

National Testing Agency

Question Paper Name :	B Tech 6th April 2024 Shift 1
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B. Tech

Group Number :	1
Group Id :	680191184
Group Maximum Duration :	0
Group Minimum Duration :	180
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	300
Is this Group for Examiner? :	No
Examiner permission :	Cant View
Show Progress Bar? :	No

Mathematics Section A

Section Id :	680191239
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 :	680191329
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 1 Question Id : 68019114064 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 the relations R_1 and R_2 on the set $X = \{1, 2, 3, \dots, 20\}$ be given by $R_1 = \{(x, y): 2x - 3y = 2\}$ and $R_2 = \{(x, y): -5x + 4y = 0\}$. If M and N be the minimum number of elements required to be added in R_1 and R_2 , respectively, in order to make the relations symmetric, then $M+N$ equals

Options :

68019155181. 8

68019155182. 10

68019155183. 12

68019155184. 16

Question Number : 1 Question Id : 68019114064 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 समुच्चय $X = \{1, 2, 3, \dots, 20\}$ में संबंध R_1 तथा R_2 इस प्रकार परिभाषित हैं कि $R_1 = \{(x, y) : 2x - 3y = 2\}$ और $R_2 = \{(x, y) : -5x + 4y = 0\}$ हैं। यदि M और N क्रमशः R_1 और R_2 में जोड़े जाने वाले आवश्यक न्यूनतम अवयवों की संख्याएँ हैं जिससे संबंध सममित बन जायें, तो $M+N$ बराबर है

Options :

68019155181. 8

68019155182. 10

68019155183. 12

68019155184. 16

Question Number : 2 Question Id : 68019114065 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 function $f(x) = \frac{x^2 + 2x - 15}{x^2 - 4x + 9}$, $x \in \mathbb{R}$ is

Options :

68019155185. both one-one and onto.

68019155186. one-one but not onto.

68019155187. onto but not one-one.

68019155188. neither one-one nor onto.

Question Number : 2 Question Id : 68019114065 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

फलन $f(x) = \frac{x^2 + 2x - 15}{x^2 - 4x + 9}$, $x \in \mathbb{R}$ है

Options :

68019155185. एकैकी तथा आच्छादक दोनों।

68019155186. एकैकी किंतु आच्छादक नहीं।

68019155187. आच्छादक किंतु एकैकी नहीं।

68019155188. न तो एकैकी और न आच्छादक।

Question Number : 3 Question Id : 68019114066 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 triangles whose vertices are at the vertices of a regular octagon but
none of whose sides is a side of the octagon is

Options :

68019155189. 16

68019155190. 24

68019155191. 56

68019155192. 48

Question Number : 3 Question Id : 68019114066 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

त्रिभुजों, जिनके शीर्ष एक सम अष्टभुज के शीर्षों पर हैं परन्तु जिनकी कोई भी भुजा अष्टभुज की एक भी भुजा नहीं है, की संख्या है

Options :

68019155189. 16

68019155190. 24

68019155191. 56

68019155192. 48

Question Number : 4 Question Id : 68019114067 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 α, β be the distinct roots of the equation $x^2 - (t^2 - 5t + 6)x + 1 = 0, t \in \mathbb{R}$ and $a_n = \alpha^n + \beta^n$. Then the minimum value of $\frac{a_{2023} + a_{2025}}{a_{2024}}$ is

Options :

68019155193. $-1/4$

68019155194. $1/4$

68019155195. $-1/2$

68019155196. 1/2

Question Number : 4 Question Id : 68019114067 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 α, β समीकरण $x^2 - (t^2 - 5t + 6)x + 1 = 0, t \in \mathbb{R}$ के भिन्न मूल हैं और $a_n = \alpha^n + \beta^n$ है। तब $\frac{a_{2023} + a_{2025}}{a_{2024}}$ का न्यूनतम मान है

Options :

68019155193. $-1/4$

68019155194. $1/4$

68019155195. $-1/2$

68019155196. $1/2$

Question Number : 5 Question Id : 68019114068 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 $\alpha, \beta \in \mathbb{R}$ and a natural number n , let $A_r = \begin{vmatrix} r & 1 & \frac{n^2}{2} + \alpha \\ 2r & 2 & n^2 - \beta \\ 3r - 2 & 3 & \frac{n(3n-1)}{2} \end{vmatrix}$. Then

$2A_{10} - A_8$ is

Options :

68019155197. 0

68019155198. $2n$

68019155199. $2\alpha+4\beta$

68019155200. $4\alpha+2\beta$

Question Number : 5 Question Id : 68019114068 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

$\alpha, \beta \in \mathbb{R}$ और प्राकृतिक संख्या n के लिए, माना $A_r = \begin{vmatrix} r & 1 & \frac{n^2}{2} + \alpha \\ 2r & 2 & n^2 - \beta \\ 3r - 2 & 3 & \frac{n(3n-1)}{2} \end{vmatrix}$,

तो $2A_{10} - A_8$ है

Options :

68019155197. 0

68019155198. $2n$

68019155199. $2\alpha+4\beta$

68019155200. $4\alpha+2\beta$

Question Number : 6 Question Id : 68019114069 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 $f: (-\infty, \infty) - \{0\} \rightarrow \mathbb{R}$ be a differentiable function such that $f'(1) = \lim_{a \rightarrow \infty} a^2 f\left(\frac{1}{a}\right)$.

Then $\lim_{a \rightarrow \infty} \frac{a(a+1)}{2} \tan^{-1}\left(\frac{1}{a}\right) + a^2 - 2 \log_e a$ is equal to

Options :

68019155201. $\frac{5}{2} + \frac{\pi}{8}$

68019155202. $\frac{3}{2} + \frac{\pi}{4}$

68019155203. $\frac{3}{8} + \frac{\pi}{4}$

68019155204. $\frac{3}{4} + \frac{\pi}{8}$

Question Number : 6 Question Id : 68019114069 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 $f: (-\infty, \infty) - \{0\} \rightarrow \mathbb{R}$ एक अवकलनीय फलन इस प्रकार का है कि

$f'(1) = \lim_{a \rightarrow \infty} a^2 f\left(\frac{1}{a}\right)$, तो $\lim_{a \rightarrow \infty} \frac{a(a+1)}{2} \tan^{-1}\left(\frac{1}{a}\right) + a^2 - 2 \log_e a$ बराबर है

Options :

68019155201. $\frac{5}{2} + \frac{\pi}{8}$

68019155202. $\frac{3}{2} + \frac{\pi}{4}$

68019155203. $\frac{3}{8} + \frac{\pi}{4}$

68019155204. $\frac{3}{4} + \frac{\pi}{8}$

Question Number : 7 Question Id : 68019114070 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 $A = \{n \in [100, 700] \cap \mathbb{N} : n \text{ is neither a multiple of 3 nor a multiple of 4}\}$. Then the number of elements in A is

Options :

68019155205. 280

68019155206. 290

68019155207. 300

68019155208. 310

Question Number : 7 Question Id : 68019114070 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 $A = \{n \in [100, 700] \cap \mathbb{N} : n \text{ न तो 3 का गुणज है और न ही 4 का गुणज है}\}$, तो A में अवयवों की संख्या है

Options :

68019155205. 280

68019155206. 290

68019155207. 300

68019155208. 310

Question Number : 8 Question Id : 68019114071 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 $f(x) = \begin{cases} x^3 \sin\left(\frac{1}{x}\right), & x \neq 0 \\ 0, & x = 0 \end{cases}$, then

Options :

68019155209. $f''(0) = 0$

68019155210. $f''\left(\frac{2}{\pi}\right) = \frac{24 - \pi^2}{2\pi}$

68019155211. $f''(0) = 1$

68019155212. $f''\left(\frac{2}{\pi}\right) = \frac{12 - \pi^2}{2\pi}$

Question Number : 8 Question Id : 68019114071 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 $f(x) = \begin{cases} x^3 \sin\left(\frac{1}{x}\right), & x \neq 0 \\ 0 & , x = 0 \end{cases}$, तो

Options :

68019155209. $f''(0) = 0$

68019155210. $f''\left(\frac{2}{\pi}\right) = \frac{24 - \pi^2}{2\pi}$

68019155211. $f''(0) = 1$

68019155212. $f''\left(\frac{2}{\pi}\right) = \frac{12 - \pi^2}{2\pi}$

Question Number : 9 Question Id : 68019114072 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 interval in which the function $f(x) = x^x, x > 0$, is strictly increasing is

Options :

68019155213. $\left[\frac{1}{e}, \infty\right)$

68019155214. $\left(0, \frac{1}{e}\right]$

68019155215. $\left[\frac{1}{e^2}, 1\right)$

68019155216. $(0, \infty)$

Question Number : 9 Question Id : 68019114072 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

वह अंतराल, जिसमें फलन $f(x) = x^x, x > 0$, निरंतर वर्धमान है, है

Options :

68019155213. $\left[\frac{1}{e}, \infty\right)$

68019155214. $\left(0, \frac{1}{e}\right]$

68019155215. $\left[\frac{1}{e^2}, 1\right)$

68019155216. $(0, \infty)$

Question Number : 10 Question Id : 68019114073 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 variable line of slope $m > 0$ passing through the point $(4, -9)$ intersect the coordinate axes at the points A and B . The minimum value of the sum of the distances of A and B from the origin is

Options :

68019155217. 10

68019155218. 25

68019155219. 15

68019155220. 30

Question Number : 10 Question Id : 68019114073 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 प्रवणता $m > 0$ तथा बिन्दु $(4, -9)$ से गुजरने वाली कोई चर रेखा निर्देशांक अक्षों को बिन्दु A और B पर प्रतिच्छेद करती है। मूल बिन्दु से A और B की दूरियों के योग का न्यूनतम मान है

Options :

68019155217. 10

68019155218. 25

68019155219. 15

68019155220. 30

Question Number : 11 Question Id : 68019114074 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

$\int_0^{\pi/4} \frac{\cos^2 x \sin^2 x}{(\cos^3 x + \sin^3 x)^2} dx$ is equal to

Options :

68019155221. 1/3

68019155222. 1/6

68019155223. 1/9

68019155224. 1/12

Question Number : 11 Question Id : 68019114074 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

$$\int_0^{\pi/4} \frac{\cos^2 x \sin^2 x}{(\cos^3 x + \sin^3 x)^2} dx \text{ बराबर है}$$

Options :

68019155221. 1/3

68019155222. 1/6

68019155223. 1/9

68019155224. 1/12

Question Number : 12 Question Id : 68019114075 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 the area of the region enclosed by the curves $y = 3x$, $2y = 27 - 3x$ and $y = 3x - x\sqrt{x}$ be A . Then $10A$ is equal to

Options :

68019155225. 154

68019155226. 162

68019155227. 172

68019155228. 184

Question Number : 12 Question Id : 68019114075 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 वक्रों $y = 3x$, $2y = 27 - 3x$ और $y = 3x - x\sqrt{x}$ से घिरे क्षेत्र का क्षेत्रफल A है, तो $10A$ बराबर है

Options :

68019155225. 154

68019155226. 162

68019155227. 172

68019155228. 184

Question Number : 13 Question Id : 68019114076 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 $(1+x^2)\frac{dy}{dx} + y = e^{\tan^{-1}x}$, $y(1) = 0$. Then $y(0)$ is

Options :

68019155229. $\frac{1}{2}(e^{\pi/2} - 1)$

68019155230. $\frac{1}{4}(e^{\pi/2} - 1)$

68019155231. $\frac{1}{2}(1 - e^{\pi/2})$

68019155232. $\frac{1}{4}(1 - e^{\pi/2})$

Question Number : 13 Question Id : 68019114076 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 $(1+x^2)\frac{dy}{dx} + y = e^{\tan^{-1} x}$, $y(1) = 0$ का हल है, तो $y(0)$ है

-

Options :

68019155229. $\frac{1}{2}(e^{\pi/2} - 1)$

68019155230. $\frac{1}{4}(e^{\pi/2} - 1)$

68019155231. $\frac{1}{2}(1 - e^{\pi/2})$

68019155232. $\frac{1}{4}(1 - e^{\pi/2})$

Question Number : 14 Question Id : 68019114077 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

$(2x \log_e x) \frac{dy}{dx} + 2y = \frac{3}{x} \log_e x$, $x > 0$ and $y(e^{-1}) = 0$. Then, $y(e)$ is equal to

Options :

68019155233. $-\frac{2}{e}$

68019155234. $-\frac{3}{e}$

68019155235. $-\frac{3}{2e}$

68019155236. $-\frac{2}{3e}$

Question Number : 14 Question Id : 68019114077 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 $(2x \log_e x) \frac{dy}{dx} + 2y = \frac{3}{x} \log_e x$, $x > 0$ तथा $y(e^{-1}) = 0$ का

हल है, तो $y(e)$ बराबर है -

Options :

68019155233. $-\frac{2}{e}$

68019155234. $-\frac{3}{e}$

68019155235. $-\frac{3}{2e}$

68019155236. $-\frac{2}{3e}$

Question Number : 15 Question Id : 68019114078 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 circle is inscribed in an equilateral triangle of side of length 12. If the area and perimeter of any square inscribed in this circle are m and n , respectively, then $m + n^2$ is equal to

Options :

68019155237. 408

68019155238. 312

68019155239. 414

68019155240. 396

Question Number : 15 Question Id : 68019114078 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

लम्बाई 12 की भुजा के किसी समबाहु त्रिभुज में एक अंतवृत्त है। यदि इस वृत्त के अंतर्गत किसी वर्ग का क्षेत्रफल व परिमाप क्रमशः m व n है, तो $m + n^2$ बराबर है -

Options :

68019155237. 408

68019155238. 312

68019155239. 414

Question Number : 16 Question Id : 68019114079 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 the circle of minimum area touching the parabola $y = 6 - x^2$ and the lines $y = \sqrt{3}|x|$. Then, which one of the following points lies on the circle C ?

Options :

68019155241. (2, 4)

68019155242. (1, 2)

68019155243. (2, 2)

68019155244. (1, 1)

Question Number : 16 Question Id : 68019114079 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 न्यूनतम क्षेत्रफल का कोई वृत्त है जो परवलय $y = 6 - x^2$ और रेखा $y = \sqrt{3}|x|$ को स्पर्श कर रहा है। तब निम्नलिखित में से कौन-सा बिन्दु वृत्त C पर स्थित होगा?

Options :

68019155241. (2, 4)

68019155242. (1, 2)

68019155243. (2, 2)

68019155244. (1, 1)

Question Number : 17 Question Id : 68019114080 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 shortest distance between the lines $\frac{x-3}{2} = \frac{y+15}{-7} = \frac{z-9}{5}$ and $\frac{x+1}{2} = \frac{y-1}{1} = \frac{z-9}{-3}$ is

Options :

68019155245. $6\sqrt{3}$

68019155246. $5\sqrt{3}$

68019155247. $4\sqrt{3}$

68019155248. $8\sqrt{3}$

Question Number : 17 Question Id : 68019114080 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

रेखाओं $\frac{x-3}{2} = \frac{y+15}{-7} = \frac{z-9}{5}$ और $\frac{x+1}{2} = \frac{y-1}{1} = \frac{z-9}{-3}$ के बीच की न्यूनतम दूरी है -

Options :

68019155245. $6\sqrt{3}$

68019155246. $5\sqrt{3}$

68019155247. $4\sqrt{3}$

68019155248. $8\sqrt{3}$

Question Number : 18 Question Id : 68019114081 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 mean and standard deviation of 20 observations are found to be 10 and 2, respectively. On rechecking, it was found that an observation by mistake was taken 8 instead of 12. The correct standard deviation is

Options :

68019155249. 1.8

68019155250. $\sqrt{3.96}$

68019155251. $\sqrt{3.86}$

68019155252. 1.94

Question Number : 18 Question Id : 68019114081 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

20 प्रेक्षकों का माध्य और मानक विचलन क्रमशः 10 और 2 पाया जाता है। दोबारा जाँच में यह पाया गया कि गलती से कोई प्रेक्षण 12 के बजाय 8 ले लिया गया था। सही मानक विचलन है -

Options :

68019155249. 1.8

68019155250. $\sqrt{3.96}$

68019155251. $\sqrt{3.86}$

68019155252. 1.94

Question Number : 19 Question Id : 68019114082 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 $A(3, 1, -1)$, $B\left(\frac{5}{3}, \frac{7}{3}, \frac{1}{3}\right)$, $C(2, 2, 1)$ and $D\left(\frac{10}{3}, \frac{2}{3}, \frac{-1}{3}\right)$ are the vertices of a quadrilateral $ABCD$, then its area is

Options :

68019155253. $2\sqrt{2}$

68019155254. $\frac{5\sqrt{2}}{3}$

68019155255. $\frac{2\sqrt{2}}{3}$

68019155256. $\frac{4\sqrt{2}}{3}$

Question Number : 19 Question Id : 68019114082 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 $A(3, 1, -1)$, $B\left(\frac{5}{3}, \frac{7}{3}, \frac{1}{3}\right)$, $C(2, 2, 1)$ और $D\left(\frac{10}{3}, \frac{2}{3}, \frac{-1}{3}\right)$ चतुर्भुज $ABCD$ के शीर्ष हैं, तो इसका क्षेत्रफल है -

Options :

68019155253. $2\sqrt{2}$

68019155254. $\frac{5\sqrt{2}}{3}$

68019155255. $\frac{2\sqrt{2}}{3}$

68019155256. $\frac{4\sqrt{2}}{3}$

Question Number : 20 Question Id : 68019114083 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 company has two plants A and B to manufacture motorcycles. 60% motorcycles are manufactured at plant A and the remaining are manufactured at plant B . 80% of the motorcycles manufactured at plant A are rated of the standard quality, while 90% of the motorcycles manufactured at plant B are rated of the standard quality. A motorcycle picked up randomly from the total production is found to be of the standard quality. If p is the probability that it was manufactured at plant B , then $126p$ is

Options :

68019155257. 56

68019155258. 64

68019155259. 66

68019155260. 54

Question Number : 20 Question Id : 68019114083 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 कंपनी के पास मोटरसाईकिल उत्पादन के लिए दो संयंत्र A और B हैं। 60% मोटरसाईकिल का उत्पादन संयंत्र A में तथा शेष का उत्पादन संयंत्र B में होता है। संयंत्र A में उत्पादित मोटरसाईकिलों के 80% को मानक गुणवत्ता की श्रेणी में रखा जाता है, जबकि संयंत्र B में उत्पादित मोटरसाईकिलों के 90% को मानक गुणवत्ता की श्रेणी में रखा जाता है। किसी मोटरसाईकिल को कुल उत्पादन में से यादृच्छया चुना जाता है तथा यह पाया जाता है कि वह मानक गुणवत्ता की है। यदि इसके संयंत्र B में उत्पादित होने की प्रायिकता p है, तो $126p$ है

Options :

68019155257. 56

68019155258. 64

68019155259. 66

68019155260. 54

Mathematics Section B

Section Id :	680191240
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 :	680191330
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 21 Question Id : 68019114084 Question Type : SA Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Let x_1, x_2, x_3, x_4 be the solution of the equation $4x^4 + 8x^3 - 17x^2 - 12x + 9 = 0$
and $\left(4 + x_1^2\right)\left(4 + x_2^2\right)\left(4 + x_3^2\right)\left(4 + x_4^2\right) = \frac{125}{16} m$. Then the value of m is

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 : 68019114084 Question Type : SA Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

माना x_1, x_2, x_3, x_4 समीकरण $4x^4 + 8x^3 - 17x^2 - 12x + 9 = 0$ के हल हैं तथा
 $\left(4 + x_1^2\right)\left(4 + x_2^2\right)\left(4 + x_3^2\right)\left(4 + x_4^2\right) = \frac{125}{16} m$ है। तो m 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 : 22 **Question Id :** 68019114085 **Question Type :** SA **Calculator :** None

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

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

Let $\alpha\beta\gamma = 45$; $\alpha, \beta, \gamma \in \mathbb{R}$. If $x(\alpha, 1, 2) + y(1, \beta, 2) + z(2, 3, \gamma) = (0, 0, 0)$ for some $x, y, z \in \mathbb{R}, xyz \neq 0$, then $6\alpha + 4\beta + \gamma$ 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 : 22 **Question Id :** 68019114085 **Question Type :** SA **Calculator :** None

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

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

माना $\alpha\beta\gamma = 45$; $\alpha, \beta, \gamma \in \mathbb{R}$ है। यदि कुछ $x, y, z \in \mathbb{R}, xyz \neq 0$, के लिए $x(\alpha, 1, 2) + y(1, \beta, 2) + z(2, 3, \gamma) = (0, 0, 0)$ है, तो $6\alpha + 4\beta + \gamma$ 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 : 23 Question Id : 68019114086 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

If the second, third and fourth terms in the expansion of $(x + y)^n$ are 135, 30 and $\frac{10}{3}$, respectively, then $6(n^3 + x^2 + y)$ 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 : 23 Question Id : 68019114086 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

यदि $(x + y)^n$ के प्रसार में द्वितीय, तृतीय व चतुर्थ पद क्रमशः 135, 30 तथा $\frac{10}{3}$ हैं, तो $6(n^3 + x^2 + y)$ 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 : 68019114087 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

Let the first term of a series be $T_1 = 6$ and its r^{th} term $T_r = 3 T_{r-1} + 6^r$, $r = 2, 3, \dots, n$. If the sum of the first n terms of this series is $\frac{1}{5}(n^2 - 12n + 39)(4 \cdot 6^n - 5 \cdot 3^n + 1)$, then n 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 : 24 **Question Id :** 68019114087 **Question Type :** SA **Calculator :** None

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

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

माना किसी श्रेणी का प्रथम पद $T_1 = 6$ तथा उसका r -वाँ पद $T_r = 3 T_{r-1} + 6^r$, $r = 2, 3, \dots, n$ है। यदि इस श्रेणी के प्रथम n पदों का योग $\frac{1}{5}(n^2 - 12n + 39)(4 \cdot 6^n - 5 \cdot 3^n + 1)$ है, तो n 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 : 25 **Question Id :** 68019114088 **Question Type :** SA **Calculator :** None

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

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

Let $r_k = \frac{\int_0^1 (1-x^7)^k dx}{\int_0^1 (1-x^7)^{k+1} dx}$, $k \in \mathbb{N}$. Then the value of $\sum_{k=1}^{10} \frac{1}{7(r_k - 1)}$ 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 : 25 **Question Id :** 68019114088 **Question Type :** SA **Calculator :** None

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

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

माना $r_k = \frac{\int_0^1 (1-x^7)^k dx}{\int_0^1 (1-x^7)^{k+1} dx}$, $k \in \mathbb{N}$ है। तो $\sum_{k=1}^{10} \frac{1}{7(r_k - 1)}$ का मान बराबर है _____

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 26 **Question Id :** 68019114089 **Question Type :** SA **Calculator :** None

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

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

Let L_1, L_2 be the lines passing through the point $P(0, 1)$ and touching the parabola $9x^2 + 12x + 18y - 14 = 0$. Let Q and R be the points on the lines L_1 and L_2 such that the ΔPQR is an isosceles triangle with base QR . If the slopes of the lines QR are m_1 and m_2 , then $16(m_1^2 + m_2^2)$ 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 : 26 **Question Id :** 68019114089 **Question Type :** SA **Calculator :** None

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

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

माना बिन्दु $P(0, 1)$ से गुजरने वाली तथा परवलय $9x^2 + 12x + 18y - 14 = 0$ को स्पर्श करने वाली रेखाएँ L_1, L_2 हैं। माना रेखाओं L_1 तथा L_2 पर Q तथा R इस प्रकार बिन्दु हैं कि ΔPQR एक समद्विबाहु त्रिभुज है जिसका आधार QR है। यदि रेखाओं QR की प्रवणताएँ m_1 और m_2 हैं, तो $16(m_1^2 + m_2^2)$ 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 : 27 **Question Id :** 68019114090 **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 conic C pass through the point $(4, -2)$ and $P(x, y)$, $x \geq 3$, be any point on C . Let the slope of the line touching the conic C only at a single point P be half the slope of the line joining the points P and $(3, -5)$. If the focal distance of the point $(7, 1)$ on C is d , then $12d$ 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 : 68019114090 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

माना कोई शंकु C बिन्दु $(4, -2)$ से होकर जाता है तथा C पर कोई बिन्दु $P(x, y)$, $x \geq 3$ है। माना शंकु C को मात्र एक बिन्दु P पर स्पर्श करने वाली रेखा की प्रवणता बिन्दु P तथा $(3, -5)$ को मिलाने वाली रेखा की प्रवणता की आधी है। यदि C पर स्थित बिन्दु $(7, 1)$ की नाभीय दूरी d है, तो $12d$ 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 : 68019114091 Question Type : SA 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 $(10, -2, -1)$ and Q be the foot of the perpendicular drawn from the point $R(1, 7, 6)$ on the line passing through the points $(2, -5, 11)$ and $(-6, 7, -5)$. Then the length of the line segment PQ 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 : 68019114091 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

माना बिन्दु P के निर्देशांक $(10, -2, -1)$ है तथा बिन्दुओं $(2, -5, 11)$ और $(-6, 7, -5)$ से गुजरने वाली रेखा पर बिन्दु $R(1, 7, 6)$ से डाले गए लंब का पाद Q है, तो रेखाखण्ड PQ की लम्बाई 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 : 68019114092 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

Let $\vec{a} = 2\hat{i} - 3\hat{j} + 4\hat{k}$, $\vec{b} = 3\hat{i} + 4\hat{j} - 5\hat{k}$ and a vector $\vec{c}$ be such that $\vec{a} \times (\vec{b} + \vec{c}) + \vec{b} \times \vec{c} = \hat{i} + 8\hat{j} + 13\hat{k}$. If $\vec{a} \cdot \vec{c} = 13$, then $(24 - \vec{b} \cdot \vec{c})$ 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 : 68019114092 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

माना $\vec{a} = 2\hat{i} - 3\hat{j} + 4\hat{k}$, $\vec{b} = 3\hat{i} + 4\hat{j} - 5\hat{k}$ तथा सदिश $\vec{c}$ इस प्रकार है कि $\vec{a} \times (\vec{b} + \vec{c}) + \vec{b} \times \vec{c} = \hat{i} + 8\hat{j} + 13\hat{k}$ है। यदि $\vec{a} \cdot \vec{c} = 13$, तो $(24 - \vec{b} \cdot \vec{c})$ 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 :** 68019114093 **Question Type :** SA **Calculator :** None

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

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

For $n \in \mathbb{N}$, if $\cot^{-1}3 + \cot^{-1}4 + \cot^{-1}5 + \cot^{-1}n = \frac{\pi}{4}$, then n 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 : 30 **Question Id :** 68019114093 **Question Type :** SA **Calculator :** None

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

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

$n \in \mathbb{N}$ के लिए, यदि $\cot^{-1}3 + \cot^{-1}4 + \cot^{-1}5 + \cot^{-1}n = \frac{\pi}{4}$, तो n 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 :	680191241
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 :	680191331
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 31 Question Id : 68019114094 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

Four particles A, B, C, D of mass $\frac{m}{2}, m, 2m, 4m$, have same momentum, respectively. The particle with maximum kinetic energy is :

Options :

68019155271. A

68019155272. *B*

68019155273. *C*

68019155274. *D*

Question Number : 31 Question Id : 68019114094 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

$\frac{m}{2}$, m , $2m$ तथा $4m$ द्रव्यमान के क्रमशः A , B , C व D चार कणों का संवेग एक समान है।
अधिकतम गतिज ऊर्जा का कण होगा:

Options :

68019155271. *A*

68019155272. *B*

68019155273. *C*

68019155274. *D*

Question Number : 32 Question Id : 68019114095 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 light string passing over a smooth light pulley connects two blocks of masses m_1 and m_2 (where $m_2 > m_1$). If the acceleration of the system is $\frac{g}{\sqrt{2}}$, then the ratio of the masses $\frac{m_1}{m_2}$ is:

Options :

68019155275. $\frac{\sqrt{2}-1}{\sqrt{2}+1}$

68019155276. $\frac{\sqrt{3}+1}{\sqrt{2}-1}$

68019155277. $\frac{1+\sqrt{5}}{\sqrt{2}-1}$

68019155278. $\frac{1+\sqrt{5}}{\sqrt{5}-1}$

Question Number : 32 Question Id : 68019114095 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

द्रव्यमान m_1 एवं m_2 के दो गुटकों को जोड़ती हुई एक हल्की रस्सी किसी हल्की चिकनी धिरनी से गुजरती है। यदि इस निकाय का त्वरण $\frac{g}{\sqrt{2}}$ हो तब दोनों द्रव्यमानों का अनुपात $\frac{m_1}{m_2}$ है (दिया है: $m_2 > m_1$):

Options :

68019155275. $\frac{\sqrt{2}-1}{\sqrt{2}+1}$

68019155276. $\frac{\sqrt{3}+1}{\sqrt{2}-1}$

68019155277. $\frac{1+\sqrt{5}}{\sqrt{2}-1}$

68019155278.

$$\frac{1+\sqrt{5}}{\sqrt{5}-1}$$

Question Number : 33 Question Id : 68019114096 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

To project a body of mass m from earth's surface to infinity, the required kinetic energy is (assume, the radius of earth is R_E , g = acceleration due to gravity on the surface of earth):

Options :

68019155279. $2mgR_E$

68019155280. $4mgR_E$

68019155281. $1/2mgR_E$

68019155282. mgR_E

Question Number : 33 Question Id : 68019114096 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 m द्रव्यमान के पिण्ड को पृथ्वी सतह से अनन्त तक फेंकने के लिए आवश्यक गतिज ऊर्जा होगी

(यहां R_E पृथ्वी की त्रिज्या, g = पृथ्वी सतह पर गुरुत्व त्वरण है):

Options :

68019155279. $2mgR_E$

68019155280. $4mgR_E$

68019155281. $\frac{1}{2}mgR_E$

68019155282. mgR_E

Question Number : 34 Question Id : 68019114097 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 train starting from rest first accelerates uniformly up to a speed of 80 km/h for time t , then it moves with a constant speed for time $3t$. The average speed of the train for this duration of journey will be (in km/h) :

Options :

68019155283. 70

68019155284. 30

68019155285. 40

68019155286. 80

Question Number : 34 Question Id : 68019114097 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 रेलगाड़ी विरामावस्था से प्रारम्भ होकर समान त्वरण से 80 km/h गति को समय t में प्राप्त कर लेती है। इसके बाद उसी स्थिर गति से समय $3t$ तक चलती है। इस अंतराल में गाड़ी की औसत गति (km/h में) होगी:

Options :

68019155283. 70

68019155284. 30

68019155285. 40

68019155286. 80

Question Number : 35 Question Id : 68019114098 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 small ball of mass m and density ρ is dropped in a viscous liquid of density ρ_0 . After sometime, the ball falls with constant velocity. The viscous force on the ball is :

Options :

68019155287. $mg\left(1 - \frac{\rho_0}{\rho}\right)$

68019155288. $mg\left(\frac{\rho_0}{\rho} - 1\right)$

68019155289. $mg(1 - \rho\rho_0)$

68019155290. $mg\left(1 + \frac{\rho}{\rho_0}\right)$

Question Number : 35 Question Id : 68019114098 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 द्रव्यमान व ρ घनत्व की एक छोटी गेंद ρ_0 घनत्व के द्रव में गिरायी जाती है। कुछ समय पश्चात् गेंद स्थिर गति से गिरने लगती है। गेंद पर श्यान बल है:

Options :

68019155287. $mg\left(1 - \frac{\rho_0}{\rho}\right)$

68019155288. $mg\left(\frac{\rho_0}{\rho} - 1\right)$

68019155289. $mg(1 - \rho\rho_0)$

68019155290. $mg\left(1 + \frac{\rho}{\rho_0}\right)$

Question Number : 36 Question Id : 68019114099 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 specific heat at constant pressure of a real gas obeying $PV^2 = RT$ equation is:

Options :

68019155291. $C_V + \frac{R}{2V}$

68019155292. $C_V + R$

68019155293. R

68019155294. $\frac{R}{3} + C_V$

Question Number : 36 Question Id : 68019114099 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 वास्तविक गैस जो समीकरण $PV^2 = RT$ का पालन करती है, स्थिर दाब पर इसकी विशिष्ट उष्मा है:

Options :

68019155291. $C_V + \frac{R}{2V}$

68019155292. $C_V + R$

68019155293. R

68019155294. $\frac{R}{3} + C_V$

Question Number : 37 Question Id : 68019114100 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 contains mixture of helium and oxygen gas. The ratio of root mean square speed of helium and oxygen in the sample, is :

Options :

68019155295. $\frac{2\sqrt{2}}{1}$

68019155296. $\frac{1}{2\sqrt{2}}$

$$68019155297. \frac{1}{32}$$

$$68019155298. \frac{1}{4}$$

Question Number : 37 Question Id : 68019114100 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 नमूने में हीलियम तथा ऑक्सीजन गैस का मिश्रण है। इसमें हीलियम एवं ऑक्सीजन की वर्ग माध्य मूल चालों का अनुपात है:

Options :

$$68019155295. \frac{2\sqrt{2}}{1}$$

$$68019155296. \frac{1}{2\sqrt{2}}$$

$$68019155297. \frac{1}{32}$$

$$68019155298. \frac{1}{4}$$

Question Number : 38 Question Id : 68019114101 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

σ is the uniform surface charge density of a thin spherical shell of radius R . The electric field at any point on the surface of the spherical shell is :

Options :

68019155299. σ/ϵ_0

68019155300. $\sigma/2\epsilon_0$

68019155301. $\sigma/\epsilon_0 R$

68019155302. $\sigma/4\epsilon_0$

Question Number : 38 Question Id : 68019114101 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

R त्रिज्या के एक पतले गोलीय कोश का एकसमान पृष्ठ आवेश घनत्व σ है। इस गोलीय कोश के पृष्ठ के किसी बिन्दु पर वैद्युत क्षेत्र है:

Options :

68019155299. σ/ϵ_0

68019155300. $\sigma/2\epsilon_0$

68019155301. $\sigma/\epsilon_0 R$

68019155302. $\sigma/4\epsilon_0$

Question Number : 39 Question Id : 68019114102 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

Electromagnetic waves travel in a medium with speed of $1.5 \times 10^8 \text{ m s}^{-1}$. The relative permeability of the medium is 2.0. The relative permittivity will be:

Options :

68019155303. 1

68019155304. 2

68019155305. 4

68019155306. 5

Question Number : 39 Question Id : 68019114102 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

किसी माध्यम में विद्युतचुम्बकीय तरंगें $1.5 \times 10^8 \text{ m s}^{-1}$ की चाल से गति करती हैं। माध्यम की सापेक्ष चुंबकशीलता 2.0 है, तब सापेक्ष वैद्युतशीलता होगी:

Options :

68019155303. 1

68019155304. 2

68019155305. 4

68019155306. 5

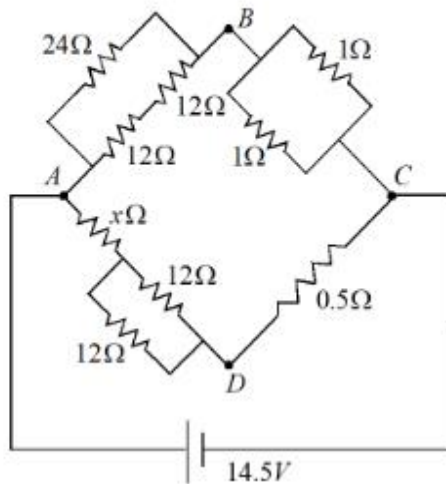
Question Number : 40 Question Id : 68019114103 Question Type : MCQ Option Shuffling : Yes

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 unknown resistance (x) for which the potential difference between B and D will be zero in the arrangement shown, is :



Options :

68019155307. $42\ \Omega$

68019155308. $6\ \Omega$

68019155309. $3\ \Omega$

68019155310. $9\ \Omega$

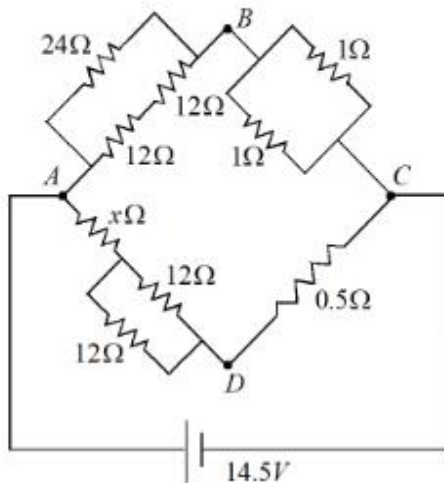
Question Number : 40 Question Id : 68019114103 Question Type : MCQ Option Shuffling : Yes

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 गये विन्यास में बिन्दु B तथा D के बीच विभवान्तर शून्य होने पर अज्ञात प्रतिरोध x का मान है:



Options :

68019155307. 42Ω

68019155308. 6Ω

68019155309. 3Ω

68019155310. 9Ω

Question Number : 41 Question Id : 68019114104 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

While measuring diameter of wire using screw gauge the following readings were noted. Main scale reading is 1 mm and circular scale reading is equal to 42 divisions. Pitch of screw gauge is 1 mm and it has 100 divisions on circular scale.

The diameter of the wire is $\frac{x}{50} \text{ mm}$. The value of x is :

Options :

68019155311. 42

68019155312. 21

68019155313. 71

68019155314. 142

Question Number : 41 Question Id : 68019114104 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

पेंचमापी से तार का व्यास नापते समय निम्न पाठ्यांक मिले:

मुख्य पैमाने का पाठ्यांक = 1 mm.

गोल पैमाने का पाठ्यांक = 42 भाग

स्क्रूगेज का पिंच 1 mm है, गोल पैमाने पर भाग-संख्या 100 है। तार का व्यास $\frac{x}{50}$ mm है।

तब x का मान है:

Options :

68019155311. 42

68019155312. 21

68019155313. 71

68019155314. 142

Question Number : 42 Question Id : 68019114105 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.	Torque	I.	$[M^1 L^1 T^{-2} A^{-2}]$
B.	Magnetic field	II.	$[L^2 A^1]$
C.	Magnetic moment	III.	$[M^1 T^{-2} A^{-1}]$
D.	Permeability of free space	IV.	$[M^1 L^2 T^{-2}]$

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

Options :

68019155315. A-IV, B-II, C-III, D-I

68019155316. A-I, B-III, C-II, D-IV

68019155317. A-IV, B-III, C-II, D-I

68019155318. A-III, B-I, C-II, D-IV

Question Number : 42 Question Id : 68019114105 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 करें:

सूची I		सूची II	
A.	बल आघूर्ण	I.	$[M^1 L^1 T^{-2} A^{-2}]$
B.	चुम्बकीय क्षेत्र	II.	$[L^2 A^1]$
C.	चुम्बकीय आघूर्ण	III.	$[M^1 T^{-2} A^{-1}]$
D.	मुक्त आकाश की चुंबकशीलता	IV.	$[M^1 L^2 T^{-2}]$

निम्न में सही उत्तर चुने-

Options :

68019155315. A-IV, B-II, C-III, D-I

68019155316. A-I, B-III, C-II, D-IV

68019155317. A-IV, B-III, C-II, D-I

68019155318. A-III, B-I, C-II, D-IV

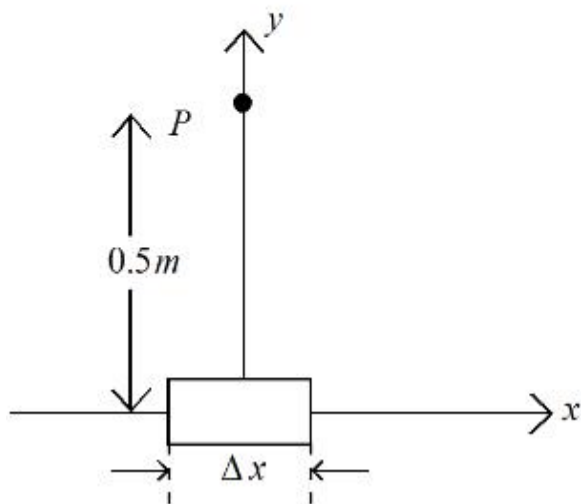
Question Number : 43 Question Id : 68019114106 Question Type : MCQ Option Shuffling : Yes

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 element $\Delta l = \Delta x \hat{i}$ is placed at the origin and carries a large current $I = 10\text{A}$. The magnetic field on the y -axis at a distance of 0.5m from the elements Δx of 1cm length is :



Options :

68019155319. $4 \times 10^{-8} T$

68019155320. $8 \times 10^{-8} T$

68019155321. $10 \times 10^{-8} T$

68019155322. $12 \times 10^{-8} T$

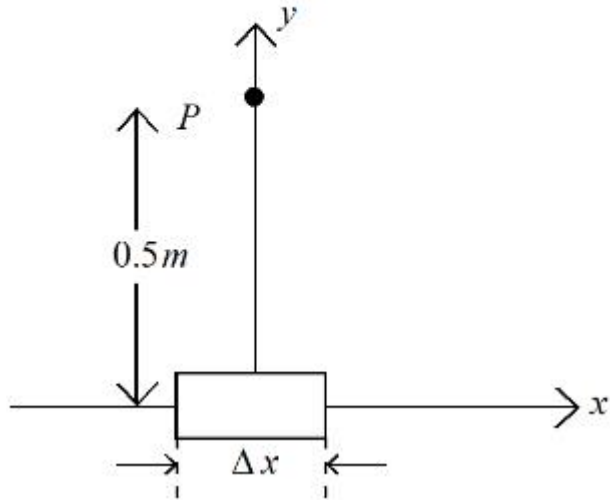
Question Number : 43 Question Id : 68019114106 Question Type : MCQ Option Shuffling : Yes

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

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

लम्बाई $\Delta l = \Delta x \hat{i}$ का एक अवयव मूल बिन्दु पर रखा है जिसमें धारा $10A$ बह रही है। इसमें $0.5m$ की दूरी पर y -अक्ष पर चुम्बकीय क्षेत्र होगा (चित्र देखे):



Options :

68019155319. $4 \times 10^{-8} T$

68019155320. $8 \times 10^{-8} T$

68019155321. $10 \times 10^{-8} T$

68019155322. $12 \times 10^{-8} T$

Question Number : 44 Question Id : 68019114107 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 : In an LCR series circuit, current is maximum at resonance.

Statement II : Current in a purely resistive circuit can never be less than that in a series LCR circuit when connected to same voltage source.

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

Options :

68019155323. Both Statement I and Statement II are true

68019155324. Both Statement I and Statement II are false

68019155325. Statement I is true but Statement II is false

68019155326. Statement I is false but Statement II is true

Question Number : 44 Question Id : 68019114107 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 गये हैं:

कथन I: एक LCR श्रेणीबद्ध परिपथ में अनुनाद पर धारा अधिकतम है।

कथन II: किसी शुद्ध प्रतिरोध वाले परिपथ में धारा किसी LCR परिपथ की धारा से कम नहीं हो सकती, यदि दोनों समान वोल्टेज स्रोत से लगे हों।

ऊपर लिखे कथन के अनुसार निम्न में से सही उत्तर चुनें:

Options :

68019155323. दोनों कथन I तथा कथन II सत्य हैं।

68019155324. दोनों कथन I तथा कथन II असत्य हैं।

68019155325. कथन I सत्य है परन्तु कथन II असत्य है।

68019155326. कथन I असत्य है परन्तु कथन II सत्य है।

Question Number : 45 Question Id : 68019114108 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

To find the spring constant (k) of a spring experimentally, a student commits 2% positive error in the measurement of time and 1% negative error in measurement of mass. The percentage error in determining value of k is :

Options :

68019155327. 3%

68019155328. 5%

68019155329. 1%

68019155330. 4%

Question Number : 45 Question Id : 68019114108 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

प्रयोग द्वारा, स्प्रिंग का स्प्रिंग नियतांक (k) ज्ञात करने में छात्र समय मापन में 2% धनात्मक त्रुटि कर देता है, परन्तु द्रव्यमान ज्ञात करने में 1% की ऋणात्मक त्रुटि कर देता है। k का मान ज्ञात करने में वह कितने प्रतिशत कुल त्रुटि करता है:

Options :

68019155327. 3%

68019155328. 5%

68019155329. 1%

68019155330. 4%

Question Number : 46 Question Id : 68019114109 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 following phenomena does not explain by wave nature of light.

- A. reflection
- B. diffraction
- C. photoelectric effect
- D. interference
- E. polarization

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

Options :

68019155331. B, D only

68019155332. A, C only

68019155333. C only

68019155334. E only

Question Number : 46 Question Id : 68019114109 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 कौन सी घटना प्रकाश की तरंग प्रकृति द्वारा वर्णित नहीं होती है:

- A. परावर्तन
- B. विवर्तन
- C. प्रकाश विद्युत प्रभाव
- D. व्यतिकरण
- E. ध्रुवण

सही उत्तर चुनें:

Options :

68019155331. केवल B, D

68019155332. केवल A, C

68019155333. केवल C

68019155334. केवल E

Question Number : 47 Question Id : 68019114110 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 photoelectric experiment energy of 2.48 eV irradiates a photo sensitive material. The stopping potential was measured to be 0.5 V. Work function of the photo sensitive material is :

Options :

68019155335. 1.98 eV

68019155336. 1.68 eV

68019155337. 2.48 eV

68019155338. 0.5 eV

Question Number : 47 Question Id : 68019114110 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

किसी प्रकाश-विद्युत प्रयोग में एक प्रकाश सुग्राही पदार्थ पर 2.48 eV ऊर्जा का विकिरण आपतित किया जाता है। इस समय निरोधी विभव 0.5 V नापा गया हो तब पदार्थ का कार्य-फलन होगा:

Options :

68019155335. 1.98 eV

68019155336. 1.68 eV

68019155337. 2.48 eV

68019155338. 0.5 eV

Question Number : 48 Question Id : 68019114111 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 ratio of the shortest wavelength of Balmer series to the shortest wavelength of Lyman series for hydrogen atom is :

Options :

68019155339. $1 : 2$

68019155340. $2 : 1$

68019155341. $1 : 4$

68019155342. $4 : 1$

Question Number : 48 Question Id : 68019114111 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 परमाणु के लिए बॉमर श्रेणी की निम्नतम तरंगदैर्घ्य तथा लाईमन श्रेणी की निम्नतम तरंगदैर्घ्य का अनुपात है:

Options :

68019155339. 1 : 2

68019155340. 2 : 1

68019155341. 1 : 4

68019155342. 4 : 1

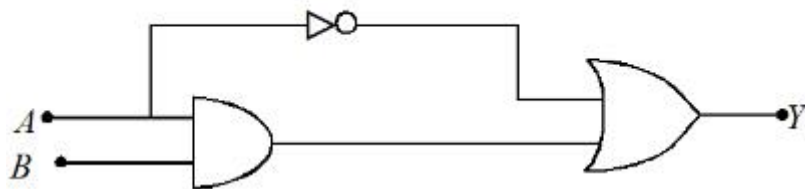
Question Number : 49 Question Id : 68019114112 Question Type : MCQ Option Shuffling : Yes

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 truth table for the following logic circuit is :



Options :

68019155343.

A	B	Y
0	0	1
0	1	1
1	0	0
1	1	0

68019155344.

A	B	Y
0	0	1
0	1	1
1	0	0
1	1	1

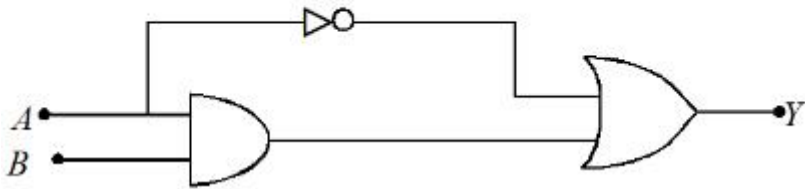
68019155345.

A	B	Y
0	0	0
0	1	1
1	0	0
1	1	1

68019155346.

A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

निम्न तार्किक परिपथ के लिए सही तालिका कौन सी है-



Options :

<i>A</i>	<i>B</i>	<i>Y</i>
0	0	1
0	1	1
1	0	0
1	1	0

68019155343.

<i>A</i>	<i>B</i>	<i>Y</i>
0	0	1
0	1	1
1	0	0
1	1	1

68019155344.

<i>A</i>	<i>B</i>	<i>Y</i>
0	0	0
0	1	1
1	0	0
1	1	1

68019155345.

<i>A</i>	<i>B</i>	<i>Y</i>
0	0	0
0	1	0
1	0	0
1	1	1

68019155346.

Question Number : 50 Question Id : 68019114113 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 bullet of mass 50g is fired with a speed 100 m/s on a plywood and emerges with 40 m/s. The percentage loss of kinetic energy is :

Options :

68019155347. 16%

68019155348. 84%

68019155349. 44%

68019155350. 32%

Question Number : 50 Question Id : 68019114113 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 ग्राम द्रव्यमान की एक बन्दूक की गोली 100 मी से⁻¹ से प्लाईवुड पर दागी जाती है एवं यह 40 मी से⁻¹ से पारगमित होती है। गतिज ऊर्जा में प्रतिशत हानि है:

Options :

68019155347. 16%

68019155348. 84%

68019155349. 44%

68019155350. 32%

Physics Section B

Section Id :	680191242
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 Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	680191332
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 51 Question Id : 68019114114 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

The refractive index of prism is $\mu = \sqrt{3}$ and the ratio of the angle of minimum deviation to the angle of prism is one. The value of angle of prism is _____°.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

Question Number : 51 Question Id : 68019114114 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

एक प्रिज्म का अपवर्तनांक $\mu = \sqrt{3}$ है एवं न्यूनतम विचलन कोण तथा प्रिज्म के कोण का अनुपात 1 है। प्रिज्म कोण 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 : 52 Question Id : 68019114115 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

A particle is doing simple harmonic motion of amplitude 0.06 m and time period 3.14 s. The maximum velocity of the particle is _____ cm/s.

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 : 68019114115 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

0.06 मी आयाम तथा 3.14 सेकंड आवर्त काल से एक कण सरल आवर्त गति कर रहा है। कण का अधिकतम वेग _____ सेमी/से है।

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 :** 68019114116 **Question Type :** SA **Calculator :** None

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

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

For three vectors $\vec{A} = (-x\hat{i} - 6\hat{j} - 2\hat{k})$, $\vec{B} = (-\hat{i} + 4\hat{j} + 3\hat{k})$ and $\vec{C} = (-8\hat{i} - \hat{j} + 3\hat{k})$, if $\vec{A} \cdot (\vec{B} \times \vec{C}) = 0$, then 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 : 53 **Question Id :** 68019114116 **Question Type :** SA **Calculator :** None

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

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

तीन सदिशों $\vec{A} = (-x\hat{i} - 6\hat{j} - 2\hat{k})$, $\vec{B} = (-\hat{i} + 4\hat{j} + 3\hat{k})$ तथा $\vec{C} = (-8\hat{i} - \hat{j} + 3\hat{k})$ के लिए यदि $\vec{A} \cdot (\vec{B} \times \vec{C}) = 0$ हो तो 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 : 54 Question Id : 68019114117 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

A big drop is formed by coalescing 1000 small droplets of water. The ratio of surface energy of 1000 droplets to that of energy of big drop is $\frac{10}{x}$. 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 : 68019114117 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

पानी की 1000 बूँदे मिलकर पर एक बड़ी बूँद बनती है। 1000 बूँदों की पृष्ठ ऊर्जा तथा बड़ी एक बूँद की पृष्ठ ऊर्जा का अनुपात $\frac{10}{x}$ हो तो 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 : 68019114118 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

When a dc voltage of $100V$ is applied to an inductor, a dc current of $5A$ flows through it. When an ac voltage of $200V$ peak value is connected to inductor, its inductive reactance is found to be $20\sqrt{3}\Omega$. The power dissipated in the circuit is _____ W .

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 : 68019114118 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

एक प्रेरक पर $100V$ दिष्ट विभव लगाया जाता है तब $5A$ की दिष्ट धारा बहती है। यदि $200V$ शिखर मान का प्रत्यावर्ती विभव लगाया जाए तब प्रेरकीय प्रतिघात $20\sqrt{3}\Omega$ होता है। परिपथ में शक्ति क्षय _____ W है।

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 : 68019114119 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

If the radius of earth is reduced to three-fourth of its present value without change in its mass then value of duration of the day of earth will be _____ hours 30 minutes.

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 :** 68019114119 **Question Type :** SA **Calculator :** None

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

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

पृथ्वी के द्रव्यमान को स्थिर रखकर यदि इसकी त्रिज्या तीन-चौथाई कर दी जाए, तब पृथ्वी का एक दिन _____ घन्टे 30 मिनट का होगा।

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 :** 68019114120 **Question Type :** SA **Calculator :** None

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

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

A circular coil having 200 turns, $2.5 \times 10^{-4} \text{ m}^2$ area and carrying $100 \mu\text{A}$ current is placed in a uniform magnetic field of 1T. Initially the magnetic dipole moment ($\vec{M}$) was directed along $\vec{B}$. Amount of work, required to rotate the coil through 90° from its initial orientation such that $\vec{M}$ becomes perpendicular to $\vec{B}$, is _____ μJ .

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 :** 68019114120 **Question Type :** SA **Calculator :** None

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

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

1T के एकसमान चुम्बकीय क्षेत्र में 200 फेरों, 2.5×10^{-4} मी² क्षेत्रफल तथा 100 μ A की धारा वाली एक वृत्ताकार कुंडली रखी गई है। प्रारम्भ में इसका चुम्बकीय द्विध्रुव आघूर्ण $\vec{M}$ क्षेत्र $\vec{B}$ के अनुदिश है। इसे प्रारम्भिक दिशा से 90° पर घुमाने के लिए, जिससे आघूर्ण $\vec{M}$, क्षेत्र $\vec{B}$ के लम्बवत् हो जाए, कृत कार्य का मान _____ μ J है।

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 :** 68019114121 **Question Type :** SA **Calculator :** None

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

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

A wire of resistance R and radius r is stretched till its radius became $r/2$. If new resistance of the stretched wire is $x R$, then 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 : 58 Question Id : 68019114121 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

R प्रतिरोध तथा r त्रिज्या का एक तार इस प्रकार खींचा जाता है जिससे इसकी त्रिज्या $r/2$ हो जाए। तार का नया प्रतिरोध को xR हो 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 :

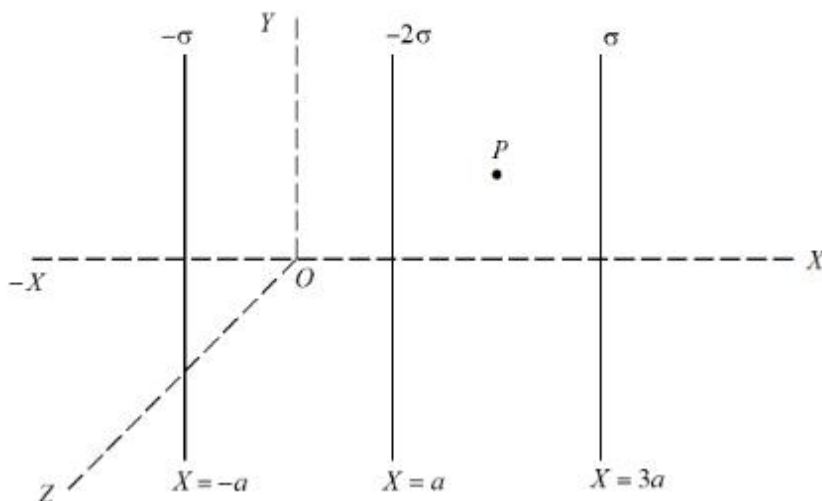
1

Question Number : 59 Question Id : 68019114122 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

Three infinitely long charged thin sheets are placed as shown in figure. The magnitude of electric field at the point P is $\frac{x\sigma}{\epsilon_0}$. The value of x is _____ (all quantities are measured in SI units).



Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

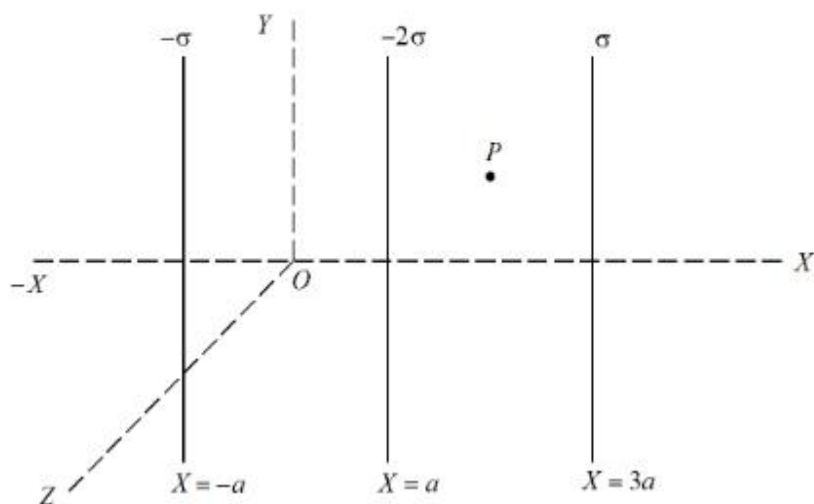
1

Question Number : 59 Question Id : 68019114122 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

तीन अनन्त लम्बाई की आवेशित पतली चादरें चित्र के अनुसार रखी हैं। P बिन्दु पर वैद्युत क्षेत्र का मान $\frac{x\sigma}{\epsilon_0}$ है। यहाँ x का मान _____ है (यदि सभी मान SI पद्धति में हैं)।



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 : 68019114123 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

Radius of a certain orbit of hydrogen atom is $8.48 \text{ \AA}$. If energy of electron in this orbit is E/x , then $x =$ _____.

(Given $a_0 = 0.529 \text{ \AA}$, $E =$ energy of electron in ground state).

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 : 68019114123 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

हाइड्रोजन परमाणु की किसी कक्षा की त्रिज्या $8.48 \text{ \AA}$ है। यदि इस कक्षा में इलेक्ट्रॉन की ऊर्जा E/x है तब $x =$ _____ है।
(दिया है $a_0 = 0.529 \text{ \AA}$, $E =$ इलेक्ट्रॉन की मूल अवस्था में न्यूनतम ऊर्जा)।

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 : 680191243

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 :	680191333
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 61 Question Id : 68019114124 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 density of 'x' M solution ('x' molar) of NaOH is 1.12 g mL^{-1} , while in molality, the concentration of the solution is 3 m (3 molal). Then x is

(Given : Molar mass of NaOH is 40 g/mol)

Options :

68019155361. 3.5

68019155362. 3.8

68019155363. 3.0

68019155364. 2.8

Question Number : 61 Question Id : 68019114124 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

NaOH के 'x' M ('x' मोलर) विलयन का घनत्व 1.12 g mL^{-1} है जबकि मोललता में, विलयन की सांद्रता 3 m (3 मोलल) है। तब x है:

(दिया गया है: NaOH का मोलर द्रव्यमान: 40 g/mol)

Options :

68019155361. 3.5

68019155362. 3.8

68019155363. 3.0

68019155364. 2.8

Question Number : 62 Question Id : 68019114125 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	
(Molecule / Species)		(Property / Shape)	
A.	SO_2Cl_2	I.	Paramagnetic
B.	NO	II.	Diamagnetic
C.	NO_2^-	III.	Tetrahedral
D.	I_3^-	IV.	Linear

Choose the correct answer from the options given below:

Options :

68019155365. A-III, B-IV, C-II, D-I

68019155366. A-III, B-I, C-II, D-IV

68019155367. A-II, B-III, C-I, D-IV

68019155368. A-IV, B-I, C-III, D-II

Question Number : 62 Question Id : 68019114125 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 (अणु/ स्पीशीज़)		सूची II (गुण/ आकार)	
A.	SO_2Cl_2	I.	अनुचुम्बकीय
B.	NO	II.	प्रतिचुम्बकीय
C.	NO_2^-	III.	चतुष्फलकीय
D.	I_3^-	IV.	रेखीय

नीचे दिए गए विकल्पों में से सही उत्तर चुनें:

Options :

68019155365. A-III, B-IV, C-II, D-I

68019155366. A-III, B-I, C-II, D-IV

68019155367. A-II, B-III, C-I, D-IV

68019155368. A-IV, B-I, C-III, D-II

Question Number : 63 Question Id : 68019114126 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

At $-20\text{ }^{\circ}\text{C}$ and 1 atm pressure, a cylinder is filled with equal number of H_2 , I_2 and HI molecules for the reaction

$\text{H}_2(\text{g}) + \text{I}_2(\text{g}) \rightleftharpoons 2\text{HI}(\text{g})$, the K_p for the process is $x \times 10^{-1}$.

$x = \underline{\hspace{2cm}}$.

[Given : $R = 0.082\text{ L atm K}^{-1}\text{ mol}^{-1}$]

Options :

68019155369. 1

68019155370. 10

68019155371. 0.01

68019155372. 2

Question Number : 63 Question Id : 68019114126 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 $-20\text{ }^{\circ}\text{C}$ एवं 1 atm दाब पर, एक सिलिन्डर को H_2 , I_2 एवं HI के अणुओं की समान संख्या से भरा गया।

$\text{H}_2(\text{g}) + \text{I}_2(\text{g}) \rightleftharpoons 2\text{HI}(\text{g})$, प्रक्रम के लिए K_p $x \times 10^{-1}$ है।

$x = \underline{\hspace{2cm}}$.

[दिया गया है: $R = 0.082\text{ L atm K}^{-1}\text{ mol}^{-1}$]

Options :

68019155369. 1

68019155370. 10

68019155371. 0.01

Question Number : 64 Question Id : 68019114127 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 following material is not a semiconductor.

Options :

68019155373. Copper oxide

68019155374. Graphite

68019155375. Germanium

68019155376. Silicon

Question Number : 64 Question Id : 68019114127 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 कौन सा पदार्थ एक अर्धचालक नहीं है?

Options :

68019155373. कॉपर ऑक्साइड

68019155374. ग्रेफाइट

68019155375. जर्मेनियम

68019155376.

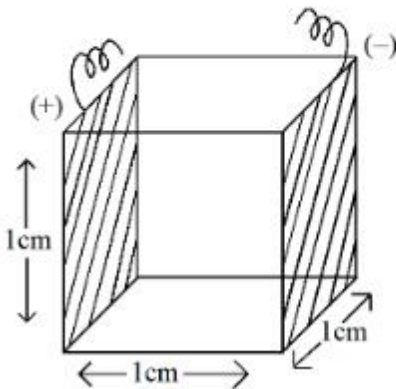
Question Number : 65 Question Id : 68019114128 Question Type : MCQ Option Shuffling : Yes

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 conductivity cell with two electrodes (dark side) are half filled with infinitely dilute aqueous solution of a weak electrolyte. If volume is doubled by adding more water at constant temperature, the molar conductivity of the cell will -



Options :

68019155377. increase sharply

68019155378. decrease sharply

68019155379. remain same or can not be measured accurately

68019155380. depend upon type of electrolyte

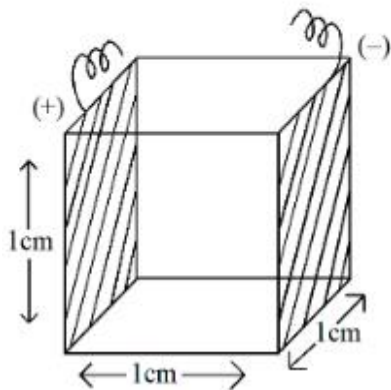
Question Number : 65 Question Id : 68019114128 Question Type : MCQ Option Shuffling : Yes

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

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

दो इलेक्ट्रोडों (गाढ़ा फलक) सहित एक चालकता सेल विद्युत अपघट्य के अनन्त तनुकृत जलीय विलयन से आधा भरा हुआ है। स्थिर ताप पर यदि इसके आयतन को और अधिक जल मिलाकर दोगुना कर दिया जाए तो सेल की मोलर चालकता:



Options :

68019155377. तेज़ी से बढ़ेगी

68019155378. तेज़ी से घटेगी

68019155379. समान रहेगी या यथोक्ततः मापी नहीं जा सकती।

68019155380. विद्युत अपघट्य पर निर्भर करेगी

Question Number : 66 Question Id : 68019114129 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 electron affinity value are negative for

- A. $\text{Be} \rightarrow \text{Be}^-$
- B. $\text{N} \rightarrow \text{N}^-$
- C. $\text{O} \rightarrow \text{O}^{2-}$
- D. $\text{Na} \rightarrow \text{Na}^-$
- E. $\text{Al} \rightarrow \text{Al}^-$

Choose the most appropriate answer from the options given below :

Options :

68019155381. A, B and C only

68019155382. D and E only

68019155383. A and D only

68019155384. A, B, D and E only

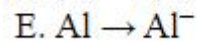
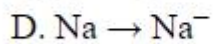
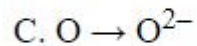
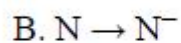
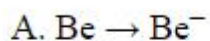
Question Number : 66 Question Id : 68019114129 Question Type : MCQ Option Shuffling : Yes

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

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

इलेक्ट्रॉन बन्धुता का मान ऋणात्मक है:



नीचे दिए गए विकल्पों में से सर्वाधिक उपयुक्त उत्तर चुनें:

Options :

68019155381. केवल A, B एवं C

68019155382. केवल D एवं E

68019155383. केवल A एवं D

68019155384. केवल A, B, D एवं E

Question Number : 67 Question Id : 68019114130 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 : Gallium is used in the manufacturing of thermometers.

Statement II : A thermometer containing gallium is useful for measuring the freezing point (256 K) of brine solution.

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

Options :

68019155385. Both Statement I and Statement II are true

68019155386. Both Statement I and Statement II are false

68019155387. Statement I is true but Statement II is false

68019155388. Statement I is false but Statement II is true

Question Number : 67 Question Id : 68019114130 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 : गैलियम का उपयोग थर्मोमीटर के निर्माण में होता है।

कथन II : गैलियम युक्त थर्मोमीटर का उपयोग ब्राइन विलयन का हिमांक (256 K) मापने के लिए किया जाता है।

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

Options :

68019155385. दोनों कथन I एवं कथन II सही हैं

68019155386. दोनों कथन I एवं कथन II गलत हैं

68019155387. कथन I सही है परन्तु कथन II गलत है

68019155388. कथन I गलत है परन्तु कथन II सही है

Question Number : 68 Question Id : 68019114131 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	
(Compound/Species)		(Shape/Geometry)	
A.	SF_4	I.	Tetrahedral
B.	BrF_3	II.	Pyramidal
C.	BrO_3^-	III.	See saw
D.	NH_4^+	IV.	Bent T-Shape

Choose the correct answer from the options given below:

Options :

68019155389. A-II, B-IV, C-III, D-I

68019155390. A-III, B-II, C-IV, D-I

68019155391. A-III, B-IV, C-II, D-I

68019155392. A-II, B-III, C-I, D-IV

Question Number : 68 Question Id : 68019114131 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	
(यौगिक /स्पीशीज़)		(आकृति/संरचना)	
A.	SF ₄	I.	चतुष्फलकीय
B.	BrF ₃	II.	पिरैमिडी
C.	BrO ₃ ⁻	III.	सी-सॉ
D.	NH ₄ ⁺	IV.	मुड़ी हुई T- आकृति

नीचे दिए गए विकल्पों में से सही उत्तर चुनें:

Options :

68019155389. A-II, B-IV, C-III, D-I

68019155390. A-III, B-II, C-IV, D-I

68019155391. A-III, B-IV, C-II, D-I

68019155392. A-II, B-III, C-I, D-IV

Question Number : 69 Question Id : 68019114132 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 element from the following that do not belong to lanthanoids is

Eu, Cm, Er, Tb, Yb and Lu

Options :

68019155393. 5

68019155394. 1

68019155395. 3

68019155396. 4

Question Number : 69 Question Id : 68019114132 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 तत्वों की संख्या जो लैंथेनॉयड नहीं है:

Eu, Cm, Er, Tb, Yb एवं Lu

Options :

68019155393. 5

68019155394. 1

68019155395. 3

68019155396. 4

Question Number : 70 Question Id : 68019114133 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	
(Hybridization)		(Orientation in Space)	
A.	sp^3	I.	Trigonal bipyramidal
B.	dsp^2	II.	Octahedral
C.	sp^3d	III.	Tetrahedral
D.	sp^3d^2	IV.	Square planar

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

Options :

68019155397. A-III, B-IV, C-I, D-II

68019155398. A-III, B-I, C-IV, D-II

68019155399. A-IV, B-III, C-I, D-II

68019155400. A-II, B-I, C-IV, D-III

Question Number : 70 Question Id : 68019114133 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	
(संकरण)		(त्रिविम में अभिविन्यास)	
A.	sp^3	I.	त्रिभुजीय द्विपिरैमिडी
B.	dsp^2	II.	अष्टफलकीय
C.	sp^3d	III.	चतुष्फलकीय
D.	sp^3d^2	IV.	वर्ग समतलीय

नीचे दिए गए विकल्पों में से सही उत्तर चुनें

Options :

68019155397. A-III, B-IV, C-I, D-II

68019155398. A-III, B-I, C-IV, D-II

68019155399. A-IV, B-III, C-I, D-II

68019155400. A-II, B-I, C-IV, D-III

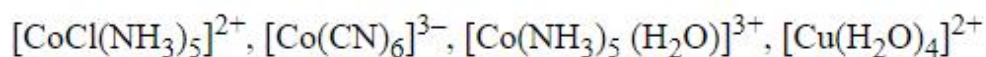
Question Number : 71 Question Id : 68019114134 Question Type : MCQ Option Shuffling : Yes

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 following complexes



(A)

(B)

(C)

(D)

The correct order of A, B, C and D in terms of *wavenumber* of light absorbed is :

Options :

68019155401. $D < A < C < B$

68019155402. $B < C < A < D$

68019155403. $C < D < A < B$

68019155404. $A < C < B < D$

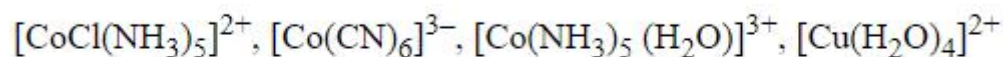
Question Number : 71 Question Id : 68019114134 Question Type : MCQ Option Shuffling : Yes

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 संकुलों पर विचार कीजिए:



(A)

(B)

(C)

(D)

A, B, C एवं D की अवशोषित की गई प्रकाश तरंग संख्या का सही क्रम है:

Options :

68019155401. $D < A < C < B$

68019155402. $B < C < A < D$

68019155403. $C < D < A < B$

68019155404. $A < C < B < D$

Question Number : 72 Question Id : 68019114135 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	
(Precipitating reagent and conditions)		(Cation)	
A.	$\text{NH}_4\text{Cl} + \text{NH}_4\text{OH}$	I.	Mn^{2+}
B.	$\text{NH}_4\text{OH} + \text{Na}_2\text{CO}_3$	II.	Pb^{2+}
C.	$\text{NH}_4\text{OH} + \text{NH}_4\text{Cl} + \text{H}_2\text{S gas}$	III.	Al^{3+}
D.	dilute HCl	IV.	Sr^{2+}

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

Options :

68019155405. A-III, B-IV, C-II, D-I

68019155406. A-III, B-IV, C-I, D-II

68019155407. A-IV, B-III, C-II, D-I

68019155408. A-IV, B-III, C-I, D-II

Question Number : 72 Question Id : 68019114135 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 (अवक्षेपित करने वाला अभिकर्मक एवं दशाएँ)		सूची (धनायन)	
A.	$\text{NH}_4\text{Cl} + \text{NH}_4\text{OH}$	I.	Mn^{2+}
B.	$\text{NH}_4\text{OH} + \text{Na}_2\text{CO}_3$	II.	Pb^{2+}
C.	$\text{NH}_4\text{OH} + \text{NH}_4\text{Cl} + \text{H}_2\text{S}$ गैस	III.	Al^{3+}
D.	तनु HCl	IV.	Sr^{2+}

नीचे दिए गए विकल्पों में से सही उत्तर चुनें:

Options :

68019155405. A-III, B-IV, C-II, D-I

68019155406. A-III, B-IV, C-I, D-II

68019155407. A-IV, B-III, C-II, D-I

68019155408. A-IV, B-III, C-I, D-II

Question Number : 73 Question Id : 68019114136 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 following statements are correct?

- A. Glycerol is purified by vacuum distillation because it decomposes at its normal boiling point.
- B. Aniline can be purified by steam distillation as aniline is miscible in water.
- C. Ethanol can be separated from ethanol water mixture by azeotropic distillation because it forms azeotrope.
- D. An organic compound is pure, if mixed M.P. is remained same.

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

Options :

68019155409. A, B, C only

68019155410. A, B, D only

68019155411. A, C, D only

68019155412. B, C, D only

Question Number : 73 Question Id : 68019114136 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 कौन से कथन सही हैं?

- A. ग्लिसरॉल का शोधन निर्वात आसवन के द्वारा किया जाता है क्योंकि यह अपने सामान्य क्वथनांक पर अपघटित हो जाता है।
- B. ऐनिलीन को भाप आसवन के द्वारा शुद्ध किया जा सकता है क्योंकि ऐनिलीन जल में मिश्रणीय है।
- C. ऐथेनाल को ऐथेनाल-जल मिश्रण से स्थिर क्वथी आसवन द्वारा पृथक किया जा सकता है क्योंकि यह स्थिर क्वथी बनाता है।
- D. कोई कार्बनिक यौगिक शुद्ध है यदि मिश्रित M.P. एक समान है।

नीचे दिए गए विकल्पों में से सर्वाधिक उपयुक्त उत्तर चुनें:

Options :

68019155409. केवल A, B, C

68019155410. केवल A, B, D

68019155411. केवल A, C, D

68019155412. केवल B, C, D

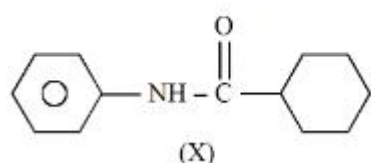
Question Number : 74 Question Id : 68019114137 Question Type : MCQ Option Shuffling : Yes

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

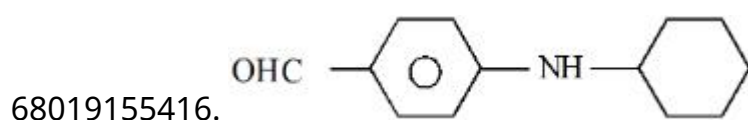
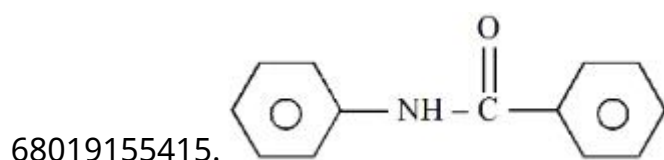
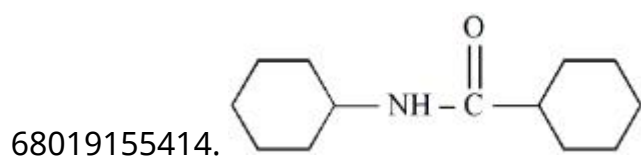
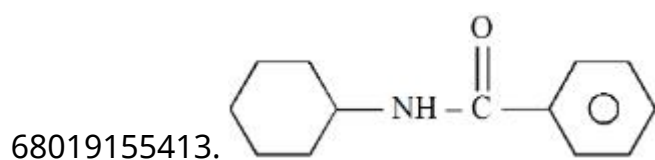
Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Which of the following is metamer of the given compound (X)?



Options :



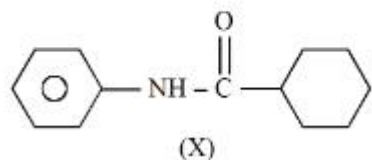
Question Number : 74 Question Id : 68019114137 Question Type : MCQ Option Shuffling : Yes

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

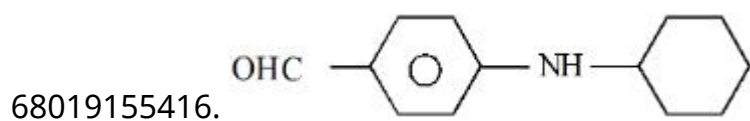
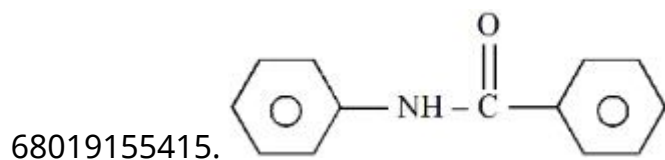
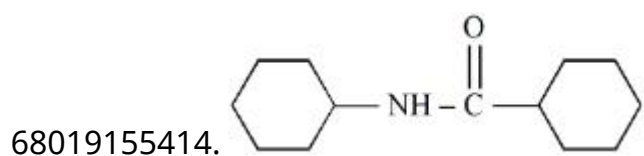
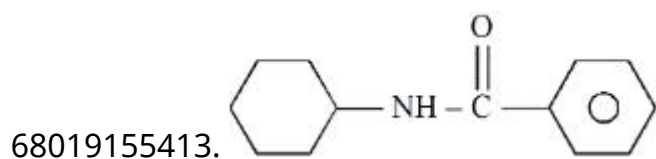
Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्नलिखित में से कौन दिए गए यौगिक (X) का मध्यावयव है?



Options :



Question Number : 75 Question Id : 68019114138 Question Type : MCQ Option Shuffling : Yes

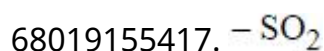
Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Functional group present in sulphonic acids is :

Options :



68019155418. $-\text{SO}_4\text{H}$

68019155419. $-\text{SO}_3\text{H}$

68019155420. $\begin{array}{c} -\text{S}-\text{OH} \\ || \\ \text{O} \end{array}$

Question Number : 75 Question Id : 68019114138 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

सल्फोनिक अम्लों में उपस्थित क्रियात्मक समूह है:

Options :

68019155417. $-\text{SO}_2$

68019155418. $-\text{SO}_4\text{H}$

68019155419. $-\text{SO}_3\text{H}$

68019155420. $\begin{array}{c} -\text{S}-\text{OH} \\ || \\ \text{O} \end{array}$

Question Number : 76 Question Id : 68019114139 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 (Compound)		LIST II (Uses)	
A.	Iodoform	I.	Fire extinguisher
B.	Carbon tetrachloride	II.	Insecticide
C.	CFC	III.	Antiseptic
D.	DDT	IV.	Refrigerants

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

Options :

68019155421. A-II, B-IV, C-I, D-III

68019155422. A-III, B-II, C-IV, D-I

68019155423. A-III, B-I, C-IV, D-II

68019155424. A-I, B-II, C-III, D-IV

Question Number : 76 Question Id : 68019114139 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 (यौगिक)		सूची II (उपयोग)	
A.	आयडोफॉर्म	I.	अग्नि शमन
B.	कार्बन टेट्रा क्लोराइड	II.	कीटनाशी
C.	CFC	III.	पूतिरोधी (एंटीसेप्टिक)
D.	DDT	IV.	प्रशीतक

नीचे दिए गए विकल्पों में से सही उत्तर चुनें:

Options :

68019155421. A-II, B-IV, C-I, D-III

68019155422. A-III, B-II, C-IV, D-I

68019155423. A-III, B-I, C-IV, D-II

68019155424. A-I, B-II, C-III, D-IV

Question Number : 77 Question Id : 68019114140 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 : Picric acid is 2,4,6 - trinitrotoluene.

Statement II : Phenol - 2,4 - disulphonic acid is treated with Conc. HNO_3 to get picric acid.

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

Options :

68019155425. Both Statement I and Statement II are correct

68019155426. Both Statement I and Statement II are incorrect

68019155427. Statement I is correct but Statement II is incorrect

68019155428. Statement I is incorrect but Statement II is correct

Question Number : 77 Question Id : 68019114140 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 : पिक्रिक अम्ल 2,4,6- ट्राइनाइट्रोफ्लूरोबेन्ज़ीन है।

कथन II : फ़ीनॉल - 2,4 - डाइसल्फ़ोनिक अम्ल की क्रिया सान्द्र HNO_3 के साथ कराने पर पिक्रिक अम्ल प्राप्त होता है।

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

Options :

68019155425. दोनों कथन I एवं कथन II सही हैं

68019155426. दोनों कथन I एवं कथन II गलत हैं

68019155427. कथन I सही है परन्तु कथन II गलत है

68019155428. कथन I गलत है परन्तु कथन II सही है

Question Number : 78 Question Id : 68019114141 Question Type : MCQ Option Shuffling : Yes

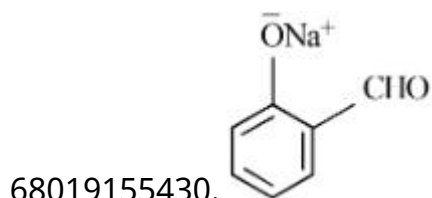
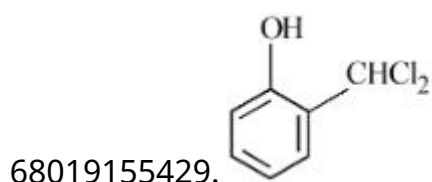
Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

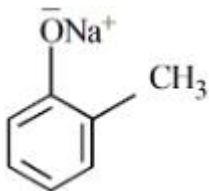
Correct Marks : 4 Wrong Marks : 1

In Reimer - Tiemann reaction, phenol is converted into salicylaldehyde through an intermediate. The structure of intermediate is _____.

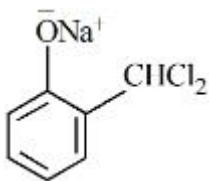
Options :



68019155431.



68019155432.



Question Number : 78 Question Id : 68019114141 Question Type : MCQ Option Shuffling : Yes

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

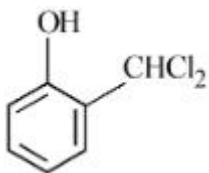
Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

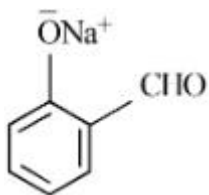
राइमर-टीमन अभिक्रिया में फ़ीनॉल का सैलिसैल्डिहाइड में परिवर्तन एक मध्यवर्ती से होकर होता है। मध्यवर्ती की संरचना है:

Options :

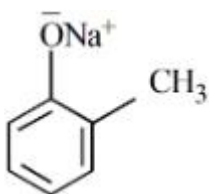
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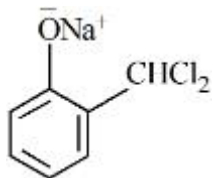
68019155430.



68019155431.



68019155432.



Question Number : 79 Question Id : 68019114142 Question Type : MCQ Option Shuffling : Yes

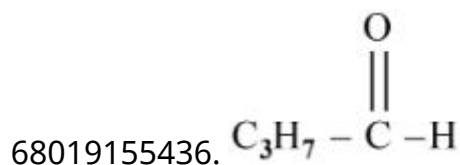
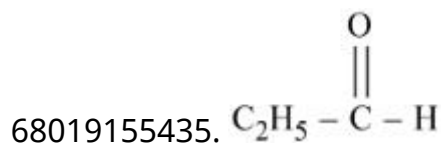
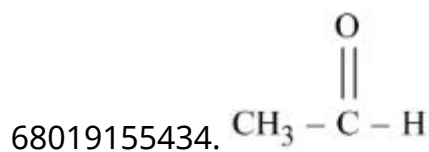
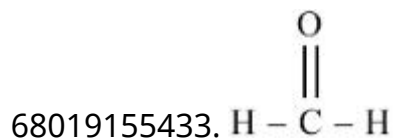
Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Which among the following aldehydes is most reactive towards nucleophilic addition reactions?

Options :



Question Number : 79 Question Id : 68019114142 Question Type : MCQ Option Shuffling : Yes

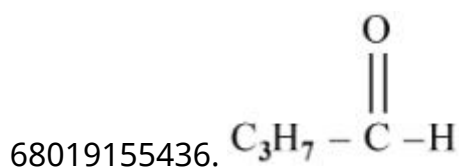
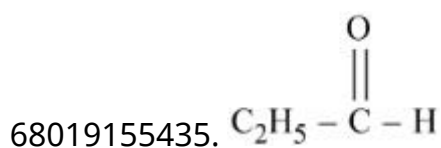
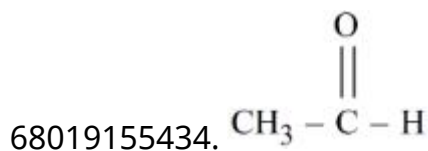
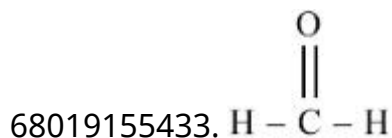
Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्नलिखित में से कौन सा एल्डिहाइड नाभिक स्नेही योगात्मक अभिक्रियाओं के प्रति सर्वाधिक क्रियाशील है?

Options :



Question Number : 80 Question Id : 68019114143 Question Type : MCQ Option Shuffling : Yes

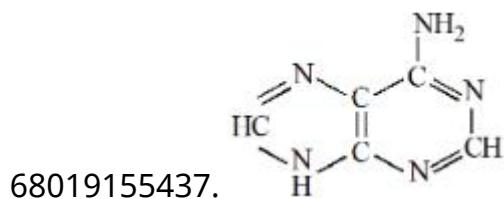
Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0

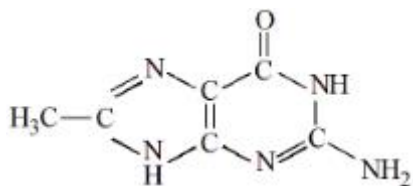
Correct Marks : 4 Wrong Marks : 1

DNA molecule contains 4 bases whose structure are shown below. One of the structures is not correct, identify the **incorrect** base structure.

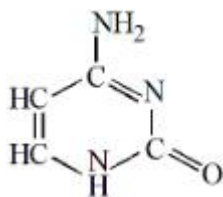
Options :



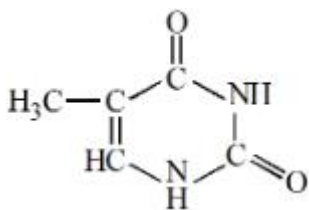
68019155438.



68019155439.



68019155440.



Question Number : 80 Question Id : 68019114143 Question Type : MCQ Option Shuffling : Yes

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

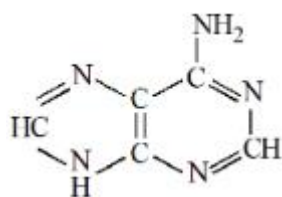
Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

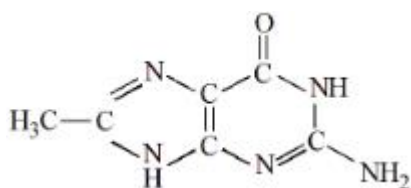
DNA अणु में 4 क्षारक पाए जाते हैं जिनकी संरचनाएँ नीचे दी गई हैं। इनमें से एक संरचना गलत है। गलत क्षारक की संरचना को पहचानें:

Options :

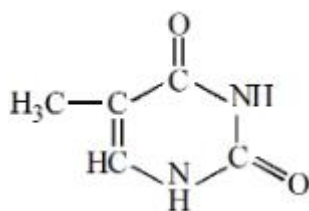
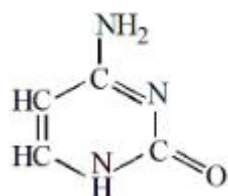
68019155437.



68019155438.



68019155439.



68019155440.

Chemistry Section B

Section Id :	680191244
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 :	680191334
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 81 Question Id : 68019114144 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

Frequency of the de-Broglie wave of electron in Bohr's first orbit of hydrogen atom is _____ $\times 10^{13}$ Hz (nearest integer).

[Given : R_H (Rydberg constant) = 2.18×10^{-18} J, h (Plank's constant) = 6.6×10^{-34} J.s.]

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 :** 68019114144 **Question Type :** SA **Calculator :** None

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

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

हाइड्रोजन परमाणु के बोर प्रथम कक्षा में इलेक्ट्रॉन के डि-ब्राग्ली तरंग की आवृत्ति है:
_____ $\times 10^{13}$ Hz (निकटतम पूर्णांक में)

[दिया गया है: R_H (रिडबर्ग स्थिरांक) = 2.18×10^{-18} J, h (प्लांक स्थिरांक) = 6.6×10^{-34} J.s.]

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

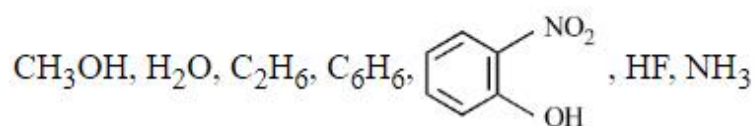
1

Question Number : 82 **Question Id :** 68019114145 **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 molecules from the following which can exhibit hydrogen bonding is _____. (nearest integer)



Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

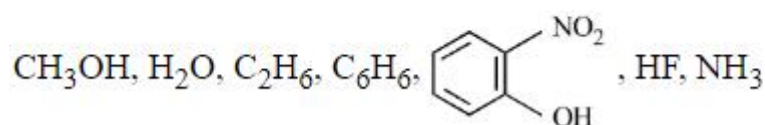
1

Question Number : 82 **Question Id :** 68019114145 **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 अणुओं की संख्या जो हाइड्रोजन आबन्धन प्रदर्शित कर सकते हैं:



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 :** 68019114146 **Question Type :** SA **Calculator :** None

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

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

An ideal gas, $\bar{C}_v = \frac{5}{2} R$, is expanded adiabatically against a constant pressure of 1 atm untill it doubles in volume. If the initial temperature and pressure is 298 K and 5 atm, respectively then the final temperature is _____ K (nearest integer).

[$\bar{C}_v$ is the molar heat capacity at constant volume]

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 :** 68019114146 **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, $\bar{C}_v = \frac{5}{2} R$, का 1 atm के स्थिर दाब के विरुद्ध रुद्धोष्म प्रसरण किया जाता है जब तक कि उसका आयतन दोगुना नहीं हो जाता। यदि प्रारम्भिक ताप एवं दाब क्रमशः 298 K एवं 5 atm है तो अंतिम ताप है: _____ K (निकटतम पूर्णांक में)

[$\bar{C}_v$ स्थिर आयतन पर मोलर उष्मा धारिता है]

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

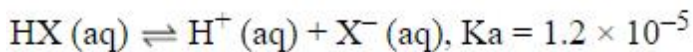
1

Question Number : 84 **Question Id :** 68019114147 **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 dissociation of the weak acid HX as given below



[K_a : dissociation constant]

The osmotic pressure of 0.03 M aqueous solution of HX at 300 K is _____
 $\times 10^{-2}$ bar (nearest integer).

[Given : $R = 0.083 \text{ L bar mol}^{-1} \text{ K}^{-1}$]

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

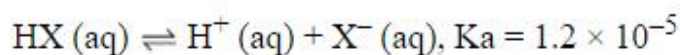
1

Question Number : 84 **Question Id :** 68019114147 **Question Type :** SA **Calculator :** None

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

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

नीचे दिए गए दुर्बल अम्ल HX के वियोजन पर विचार करें:



[K_a : वियोजन स्थिरांक]

300 K पर HX के 0.03 M जलीय विलयन का परासरण दाब है: _____ $\times 10^{-2}$ bar
(निकटतम पूर्णांक में).

[दिया गया है: $R = 0.083 \text{ L bar mol}^{-1} \text{ K}^{-1}$]

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 : 68019114148 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

Time required for 99.9% completion of a first order reaction is _____ times the time required for completion of 90% reaction.(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 : 68019114148 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 कोटि की अभिक्रिया की 99.9% पूर्णता में लगा समय अभिक्रिया की 90% पूर्णता में लगे समय का _____ गुना होता है।

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 : 68019114149 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

Among CrO , Cr_2O_3 and CrO_3 , the sum of spin-only magnetic moment values of basic and amphoteric oxides is _____ 10^{-2} BM (nearest integer).

(Given atomic number of Cr is 24)

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 :** 68019114149 **Question Type :** SA **Calculator :** None

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

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

CrO , Cr_2O_3 एवं CrO_3 में से क्षारीय एवं उभयधर्मी ऑक्साइडों के 'प्रचक्रण मात्र' चुम्बकीय आघूर्ण मानों का योग है _____ 10^{-2} BM (निकटतम पूर्णांक में).

(दिया गया है: Cr का परमाणु क्रमांक 24 है)

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 :** 68019114150 **Question Type :** SA **Calculator :** None

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

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

The difference in the 'spin-only' magnetic moment values of KMnO_4 and the manganese product formed during titration of KMnO_4 against oxalic acid in acidic medium is _____ BM. (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 : 87 **Question Id :** 68019114150 **Question Type :** SA **Calculator :** None

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

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

KMnO₄ और अम्लीय माध्यम में KMnO₄ एवं ऑक्सैलिक अम्ल के अनुमापन के दौरान निर्मित मैंगनीज के उत्पाद के 'प्रचक्रण मात्र' चुम्बकीय आघूर्ण मानों के अंतर है: _____ BM. (निकटतम पूर्णांक में)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

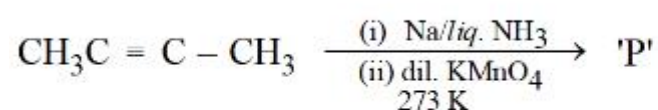
1

Question Number : 88 **Question Id :** 68019114151 **Question Type :** SA **Calculator :** None

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

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

The major product of the following reaction is P.



Number of oxygen atoms present in product 'P' is _____.
(nearest integer)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

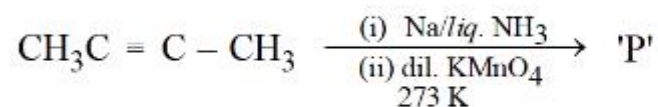
1

Question Number : 88 Question Id : 68019114151 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 में मुख्य उत्पाद P है।



उत्पाद 'P' में ऑक्सीजन परमाणुओं की संख्या है _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

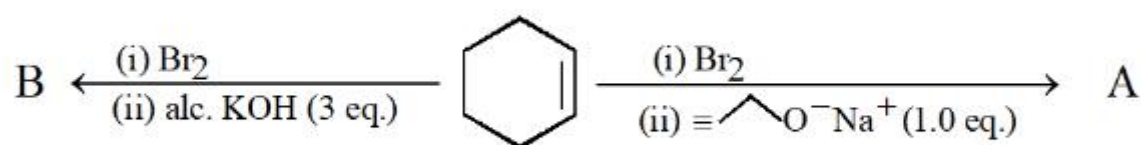
1

Question Number : 89 Question Id : 68019114152 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

The major products from the following reaction sequence are product A and product B.



The total sum of π electrons in product A and product B are _____
(nearest integer)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

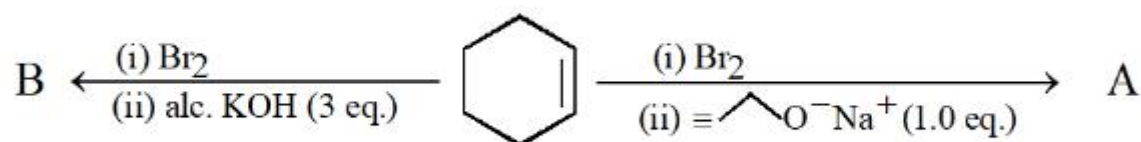
1

Question Number : 89 **Question Id :** 68019114152 **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 क्रम में निर्मित मुख्य उत्पाद- उत्पाद A एवं उत्पाद B हैं



उत्पाद A एवं उत्पाद B 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

Question Number : 90 **Question Id :** 68019114153 **Question Type :** SA **Calculator :** None

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

Correct Marks : 4 Wrong Marks : 1

9.3 g of pure aniline upon diazotisation followed by coupling with phenol gives an orange dye. The mass of orange dye produced (assume 100% yield/conversion) is _____ g. (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 : 90 Question Id : 68019114153 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

9.3 g शुद्ध ऐनिलीन डाइऐजोटीकरण के उपरान्त फ़ीनॉल के साथ युग्मन करने पर एक नारंगी रंजक देता है। उत्पादित नारंगी रंजक का द्रव्यमान है (मानिए 100% उत्पादन/परिवर्तन) : _____ g.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1