

National Testing Agency

Question Paper Name :	B Tech 04th April 2024 Shift 2 Paper
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B. Tech

Group Number :	1
Group Id :	680191181
Group Maximum Duration :	0
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Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	300
Is this Group for Examiner? :	No
Examiner permission :	Cant View
Show Progress Bar? :	No

Mathematics Section A

Section Id :	680191221
Section Number :	1

Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	20
Number of Questions to be attempted :	20
Section Marks :	80
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	680191311
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 1 Question Id : 68019113794 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let a relation R on $\mathbb{N} \times \mathbb{N}$ be defined as:
 $(x_1, y_1) R (x_2, y_2)$ if and only if $x_1 \leq x_2$ or $y_1 \leq y_2$.

Consider the two statements:

(I) R is reflexive but not symmetric.

(II) R is transitive

Then which one of the following is true?

Options :

68019154371. Only (I) is correct.

68019154372. Only (II) is correct.

68019154373. Both (I) and (II) are correct.

68019154374. Neither (I) nor (II) is correct.

Question Number : 1 Question Id : 68019113794 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

माना $N \times N$ पर संबंध R परिभाषित है:

$(x_1, y_1) R (x_2, y_2)$ यदि और केवल यदि $x_1 \leq x_2$ या $y_1 \leq y_2$ है।

दो कथनों पर विचार कीजिए :

(I) R स्वतुल्य है परन्तु सममित नहीं

(II) R संक्रामक है

तो निम्नलिखित में से कौन सा सत्य है?

Options :

68019154371. केवल (I) सही है

68019154372. केवल (II) सही है

68019154373. (I) तथा (II) दोनों सही है

68019154374. ना तो (I) न ही (II) सही है

Question Number : 2 Question Id : 68019113795 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The area (in sq. units) of the region

$S = \{z \in \mathbb{C} : |z - 1| \leq 2; (z + \bar{z}) + i(z - \bar{z}) \leq 2, \text{Im}(z) \geq 0\}$ is

Options :

68019154375. $\frac{3\pi}{2}$

68019154376. $\frac{7\pi}{3}$

68019154377. $\frac{7\pi}{4}$

68019154378. $\frac{17\pi}{8}$

Question Number : 2 Question Id : 68019113795 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

क्षेत्र $S = \{z \in \mathbb{C} : |z-1| \leq 2; (z+\bar{z}) + i(z-\bar{z}) \leq 2, \text{Im}(z) \geq 0\}$ का क्षेत्रफल(वर्ग इकाइयों में) है

Options :

68019154375. $\frac{3\pi}{2}$

68019154376. $\frac{7\pi}{3}$

68019154377. $\frac{7\pi}{4}$

68019154378. $\frac{17\pi}{8}$

Question Number : 3 Question Id : 68019113796 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let $A = \begin{bmatrix} 1 & 2 \\ 0 & 1 \end{bmatrix}$ and $B = I + \text{adj}(A) + (\text{adj } A)^2 + \dots + (\text{adj } A)^{10}$.

Then, the sum of all the elements of the matrix B is:

Options :

68019154379. 22

68019154380. -110

68019154381. -124

68019154382. -88

Question Number : 3 Question Id : 68019113796 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

माना $A = \begin{bmatrix} 1 & 2 \\ 0 & 1 \end{bmatrix}$ तथा $B = I + \text{adj}(A) + (\text{adj } A)^2 + \dots + (\text{adj } A)^{10}$.

तो, आव्यूह B के सभी अवयवों का योग है:

Options :

68019154379. 22

68019154380. -110

68019154381. -124

68019154382. -88

Question Number : 4 Question Id : 68019113797 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum

Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

If the coefficients of x^4 , x^5 and x^6 in the expansion of $(1+x)^n$ are in the arithmetic progression, then the maximum value of n is:

Options :

68019154383. 7

68019154384. 14

68019154385. 21

68019154386. 28

Question Number : 4 Question Id : 68019113797 Question Type : MCQ Option Shuffling : Yes Is

Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum

Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

यदि $(1+x)^n$ के प्रसार में x^4 , x^5 तथा x^6 के गुणांक समांतर श्रेणी में हैं, तो n का उच्चतम मान है :

Options :

68019154383. 7

68019154384. 14

68019154385. 21

68019154386. 28

Question Number : 5 Question Id : 68019113798 Question Type : MCQ Option Shuffling : Yes Is

Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum

Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The value of $\frac{1 \times 2^2 + 2 \times 3^2 + \dots + 100 \times (101)^2}{1^2 \times 2 + 2^2 \times 3 + \dots + 100^2 \times 101}$ is

Options :

68019154387. $\frac{31}{30}$

68019154388. $\frac{305}{301}$

68019154389. $\frac{32}{31}$

68019154390. $\frac{306}{305}$

Question Number : 5 Question Id : 68019113798 Question Type : MCQ Option Shuffling : Yes Is

Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum

Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

$\frac{1 \times 2^2 + 2 \times 3^2 + \dots + 100 \times (101)^2}{1^2 \times 2 + 2^2 \times 3 + \dots + 100^2 \times 101}$ का मान है

Options :

68019154387. $\frac{31}{30}$

68019154388. $\frac{305}{301}$

68019154389. $\frac{32}{31}$

68019154390. $\frac{306}{305}$

Question Number : 6 Question Id : 68019113799 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let three real numbers a, b, c be in arithmetic progression and $a + 1, b, c + 3$ be in geometric progression. If $a > 10$ and the arithmetic mean of a, b and c is 8, then the cube of the geometric mean of a, b and c is

Options :

68019154391. 128

68019154392. 312

68019154393. 120

68019154394. 316

Question Number : 6 Question Id : 68019113799 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

माना तीन वास्तविक संख्याएँ a, b, c समांतर श्रेणी में हैं तथा $a + 1, b, c + 3$ गुणोत्तर श्रेणी में है यदि $a > 10$ है तथा a, b, c का समांतर माध्य 8 है, तो a, b, c के गुणोत्तर माध्य का घन है

Options :

68019154391. 128

68019154392. 312

68019154393. 120

68019154394. 316

Question Number : 7 Question Id : 68019113800 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let $f(x) = 3\sqrt{x-2} + \sqrt{4-x}$ be a real valued function. If α and β are respectively the minimum and the maximum values of f , then $\alpha^2 + 2\beta^2$ is equal to

Options :

68019154395. 24

68019154396. 38

68019154397. 44

68019154398. 42

Question Number : 7 Question Id : 68019113800 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

माना $f(x) = 3\sqrt{x-2} + \sqrt{4-x}$ वास्तविक मूल्य फलन है। यदि α तथा β क्रमशः f के न्यूनतम तथा उच्चतम मान हैं, तो $\alpha^2 + 2\beta^2$ बराबर है

Options :

68019154395. 24

68019154396. 38

68019154397. 44

68019154398. 42

Question Number : 8 Question Id : 68019113801 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

If the function

$$f(x) = \begin{cases} \frac{72^x - 9^x - 8^x + 1}{\sqrt{2} - \sqrt{1 + \cos x}} & , \quad x \neq 0 \\ a \log_e 2 \log_e 3 & , \quad x = 0 \end{cases}$$

is continuous at $x = 0$, then the value of a^2 is equal to

Options :

68019154399. 746

68019154400. 968

68019154401. 1152

68019154402. 1250

Question Number : 8 Question Id : 68019113801 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

यदि फलन

$$f(x) = \begin{cases} \frac{72^x - 9^x - 8^x + 1}{\sqrt{2} - \sqrt{1 + \cos x}} & , \quad x \neq 0 \\ a \log_e 2 \log_e 3 & , \quad x = 0 \end{cases}$$

$x = 0$ पर संतत है, तो a^2 का मान बराबर है

Options :

68019154399. 746

68019154400. 968

68019154401. 1152

68019154402. 1250

Question Number : 9 Question Id : 68019113802 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let $f(x) = \int_0^x (t + \sin(1 - e^t)) dt, x \in \mathbb{R}$. Then, $\lim_{x \rightarrow 0} \frac{f(x)}{x^3}$ is equal to

Options :

68019154403. $\frac{2}{3}$

68019154404. $-\frac{2}{3}$

68019154405. $\frac{1}{6}$

68019154406. $-\frac{1}{6}$

Question Number : 9 Question Id : 68019113802 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

माना $f(x) = \int_0^x (t + \sin(1 - e^t)) dt, x \in \mathbb{R}$, है। तो $\lim_{x \rightarrow 0} \frac{f(x)}{x^3}$ बराबर है

Options :

68019154403. $\frac{2}{3}$

68019154404. $-\frac{2}{3}$

68019154405. $\frac{1}{6}$

68019154406. $-\frac{1}{6}$

Question Number : 10 Question Id : 68019113803 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

If the value of the integral $\int_{-1}^1 \frac{\cos \alpha x}{1 + 3^x} dx$ is $\frac{2}{\pi}$. Then, a value of α is

Options :

68019154407. $\frac{\pi}{4}$

68019154408. $\frac{\pi}{3}$

68019154409. $\frac{\pi}{2}$

68019154410. $\frac{\pi}{6}$

Question Number : 10 Question Id : 68019113803 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

यदि समाकलन $\int_{-1}^1 \frac{\cos \alpha x}{1+3^x} dx$ का मान $\frac{2}{\pi}$ है। तो α का एक मान है

Options :

68019154407. $\frac{\pi}{4}$

68019154408. $\frac{\pi}{3}$

68019154409. $\frac{\pi}{2}$

68019154410. $\frac{\pi}{6}$

Question Number : 11 Question Id : 68019113804 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The area (in sq. units) of the region described by $\{(x, y) : y^2 \leq 2x, \text{ and } y \geq 4x - 1\}$ is

Options :

68019154411. $\frac{9}{32}$

$$68019154412. \frac{8}{9}$$

$$68019154413. \frac{11}{32}$$

$$68019154414. \frac{11}{12}$$

Question Number : 11 Question Id : 68019113804 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

क्षेत्र $\{(x, y) : y^2 \leq 2x, \text{ तथा } y \geq 4x - 1\}$ का क्षेत्रफल (वर्ग इकाइयों में) है

Options :

$$68019154411. \frac{9}{32}$$

$$68019154412. \frac{8}{9}$$

$$68019154413. \frac{11}{32}$$

$$68019154414. \frac{11}{12}$$

Question Number : 12 Question Id : 68019113805 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let $y = y(x)$ be the solution of the differential equation

$(x^2 + 4)^2 dy + (2x^3y + 8xy - 2)dx = 0$. If $y(0) = 0$, then $y(2)$ is equal to

Options :

68019154415. $\frac{\pi}{32}$

68019154416. $\frac{\pi}{16}$

68019154417. $\frac{\pi}{8}$

68019154418. 2π

Question Number : 12 Question Id : 68019113805 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

माना $y = y(x)$ अवकल समीकरण $(x^2 + 4)^2 dy + (2x^3y + 8xy - 2)dx = 0$ का हल है।
यदि $y(0) = 0$ है, तो $y(2)$ बराबर है

Options :

68019154415. $\frac{\pi}{32}$

68019154416. $\frac{\pi}{16}$

68019154417. $\frac{\pi}{8}$

68019154418. 2π

Question Number : 13 Question Id : 68019113806 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let C be a circle with radius $\sqrt{10}$ units and centre at the origin. Let the line $x + y = 2$ intersects the circle C at the points P and Q . Let MN be a chord of C of length 2 unit and slope -1 . Then, a distance (in units) between the chord PQ and the chord MN is

Options :

68019154419. $\sqrt{2} - 1$

68019154420. $3 - \sqrt{2}$

68019154421. $\sqrt{2} + 1$

68019154422. $2 - \sqrt{3}$

Question Number : 13 Question Id : 68019113806 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

माना C एक वृत्त है जिसकी त्रिज्या $\sqrt{10}$ इकाई है तथा केन्द्र मूलबिन्दु पर है। माना रेखा $x + y = 2$ वृत्त C को बिन्दु P तथा Q पर प्रतिच्छेद करती है। माना MN , C की एक जीवा है जिसकी लम्बाई 2 तथा प्रवणता -1 है। तो जीवा PQ तथा जीवा MN के बीच की एक दूरी(इकाई में) है

Options :

68019154419. $\sqrt{2} - 1$

68019154420. $3 - \sqrt{2}$

68019154421. $\sqrt{2} + 1$

68019154422. $2 - \sqrt{3}$

Question Number : 14 Question Id : 68019113807 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Consider a hyperbola H having centre at the origin and foci on the x -axis. Let C_1 be the circle touching the hyperbola H and having the centre at the origin. Let C_2 be the circle touching the hyperbola H at its vertex and having the centre at one of its foci. If areas (in sq units) of C_1 and C_2 are 36π and 4π , respectively, then the length (in units) of latus rectum of H is

Options :

68019154423. $\frac{28}{3}$

68019154424. $\frac{14}{3}$

68019154425. $\frac{10}{3}$

68019154426. $\frac{11}{3}$

Question Number : 14 Question Id : 68019113807 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

अतिपरवलय H पर विचार कीजिए जिसका केन्द्र मूलबिन्दु पर तथा नाभि x -अक्ष पर है। माना C_1 एक वृत्त है जिसका केन्द्र मूलबिन्दु पर है तथा जो अतिपरवलय H को स्पर्श करता है। माना C_2 एक वृत्त है जो अतिपरवलय H को इसके शीर्षों पर स्पर्श करता है तथा जिसका केन्द्र उसकी एक नाभि पर है। यदि C_1 तथा C_2 का क्षेत्रफल (वर्ग इकाइयों में) क्रमशः 36π तथा 4π है, तो H के नाभिलंब की लम्बाई (इकाई) में है

Options :

68019154423. $\frac{28}{3}$

68019154424. $\frac{14}{3}$

68019154425. $\frac{10}{3}$

68019154426. $\frac{11}{3}$

Question Number : 15 Question Id : 68019113808 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let PQ be a chord of the parabola $y^2 = 12x$ and the midpoint of PQ be at (4, 1). Then, which of the following point lies on the line passing through the points P and Q?

Options :

68019154427. (3, -3)

68019154428. (2, -9)

68019154429. $\left(\frac{3}{2}, -16\right)$

68019154430. $\left(\frac{1}{2}, -20\right)$

Question Number : 15 Question Id : 68019113808 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

माना परवलय $y^2 = 12x$ की एक जीवा PQ है तथा PQ का मध्य बिन्दु (4, 1) पर है। तो निम्नलिखित में से कौन सा बिन्दु, P तथा Q बिन्दुओं से गुजरने वाली रेखा पर स्थित है?

Options :

68019154427. (3, -3)

68019154428. (2, -9)

68019154429. $\left(\frac{3}{2}, -16\right)$

68019154430. $\left(\frac{1}{2}, -20\right)$

Question Number : 16 Question Id : 68019113809 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let P be the point of intersection of the lines $\frac{x-2}{1} = \frac{y-4}{5} = \frac{z-2}{1}$ and

$\frac{x-3}{2} = \frac{y-2}{3} = \frac{z-3}{2}$. Then, the shortest distance of P from the line $4x = 2y = z$ is

Options :

68019154431. $\frac{3\sqrt{14}}{7}$

68019154432. $\frac{\sqrt{14}}{7}$

68019154433. $\frac{5\sqrt{14}}{7}$

68019154434. $\frac{6\sqrt{14}}{7}$

Question Number : 16 Question Id : 68019113809 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

माना रेखाओं $\frac{x-2}{1} = \frac{y-4}{5} = \frac{z-2}{1}$ तथा $\frac{x-3}{2} = \frac{y-2}{3} = \frac{z-3}{2}$ का प्रतिच्छेदी बिन्दु P है,
तो रेखा $4x = 2y = z$ से बिन्दु P की न्यूनतम दूरी है

Options :

68019154431. $\frac{3\sqrt{14}}{7}$

68019154432. $\frac{\sqrt{14}}{7}$

68019154433. $\frac{5\sqrt{14}}{7}$

68019154434. $\frac{6\sqrt{14}}{7}$

Question Number : 17 Question Id : 68019113810 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let $\vec{a} = \hat{i} + \hat{j} + \hat{k}$, $\vec{b} = 2\hat{i} + 4\hat{j} - 5\hat{k}$ and $\vec{c} = x\hat{i} + 2\hat{j} + 3\hat{k}$, $x \in \mathbb{R}$.

If $\vec{d}$ is the unit vector in the direction of $\vec{b} + \vec{c}$ such that $\vec{a} \cdot \vec{d} = 1$, then $(\vec{a} \times \vec{b}) \cdot \vec{c}$ is equal to

Options :

68019154435. 3

68019154436. 6

68019154437. 9

68019154438. 11

Question Number : 17 Question Id : 68019113810 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

माना $\vec{a} = \hat{i} + \hat{j} + \hat{k}$, $\vec{b} = 2\hat{i} + 4\hat{j} - 5\hat{k}$ तथा $\vec{c} = x\hat{i} + 2\hat{j} + 3\hat{k}$, $x \in \mathbb{R}$ है।

यदि $\vec{b} + \vec{c}$ की दिशा में एक इकाई सदिश $\vec{d}$ इस प्रकार है कि $\vec{a} \cdot \vec{d} = 1$, तो $(\vec{a} \times \vec{b}) \cdot \vec{c}$ बराबर है

Options :

68019154435. 3

68019154436. 6

68019154437. 9

68019154438. 11

Question Number : 18 Question Id : 68019113811 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

For $\lambda > 0$, let θ be the angle between the vectors $\vec{a} = \hat{i} + \lambda \hat{j} - 3\hat{k}$ and $\vec{b} = 3\hat{i} - \hat{j} + 2\hat{k}$.
If the vectors $\vec{a} + \vec{b}$ and $\vec{a} - \vec{b}$ are mutually perpendicular, then the value of $(14 \cos \theta)^2$ is equal to

Options :

68019154439. 25

68019154440. 20

68019154441. 50

68019154442. 40

Question Number : 18 Question Id : 68019113811 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

$\lambda > 0$ के लिए, माना सदिशों $\vec{a} = \hat{i} + \lambda \hat{j} - 3\hat{k}$ तथा $\vec{b} = 3\hat{i} - \hat{j} + 2\hat{k}$ के बीच का कोण θ है।
यदि सदिश $\vec{a} + \vec{b}$ तथा $\vec{a} - \vec{b}$ परस्पर लम्बवत् है ; तो $(14 \cos \theta)^2$ का मान बराबर है

Options :

68019154439. 25

68019154440. 20

68019154441. 50

68019154442. 40

Question Number : 19 Question Id : 68019113812 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

If the mean of the following probability distribution of a random variable X:

X	0	2	4	6	8
P(X)	a	2a	a + b	2b	3b

is $\frac{46}{9}$, then the variance of the distribution is

Options :

68019154443. $\frac{151}{27}$

68019154444. $\frac{566}{81}$

68019154445. $\frac{581}{81}$

68019154446. $\frac{173}{27}$

Question Number : 19 Question Id : 68019113812 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

यदि किसी यादृच्छिक चर X की निम्नलिखित प्रायिकता बंटन :

X	0	2	4	6	8
P(X)	a	2a	a + b	2b	3b

का माध्यम $\frac{46}{9}$ है, तो बंटन का प्रसरण है:

Options :

68019154443.

$$\frac{151}{27}$$

$$68019154444. \frac{566}{81}$$

$$68019154445. \frac{581}{81}$$

$$68019154446. \frac{173}{27}$$

Question Number : 20 Question Id : 68019113813 Question Type : MCQ Option Shuffling : Yes
Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A
Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Given that the inverse trigonometric function assumes principal values only. Let x, y be any two real numbers in $[-1, 1]$ such that $\cos^{-1} x - \sin^{-1} y = \alpha, \frac{-\pi}{2} \leq \alpha \leq \pi$.

Then, the minimum value of $x^2 + y^2 + 2xy \sin \alpha$ is

Options :

$$68019154447. -1$$

$$68019154448. \frac{-1}{2}$$

$$68019154449. 0$$

$$68019154450. \frac{1}{2}$$

Question Number : 20 Question Id : 68019113813 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

दिया है कि प्रतिलोम त्रिकोणमिति फलन केवल मुख्य मान मानता है। माना $[-1, 1]$ में दो वास्तविक संख्याएँ x तथा y इस प्रकार हैं कि $\cos^{-1} x - \sin^{-1} y = \alpha$, $\frac{-\pi}{2} \leq \alpha \leq \pi$.

तो $x^2 + y^2 + 2xy \sin \alpha$ का न्यूनतम मान है

Options :

68019154447. -1

68019154448. $\frac{-1}{2}$

68019154449. 0

68019154450. $\frac{1}{2}$

Mathematics Section B

Section Id :	680191222
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	10
Number of Questions to be attempted :	5
Section Marks :	20
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1

Sub-Section Id : 680191312

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 21 Question Id : 68019113814 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Consider the function $f: \mathbb{R} \rightarrow \mathbb{R}$ defined by $f(x) = \frac{2x}{\sqrt{1+9x^2}}$. If the composition of f , $\underbrace{(f \circ f \circ f \circ \dots \circ f)}_{10 \text{ times}}(x) = \frac{2^{10}x}{\sqrt{1+9\alpha x^2}}$, then the value of $\sqrt{3\alpha+1}$ is equal to _____

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 21 Question Id : 68019113814 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

विचार कीजिए फलन $f: \mathbb{R} \rightarrow \mathbb{R}$, $f(x) = \frac{2x}{\sqrt{1+9x^2}}$ द्वारा परिभाषित है। यदि f का संयोजन $\underbrace{(f \circ f \circ f \circ \dots \circ f)}_{10 \text{ times}}(x) = \frac{2^{10}x}{\sqrt{1+9\alpha x^2}}$ है, तो $\sqrt{3\alpha+1}$ का मान बराबर है _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

Question Number : 22 Question Id : 68019113815 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let $S = \{\sin^2 2\theta : (\sin^4 \theta + \cos^4 \theta) x^2 + (\sin 2\theta) x + (\sin^6 \theta + \cos^6 \theta) = 0 \text{ has real roots}\}$.

If α and β be the smallest and largest elements of the set S , respectively, then

$3((\alpha - 2)^2 + (\beta - 1)^2)$ equals _____

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

Question Number : 22 Question Id : 68019113815 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

माना $S = \{\sin^2 2\theta : (\sin^4 \theta + \cos^4 \theta) x^2 + (\sin 2\theta) x + (\sin^6 \theta + \cos^6 \theta) = 0 \text{ के वास्तविक मूल हैं}\}$ हैं। यदि α तथा β समुच्चय S के क्रमशः सबसे छोटा तथा सबसे बड़ा अवयव हैं, तो

$3((\alpha - 2)^2 + (\beta - 1)^2)$ बराबर है _____

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

Question Number : 23 Question Id : 68019113816 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let A be a 2×2 symmetric matrix such that $A \begin{bmatrix} 1 \\ 1 \end{bmatrix} = \begin{bmatrix} 3 \\ 7 \end{bmatrix}$ and the determinant of A be 1. If $A^{-1} = \alpha A + \beta I$, where I is an identity matrix of order 2×2 , then $\alpha + \beta$ equals _____

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 23 Question Id : 68019113816 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

यदि, 2×2 कोटि का सममित आव्यूह A इस प्रकार है कि $A \begin{bmatrix} 1 \\ 1 \end{bmatrix} = \begin{bmatrix} 3 \\ 7 \end{bmatrix}$ तथा A की सारणिक 1 है। यदि $A^{-1} = \alpha A + \beta I$, जहाँ I कोटि 2×2 की तत्समक आव्यूह है, तो $\alpha + \beta$ बराबर है _____

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 24 Question Id : 68019113817 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

There are 4 men and 5 women in Group A, and 5 men and 4 women in Group B. If 4 persons are selected from each group, then the number of ways of selecting 4 men and 4 women is _____

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 24 **Question Id :** 68019113817 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

समूह A में 4 आदमी तथा 5 औरतें हैं, और समूह B में 5 आदमी तथा 4 औरतें हैं। यदि 4 व्यक्तियों को प्रत्येक समूह से चुना जाता है, तो 4 आदमी तथा 4 औरतों के चुने जाने वाले तरीकों की संख्या है _____

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 25 **Question Id :** 68019113818 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

Let $f: \mathbb{R} \rightarrow \mathbb{R}$ be a thrice differentiable function such that $f(0) = 0, f(1) = 1, f(2) = -1, f(3) = 2$ and $f(4) = -2$. Then, the minimum number of zeros of $(3f''f''' + ff''''')(x)$ is _____

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 25 Question Id : 68019113818 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

माना त्रिअवकलनीय एक फलन $f: \mathbb{R} \rightarrow \mathbb{R}$ इस प्रकार है कि $f(0) = 0, f(1) = 1, f(2) = -1, f(3) = 2$ है, तथा $f(4) = -2$, तो $(3f'f'' + ff''')(x)$ के न्यूनतम शून्यों की संख्या है _____

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 26 Question Id : 68019113819 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

If $\int \operatorname{cosec}^5 x \, dx = \alpha \cot x \operatorname{cosec} x \left(\operatorname{cosec}^2 x + \frac{3}{2} \right) + \beta \log_e \left| \tan \frac{x}{2} \right| + C$

where $\alpha, \beta \in \mathbb{R}$ and C is the constant of integration, then the value of $8(\alpha + \beta)$ equals _____

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 26 Question Id : 68019113819 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

यदि $\int \operatorname{cosec}^5 x \, dx = \alpha \cot x \operatorname{cosec} x \left(\operatorname{cosec}^2 x + \frac{3}{2} \right) + \beta \log_e \left| \tan \frac{x}{2} \right| + C$ हैं,

जहाँ $\alpha, \beta \in \mathbb{R}$ तथा C समाकल अचर है, तो $8(\alpha + \beta)$ का मान बराबर है _____

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 27 Question Id : 68019113820 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let $y = y(x)$ be the solution of the differential equation $(x + y + 2)^2 \, dx = dy$, $y(0) = -2$. Let the maximum and minimum values of the function $y = y(x)$ in $\left[0, \frac{\pi}{3} \right]$ be α and β , respectively. If $(3\alpha + \pi)^2 + \beta^2 = \gamma + \delta\sqrt{3}$, $\gamma, \delta \in \mathbb{Z}$, then $\gamma + \delta$ equals _____

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 27 Question Id : 68019113820 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

माना $y = y(x)$ अवकल समीकरण $(x + y + 2)^2 dx = dy$, $y(0) = -2$ का एक हल है। माना $\left[0, \frac{\pi}{3}\right]$ में फलन $y = y(x)$ के उच्चतम तथा निम्नतम मान क्रमशः α तथा β हैं। यदि $(3\alpha + \pi)^2 + \beta^2 = \gamma + \delta\sqrt{3}$, $\gamma, \delta \in \mathbb{Z}$ तो $\gamma + \delta$ बराबर है _____

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 28 Question Id : 68019113821 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Consider a triangle ABC having the vertices $A(1, 2)$, $B(\alpha, \beta)$ and $C(\gamma, \delta)$ and angles $\angle ABC = \frac{\pi}{6}$ and $\angle BAC = \frac{2\pi}{3}$. If the points B and C lie on the line $y = x + 4$, then $\alpha^2 + \gamma^2$ is equal to _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 28 Question Id : 68019113821 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

एक त्रिभुज ABC जिसके शीर्ष A(1, 2), B(α , β) तथा C(γ , δ) और कोण $\angle ABC = \frac{\pi}{6}$ तथा $\angle BAC = \frac{2\pi}{3}$ हैं पर विचार कीजिए। यदि बिन्दु B तथा C रेखा $y = x + 4$ पर स्थित हैं, तो $\alpha^2 + \gamma^2$ बराबर है _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 29 Question Id : 68019113822 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Consider a line L passing through the points P(1, 2, 1) and Q(2, 1, -1). If the mirror image of the point A(2, 2, 2) in the line L is (α , β , γ), then $\alpha + \beta + 6\gamma$ is equal to _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 29 Question Id : 68019113822 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

बिंदुओं P(1, 2, 1) तथा Q(2, 1, -1) से गुजरने वाली एक रेखा L पर विचार कीजिए। यदि बिन्दु A(2, 2, 2) का दर्पण प्रतिचित्रण रेखा L में (α , β , γ) है, तो $\alpha + \beta + 6\gamma$ बराबर है _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 30 **Question Id :** 68019113823 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

In a tournament, a team plays 10 matches with probabilities of winning and losing each match as $\frac{1}{3}$ and $\frac{2}{3}$ respectively. Let x be the number of matches that the team wins, and y be the number of matches that team loses. If the probability $P(|x - y| \leq 2)$ is p , then $3^9 p$ equals _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 30 **Question Id :** 68019113823 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

एक टीम किसी प्रतियोगिता में 10 मैच खेलती है तथा प्रत्येक मैच को जीतने तथा हारने की प्रायिकता क्रमशः $\frac{1}{3}$ तथा $\frac{2}{3}$ है। माना x उन मैचों की संख्या है जो वह टीम जीतती है तथा y उन मैचों की संख्या है जब टीम हारती है। यदि प्रायिकता $P(|x - y| \leq 2)$, p है, तो $3^9 p$ बराबर है _____

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Physics Section A

Section Id :	680191223
Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	20
Number of Questions to be attempted :	20
Section Marks :	80
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	680191313
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 31 Question Id : 68019113824 Question Type : MCQ Option Shuffling : Yes

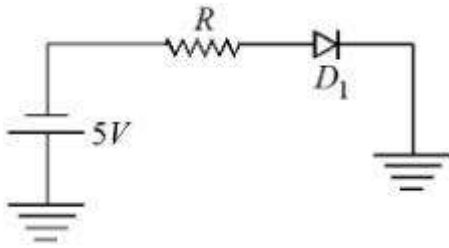
Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

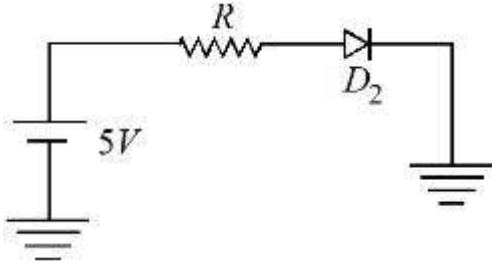
Correct Marks : 4 Wrong Marks : 1

Which of the diode circuit shows correct biasing used for the measurement of dynamic resistance of p-n junction diode :

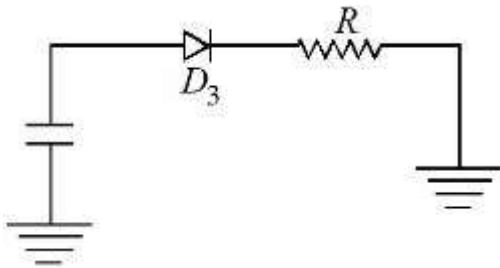
Options :



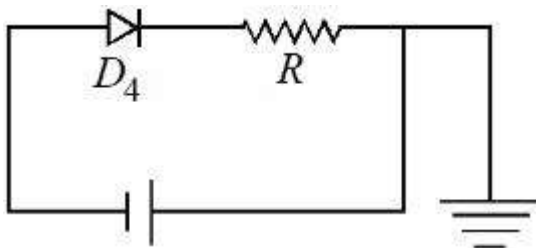
68019154461.



68019154462.



68019154463.



68019154464.

Question Number : 31 Question Id : 68019113824 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

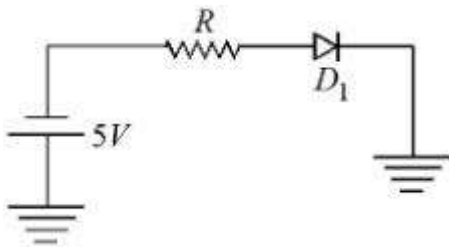
Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

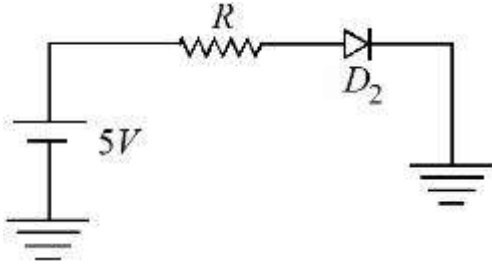
निम्न में से, p-n सन्धि डायोड का गतिक प्रतिरोध नापने के लिए, कौन सा परिपथ उचित अभिनत का है।

Options :

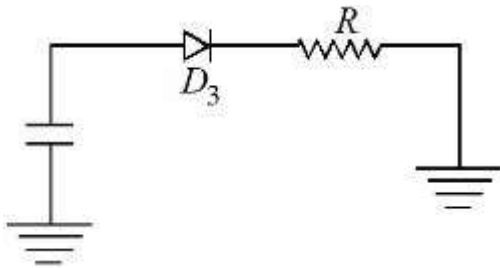
68019154461.



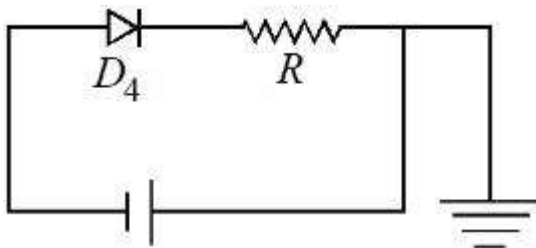
68019154462.



68019154463.



68019154464.



Question Number : 32 Question Id : 68019113825 Question Type : MCQ Option Shuffling : Yes
Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A
Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Applying the principle of homogeneity of dimensions, determine which one is correct,

where T is time period, G is gravitational constant, M is mass, r is radius of orbit.

Options :

68019154465.
$$T^2 = \frac{4\pi^2 r^3}{GM}$$

68019154466. $T^2 = \frac{4\pi^2 r^2}{GM}$

68019154467. $T^2 = 4\pi^2 r^3$

68019154468. $T^2 = \frac{4\pi^2 r}{GM^2}$

Question Number : 32 Question Id : 68019113825 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

विमा के समांगी सिद्धांत का उपयोग करके बतायें निम्न में कौन सही है:

(यहाँ T आवर्त काल, G गुरुत्वाकर्षण नियतांक, M द्रव्यमान तथा r कक्षा की त्रिज्या है)

Options :

68019154465. $T^2 = \frac{4\pi^2 r^3}{GM}$

68019154466. $T^2 = \frac{4\pi^2 r^2}{GM}$

68019154467. $T^2 = 4\pi^2 r^3$

68019154468. $T^2 = \frac{4\pi^2 r}{GM^2}$

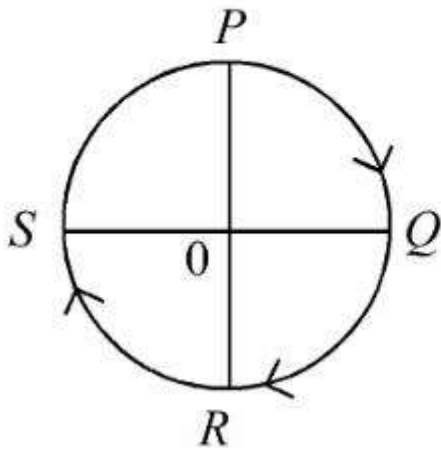
Question Number : 33 Question Id : 68019113826 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

A cyclist starts from the point P of a circular ground of radius 2 km and travels along its circumference to the point S . The displacement of a cyclist is:



Options :

68019154469. 8 km

68019154470. 4 km

68019154471. $\sqrt{8}$ km

68019154472. 6 km

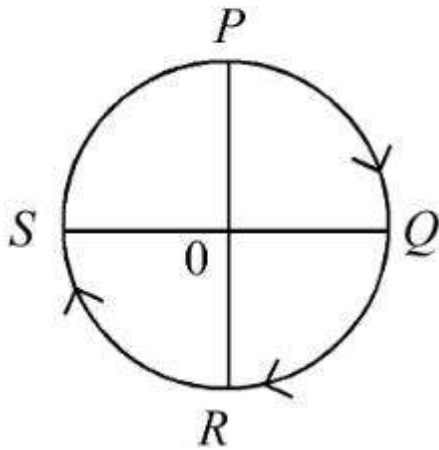
Question Number : 33 Question Id : 68019113826 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

एक साईकिल सवार बिन्दु P से 2 km त्रिज्या के वृत्ताकार क्षेत्र की परिधि पर बिन्दु S तक जाता है इसका विस्थापन है :



Options :

68019154469. 8 km

68019154470. 4 km

68019154471. $\sqrt{8}$ km

68019154472. 6 km

Question Number : 34 Question Id : 68019113827 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

A 2 kg brick begins to slide over a surface which is inclined at an angle of 45° with respect to horizontal axis. The co-efficient of static friction between their surfaces is:

Options :

68019154473. 1

68019154474. $\frac{1}{\sqrt{3}}$

68019154475. 1.7

68019154476. 0.5

Question Number : 34 Question Id : 68019113827 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

एक 2 kg की ईंट क्षैतिज से 45° कोण पर झुके एक आनत तल पर फिसलने लगती है तब तल व ईंट के मध्य स्थैतिक घर्षण का गुणांक है :

Options :

68019154473. 1

68019154474. $\frac{1}{\sqrt{3}}$

68019154475. 1.7

68019154476. 0.5

Question Number : 35 Question Id : 68019113828 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

A 90 kg body placed at $2R$ distance from surface of earth experiences gravitational pull of :

(R = Radius of earth, $g = 10 \text{ m s}^{-2}$)

Options :

68019154477. 300 N

68019154478. 225 N

68019154479. 120 N

68019154480. 100 N

Question Number : 35 Question Id : 68019113828 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

एक 90 किग्रा की वस्तु पृथ्वी सतह से $2R$ दूरी पर गुरुत्वाकर्षण बल अनुभव करती है :

(R = पृथ्वी की त्रिज्या, $g = 10 \text{ ms}^{-2}$)

Options :

68019154477. 300 N

68019154478. 225 N

68019154479. 120 N

68019154480. 100 N

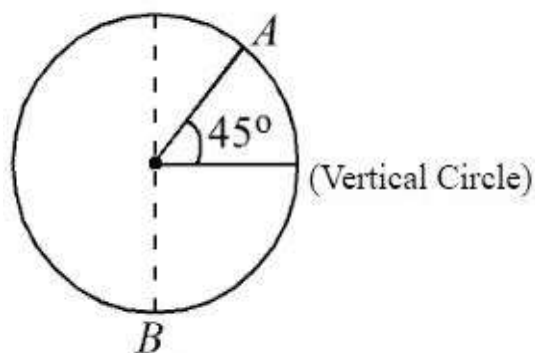
Question Number : 36 Question Id : 68019113829 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

A body of m kg slides from rest along the curve of vertical circle from point A to B in friction less path. The velocity of the body at B is:



(given, $R = 14$ m, $g = 10$ m/s² and $\sqrt{2} = 1.4$)

Options :

68019154481. 21.9 m/s

68019154482. 16.7 m/s

68019154483. 19.8 m/s

68019154484. 10.6 m/s

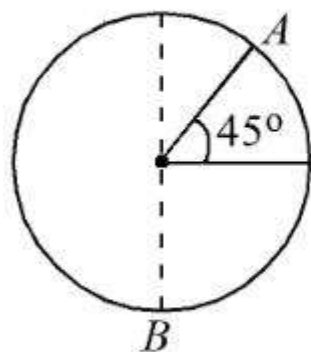
Question Number : 36 Question Id : 68019113829 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

m kg द्रव्यमान की एक वस्तु, स्थिर अवस्था बिन्दु A से उर्ध्वाधर वृत्ताकार पथ पर, घर्षण रहित सतह पर, बिन्दु B तक फिसलती है। बिन्दु B पर वस्तु की चाल होगी :



($\because$ दिया है, $R = 14$ m, $g = 10$ m/s² एवं $\sqrt{2} = 1.4$)

Options :

68019154481. 21.9 m/s

68019154482. 16.7 m/s

68019154483. 19.8 m/s

68019154484. 10.6 m/s

Question Number : 37 Question Id : 68019113830 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Correct formula for height of a satellite from earths surface is:

Options :

68019154485. $\left(\frac{T^2 R^2}{4\pi^2 g} \right)^{1/3} - R$

68019154486. $\left(\frac{T^2 R^2 g}{4\pi} \right)^{1/2} - R$

68019154487. $\left(\frac{T^2 R^2 g}{4\pi^2} \right)^{-1/3} + R$

68019154488. $\left(\frac{T^2 R^2 g}{4\pi^2} \right)^{1/3} - R$

Question Number : 37 Question Id : 68019113830 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

पृथ्वी सतह से एक उपग्रह की ऊंचाई का सही सम्बन्ध है-

Options :

68019154485. $\left(\frac{T^2 R^2}{4\pi^2 g}\right)^{1/3} - R$

68019154486. $\left(\frac{T^2 R^2 g}{4\pi}\right)^{1/2} - R$

68019154487. $\left(\frac{T^2 R^2 g}{4\pi^2}\right)^{-1/3} + R$

68019154488. $\left(\frac{T^2 R^2 g}{4\pi^2}\right)^{1/3} - R$

Question Number : 38 Question Id : 68019113831 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Given below are two statements :

Statement I : The contact angle between a solid and a liquid is a property of the material of the solid and liquid as well.

Statement II : The rise of a liquid in a capillary tube does not depend on the inner radius of the tube.

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

Options :

68019154489. Both Statement I and Statement II are true.

68019154490. Both Statement I and Statement II are false.

68019154491. Statement I is true but Statement II is false.

68019154492. Statement I is false but Statement II is true.

Question Number : 38 Question Id : 68019113831 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं :

कथन I : किसी ठोस तथा द्रव के मध्य स्पर्श कोण, ठोस के पदार्थ की प्रकृति तथा द्रव की प्रकृति से सम्बन्धित गुण है।

कथन II' : किसी केश नलिका में द्रव स्तम्भ का चढ़ना, नलिका की आन्तरिक त्रिज्या पर निर्भर नहीं करता।

निम्न में से, ऊपर लिखे कथन के सन्दर्भ में सही उत्तर चुनें-

Options :

68019154489. कथन I व कथन II दोनों सही हैं।

68019154490. कथन I व कथन II दोनों गलत हैं।

68019154491. कथन I सही है परन्तु कथन II गलत है।

68019154492. कथन I गलत है परन्तु कथन II सही है।

Question Number : 39 Question Id : 68019113832 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

A sample of gas at temperature T is adiabatically expanded to double its volume. Adiabatic constant for the gas is $\gamma = 3/2$. The work done by the gas in the process is:

($\mu = 1$ mole)

Options :

68019154493. $RT[2 - \sqrt{2}]$

68019154494. $RT[\sqrt{2} - 2]$

68019154495. $RT[2\sqrt{2} - 1]$

68019154496. $RT[1 - 2\sqrt{2}]$

Question Number : 39 Question Id : 68019113832 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

एक मोल गैस को तापक्रम T पर रुद्धोष्म रूप से उसके दोगुने आयतन तक फैलाया जाता है। गैस का रुद्धोष्म स्थिरांक $\gamma = 3/2$ है। गैस द्वारा इस प्रक्रम में किया गया कार्य है :

($\mu = 1$ mole)

Options :

68019154493. $RT[2 - \sqrt{2}]$

68019154494. $RT[\sqrt{2} - 2]$

68019154495. $RT[2\sqrt{2} - 1]$

68019154496. $RT[1 - 2\sqrt{2}]$

Question Number : 40 Question Id : 68019113833 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The translational degrees of freedom (f_t) and rotational degrees of freedom (f_r) of CH_4 molecule are:

Options :

68019154497. $f_t = 3$ and $f_r = 2$

68019154498. $f_t = 2$ and $f_r = 3$

68019154499. $f_t = 3$ and $f_r = 3$

68019154500. $f_t = 2$ and $f_r = 2$

Question Number : 40 Question Id : 68019113833 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

अणु CH_4 की स्थानान्तरीय स्वतंत्रता की कोटि (f_t) तथा घूर्णन स्वतंत्रता की कोटि (f_r) हैं :

Options :

68019154497. $f_t = 3$ एवं $f_r = 2$

68019154498. $f_t = 2$ एवं $f_r = 3$

68019154499. $f_t = 3$ एवं $f_r = 3$

68019154500. $f_t = 2$ एवं $f_r = 2$

Question Number : 41 Question Id : 68019113834 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

A charge q is placed at the center of one of the surface of a cube. The flux linked with the cube is:

Options :

68019154501. $\frac{q}{2\epsilon_0}$

68019154502. $\frac{q}{4\epsilon_0}$

68019154503. $\frac{q}{8\epsilon_0}$

68019154504. Zero

Question Number : 41 Question Id : 68019113834 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

q आवेश को घन की एक सतह के केन्द्र पर रखा गया है। घन से संबद्ध फ्लक्स है :

Options :

68019154501. $\frac{q}{2\epsilon_0}$

68019154502. $\frac{q}{4\epsilon_0}$

68019154503. $\frac{q}{8\epsilon_0}$

68019154504. Zero

Question Number : 42 Question Id : 68019113835 Question Type : MCQ Option Shuffling : Yes
Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A
Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

An electric bulb rated $50\text{ W} - 200\text{ V}$ is connected across a 100 V supply. The power dissipation of the bulb is:

Options :

68019154505. 12.5 W

68019154506. 50 W

68019154507. 100 W

68019154508. 25 W

Question Number : 42 Question Id : 68019113835 Question Type : MCQ Option Shuffling : Yes
Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A
Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

$50\text{ W} - 200\text{ V}$ से मूल्यांकित एक बल्ब को 100 V के स्रोत से जोड़ा गया है। बल्ब की शक्ति क्षय है :

Options :

68019154505. 12.5 W

68019154506. 50 W

68019154507. 100 W

68019154508. 25 W

Question Number : 43 Question Id : 68019113836 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The magnetic moment of a bar magnet is 0.5 Am^2 . It is suspended in a uniform magnetic field of $8 \times 10^{-2} \text{ T}$. The work done in rotating it from its most stable to most unstable position is:

Options :

68019154509. Zero

68019154510. $4 \times 10^{-2} \text{ J}$

68019154511. $8 \times 10^{-2} \text{ J}$

68019154512. $16 \times 10^{-2} \text{ J}$

Question Number : 43 Question Id : 68019113836 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

एक छड़ चुम्बक का चुम्बकीय आघूर्ण 0.5 Am^2 है। इसे $8 \times 10^{-2} \text{ T}$ के चुम्बकीय क्षेत्र में लटकाया गया है। इसे पूर्ण सन्तुलित अवस्था से पूर्ण असन्तुलित अवस्था पर घुमाने में किया गया कार्य है :

Options :

68019154509. शून्य

68019154510. 4×10^{-2} J

68019154511. 8×10^{-2} J

68019154512. 16×10^{-2} J

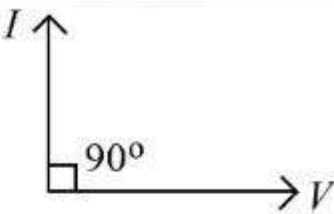
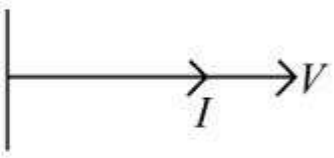
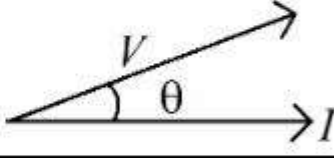
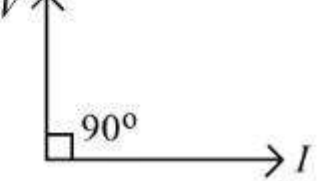
Question Number : 44 Question Id : 68019113837 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Match List I with List II

LIST I		LIST II	
A.	Purely capacitive circuit	I.	
B.	Purely inductive circuit	II.	
C.	LCR series at resonance	III.	
D.	LCR series circuit	IV.	

Choose the correct answer from the options given below:

Options :

68019154513. A-IV, B-I, C-III, D-II

68019154514. A-I, B-IV, C-II, D-III

68019154515. A-I, B-IV, C-III, D-II

68019154516. A-IV, B-I, C-II, D-III

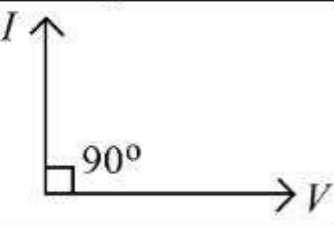
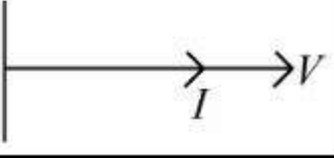
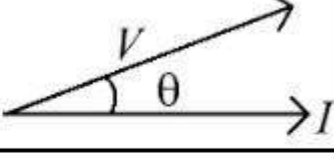
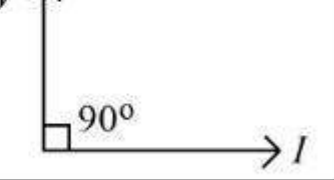
Question Number : 44 Question Id : 68019113837 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

सूची I का सूची II से मिलान कीजिए।

सूची I		सूची II	
A.	शुद्ध धारितीय परिपथ	I.	
B.	शुद्ध प्रेरकीय परिपथ	II.	
C.	अनुवाद की स्थिति में श्रेणीबद्ध LCR परिपथ	III.	
D.	श्रेणीबद्ध LCR परिपथ	IV.	

निम्नलिखित में से सही उत्तर चुनिए:

Options :

68019154513. A-IV, B-I, C-III, D-II

68019154514. A-I, B-IV, C-II, D-III

68019154515. A-I, B-IV, C-III, D-II

68019154516. A-IV, B-I, C-II, D-III

Question Number : 45 Question Id : 68019113838 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Arrange the following in the ascending order of wavelength:

- A. Gamma rays (λ_1)
- B. x - rays (λ_2)
- C. Infrared waves (λ_3)
- D. Microwaves (λ_4)

Choose the **most appropriate** answer from the options given below

Options :

68019154517. $\lambda_4 < \lambda_3 < \lambda_2 < \lambda_1$

68019154518. $\lambda_4 < \lambda_3 < \lambda_1 < \lambda_2$

68019154519. $\lambda_2 < \lambda_1 < \lambda_4 < \lambda_3$

68019154520. $\lambda_1 < \lambda_2 < \lambda_3 < \lambda_4$

Question Number : 45 Question Id : 68019113838 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्नलिखित को तरंगदैर्घ्य के बढ़ते क्रम में लिखें:

- A. गामा किरणें (λ_1)
- B. X - किरणें (λ_2)
- C. अवरक्त किरणें (λ_3)
- D. सूक्ष्मतरंगें (λ_4)

निम्नलिखित में से सही उत्तर चुनिए :

Options :

68019154517. $\lambda_4 < \lambda_3 < \lambda_2 < \lambda_1$

68019154518. $\lambda_4 < \lambda_3 < \lambda_1 < \lambda_2$

68019154519. $\lambda_2 < \lambda_1 < \lambda_4 < \lambda_3$

68019154520. $\lambda_1 < \lambda_2 < \lambda_3 < \lambda_4$

Question Number : 46 Question Id : 68019113839 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The width of one of the two slits in a Young's double slit experiment is 4 times that of the other slit. The ratio of the maximum of the minimum intensity in the interference pattern is:

Options :

68019154521. 9:1

68019154522. 16:1

68019154523. 4:1

68019154524. 1:1

Question Number : 46 Question Id : 68019113839 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

यंग के द्वि-झिरी प्रयोग में एक झिरी की चौड़ाई दूसरी झिरी की चौड़ाई से 4 गुनी है। प्राप्त व्यतिकरण प्रारूप में अधिकतम तथा न्यूनतम तीव्रता का अनुपात है :

Options :

68019154521. 9:1

68019154522. 16:1

68019154523. 4:1

68019154524. 1:1

Question Number : 47 Question Id : 68019113840 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**.

Assertion A: Number of photons increases with increase in frequency of light.

Reason R: Maximum kinetic energy of emitted electrons increases with the frequency of incident radiation.

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

Options :

68019154525. Both **A** and **R** are correct and **R** is the correct explanation of **A**.

68019154526. Both **A** and **R** are correct and **R** is **NOT** the correct explanation of **A**.

68019154527. **A** is correct but **R** is not correct.

68019154528. **A** is not correct but **R** is correct.

Question Number : 47 Question Id : 68019113840 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं: पहले को **अभिकथन A** तथा दूसरे को **कारण R** के रूप में दर्शाया गया है

अभिकथन A: प्रकाश की आवृत्ति के साथ फोटानों की संख्या बढ़ती है।

कारण R: उत्सर्जित इलेक्ट्रॉनों की अधिकतम गतिज ऊर्जा आपतित विकिरण की आवृत्ति के साथ बढ़ती है।

ऊपर दिये कथनों के सन्दर्भ में निम्न में से सही उत्तर चुनें:

Options :

68019154525. दोनों कथन **A** एवं **R** सही है तथा **R**, कथन **A** की सही व्याख्या है।

68019154526. दोनों कथन **A** एवं **R** सही है परन्तु **R**, कथन **A** की सही व्याख्या नहीं है।

68019154527. **A** सही है, परन्तु **R** सही नहीं है।

68019154528. **A** सही नहीं है, परन्तु **R** सही है।

Question Number : 48 Question Id : 68019113841 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

According to Bohr's theory, the moment of momentum of an electron revolving in 4th orbit of hydrogen atom is:

Options :

68019154529. $2\frac{h}{\pi}$

68019154530. $\frac{h}{\pi}$

68019154531. $8\frac{h}{\pi}$

68019154532. $\frac{h}{2\pi}$

Question Number : 48 Question Id : 68019113841 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

बोहर सिद्धांत के अनुसार हाइड्रोजन परमाणु की चौथी कक्षा में घूर्णन करते इलेक्ट्रॉन के संवेग का आघूर्ण है :

Options :

68019154529. $2\frac{h}{\pi}$

68019154530. $\frac{h}{\pi}$

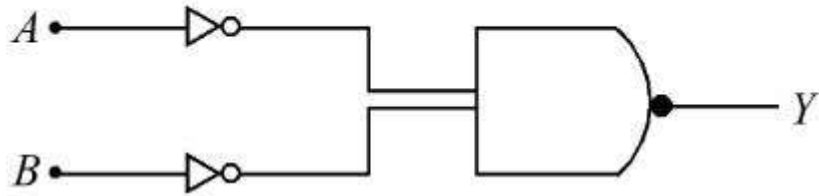
68019154531. $8\frac{h}{\pi}$

68019154532. $\frac{h}{2\pi}$

Question Number : 49 Question Id : 68019113842 Question Type : MCQ Option Shuffling : Yes
Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A
Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Identify the logic gate given in the circuit:



Options :

68019154533. OR- gate

68019154534. NAND- gate

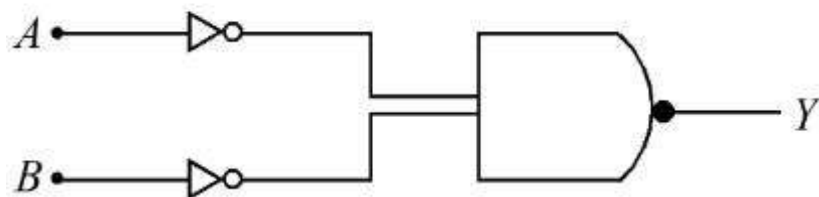
68019154535. AND gate

68019154536. NOR gate

Question Number : 49 Question Id : 68019113842 Question Type : MCQ Option Shuffling : Yes
Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A
Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

दिये चित्र परिपथ के तुल्य लोजिक गेट को पहचानो:



Options :

68019154533. OR- गेट

68019154534. NAND- गेट

68019154535. AND गेट

68019154536. NOR गेट

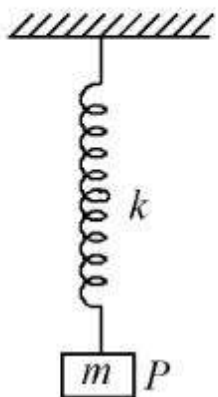
Question Number : 50 Question Id : 68019113843 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

In simple harmonic motion, the total mechanical energy of given system is E . If mass of oscillating particle P is doubled then the new energy of the system for same amplitude is:



Options :

68019154537. $E\sqrt{2}$

68019154538. $\frac{E}{\sqrt{2}}$

68019154539. $2E$

68019154540. E

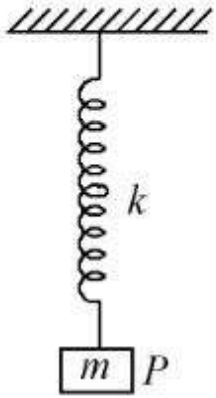
Question Number : 50 Question Id : 68019113843 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

सरल आवर्त गति में दिये निकाय की कुल यान्त्रिक ऊर्जा E है। यदि दोलन करते कण का द्रव्यमान दो गुना कर दें तो निकाय की नई ऊर्जा उसी आयाम के लिए होगी :



Options :

68019154537. $E\sqrt{2}$

68019154538. $\frac{E}{\sqrt{2}}$

68019154539. $2E$

68019154540. E

Physics Section B

Section Id :	680191224
Section Number :	4
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	10
Number of Questions to be attempted :	5
Section Marks :	20

Enable Mark as Answered Mark for Review and

Yes

Clear Response :

Maximum Instruction Time :

0

Sub-Section Number :

1

Sub-Section Id :

680191314

Question Shuffling Allowed :

Yes

Is Section Default? :

null

Question Number : 51 Question Id : 68019113844 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The disintegration energy Q for the nuclear fission of $^{235}\text{U} \rightarrow ^{140}\text{Ce} + ^{94}\text{Zr} + n$ is _____ MeV.

Given atomic masses of ^{235}U : $235.0439u$; ^{140}Ce : $139.9054 u$,

^{94}Zr : $93.9063u$; n : $1.0086 u$,

Value of $c^2 = 931 \text{ MeV}/u$.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 51 Question Id : 68019113844 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

$^{235}\text{U} \rightarrow ^{140}\text{Ce} + ^{94}\text{Zr} + n$ के नाभिकीय विखंडन के लिए विघटन उर्जा Q _____ MeV है।

दिया है: परमाणु द्रव्यमान: ^{235}U : $235.0439u$; ^{140}Ce : $139.9054u$,

^{94}Zr : $93.9063u$; n : $1.0086u$,

c^2 का मान = 931 MeV/u .

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 52 **Question Id :** 68019113845 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

A light ray is incident on a glass slab of thickness $4\sqrt{3}$ cm and refractive index $\sqrt{2}$. The angle of incidence is equal to the critical angle for the glass slab with air. The lateral displacement of ray after passing through glass slab is _____ cm.

(Given $\sin 15^\circ = 0.25$)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 52 **Question Id :** 68019113845 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

अपवर्तन गुणांक $\sqrt{2}$ के कांच की पट्टिका की मोटाई $4\sqrt{3}$ है, इस पर प्रकाश किरण आपतित है। हवा के सापेक्ष कांच पट्टिका के लिए आपतन कोण, क्रान्तिक कोण के बराबर है। किरण का पार्श्विक विस्थापन, कांच पट्टिका से गुजरने के बाद _____ cm है।

(दिया है: $\sin 15^\circ = 0.25$)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 53 **Question Id :** 68019113846 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

A rod of length 60 cm rotates with a uniform angular velocity 20 rad s^{-1} about its perpendicular bisector, in a uniform magnetic field $0.5T$. The direction of magnetic field is parallel to the axis of rotation. The potential difference between the two ends of the rod is _____ V.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 53 **Question Id :** 68019113846 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

60 cm लम्बाई की छड़, एक समान चुम्बकीय क्षेत्र $0.5T$ में लम्बवत् द्वि-समद्विभाजक रेखा के परितः 20 रेडियन/सेकंड की कोणीय वेग से घुमाई जाती है। चुम्बकीय क्षेत्र की दिशा घूर्णन अक्ष के समान्तर है। छड़ के दो किनारों के मध्य विभवान्तर _____ V है।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

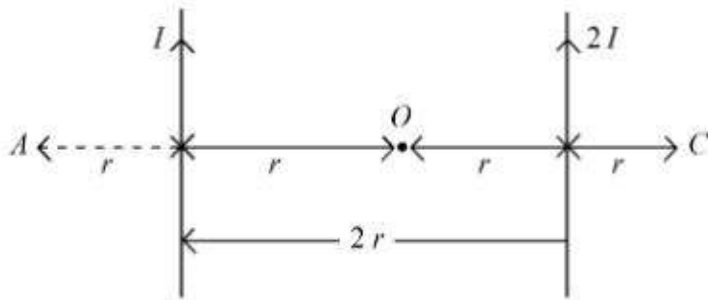
Question Number : 54 Question Id : 68019113847 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Two parallel long current carrying wire separated by a distance $2r$ are shown in the figure. The ratio of magnetic field at A to the magnetic field produced at C is $\frac{x}{7}$.

The value of x is _____.



Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

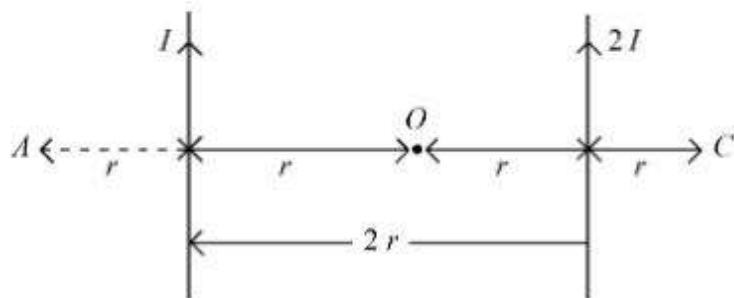
1

Question Number : 54 Question Id : 68019113847 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

प्रदर्शित चित्र में, दो लम्बे समान्तर धारावाही तार $2r$ की दूरी पर हैं। यहाँ A पर चुम्बकीय क्षेत्र तथा C पर उत्पन्न चुम्बकीय क्षेत्र का अनुपात $\frac{x}{7}$ है। तब x का मान _____ है।



Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 55 **Question Id :** 68019113848 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

Two wires A and B are made up of the same material and have the same mass. Wire A has radius of 2.0 mm and wire B has radius of 4.0 mm . The resistance of wire B is 2Ω . The resistance of wire A is _____ Ω .

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 55 **Question Id :** 68019113848 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

समान द्रव्यमान के दो तार A एवं B समान पदार्थ से बने हैं। तार A की त्रिज्या 2.0 mm तथा तार B की त्रिज्या 4.0 mm है। तार B का प्रतिरोध 2Ω हो तो तार A का प्रतिरोध _____ Ω होगा।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 56 **Question Id :** 68019113849 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

The displacement of a particle executing SHM is given by $x = 10 \sin\left(\omega t + \frac{\pi}{3}\right)\text{m}$. The time period of motion is 3.14 s . The velocity of the particle at $t = 0$ is _____ m/s .

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 56 **Question Id :** 68019113849 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

सरल आवर्त गति करते कण का विस्थापन $x = 10 \sin\left(\omega t + \frac{\pi}{3}\right)\text{m}$ है। गति का आवर्त काल 3.14 s है। समय $t = 0\text{ s}$ पर कण का वेग _____ m/s है।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 57 Question Id : 68019113850 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Mercury is filled in a tube of radius 2 cm up to a height of 30 cm . The force exerted by mercury on the bottom of the tube is _____ N .

(Given, atmospheric pressure = 10^5 Nm^{-2} , density of mercury = $1.36 \times 10^4\text{ kg m}^{-3}$, $g = 10\text{ m s}^{-2}$, $\pi = \frac{22}{7}$)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 57 Question Id : 68019113850 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

2 cm त्रिज्या की एक नलिका में 30 cm की ऊंचाई तक पारा भरा जाता है। पारे के द्वारा नलिका के निचले तल पर लगाया बल _____ N है।

(दिया है: वातावरण का दाब = 10^5 Nm^{-2} , पारे का घनत्व = $1.36 \times 10^4\text{ kg m}^{-3}$, $g = 10\text{ ms}^{-2}$, $\pi = \frac{22}{7}$)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 58 Question Id : 68019113851 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

In a system two particles of masses $m_1 = 3 \text{ kg}$ and $m_2 = 2 \text{ kg}$ are placed at certain distance from each other. The particle of mass m_1 is moved towards the center of mass of the system through a distance 2 cm. In order to keep the center of mass of the system at the original position, the particle of mass m_2 should move towards the center of mass by the distance _____ cm.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 58 Question Id : 68019113851 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

एक निकाय में द्रव्यमान $m_1 = 3 \text{ kg}$ तथा $m_2 = 2 \text{ kg}$ एक दूसरे से कुछ दूरी पर रखे हैं। द्रव्यमान m_1 को इस निकाय के द्रव्यमान-केन्द्र की ओर 2 cm दूरी से विस्थापित किया जाता है। यदि इस निकाय के द्रव्यमान केंद्र को पूर्व स्थिति में रखने के लिए दूसरे m_2 द्रव्यमान को, द्रव्यमान केन्द्र की ओर _____ cm विस्थापित करना होगा।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 59 Question Id : 68019113852 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

A bus moving along a straight highway with speed of 72 km/h is brought to halt within 4 s after applying the brakes. The distance travelled by the bus during this time (Assume the retardation is uniform) is _____ m .

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 59 Question Id : 68019113852 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

72 km/h की चाल से सीधी सड़क पर गतिमान एक बस के ब्रेक लगाने पर 4 s में स्थिर अवस्था में आ जाती है। इस समय में यदि विरोधी त्वरण को समान दर का माने तो बस द्वारा चली गयी दूरी _____ m है।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 60 Question Id : 68019113853 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

A parallel plate capacitor of capacitance 12.5 pF is charged by a battery connected between its plates to potential difference of 12.0 V . The battery is now disconnected and a dielectric slab ($\epsilon_r = 6$) is inserted between the plates. The change in its potential energy after inserting the dielectric slab is _____ $\times 10^{-12} \text{ J}$.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 60 Question Id : 68019113853 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

12.5 pF धारिता के एक समान्तर प्लेट संधारित्र को 12.0 V विभवान्तर की एक बैट्री द्वारा आवेशित किया जाता है। बैट्री हटाने के उपरांत $\epsilon_r = 6$ परावैतांक पट्टी को संधारित्र की दोनों प्लेटों के मध्य रखा जाता है। पट्टी रखने के बाद संधारित्र के स्थितिज ऊर्जा में परिवर्तन _____ $\times 10^{-12} \text{ J}$ है।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Chemistry Section A

Section Id :	680191225
Section Number :	5
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	20
Number of Questions to be attempted :	20
Section Marks :	80
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	680191315
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 61 Question Id : 68019113854 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Choose the **Incorrect** Statement about Dalton's Atomic Theory

Options :

68019154551. Matter consists of indivisible atoms.

68019154552. All the atoms of a given element have identical properties including identical mass.

68019154553. Compounds are formed when atoms of different elements combine in any ratio.

68019154554. chemical reactions involve reorganization of atoms

Question Number : 61 Question Id : 68019113854 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

डाल्टन परमाणु सिद्धांत के बारे में गलत कथन को चुनें:

Options :

68019154551. पदार्थ अविभाज्य परमाणुओं से निर्मित होता है।

68019154552. किसी दिए गए तत्व के सभी परमाणुओं के पास एक समान द्रव्यमान सहित एक समान गुणधर्म होते हैं।

68019154553. जब विभिन्न तत्वों के परमाणु किसी भी अनुपात में संयोग करते हैं तो यौगिकों का निर्माण होता है।

68019154554. रासायनिक अभिक्रियाओं में परमाणुओं की पुनर्व्यवस्था होती है।

Question Number : 62 Question Id : 68019113855 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The correct statement/s about Hydrogen bonding is/are

- A. Hydrogen bonding exists when H is covalently bonded to the highly electro negative atom.
- B. Intermolecular H bonding is present in *o*-nitro phenol
- C. Intramolecular H bonding is present in HF.
- D. The magnitude of H bonding depends on the physical state of the compound.
- E. H-bonding has powerful effect on the structure and properties of compounds

Choose the correct answer from the options given below:

Options :

68019154555. A only

68019154556. A, B, D only

68019154557. A, B, C only

68019154558. A, D, E only

Question Number : 62 Question Id : 68019113855 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

हाइड्रोजन आबन्धन के बारे में सही कथन है। हैं:

- A. हाइड्रोजन आबन्धन पाया जाता है जब H अत्यधिक ऋणविद्युती तत्व के साथ सहसंयोजन आबन्धन के द्वारा जुड़ा होता है।
- B. *o*-नाइट्रोफ़ीनॉल में अन्तर आण्विक (इंट्रा मालिक्यूलर) हाइड्रोजन आबन्धन पाई जाती है।
- C. HF में आन्तर आण्विक (इंट्रा मालिक्यूलर) हाइड्रोजन आबन्धन पाई जाती है।
- D. H-आबन्धन का परिमाण यौगिक के भौतिक अवस्था पर निर्भर करता है।
- E. H-आबन्धन का यौगिकों की संरचना एवं गुणों पर प्रभावशाली प्रभाव पड़ता है।

नीचे दिए गए विकल्पों में से सही उत्तर चुनें:

Options :

68019154555. केवल A

68019154556. केवल A, B, D

68019154557. केवल A, B, C

68019154558. केवल A, D, E

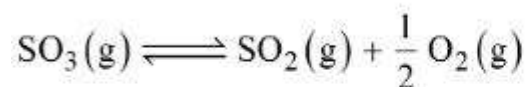
Question Number : 63 Question Id : 68019113856 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

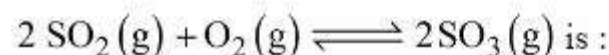
Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The equilibrium constant for the reaction



is $K_c = 4.9 \times 10^{-2}$. The value of K_c for the reaction given below is



Options :

68019154559. 4.9

68019154560. 416

68019154561. 41.6

68019154562. 49

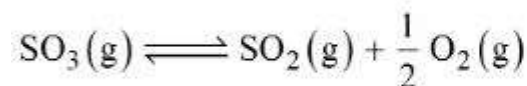
Question Number : 63 Question Id : 68019113856 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्न अभिक्रिया के लिए साम्य स्थिरांक है: $K_c = 4.9 \times 10^{-2}$



अभिक्रिया $2 \text{SO}_2(\text{g}) + \text{O}_2(\text{g}) \rightleftharpoons 2 \text{SO}_3(\text{g})$ के लिए K_c का मान है:

Options :

68019154559. 4.9

68019154560. 416

68019154561. 41.6

68019154562. 49

Question Number : 64 Question Id : 68019113857 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Fuel cell, using hydrogen and oxygen as fuels,

- A. has been used in spaceship
- B. has as efficiency of 40% to produce electricity
- C. uses aluminum as catalysts
- D. is eco-friendly
- E. is actually a type of Galvanic cell only

Choose the **correct** answer from the options given below:

Options :

68019154563. A, B, C only

68019154564. A, B, D only

68019154565. A, D, E only

68019154566. A, B, D, E only

Question Number : 64 Question Id : 68019113857 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

हाइड्रोजन एवं ओक्सीजन को ईंधन के रूप में उपयोग करने वाले ईंधन सेल

- A. अंतरिक्ष यान में उपयोग किए जाते हैं।
- B. की विद्युत उत्पादन के लिए दक्षता 40% होती है।
- C. ऐलुमीनियम को उत्प्रेरक के रूप में उपयोग करते हैं।
- D. इको-फ्रेंडली होते हैं।
- E. वास्तव में एक प्रकार के गैल्वेनी सेल मात्र है।

नीचे दिए गए विकल्पों में से सही उत्तर चुनें:

Options :

68019154563. केवल A, B, C

68019154564. केवल A, B, D

68019154565. केवल A, D, E

68019154566. केवल A, B, D, E

Question Number : 65 Question Id : 68019113858 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

For a strong electrolyte, a plot of molar conductivity against (concentration)^{1/2} is a straight line, with a negative slope, the correct unit for the slope is

Options :

68019154567. $\text{S cm}^2 \text{mol}^{-1} \text{L}^{1/2}$

68019154568. $\text{S cm}^2 \text{mol}^{-3/2} \text{L}$

68019154569. $\text{S cm}^2 \text{mol}^{-3/2} \text{L}^{-1/2}$

68019154570. $\text{S cm}^2 \text{mol}^{-3/2} \text{L}^{1/2}$

Question Number : 65 Question Id : 68019113858 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

एक प्रबल विद्युत अपघट्य के लिए मोलर चालकता विरुद्ध (सान्द्रता)^{1/2} का ग्राफ एक ऋणात्मक प्रवणता वाली सीधी रेखा है। प्रवणता (ढाल) का सही मात्रक है:

Options :

68019154567. $\text{S cm}^2 \text{mol}^{-1} \text{L}^{1/2}$

68019154568. $\text{S cm}^2 \text{mol}^{-3/2} \text{L}$

68019154569. $\text{S cm}^2 \text{mol}^{-3/2} \text{L}^{-1/2}$

68019154570. $\text{S cm}^2 \text{mol}^{-3/2} \text{L}^{1/2}$

Question Number : 66 Question Id : 68019113859 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Given below are two statements :

Statement I : The correct order of first ionization enthalpy values of Li, Na, F and Cl is $\text{Na} < \text{Li} < \text{Cl} < \text{F}$.

Statement II : The correct order of negative electron gain enthalpy values of Li, Na, F and Cl is $\text{Na} < \text{Li} < \text{F} < \text{Cl}$

In the light of the above statements, choose the *correct* answer from the options given below :

Options :

68019154571. Both Statement I and Statement II are true

68019154572. Both Statement I and Statement II are false

68019154573. Statement I is true but Statement II is false

68019154574. Statement I is false but Statement II is true

Question Number : 66 Question Id : 68019113859 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं:

कथन I : Li, Na, F एवं Cl के प्रथम आयनन एन्थैल्पी मानों का सही क्रम है: $\text{Na} < \text{Li} < \text{Cl} < \text{F}$

कथन II : Li, Na, F एवं Cl के ऋणात्मक इलेक्ट्रॉन लब्धि एन्थैल्पी मानों का सही क्रम है: $\text{Na} < \text{Li} < \text{F} < \text{Cl}$

उपर्युक्त कथनों के सन्दर्भ में नीचे दिए गए विकल्पों में से सर्वाधिक उपयुक्त उत्तर चुनें:

Options :

68019154571. दोनों कथन I एवं कथन II सही हैं

68019154572. दोनों कथन I एवं कथन II गलत हैं

68019154573. कथन I सही है परन्तु कथन II गलत है

68019154574. कथन I गलत है परन्तु कथन II सही है

Question Number : 67 Question Id : 68019113860 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The correct order of the first ionization enthalpy is

Options :

68019154575. $\text{Ga} > \text{Al} > \text{B}$

68019154576. $\text{B} > \text{Al} > \text{Ga}$

68019154577. $\text{Tl} > \text{Ga} > \text{Al}$

68019154578. $\text{Al} > \text{Ga} > \text{Tl}$

Question Number : 67 Question Id : 68019113860 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

प्रथम आयनन उर्जा का सही क्रम है:

Options :

68019154575. $\text{Ga} > \text{Al} > \text{B}$

68019154576. $\text{B} > \text{Al} > \text{Ga}$

68019154577. $\text{Tl} > \text{Ga} > \text{Al}$

68019154578. $\text{Al} > \text{Ga} > \text{Tl}$

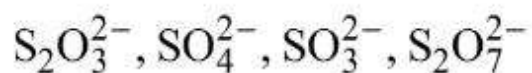
Question Number : 68 Question Id : 68019113861 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The number of species from the following that have pyramidal geometry around the central atom is _____



Options :

68019154579. 1

68019154580. 2

68019154581. 3

68019154582. 4

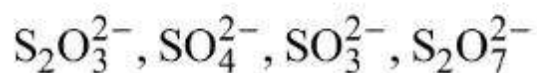
Question Number : 68 Question Id : 68019113861 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्नलिखित में से उन स्पीशीज़ की संख्या जिनके केन्द्रीय परमाणु पर पिरैमिडी ज्यामिती पाई जाती है:



Options :

68019154579. 1

68019154580. 2

68019154581. 3

68019154582. 4

Question Number : 69 Question Id : 68019113862 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

A first row transition metal in its +2 oxidation state has a spin-only magnetic moment value of 3.86 BM. The atomic number of the metal is

Options :

68019154583. 25

68019154584. 23

68019154585. 22

68019154586. 26

Question Number : 69 Question Id : 68019113862 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

प्रथम श्रेणी के किसी संक्रमण धातु का +2 ऑक्सीकरण अवस्था में 'प्रचक्रण मात्र' चुम्बकीय आघूर्ण 3.86 BM है। धातु का परमाणु क्रमांक है:

Options :

68019154583. 25

68019154584. 23

68019154585. 22

68019154586. 26

Question Number : 70 Question Id : 68019113863 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The number of unpaired d-electrons in $[\text{Co}(\text{H}_2\text{O})_6]^{3+}$ is _____.

Options :

68019154587. 0

68019154588. 1

68019154589. 2

68019154590. 4

Question Number : 70 Question Id : 68019113863 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

$[\text{Co}(\text{H}_2\text{O})_6]^{3+}$ में अयुग्मित d-इलेक्ट्रॉनों की संख्या है-

Options :

68019154587. 0

68019154588. 1

68019154589. 2

68019154590. 4

Question Number : 71 Question Id : 68019113864 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

If an iron (III) complex with the formula $\left[\text{Fe}(\text{NH}_3)_x (\text{CN})_y \right]^-$ has no electron in its e_g orbital, then the value of $x + y$ is

Options :

68019154591. 3

68019154592. 4

68019154593. 5

68019154594. 6

Question Number : 71 Question Id : 68019113864 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

यदि $\left[\text{Fe}(\text{NH}_3)_x (\text{CN})_y \right]^-$ सूत्र वाले किसी आयरन (III) संकुल के e_g कक्षक में कोई भी इलेक्ट्रॉन उपस्थित नहीं है तो $x + y$ का मान है:

Options :

68019154591. 3

68019154592. 4

68019154593. 5

68019154594. 6

Question Number : 72 Question Id : 68019113865 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

When MnO_2 and H_2SO_4 is added to a salt (A), the greenish yellow gas liberated as salt (A) is :

Options :

68019154595. NaBr

68019154596. NH_4Cl

68019154597. CaI_2

68019154598. KNO_3

Question Number : 72 Question Id : 68019113865 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

जब लवण (A) में MnO_2 एवं H_2SO_4 को मिलाया जाता है तो हरी-पीली गैस निर्युक्त होती है।
लवण A है:

Options :

68019154595. NaBr

68019154596. NH_4Cl

68019154597. CaI_2

68019154598. KNO_3

Question Number : 73 Question Id : 68019113866 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The adsorbent used in adsorption chromatography is/are -

- A. silica gel
- B. alumina
- C. quick lime
- D. magnesia

Choose the **most appropriate** answer from the options given below :

Options :

68019154599. A only

68019154600. B only

68019154601. A and B only

68019154602. C and D only

Question Number : 73 Question Id : 68019113866 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

अधिशोषण वर्णलेखन में उपयोग किया जाने वाला/वाले अधिशोषक है/हैं:

- A. सिलिका जेल
- B. ऐलुमिना
- C. क्लिक लाइम
- D. मैग्नीशिया

नीचे दिए गए विकल्पों में से सर्वाधिक उपयुक्त उत्तर चुनें:

Options :

68019154599. केवल A

68019154600. केवल B

68019154601. केवल A एवं B

68019154602. केवल C एवं D

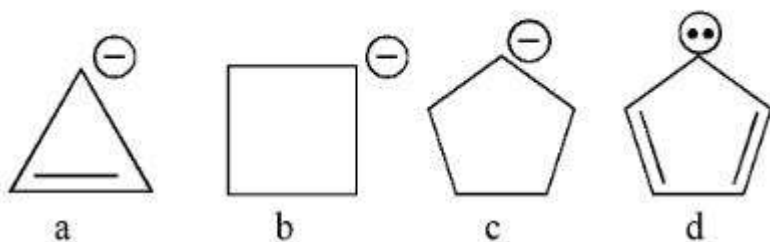
Question Number : 74 Question Id : 68019113867 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Correct order of stability of carbanion is -



Options :

68019154603. $d > c > b > a$

68019154604. $a > b > c > d$

68019154605. $d > a > c > b$

68019154606. $c > b > d > a$

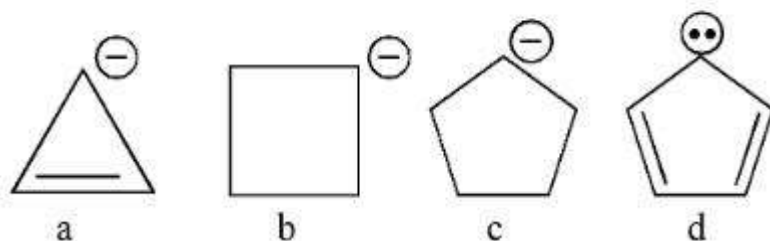
Question Number : 74 Question Id : 68019113867 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

कार्बनक्रणायनों के स्थायित्व का सही क्रम है-



Options :

68019154603. $d > c > b > a$

68019154604. $a > b > c > d$

68019154605. $d > a > c > b$

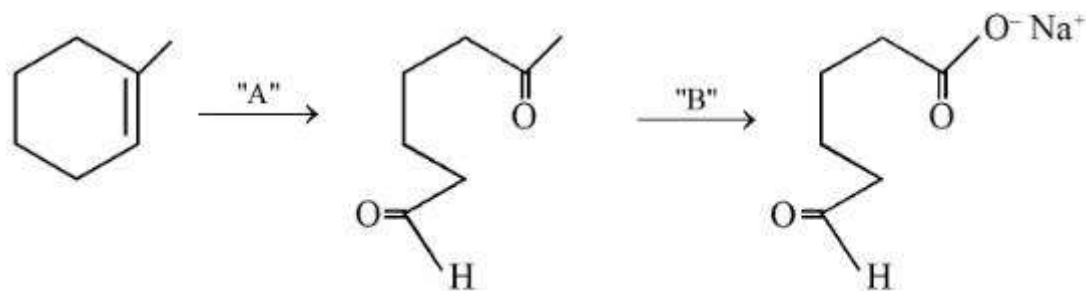
68019154606. $c > b > d > a$

Question Number : 75 Question Id : 68019113868 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1



In the above chemical reaction sequence "A" and "B" respectively are

Options :

68019154607. H_2O , H^+ and KMnO_4

68019154608. O_3 , $\text{Zn}/\text{H}_2\text{O}$ and $\text{NaOH}_{(\text{alc})}/\text{I}_2$

68019154609.

H_2O , H^+ and $\text{NaOH}_{(\text{alc})}/\text{I}_2$

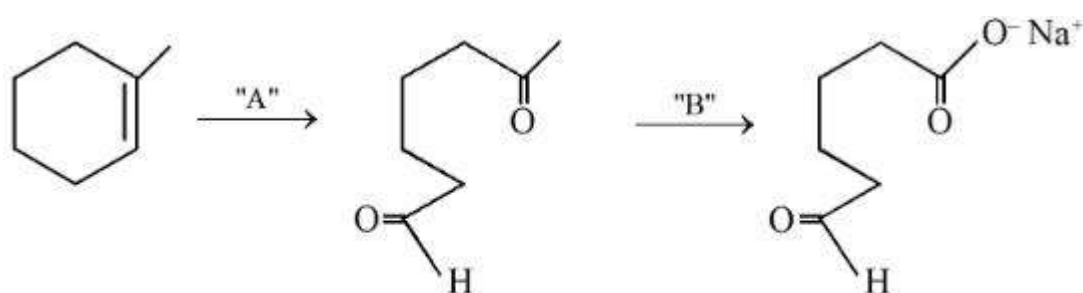
68019154610. O_3 , $\text{Zn}/\text{H}_2\text{O}$ and KMnO_4

Question Number : 75 Question Id : 68019113868 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1



उपर्युक्त रासायनिक अभिक्रिया क्रम में "A" एवं "B" क्रमशः हैं:

Options :

68019154607. H_2O , H^+ एवं KMnO_4

68019154608. O_3 , $\text{Zn}/\text{H}_2\text{O}$ एवं $\text{NaOH}_{(\text{alc})}/\text{I}_2$

68019154609. H_2O , H^+ एवं $\text{NaOH}_{(\text{alc})}/\text{I}_2$

68019154610. O_3 , $\text{Zn}/\text{H}_2\text{O}$ एवं KMnO_4

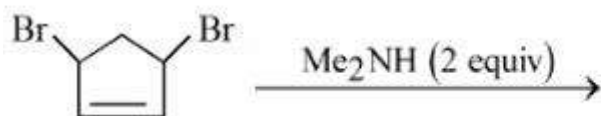
Question Number : 76 Question Id : 68019113869 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

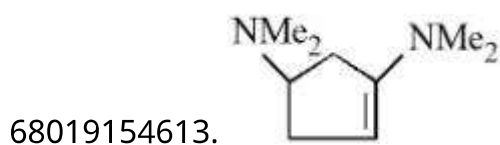
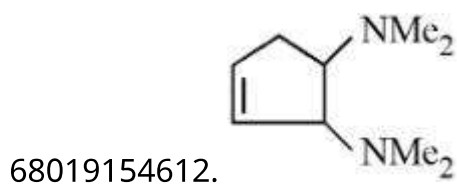
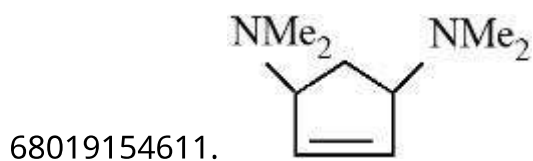
Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Find out the major product formed from the following reaction. [Me : $-\text{CH}_3$]



Options :



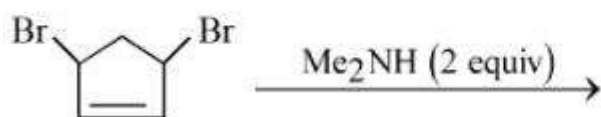
Question Number : 76 Question Id : 68019113869 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

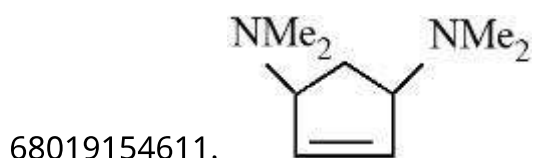
Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

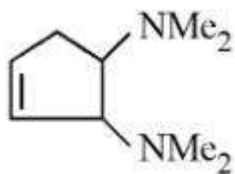
निम्नलिखित अभिक्रिया से निर्मित मुख्य उत्पाद का पता करें: [Me : $-\text{CH}_3$]



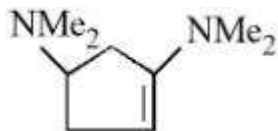
Options :



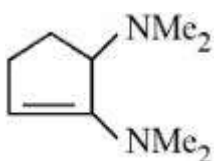
68019154612.



68019154613.



68019154614.

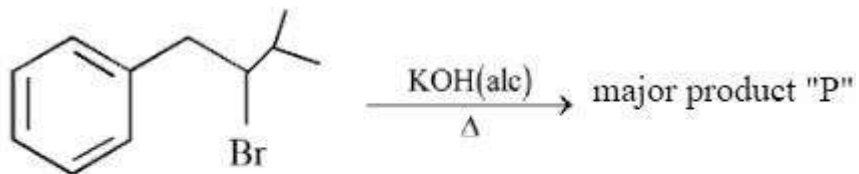


Question Number : 77 Question Id : 68019113870 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

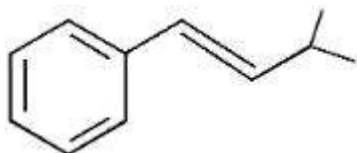
Correct Marks : 4 Wrong Marks : 1



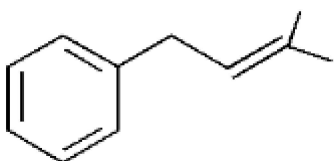
Product P is

Options :

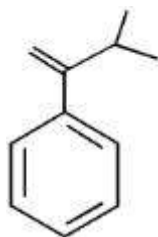
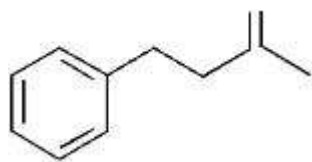
68019154615.



68019154616.



68019154617.



68019154618.

Question Number : 77 Question Id : 68019113870 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

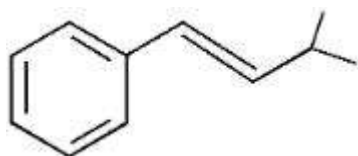
Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

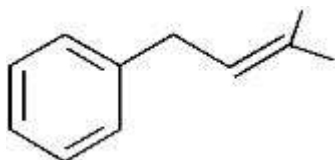


उत्पाद P है

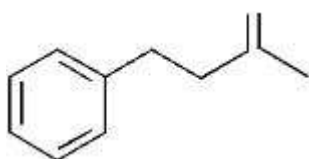
Options :



68019154615.

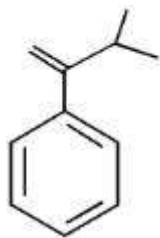


68019154616.



68019154617.

68019154618.



Question Number : 78 Question Id : 68019113871 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Common name of Benzene - 1, 2 - diol is -

Options :

68019154619. resorcinol

68019154620. quinol

68019154621. catechol

68019154622. o-cresol

Question Number : 78 Question Id : 68019113871 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

बेन्जीन - 1, 2 - डाइऑल का सामान्य नाम है:

Options :

68019154619. रेसॉर्सिनॉल

68019154620. किनॉल

68019154621. कैटिकॉल

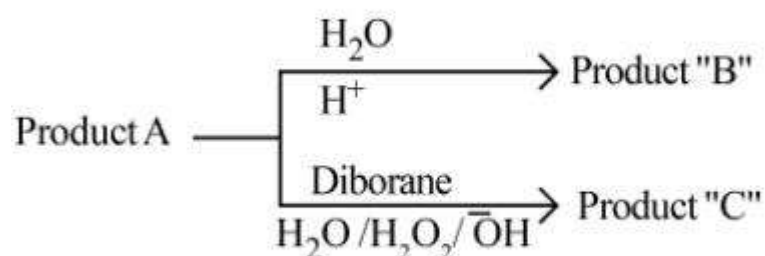
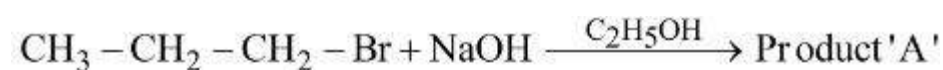
68019154622. o-क्रिसॉल

Question Number : 79 Question Id : 68019113872 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1



Consider the above reactions, identify product B and product C.

Options :

68019154623. B = 2-Propanol C = 1-Propanol

68019154624. B = 1-Propanol C = 2-Propanol

68019154625. B = C = 2-Propanol

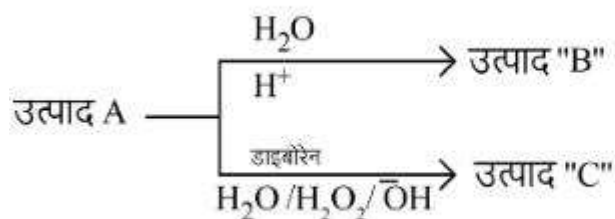
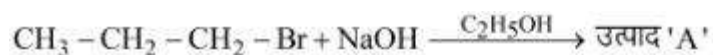
68019154626. B = C = 1-Propanol

Question Number : 79 Question Id : 68019113872 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1



उपर्युक्त अभिक्रियाओं पर विचार कीजिए। उत्पाद B एवं उत्पाद C को पहचानिए:

Options :

68019154623. B = 2-प्रोपेनॉल C = 1-प्रोपेनॉल

68019154624. B = 1-प्रोपेनॉल C = 2-प्रोपेनॉल

68019154625. B = C = 2-प्रोपेनॉल

68019154626. B = C = 1-प्रोपेनॉल

Question Number : 80 Question Id : 68019113873 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Match List I with List II

LIST I		LIST II	
A.	α - Glucose and α - Galactose	I.	Functional isomers
B.	α - Glucose and β - Glucose	II.	Homologous
C.	α - Glucose and α - Fructose	III.	Anomers
D.	α - Glucose and α - Ribose	IV.	Epimers

Choose the **correct** answer from the options given below:

Options :

68019154627. A-III, B-IV, C-I, D-II

68019154628. A-III, B-IV, C-II, D-I

68019154629. A-IV, B-III, C-I, D-II

68019154630. A-IV, B-III, C-II, D-I

Question Number : 80 Question Id : 68019113873 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

सूची I का मिलान सूची II से करें:

सूची I		सूची II	
A.	α - ग्लूकोस एवं α - गैलेक्टोस	I.	क्रियात्मक समावयव
B.	α - ग्लूकोस एवं β - ग्लूकोस	II.	समजातीय
C.	α - ग्लूकोस एवं α - फ्रक्टोस	III.	ऐनोमर
D.	α - ग्लूकोस एवं α - राइबोस	IV.	इपिमर

नीचे दिए गए विकल्पों में से सही उत्तर चुनें:

Options :

68019154627. A-III, B-IV, C-I, D-II

68019154628. A-III, B-IV, C-II, D-I

68019154629. A-IV, B-III, C-I, D-II

68019154630. A-IV, B-III, C-II, D-I

Chemistry Section B

Section Id :

680191226

Section Number :

6

Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	10
Number of Questions to be attempted :	5
Section Marks :	20
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	680191316
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 81 Question Id : 68019113874 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The maximum number of orbitals which can be identified with $n = 4$ and $m_l = 0$ is _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 81 Question Id : 68019113874 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

$n=4$ एवं $m_l = 0$ से पहचाने जाने वाले कक्षकों की अधिकतम संख्या है _____

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 82 Question Id : 68019113875 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Number of compounds / species from the following with non-zero dipole moment is _____.

BeCl₂, BCl₃, NF₃, XeF₄, CCl₄, H₂O, H₂S, HBr, CO₂, H₂, HCl

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 82 Question Id : 68019113875 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्नलिखित में से उन यौगिकों/ स्पीशीज़ों की संख्या जिनका द्विध्रुव आघूर्ण शून्य नहीं है _____

BeCl₂, BCl₃, NF₃, XeF₄, CCl₄, H₂O, H₂S, HBr, CO₂, H₂, HCl

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 83 Question Id : 68019113876 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Three moles of an ideal gas are compressed isothermally from 60 L to 20 L using constant pressure of 5 atm. Heat exchange Q for the compression is – _____ Lit. atm.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 83 Question Id : 68019113876 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

किसी आदर्श गैस के तीन मोलों को 5 atm के स्थिर दाब पर 60 L से 20 L तक समतापीय संपीड़ित किया गया। संपीड़न के लिए उष्मा विनिमय Q है _____ लीटर atm

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 84 Question Id : 68019113877 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

2.7 kg of each of water and acetic acid are mixed. The freezing point of the solution will be $-x^{\circ}\text{C}$. Consider the acetic acid does not dimerise in water, nor dissociates in water. $x = \underline{\hspace{2cm}}$ (nearest integer)

[Given: Molar mass of water = 18 g mol^{-1} , acetic acid = 60 g mol^{-1}

$K_f \text{H}_2\text{O} : 1.86 \text{ K kg mol}^{-1}$

$K_f \text{acetic acid} : 3.90 \text{ K kg mol}^{-1}$

freezing point: $\text{H}_2\text{O} = 273 \text{ K}$, acetic acid = 290 K]

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 84 Question Id : 68019113877 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

जल एवं ऐसीटिक अम्ल प्रत्येक के 2.7 kg का मिलाया गया। विलयन का हिमांक $-x^{\circ}\text{C}$ होगा। मानिए कि जल में ऐसीटिक अम्ल न तो द्विलक (dimer) बनाता है और न ही वियोजित होता है। $x = \underline{\hspace{2cm}}$ (निकटतम पूर्णांक में)

(दिया गया है: जल एवं ऐसीटिक अम्ल का मोलर द्रव्यमान क्रमशः 18 g mol^{-1} एवं 60 g mol^{-1} है।

$K_f(\text{जल}) = 1.86 \text{ K kg mol}^{-1}$, $K_f(\text{ऐसीटिक अम्ल}) = 3.90 \text{ K kg mol}^{-1}$, जल का हिमांक = 273K , ऐसीटिक अम्ल का हिमांक = 290K)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

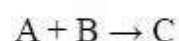
1

Question Number : 85 Question Id : 68019113878 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Consider the following reaction, the rate expression of which is given below



$$\text{rate} = k [A]^{1/2} [B]^{1/2}$$

The reaction is initiated by taking 1 M concentration of A and B each. If the rate constant (k) is $4.6 \times 10^{-2} \text{ s}^{-1}$, then the time taken for A to become 0.1 M is _____ sec.
(nearest integer)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

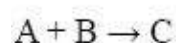
1

Question Number : 85 Question Id : 68019113878 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्नलिखित अभिक्रिया पर विचार करें, जिसका वेग समीकरण नीचे दिया गया है:



$$\text{दर} = k [A]^{1/2} [B]^{1/2}$$

A एवं B प्रत्येक की 1 M सान्द्रता के साथ अभिक्रिया को प्रारम्भ किया जाता है। यदि वेग स्थिरांक (k) $4.6 \times 10^{-2} \text{ s}^{-1}$ है तो A को 0.1 M होने में लगा हुआ समय है _____ सेकेन्ड

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 86 Question Id : 68019113879 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

A first row transition metal with highest enthalpy of atomisation, upon reaction with oxygen at high temperature forms oxides of formula M_2O_n (where $n = 3, 4, 5$). The 'spin-only' magnetic moment value of the amphoteric oxide from the above oxides is _____ BM (near integer)

(Given atomic number : Sc : 21, Ti : 22, V : 23, Cr : 24, Mn : 25, Fe : 26, Co : 27, Ni : 28, Cu : 29, Zn : 30)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 86 Question Id : 68019113879 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

किसी प्रथम श्रेणी संक्रमण धातु जिसका परमाणुवीय कणन ऐन्थैल्पी सर्वाधिक है, उच्च ताप पर ऑक्सीजन से क्रिया करके सूत्र M_2O_n (जहाँ $n = 3, 4, 5$) प्रकार का ऑक्साइड बनाता है। उपर्युक्त ऑक्साइडों में से उभयधर्मी ऑक्साइड का 'प्रचक्रण मात्र' चुम्बकीय आघूर्ण मान है: _____ BM (निकटतम पूर्णांक में)

(परमाणु क्रमांक दिया गया है : Sc : 21, Ti : 22, V : 23, Cr : 24, Mn : 25, Fe : 26, Co : 27, Ni : 28, Cu : 29, Zn : 30)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 87 **Question Id :** 68019113880 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

From 6.55 g of aniline, the maximum amount of acetanilide that can be prepared will be _____ $\times 10^{-1}$ g.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 87 **Question Id :** 68019113880 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

6.55 g ऐनिलीन से ऐसिटिनैलाइड की अधिकतम मात्रा जो निर्मित की जा सकती है, है _____ $\times 10^{-1}$ g.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 88 **Question Id :** 68019113881 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

The total number of 'sigma' and 'Pi' bonds in 2-oxohex-4-ynoic acid is _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 88 **Question Id :** 68019113881 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

2-ऑक्सोहेक्स-4-आइनओइक अम्ल में 'सिग्मा' एवं 'पाई' आबन्धों की कुल संख्या है:

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 89 Question Id : 68019113882 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Vanillin compound obtained from vanilla beans, has total sum of oxygen atoms and π electrons is _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 89 Question Id : 68019113882 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

वैनिलिन यौगिक जो वैनिला बीन्स से प्राप्त किया जाता है, में ऑक्सीजन परमाणुओं की संख्या एवं π - इलेक्ट्रॉनों का कुल योग है: _____

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

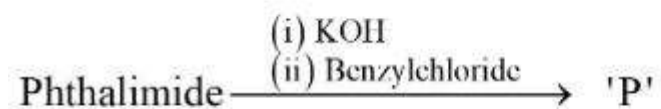
1

Question Number : 90 Question Id : 68019113883 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Phthalimide is made to undergo following sequence of reactions.



Total number of π bonds present in product 'P' is/are _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

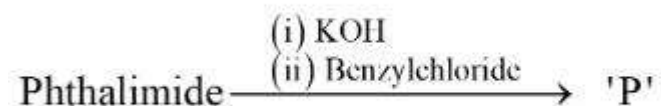
1

Question Number : 90 **Question Id :** 68019113883 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

थैलिमाइड अभिक्रिया के निम्न क्रम को सम्पादित करता है



उत्पाद 'P' में π - आबन्धों की कुल संख्या है _____

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1