = 1$ are orthogonal then relation between a, b, c, d is:

(A) $a+b=c+d$ (B) $ab = \frac{b+d}{c+d}$ (C) (D)

Answer A

$\text{CH}_3\text{CH}_2\text{CN} \xrightarrow[\text{PbSO}_4/\text{H}_2]{\text{SnCl}_2/\text{H}_3\text{O}^+} ?$

Answer A

- A. $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$
- B. $\text{CH}_3\text{CH}_2\text{CH}_2\text{NH}_2$
- C. $\text{CH}_3\text{CH}_2\text{COOH}$
- C. $\text{CH}_3\text{CH}_2\text{CHO}$

Glycosidic linkage on lactose at which no. of C atom

Ans. Galactose C₁ – C₄ Glucose

If $\frac{x^2}{a} + \frac{y^2}{b} = 1$ and $\frac{x^2}{c} + \frac{y^2}{d} = 1$ are orthogonal then between a, b, c, d is:

- A $a + b = c + d$ B $ab = \frac{b+d}{c+d}$
 C $a - c = b - d$ D None of these

Match the following physical quantities with the correct dimensions ?

1	2
h (planck's constant)	$[M^1 L^2 A^{-1} T^{-3}]$
KE (kinetic energy)	$[M^1 L^2 T^{-2}]$
V (voltage)	$[M^1 L^1 T^{-1}]$
P (momentum)	$[M^1 L^2 T^{-2}]$

K_{sp} of AgCN is 1.2×10^{-16} find the solubility of AgCN

Answer - Square root of K_{sp}

Which of the following is responsible for male secondary sexual characters

- A. Progesterone B. Estrogen
 C. Testosterone D. Penis

Answer C

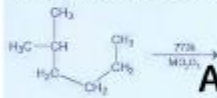
Two satellites A & B revolve in $R_1 = 600$ km & $R_2 = 1600$ km.
 Find $T_2 : T_1$, (4,25)

A diatomic gas is heated at constant pressure, Find the ratio $dU : dQ : dW$ (where symbol has usual meaning)
 (Given : $C_p = \frac{7}{2}R$; $C_v = \frac{5}{2}R$)

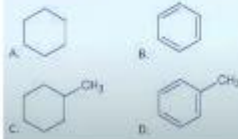
- A 5 : 7 : 1
 B 5 : 7 : 2
 C 2 : 7 : 5
 D 1 : 1 : 1

Answer B

What is the product formed in the following reaction?



Answer D



The pitch of a micrometer screw gauge is 1 mm and the circular scale has 100 divisions. When there is nothing between the jaws, the zero of the circular scale is 8 divisions below the main scale. When a wire is put between the jaws, the 1st division of main scale is visible and 72nd division of circular scale coincides with main scale. The radius of wire is?

Answer D

A. 1.8 mm
 B. 0.9 mm
 C. 1.64 mm
 D. 0.82 mm

$\text{HC} \equiv \text{CH} \xrightarrow[\text{AlCl}_3]{\text{Red hot Fe [X]}} \xrightarrow{\text{CO/HCl/AlCl}_3} \text{Y}$

Find the no. of sp^2 hybridised C-atoms in 'X'?

A. 6
 B. 4
 C. 7
 D. 2

Answer C

If a train engine crosses a signal with a velocity u & has constant acceleration and the last bogey of train crosses the signal with velocity v , then middle point of train crosses the signal with velocity ?

Answer B

A. $\frac{v+u}{2}$
 B. $\sqrt{\frac{v^2+u^2}{2}}$
 C. $\sqrt{\frac{v^2-u^2}{2}}$
 D. $\frac{v-u}{2}$

Which molecule does not exist

A. Be_2
 B. He_2^+
 C. He_2^{2-}
 D. O_2^{2-}

Ans. A

Which of following does not hydrolysis

A. BF_3
 B. PCl_5
 C. SF_6
 D. SiCl_4

Answer C

Which of the following is the correct statement about diborane?

A. BH_3 is lewis base
 B. All B-H-B bond angle is equal to 120°
 C. All B-H bonds have same length
 D. Terminal H have less p character then bridge

Answer D

The distance of two points from the center of a loop on the axis is 0.09 cm and 0.20 cm and the ratio of the magnetic fields at these points is 8 : 1 respectively. Find the radius of the loop?

Answer A

A. 1 mm
 B. 0.1 mm
 C. 10 mm
 D. 0.01 mm

The curve of ellingham diagram is between:

A. ΔH vs T
 B. ΔG vs T
 C. ΔG vs ΔH
 D. None

Answer B

Name of the Subject	Questions
Mathematics	To be Updated
Physics	<ul style="list-style-type: none"> For a polytropic process whose equation is given by $pV^n = \text{constant}$, x is not equal to 0, 1 or γ. Which is true? Answer - Molar Seat Capacity (other options given in the question are also correct) A charged solid conductor having a cavity $+q$ charge. What is the charge given on the outer surface? Answer $+q$ Circular coil of wire consisting of 100 turns each of radius 8.0 cm carries a current of 0.40 A. What is the magnitude of the bat the content of the coil? - Answer 32 What is focal length of convex lens when image size is same when object placed at 10 cm or 20 cm?

	<p>Q. $(A) \xleftarrow[\text{[O]}]{\text{CrO}_2\text{Cl}_2} \text{C}_6\text{H}_5\text{CHO} \xrightarrow[\text{OH}^-]{\text{KMnO}_4} (B)$</p> <p>A and B are \rightarrow</p> <ul style="list-style-type: none"> •
Chemistry	<ul style="list-style-type: none"> • Monomer of Buna S - Answer 1, 3 B & S • Which of the linkage is present in Glucose and Galactose present in Lactose? Glycosidic linkage

More Questions Coming Soon

JEE Main 2021 Paper 1 (B.Tech) Answer Key	JEE Main Rank Predictor 2021	What is a Good Score in JEE Main?
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