

Question Paper Preview

Notations :

- 1.Options shown in **green** color and with  icon are correct.
- 2.Options shown in **red** color and with  icon are incorrect.

Subject Name :	Scientific Assistant Physics Place of Posting BRLS Balasore Odisha
Duration :	90
Total Marks :	80
Display Marks:	Yes
Share Answer Key With Delivery Engine :	Yes
Actual Answer Key :	Yes
Calculator :	None
Magnifying Glass Required? :	No
Ruler Required? :	No
Eraser Required? :	No
Scratch Pad Required? :	No
Rough Sketch/Notepad Required? :	No
Protractor Required? :	No
Show Watermark on Console? :	Yes
Highlighter :	No
Auto Save on Console?	No
Change Font Color :	No
Change Background Color :	No
Change Theme :	No
Help Button :	No

Show Reports :	No
Show Progress Bar :	No

Scientific Assistant Physics Place of Posting BRLS Balasore

Odisha

Group Number :	1
Group Id :	40255732
Group Maximum Duration :	0
Group Minimum Duration :	90
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	80
Is this Group for Examiner? :	No
Examiner permission :	Cant View
Show Progress Bar? :	No

Curriculum Based

Section Id :	40255732
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	80
Number of Questions to be attempted :	80
Section Marks :	80
Enable Mark as Answered Mark for Review and	Yes

Clear Response :

Maximum Instruction Time : 0

Sub-Section Number : 1

Sub-Section Id : 40255732

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 1 Question Id : 4025572481 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If the mass of a spherical shell is M and its radius is R, then its moment of inertia about a diameter is

A. $I = \frac{2}{3}MR^2$

B. $I = \frac{5}{4}MR^2$

C. $I = \frac{2}{5}MR^2$

D. $I = \frac{1}{2}MR^2$

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 1 Question Id : 4025572481 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

किसी गोलाकार शैल का द्रव्यमान M तथा इसकी त्रिज्या R है, तो व्यास पर इसका जड़त्व
आघूर्ण होगा

A. $I = \frac{2}{3}MR^2$

B. $I = \frac{5}{4}MR^2$

C. $I = \frac{2}{5}MR^2$

D. $I = \frac{1}{2}MR^2$

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 2 Question Id : 4025572482 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In stress versus strain graph, the point on the graph at which the plastic deformation starts, is called

- A. Hook's Point
- B. Breaking Point
- C. Yield Point
- D. Proportionality Point

Options :

✖ A

✖ B

✔ C

✖ D

Question Number : 2 Question Id : 4025572482 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

प्रतिबल बनाम विकृति ग्राफ में, ग्राफ पर वह बिंदु जिस पर प्लास्टिक विक्षेपण शुरू होता है, उसे कहते है

- A. हूक बिंदु
- B. ब्रेकिंग बिंदु
- C. यील्ड बिंदु
- D. समानुपातिक बिंदु

Options :

✖ A

✖ B

✔ C

✖ D

Question Number : 3 Question Id : 4025572483 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Match the Moduli of elasticity

a	Young's Modulus	(i)	PV/v
b	Bulk Modulus	(ii)	$mgL/\pi r^2 l$
c	Shear Modulus	(iii)	$F/A\theta$

- A. (a) – (i), (b) – (ii), (c) – (iii)
- B. (a) – (ii), (b) – (i), (c) – (iii)
- C. (a) – (iii), (b) – (ii), (c) – (i)
- D. (a) – (i), (b) – (iii), (c) – (ii)

Options :

✖ A

✔ B

✖ C

✖ D

Question Number : 3 Question Id : 4025572483 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

प्रत्यास्था का माप सुमेलित कीजिए

a	यंग का मापांक	(i)	PV/v
b	आयतन मापांक	(ii)	$mgL/\pi r^2 l$
c	अपरूपण मापांक	(iii)	$F/A\theta$

A. (a) – (i), (b) – (ii), (c) – (iii)

B. (a) – (ii), (b) – (i), (c) – (iii)

C. (a) – (iii), (b) – (ii), (c) – (i)

D. (a) – (i), (b) – (iii), (c) – (ii)

Options :

✗ A

✓ B

✗ C

✗ D

Question Number : 4 Question Id : 4025572484 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

A particle is projected with an initial velocity $(\hat{i} + 2\hat{j})$ m/s. Where $\hat{i}$ and $\hat{j}$ is along ground and vertical respectively. If $g = 10 \text{ m/s}^2$, the equation of trajectory for the particle will be

A. $Y = 2x - 5x^2$

B. $Y = 4x - 5x^2$

C. $Y = 5x - 4x^2$

D. $Y = 5x - 2x^2$

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 4 Question Id : 4025572484 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

किसी कण को आरंभिक वेग $(\hat{i} + 2\hat{j})$ से प्रक्षेपित किया गया है। जहाँ $\hat{i}$ तथा $\hat{j}$ क्रमशः भूमि तथा ऊर्ध्वाधर के साथ है। यदि $g=10 \text{ m/s}^2$ हैं, कण के पथ का समीकरण होगा।

A. $Y=2x-5x^2$

B. $Y=4x-5x^2$

C. $Y=5x-4x^2$

D. $Y=5x-2x^2$

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 5 Question Id : 4025572485 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Two satellites A and B of masses m_1 and m_2 ($m_1=2m_2$) are moving in circular orbits of radius r_1 and r_2 ($r_1=4r_2$) respectively around earth. If their periods are T_A and T_B then the ratio of T_A/T_B .

- A. 4
- B. 16
- C. 8
- D. 2

Options :

✗ A

✗ B

✓ C

✗ D

Question Number : 5 Question Id : 4025572485 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

पृथ्वी के चारों ओर r_1 एवं r_2 ($r_1=4r_2$) त्रिज्यों के वृत्ताकार कक्ष में m_1 एवं m_2 ($m_1=2 m_2$) द्रव्यमानों के A और B दो उपग्रह घूम रहे हैं। यदि उनकी अवधियां T_A एवं T_B हैं तो T_A/T_B का अनुपात होगा

- A. 4
- B. 16
- C. 8
- D. 2

Options :

✖ A

✖ B

✔ C

✖ D

Question Number : 6 Question Id : 4025572486 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

A rocket is launched vertical from the surface of the earth of radius R with an initial speed V . If atmospheric resistance is neglected, then maximum height attained by the rocket is

A. $h = \left(\frac{R}{\frac{2gR}{V^2} - 1} \right)$

B. $h = \left(\frac{R}{\frac{2gR}{V^2} + 1} \right)$

C. $h = \left(\frac{R^2}{\frac{2gR}{V^2} - 1} \right)$

D. $h = \left(\frac{R^2}{\frac{2gR}{V^2} + 1} \right)$

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 6 Question Id : 4025572486 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

एक रॉकेट को R त्रिज्या वाली पृथ्वी के सतह से प्रारंभिक गति V के साथ ऊर्ध्वाधर प्रमोचित किया जाता है।

यदि वायुमंडलीय प्रतिरोध नगण्य है तो रॉकेट अधिकतम कितनी ऊंचाई तक जाएगा

A. $h = \left(\frac{R}{\frac{2gR}{V^2} - 1} \right)$

B. $h = \left(\frac{R}{\frac{2gR}{V^2} + 1} \right)$

C. $h = \left(\frac{R^2}{\frac{2gR}{V^2} - 1} \right)$

D. $h = \left(\frac{R^2}{\frac{2gR}{V^2} + 1} \right)$

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 7 Question Id : 4025572487 Question Type : MCQ Option Shuffling : No Is

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

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

A water drop of radius 1 cm is broken into 1000 equal droplets. If surface tension of water is 0.075 N/m then given surface energy is

- A. 0
- B. 8.5×10^{-4} N/m
- C. 7.5×10^{-4} N/m
- D. Infinite

Options :

✖ A

✔ B

✖ C

✖ D

Question Number : 7 Question Id : 4025572487 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

1 cm त्रिज्या वाली एक पानी की बूंद को 1000 बराबर बूंदों में बांटा जाता है। यदि पानी का पृष्ठ तनाव 0.075 N/m है तो दी गई पृष्ठ ऊर्जा है

- A. 0
- B. 8.5×10^{-4} N/m
- C. 7.5×10^{-4} N/m
- D. अनंत

Options :

✖ A

✔ B

✖ C

✖ D

Question Number : 8 Question Id : 4025572488 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If H_1 and H_2 be the greatest height of a projectile in two paths for a given value of range, then the horizontal range of projectile is given by

A. $\frac{H_1+H_2}{2}$

B. $\frac{H_1+H_2}{4}$

C. $4\sqrt{H_1H_2}$

D. $4[H_1+H_2]$

Options :

✖ A

✖ B

✔ C

✖ D

Question Number : 8 Question Id : 4025572488 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

यदि रेंज के किसी दिए गए मान के लिए दो पथों में किसी प्रक्षेप्य की अधिकतम ऊंचाई H_1 तथा H_2 हैं
तो प्रक्षेप्य की क्षैतिज रेंज होगी

A. $\frac{H_1+H_2}{2}$

B. $\frac{H_1+H_2}{4}$

C. $4\sqrt{H_1H_2}$

D. $4[H_1+H_2]$

Options :

✖ A

✖ B

✔ C

✖ D

Question Number : 9 Question Id : 4025572489 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

On charging a soap bubble its size

- A. Increase
- B. Decrease
- C. Remains same
- D. None of these

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 9 Question Id : 4025572489 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

साबुन के बुलबुले को चार्जिंग करने पर उसकी आकार

- A. बढ़ जाती है
- B. कम हो जाती है
- C. वही रहती है
- D. उपर्युक्त में से कोई नहीं

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 10 Question Id : 4025572490 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In an LCR circuit, the capacitor is changed from C to $4C$. For the same resonant frequency, the induction should be changed from L to

A. $4L$

B. $L/2$

C. $L/4$

D. $2L$

Options :

✗ A

✗ B

✓ C

✗ D

Question Number : 10 Question Id : 4025572490 Question Type : MCQ Option Shuffling : No Is

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

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

एक LCR परिपथ में, संधारित्र C से $4C$ में बदलता है। उसी अनुनादी आवृत्ति के लिए, प्रेरक L सेमें बदलना चाहिए।

- A. $4L$
- B. $L/2$
- C. $L/4$
- D. $2L$

Options :

✖ A

✖ B

✔ C

✖ D

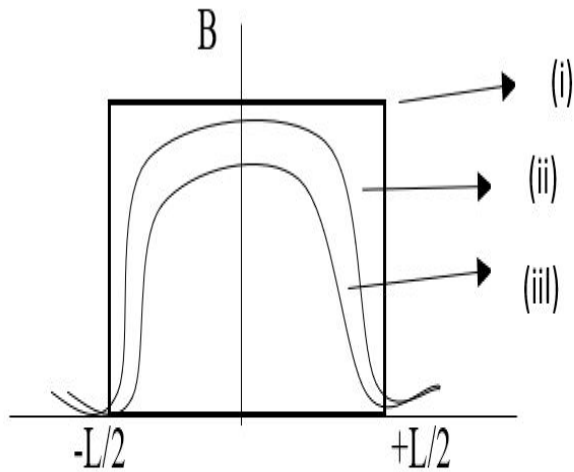
Question Number : 11 Question Id : 4025572491 Question Type : MCQ Option Shuffling : No Is

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

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Refer the following graph, identify the magnetic fields of ideal solenoid,



- A. (ii) Curve
- B. (iii) Curve
- C. (i) Curve
- D. None of the above are ideal

Options :

✗ A

✗ B

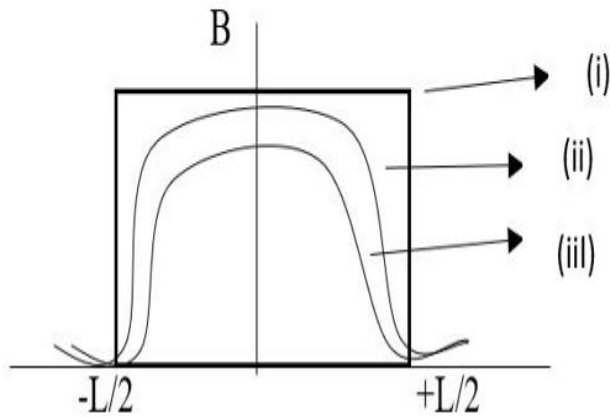
✓ C

✗ D

Question Number : 11 Question Id : 4025572491 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

निम्नलिखित ग्राफ का संदर्भ लें, आदर्श परिनालिका के चुंबकीय क्षेत्र को पहचाने



- A. (ii) वक्र
- B. (iii) वक्र
- C. (i) वक्र
- D. उपर्युक्त में से कोई भी आदर्श नहीं

Options :

✗ A

✗ B

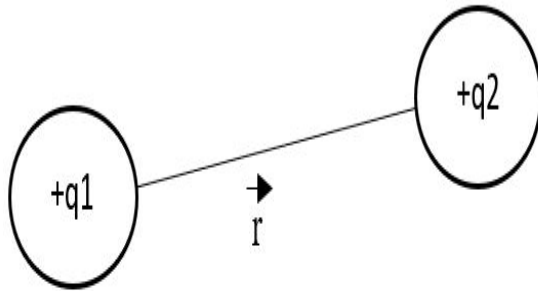
✓ C

✗ D

Question Number : 12 Question Id : 4025572492 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Refer the figure, if two charges q_1 and q_2 are separated by a distance ' r ', what is the force acting between the charge q_2 by q_1 ?



- A. $\frac{1}{4\pi\epsilon_0} \frac{q_1 q_2}{r^2}$
- B. $\frac{1}{4\pi\epsilon_0} \frac{q^2}{r^2}$
- C. $\frac{1}{4\pi\epsilon_0} \frac{r^2}{q^2}$
- D. A & B

Options :

✓ A

✗ B

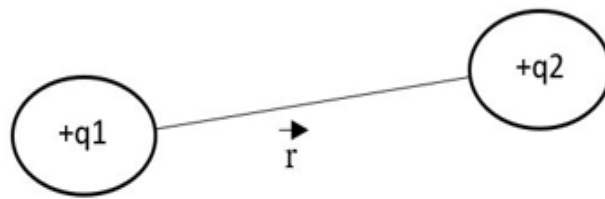
✗ C

✗ D

Question Number : 12 Question Id : 4025572492 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

निम्न चित्र का संदर्भ लें , दो आवेश q_1 तथा q_2 के बीच की दूरी यदि r है तो q_1 तथा q_2 आवेश के बीच बल क्या होगा



- A. $\frac{1}{4\pi\epsilon_0} \frac{q_1 q_2}{r^2}$
- B. $\frac{1}{4\pi\epsilon_0} \frac{q^2}{r^2}$
- C. $\frac{1}{4\pi\epsilon_0} \frac{r^2}{q^2}$
- D. A & B

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 13 Question Id : 4025572493 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

A galvanometer of $50\ \Omega$ resistance has 25 divisions. A current of 0.04 A gives a deflection of one division. To convert this galvanometer into a voltmeter having a range of 25V , it should be connected with a resistance of

- A. $245\ \Omega$ as shunt
- B. $2550\ \Omega$ in series
- C. $2450\ \Omega$ in series
- D. $2500\ \Omega$ as a shunt

Options :

✖ A

✖ B

✔ C

✖ D

Question Number : 13 Question Id : 4025572493 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

$50\ \Omega$ वाले किसी गल्वैनोमीटर में 25 भाग हैं। 0.04A की विद्युत धारा से एक भाग का विक्षेप होता है। इस गल्वैनोमीटर को 25V की रेंज वाले वोल्टमीटर में बदलने के लिए इसे ----- के प्रतिरोध के साथ जोड़ना चाहिए।

- A. $245\ \Omega$ शंट के रूप में
- B. $2550\ \Omega$ श्रेणी में
- C. $2450\ \Omega$ श्रेणी में
- D. $2500\ \Omega$ शंट के रूप में

Options :

✖ A

✖ B

✔ C

✖ D

Question Number : 14 Question Id : 4025572494 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Displacement current is set up between the plates of the capacitor when the potential difference across the plate is

A. Maximum

B. Zero

C. Minimum

D. Varying

Options :

✖ A

✖ B

✖ C

✔ D

Question Number : 14 Question Id : 4025572494 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

संधारित्र के प्लेटों के बीच विस्थापन धारा सेट-अप होती है जब प्लेटों के बीच विभवांतर होता है।

- A. अधिकतम
- B. शून्य
- C. न्यूनतम
- D. परिवर्ती

Options :

✖ A

✖ B

✖ C

✔ D

Question Number : 15 Question Id : 4025572495 Question Type : MCQ Option Shuffling : No Is

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

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In a wave motion $Y = a \sin(kx - \omega t)$, Y can represent

- A. Velocity
- B. Acceleration
- C. Displacement
- D. All of these.

Options :

✖ A

✖ B

✖ C

✔ D

Question Number : 15 Question Id : 4025572495 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

किसी तरंग के चलने $Y = a \sin(kx - \omega t)$ में, Y दर्शाता है

- A. वेग
- B. त्वरण
- C. विस्थापन
- D. ये सभी

Options :

✖ A

✖ B

✖ C

✔ D

Question Number : 16 Question Id : 4025572496 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The length of the pendulum which is displaying SHM is increased by 21%. The percentage increase in the time period of the pendulum of increased.

- A. 10 %
- B. 12%
- C. 15%
- D. 21%

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 16 Question Id : 4025572496 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

SHM प्रदर्शित करने वाले पेंडूलम की लंबाई 21% बढ़ाई गई है। इस बढ़ाई गई लंबाई वाले पेंडूलम की समय अवधि में कितने प्रतिशत वृद्धि होगी।

- A. 10%
- B. 12%
- C. 15%
- D. 21%

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 17 Question Id : 4025572497 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

When a system executes an irreversible cycle, which of the following is true.

A. $\oint \frac{\delta Q}{T} < 0$

B. $\oint \frac{\delta Q}{T} > 0$

C. $\oint \frac{\delta Q}{T} = 0$

D. $\oint \frac{\delta Q}{T} \leq 0$

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 17 Question Id : 4025572497 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

जब कोई प्रणाली किसी अप्रतिक्रम्य चक्र को निष्पादित करती है तो ऐसे में निम्न में से क्या सत्य है?

A. $\oint \frac{\delta Q}{T} < 0$

B. $\oint \frac{\delta Q}{T} > 0$

C. $\oint \frac{\delta Q}{T} = 0$

D. $\oint \frac{\delta Q}{T} \leq 0$

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 18 Question Id : 4025572498 Question Type : MCQ Option Shuffling : No Is

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

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In reversible process, the entropy (ΔS) is

- A. $\Delta S > 0$ Increase in internal energy of reservoir
- B. $\Delta S = 0$, because of the decrease of Q value of the systems compensated in increase of reservoir.
- C. $\Delta S < 0$, Since it is a reversible process
- D. None of the above

Options :

✖ A

✔ B

✖ C

✖ D

Question Number : 18 Question Id : 4025572498 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

उत्क्रमित प्रक्रिया में, एंट्रॉपी (ΔS) होती है

- A. रिजर्वॉयर की आंतरिक ऊर्जा में $\Delta S > 0$ वृद्धि
- B. $\Delta S = 0$, क्योंकि रिजर्वॉयर की वृद्धि में प्रतिपूरित तंत्र के Q मान के मान में कमी
- C. $\Delta S < 0$, चूंकि यह एक उत्क्रमित प्रक्रिया है
- D. उपरोक्त में से कोई नहीं

Options :

✖ A

✓ B

✗ C

✗ D

Question Number : 19 Question Id : 4025572499 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following thermodynamics relation is correct? (E, H and G represents, Helmholtz free energy, Enthalpy and Gibbs free energy respectively)

A. $dG = VdP - SdT$

B. $dE = PdV + TdS$

C. $dH = -VdP + TdS$

D. $dG = VdP + SdT$

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 19 Question Id : 4025572499 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

निम्नलिखित में से ऊष्मागतिकी से संबंधित कौन सा सही है? (E, H एवं G का संदर्भ हेल्महोल्ट्ज फ्री ऊर्जा, एंथाल्पी एवं गिब्स फ्री ऊर्जा से है)

- A. $dG=VdP-SdT$
- B. $dE=PdV+TdS$
- C. $dH=-VdP+TdS$
- D. $dG=VdP+SdT$

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 20 Question Id : 4025572500 Question Type : MCQ Option Shuffling : No Is

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

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The temperature of the sink of Carnot's engine is 27°C and its efficiency is 25%. The temperature of the source is,

- A. 220°C
- B. 275°C
- C. 127°C
- D. 327°C

Options :

✖ A

✖ B

✔ C

✖ D

Question Number : 20 Question Id : 4025572500 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

कार्नोट इंजन के सिंक का तापमान 27°C एवं उसकी दक्षता 25% है। स्रोत का तापमान है

A. 220°C

B. 275°C

C. 127°C

D. 327°C

Options :

✖ A

✖ B

✔ C

✖ D

Question Number : 21 Question Id : 4025572501 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

For an isobaric process, the ratio of ΔQ (amount of heat supplied) to the ΔW (work done by the gas) is $(\gamma = \frac{C_p}{C_v})$

A. γ

B. $\gamma - 1$

C. $\frac{\gamma}{\gamma+1}$

D. $\frac{\gamma}{\gamma-1}$

Options :

✖ A

✖ B

✖ C

✔ D

Question Number : 21 Question Id : 4025572501 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

किसी समदाब प्रक्रम में ΔQ (आपूर्ति ऊष्मा की मात्रा) का ΔW (गैस द्वारा किया गया कार्य) से अनुपात $(\gamma = \frac{C_p}{C_v})$ है

A. γ

B. $\gamma - 1$

C. $\frac{\gamma}{\gamma+1}$

D. $\frac{\gamma}{\gamma-1}$

Options :

✖ A

✖ B

✖ C

✔ D

Question Number : 22 Question Id : 4025572502 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

A perfect gas at 27°C is heated at constant pressure so as to double its volume, then the increase in temperature of the gas will be,

A. 600°C

B. 327°C

C. 273°C

D. 300°C

Options :

✖ A

✖ B

✖ C

✔ D

Question Number : 22 Question Id : 4025572502 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

स्थिर दाब पर एक शुद्ध गैस को 27°C पर गरम किया जाता है ताकि उसका आयतन दोगुना हो जाए, तो गैस में बढ़ने वाला तापमान होगा

- A. 600°C
- B. 327°C
- C. 273°C
- D. 300°C

Options :

✗ A

✗ B

✗ C

✓ D

Question Number : 23 Question Id : 4025572503 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In a adiabatic expansion of an ideal gas, select the incorrect statement.

- A. There is decrease in temperature of the gas
- B. There is decrease in internal energy of the gas
- C. The work done is positive
- D. The work done by gas is equal to heat supplied.

Options :

✗ A

✗ B

✖ C

✔ D

Question Number : 23 Question Id : 4025572503 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

किसी आदर्श गैस के रुद्धोष्म प्रसार के विषय में गलत कथन का चयन कीजिए।

- A. गैस के तापमान में कमी आती है
- B. गैस की आंतरिक ऊर्जा में कमी आती है
- C. किया गया कार्य धनात्मक होता है
- D. गैस द्वारा किया गया कार्य आपूरित ऊष्मा के बराबर होता है

Options :

✖ A

✖ B

✖ C

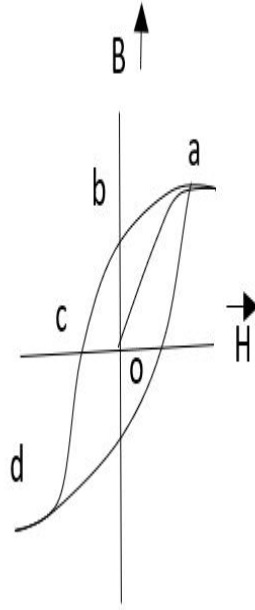
✔ D

Question Number : 24 Question Id : 4025572504 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

From the given hysteresis curve of the magnet, identify the coercivity region in the curve

- A. Region 'c'
- B. Region 'b'
- C. Region 'd'
- D. Region 'a'



Options :

✓ A

✗ B

✗ C

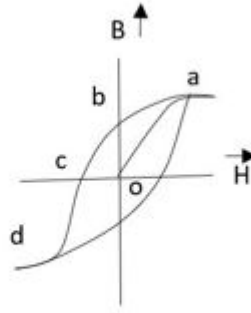
✗ D

Question Number : 24 Question Id : 4025572504 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

चुम्बक के दिए गए शैथिल्य वक्र से वक्र में निग्राहिता क्षेत्र को पहचानिए

- C. क्षेत्र 'c'
- D. क्षेत्र 'b'
- B. क्षेत्र 'd'
- A. क्षेत्र 'a'



Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 25 Question Id : 4025572505 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

A set of primitive vectors of face centred cubic lattices are

A. $a_1 = \frac{a}{2}(\bar{y} + \bar{z})$, $a_2 = \frac{a}{2}(\bar{z} + \bar{x})$, $a_3 = \frac{a}{2}(\bar{x} + \bar{y})$

B. $a_1 = \frac{a}{2}(\bar{z})$, $a_2 = \frac{a}{2}(\bar{x})$, $a_3 = \frac{a}{2}(\bar{y})$

C. $a_1 = \frac{a}{2}(\bar{x} + \bar{z})$, $a_2 = \frac{a}{2}(\bar{y} + \bar{z})$, $a_3 = \frac{a}{2}(\bar{z} + \bar{y})$

D. None of the above.

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 25 Question Id : 4025572505 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

फलक उन्मुख घनीय जालक (lattice) के आद्य सदिश (Primitive vector) का एक सेट है

A. $a_1 = \frac{a}{2} (\bar{y} + \bar{z}), a_2 = \frac{a}{2} (\bar{z} + \bar{x}), a_3 = \frac{a}{2} (\bar{x} + \bar{y})$

B. $a_1 = \frac{a}{2} (\bar{z}), a_2 = \frac{a}{2} (\bar{x}), a_3 = \frac{a}{2} (\bar{y})$

C. $a_1 = \frac{a}{2} (\bar{x} + \bar{z}), a_2 = \frac{a}{2} (\bar{y} + \bar{z}), a_3 = \frac{a}{2} (\bar{z} + \bar{y})$

D. उपरोक्त में से कोई नहीं

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 26 Question Id : 4025572506 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The lattice constant 'a' for 'fcc' is

A. $a=2r$

B. $\frac{4}{\sqrt{3}} r$

C. $4r$

D. $2\sqrt{2}r$

Options :

✖ A

✖ B

✖ C

✔ D

Question Number : 26 Question Id : 4025572506 Question Type : MCQ Option Shuffling : No Is

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

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

'fcc' के लिए लेटिस स्थिरांक 'a' ---- होगा

A. $a=2r$

B. $\frac{4}{\sqrt{3}} r$

C. $4r$

D. $2\sqrt{2}r$

Options :

✖ A

✖ B

✖ C

✔ D

Question Number : 27 Question Id : 4025572507 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The electronic configuration of 'Ge' is

A. $1s^2, 2s^2, 2p^6, 3s^2, 3p^6, 3d^{10}, 4s^2, 4p^2$

B. $1s^2, 2s^2, 2p^6, 3s^2, 3p^6, 3d^{10}, 4s^2$

C. $1s^2, 2s^2, 2p^6, 3s^2, 3p^6, 3d^{10}, 4s^2, 4p^6$

D. $1s^2, 2s^2, 2p^6, 3s^2, 3p^6, 3d^{10}, 4s^2, 4p^4$

Options :

✔ A

✖ B

✖ C

✖ D

Question Number : 27 Question Id : 4025572507 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

'Ge' का इलेक्ट्रॉनिक विन्यास है

- A. $1s^2, 2s^2, 2p^6, 3s^2, 3p^6, 3d^{10}, 4s^2, 4p^2$
- B. $1s^2, 2s^2, 2p^6, 3s^2, 3p^6, 3d^{10}, 4s^2$
- C. $1s^2, 2s^2, 2p^6, 3s^2, 3p^6, 3d^{10}, 4s^2, 4p^6$
- D. $1s^2, 2s^2, 2p^6, 3s^2, 3p^6, 3d^{10}, 4s^2, 4p^4$

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 28 Question Id : 4025572508 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Energy bands in solids are a consequence of

- A. Ohm's Law
- B. Pauli's exclusion principle
- C. Bohr's theory
- D. Heisenberg's uncertainty principle.

Options :

✖ A

✔ B

✖ C

✖ D

Question Number : 28 Question Id : 4025572508 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

ठोस पदार्थों में ऊर्जा बैंड किसके परिणाम से होते हैं?

- A. ओम का नियम
- B. पॉलि का अपवर्जन नियम
- C. बोर का नियम
- D. हाइड्रबर्ग का अनिश्चितता सिद्धांत

Options :

✖ A

✔ B

✖ C

✖ D

Question Number : 29 Question Id : 4025572509 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Carbon, Silicon and Germanium have four valence electrons each. These are characterized by valence and conduction band separated by energy band gap respectively equal to $(E_g)_C$, $(E_g)_{Si}$ and $(E_g)_{Ge}$. Which of the following statement is true?

A. $(E_g)_{Si} < (E_g)_{Ge} < (E_g)_C$

B. $(E_g)_C < (E_g)_{Ge} > (E_g)_{Si}$

C. $(E_g)_C > (E_g)_{Si} > (E_g)_{Ge}$

D. $(E_g)_C = (E_g)_{Si} = (E_g)_{Ge}$

Options :

✖ A

✖ B

✔ C

✖ D

Question Number : 29 Question Id : 4025572509 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

कार्बन, सिलिकन एवं जर्मेनियम प्रत्येक में चार संयोजकता इलेक्ट्रॉन होते हैं। इन्हें ऊर्जा बैंड अंतराल द्वारा पृथक्कृत संयोजकता एवं चालन के रूप में विशेषीकृत किया जाता है जो क्रमशः $(E_g)_C$, $(E_g)_{Si}$ एवं $(E_g)_{Ge}$ हैं। निम्नलिखित में से कौन सा कथन सत्य है?

- A. $(E_g)_{Si} < (E_g)_{Ge} < (E_g)_C$
- B. $(E_g)_C < (E_g)_{Ge} > (E_g)_{Si}$
- C. $(E_g)_C > (E_g)_{Si} > (E_g)_{Ge}$
- D. $(E_g)_C = (E_g)_{Si} = (E_g)_{Ge}$

Options :

✖ A

✖ B

✔ C

✖ D

Question Number : 30 Question Id : 4025572510 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

What is the colour code for a 100Ω resistor with 5% tolerance?

- A. Orange Orange Black Golden
- B. Red Red Black Golden
- C. Brown Black Brown Golden
- D. Brown Brown Black Golden

Options :

✖ A

✖ B

✔ C

✖ D

Question Number : 30 Question Id : 4025572510 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

5% सहिष्णुता के साथ 100Ω प्रतिरोध का कलर कोड क्या होगा?

- A. नारंगी नारंगी काला सुनहरा
- B. लाल लाल काला सुनहरा
- C. भूरा काला भूरा सुनहरा
- D. भूरा भूरा काला सुनहरा

Options :

✖ A

✖ B

✔ C

✖ D

Question Number : 31 Question Id : 4025572511 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

How many flip-flops connected in series for master slave flip-flop?

- A. 2
- B. 3
- C. 4
- D. 5

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 31 Question Id : 4025572511 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

मास्टर स्लेव फ्लिप-फ्लॉप में कितने फ्लिप-फ्लॉप श्रेणीक्रम में संयोजित होते हैं?

- A. 2
- B. 3
- C. 4
- D. 5

Options :

✓ A

✖ B

✖ C

✖ D

Question Number : 32 Question Id : 4025572512 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The given circuit has two ideal diodes connected as shown in the figure below.

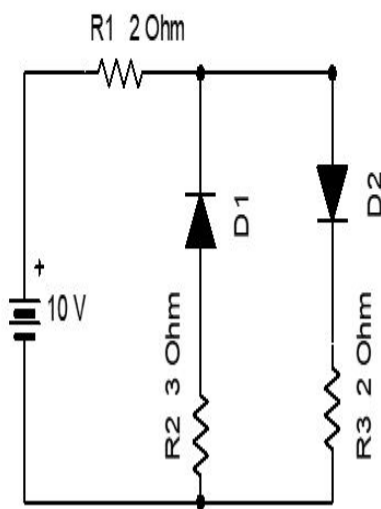
The current flowing through the resistance R1 will be

A. 2.5 A

B. 10.0 A

C. 1.43 A

D. 3.13 A



Options :

✔ A

✖ B

✖ C

✖ D

Question Number : 32 Question Id : 4025572512 Question Type : MCQ Option Shuffling : No Is

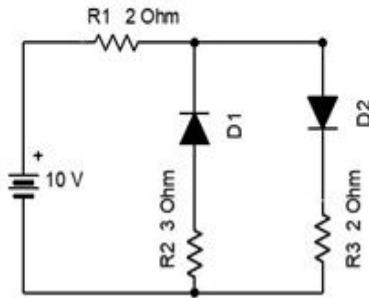
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

दिए गए परिपथ में दो संबद्धित आदर्श डायोड को नीचे दी गई आकृति में दर्शाया गया है। प्रतिरोधक R1 से होकर प्रवाहित धारा क्या होगी

- A. 2.5 A
- B. 10.0 A
- C. 1.43 A
- D. 3.13 A



Options :

✓ A

✗ B

✗ C

✗ D

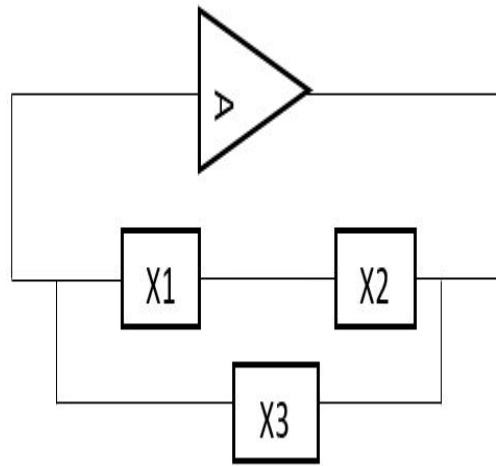
Question Number : 33 Question Id : 4025572513 Question Type : MCQ Option Shuffling : No Is

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

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Refer the Oscillator figure



In which, the X1, X2 & X3 combination of Colpitts oscillator is

- A. X1 and X2 is inductance and X3 is capacitance.
- B. X1 and X2 is capacitance and X3 is inductance.
- C. X1 and X2 is inductance and X3 is resistance.
- D. X1 and X2 is resistance and X3 is capacitance.

Options :

✘ A

✔ B

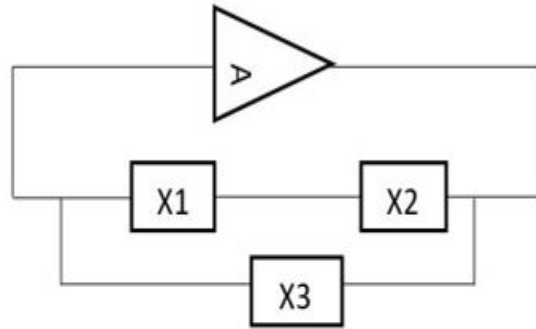
✘ C

✘ D

Question Number : 33 Question Id : 4025572513 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

दोलित्र का चित्र देखें



जिसमें X1, X2 एवं X3 कॉलपिड्स दोलित्र का संयोजन है।

- A. X1 तथा X2 प्रेरकत्व तथा X3 धारिता है।
- B. X1 तथा X2 धारिता तथा X3 प्रेरकत्व है।
- C. X1 तथा X2 प्रेरकत्व तथा X3 प्रतिरोध है।
- D. X1 तथा X2 प्रतिरोध तथा X3 धारिता है।

Options :

✖ A

✔ B

✖ C

✖ D

Question Number : 34 Question Id : 4025572514 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The minimum distance between an object and its real image formed by a convex lens is

- A. $1.5f$
- B. $2f$
- C. $2.5f$
- D. $4f$

Options :

✖ A

✖ B

✖ C

✔ D

Question Number : 34 Question Id : 4025572514 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

एक वस्तु तथा ऊतल लेंस द्वारा बनाए गए उसके वास्तविक प्रतिबिंब के बीच की न्यूनतम दूरी है

- A. $1.5f$
- B. $2f$
- C. $2.5f$
- D. $4f$

Options :

✖ A

✖ B

✖ C

✔ D

Question Number : 35 Question Id : 4025572515 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If a number of images of a candle flame are seen in a thick mirror then

- A. The first image is the brightest
- B. The second image is the brightest
- C. The last image is the brightest
- D. The images are equally bright.

Options :

✖ A

✔ B

✖ C

✖ D

Question Number : 35 Question Id : 4025572515 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

यदि एक मोमबत्ती की लौ के कई प्रतिबिम्बों को मोटे दर्पण में देखा जाता है तो

- A. पहला प्रतिबिम्ब सबसे चमकदार होगा
- B. दूसरा प्रतिबिम्ब सबसे चमकदार होगा
- C. अंतिम प्रतिबिम्ब सबसे चमकदार होगा
- D. प्रतिबिम्ब समान रूप से चमकदार होंगे

Options :

✖ A

✔ B

✖ C

✖ D

Question Number : 36 Question Id : 4025572516 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Dispersive power depends upon

- A. The angle of Prism
- B. Material of Prism
- C. Deviation produced by Prism
- D. Height of the Prism

Options :

✖ A

✔ B

✖ C

✖ D

Question Number : 36 Question Id : 4025572516 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

परिक्षेपण शक्ति निर्भर करती है.....

- A. प्रिज्म का कोण
- B. प्रिज्म की सामग्री
- C. प्रिज्म द्वारा उत्पन्न विचरण
- D. प्रिज्म की ऊंचाई

Options :

✖ A

✔ B

✖ C

✖ D

Question Number : 37 Question Id : 4025572517 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

As the light beam enters the medium, it will

- A. Travel as cylindrical beam
- B. Diverge
- C. Converge
- D. Diverge near the axis and converge near the periphery

Options :

✖ A

✖ B

✔ C

✖ D

Question Number : 37 Question Id : 4025572517 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

जैसे ही प्रकाश माध्यम में प्रवेश करता है, वह

- A. बेलनाकार बीम के रूप में यात्रा करता है
- B. अपसारित होगा
- C. अभिसारित होगा
- D. अक्ष के निकट अपसारित होगा एवं परिधि के निकट अभिसारित होगा

Options :

✖ A

✖ B

✔ C

✖ D

Question Number : 38 Question Id : 4025572518 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Magnifying power of a Galilean telescope is given by (Notations are standard terminology)

A. $\frac{f_o}{f_e} \left(1 - \frac{f_e}{D}\right)$

B. $\frac{f_o}{f_e} \left(1 + \frac{f_e}{D}\right)$

C. $\frac{f_o}{f_e} \left(1 + \frac{2f_e}{D}\right)$

D. $\frac{f_o}{f_e} \left(1 - \frac{2f_e}{D}\right)$

Options :

✔ A

✖ B

✖ C

✖ D

Question Number : 38 Question Id : 4025572518 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

एक गैलिलियन दूरबीन की आवर्धक शक्तिद्वारा दी जाती है (नोटेशन्स मानक परिभाषा के हैं)।

A. $\frac{f_o}{f_e} \left(1 - \frac{f_e}{D}\right)$

B. $\frac{f_o}{f_e} \left(1 + \frac{f_e}{D}\right)$

C. $\frac{f_o}{f_e} \left(1 + \frac{2f_e}{D}\right)$

D. $\frac{f_o}{f_e} \left(1 - \frac{2f_e}{D}\right)$

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 39 Question Id : 4025572519 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The speed of light in the medium is

A. Maximum on the axis of the beam

B. Minimum on the axis of the beam

C. The same everywhere in the beam

D. Directly proportional to the intensity

Options :

✖ A

✔ B

✖ C

✖ D

Question Number : 39 Question Id : 4025572519 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

इस माध्यम में लाइट की गति होती है

- A. अधिकतम बीम के अक्ष पर
- B. न्यूनतम बीम के अक्ष पर
- C. बीम में हर जगह एक जैसा
- D. तीव्रता में सीधा आनुपातिक

Options :

✖ A

✔ B

✖ C

✖ D

Question Number : 40 Question Id : 4025572520 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The solution of the differential equation $\frac{dy}{dx} = \frac{y^2 + xy}{x^2}$ is

A. $x = Ae^x$

B. $x = Ae^{-x} + Be^{-y}$

C. $x = Ae^{-x/y}$

D. $x = Ae^{2xy}$

Options :

✖ A

✖ B

✔ C

✖ D

Question Number : 40 Question Id : 4025572520 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

अवकल समीकरण $\frac{dy}{dx} = \frac{y^2 + xy}{x^2}$ का विलयन है

A. $x = Ae^x$

B. $x = Ae^{-x} + Be^{-y}$

C. $x = Ae^{-x/y}$

D. $x = Ae^{2xy}$

Options :

✖ A

✖ B

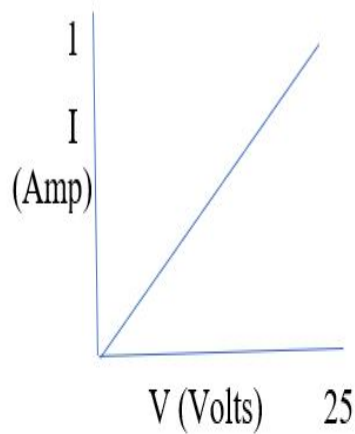
✔ C

✖ D

Question Number : 41 Question Id : 4025572521 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Both the data points and a linear fit to the Current Vs Voltage of a resistance are shown in the graph below



If the error in the slope is $1.255 \times 10^{-3} \Omega^{-1}$ then the value of resistance estimated from the graph

- A. $(0.04 \pm 0.8) \Omega$
- B. $(25.0 \pm 0.8) \Omega$
- C. $(25.0 \pm 1.25) \Omega$
- D. $(25.0 \pm 0.0125) \Omega$

Options :

✖ A

✓ B

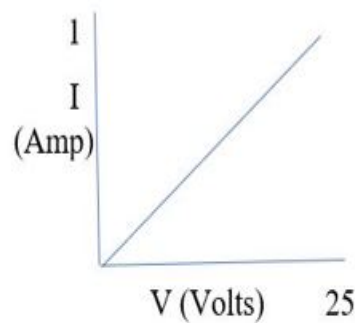
✗ C

✗ D

Question Number : 41 Question Id : 4025572521 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

किसी प्रतिरोध की धारा बनाम वोल्टता के डेटा बिंदु और रैखिक फिट, दोनों को नीचे ग्राफ में दर्शाया गया है



यदि प्रवणता में त्रुटि $1.255 \times 10^{-3} \Omega^{-1}$ है तो ग्राफ द्वारा प्राप्त प्रतिरोध का मान होगा

- A. $(0.04 \pm 0.8) \Omega$
- B. $(25.0 \pm 0.8) \Omega$
- C. $(25.0 \pm 1.25) \Omega$
- D. $(25.0 \pm 0.0125) \Omega$

Options :

✗ A

✓ B

✗ C

✗ D

Question Number : 42 Question Id : 4025572522 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The equation $x^2 + 4y^2 = 4x - y$ represents

- A. Parabola
- B. Hyperbola
- C. Ellipse
- D. Circle

Options :

✖ A

✖ B

✔ C

✖ D

Question Number : 42 Question Id : 4025572522 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

समीकरण $x^2 + 4y^2 = 4x - y$ दर्शाता है

- A. परवलय
- B. अतिवलय
- C. दीर्घवृत्त
- D. वृत्त

Options :

✖ A

✖ B

✔ C

✖ D

Question Number : 43 Question Id : 4025572523 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Match the following

- | | |
|--------------------------|---|
| 1. Newton Raphson method | a. $\left(\begin{array}{c} \text{solution for Non_linear equation, doesn't require} \\ \text{derivative calculation} \end{array} \right)$ |
| 2. Secant method | b. $\left(\begin{array}{c} \text{solution to first order differential} \\ \text{equation} \end{array} \right)$ |
| 3. Gauss method | c. $\left(\begin{array}{c} \text{solution for Non_linear equation, requires} \\ \text{derivative calculation} \end{array} \right)$ |
| 4. Runge Kutta method | d. $\left(\begin{array}{c} \text{solution to simultaneous linear} \\ \text{equation} \end{array} \right)$ |

A. 1 (a), 2 (d), 3 (b), 4 (c)

B. 1 (c), 2(a), 3 (d), 4 (b)

C. 1 (d), 2 (a), 3 (b), 4 (d)

D. 1 (a), 2 (b), 3 (c), 4 (d)

Options :

✖ A

✔ B

✖ C

✖ D

Question Number : 43 Question Id : 4025572523 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

निम्नलिखित को सुमेलित करें

- | | |
|---------------------|--|
| 1. न्यूटन रफसन विधि | a. (अरैखिक समीकरण को हल करने के लिए व्युत्पन्न गणना की आवश्यकता नहीं होती) |
| 2. सेकांट विधि | b. (प्रथम स्तर अवकलन समीकरण का हल) |
| 3. गौस विधि | c. (अरैखिक समीकरण को हल करने के लिए व्युत्पन्न गणना की आवश्यकता होती है) |
| 4. रूंग कुट्टा विधि | d. (समसमायिक रैखिक समीकरण का हल) |

- A. 1 (a), 2 (d), 3 (b), 4 (c)
B. 1 (c), 2(a), 3 (d), 4 (b)
C. 1 (d), 2 (a), 3 (b), 4 (d)
D. 1 (a), 2 (b), 3 (c), 4 (d)

Options :

✖ A

✔ B

✖ C

✖ D

Question Number : 44 Question Id : 4025572524 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The particular Integration of $(4D^2+4D+1)y=8 e^{-x/2}$ is

A. $x^2 e^{-x/2}$

B. $x^2/2$

C. $e^{-x/2}$

D. $x^3 e^{-x/2}$

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 44 Question Id : 4025572524 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

$(4D^2+4D+1)y=8 e^{-x/2}$ का विशेष समाकलन है

A. $x^2 e^{-x/2}$

B. $x^2/2$

C. $e^{-x/2}$

D. $x^3 e^{-x/2}$

Options :

✓ A

✗ B

✖ C

✖ D

Question Number : 45 Question Id : 4025572525 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The radius of nucleus is directly proportional to, if A is atomic mass

A. $A^{1/3}$

B. $A^{1/2}$

C. A^2

D. $A^{-1/3}$

Options :

✔ A

✖ B

✖ C

✖ D

Question Number : 45 Question Id : 4025572525 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

यदि परमाणु भार A है तो न्यूक्लस की त्रिज्या --- के समानुपाती है

A. $A^{1/3}$

B. $A^{1/2}$

C. A^2

D. $A^{-1/3}$

Options :

✓ A

✗ B

✗ C

✗ D

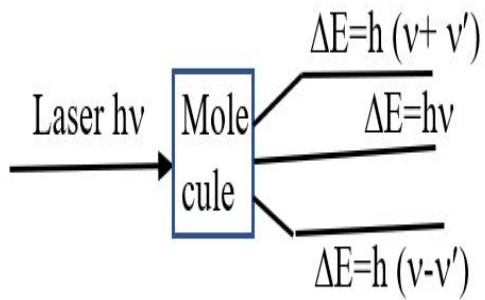
Question Number : 46 Question Id : 4025572526 Question Type : MCQ Option Shuffling : No Is

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

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Refer the figure



the scattering of light is due to

- A. Raman effect
- B. IR effect
- C. Zeeman effect
- D. None of these

Options :

✓ A

✗ B

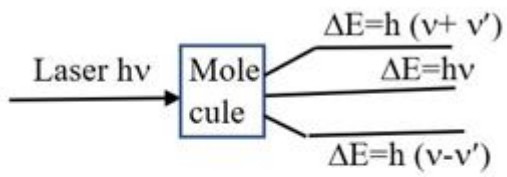
✗ C

✗ D

Question Number : 46 Question Id : 4025572526 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

चित्र का संदर्भ लें



प्रकाश के प्रकीर्णन का कारण है

- A. रमन प्रभाव
- B. IR प्रभाव
- C. जीमन प्रभाव
- D. उपरोक्त में से कोई नहीं

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 47 Question Id : 4025572527 Question Type : MCQ Option Shuffling : No Is

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

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Define the mass defect of an atom

- A. $\Delta m = (\text{mass of individual nucleons and electrons} - \text{mass of atom})$
- B. $\Delta m = (\text{mass of electrons} - \text{mass of nucleons})$
- C. $\Delta m = (\text{mass of electrons} - \text{mass of atom})$
- D. $\Delta m = (\text{mass of nucleons} + \text{mass of electrons})$

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 47 Question Id : 4025572527 Question Type : MCQ Option Shuffling : No Is

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

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

परमाणु के द्रव्यमान दोष को परिभाषित कीजिए

- A. $\Delta m = (\text{व्यष्टि न्यूक्लियान एवं इलेक्ट्रान का द्रव्यमान} - \text{परमाणु का द्रव्यमान})$
- B. $\Delta m = (\text{इलेक्ट्रान का द्रव्यमान} - \text{न्यूक्लियान का द्रव्यमान})$
- C. $\Delta m = (\text{इलेक्ट्रान का द्रव्यमान} - \text{परमाणु का द्रव्यमान})$
- D. $\Delta m = (\text{न्यूक्लियान का द्रव्यमान} + \text{इलेक्ट्रान का द्रव्यमान})$

Options :

✓ A

✗ B

✗ C

✖ D

Question Number : 48 Question Id : 4025572528 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

What is the momentum of a proton moving with a speed of $V=0.86c$?

(Mass of proton 1.67×10^{-27} kg)

A. 1560 MeV/c

B. 1580 MeV/c

C. 1620 MeV/c

D. 1520 MeV/c

Options :

✖ A

✔ B

✖ C

✖ D

Question Number : 48 Question Id : 4025572528 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

$v=0.86c$ की गति से चलनेवाली प्रोटोन का संवेग क्या होता है? (प्रोटोन का द्रव्यमान 1.67×10^{-27} Kg है)

- A. 1560 MeV/c
- B. 1580 MeV/c
- C. 1620 MeV/c
- D. 1520 MeV/c

Options :

✗ A

✓ B

✗ C

✗ D

Question Number : 49 Question Id : 4025572529 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In copper ($z = 29$), an electron transition is taken from N shell ($n=4$) to a hole in the K shell

($n = 1$), then what is the wavelength of emitted light photon? ($R = 1.096 \times 10^7 \text{ m}^{-1}$)

- A. $2.50 \text{ \AA}$
- B. $3.02 \text{ \AA}$
- C. $3.50 \text{ \AA}$
- D. $1.24 \text{ \AA}$

Options :

✖ A

✖ B

✖ C

✔ D

Question Number : 49 Question Id : 4025572529 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

तांबे में ($Z=29$) में, एक इलेक्ट्रॉन N शेल ($n=4$) से निकल कर K शेल ($n=1$) के होल में जाता है, तब
उत्सर्जित प्रकाश फोटोन की तरंगदैर्घ्य क्या है? ($R=1.096 \times 10^7 \text{ m}^{-1}$)

A. $2.50 \text{ \AA}$

B. $3.02 \text{ \AA}$

C. $3.50 \text{ \AA}$

D. $1.24 \text{ \AA}$

Options :

✖ A

✖ B

✖ C

✔ D

Question Number : 50 Question Id : 4025572530 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

A particle of charge 'e' and mass 'm' moves with a velocity 'v' in a magnetic field 'B' applied perpendicular to the motion of the particle. The radius 'r' of its path in the field is

A. mv/Be

B. Be/mv

C. ev/Bm

D. Bv/em

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 50 Question Id : 4025572530 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

'e' आवेश और 'm' द्रव्यमान का कोई कण, इसकी गति के लम्बवत बने एक चुम्बकीय क्षेत्र 'B' से वेग 'v' से गुजरता है। क्षेत्र में इसके पथ की त्रिज्या 'r' होगी

A. mv/Be

B. Be/mv

C. ev/Bm

D. Bv/em

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 51 Question Id : 4025572531 Question Type : MCQ Option Shuffling : No Is

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

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If the mass of the ${}^4_2\text{He}$ atom is 4.0056 u, find its binding energy.

A. 30.2 MeV

B. 32.5 MeV

C. 25.3 MeV

D. 28.3 MeV

Options :

✖ A

✖ B

✖ C

✔ D

Question Number : 51 Question Id : 4025572531 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

यदि ${}_2^4\text{He}$ परमाणु का द्रव्यमान 4.0056 u है तो इसकी बंधन ऊर्जा ज्ञात कीजिए?

A. 30.2 MeV

B. 32.5 MeV

C. 25.3 MeV

D. 28.3 MeV

Options :

✖ A

✖ B

✖ C

✔ D

Question Number : 52 Question Id : 4025572532 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

One mole of an ideal gas at 300K is expanded isothermally from an initial volume of 1 liter to 10 liters. The ΔE (internal energy) for this process is ($R = 2 \text{ cal mol}^{-1} \text{K}^{-1}$)

- A. 163.7 Cal
- B. Zero
- C. 138.1 Cal
- D. None of these.

Options :

✗ A

✓ B

✗ C

✗ D

Question Number : 52 Question Id : 4025572532 Question Type : MCQ Option Shuffling : No Is

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

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

एक मोल की आदर्श गैस को 300K पर समतापीय रूप से 1 लीटर से 10 लीटर में विस्तारित किया जाता है। इस प्रक्रिया के लिए ΔE (आंतरिक ऊर्जा) ($R=2\text{cal mol}^{-1}\text{K}^{-1}$) है।

- A. 163.7 Cal
- B. शून्य
- C. 138.1 Cal
- D. इनमें से कोई नहीं

Options :

✗ A

✓ B

✗ C

✗ D

Question Number : 53 Question Id : 4025572533 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following statement about the electron is incorrect?

- A. Negatively charged particle
- B. The mass of electron is equal to the mass of neutron
- C. Basic constituent of all atoms.
- D. It is constituent of cathode ray

Options :

✖ A

✔ B

✖ C

✖ D

Question Number : 53 Question Id : 4025572533 Question Type : MCQ Option Shuffling : No Is

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

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

इलेक्ट्रॉन के बारे में निम्नलिखित में से कौन-सा कथन गलत है ?

- A. ऋण आवेशित कण है
- B. इलेक्ट्रॉन का द्रव्यमान न्यूट्रॉन के द्रव्यमान के बराबर है
- C. सभी परमाणु का मूल घटक है
- D. यह कैथोड किरण का अवयव है

Options :

✖ A

✔ B

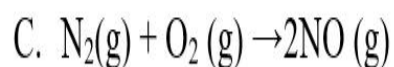
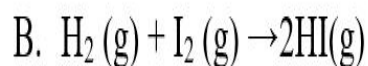
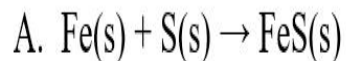
✖ C

✖ D

Question Number : 54 Question Id : 4025572534 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Le Chatelier's principle is not applicable to



D. None of these

Options :

✓ A

✗ B

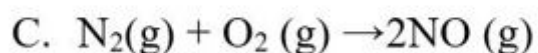
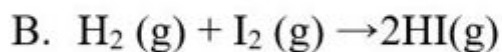
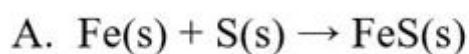
✗ C

✗ D

Question Number : 54 Question Id : 4025572534 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

ले चैलियर का सिद्धांतपर लागू नहीं है।



D. उपरोक्त में से कोई नहीं

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 55 Question Id : 4025572535 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following stoichiometric defects is/are present in ionic solids?

(i). Vacancy defect, (ii) Interstitial defect, (iii) Frenkel defect, (iv) Schottky defect

A. (i) and (ii)

B. (i), (ii) and (iii)

C. (ii) and (iii)

D. (iii) and (iv)

Options :

✗ A

✗ B

✗ C

✓ D

Question Number : 55 Question Id : 4025572535 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

आयनिक ठोसों में निम्नलिखित में से कौन सा रस समीकरणमितीय (stoichiometric) दोष उपलब्ध रहता है?

(i) वैकेन्सी दोष (ii) अंतराली दोष (iii) फ्रेंकल दोष (iv) शॉटकी दोष

- A. (i) एवं (ii)
- B. (i), (ii) एवं (iii)
- C. (ii) एवं (iii)
- D. (iii) एवं (iv)

Options :

✖ A

✖ B

✖ C

✔ D

Question Number : 56 Question Id : 4025572536 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

At 25°C and 730mm pressure, 380ml of dry oxygen was collected. If the temperature is constant, what volume will oxygen occupy at 760mm pressure?

- A. 365ml
- B. 449ml
- C. 569ml
- D. 621ml

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 56 Question Id : 4025572536 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

25°C तथा 730 mm दाब पर 380 ml शुष्क ऑक्सीजन संग्रहीत की गई। यदि तापमान स्थिर है तो 760 mm दाब पर ऑक्सीजन कितना आयतन ग्रहण करेगी?

A. 365ml

B. 449ml

C. 569ml

D. 621ml

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 57 Question Id : 4025572537 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

At 700 K, the equilibrium constant (K_p) for the reaction

$2\text{SO}_3(\text{g}) \rightleftharpoons 2\text{SO}_2(\text{g}) + \text{O}_2(\text{g})$ is 1.8×10^{-3} atm. The value of K_c for the above reaction

at the temperature in moles per litre will be:

A. 1.1×10^{-7}

B. 3.1×10^{-5}

C. 6.2×10^{-7}

D. 9.3×10^{-7}

Options :

✖ A

✔ B

✖ C

✖ D

Question Number : 57 Question Id : 4025572537 Question Type : MCQ Option Shuffling : No Is

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

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

700K पर, प्रतिक्रिया $2\text{SO}_3(\text{g}) = 2\text{SO}_2(\text{g}) + \text{O}_2(\text{g})$ के लिए साम्यावस्था स्थिरांक (K_p) $1.8 \times 10^{-3} \text{ atm}$ है। इस तापमान पर उपरोक्त प्रतिक्रिया के लिए मोल्स प्रति लीटर में K_c का मान होगा:

- A. 1.1×10^{-7}
- B. 3.1×10^{-5}
- C. 6.2×10^{-7}
- D. 9.3×10^{-7}

Options :

✖ A

✔ B

✖ C

✖ D

Question Number : 58 Question Id : 4025572538 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0.33

The ratio of C_p and C_v is, if the degree of freedom of a gas is n

A. $\frac{1+n}{2}$

B. $1+\frac{n}{2}$

C. $1+\frac{1}{n}$

D. $1+\frac{2}{n}$

Options :

✖ A

✖ B

✖ C

✔ D

Question Number : 58 Question Id : 4025572538 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

यदि एक गैस की स्वातंत्र्य कोटी n है, तो C_p और C_v का अनुपात है:

A. $\frac{1+n}{2}$

B. $1+\frac{n}{2}$

C. $1+\frac{1}{n}$

D. $1+\frac{2}{n}$

Options :

✖ A

✖ B

✖ C

✔ D

Question Number : 59 Question Id : 4025572539 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The value of $\sin^{-1}\frac{2\sqrt{2}}{3} + \sin^{-1}\frac{1}{3}$ is equal to

A. $\pi/2$

B. $2\pi/3$

C. $\pi/6$

D. $\pi/4$

Options :

✔ A

✖ B

✖ C

✖ D

Question Number : 59 Question Id : 4025572539 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

$\sin^{-1} \frac{2\sqrt{2}}{3} + \sin^{-1} \frac{1}{3}$ का मानके समान है।

A. $\pi/2$

B. $2\pi/3$

C. $\pi/6$

D. $\pi/4$

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 60 Question Id : 4025572540 Question Type : MCQ Option Shuffling : No Is

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

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Calculate value of $(1001)^{1/3}$

A. 10.0033

B. 12.0033

C. 15.0000

D. 19.0000

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 60 Question Id : 4025572540 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

$(1001)^{1/3}$ के मान की गणना करें।

A. 10.0033

B. 12.0033

C. 15.0000

D. 19.0000

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 61 Question Id : 4025572541 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The value of $\lim_{n \rightarrow \infty} \left[\frac{e^n}{\pi} \right]^{1/n}$ is

A. 0

B. 1

C. e

D. 1/e

Options :

✖ A

✖ B

✔ C

✖ D

Question Number : 61 Question Id : 4025572541 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

$\lim_{n \rightarrow \infty} \left[\frac{e^n}{\pi} \right]^{1/n}$ का मान होगा

A. 0

B. 1

C. e

D. 1/e

Options :

✖ A

✖ B

✔ C

✖ D

Question Number : 62 Question Id : 4025572542 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The eccentricity of the curve represented by the equation $x^2 + 2y^2 - 2x + 3y + 2 = 0$ is

A. $e = 1/\sqrt{2}$

B. $e = 1/2$

C. $e = -1/2$

D. $e = 1/\sqrt{3}$

Options :

✔ A

✖ B

✖ C

✖ D

Question Number : 62 Question Id : 4025572542 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

$x^2+2y^2-2x+3y+2=0$ सूत्र द्वारा दर्शाए गए वक्र की उत्केन्द्रता है:

A. $e = 1/\sqrt{2}$

B. $e = 1/2$

C. $e = -1/2$

D. $e = 1/\sqrt{3}$

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 63 Question Id : 4025572543 Question Type : MCQ Option Shuffling : No Is

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

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In a triangle ABC, the value of $A+B+C=\pi$. Match the equations in Column 1 with their corresponding values in Column 2

Column 1

Column 2

(a) $\cos A + \cos B + \cos C =$

(i) 1

(b) $\tan \frac{A}{2} \tan \frac{B}{2} + \tan \frac{B}{2} \tan \frac{C}{2} + \tan \frac{C}{2} \tan \frac{A}{2} =$

(ii) $1 + 4 \sin \frac{A}{2} \sin \frac{B}{2} \sin \frac{C}{2}$

(c) $\cos 2A + \cos 2B + \cos 2C =$

(iii) $-1 - 4 \cos A \cos B \cos C$

(d) $\sin A + \sin B + \sin C =$

(iv) $4 \cos \frac{A}{2} \cos \frac{B}{2} \cos \frac{C}{2}$

A. a-(ii) b-(i) c-(iv) d-(iii)

B. a-(iv) b-(ii) c-(i) d-(iii)

C. a-(ii) b-(i) c-(iii) d-(iv)

D. a-(i) b-(ii) c-(iii) d-(iv)

Options :

✗ A

✗ B

✓ C

✗ D

Question Number : 63 Question Id : 4025572543 Question Type : MCQ Option Shuffling : No Is

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

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

एक त्रिभुज ABC में, $A+B+C=\pi$ का मान है। कॉलम 1 में दिए गए समीकरणों को कॉलम 2 में दिए गए संबंधित मान से मिलाएं।

Column 1

(a) $\cos A + \cos B + \cos C =$

(b) $\tan \frac{A}{2} \tan \frac{B}{2} + \tan \frac{B}{2} \tan \frac{C}{2} + \tan \frac{C}{2} \tan \frac{A}{2} =$

(c) $\cos 2A + \cos 2B + \cos 2C =$

(d) $\sin A + \sin B + \sin C =$

A. a-(ii) b-(i) c-(iv) d-(iii)

B. a-(iv) b-(ii) c-(i) d-(iii)

C. a-(ii) b-(i) c-(iii) d-(iv)

D. a-(i) b-(ii) c-(iii) d-(iv)

Column 2

(i) 1

(ii) $1 + 4 \sin \frac{A}{2} \sin \frac{B}{2} \sin \frac{C}{2}$

(iii) $-1 - 4 \cos A \cos B \cos C$

(iv) $4 \cos \frac{A}{2} \cos \frac{B}{2} \cos \frac{C}{2}$

Options :

✖ A

✖ B

✔ C

✖ D

Question Number : 64 Question Id : 4025572544 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The minimum value of $64 \sec(\theta) + 27 \operatorname{cosec}(\theta)$ in $0 < \theta < \pi/2$ is

A. 125

B. 91

C. 37

D. 0

Options :

✓ A

✗ B

✗ C

✗ D

**Question Number : 64 Question Id : 4025572544 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0**

Correct Marks : 1 Wrong Marks : 0.33

$0 < \theta < \pi/2$ में $64 \sec(\theta) + 27 \operatorname{Cosec}(\theta)$ का न्यूनतम मान होगा।

A. 125

B. 91

C. 37

D. 0

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 65 Question Id : 4025572545 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Solve $ty' - 2y = 1/t, t > 0$

A. $y(t) = At^2 - 1/3 t$

B. $y(t) = At^2 + 1/3 t$

C. $y(t) = -1/3 t$

D. $y(t) = At^2 + 2/3 t$

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 65 Question Id : 4025572545 Question Type : MCQ Option Shuffling : No Is

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

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

हल करें: $ty' - 2y = 1/t, t > 0$

A. $y(t) = At^2 - 1/3 t$

B. $y(t) = At^2 + 1/3 t$

C. $y(t) = -1/3 t$

D. $y(t) = At^2 + 2/3 t$

Options :

✓ A

✗ B

✖ C

✖ D

Question Number : 66 Question Id : 4025572546 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Electromagnets are made of soft iron because soft iron has

- A. High resistivity and low coercive force
- B. Low resistivity and high coercive force
- C. High resistivity and high coercive force
- D. Low resistivity and low coercive force

Options :

✖ A

✖ B

✖ C

✔ D

Question Number : 66 Question Id : 4025572546 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

विद्युत चुंबक नरम लोहे से बने होते हैं क्योंकि नरम लोहा होता है

- A. उच्च प्रतिरोधी तथा निम्न निग्रह बल
- B. निम्न प्रतिरोधी तथा उच्च निग्रह बल
- C. उच्च प्रतिरोधी तथा उच्च निग्रह बल
- D. निम्न प्रतिरोधी तथा निम्न निग्रह बल

Options :

✖ A

✖ B

✖ C

✔ D

Question Number : 67 Question Id : 4025572547 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which is neither an acid nor base?

- A. KCl
- B. CH_3OH
- C. HCL
- D. CH_3COOH

Options :

✔ A

✖ B

✖ C

✖ D

Question Number : 67 Question Id : 4025572547 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

कौन न तो अम्ल है न ही क्षार?

- A. KCl
- B. CH_3OH
- C. HCl
- D. CH_3COOH

Options :

✔ A

✖ B

✖ C

✖ D

Question Number : 68 Question Id : 4025572548 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The total internal reflection to occur the refractive index of the mediums shall be

A. $\mu_2 > \mu_1$

B. $\mu_2 < \mu_1$

C. $\mu_2 \leq \mu_1$

D. $\mu_2 = \mu_1$

Options :

✖ A

✔ B

✖ C

✖ D

Question Number : 68 Question Id : 4025572548 Question Type : MCQ Option Shuffling : No Is

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

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

कुल आंतरिक परावर्तन के लिए, माध्यमों के अपवर्तनांक सूचक होगा

A. $\mu_2 > \mu_1$

B. $\mu_2 < \mu_1$

C. $\mu_2 \leq \mu_1$

D. $\mu_2 = \mu_1$

Options :

✖ A

✔ B

✖ C

✖ D

Question Number : 69 Question Id : 4025572549 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following is correct according to Moseley law? If f is the frequency of the emitted x-ray and z is atomic number.

A. $\sqrt{f} = k(z - k_2)$

B. $f = k(z - k_2)^2$

C. $\sqrt{f} = k_2(z - k)$

D. A and B

Note: For this question, discrepancy is found in question/answer. Full Marks is being awarded to all candidates.

Options :

A

B

C

D

Question Number : 69 Question Id : 4025572549 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

मोसेले के नियम के अनुसार निम्नलिखित में से कौन सा सही है? यदि उत्सर्जित x-किरण की आवृत्ति f है और परमाणु संख्या z है।

A. $\sqrt{f} = k (z - k_2)$

B. $f = k (z - k_2)^2$

C. $\sqrt{f} = k_2 (z - k)$

D. A एवं B

Note: For this question, discrepancy is found in question/answer. Full Marks is being awarded to all candidates.

Options :

A

B

C

D

Question Number : 70 Question Id : 4025572550 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Add the binary number $(10.001)_2 + (11.110)_2$ and find out the equivalent decimal of resultant binary addition.

A. 4.500

B. 6.570

C. 5.875

D. 3.475

Options :

✗ A

✗ B

✓ C

✗ D

Question Number : 70 Question Id : 4025572550 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

द्विआधारी संख्या $(10.001)_2 + (11.110)_2$ को जोड़ें और परिणामी द्विआधारी योग का तुल्य दशमलव निकालिए

A. 4.500

B. 6.570

C. 5.875

D. 3.475

Options :

✖ A

✖ B

✔ C

✖ D

Question Number : 71 Question Id : 4025572551 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In a gravity free space, a man of mass M standing at a height 'h' above the floor, throw a ball of mass m straight down with a speed of u . When the ball reached the floor, the distance of the man 'H' above the floor will be

A. $h(1 + \frac{m}{M})$

B. $h(1 + \frac{M}{m})$

C. h

D. $h\frac{m}{M}$

Options :

✔ A

✖ B

✖ C

✖ D

Question Number : 71 Question Id : 4025572551 Question Type : MCQ Option Shuffling : No Is

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

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

एक गुरुत्व मुक्त स्थान पर, एक आदमी M द्रव्यमान के साथ 'h' ऊंचाई पर सतह से ऊपर खड़ा है। वह u गति से सीधा नीचे m द्रव्यमान की एक गेंद फेंकता है। जब गेंद सतह पर पहुंचती है तो सतह से उपर 'h' आदमी की दूरी होगी।

A. $h(1+\frac{m}{M})$

B. $h(1+\frac{M}{m})$

C. h

D. $h\frac{m}{M}$

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 72 Question Id : 4025572552 Question Type : MCQ Option Shuffling : No Is

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

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Laplace transform of $\cos(\omega t)$

A. $\frac{s}{s^2 + \omega^2}$

B. $\frac{\omega}{s^2 + \omega^2}$

C. $\frac{s}{s^2 - \omega^2}$

D. $\frac{\omega}{s^2 - \omega^2}$

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 72 Question Id : 4025572552 Question Type : MCQ Option Shuffling : No Is

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

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

$\cos(\omega t)$ का लाप्लास रूपांतरण क्या है

A. $\frac{s}{s^2 + \omega^2}$

B. $\frac{\omega}{s^2 + \omega^2}$

C. $\frac{s}{s^2 - \omega^2}$

D. $\frac{\omega}{s^2 - \omega^2}$

Options :

✓ A

✖ B

✖ C

✖ D

Question Number : 73 Question Id : 4025572553 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

What is $\int_0^2 \frac{dx}{x^2+4}$ equal to

A. $\pi/2$

B. $\pi/4$

C. $\pi/8$

D. None of these

Options :

✖ A

✖ B

✔ C

✖ D

Question Number : 73 Question Id : 4025572553 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

$\int_0^2 \frac{dx}{x^2+4}$ किसके समान है

- A. $\pi/2$
- B. $\pi/4$
- C. $\pi/8$
- D. उपरोक्त में से कोई नहीं

Options :

✖ A

✖ B

✔ C

✖ D

Question Number : 74 Question Id : 4025572554 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Comparing bipolar transistor, the advantages of Field effect transistor is

- A. It is a unipolar device.
- B. The input impedance is very high.
- C. Current flow is due to one of the charge carriers.
- D. All the above.

Options :

✖ A

✖ B

✖ C

✔ D

Question Number : 74 Question Id : 4025572554 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

बाइपोलर ट्रान्सिस्टर की तुलना में, फील्ड इफैक्ट ट्रान्सिस्टर का लाभ है

- A. यह एक यूनिपोलर उपकरण है।
- B. इनपुट प्रतिबाधा अति उच्च है।
- C. कसी एक आवेश वाहकों के कारण धारा प्रवाह होता है।
- D. उपरोक्त सभी

Options :

✖ A

✖ B

✖ C

✔ D

Question Number : 75 Question Id : 4025572555 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The mass of the proton is approximately ----- times the mass of the electron

A. 1926

B. 1732

C. 1836

D. 1878

Options :

✖ A

✖ B

✔ C

✖ D

Question Number : 75 Question Id : 4025572555 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

प्रोटॉन का द्रव्यमान इलेक्ट्रॉन द्रव्यमान का लगभग गुना होता है

A. 1926

B. 1732

C. 1836

D. 1878

Options :

✖ A

✖ B

✔ C

✖ D

Question Number : 76 Question Id : 4025572556 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The magnitude of the force of gravity between two identical objects is given by F_0 . If the mass of each object is doubled, but the distance between them is halved, then the new force of gravity between the objects will be

A. $16 F_0$

B. $4 F_0$

C. F_0

D. $F_0 / 2$

Options :

✔ A

✖ B

✖ C

✖ D

Question Number : 76 Question Id : 4025572556 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

दो समरूप वस्तुओं के बीच गुरुत्व बल का परीमाण F_0 है। यदि प्रत्येक वस्तु का द्रव्यमान दोगुना किया जाए, लेकिन उनके बीच की दूरी आधी कर दी जाए, तो वस्तुओं के बीच का नया गुरुत्व बल कितना होता है?

A. $16 F_0$

B. $4 F_0$

C. F_0

D. $F_0 / 2$

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 77 Question Id : 4025572557 Question Type : MCQ Option Shuffling : No Is

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

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Match the Boolean expressions,

- | | |
|--|----------------------------------|
| 1. $A + \overline{A} . B$ | a. $A + \overline{B}$ |
| 2. $A . (A + B)$ | b. $A + B$ |
| 3. $(\overline{A} . B) + (\overline{A} + B)$ | c. A |
| 4. $\overline{A + B}$ | d. $\overline{A} . \overline{B}$ |

- A. 1 (b), 2 (c), 3 (a), 4 (d)
- B. 1 (a), 2 (b), 3 (c), 4 (d)
- C. 1 (b), 2 (d), 3 (a), 4 (c)
- D. 1 (c), 2 (b), 3 (d), 4 (a)

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 77 Question Id : 4025572557 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

बूलियन व्यंजक को मिलाएं

- | | |
|--|--------------------------------------|
| 1. $A + \overline{A} \cdot B$ | a. $A + \overline{B}$ |
| 2. $A \cdot (A + B)$ | b. $A + B$ |
| 3. $(\overline{A} \cdot B) + (\overline{A} + B)$ | c. A |
| 4. $\overline{A + B}$ | d. $\overline{A} \cdot \overline{B}$ |

- A. 1 (b), 2 (c), 3 (a), 4 (d)
B. 1 (a), 2 (b), 3 (c), 4 (d)
C. 1 (b), 2 (d), 3 (a), 4 (c)
D. 1 (c), 2 (b), 3 (d), 4 (a)

Options :

✓ A

✗ B

✗ C

✗ D

Question Number : 78 Question Id : 4025572558 Question Type : MCQ Option Shuffling : No Is

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

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The n^{th} derivative of $x^2 e^x$ is

A. $e^x(x^2 + 2xn + n^2)$

B. $e^x(x^2 + 2xn + n^2 - n)$

C. $e^x(x^2 + 2xn - n^2 - n)$

D. None of the above

Options :

✖ A

✔ B

✖ C

✖ D

Question Number : 78 Question Id : 4025572558 Question Type : MCQ Option Shuffling : No Is

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

Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

$x^2 e^x$ का n^{th} अवकलन है

A. $e^x(x^2 + 2xn + n^2)$

B. $e^x(x^2 + 2xn + n^2 - n)$

C. $e^x(x^2 + 2xn - n^2 - n)$

D. उपरोक्त में से कोई नहीं

Options :

✖ A

✔ B

✖ C

✖ D

Question Number : 79 Question Id : 4025572559 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If $y = 3x^3 + \frac{x^2}{2} + 3$ then value of $\frac{dy}{dx}$ when $x = 2$ is

A. 20

B. 11

C. 0

D. None of these

Options :

✖ A

✖ B

✖ C

✔ D

Question Number : 79 Question Id : 4025572559 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

यदि $y = 3x^3 + \frac{x^2}{2} + 3$ है जब $x = 2$ तो $\frac{dy}{dx}$ का मान है

- A. 20
- B. 11
- C. 0
- D. उपरोक्त में से कोई नहीं

Options :

✖ A

✖ B

✖ C

✔ D

Question Number : 80 Question Id : 4025572560 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

For $\theta \in [0, \pi/2]$, the maximum value of $12 \cos \theta + 5 \sin \theta$ is

- A. 12
- B. 17
- C. 13
- D. 7

Options :

✖ A

✖ B

✔ C

✖ D

Question Number : 80 Question Id : 4025572560 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

$\theta \in [0, \pi/2]$, के लिए $12 \cos \theta + 5 \sin \theta$ का अधिकतम मान है?

A. 12

B. 17

C. 13

D. 7

Options :

✖ A

✖ B

✔ C

✖ D