National Testing Agency

Question Paper Name:	Paper I EHG 11th Jan 2019 Shift 1
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Display Marks:	Yes

Paper I

Group Number :	1
Group Id :	416529116
Group Maximum Duration :	0
Group Minimum Duration :	180
Revisit allowed for view? :	No
Revisit allowed for edit? :	No
Break time:	0
Group Marks:	360

Physics

Section Id :	416529130
Section Number :	1
Section type :	Online
Mandatory or Optional:	Mandatory
Number of Questions:	30
Number of Questions to be attempted:	30
Section Marks:	120
Display Number Panel:	Yes
Group All Questions:	No

Sub-Section Number:	1
Sub-Section Id:	416529139
Question Shuffling Allowed :	Yes

Question Number : 1 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

दो परमाणुओं के मध्य अन्योन्यक्रिया बल सम्बन्ध $F = \alpha\beta \exp\left(-\frac{x^2}{\alpha kt}\right)$ से दिया जाता है जहाँ x दूरी है, k बोल्ट्जमैन नियतांक तथा T तापमान है और α

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1. MLT^{-2}

2. $M^2L^2T^{-2}$

3. $M^0L^2T^{-4}$

4. M^2LT^{-4}

Question Number : 1 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

બે પરમાણુઓ વચ્ચેની અંતરક્રિયાના બળ ને $F = \alpha\beta \exp\left(-\frac{x^2}{\alpha kt}\right)$ વડે આપવામાં આવે છે, જ્યાં x એ અંતર, k બોલ્ટઝમેન અચળાંક અને T તાપમાન છે. તથા α અને β એ અન્ય અચળાંકો છે. β નું પરિમાણ :

Options :

1. MLT^{-2}

2. $M^2L^2T^{-2}$

3. $M^0L^2T^{-4}$

4. M^2LT^{-4}

Question Number : 1 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The force of interaction between two atoms is given by $F = \alpha\beta \exp\left(-\frac{x^2}{\alpha kt}\right)$; where x is the distance, k is the Boltzmann constant and T is temperature and α and β are two constants. The dimension of β is :

Options :

1. MLT^{-2}

2. $M^2L^2T^{-2}$

3. $M^0L^2T^{-4}$

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4. M^2LT^{-4}

Question Number : 2 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

A particle is moving along a circular path with a constant speed of 10 ms^{-1}. What is the magnitude of the change in velocity of the particle, when it moves through an angle of 60° around the centre of the circle ?

Options :

1. zero

2. $10\sqrt{3}$ m/s

3. $10\sqrt{2}$ m/s

4. 10 m/s

Question Number : 2 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

एक कण एक वृत्ताकार पथ पर 10 ms^{-1} की नियत गति से चल रहा है। जब यह कण वृत्त के केन्द्र के परित: 60° चलता है तो इसके वेग में हुये परिवर्तन का परिमाण होगा :

Options :

1. शून्य

2. $10\sqrt{3}$ m/s

3. $10\sqrt{2}$ m/s

4. 10 m/s

Question Number : 2 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

એક કણ એક વર્તુળાકાર પથપર 10 ms^{-1} જેટલી અચળ ઝડપથી ગતિ કરે છે. જ્યારે તે વર્તુળનાં કેન્દ્રને ફરતે 60°

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Options :

1. शून्य

2. $10\sqrt{3}\ \mathrm{m/s}$

3. $10\sqrt{2}\ \mathrm{m/s}$

4. $10\ \mathrm{m/s}$

Question Number : 3 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

A body is projected at $t=0$ with a velocity $10\ \mathrm{ms}^{-1}$ at an angle of 60° with the horizontal. The radius of curvature of its trajectory at $t=1\mathrm{s}$ is R. Neglecting air resistance and taking acceleration due to gravity $g=10\ \mathrm{ms}^{-2}$, the value of R is :

Options :

1. 2.5 m

2. 5.1 m

3. 2.8 m

4. 10.3 m

Question Number : 3 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

$t=0$ पर क्षैतिज से 60° के कोण पर $10\ \mathrm{ms}^{-1}$ के वेग से एक पिण्ड को प्रक्षेपित करते हैं। $t=1\ \mathrm{s}$ पर प्रक्षेप पथ की वक्रता त्रिज्या R है। वायु प्रतिरोध को नगण्य मानकर तथा गुरुत्वीय त्वरण $g=10\ \mathrm{ms}^{-2}$ लेकर R का मान है :

Options :

1. 2.5 m

2. 5.1 m

3. 2.8 m

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Question Number : 3 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

$t = 0$ સમયે, સમક્ષિતિજ સાથે 60° ના ખૂણે એક પદાર્થને $10\ ms^{-1}$ ગતિથી પ્રક્ષેપિત કરવામાં આવે છે. $t = 1\ s$ પર તેના ગતિપથની વક્રતા ત્રિજ્યા R છે. હવાનો અવરોધ અવગણતાં અને ગુરુત્વપ્રવેગને $g = 10\ ms^{-2}$ લેતા R નું મૂલ્ય :

Options :

1. 2.5 m

2. 5.1 m

3. 2.8 m

4. 10.3 m

Question Number : 4 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

A liquid of density ρ is coming out of a hose pipe of radius a with horizontal speed v and hits a mesh. 50% of the liquid passes through the mesh unaffected. 25% looses all of its momentum and 25% comes back with the same speed. The resultant pressure on the mesh will be :

Options :

1. $\frac{1}{4}\rho v^2$

2. $\frac{1}{2}\rho v^2$

3. $\frac{3}{4}\rho v^2$

4. ρv^2

Question Number : 4 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

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ρ घनत्व का द्रव a त्रिज्या वाले होज़ पाईप में से क्षैतिज चाल v से निकल रहा है और एक जाल से टकराता है। 50% द्रव जाल से अप्रभावित निकल जाता है, 25% द्रव का संवेग शून्य हो जाता है तथा 25% द्रव उसी चाल से वापस आ जाता है। जाल पर परिणामी दाब होगा :

Options :

1. $\frac{1}{4}\rho v^2$
2. $\frac{1}{2}\rho v^2$
3. $\frac{3}{4}\rho v^2$
4. ρv^2

Question Number : 4 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 4 Wrong Marks : 1

a ત્રિજ્યાના એક હોસપાઇપમાંથી ρ ઘનતાનું પ્રવાહી v જેટલી સમક્ષિતિજ ઝડપથી બહાર આવે છે. અને તે એક જાળીને અથડાય છે. 50% પ્રવાહી આ જાળીમાંથી પસાર થાય છે, 25% વેગમાન ગુમાવે છે, અને 25% તેજ ઝડપથી પાછું આવે છે. આ જાળીપર પરિણામી દબાણ હશે :

Options :

1. $\frac{1}{4}\rho v^2$
2. $\frac{1}{2}\rho v^2$
3. $\frac{3}{4}\rho v^2$
4. ρv^2

Question Number : 5 Question Type : MCQ Option Shuffling : Yes Display Question Number :

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A body of mass 1 kg falls freely from a height of 100 m, on a platform of mass 3 kg which is mounted on a spring having spring constant $k = 1.25 \times 10^6$ N/m. The body sticks to the platform and the spring's maximum compression is found to be x. Given that $g = 10\ ms^{-2}$, the value of x will be close to :

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

Options :

1. 4 cm

2. 8 cm

3. 40 cm

4. 80 cm

Question Number : 5 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

1 kg द्रव्यमान का एक पिण्ड 100 m ऊँचाई से स्वतंत्र रूप से 3 kg द्रव्यमान के एक प्लेटफार्म पर गिरता है यह प्लेटफार्म एक स्प्रिंग नियतांक $k = 1.25 \times 10^6$ N/m की स्प्रिंग पर लगा है। पिण्ड प्लेटफार्म पर चिपक जाता है और स्प्रिंग का अधिकतम संपीडन x पाया जाता है। x का निकटतम मान होगा : ($g = 10\ ms^{-2}$)

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

Options :

1. 4 cm

2. 8 cm

3. 40 cm

4. 80 cm

Question Number : 5 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

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100 m ઊંચાઈએ થી 1 kg દળ ધરાવતા પદાર્થને એક 3 kg દળ ધરાવતા આધાર (platform) , કે જે $k = 1.25 \times 10^6 N/m$ જેટલા સ્પ્રિંગ અચળાંક ધરાવતી સ્પ્રિંગપર સ્થાપેલ છે, તેના પર મુક્ત પતન કરાવવામાં આવે છે. પદાર્થ આધાર સાથે જોડાઇ જાય છે અને સ્પ્રિંગનું મહત્તમ સંકોચન x જેટલું માલુમ પડે છે. $g = 10\ ms^{-2}$ લઇ x નું મૂલ્ય :

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

Options :

1. 4 cm

2. 8 cm

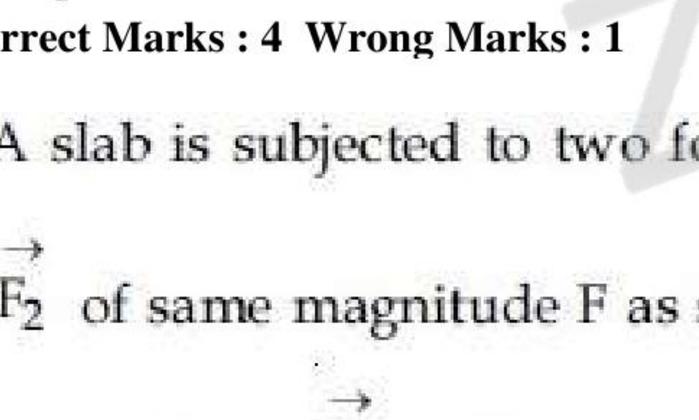
3. 40 cm

4. 80 cm

Question Number : 6 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

A slab is subjected to two forces $\vec{F}_1$ and $\vec{F}_2$ of same magnitude F as shown in the figure. Force $\vec{F}_2$ is in XY-plane while force F_1 acts along z-axis at the point $\left(2\vec{i} + 3\vec{j}\right)$. The moment of these forces about point O will be :



Options :

1. $\left(3\hat{i}+2\hat{j}-3\hat{k}\right)F$

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2. $\left(3\hat{i}-2\hat{j}+3\hat{k}\right)\mathrm{F}$

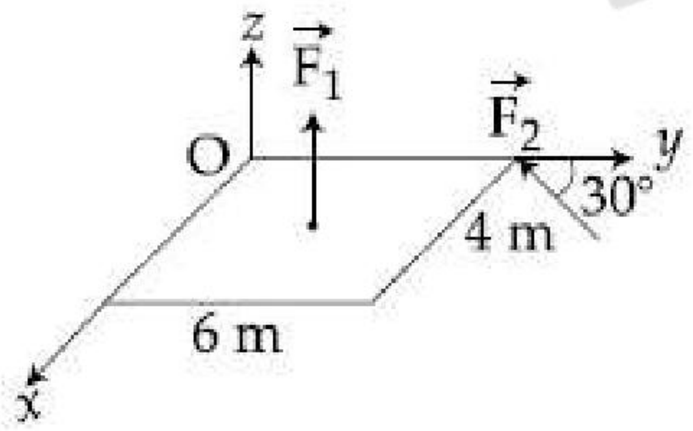
3. $\left(3\hat{i}+2\hat{j}+3\hat{k}\right)\mathrm{F}$

4. $\left(3\hat{i}-2\hat{j}-3\hat{k}\right)\mathrm{F}$

Question Number : 6 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

दिखाये गये चित्रानुसार एक तख्त पर समान परिमाण F के दो बल $\vec{F}_1$ तथा $\vec{F}_2$ लगाये गये हैं। बल $\vec{F}_2$ XY-समतल में है जबकि बल $\vec{F}_1$ z-दिशा के अनुदिश बिन्दु $\left(2\vec{i}+3\vec{j}\right)$ पर लगा है। बिन्दु O के सापेक्ष इन बलों का आघूर्ण होगा :



Options :

1. $\left(3\hat{i}+2\hat{j}-3\hat{k}\right)\mathrm{F}$

2. $\left(3\hat{i}-2\hat{j}+3\hat{k}\right)\mathrm{F}$

3. $\left(3\hat{i}+2\hat{j}+3\hat{k}\right)\mathrm{F}$

4. $\left(3\hat{i}-2\hat{j}-3\hat{k}\right)\mathrm{F}$

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Question Number : 6 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

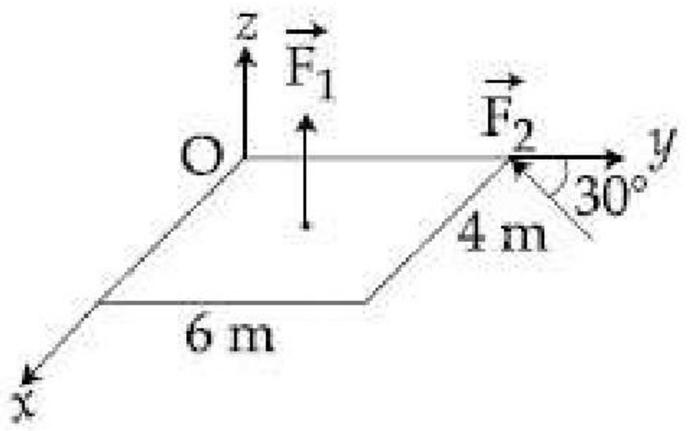
આકૃતિમાં બતાવ્યા પ્રમાણે એક ચોસલા પર સમાન માન

F ના બે બળો $\vec{F_1}$ અને $\vec{F_2}$ લગાડવામાં આવે છે. બિંદુ

$\left(2\vec{i}+3\vec{j}\right)$ આગળ બળ $\vec{F_2}$ XY- સમતલમાં છે

જ્યારે $\vec{F_1}$ z- દિશામાં લાગે છે. O બિંદુને સાપેક્ષે આ

બળોની ચાકમાત્રા :



Options :

1. $\left(3\hat{i}+2\hat{j}-3\hat{k}\right)$F

2. $\left(3\hat{i}-2\hat{j}+3\hat{k}\right)$F

3. $\left(3\hat{i}+2\hat{j}+3\hat{k}\right)$F

4. $\left(3\hat{i}-2\hat{j}-3\hat{k}\right)$F

Question Number : 7 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

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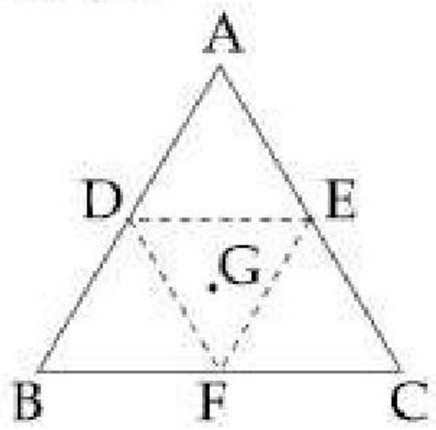
An equilateral triangle ABC is cut from a thin solid sheet of wood. (See figure) D, E and F are the mid-points of its sides as shown and G is the centre of the triangle. The moment of inertia of the triangle about an axis passing through G and perpendicular to the plane of the triangle is I_0. If the smaller triangle DEF is removed from ABC, the moment of inertia of the remaining figure about the same axis is I. Then :



Options :

1. $I = \frac{I_0}{4}$

2. $I = \frac{3}{4} I_0$

3. $I = \frac{9}{16} I_0$

4. $I = \frac{15}{16} I_0$

Question Number : 7 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

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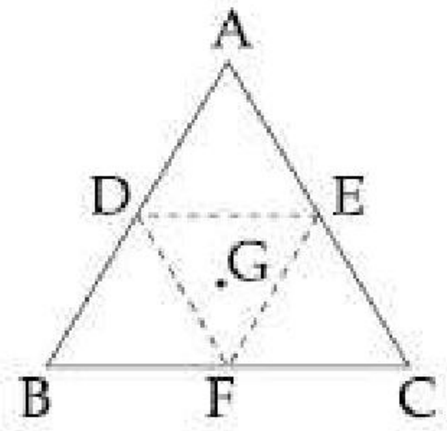
एक पतले ठोस लकड़ी के फलक से एक त्रिभुज ABC काटा गया है (चित्र देखिए)। दर्शाये गये अनुसार D, E तथा F इसकी भुजाओं के मध्य बिन्दु है तथा G त्रिभुज का केन्द्र है। G से गुजरने वाली तथा त्रिभुज के समतल के लम्बवत् अक्ष के सापेक्ष त्रिभुज का जड़त्व आघूर्ण I_0 है। यदि छोटा त्रिभुज DEF त्रिभुज ABC में से निकाल लिया जाये तो शेष बचे हुए भाग का उसी अक्ष के सापेक्ष जड़त्व आघूर्ण I है। तब :



Options :

1. $I = \frac{I_0}{4}$

2. $I = \frac{3}{4} I_0$

3. $I = \frac{9}{16} I_0$

4. $I = \frac{15}{16} I_0$

Question Number : 7 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

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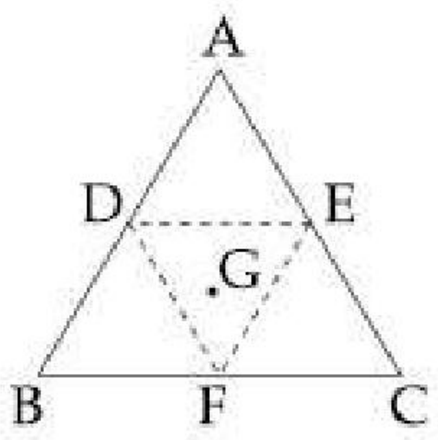
એક પાતળી લાકડાની ઘન તકિતમાંથી ABC સમબાજુ ત્રિકોણ બનાવવામાં આવે છે (આકૃતિ જુઓ). D, E અને F એ આકૃતિમાં દર્શાવ્યા મુજબ તેની બાજુના મધ્યબિંદુઓ છે અને G એ ત્રિકોણનું કેન્દ્ર છે. ત્રિકોણના સમતલને લંબ અને G માંથી પસાર થતી અક્ષને અનુલક્ષીને ત્રિકોણની જડત્વની ચાકમાત્રા I_0 છે. જો ABC માંથી નાનો ત્રિકોણ DEF કાઢી નાખવામાં આવે તો બાકી રહેલ આકૃતિ માટે આ જ અક્ષને અનુલક્ષીને જડત્વની ચાકમાત્રા I છે તો :



Options :

1. $I = \frac{I_0}{4}$

2. $I = \frac{3}{4} I_0$

3. $I = \frac{9}{16} I_0$

4. $I = \frac{15}{16} I_0$

Question Number : 8 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

A satellite is revolving in a circular orbit at a height h from the earth surface, such that h<<R where R is the radius of the earth. Assuming that the effect of earth's atmosphere can be neglected the minimum increase in the speed required so that the satellite could escape from the gravitational field of earth is :

Options :

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2. $\sqrt{2gR}$

3. $\sqrt{gR}(\sqrt{2}-1)$

4. $\sqrt{\frac{gR}{2}}$

Question Number : 8 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 4 Wrong Marks : 1

पृथ्वी की सतह से h ऊँचाई पर एक उपग्रह एक वृत्तीय कक्षा में इस प्रकार घूम रहा है कि $h<<R$ जहाँ R पृथ्वी की त्रिज्या है। माना कि पृथ्वी के वायुमण्डल का प्रभाव नगण्य है। कक्षीय चाल में कितनी न्यूनतम वृद्धि होनी चाहिए जिससे कि उपग्रह पृथ्वी के गुरुत्वीय क्षेत्र से पलायन कर सके :

Options :

1. $\sqrt{gR}$

2. $\sqrt{2gR}$

3. $\sqrt{gR}(\sqrt{2}-1)$

4. $\sqrt{\frac{gR}{2}}$

Question Number : 8 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 4 Wrong Marks : 1

પૃથ્વીની સપાટીથી h ઊંચાઈ પર એક ઉપગ્રહ વર્તુળાકાર કક્ષામાં ભ્રમણ કરે છે કે જ્યાં $h<<R$ અને R પૃથ્વીની ત્રિજ્યા છે. પૃથ્વીના વાતાવરણની અસરને અવગણતા, પૃથ્વીના ગુરૂત્વાકર્ષણ ક્ષેત્રમાંથી છટકવા ઝડપમાં જરૂરી લઘુત્તમ વધારો _____ છે.

Options :

1. $\sqrt{gR}$

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3. $\sqrt{gR(\sqrt{2}-1)}$

4. $\sqrt{\frac{gR}{2}}$

Question Number : 9 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

$40°C$ पर $50\ g$ पानी में $-20°C$ पर रखी बर्फ मिलाते हैं। जब मिश्रण का तापमान $0°C$ हो जाता है तो देखा जाता है कि $20\ g$ बर्फ अभी भी जमी हुई है। पानी में मिलायी गयी बर्फ की मात्रा का सन्निकट मान था :
(जल की विशिष्ट ऊष्मा $= 4.2\ J/g/°C$
बर्फ की विशिष्ट ऊष्मा $= 2.1\ J/g/°C$
$0°C$ पर जल की संगलन ऊष्मा $= 334\ J/g$)

Options :

1. $60\ g$

2. $40\ g$

3. $50\ g$

4. $100\ g$

Question Number : 9 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

$40°C$ પર ના $50\ g$ પાણીમાં $-20°C$ પર રહેલો બરફ ઉમેરવામાં આવે છે. આ મિશ્રણ જ્યારે $0°C$ પર પહોંચે છે ત્યારે એવું જોવા મળ્યુ કે તેમાં હજી $20\ g$ બરફ ઓગળ્યા વગરનો છે. પાણીમાં ઉમેરવામાં આવેલ બરફનો જથ્થો _____ ની નજીકનો હશે.
(પાણીની વિશિષ્ટ ઊષ્મા $= 4.2\ J/g/°C$
બરફની વિશિષ્ટ ઊષ્મા $= 2.1\ J/g/°C$
$0°C$ પર બરફની ગલન ઊર્જા $= 334\ J/g$)

Options :

1. $60\ g$

2. $40\ g$

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4. 100 g

Question Number : 9 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Ice at $-20°C$ is added to 50 g of water at $40°C$. When the temperature of the mixture reaches $0°C$, it is found that 20 g of ice is still unmelted. The amount of ice added to the water was close to

(Specific heat of water $= 4.2\ J/g/°C$

Specific heat of Ice $= 2.1\ J/g/°C$

Heat of fusion of water at $0°C = 334\ J/g$)

Options :

1. 60 g

2. 40 g

3. 50 g

4. 100 g

Question Number : 10 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

A rigid diatomic ideal gas undergoes an adiabatic process at room temperature. The relation between temperature and volume for this process is $TV^x = \text{constant}$, then x is :

Options :

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

2. $\frac{2}{5}$

3. $\frac{5}{3}$

4. $\frac{3}{5}$

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कक्षीय तापमान पर एक दृढ़ द्विपरमाणुक आदर्श गैस एक रुद्धोष्म प्रक्रम से गुजरती है। इस प्रक्रम के लिए तापमान और आयतन में, TV^x = नियतांक सम्बन्ध है तो x होगा :

Options :

1. $\frac{2}{3}$
2. $\frac{2}{5}$
3. $\frac{5}{3}$
4. $\frac{3}{5}$

Question Number : 10 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

એક દૃઢ દ્વિપરમાણ્વીક આદર્શ વાયુ પૂરતા ઊંચા તાપમાને એક સમોષ્મી પ્રક્રિયામાંથી પસાર થાય છે. આ પ્રક્રિયામાટે તાપમાન અને કદનો સબંધ TV^x = અચળ છે, તો x હશે :

Options :

1. $\frac{2}{3}$
2. $\frac{2}{5}$
3. $\frac{5}{3}$
4. $\frac{3}{5}$

Question Number : 11 Question Type : MCQ Option Shuffling : Yes Display Question Number No Option Orientation : Vertical

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A gas mixture consists of 3 moles of oxygen and 5 moles of argon at temperature T. Considering only translational and rotational modes, the total internal energy of the system is :

Options :

1. 4 RT

2. 12 RT

3. 15 RT

4. 20 RT

Question Number : 11 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

गैस के एक मिश्रण में ऑक्सीजन के 3 मोल तथा आर्गन के 5 मोल तापमान T पर हैं। केवल स्थानांतरीय और घूर्णन विधा मानें तो संकाय की कुल आन्तरिक ऊर्जा होगी :

Options :

1. 4 RT

2. 12 RT

3. 15 RT

4. 20 RT

Question Number : 11 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

T તાપમાને એક વાયુમિશ્રણ એ 3 મોલ ઑક્સિજન અને 5 મોલ આર્ગન ધરાવે છે. સ્થાનાંતરીય અને ભ્રમણીય મોડને ધ્યાનમાં લેતા આ તંત્રની કુલ આંતરિક ઊર્જા હશે :

Options :

1. 4 RT

2. 12 RT

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4. 20 RT

Question Number : 12 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

A particle undergoing simple harmonic motion has time dependent displacement given by $x(t) = A\sin\frac{\pi t}{90}$. The ratio of kinetic to potential energy of this particle at $t = 210\,s$ will be :

Options :

1. 1
2. 3
3. $\frac{1}{9}$
4. 2

Question Number : 12 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

सरल आवर्त गति करते हुए एक कण का समय पर निर्भर विस्थापन सम्बन्ध $x(t) = A\sin\frac{\pi t}{90}$ से दिया गया है। $t = 210\,s$ पर इस कण की गतिज एवं स्थितिज ऊर्जाओं का अनुपात होगा :

Options :

1. 1
2. 3
3. $\frac{1}{9}$
4. 2

Question Number : 12 Question Type : MCQ Option Shuffling : Yes Display Question Number No Option Orientation : Vertical

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સરળ આવર્ત ગતિ કરતા એક કણનું સમય આધારિત સ્થાનાંતર $x(t) = A\sin\frac{\pi t}{90}$ વડે આપવામાં આવે છે. $t = 210\ s$ પર આ કણમાટે ગતિઊર્જાથી સ્થિતિઊર્જાનો ગુણોત્તર :

Options :

1. 1
2. 3
3. $\frac{1}{9}$
4. 2

Question Number : 13 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Equation of travelling wave on a stretched string of linear density 5 g/m is $y = 0.03\ \sin(450\ t - 9x)$ where distance and time are measured in SI units. The tension in the string is :

Options :

1. 5 N
2. 7.5 N
3. 10 N
4. 12.5 N

Question Number : 13 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

5 g/m रेखीय घनत्व वाली तनी हुई डोरी में प्रगामी तरंग का समीकरण निम्न है :

$y = 0.03\ \sin(450\ t - 9x)$ जहाँ दूरी और समय SI मात्रकों में हैं। डोरी में तनाव है :

Options :

1. 5 N

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3. 10 N

4. 12.5 N

Question Number : 13 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

5 g/m રેખીય ઘનતા ધરાવતા એક ખેંચાયેલ તાર પર ના પ્રગામી તરંગનું સમીકરણ $y = 0.03 \sin(450\,t - 9x)$ છે જ્યાં અંતર અને સમય SI એકમોમાં માપવામાં આવે છે. આ તારમાં તણાવ _____ હશે.

Options :

1. 5 N

2. 7.5 N

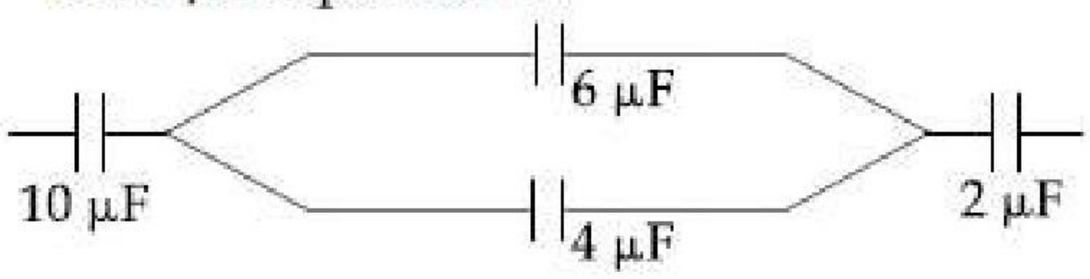
3. 10 N

4. 12.5 N

Question Number : 14 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

In the figure shown below, the charge on the left plate of the 10 μF capacitor is −30 μC. The charge on the right plate of the 6 μF capacitor is :



Options :

1. +18 μC

2. −18 μC

3. +12 μC

4. −12 μC

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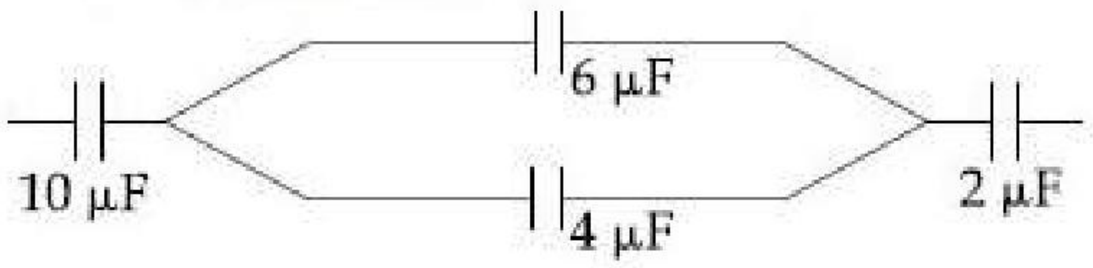
दिखाये गये चित्र में 10 μF के संधारित्र की बाँयी प्लेट पर −30 μC आवेश है। 6 μF के संधारित्र की दाँयी प्लेट पर आवेश होगा :



Options :

1. $+18\ \mu C$

2. $-18\ \mu C$

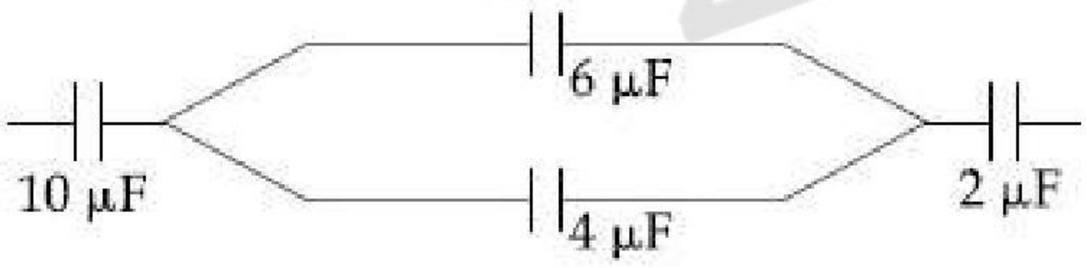
3. $+12\ \mu C$

4. $-12\ \mu C$

Question Number : 14 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

નીચે દર્શાવેલ આકૃતિમાં 10 μF ના કેપેસિટરની ડાબી બાજુની પ્લેટ પર −30 μC વિજભાર છે. 6 μF ના કેપેસિટરની જમણી બાજુની પ્લેટ પર નો વિજભાર :



Options :

1. $+18\ \mu C$

2. $-18\ \mu C$

3. $+12\ \mu C$

4. $-12\ \mu C$

Question Number : 15 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

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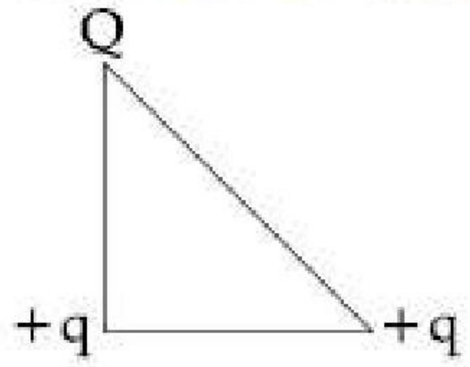
Three charges Q, +q and +q are placed at the vertices of a right-angle isosceles triangle as shown below. The net electrostatic energy of the configuration is zero, if the value of Q is :



Options :

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

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

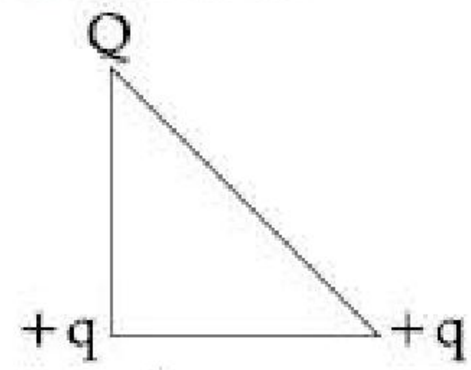
3. $-2q$

4. $+q$

Question Number : 15 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

दिखाये गये समकोणीय समद्विबाहु त्रिभुज के कोनों पर तीन आवेश Q, +q तथा +q रखे गये हैं। इस विन्यास की कुल विद्युत्स्थैतिक ऊर्जा शून्य होगी यदि Q का मान है :



Options :

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

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

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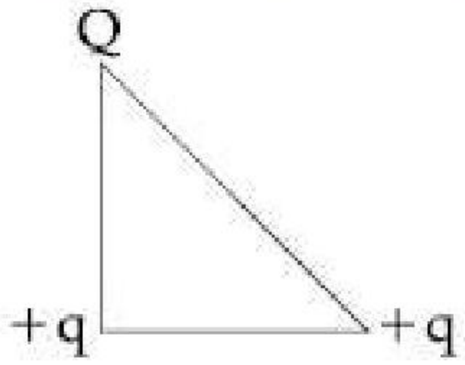
4. $+q$

Question Number : 15 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

એક સમદ્વિબાજુકાટકોણ ત્રિકોણના શિરોબિંદુઓ પર ત્રણ વિજભારો Q, $+q$ અને $+q$ ને નીચે આકૃતિમાં બતાવ્યા મુજબ ગોઠવેલ છે. આ સંરચનાની ચોખ્ખી સ્થિત વિદ્યુત ઊર્જા શૂન્ય છે કે જ્યારે Q નું મૂલ્ય _____ હશે.



Options :

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

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

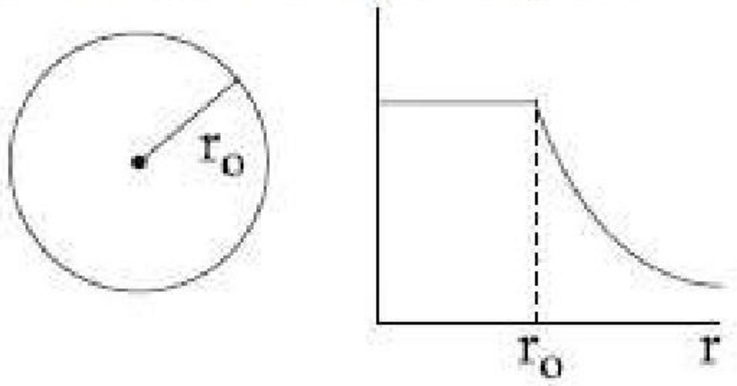
3. $-2q$

4. $+q$

Question Number : 16 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The given graph shows variation (with distance r from centre) of :



Options :

1. Potential of a uniformly charged spherical shell

2. Potential of a uniformly charged sphere

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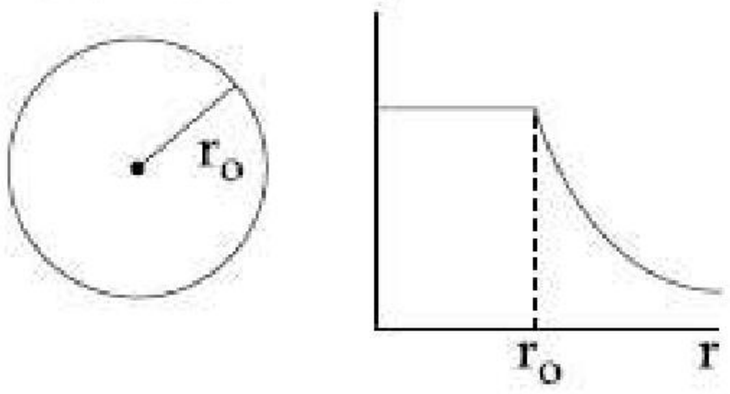
3. Electric field of a uniformly charged spherical shell

4. Electric field of a uniformly charged sphere

Question Number : 16 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

दिया गया ग्राफ (केन्द्र से दूरी r के साथ) बदलाव दिखाता है :



Options :

1. समावेशित गोलीय कोश का विभव

2. समावेशित गोले का विभव

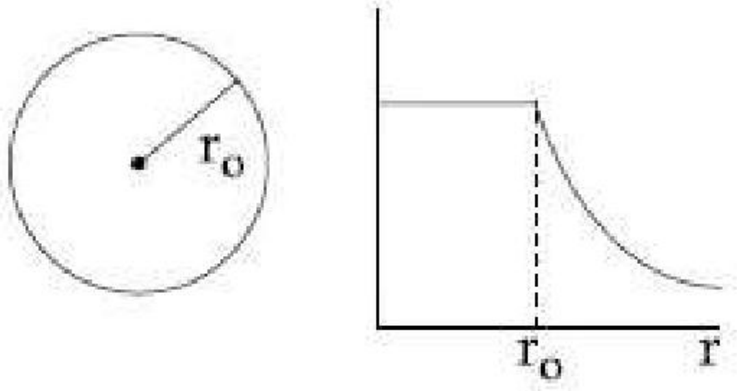
3. समावेशित गोलीय कोश का विद्युत क्षेत्र

4. समावेशित गोले का विद्युत क्षेत्र

Question Number : 16 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

આપેલ આલેખ _____ નો ફેરફાર (કેન્દ્રથી r અંતર સાથે) દર્શાવે છે.



Options :

1. સમાન વિજભારિત ગોલીય કવચનું સ્થિતિમાન

2. સમાન વિજભારિત ગોળાનું સ્થિતમાન

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4. સમાન વિજભારિત ગોળાનું વિદ્યુતક્ષેત્ર

Question Number : 17 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Two equal resistances when connected in series to a battery, consume electric power of 60 W. If these resistances are now connected in parallel combination to the same battery, the electric power consumed will be :

Options :

1. 60 W
2. 240 W
3. 120 W
4. 30 W

Question Number : 17 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

दो बराबर प्रतिरोधों को जब श्रेणीक्रम में एक बैटरी से जोड़ते हैं तो ये 60 W विद्युत शक्ति का उपभोग करते हैं। यदि इन प्रतिरोधों को अब समान्तर क्रम में इसी बैटरी से जोड़ा जाये तो उपभोग की गयी शक्ति होगी :

Options :

1. 60 W
2. 240 W
3. 120 W
4. 30 W

Question Number : 17 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

બે સમાન અવરોધોને જ્યારે એક બેટરી સાથે શ્રેણીમાં જોડવામાં આવે છે ત્યારે તે 60 W પાવર વાપરે છે. હવે જો આજ અવરોધોને સમાંતર જોડાણમાં આજ બેટરીસાથે

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1. 60 W

2. 240 W

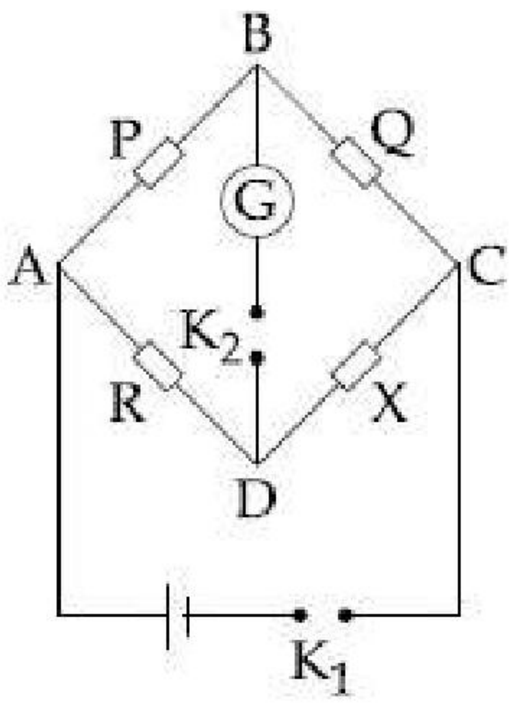
3. 120 W

4. 30 W

Question Number : 18 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

In a Wheatstone bridge(see fig.), Resistances P and Q are approximately equal. When R = 400 Ω, the bridge is balanced. On interchanging P and Q, the value of R, for balance, is 405 Ω. The value of X is close to :



Options :

1. 401.5 ohm

2. 404.5 ohm

3. 402.5 ohm

4. 403.5 ohm

Question Number : 18 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

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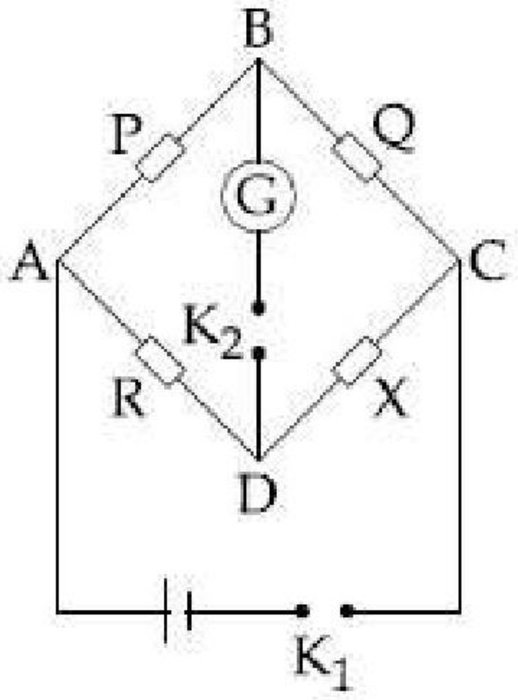
एक व्हीटस्टोन सेतु में (चित्र देखिये) प्रतिरोध P तथा Q लगभग बराबर है। जब $R = 400\ \Omega$ है तो सेतु संतुलित है। P तथा Q को परस्पर बदलने पर, सेतु को संतुलित रखने के लिए R का मान $405\ \Omega$ है। X का सन्निकट मान होगा :



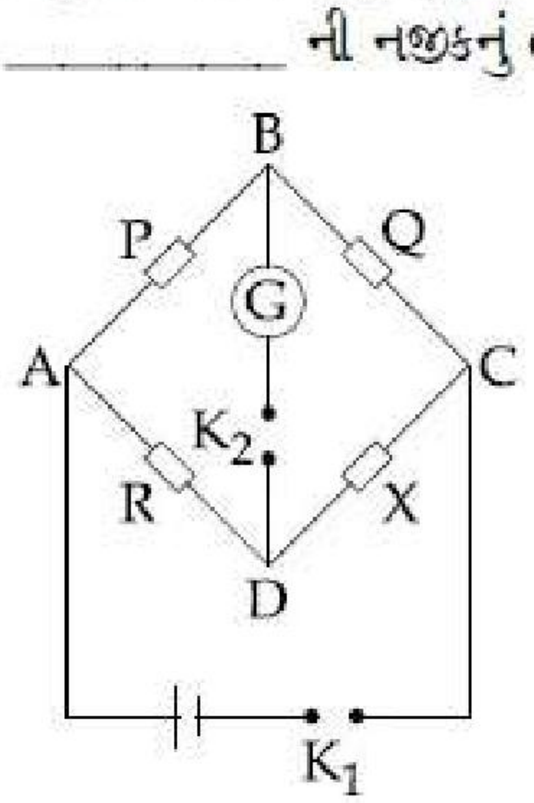
Options :

1. 401.5 ohm
2. 404.5 ohm
3. 402.5 ohm
4. 403.5 ohm

Question Number : 18 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

એક વ્હીસ્ટોન બ્રિજમાં (આકૃતિ જુઓ) ભુજા P અને Q નો ગુણોત્તર લગભગ સરખો છે. જ્યારે $R = 400\ \Omega$, બ્રિજ સંતુલન થાય છે. P અને Q ની અદલાબદલી કરતા સંતુલન માટે R નું મૂલ્ય $405\ \Omega$ છે. X નું મૂલ્ય _____ ની નજીકનું હશે.



Options :

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2. 404.5 ઓહ્મ

3. 402.5 ઓહ્મ

4. 403.5 ઓહ્મ

Question Number : 19 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

In an experiment, electrons are accelerated, from rest, by applying a voltage of 500 V. Calculate the radius of the path if a magnetic field 100 mT is then applied.
[Charge of the electron $= 1.6 \times 10^{-19}$ C
Mass of the electron $= 9.1 \times 10^{-31}$ kg]

Options :

1. 7.5 m

2. 7.5×10^{-2} m

3. 7.5×10^{-4} m

4. 7.5×10^{-3} m

Question Number : 19 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

એક પ્રયોગમાં, સ્થિર સ્થિતિમાંથી ઇલેક્ટ્રૉનને 500 V લાગુ પાડીને પ્રવેગિત કરવામાં આવે છે. હવે જો 100 mT જેટલું ચુંબકીય ક્ષેત્ર લાગુ પાડવામાં આવે તો ગતિ પથની ત્રિજ્યા ગણો.
(ઇલેક્ટ્રૉન પરનો વિદ્યુતભાર $= 1.6 \times 10^{-19}$ C,
ઇલેક્ટ્રૉનનું દળ $= 9.1 \times 10^{-31}$ kg)

Options :

1. 7.5 m

2. 7.5×10^{-2} m

3. 7.5×10^{-4} m

7.5×10^{-3} m

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Question Number : 19 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

एक प्रयोग में इलेक्ट्रान को विराम अवस्था से 500 V वोल्टेज लगाकर त्वरित करते हैं। पथ की त्रिज्या ज्ञात कीजिए यदि लगाया गया चुम्बकीय क्षेत्र 100 mT है। (इलेक्ट्रॉन का आवेश $=1.6\times10^{-19}$ C, इलेक्ट्रॉन का द्रव्यमान $=9.1\times10^{-31}$ kg)

Options :

1. 7.5 m

2. 7.5×10^{-2} m

3. 7.5×10^{-4} m

4. 7.5×10^{-3} m

Question Number : 20 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

There are two long co-axial solenoids of same length *l*. The inner and outer coils have radii r_1 and r_2 and number of turns per unit length n_1 and n_2, respectively. The ratio of mutual inductance to the self-inductance of the inner-coil is :

Options :

1. $\frac{n_2}{n_1}$

2. $\frac{n_2}{n_1}\cdot\frac{r_2^2}{r_1^2}$

3. $\frac{n_2}{n_1}\cdot\frac{r_1}{r_2}$

4. $\frac{n_1}{n_2}$

Question Number : 20 Question Type : MCQ Option Shuffling : Yes Display Question Number No Option Orientation : Vertical

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समान लम्बाई l की दो लम्बी सम-अक्षीय परिनालिकाये हैं। आन्तरिक एवं बाह्य कुण्डलियों की त्रिज्यायें क्रमश: r_1 तथा r_2 है और प्रति इकाई लम्बाई फेरों की संख्या क्रमश: n_1 तथा n_2 हैं। आन्तरिक कुण्डली के अन्योन्य प्रेरकत्व तथा स्व प्रेरकत्व का अनुपात होगा :

Options :

1. $\frac{n_2}{n_1}$

2. $\frac{n_2}{n_1} \cdot \frac{r_2^2}{r_1^2}$

3. $\frac{n_2}{n_1} \cdot \frac{r_1}{r_2}$

4. $\frac{n_1}{n_2}$

Question Number : 20 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

સમાન લંબાઈ l ના બે લાંબા સમકેન્દ્રીય સોલેનોઇડ છે. ક્રમશ: અંદર અને બહારનાં ગુંચળાની ત્રિજ્યાઓ r_1 અને r_2, અને પ્રતિ એકમ લંબાઈ આંટાવોની સંખ્યા n_1 અને n_2 છે. અંદરના ગુંચળાનો અન્યોન્યમ પ્રેરણ થી આત્મપ્રેરણનું ગુણોત્તર _____ છે.

Options :

1. $\frac{n_2}{n_1}$

2. $\frac{n_2}{n_1} \cdot \frac{r_2^2}{r_1^2}$

3. $\frac{n_2}{n_1} \cdot \frac{r_1}{r_2}$

4. $\frac{n_1}{n_2}$

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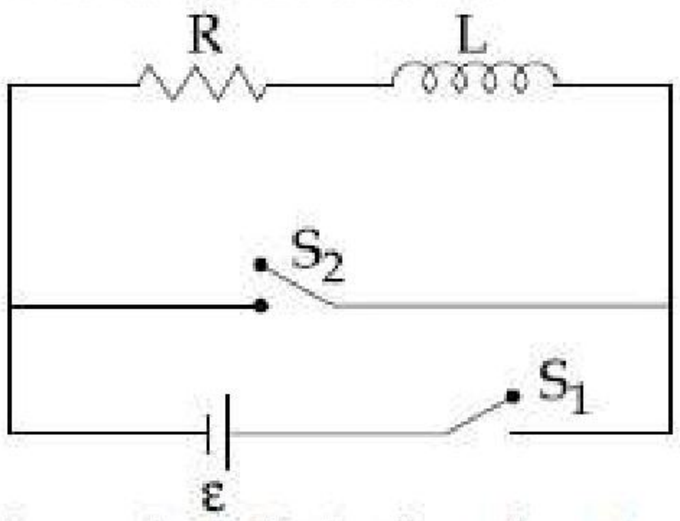
Question Number : 21 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

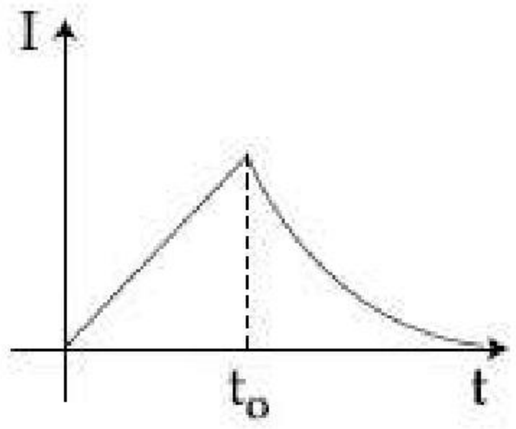
Correct Marks : 4 Wrong Marks : 1

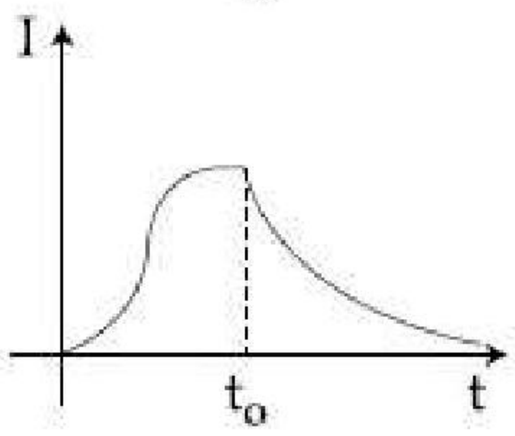
In the circuit shown,

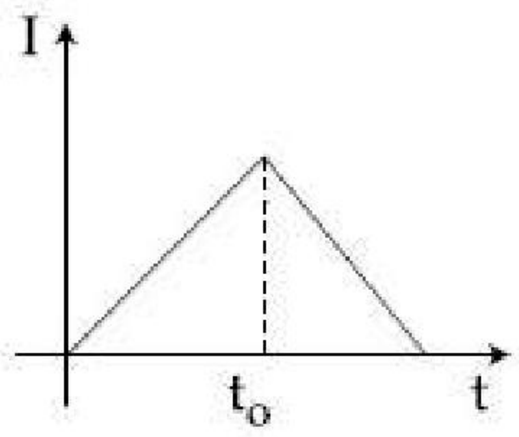


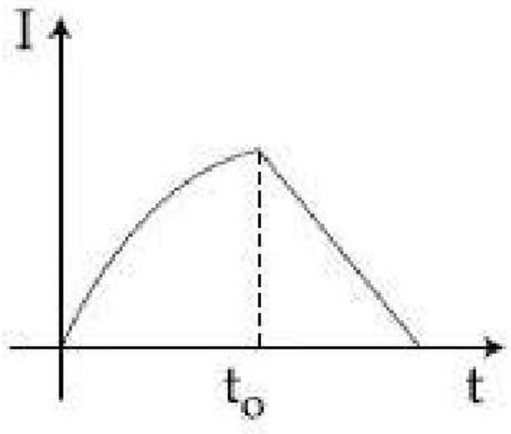
the switch S_1 is closed at time $t = 0$ and the switch S_2 is kept open. At some later time(t_0), the switch S_1 is opened and S_2 is closed. The behaviour of the current I as a function of time 't' is given by :

Options :

1. 

2. 

3. 

4. 

Note: For this question, ambiguity is found in question/answer. Candidate will get full marks for

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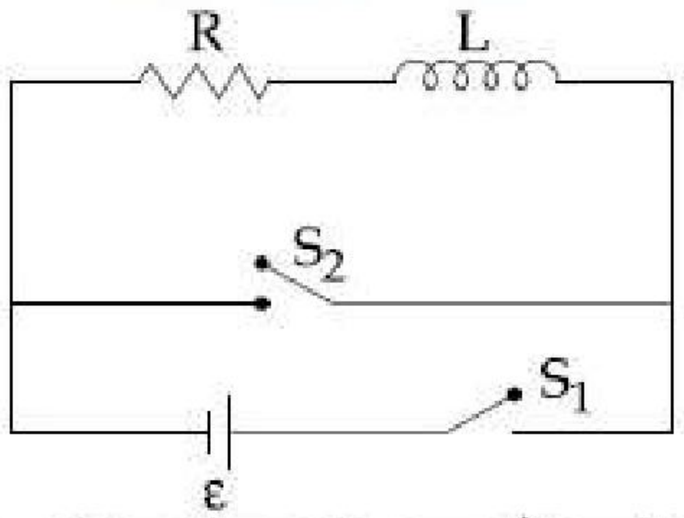
Question Number : 21 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

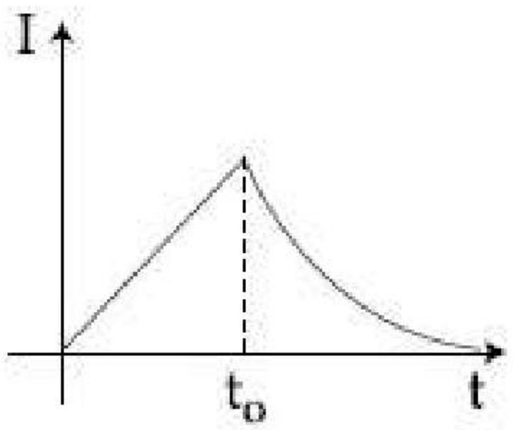
Correct Marks : 4 Wrong Marks : 1

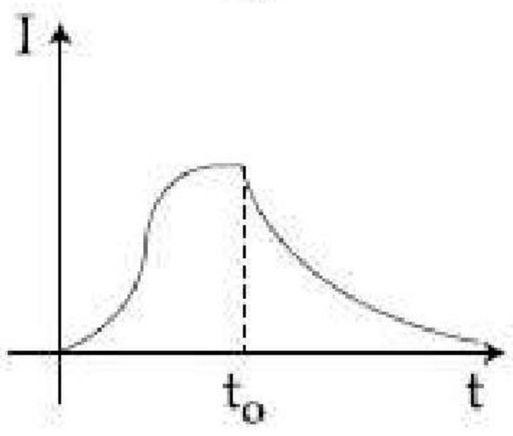
एक परिपथ को निम्न चित्र में दिखाया गया है :

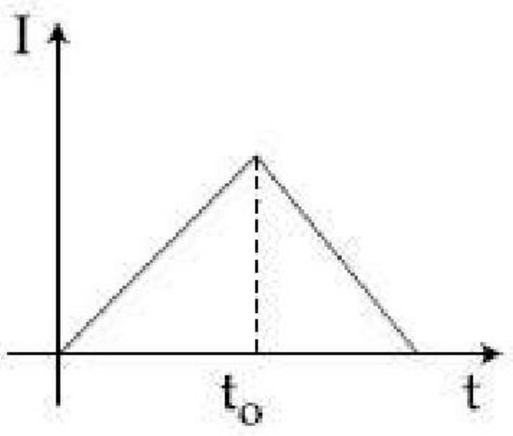


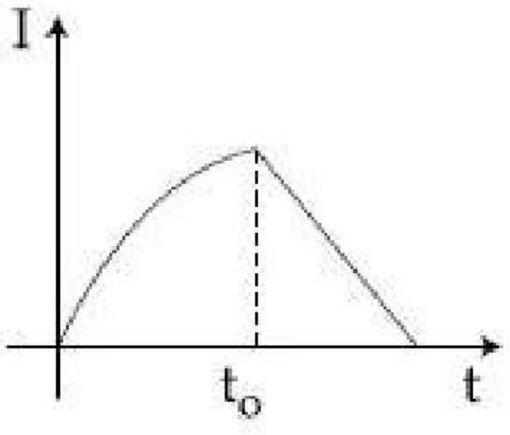
$t=0$ पर स्विच S_1 बन्द है जबकि स्विच S_2 खुला रहता है। किसी समय (t_0) के पश्चात् स्विच S_1 खुला है और S_2 बन्द है। धारा I में समय 't' के साथ परिवर्तन इससे दिखाया जा सकता है :

Options :

1. 

2. 

3. 

4. 

Note: For this question, ambiguity is found in question/answer. Candidate will get full marks for

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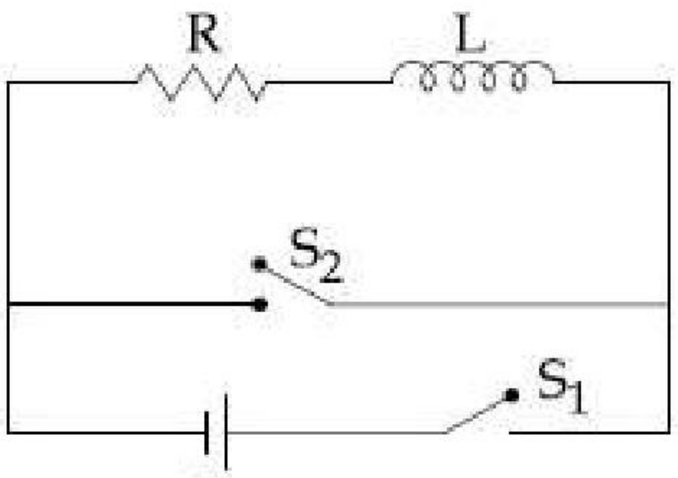
Question Number : 21 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

આપેલ પરિપથમાં,

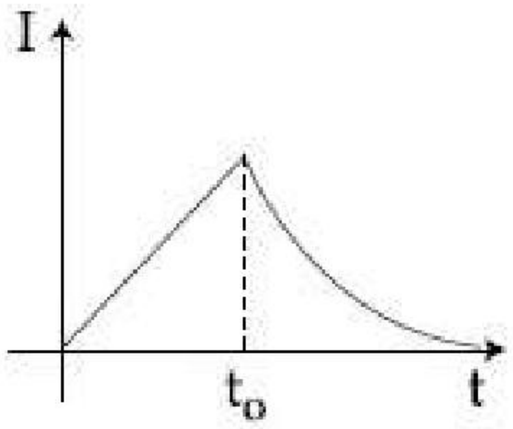


ε

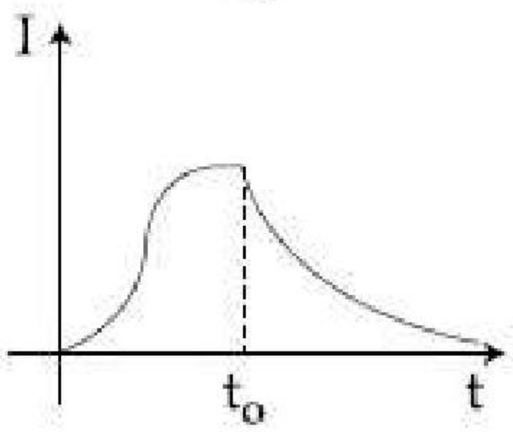
$t=0$ સમયે કળ S_1 બંધ જ્યારે કળ S_2 ને ખુલ્લી રાખવામાં આવે છે. કોઇ પછીના સમય (t_0) એ કળ S_1 ને ખુલ્લી અને કળ S_2 ને બંધ કરવામાં આવે છે. વહેતા પ્રવાહ I નું 't' ના વિધેય તરીકેની વર્તણૂંક _____વડે આપી શકાય.

Options :

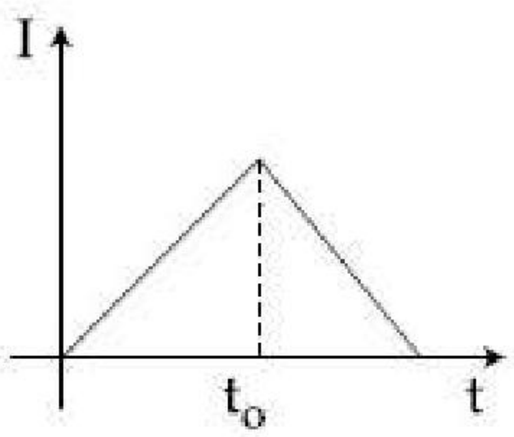
1.



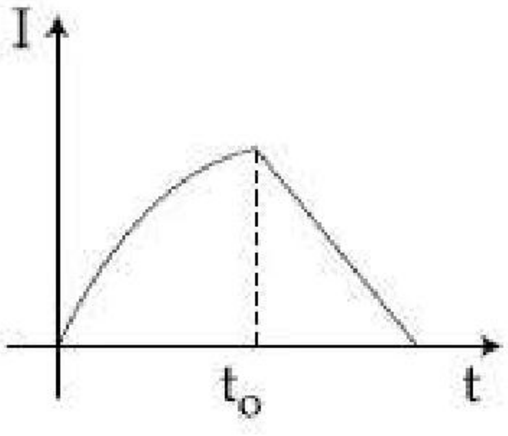
2.



3.



4.



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Question Number : 22 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

$50\,Wm^{-2}$ तीव्रता की एक विद्युत चुम्बकीय तरंग 'n' अपवर्तनांक के एक माध्यम में बिना किसी क्षय के प्रवेश करती है। तरंग के माध्यम में प्रवेश करने के पूर्व तथा पश्चात् विद्युत क्षेत्रों का अनुपात तथा चुम्बकीय क्षेत्रों का अनुपात क्रमशः होंगे :

Options :

1. $\left(\frac{1}{\sqrt{n}}, \sqrt{n}\right)$

2. $\left(\sqrt{n}, \frac{1}{\sqrt{n}}\right)$

3. $\left(\sqrt{n}, \sqrt{n}\right)$

4. $\left(\frac{1}{\sqrt{n}}, \frac{1}{\sqrt{n}}\right)$

Question Number : 22 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

n વક્રિભવનાંક ધરાવતા એક માધ્યમાં $50\ Wm^{-2}$ તીવ્રતાનું એક વિદ્યુતચુંબકીય તરંગ ક્ષય પામ્યા વગર પ્રવેશે છે. આ તરંગનો માધ્યમમાં પ્રવેશતા પહેલા અને પછીના વિદ્યુતક્ષેત્રોનો ગુણોત્તર અને ચુંબકીય ક્ષેત્રનો ગુણોત્તર ને ક્રમશઃ _____ વડે આપવામાં આવે છે.

Options :

1. $\left(\frac{1}{\sqrt{n}}, \sqrt{n}\right)$

2. $\left(\sqrt{n}, \frac{1}{\sqrt{n}}\right)$

3. $\left(\sqrt{n}, \sqrt{n}\right)$

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4. $\left(\frac{1}{\sqrt{n}}, \frac{1}{\sqrt{n}}\right)$

Question Number : 22 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

An electromagnetic wave of intensity $50\ \mathrm{Wm}^{-2}$ enters in a medium of refractive index 'n' without any loss. The ratio of the magnitudes of electric fields, and the ratio of the magnitudes of magnetic fields of the wave before and after entering into the medium are respectively, given by :

Options :

1. $\left(\frac{1}{\sqrt{n}}, \sqrt{n}\right)$

2. $\left(\sqrt{n}, \frac{1}{\sqrt{n}}\right)$

3. $\left(\sqrt{n}, \sqrt{n}\right)$

4. $\left(\frac{1}{\sqrt{n}}, \frac{1}{\sqrt{n}}\right)$

Question Number : 23 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

An object is at a distance of 20 m from a convex lens of focal length 0.3 m. The lens forms an image of the object. If the object moves away from the lens at a speed of 5 m/s, the speed and direction of the image will be :

Options :

1. 2.26×10^{-3} m/s away from the lens

2. 1.16×10^{-3} m/s towards the lens

3. 3.22×10^{-3} m/s towards the lens

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Question Number : 23 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

0.3 m फोकस दूरी के एक उत्तल लेन्स से कोई वस्तु 20 m की दूरी पर है। लेन्स द्वारा वस्तु का प्रतिबिम्ब बनता है। यदि यह वस्तु लेन्स से दूर 5 m/s की चाल से जाती है तो प्रतिबिम्ब की चाल और दिशा होगी :

Options :

1. 2.26×10^{-3} m/s, लेन्स से दूर

2. 1.16×10^{-3} m/s, लेन्स की ओर

3. 3.22×10^{-3} m/s, लेन्स की ओर

4. 0.92×10^{-3} m/s, लेन्स से दूर

Question Number : 23 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

0.3 m કેન્દ્રલંબાઈના એક બહિર્ગોળ કાચથી 20 m ના અંતરે એક વસ્તુ મુકેલ છે. આ કાચ વસ્તુનું પ્રતિબિંબ રચે છે. જો આ વસ્તુ 5 m/s ની ઝડપ થી કાચથી દૂર તરફ ગતિ કરે, તો પ્રતિબિંબની ઝડપ અને દિશા _____ હશે.

Options :

1. 2.26×10^{-3} m/s, કાચથી દૂર

2. 1.16×10^{-3} m/s, કાચ તરફ

3. 3.22×10^{-3} m/s, કાચ તરફ

4. 0.92×10^{-3} m/s, કાચથી દૂર

Question Number : 24 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

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In a Young's double slit experiment, the path difference, at a certain point on the screen, between two interfering waves is $\frac{1}{8}$ th of wavelength. The ratio of the intensity at this point to that at the centre of a bright fringe is close to :

Options :

1. 0.74
2. 0.80
3. 0.85
4. 0.94

Question Number : 24 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यंग के द्वि-झिरी प्रयोग में, पर्दे के एक बिन्दु पर व्यतिकरण करने वाली दो तरंगों का पथान्तर तरंगदैर्ध्य का $\frac{1}{8}$ गुना है। इस बिन्दु पर तीव्रता तथा दीप्त फ्रिन्ज के केन्द्र पर तीव्रता का अनुपात लगभग होगा :

Options :

1. 0.74
2. 0.80
3. 0.85
4. 0.94

Question Number : 24 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

યંગના બે સ્લિટના પ્રયોગમાં પડદા પરના કોઈ એક ચોક્કસ બિંદુ પર વ્યતિકરણ પામતાં બે તરંગો વચ્ચેનો પથ-તફાવત તરંગ લંબાઈના $\frac{1}{8}$ માં ભાગનો છે. આ બિંદુ અને પ્રકાશિત શલાકાના કેન્દ્ર પરની તીવ્રતાઓનો ગુણોત્તર _____ ની નજીકનો છે.

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2. 0.80

3. 0.85

4. 0.94

Question Number : 25 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If the deBroglie wavelength of an electron is equal to 10^{-3} times the wavelength of a photon of frequency 6×10^{14} Hz, then the speed of electron is equal to :
(Speed of light $= 3 \times 10^{8}$ m/s
Planck's constant $= 6.63 \times 10^{-34}$ J .s
Mass of electron $= 9.1 \times 10^{-31}$ kg)

Options :

1. 1.8×10^{6} m/s

2. 1.45×10^{6} m/s

3. 1.1×10^{6} m/s

4. 1.7×10^{6} m/s

Question Number : 25 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि इलेक्ट्रॉन की डी-ब्राग्लि तरंगदैर्ध्य 6×10^{14} Hz आवृत्ति के फोटॉन की तरंगदैर्ध्य के 10^{-3} गुना है तो इलेक्ट्रॉन की चाल होगी :
(दिया है प्रकाश की चाल $= 3 \times 10^{8}$ m/s
प्लांक नियतांक $= 6.63 \times 10^{-34}$ J .s
इलेक्ट्रॉन का द्रव्यमान $= 9.1 \times 10^{-31}$ kg)

Options :

1. 1.8×10^{6} m/s

2. 1.45×10^{6} m/s

3. 1.1×10^{6} m/s

4. 1.7×10^{6} m/s

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જો એક ઇલેક્ટ્રૉનની ડી-બ્રોગ્લી તરંગલંબાઈ એ 6×10^{14} Hz તરંગલંબાઈના ફોટૉનની તરંગલંબાઈના 10^{-3} ગણી છે, તો ઇલેક્ટ્રૉનની ઝડપ હશે :

(પ્રકાશની ઝડપ $= 3 \times 10^{8}$ m/s

પ્લાંક અચળાંક $= 6.63 \times 10^{-34}$ J .s

ઇલેક્ટ્રૉનનું દળ $= 9.1 \times 10^{-31}$ kg)

Options :

1. 1.8×10^{6} m/s

2. 1.45×10^{6} m/s

3. 1.1×10^{6} m/s

4. 1.7×10^{6} m/s

Question Number : 26 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

A hydrogen atom, initially in the ground state is excited by absorbing a photon of wavelength 980Å. The radius of the atom in the excited state, in terms of Bohr radius a_0, will be :
(hc = 12500 eV-Å)

Options :

1. $4a_0$

2. $9a_0$

3. $16a_0$

4. $25a_0$

Question Number : 26 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

પ્રારંભમાં ધરા-અવસ્થામાં રહેલ હાઇડ્રોજન પરમાણુ 980Å તરંગલંબાઈના ફોટોનનું શોષણ કરી ઉત્તેજિત થાય છે. બોહ્ર ત્રિજ્યા a_0 ના પદમાં, ઉત્તેજિત અવસ્થામાં રહેલ પરમાણુની ત્રિજ્યા _____ થશે.

ZOLLEGE.in

1. $4a_0$

2. $9a_0$

3. $16a_0$

4. $25a_0$

Question Number : 26 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

आरम्भिक मूल अवस्था में हाइड्रोजन परमाणु 980Å तरंगदैर्ध्य का फोटॉन अवशोषित कर उत्तेजित हो जाता है। इस उत्तेजित स्तर में परमाणु की त्रिज्या बोर त्रिज्या a_0 के मात्रक में होगी :
$(hc = 12500\ eV\text{-}Å)$

Options :

1. $4a_0$

2. $9a_0$

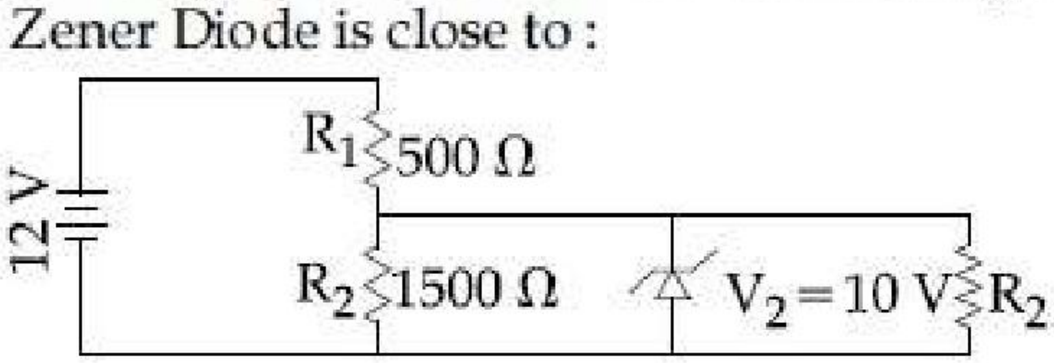
3. $16a_0$

4. $25a_0$

Question Number : 27 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

In the given circuit the current through Zener Diode is close to :



Options :

1. 6.7 mA

2. 4.0 mA

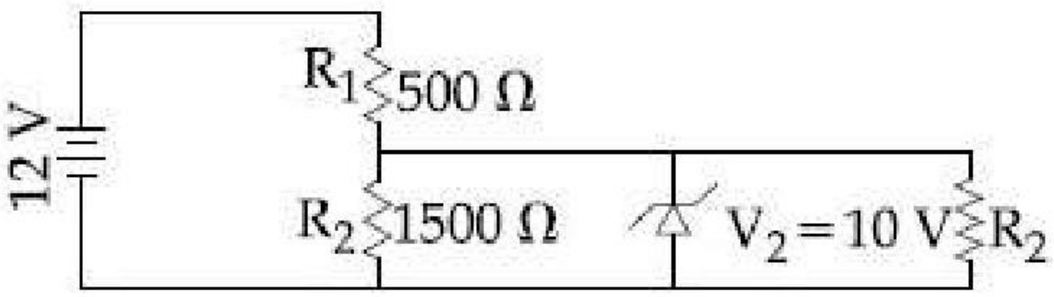
3. 0.0 mA

ZOLLEGE.in

Question Number : 27 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

दिये गये परिपथ में ज़ेनर डायोड में धारा का लगभग मान होगा :



Options :

1. 6.7 mA

2. 4.0 mA

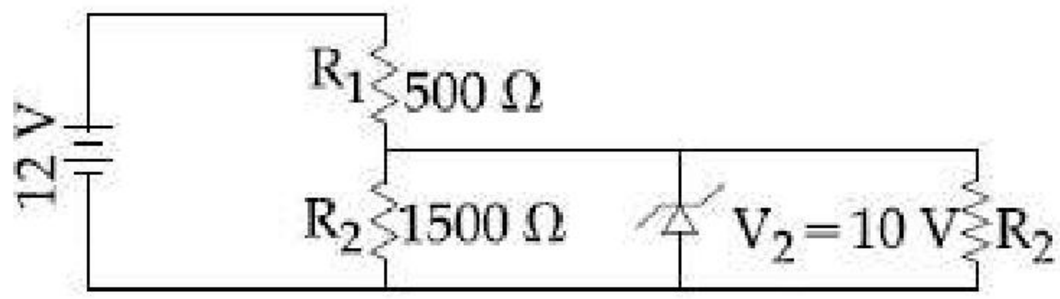
3. 0.0 mA

4. 6.0 mA

Question Number : 27 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

આપેલ પરિપથમાં ઝેનર ડાયોડમાંનો પ્રવાહ _____ ની નજીકનો હશે.



Options :

1. 6.7 mA

2. 4.0 mA

3. 0.0 mA

4. 6.0 mA

Question Number : 28 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

An amplitude modulated signal is given by
$V(t) = 10[1 + 0.3\cos(2.2 \times 10^4 t)]\sin(5.5 \times 10^5 t)$.

ZOLLEGE.in

1. 892.5 and 857.5

2. 89.25 and 85.75

3. 178.5 and 171.5

4. 1785 and 1715

Question Number : 28 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

एक आयाम मॉडुलित सिग्नल निम्नवत् दिया गया है
$V(t) = 10[1 + 0.3\cos(2.2 \times 10^4 t)]\sin(5.5 \times 10^5 t)$
यहाँ t सेकण्ड में है। पार्श्व बैण्ड की आवृत्तियाँ (kHz में) होंगी : [दिया है $\pi = 22/7$]

Options :

1. 892.5 तथा 857.5

2. 89.25 तथा 85.75

3. 178.5 तथा 171.5

4. 1785 तथा 1715

Question Number : 28 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

એક એમ્પલીટ્યૂડ મોડ્યુલેટેડ સિગ્નલને
$V(t) = 10[1 + 0.3\cos(2.2 \times 10^4 t)]\sin(5.5 \times 10^5 t)$
વડે આપવામાં આવે છે. અંહી t સેકન્ડમાં છે. સાઇડ બેન્ડ આવૃત્તિઓ (kHz માં) _____ હશે.
[$\pi = 22/7$ આપેલ છે.]

Options :

1. 892.5 અને 857.5

2. 89.25 અને 85.75

3. 178.5 અને 171.5

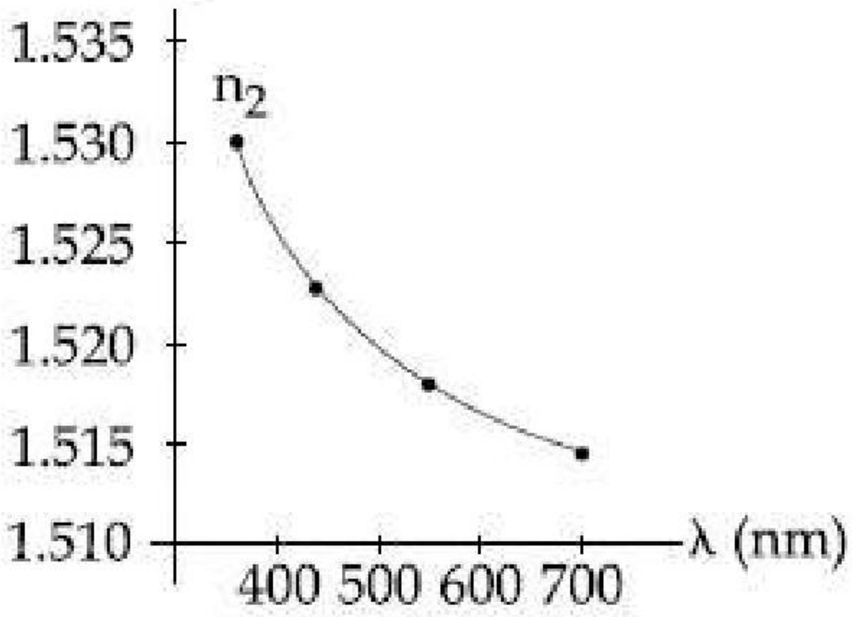
4. 1785 અને 1715

ZOLLEGE.in

Question Number : 29 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

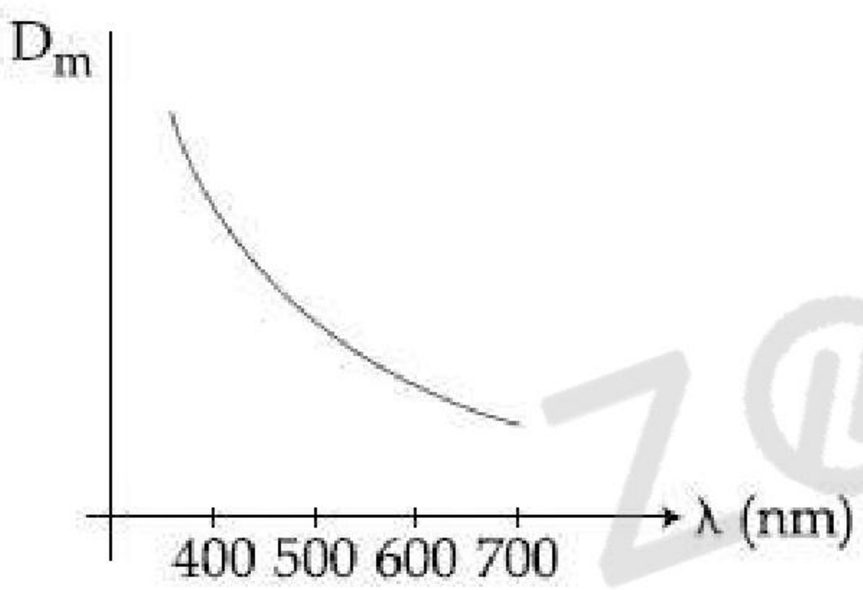
Correct Marks : 4 Wrong Marks : 1

The variation of refractive index of a crown glass thin prism with wavelength of the incident light is shown. Which of the following graphs is the correct one, if D_m is the angle of minimum deviation ?

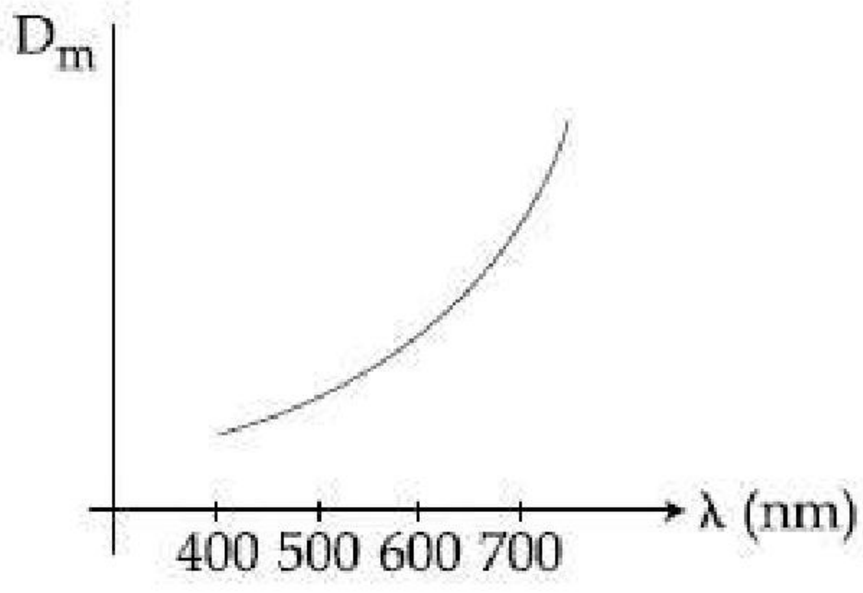


Options :

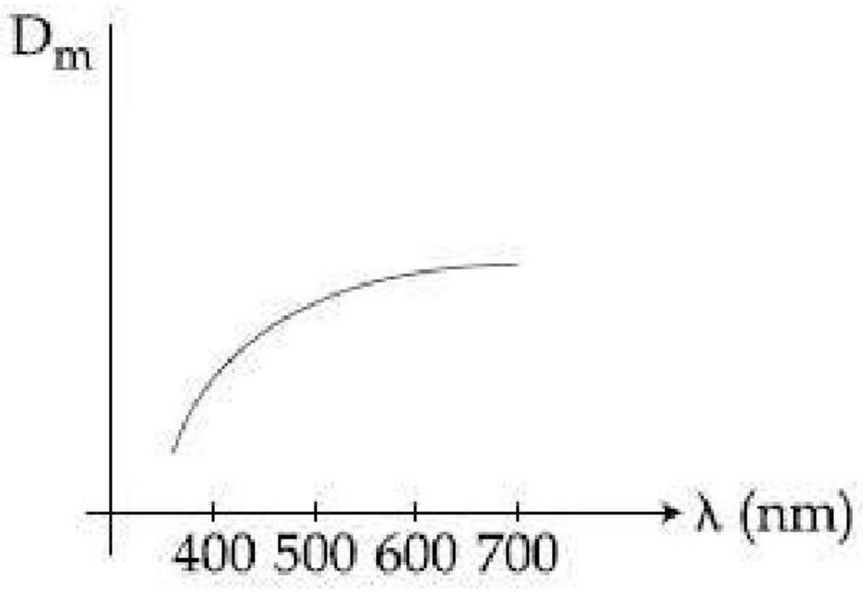
1.



2.



3.



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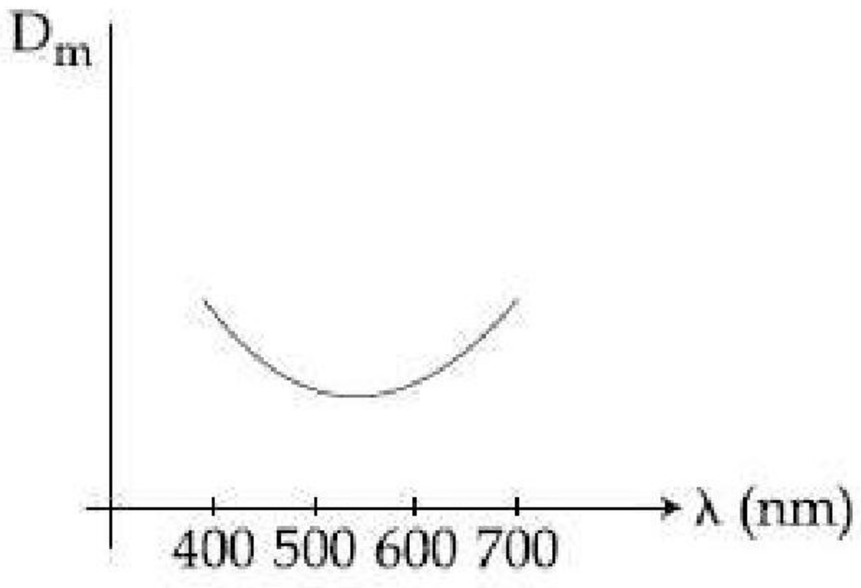
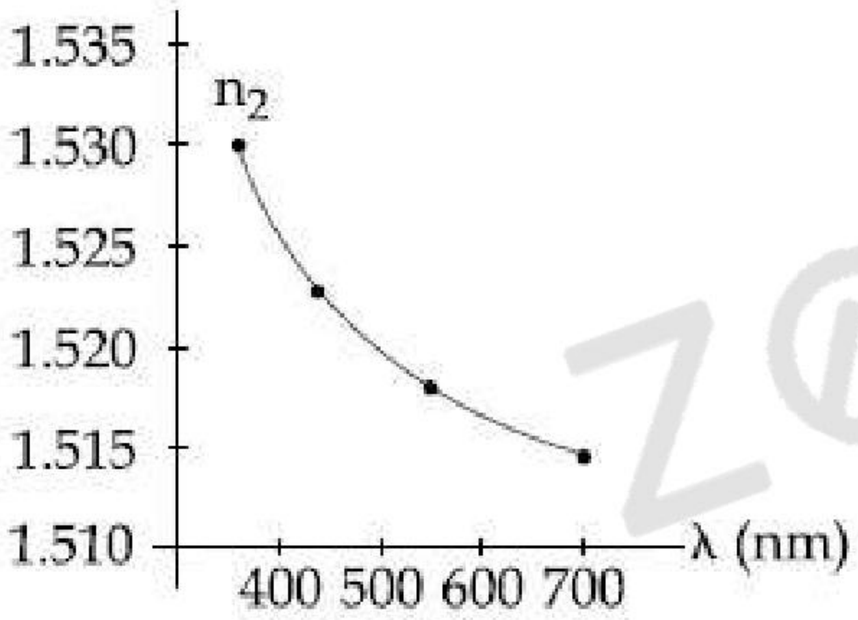
4.



Question Number : 29 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

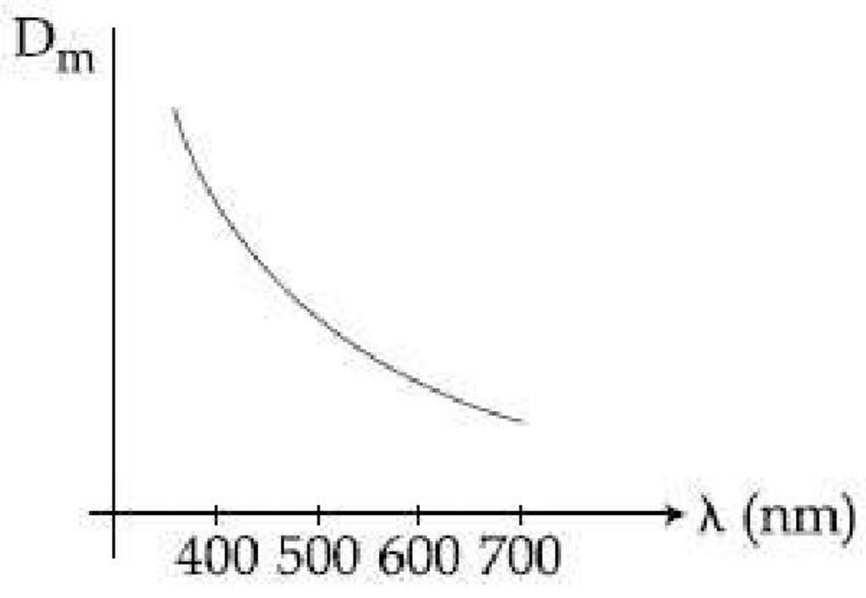
Correct Marks : 4 Wrong Marks : 1

क्राऊन काँच के प्रिज्म के अपवर्तनांक परिवर्तन को आपतित प्रकाश की तरंगदैर्ध्य के साथ दिखाया गया है। यदि D_m न्यूनतम विचलन कोण है तो निम्न में से कौन सा ग्राफ सही है?

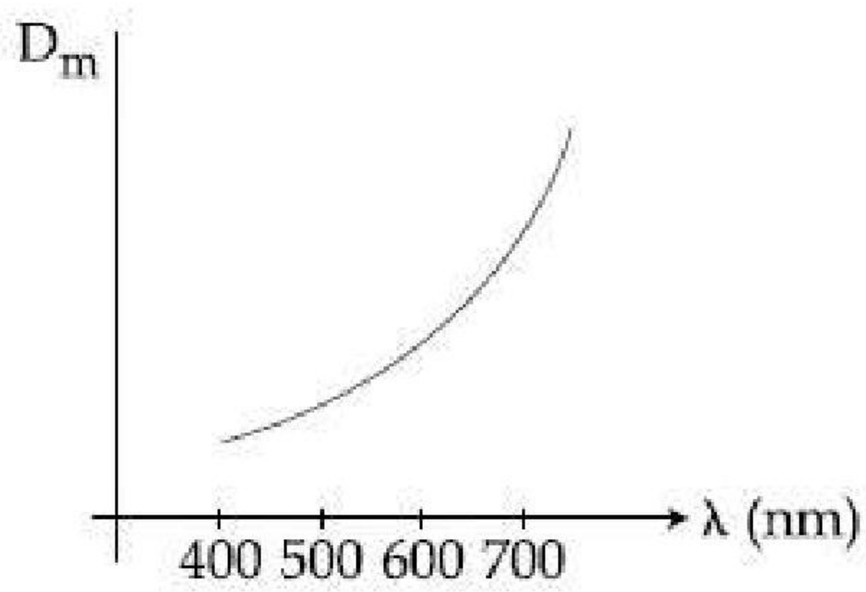


Options :

1.



2.



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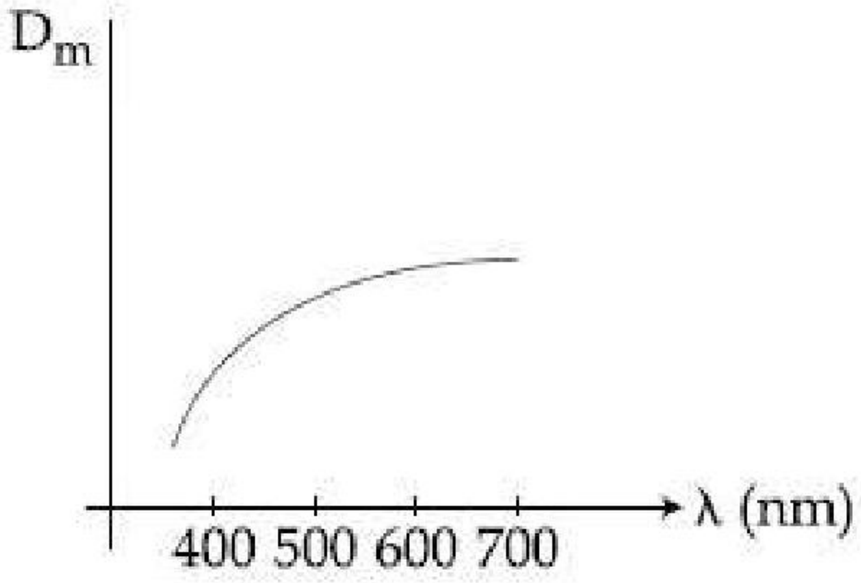
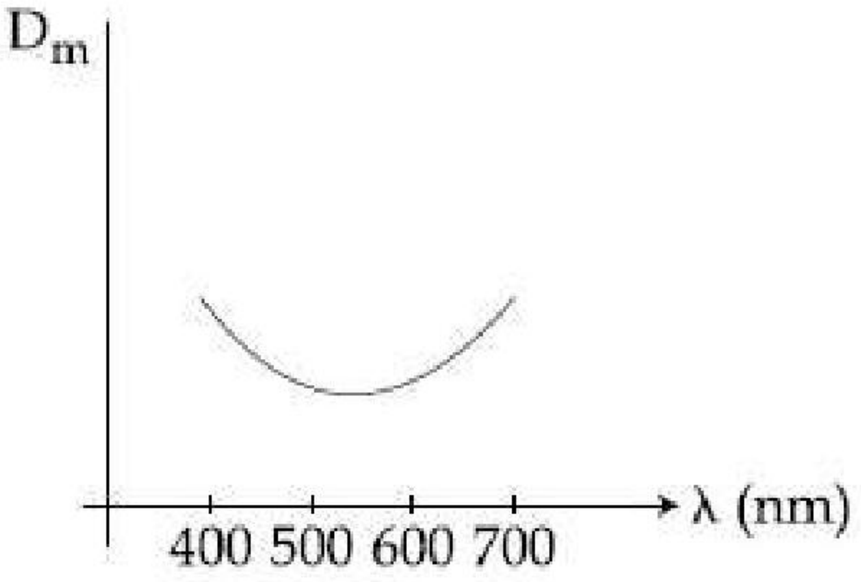
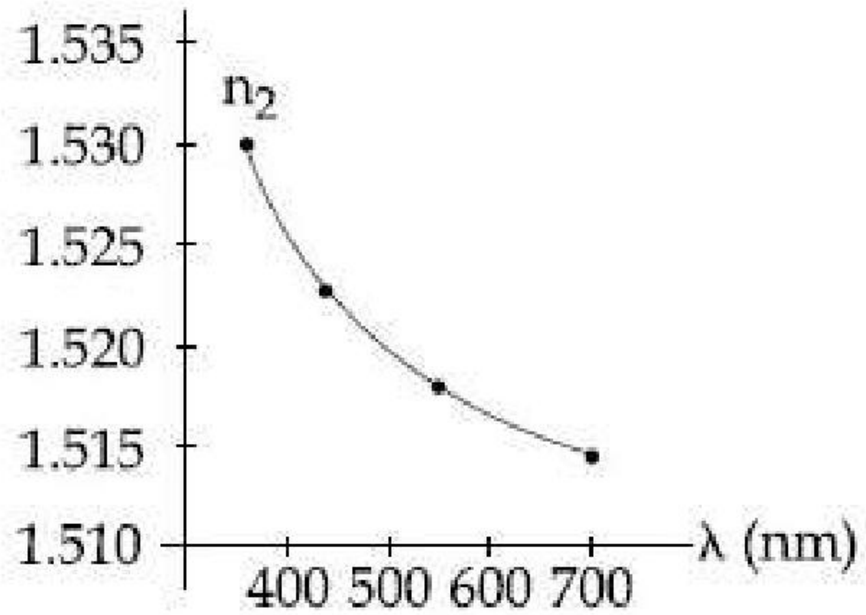
3. 

4. 

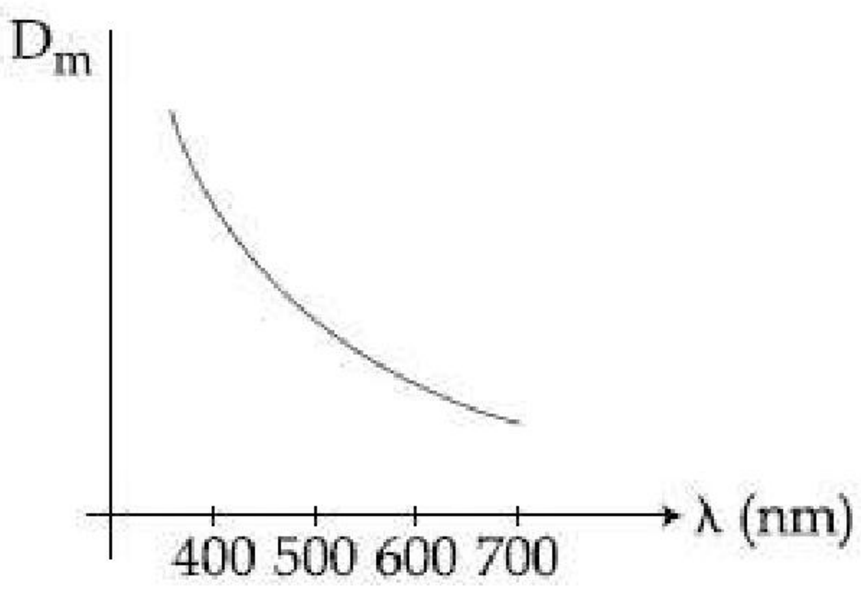
Question Number : 29 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

ક્રાઉન ગ્લાસના પાતળા પ્રિઝમના વક્રીભવનાંકનો આપાત પ્રકાશની તરંગલંબાઈ સાથેનો સંબંધ દર્શાવેલ છે. જો D_m એ લઘુત્તમ વિચલન છે, તો નીચેમાંથી કયો આલેખ સાચો છે?



Options :

1. 

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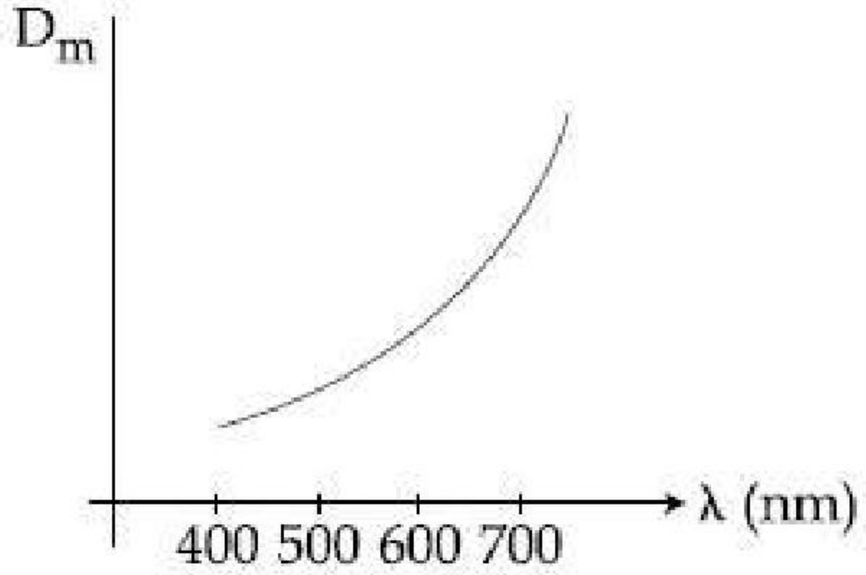
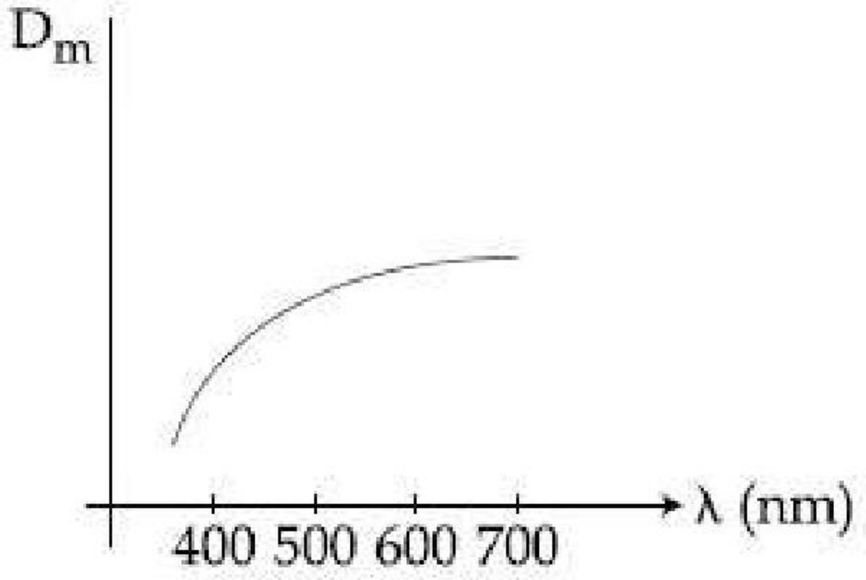
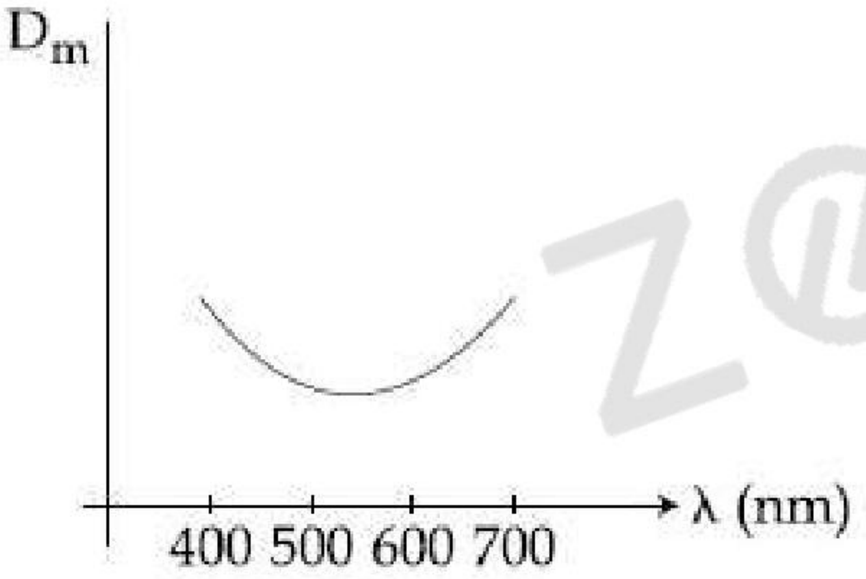
2.



3.



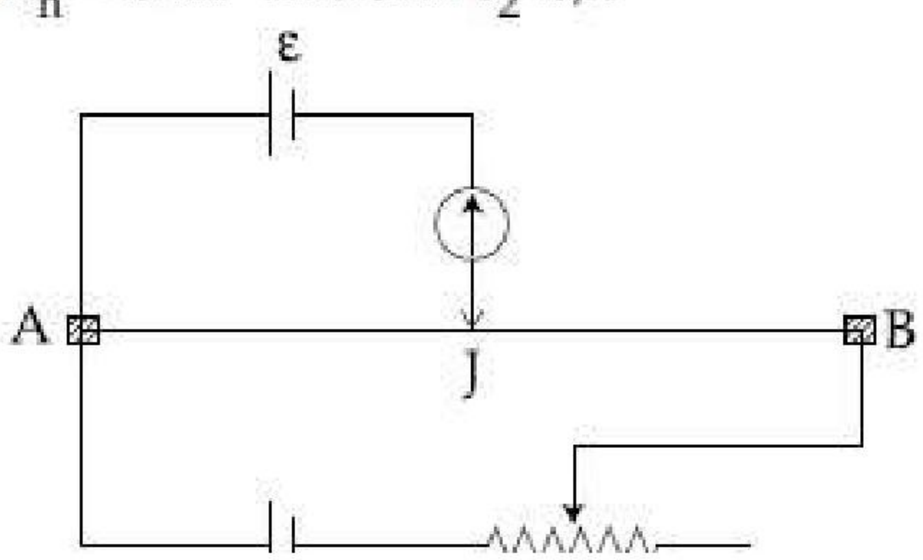
4.



Question Number : 30 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The resistance of the meter bridge AB in given figure is 4 Ω. With a cell of emf $\varepsilon = 0.5$ V and rheostat resistance $R_h = 2\ \Omega$ the null point is obtained at some point J. When the cell is replaced by another one of emf $\varepsilon = \varepsilon_2$ the same null point J is found for $R_h = 6\ \Omega$. The emf ε_2 is, :



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1. 0.3 V

2. 0.5 V

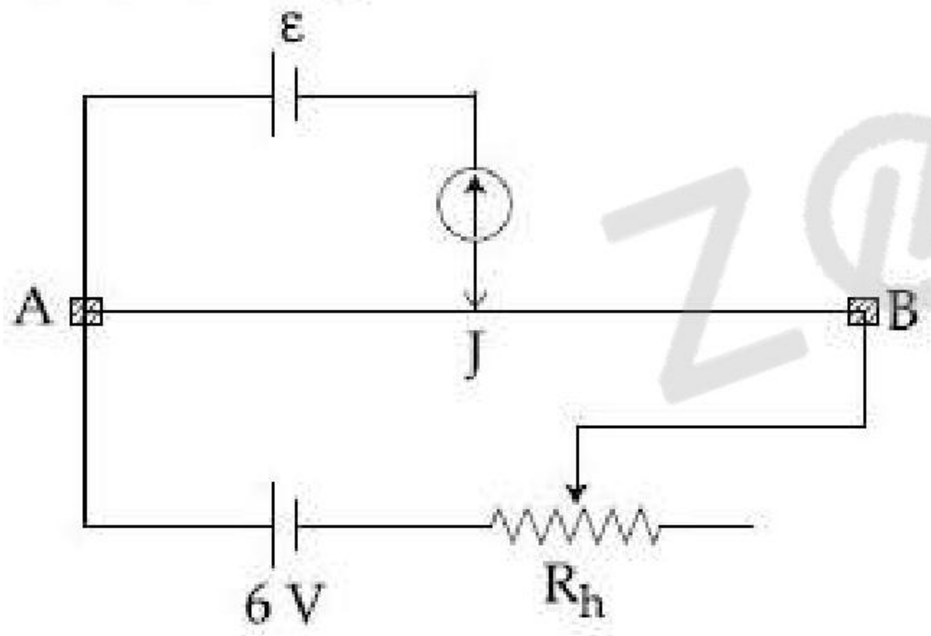
3. 0.4 V

4. 0.6 V

Question Number : 30 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

दिये गये परिपथ में मीटर सेतु AB का प्रतिरोध $4\,\Omega$ है। वि.वा.बल $\varepsilon = 0.5$ V तथा धारा नियत्रंक के प्रतिरोध $R_h = 2\,\Omega$ के लिये शून्य बिन्दु J पर प्राप्त होता है। जब इस सेल को वि.वा.बल $\varepsilon = \varepsilon_2$ की सेल से बदल देते हैं तो $R_h = 6\,\Omega$ के लिये शून्य बिन्दु पुनः J पर मिलता है। वि.वा.बल ε_2 होगा :



Options :

1. 0.3 V

2. 0.5 V

3. 0.4 V

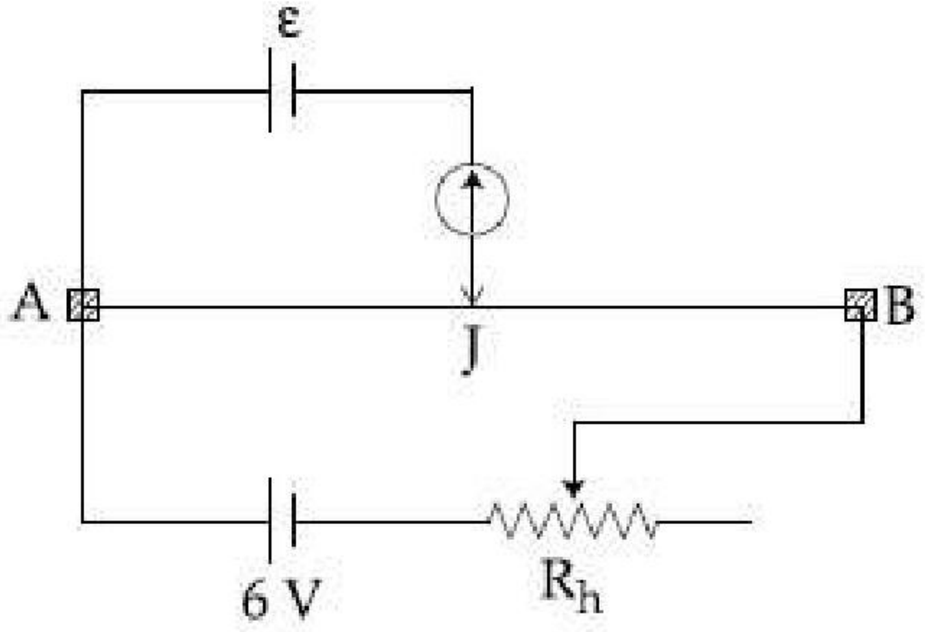
4. 0.6 V

Question Number : 30 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

ZOLLEGE.in

આપેલ આકૃતિમાં મીટરબ્રીજ AB નો અવરોધ 4 Ω છે. $\varepsilon = 0.5$ V જેટલું emf ધરાવતા કોષ અને $R_h = 2\ \Omega$ ધરાવતા રિહ્યોસ્ટેટ સાથે કોઇક બિંદુ J પાસે તટસ્થ બિંદુ મળે છે. જ્યારે કોષને બીજા $\varepsilon = \varepsilon_2$ જેટલા emf ધરાવતા કોષથી બદલવામાં આવે છે ત્યારે $R_h = 6\ \Omega$ માટે J બિંદુ આગળ જ તટસ્થ બિંદુ મળે છે ε_2 emf _____ થશે.



Options :

1. 0.3 V
2. 0.5 V
3. 0.4 V
4. 0.6 V

Chemistry

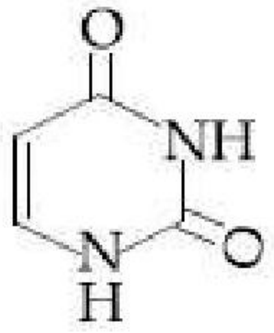
Section Id :	416529131
Section Number :	2
Section type :	Online
Mandatory or Optional:	Mandatory
Number of Questions:	30
Number of Questions to be attempted:	30
Section Marks:	120
Display Number Panel:	Yes
Group All Questions:	No

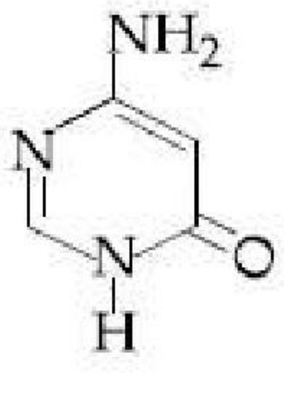
Sub-Section Number:	1
Sub-Section Id:	416529140
Question Shuffling Allowed :	Yes

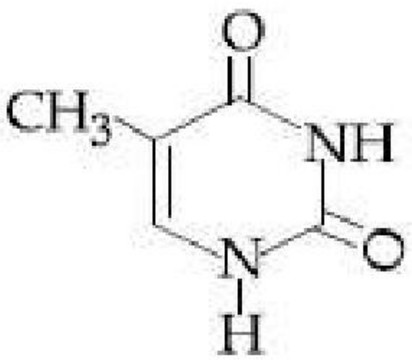
Question Number : 31 Question Type : MCQ Option Shuffling : Yes Display Question Number No Option Orientation : Vertical

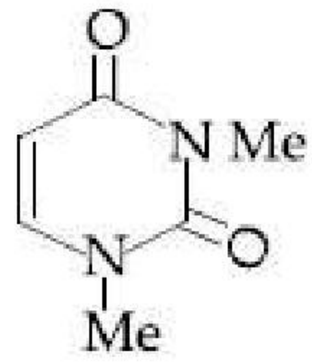
ZOLLEGE.in

Options :

1. 

2. 

3. 

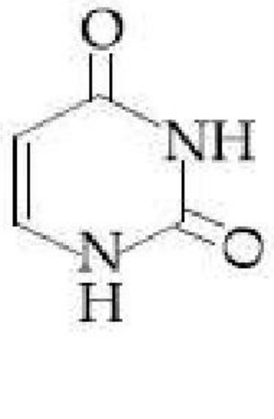
4. 

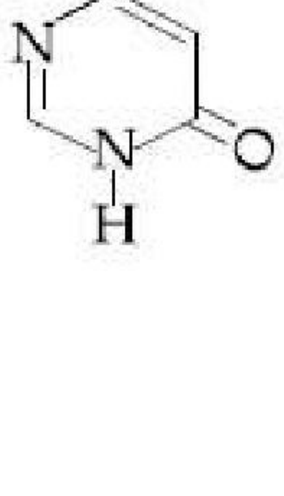
Question Number : 31 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

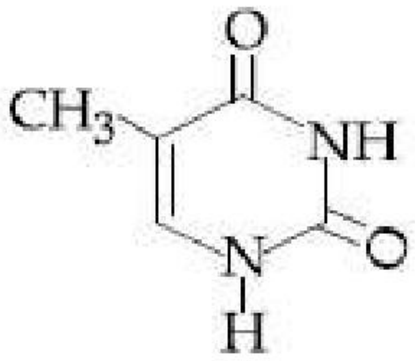
નીચે આપેલા સંયોજનો પૈકી ક્યો RNA માં જોવા મળે છે?

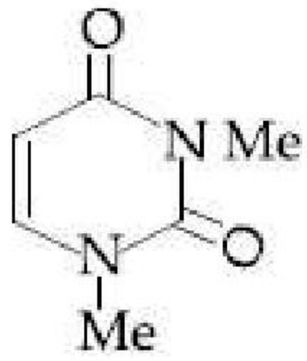
Options :

1. 

2. 

ZOLLEGE.in

3. 

4. 

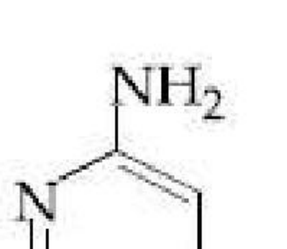
Question Number : 31 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

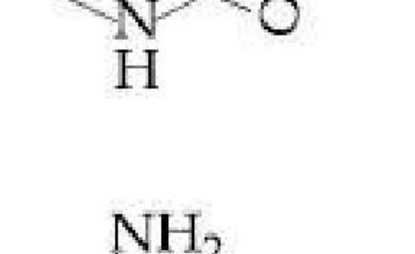
Correct Marks : 4 Wrong Marks : 1

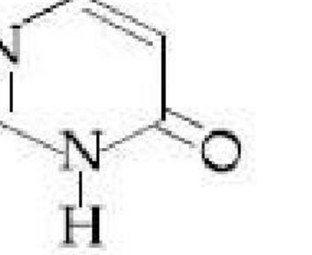
निम्नलिखित यौगिकों में से कौन सा एक RNA में पाया जाता है?

Options :

1.

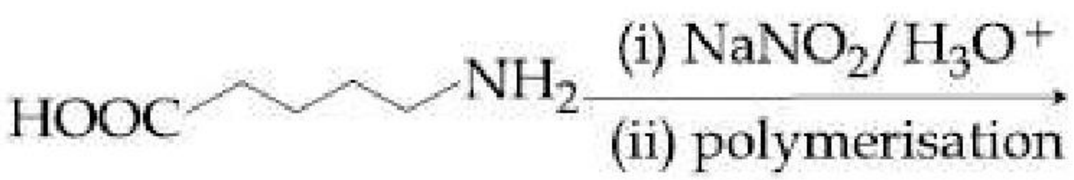
2. 

3. 

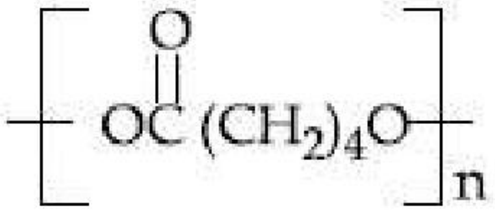
4. 

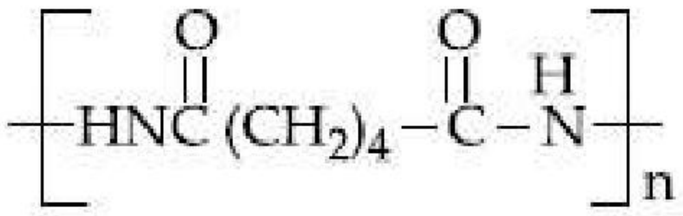
ZOLLEGE.in

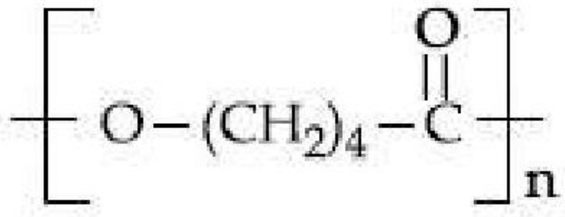
The polymer obtained from the following reactions is :

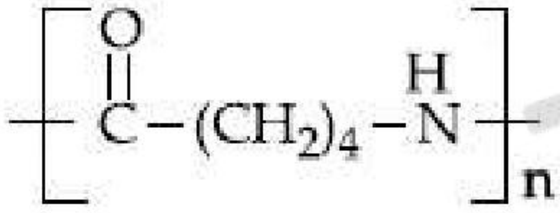


Options :

1. 

2. 

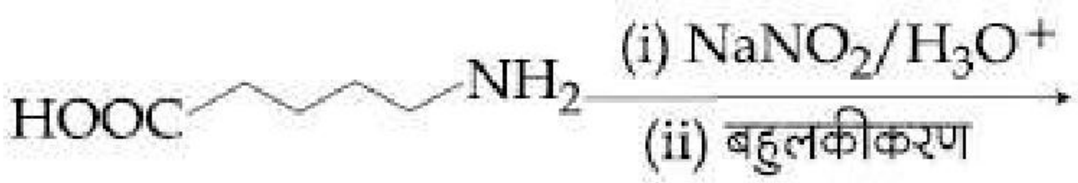
3. 

4. 

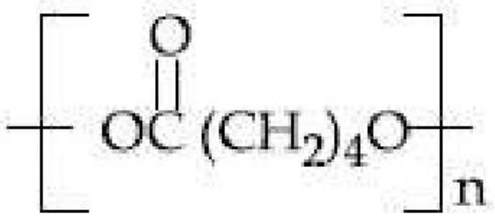
Question Number : 32 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

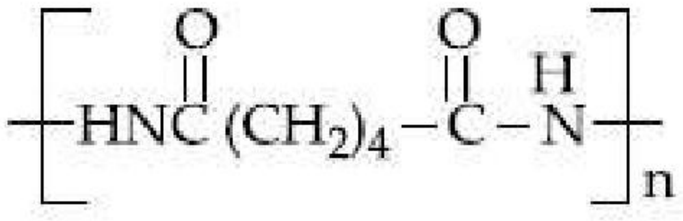
Correct Marks : 4 Wrong Marks : 1

निम्नलिखित अभिक्रियाओं से प्राप्त होने वाला बहुलक है :

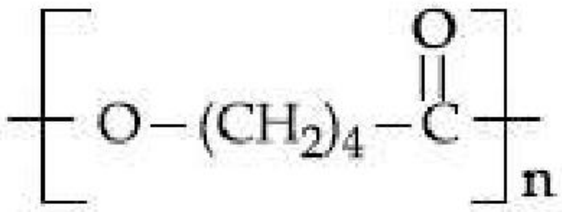


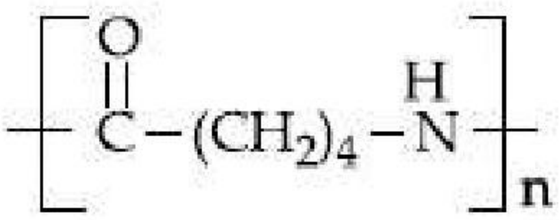
Options :

1. 

2. 

ZOLLEGE.in

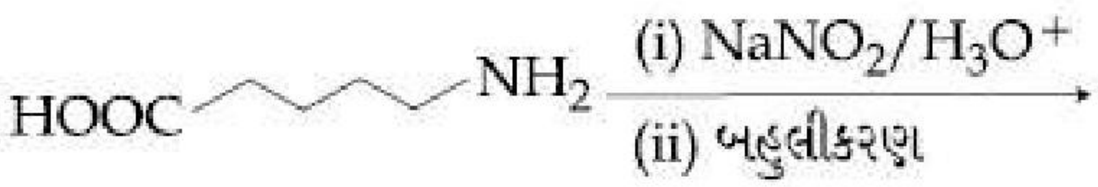
3. 

4. 

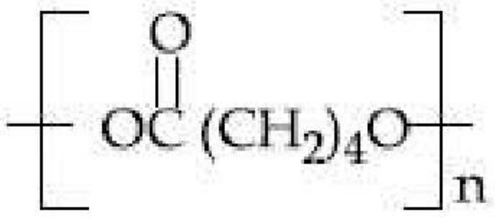
Question Number : 32 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

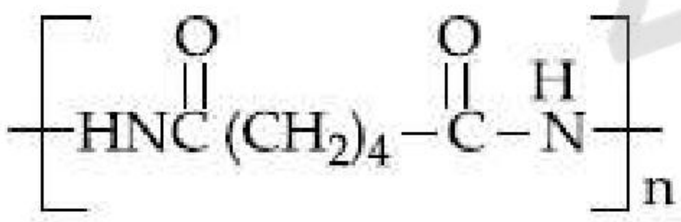
Correct Marks : 4 Wrong Marks : 1

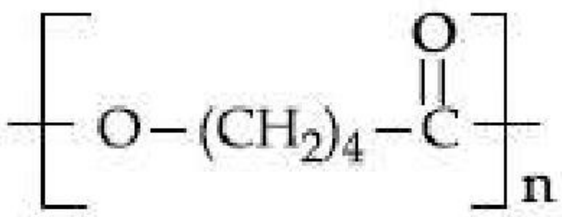
નીચે આપેલી પ્રક્રિયા બાદ મળતો બહુલક (polymer) શોધો :

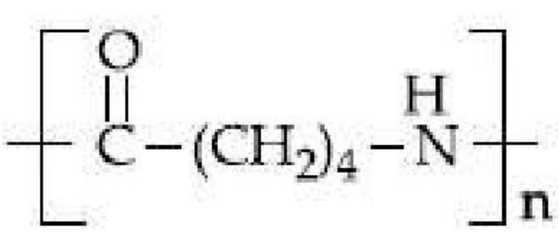


Options :

1. 

2. 

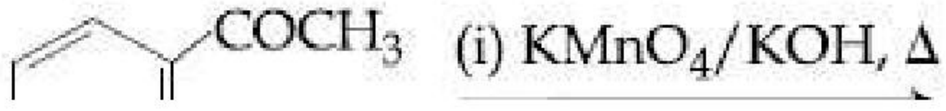
3. 

4. 

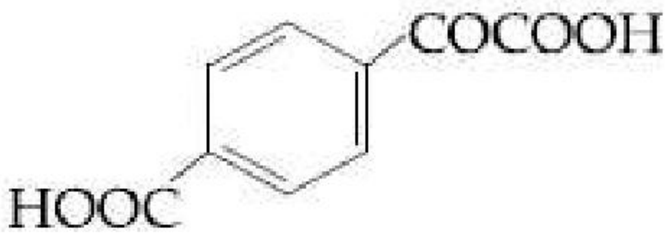
Question Number : 33 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

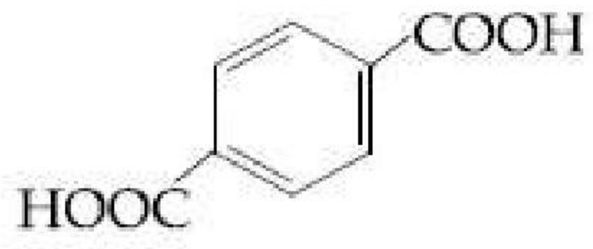
Correct Marks : 4 Wrong Marks : 1

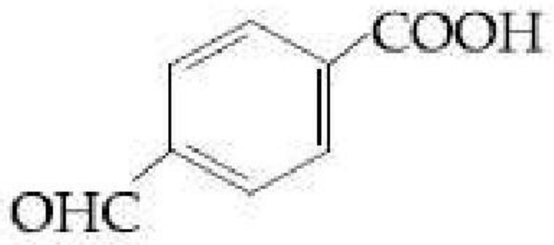
The major product of the following reaction is

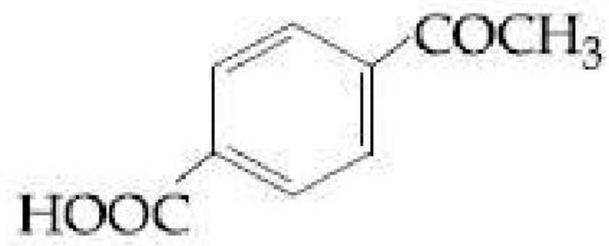


ZOLLEGE.in

1. 

2. 

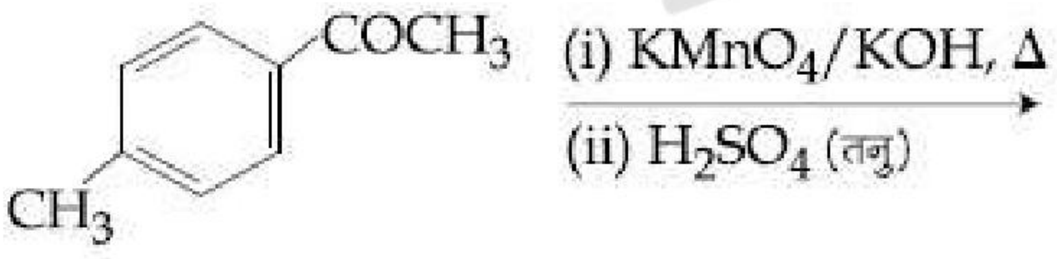
3. 

4. 

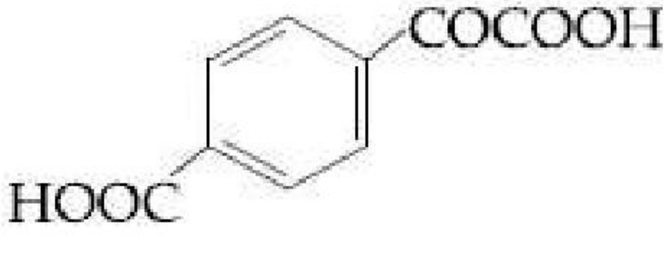
Question Number : 33 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

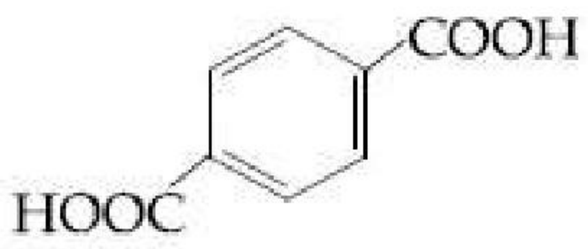
Correct Marks : 4 Wrong Marks : 1

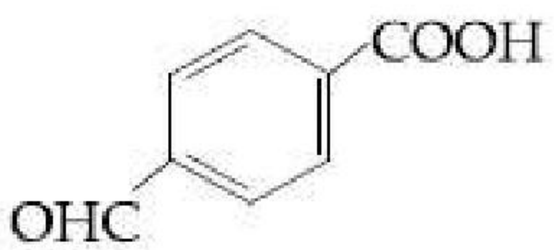
निम्नलिखित अभिक्रिया का मुख्य उत्पाद है :



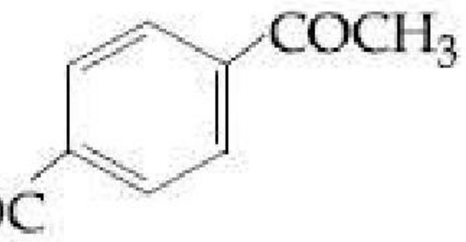
Options :

1. 

2. 

3. 

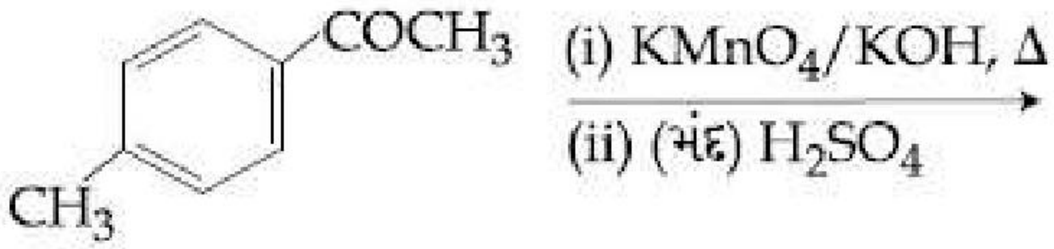
ZOLLEGE.in

4. 

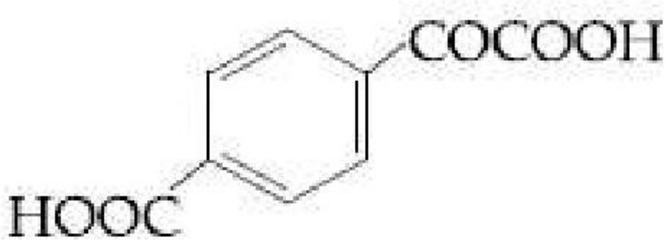
Question Number : 33 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

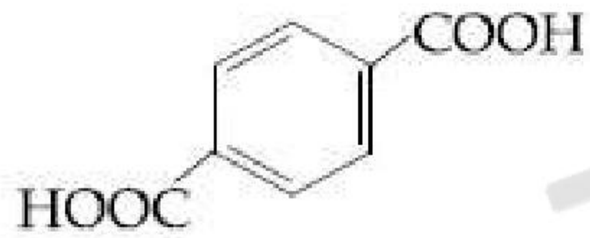
Correct Marks : 4 Wrong Marks : 1

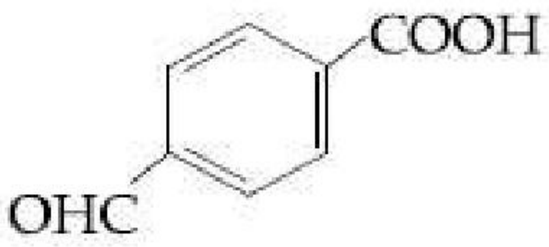
નીચે આપેલી પ્રક્રિયાની મુખ્ય નીપજ શોધો ?

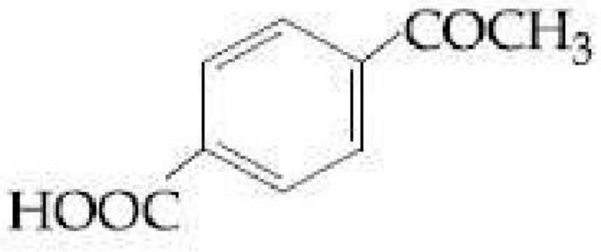


Options :

1. 

2. 

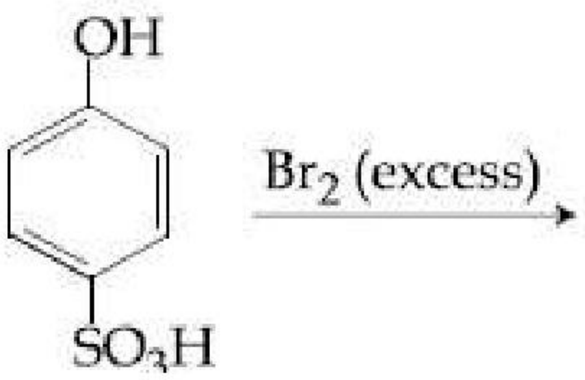
3. 

4. 

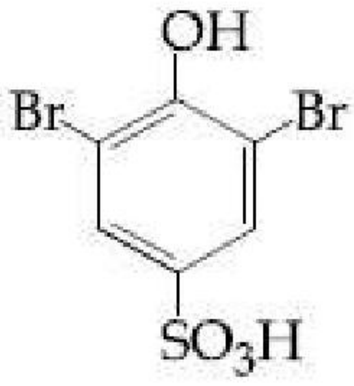
Question Number : 34 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

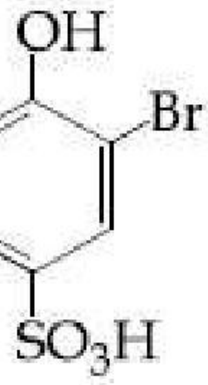
Correct Marks : 4 Wrong Marks : 1

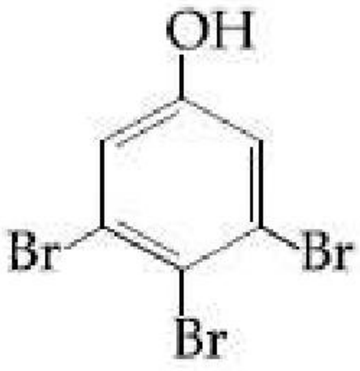
The major product of the following reaction is :

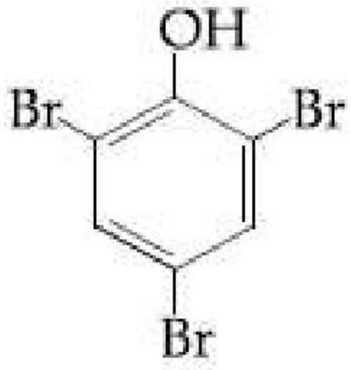


ZOLLEGE.in

1. 

2. 

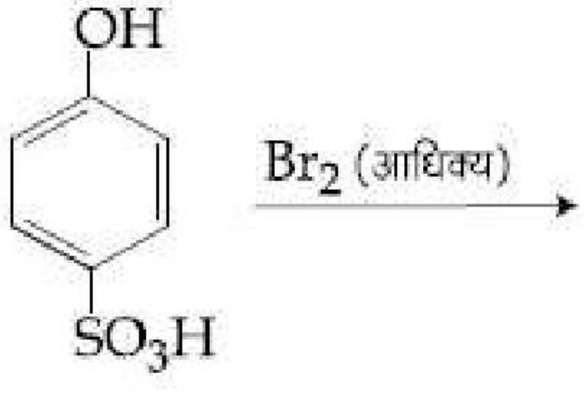
3. 

4. 

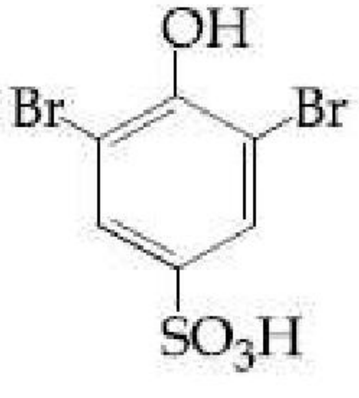
Question Number : 34 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

निम्नलिखित अभिक्रिया का मुख्य उत्पाद है :



Options :

1. 

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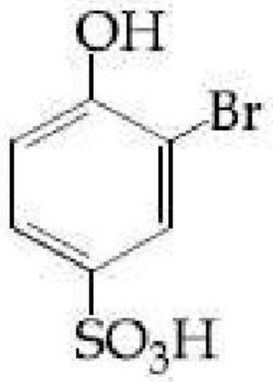
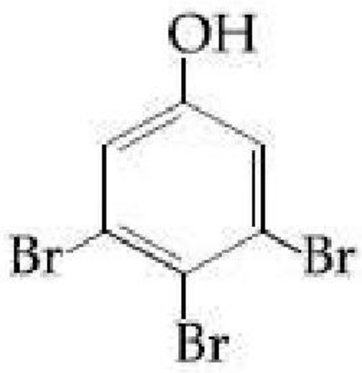
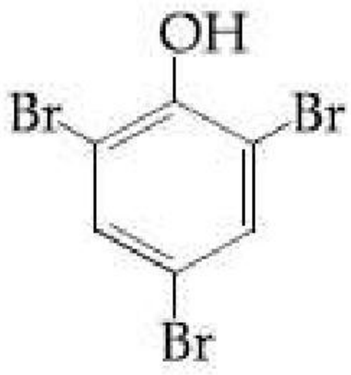
2. 

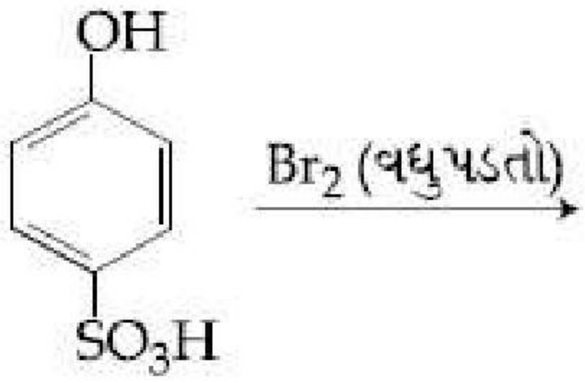
3. 

4. 

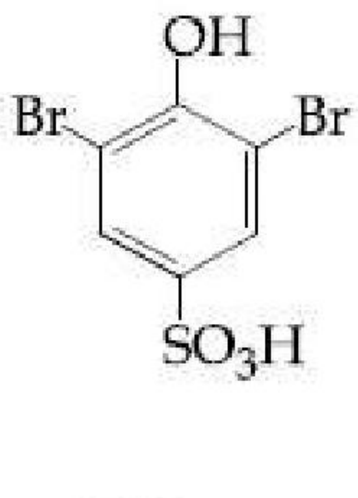
Question Number : 34 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

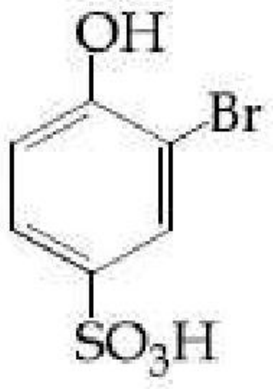
Correct Marks : 4 Wrong Marks : 1

નીચે આપેલી પ્રક્રિયાની મુખ્ય નીપજ શોધો ?



Options :

1. 

2. 

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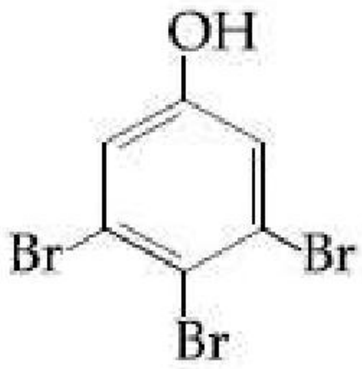
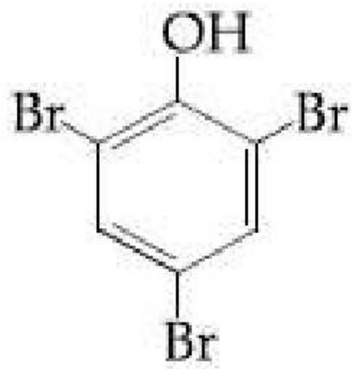
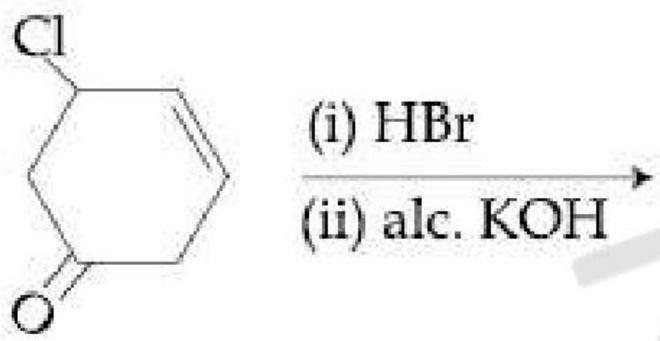
3. 

4. 

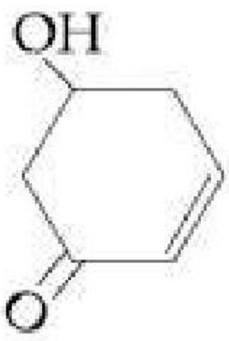
Question Number : 35 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

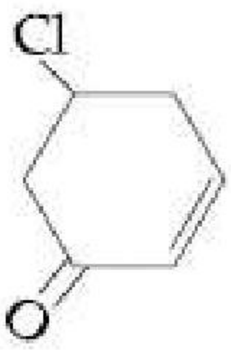
Correct Marks : 4 Wrong Marks : 1

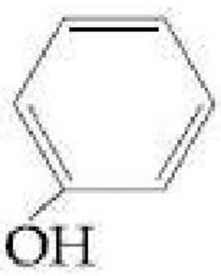
The major product of the following reaction is :

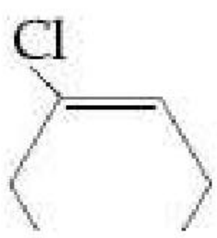


Options :

1. 

2. 

3. 

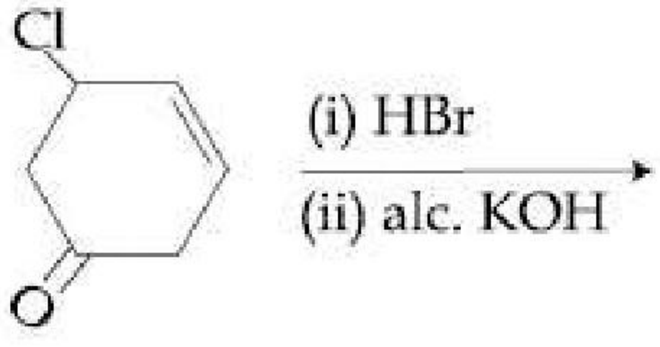


ZOLLEGE.in

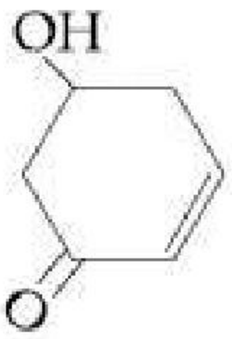
Question Number : 35 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

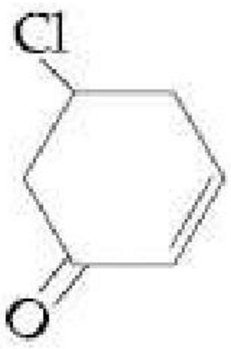
Correct Marks : 4 Wrong Marks : 1

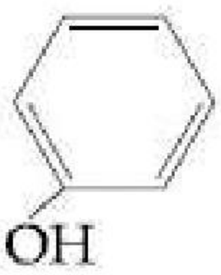
निम्नलिखित अभिक्रिया का मुख्य उत्पाद है :

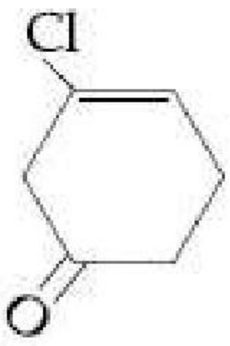


Options :

1. 

2. 

3. 

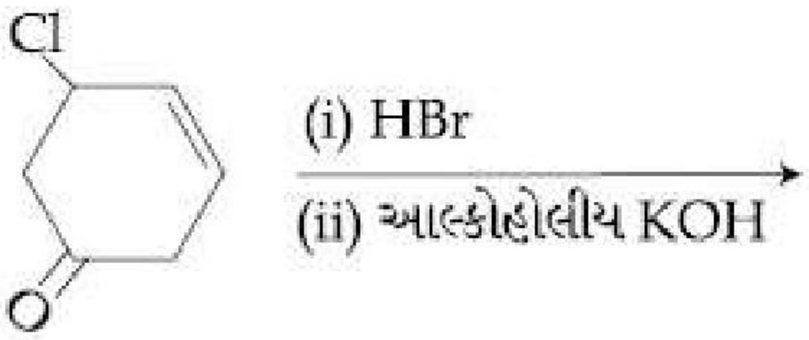
4. 

ZOLLEGE.in

Question Number : 35 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

નીચે આપેલી પ્રક્રિયાની મુખ્ય નીપજ શોધો ?



Options :

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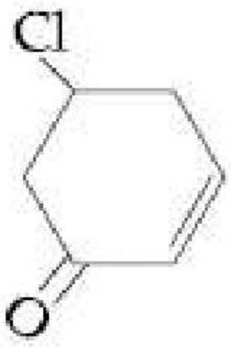
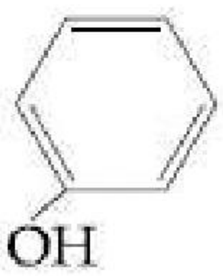
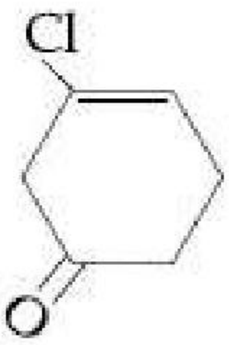
1.

2. 

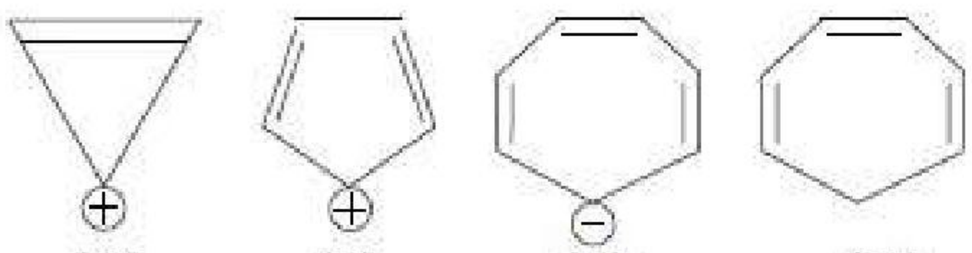
3. 

4. 

Question Number : 36 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Which compound (s) out of the following is/ are not aromatic ?



Options :

1. (B)

2. (A) and (C)

3. (B), (C) and (D)

4. (C) and (D)

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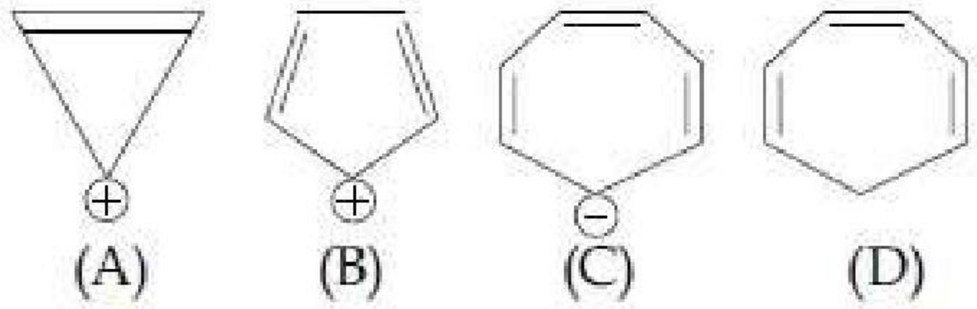
निम्नलिखित में से कौन सा/से यौगिक ऐरोमैटिक नहीं है/हैं?



Options :

1. (B)

2. (A) तथा (C)

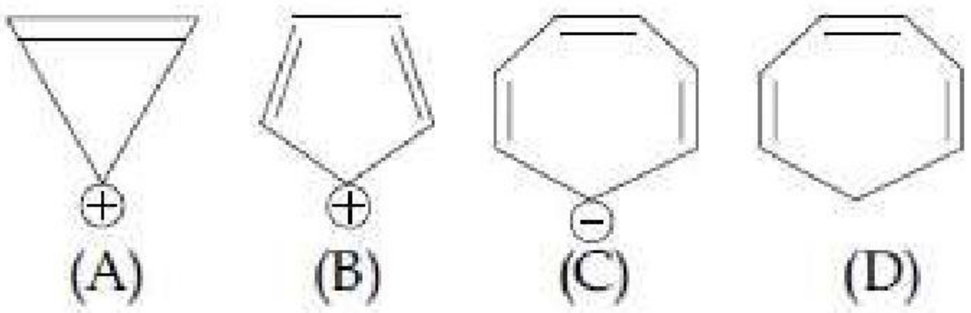
3. (B), (C) तथा (D)

4. (C) तथा (D)

Question Number : 36 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

નીચે આપેલા સંયોજન (નો) પૈકી કયો (યા) એરોમેટિક નથી?



Options :

1. (B)

2. (A) અને (C)

3. (B), (C) અને (D)

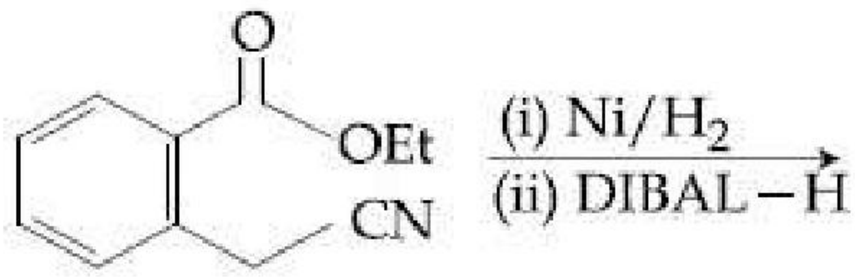
4. (C) અને (D)

Question Number : 37 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

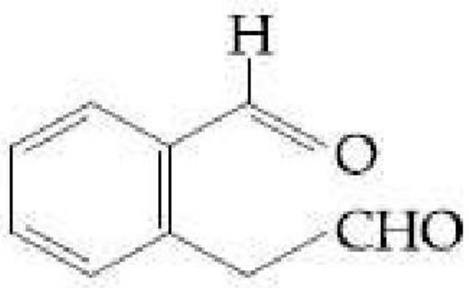
Correct Marks : 4 Wrong Marks : 1

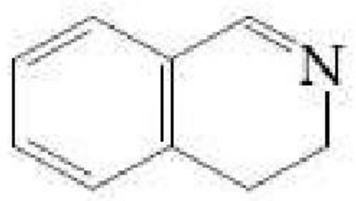
ZOLLEGE.in

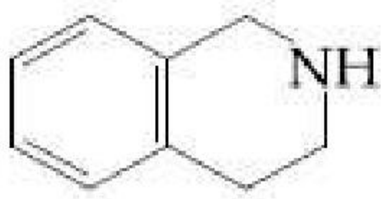
The major product of the following reaction is :

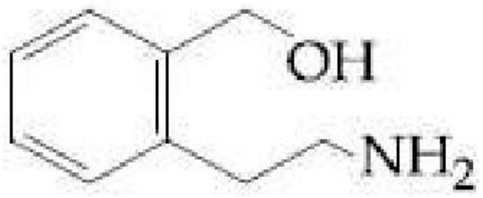


Options :

1. 

2. 

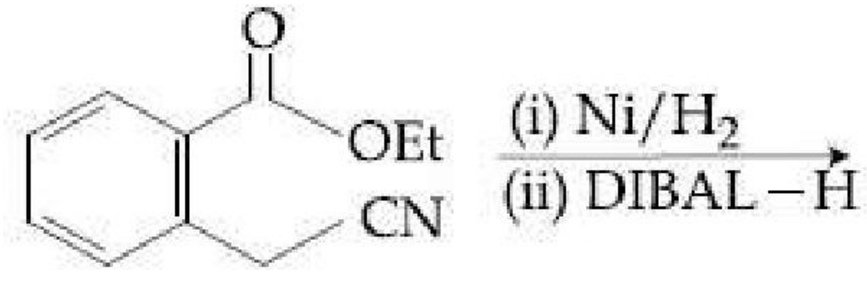
3. 

4. 

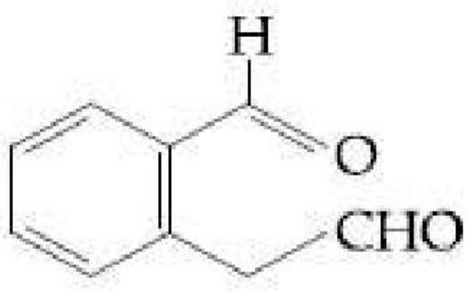
Question Number : 37 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

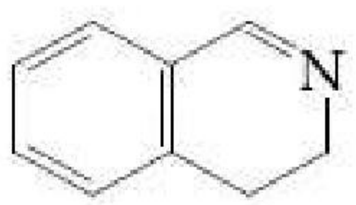
Correct Marks : 4 Wrong Marks : 1

निम्न अभिक्रिया से प्राप्त होनेवाला मुख्य उत्पाद है :



Options :

1. 

2. 

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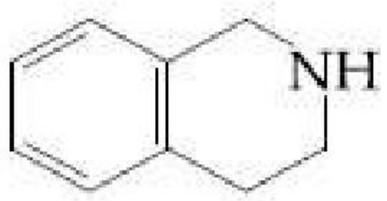
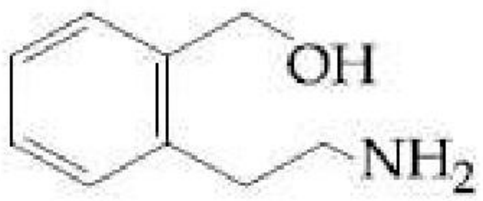
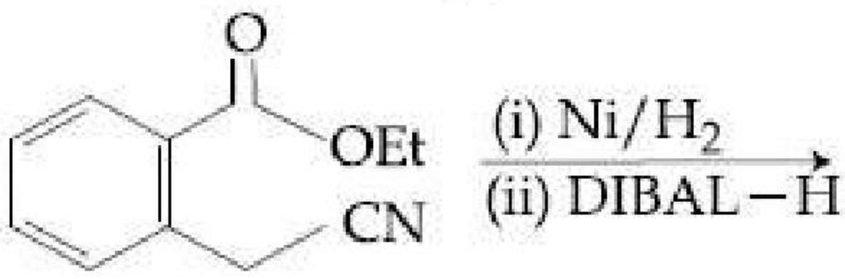
3. 

4. 

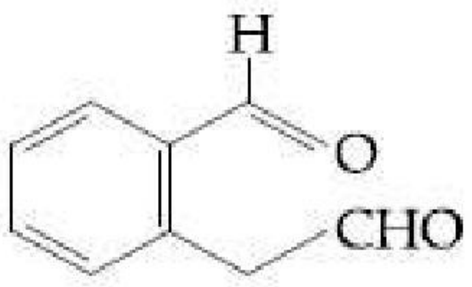
Question Number : 37 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

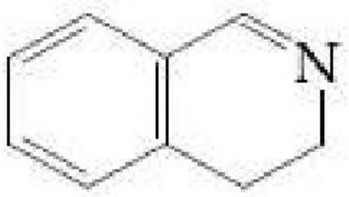
Correct Marks : 4 Wrong Marks : 1

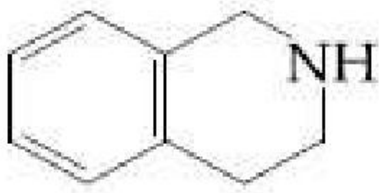
નીચે આપેલી પ્રક્રિયાની મુખ્ય નીપજ શોધો?

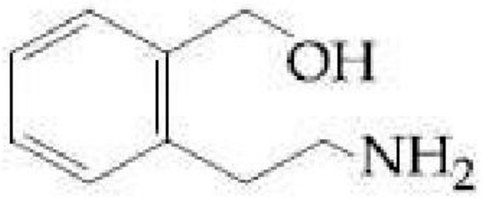


Options :

1. 

2. 

3. 

4. 

Question Number : 38 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

ZOLLEGE.in

The correct match between items I and II is :

Item - I (Mixture)		Item - II (Seperation method)
(A)	H_2O : Sugar	(P) Sublimation
(B)	H_2O : Aniline	(Q) Recrystallization
(C)	H_2O : Toluene	(R) Steam distillation
		(S) Differential extraction

Options :

1. (A) → (R); (B) → (P); (C) → (S)
2. (A) → (S); (B) → (R); (C) → (P)
3. (A) → (Q); (B) → (R); (C) → (S)
4. (A) → (Q); (B) → (R); (C) → (P)

Question Number : 38 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 4 Wrong Marks : 1

मदों I तथा II के बीच सही सुमेल है :

मद I (मिश्रण)		मद II (पृथक्करण विधि)
(A)	H_2O : शर्करा	(P) ऊर्ध्वपातन
(B)	H_2O : एनिलीन	(Q) पुनः क्रिस्टलन
(C)	H_2O : टॉलूईन	(R) भाप आसवन
		(S) प्रभाजी आसवन

Options :

1. (A) → (R); (B) → (P); (C) → (S)
2. (A) → (S); (B) → (R); (C) → (P)
3. (A) → (Q); (B) → (R); (C) → (S)
4. (A) → (Q); (B) → (R); (C) → (P)

Question Number : 38 Question Type : MCQ Option Shuffling : Yes Display Question Number

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સુચિ (I) અને સુચિ (II) સાથે યોગ્ય રીતે જોડો

	સુચિ I (મિશ્રણ)	સુચિ II (અલગીકરણ પદ્ધતી)
(A)	H_2O : શર્કરા	(P) ઊર્ધ્વપાતન
(B)	H_2O : એનિલીન	(Q) સ્ફટિકીકરણ
(C)	H_2O : ટોલ્યુઈન	(R) વરાળ નિસ્યંદન
		(S) વિકલ નિષ્કર્ષણ

Options :

1. (A)→(R); (B)→(P); (C)→(S)
2. (A)→(S); (B)→(R); (C)→(P)
3. (A)→(Q); (B)→(R); (C)→(S)
4. (A)→(Q); (B)→(R); (C)→(P)

Question Number : 39 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The correct match between item (I) and item (II) is :

	Item - I	Item - II
(A)	Norethindrone	(P) Anti-biotic
(B)	Ofloxacin	(Q) Anti-fertility
(C)	Equanil	(R) Hypertension
		(S) Analgesics

Options :

1. (A)→(R); (B)→(P); (C)→(S)
2. (A)→(R); (B)→(P); (C)→(R)
3. (A)→(Q); (B)→(R); (C)→(S)
4. (A)→(Q); (B)→(P); (C)→(R)

Question Number : 39 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

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मदों (I) तथा (II) के बीच सही सुमेल है :

	मद I		मद II
(A)	नॉरएथिनड्रान	(P)	प्रतिजैविक
(B)	आफ्लोक्सासिन	(Q)	प्रतिजनन क्षमता
(C)	इक्वैनिल	(R)	अतितनाव
		(S)	पीड़ाहारी

Options :

1. (A)→(R); (B)→(P); (C)→(S)

2. (A)→(R); (B)→(P); (C)→(R)

3. (A)→(Q); (B)→(R); (C)→(S)

4. (A)→(Q); (B)→(P); (C)→(R)

Question Number : 39 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

સુચિ (I) અને સુચિ (II) સાથે યોગ્ય રીતે જોડો

	સુચિ I		સુચિ II
(A)	નોરઇથિનડ્રોન	(P)	પ્રતિજૈવ દ્રવ્યો
(B)	ઓફ્લોક્સાસિન	(Q)	ગર્ભનિરોધક
(C)	ઇક્વાનિલ	(R)	રક્તદાબ રોધી
		(S)	વેદનાહર

Options :

1. (A)→(R); (B)→(P); (C)→(S)

2. (A)→(R); (B)→(P); (C)→(R)

3. (A)→(Q); (B)→(R); (C)→(S)

4. (A)→(Q); (B)→(P); (C)→(R)

Question Number : 40 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

An organic compound is estimated through Dumus method and was found to evolve 6 moles of CO_2, 4 moles of H_2O and 1 mole

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Options :

1. $C_{12}H_8N_2$

2. $C_{12}H_8N$

3. $C_6H_8N_2$

4. C_6H_8N

Question Number : 40 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

एक कार्बनिक यौगिक का ड्यूमा विधि से आकलन करने पर पाया गया कि 6 मोल CO_2, 4 मोल H_2O तथा 1 मोल नाइट्रोजन उत्सर्जित होते हैं। इस यौगिक का सूत्र है :

Options :

1. $C_{12}H_8N_2$

2. $C_{12}H_8N$

3. $C_6H_8N_2$

4. C_6H_8N

Question Number : 40 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

એક કાર્બનિક પદાર્થનું ડ્યુમાસ પદ્ધતી વડે પરીમાપન કરતા 6 મોલ CO_2, 4 મોલ H_2O અને 1 મોલ નાઇટ્રોજન વાયુ ઉદ્ભવે છે તેમ માલૂમ પડયું. તો સંયોજનું સૂત્ર શોધો

Options :

1. $C_{12}H_8N_2$

2. $C_{12}H_8N$

3. $C_6H_8N_2$

4. C_6H_8N

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Correct Marks : 4 Wrong Marks : 1

The correct order of the atomic radii of C, Cs, Al, and S is :

Options :

1. S < C < Cs < Al

2. C < S < Al < Cs

3. C < S < Cs < Al

4. S < C < Al < Cs

Question Number : 41 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

C, Cs, Al एवं S के परमाण्वीय त्रिज्याओं का सही अनुक्रम है :

Options :

1. S < C < Cs < Al

2. C < S < Al < Cs

3. C < S < Cs < Al

4. S < C < Al < Cs

Question Number : 41 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

C, Cs, Al અને S ની પરમાણ્વિય ત્રિજ્યાનો સાચો ક્રમ શોધો?

Options :

1. S < C < Cs < Al

2. C < S < Al < Cs

3. C < S < Cs < Al

4. S < C < Al < Cs

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Match the ores (**column A**) with the metals (**column B**) :

(Column A) Ores		(Column B) Metals	
(I)	Siderite	(a)	Zinc
(II)	Kaolinite	(b)	Copper
(III)	Malachite	(c)	Iron
(IV)	Calamine	(d)	Aluminium

Options :

1. (I) - (a); (II) - (b); (III) - (c); (IV) - (d)
2. (I) - (c); (II) - (d); (III) - (b); (IV) - (a)
3. (I) - (b); (II) - (c); (III) - (d); (IV) - (a)
4. (I) - (c); (II) - (d); (III) - (a); (IV) - (b)

Question Number : 42 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

अयस्कों (**कालम A**) को धातुओं (**कालम B**) के साथ सुमेलित कीजिए :

(कालम A) अयस्क		(कालम B) धातु	
(I)	सिडेराइट	(a)	जिंक
(II)	केओलिनाइट	(b)	कॉपर
(III)	मैलेकाइट	(c)	आयरन
(IV)	कैलामाइन	(d)	एलूमीनियम

Options :

1. (I) - (a); (II) - (b); (III) - (c); (IV) - (d)
2. (I) - (c); (II) - (d); (III) - (b); (IV) - (a)
3. (I) - (b); (II) - (c); (III) - (d); (IV) - (a)
4. (I) - (c); (II) - (d); (III) - (a); (IV) - (b)

Question Number : 42 Question Type : MCQ Option Shuffling : Yes Display Question Number No Option Orientation : Vertical

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સ્તંભ **A** માં આપેલા અયસ્કો ને સ્તંભ **B** માં આપેલી ધાતુ સાથે યોગ્ય રીતે જોડો :

	(સ્તંભ **A**) અયસ્ક		(સ્તંભ **B**) ધાતુ
(I)	સેડેરાઇટ	(a)	ઝિંક
(II)	કાઉલિનાઇટ	(b)	કોપર
(III)	મેલેચાઇટ	(c)	આર્યન
(IV)	કેલેમાઇન	(d)	એલ્યુમિનિયમ

Options :

1. (I) - (a); (II) - (b); (III) - (c); (IV) - (d)
2. (I) - (c); (II) - (d); (III) - (b); (IV) - (a)
3. (I) - (b); (II) - (c); (III) - (d); (IV) - (a)
4. (I) - (c); (II) - (d); (III) - (a); (IV) - (b)

Question Number : 43 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 4 Wrong Marks : 1

NaH एक उदाहरण है :

Options :

1. धात्विक हाइड्राइड का
2. आण्विक हाइड्राइड का
3. लवण हाइड्राइड का
4. इलेक्ट्रॉन-धनी हाइड्राइड का

Question Number : 43 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 4 Wrong Marks : 1

NaH એક કોનું ઉદાહરણ છે?

Options :

1. ધાત્વીય હાઇડ્રાઇડ
2. આણ્વિક હાઇડ્રાઇડ

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3. ક્ષારીય હાઇડ્રાઇડ

4. ઇલેક્ટ્રોન સંમૃધ્ધ હાઇડ્રાઇડ

Question Number : 43 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

NaH is an example of :

Options :

1. metallic hydride

2. molecular hydride

3. saline hydride

4. electron-rich hydride

Question Number : 44 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The correct statements among (a) to (d) regarding H_2 as a fuel are :

(a) It produces less pollutants than petrol.

(b) A cylinder of compressed dihydrogen weighs ~30 times more than a petrol tank producing the same amount of energy.

(c) Dihydrogen is stored in tanks of metal alloys like $NaNi_5$.

(d) On combustion, values of energy released per gram of liquid dihydrogen and LPG are 50 and 142 kJ, respectively.

Options :

1. (a) and (c) only

2. (b), (c) and (d) only

3. (b) and (d) only

4. (a), (b) and (c) only

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Question Number : 44 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

ईंधन के रूप में H_2 के बारे में, (a) से (d) में से सही कथन हैं :

(a) यह पेट्रोल की अपेक्षा कम प्रदूषकों को बनाता है।

(b) उसी मात्रा की ऊर्जा उत्पन्न करने के लिए एक पेट्रोल टैंक की तुलना में एक संपीडित डाइहाइड्रोजन का सिलिन्डर ~30 गुना अधिक भारी होता है।

(c) डाइहाइड्रोजन को $NaNi_5$ की तरह के धातु मिश्रातु के टैंक में रखा जाता है।

(d) दहन के उपरांत, प्रति ग्राम द्रवित डाइहाइड्रोजन तथा LPG से उत्सर्जित ऊर्जा के मान क्रमश: 50 तथा 142 kJ हैं।

Options :

1. (a) तथा (c) मात्र

2. (b), (c) तथा (d) मात्र

3. (b) तथा (d) मात्र

4. (a), (b) तथा (c) मात्र

Question Number : 44 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

H_2 માટે એક બળતણ તરીકે નીચે આપેલા વિધાનો પૈકી (a) થી (d) પૈકી કયા વિધાનો સાચા છે?

(a) પેટ્રોલ કરતા ઓછા પ્રદૂષકો પૈદા કરે છે.

(b) સંકોચિત ડાયહાઇડ્રોજન નો એક બાટલો પેટ્રોલની ટાંકી કરતા વજનમાં ~30 ગણો વધારે હોય છે જે સરખા જથ્થાની શક્તિ ઉત્પન્ન કરે છે.

(c) ડાયહાઇડ્રોજનને $NaNi_5$ જેવી મિશ્ર ધાતુની ટાંકીમાં સંગ્રહ કરવામાં આવે છે.

(d) દહન કરતા, પ્રવાહી ડાઇનાઇટ્રોજન અને LPG

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1. ફક્ત (a) અને (c)

2. ફક્ત (b), (c) અને (d)

3. ફક્ત (b) અને (d)

4. ફક્ત (a), (b) અને (c)

Question Number : 45 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The amphoteric hydroxide is :

Options :

1. $Be(OH)_2$

2. $Mg(OH)_2$

3. $Ca(OH)_2$

4. $Sr(OH)_2$

Question Number : 45 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

उभयधर्मी हाइड्राक्साइड है :

Options :

1. $Be(OH)_2$

2. $Mg(OH)_2$

3. $Ca(OH)_2$

4. $Sr(OH)_2$

Question Number : 45 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

ઉભયગુણી હાઇડ્રોક્સાઇડ શોધો?

Options :

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2. $Mg(OH)_2$

3. $Ca(OH)_2$

4. $Sr(OH)_2$

Question Number : 46 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The chloride that CANNOT get hydrolysed is :

Options :

1. CCl_4

2. $SiCl_4$

3. $SnCl_4$

4. $PbCl_4$

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Question Number : 46 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

क्लोराइड जिसका जल-अपघटन नहीं हो सकता है, वह है :

Options :

1. CCl_4

2. $SiCl_4$

3. $SnCl_4$

4. $PbCl_4$

Question Number : 46 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

નીચે આપેલ પૈકી કયો ક્લોરાઇડ જળવિભાજન પામી શકતો નથી?

Options :

2. $SiCl_4$

3. $SnCl_4$

4. $PbCl_4$

Question Number : 47 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The element that usually does **NOT** show variable oxidation states is :

Options :

1. Sc

2. Cu

3. Ti

4. V

Question Number : 47 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

सामान्य रूप से परिवर्तनीय आक्सीकरण अवस्था नहीं प्रदर्शित करने वाला तत्व है :

Options :

1. Sc

2. Cu

3. Ti

4. V

Question Number : 47 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

તત્વ જે સાધારણ રીતે ચલિત ઓક્સિજેશન અવસ્થા દર્શાવતો નથી તે શોધો?

Options :

1. Sc

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3. Ti

4. V

Question Number : 48 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Match the metals **(column I)** with the coordination compound(s)/enzyme(s) **(column II)** :

(column I)		**(column II)**
Metals		**Coordination compound(s)/enzyme(s)**
(A) Co	(i)	Wilkinson catalyst
(B) Zn	(ii)	Chlorophyll
(C) Rh	(iii)	Vitamin B_{12}
(D) Mg	(iv)	Carbonic anhydrase

Options :

1. (A)-(ii); (B)-(i); (C)-(iv); (D)-(iii)

2. (A)-(iv); (B)-(iii); (C)-(i); (D)-(ii)

3. (A)-(i); (B)-(ii); (C)-(iii); (D)-(iv)

4. (A)-(iii); (B)-(iv); (C)-(i); (D)-(ii)

Question Number : 48 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

धातुओं (**कालम 1**) को उपसहसंयोजन यौगिकों/एन्जाइम (**कालम II**) के साथ सुमेलित कीजिए :

(कालम I)		**(कालम II)**
धातु		**उपसहसंयोजन यौगिक/एन्जाइम**
(A) Co	(i)	विल्किंसन उत्प्रेरक
(B) Zn	(ii)	क्लोरोफिल
(C) Rh	(iii)	विटामिन B_{12}
(D) Mg	(iv)	कार्बोनिक एन्हाइड्रेज

Options :

1. (A)-(ii); (B)-(i); (C)-(iv); (D)-(iii)

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3. (A)-(i); (B)-(ii); (C)-(iii); (D)-(iv)

4. (A)-(iii); (B)-(iv); (C)-(i); (D)-(ii)

Question Number : 48 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

સ્તંભ I માં આપેલી ધાતુઓને સ્તંભ II માં આપેલા સંકિર્ણ સંયોજન (નો)/ઉત્સેચક(કો) ને જોડો.

(સ્તંભ I)		(સ્તંભ II)
ધાતુ		સંકિર્ણ સંયોજન (નો)/ઉત્સેચક(કો)
(A) Co	(i)	વિલ્કિન્સન ઉદ્દીપક
(B) Zn	(ii)	ક્લોરોફિલ
(C) Rh	(iii)	વિટામિન B_{12}
(D) Mg	(iv)	કાર્બોનિક એન્હાઇડ્રેસ

Options :

1. (A)-(ii); (B)-(i); (C)-(iv); (D)-(iii)

2. (A)-(iv); (B)-(iii); (C)-(i); (D)-(ii)

3. (A)-(i); (B)-(ii); (C)-(iii); (D)-(iv)

4. (A)-(iii); (B)-(iv); (C)-(i); (D)-(ii)

Question Number : 49 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The concentration of dissolved oxygen (DO) in cold water can go upto :

Options :

1. 8 ppm

2. 10 ppm

3. 14 ppm

4. 16 ppm

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ठंडे जल में घुलित ऑक्सीजन (DO) के सान्द्रता की ऊपरी सीमा हो सकती है :

Options :

1. 8 ppm

2. 10 ppm

3. 14 ppm

4. 16 ppm

Question Number : 49 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

ઠંડા પાણીમાં ઓગાળેલા ઓક્સિજન (DO)નું સાંદ્રણ કયા સુધી જઈ શકે તે શોધો?

Options :

1. 8 ppm

2. 10 ppm

3. 14 ppm

4. 16 ppm

Question Number : 50 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Peroxyacetyl nitrate (PAN), an eye irritant is produced by :

Options :

1. acid rain

2. organic waste

3. photochemical smog

4. classical smog

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परावसीएसीटाइल नाइट्रेट (PAN), एक नेत्र उत्तेजक, निम्नलिखित में से किससे उत्पन्न होता है?

Options :

1. अम्ल वर्षा

2. कार्बनिक अपशिष्ट

3. प्रकाश रासायनिक धूमकुहा

4. चिरसम्मत धूमकुहा

Question Number : 50 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

પરાઓક્સિએસીટાઇલ નાઇટ્રેટ (PAN)થી આંખોમા બળતરા થાય છે જે નીચે આપેલા કોના માંથી બને છે?

Options :

1. એસિડ વર્ષા

2. કાર્બનિક કચરો

3. પ્રકાશક્રિયાશીલ ધુમ-ધુમ્મસ

4. પારંપારિક (classical) ધુમ-ધુમ્મસ

Question Number : 51 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

A 10 mg effervescent tablet containing sodium bicarbonate and oxalic acid releases 0.25 ml of CO_2 at T = 298.15 K and p = 1 bar. If molar volume of CO_2 is 25.0 L under such condition, what is the percentage of sodium bicarbonate in each tablet ?

[Molar mass of $NaHCO_3 = 84\ g\ mol^{-1}$]

Options :

1. 8.4

2. 0.84

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4. 33.6

Question Number : 51 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

सोडियम बाइकार्बोनेट तथा आक्सैलिक अम्ल युक्त एक 10 mg का बुदबुदाने वाला टैबलेट $T = 298.15$ K तथा $p = 1$ bar पर 0.25 ml CO_2 उत्सर्जित करता है। ऐसी दशा में, यदि CO_2 का मोलर आयतन 25.0 L है, तो प्रत्येक टैबलेट में सोडियम बाइकार्बोनेट का क्या प्रतिशत है? ($NaHCO_3$ का मोलर द्रव्यमान = 84 g mol^{-1})

Options :

1. 8.4

2. 0.84

3. 16.8

4. 33.6

Question Number : 51 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

298.15 K તાપમાને અને 1 બાર (bar) દબાણે, સોડિયમ બાયકાર્બોનેટ અને ઑક્ઝલીક એસિડ ધરાવતી 10 mg ની ઉભરો આપતી ગોળી 0.25 ml CO_2 ને મુક્ત કરે છે. જો CO_2 નું મોલર કદ 25.0 L હોય તો આ સ્થિતિમાં દરેક ગોળીમાં સોડિયમ કાર્બોનેટના ટકા શોધો? ($NaHCO_3$ નું મોલર દળ = 84 g mol^{-1})

Options :

1. 8.4

2. 0.84

3. 16.8

4. 33.6

Question Number : 52 Question Type : MCQ Option Shuffling : Yes Display Question Number

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A solid having density of 9×10^3 kg m^{-3} forms face centred cubic crystals of edge length $200\sqrt{2}$ pm. What is the molar mass of the solid ?

[Avogadro constant $\cong 6\times10^{23}$ mol^{-1}, $\pi \cong 3$]

Options :

1. 0.0432 kg mol^{-1}

2. 0.4320 kg mol^{-1}

3. 0.0216 kg mol^{-1}

4. 0.0305 kg mol^{-1}

Question Number : 52 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

एक ठोस, जिसका घनत्व 9×10^3 kg m^{-3} है, फलक केन्द्रित घनीय क्रिस्टल बनाता है जिसके कोर की लम्बाई $200\sqrt{2}$ pm है। ठोस का मोलर द्रव्यमान क्या है?

[अवागाद्रो नियतांक $\cong 6\times10^{23}$ mol^{-1}, $\pi \cong 3$]

Options :

1. 0.0432 kg mol^{-1}

2. 0.4320 kg mol^{-1}

3. 0.0216 kg mol^{-1}

4. 0.0305 kg mol^{-1}

Question Number : 52 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

એક ઘન જેની ઘનતા 9×10^3 kg m^{-3} છે, તે $200\sqrt{2}$ pm ધાર લંબાઈ ધરાવતો ફલક કેન્દ્રીત ઘન સ્ફટિક બનાવે છે. આ ઘનનું મોલર દળ કેટલું ?

[એવોગેડ્રો અચળાંક $\cong 6\times10^{23}$ mol^{-1}, $\pi \cong 3$]

Options :

1. 0.0432 kg mol^{-1}

2. 0.4320 kg mol^{-1}

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3. $0.0216\ \text{kg mol}^{-1}$

4. $0.0305\ \text{kg mol}^{-1}$

Question Number : 53 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Heat treatment of muscular pain involves radiation of wavelength of about 900 nm. Which spectral line of H-atom is suitable for this purpose ?
[$R_H = 1 \times 10^5\ \text{cm}^{-1}$, $h = 6.6 \times 10^{-34}$ Js, $c = 3 \times 10^8\ \text{ms}^{-1}$]

Options :

1. Lyman, $\infty \rightarrow 1$

2. Balmer, $\infty \rightarrow 2$

3. Paschen, $5 \rightarrow 3$

4. Paschen, $\infty \rightarrow 3$

Question Number : 53 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

मांसपेशीय दर्द के ऊष्मा उपचार के लिए लगभग 900 nm के तरंगदैर्ध्य के विकिरण का उपयोग होता है। इसके लिए H-परमाणु की कौनसी स्पेक्ट्रल लाइन उपयुक्त है?

[$R_H = 1 \times 10^5\ \text{cm}^{-1}$, $h = 6.6 \times 10^{-34}$ Js, $c = 3 \times 10^8\ \text{ms}^{-1}$]

Options :

1. लाईमैन, $\infty \rightarrow 1$

2. बामर, $\infty \rightarrow 2$

3. पाशन, $5 \rightarrow 3$

4. पाशन, $\infty \rightarrow 3$

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Correct Marks : 4 Wrong Marks : 1

સ્નાયુઓની પીડાની ગરમીથી થતી સારવારમાં લગભગ 900 nm તરંગલંબાઈના કિરણો વપરાય છે. H-પરમાણુની કઇ વર્ણપટીય રેખા આ હેતુ માટે યોગ્ય છે?

$[R_H = 1 \times 10^5\ cm^{-1},\ h = 6.6 \times 10^{-34}\ Js,\ c = 3 \times 10^8\ ms^{-1}]$

Options :

1. લાઇમન, $\infty \rightarrow 1$

2. બામર, $\infty \rightarrow 2$

3. પાશ્ચન, $5 \rightarrow 3$

4. પાશ્ચન, $\infty \rightarrow 3$

Question Number : 54 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

रासायनिक अभिक्रिया $X = Y$ के लिए, मानक अभिक्रिया गिब्स ऊर्जा ताप (K में) पर निम्नलिखित की तरह आश्रित होती है :

$$\Delta_r G^\circ\ (\text{in kJ mol}^{-1}) = 120 - \frac{3}{8} T$$

अभिक्रिया मिश्रण का मुख्य संघटक T पर है :

Options :

1. X यदि $T = 350\ K$

2. Y यदि $T = 300\ K$

3. X यदि $T = 315\ K$

4. Y यदि $T = 280\ K$

Question Number : 54 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

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આપેલી રાસાયણિક પ્રક્રિયા $X = Y$ માટે, પ્રમાણિત પ્રક્રિયા ગિબ્સ શક્તિ તાપમાન T (K માં) પર નીચે મુજબ આધારિત છે.

$$\Delta_r G^\circ \text{ (in kJ mol}^{-1}) = 120 - \frac{3}{8} T$$

તો T તાપમાને પ્રક્રિયા મિશ્રણનો મુખ્ય ઘટક કયો?

Options :

1. X જો $T = 350$ K

2. Y જો $T = 300$ K

3. X જો $T = 315$ K

4. Y જો $T = 280$ K

Question Number : 54 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

For the chemical reaction $X = Y$, the standard reaction Gibbs energy depends on temperature T (in K) as

$$\Delta_r G^\circ \text{ (in kJ mol}^{-1}) = 120 - \frac{3}{8} T.$$

The major component of the reaction mixture at T is :

Options :

1. X if $T = 350$ K

2. Y if $T = 300$ K

3. X if $T = 315$ K

4. Y if $T = 280$ K

Question Number : 55 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Two blocks of the same metal having same mass and at temperature T_1 and T_2, respectively, are brought in contact with

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Options :

1. $2C_p \ln\left(\frac{T_1 + T_2}{4T_1T_2}\right)$

2. $C_p \ln\left[\frac{(T_1 + T_2)^2}{4T_1T_2}\right]$

3. $2C_p \ln\left[\frac{T_1 + T_2}{2T_1T_2}\right]$

4. $2C_p \ln\left[\frac{(T_1 + T_2)^{\frac{1}{2}}}{T_1T_2}\right]$

Question Number : 55 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

एक ही धातु के समान संहति वाले दो ब्लाकों को क्रमश: ताप T_1 तथा T_2 पर परस्पर एक दूसरे के सम्पर्क में लाया गया तथा नियत दाब पर ऊष्मीय साम्य प्राप्त करने दिया गया। इस प्रक्रम में, एन्ट्रापी परिवर्तन ΔS है :

Options :

1. $2C_p \ln\left(\frac{T_1 + T_2}{4T_1T_2}\right)$

2. $C_p \ln\left[\frac{(T_1 + T_2)^2}{4T_1T_2}\right]$

3. $2C_p \ln\left[\frac{T_1 + T_2}{2T_1T_2}\right]$

4. $2C_p \ln\left[\frac{(T_1 + T_2)^{\frac{1}{2}}}{T_1T_2}\right]$

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Question Number : 55 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

સરખી ધાતુના સરખા દળ ધરાવતા બે ટુકડાઓનું (બ્લોક) તાપમાન અનુક્રમે T_1 અને T_2 છે, તેમને એક બીજાના સંપર્કમાં લાવવામાં આવે છે અને અચળ દબાણે ઊષ્મીય સંતુલન પ્રાપ્ત કરવા દેવામાં આવે છે આ પ્રક્રિયામાટે એન્ટ્રોપી ΔS માં થતો ફેરફાર છે.

Options :

1. $2C_p \ln\left(\frac{T_1 + T_2}{4T_1T_2}\right)$

2. $C_p \ln\left[\frac{(T_1 + T_2)^2}{4T_1T_2}\right]$

3. $2C_p \ln\left[\frac{T_1 + T_2}{2T_1T_2}\right]$

4. $2C_p \ln\left[\frac{(T_1 + T_2)^{\frac{1}{2}}}{T_1T_2}\right]$

Question Number : 56 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The freezing point of a diluted milk sample is found to be $-0.2°C$, while it should have been $-0.5°C$ for pure milk. How much water has been added to pure milk to make the diluted sample ?

Options :

1. 1 cup of water to 2 cups of pure milk

2. 2 cups of water to 3 cups of pure milk

3. 3 cups of water to 2 cups of pure milk

4. 1 cup of water to 3 cups of pure milk

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Correct Marks : 4 Wrong Marks : 1

एक तनुकृत दुग्ध प्रतिदर्श का हिमांक $-0.2°C$ पाया गया, जबकि विशुद्ध दुग्ध का हिमांक $-0.5°C$ होना चाहिए। तनुकृत दुग्ध प्रतिदर्श को बनाने के लिए विशुद्ध दुग्ध में कितना जल मिलाया गया है?

Options :

1. 2 कप विशुद्ध दुग्ध में 1 कप जल

2. 3 कप विशुद्ध दुग्ध में 2 कप जल

3. 2 कप विशुद्ध दुग्ध में 3 कप जल

4. 3 कप विशुद्ध दुग्ध में 1 कप जल

Question Number : 56 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

મંદ કરેલા એક દૂધના નમૂનાનું ઠાર બિંદુ $-0.2°C$ માલુમ પડેલ છે, જ્યારે શુધ્ધ દૂધ માટે તે $-0.5°C$ હોવું જોઇતું હતું શુધ્ધ દૂધનો મંદ નમૂનો બનાવવા માટે તેમા કેટલું પાણી ઉમેર્યું હતું ?

Options :

1. 2 પ્યાલા શુધ્ધ દૂધમાં 1 પ્યાલો પાણીનો

2. 3 પ્યાલા શુધ્ધ દૂધમાં 2 પ્યાલો પાણીનો

3. 2 પ્યાલા શુધ્ધ દૂધમાં 3 પ્યાલો પાણીનો

4. 3 પ્યાલા શુધ્ધ દૂધમાં 1 પ્યાલો પાણીનો

Question Number : 57 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Consider the reaction

$$N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$$

The equilibrium constant of the above reaction is K_p. If pure ammonia is left to dissociate, the partial pressure of ammonia at equilibrium is given by (Assume that

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1. $\frac{K_P^{1/2} P^2}{16}$

2. $\frac{3^{3/2} K_P^{1/2} P^2}{4}$

3. $\frac{K_P^{1/2} P^2}{4}$

4. $\frac{3^{3/2} K_P^{1/2} P^2}{16}$

Question Number : 57 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

निम्नलिखित अभिक्रिया पर विचार कीजिए :

$N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$

उपर्युक्त अभिक्रिया का साम्य स्थिरांक K_P है। यदि विशुद्ध अमोनिया को वियोजित होने दिया जाता है, तो साम्यावस्था पर अमोनिया का आंशिक दाब है :

(मान लीजिए साम्यावस्था पर $P_{NH_3} << P_{सम्पूर्ण}$)

Options :

1. $\frac{K_P^{1/2} P^2}{16}$

2. $\frac{3^{3/2} K_P^{1/2} P^2}{4}$

3. $\frac{K_P^{1/2} P^2}{4}$

$\frac{3^{3/2} K_P^{1/2} P^2}{16}$

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Question Number : 57 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

નીચેની પ્રક્રિયા ધ્યાનમાં લો,

$N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$

ઊપરની પ્રક્રિયાનો સંતુલન અચળાંક K_p છે. જો શુધ્ધ ઍમોનિયાને વિયોજન માટે છોડવામાં આવે તો સંતુલને એમોનિયાનું આંશિક દબાણ કેટલું ?

(સંતુલને $P_{NH_3} << P_{કુલ}$ એવું ધારો)

Options :

1. $\frac{K_p^{1/2} P^2}{16}$

2. $\frac{3^{3/2} K_p^{1/2} P^2}{4}$

3. $\frac{K_p^{1/2} P^2}{4}$

4. $\frac{3^{3/2} K_p^{1/2} P^2}{16}$

Question Number : 58 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

For the cell $Zn(s)|Zn^{2+}(aq)||M^{x+}(aq)|M(s)$, different half cells and their standard electrode potentials are given below :

$M^{x+}(aq)/M(s)$	$Au^{3+}(aq)/Au(s)$	$Ag^{+}(aq)/Ag(s)$	$Fe^{3+}(aq)/Fe^{2+}(aq)$	$Fe^{2+}(aq)/Fe(s)$
$E^{\circ}_{M^{x+}/M}/(V)$	1.40	0.80	0.77	−0.44

If $E^{\circ}_{Zn^{2+}/Zn} = -0.76$ V, which cathode will give a maximum value of E°_{cell} per electron transferred ?

Options :

1. Au^{3+}/Au

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3. Fe^{3+}/Fe^{2+}

4. Fe^{2+}/Fe

Question Number : 58 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

सेल $Zn(s)|Zn^{2+}(aq)\|M^{x+}(aq)|M(s)$ के लिए विभिन्न अर्द्ध-सेल तथा उनके मानक इलेक्ट्रोड विभव नीचे दिये गये हैं

$M^{x+}(aq)/M(s)$	$Au^{3+}(aq)/Au(s)$	$Ag^{+}(aq)/Ag(s)$	$Fe^{3+}(aq)/Fe^{2+}(aq)$	$Fe^{2+}(aq)/Fe(s)$
$E^{\circ}_{M^{x+}/M}/(V)$	1.40	0.80	0.77	−0.44

यदि $E^{\circ}_{Zn^{2+}/Zn} = -0.76$ V, तो प्रति इलेक्ट्रॉन स्थानांतरण के लिए कौन से कैथोड का E°_{cell} सर्वाधिक होगा :

Options :

1. Au^{3+}/Au

2. Ag^{+}/Ag

3. Fe^{3+}/Fe^{2+}

4. Fe^{2+}/Fe

Question Number : 58 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

આપેલ કોષ $Zn(s)|Zn^{2+}(aq)||M^{x+}(aq)|M(s)$ માટે જુદા-જુદા અર્ધકોષો અને તેમના પ્રમાણિત ધ્રુવ પોટેન્શિયલ નીચે મુજબ છે.

$M^{x+}(aq)/M(s)$	$Au^{3+}(aq)/Au(s)$	$Ag^{+}(aq)/Ag(s)$	$Fe^{3+}(aq)/Fe^{2+}(aq)$	$Fe^{2+}(aq)/Fe(s)$
$E^{\circ}_{M^{x+}/M}/(V)$	1.40	0.80	0.77	−0.44

જો $E^{\circ}_{Zn^{2+}/Zn} = -0.76$ V હોય તો, કયો કેથોડ પ્રતિ ઇલેક્ટ્રોન ફેરફાર માટે E°_{cell} નું મહત્તમ મૂલ્ય આપશે.

Options :

1. Au^{3+}/Au

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2. Ag^{+}/Ag

3. Fe^{3+}/Fe^{2+}

4. Fe^{2+}/Fe

Question Number : 59 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If a reaction follows the Arrhenius equation, the plot lnk vs $1/(RT)$ gives straight line with a gradient $(-y)$ unit. The energy required to activate the reactant is :

Options :

1. yR unit

2. y unit

3. $-y$ unit

4. y/R unit

Question Number : 59 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि एक अभिक्रिया आर्हेनिअस समीकरण का अनुसरण करती है, तो प्लाट lnk vs $1/(RT)$, तो प्रवणता $(-y)$ मात्रक के साथ एक सीधी रेखा देता है। अभिकारकों को सक्रिय करने के लिए आवश्यक ऊर्जा है :

Options :

1. yR मात्रक

2. y मात्रक

3. $-y$ मात्रक

4. y/R मात्रक

ZOLLEGE.in

Question Number : 59 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

જો એક પ્રક્રિયા આર્હેનિયસના સમીકરણને અનુસરતી હોય

તો lnk વિરૂધ્ધ $^{1}/_{(RT)}$ નો આલેખ સીધી રેખા આપશે,

જેનો ઢાળ $(-y)$ એકમ હશે પ્રક્રિયકને સક્રિય કરવા જરૂરી

શક્તિ કેટલી ?

Options :

1. yR એકમ

2. y એકમ

3. $-y$ એકમ

4. y/R એકમ

Question Number : 60 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

An example of solid sol is :

Options :

1. Gem stones

2. Paint

3. Butter

4. Hair cream

Question Number : 60 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

ठोस सॉल किसका एक उदाहरण है?

Options :

1. जेम स्टोन

2. पेन्ट

3. मक्खन

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Question Number : 60 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

ઘન સોલનું ઉદાહરણ :

Options :

1. મણિ રત્નો

2. રંગો

3. માખણ

4. વાળ માટેની ક્રિમ

Mathematics

Section Id :	416529132
Section Number :	3
Section type :	Online
Mandatory or Optional:	Mandatory
Number of Questions:	30
Number of Questions to be attempted:	30
Section Marks:	120
Display Number Panel:	Yes
Group All Questions:	No

Sub-Section Number:	1
Sub-Section Id:	416529141
Question Shuffling Allowed :	Yes

Question Number : 61 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Let $f : \mathbf{R} \to \mathbf{R}$ be defined by $f(x)=\frac{x}{1+x^2}$,

$x \in \mathbf{R}$. Then the range of f is :

Options :

1. $\mathbf{R}-\left[-\frac{1}{2}, \frac{1}{2}\right]$

2. $\mathbf{R}-[-1, 1]$

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4. $\left[-\frac{1}{2}, \frac{1}{2}\right]$

Question Number : 61 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

माना $f: \mathbf{R} \to \mathbf{R}$, $f(x)=\frac{x}{1+x^2}, x \in \mathbf{R}$ द्वारा परिभाषित किया गया है, तो f का परिसर है :

Options :

1. $\mathbf{R}-\left[-\frac{1}{2}, \frac{1}{2}\right]$

2. $\mathbf{R}-[-1,1]$

3. $(-1,1)-\{0\}$

4. $\left[-\frac{1}{2}, \frac{1}{2}\right]$

Question Number : 61 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

જો $f: \mathbf{R} \to \mathbf{R}$ એ $f(x)=\frac{x}{1+x^2}, x \in \mathbf{R}$ દ્વારા વ્યાખ્યાયિત વિધેય હોય તો f નો વિસ્તાર _____ છે.

Options :

1. $\mathbf{R}-\left[-\frac{1}{2}, \frac{1}{2}\right]$

2. $\mathbf{R}-[-1,1]$

3. $(-1,1)-\{0\}$

4. $\left[-\frac{1}{2}, \frac{1}{2}\right]$

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Question Number : 62 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If one real root of the quadratic equation $81x^2 + kx + 256 = 0$ is cube of the other root, then a value of k is :

Options :

1. -300

2. 100

3. 144

4. -81

Question Number : 62 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि द्विघात समीकरण $81x^2 + kx + 256 = 0$ का एक मूल दूसरे मूल का घन (cube) है, तो k का एक मान है :

Options :

1. -300

2. 100

3. 144

4. -81

Question Number : 62 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

જો દ્વિઘાત સમીકરણ $81x^2 + kx + 256 = 0$ નું એક વાસ્તવિક બીજ બીજા બીજના ઘન જેટલું હોય, તો k ની કિંમત _____ છે.

Options :

1. -300

2. 100

3. 144

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4. -81

Question Number : 63 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Let $\left(-2-\frac{1}{3}i\right)^3=\frac{x+iy}{27}$ $(i=\sqrt{-1})$, where x and y are real numbers, then $y-x$ equals :

Options :

1. 91

2. 85

3. -91

4. -85

Question Number : 63 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

माना $\left(-2-\frac{1}{3}i\right)^3=\frac{x+iy}{27}$ $(i=\sqrt{-1})$, जहाँ x तथा y वास्तविक संख्यायें हैं, तो $y-x$ बराबर है :

Options :

1. 91

2. 85

3. -91

4. -85

Question Number : 63 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

જો $\left(-2-\frac{1}{3}i\right)^3=\frac{x+iy}{27}$ $(i=\sqrt{-1})$ જ્યાં x અને y એ વાસ્તવિક સંખ્યાઓ હોય, તો $y-x$ =_____.

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2. 85

3. -91

4. -85

Question Number : 64 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Let $A=\begin{pmatrix} 0 & 2q & r \\ p & q & -r \\ p & -q & r \end{pmatrix}$. If $AA^T = I_3$, then

$|p|$ is :

Options :

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

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

3. $\frac{1}{\sqrt{5}}$

4. $\frac{1}{\sqrt{6}}$

Question Number : 64 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

माना $A=\begin{pmatrix} 0 & 2q & r \\ p & q & -r \\ p & -q & r \end{pmatrix}$. यदि $AA^T = I_3$, तो

$|p|$ बराबर है :

Options :

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

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

3. $\frac{1}{\sqrt{5}}$

4. $\frac{1}{\sqrt{6}}$

Question Number : 64 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

ધારોકે $A=\begin{pmatrix} 0 & 2q & r \\ p & q & -r \\ p & -q & r \end{pmatrix}$ છે. જો $AA^T = I_3$ હોય, તો $|p| =$ _____.

Options :

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

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

3. $\frac{1}{\sqrt{5}}$

4. $\frac{1}{\sqrt{6}}$

Question Number : 65 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If the system of linear equations

$2x+2y+3z=a$

$3x-y+5z=b$

$x-3y+2z=c$

where a, b, c are non-zero real numbers, has more than one solution, then :

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2. $b-c+a=0$

3. $b-c-a=0$

4. $a+b+c=0$

Question Number : 65 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि रैखिक समीकरण निकाय

$2x+2y+3z=a$

$3x-y+5z=b$

$x-3y+2z=c$

जहाँ a, b, c शून्येतर वास्तविक संख्यायें हैं, के एक से अधिक हल हैं, तो :

Options :

1. $b+c-a=0$

2. $b-c+a=0$

3. $b-c-a=0$

4. $a+b+c=0$

Question Number : 65 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

જો સુરેખ સમીકરણ સંહતિ

$2x+2y+3z=a$

$3x-y+5z=b$

$x-3y+2z=c$

જ્યાં a, b, c શૂન્યેતર વાસ્તવિક સંખ્યાઓ છે, ને એક થી વધુ ઉકેલ હોય તો :

Options :

1. $b+c-a=0$

2. $b-c+a=0$

3. $b-c-a=0$

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Question Number : 66 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The sum of the real values of x for which the middle term in the binomial expansion

of $\left(\frac{x^3}{3}+\frac{3}{x}\right)^8$ equals 5670 is :

Options :

1. 0
2. 4
3. 6
4. 8

Question Number : 66 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

x के उन वास्तविक मानों जिनके लिए $\left(\frac{x^3}{3}+\frac{3}{x}\right)^8$ के

द्विपद प्रसार का मध्य पद 5670 है, का योग है :

Options :

1. 0
2. 4
3. 6
4. 8

Question Number : 66 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

$\left(\frac{x^3}{3}+\frac{3}{x}\right)^8$ ના દ્વિપદી વિસ્તરણમાં મધ્યમપદ બરાબર

5670 થાય તેવી x ની વાસ્તવિક કિંમતોનો સરવાળો

_____ છે.

Options :

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2. 4

3. 6

4. 8

Question Number : 67 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Let $a_1, a_2, ..., a_{10}$ be a G.P. If $\frac{a_3}{a_1} = 25$, then

$\frac{a_9}{a_5}$ equals :

Options :

1. $2(5^2)$

2. $4(5^2)$

3. 5^3

4. 5^4

Question Number : 67 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

माना $a_1, a_2, ..., a_{10}$ एक गुणोत्तर श्रेढ़ी है। यदि

$\frac{a_3}{a_1} = 25$, तो $\frac{a_9}{a_5}$ बराबर है :

Options :

1. $2(5^2)$

2. $4(5^2)$

3. 5^3

4. 5^4

Question Number : 67 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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ધારોકે $a_1, a_2, ..., a_{10}$ એ સમગુણોત્તર શ્રેણી (G.P.) છે. જો $\frac{a_3}{a_1} = 25$ હોય, તો $\frac{a_9}{a_5} =$ _____.

Options :

1. $2(5^2)$

2. $4(5^2)$

3. 5^3

4. 5^4

Question Number : 68 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The sum of an infinite geometric series with positive terms is 3 and the sum of the cubes of its terms is $\frac{27}{19}$. Then the common ratio of this series is :

Options :

1. $\frac{4}{9}$

2. $\frac{2}{9}$

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

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

Question Number : 68 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

धन पदों की एक अनन्त गुणोत्तर श्रेणी का योग 3 है तथा इसके पदों के घनों (cubes) का योग $\frac{27}{19}$ है, तो

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1. $\frac{4}{9}$

2. $\frac{2}{9}$

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

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

Question Number : 68 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

જો ધન પદોવાળી એક અનંત સમગુણોત્તર શ્રેઢીનો સરવાળો 3 અને તેના પદોના ઘનોનો સરવાળો $\frac{27}{19}$ હોય, તો આ શ્રેઢીનો સામાન્ય ગુણોત્તર _____ છે.

Options :

1. $\frac{4}{9}$

2. $\frac{2}{9}$

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

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

Question Number : 69 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The value of r for which ${}^{20}C_r\,{}^{20}C_0 + {}^{20}C_{r-1}\,{}^{20}C_1 + {}^{20}C_{r-2}\,{}^{20}C_2 + \cdots + {}^{20}C_0\,{}^{20}C_r$ is maximum, is :

Options :

1. 11

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2. 15

3. 10

4. 20

Question Number : 69 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

r का वह मान, जिसके लिए
$^{20}C_r\,^{20}C_0 + {}^{20}C_{r-1}\,^{20}C_1 + {}^{20}C_{r-2}\,^{20}C_2 + \cdots + {}^{20}C_0\,^{20}C_r$
अधिकतम है, है :

Options :

1. 11

2. 15

3. 10

4. 20

Question Number : 69 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

r ની કઈ કિંમત માટે
$^{20}C_r\,^{20}C_0 + {}^{20}C_{r-1}\,^{20}C_1 + {}^{20}C_{r-2}\,^{20}C_2 + \cdots + {}^{20}C_0\,^{20}C_r$ મહત્તમ થાય?

Options :

1. 11

2. 15

3. 10

4. 20

Question Number : 70 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

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Let $[x]$ denote the greatest integer less than or equal to x. Then :

$$\lim_{x\to 0}\frac{\tan(\pi\sin^2 x)+\left(|x|-\sin(x[x])\right)^2}{x^2}\ :$$

Options :

1. equals π

2. equals 0

3. equals $\pi+1$

4. does not exist

Question Number : 70 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

माना $[x]$, x के समान या उससे कम महत्तम पूर्णांक को दर्शाता है, तो

$$\lim_{x\to 0}\frac{\tan(\pi\sin^2 x)+\left(|x|-\sin(x[x])\right)^2}{x^2}\ :$$

Options :

1. π के बराबर है

2. 0 के बराबर है

3. $\pi+1$ के बराबर है

4. का अस्तित्व नहीं है

Question Number : 70 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

જો $[x]$ એ x થી નાના અથવા x ને સમાન તમામ પૂર્ણાંકોમાં સૌથી મોટો પૂર્ણાંક દર્શાવે તો

$$\lim_{x\to 0}\frac{\tan(\pi\sin^2 x)+\left(|x|-\sin(x[x])\right)^2}{x^2}\ :$$

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1. બરાબર π છે.

2. બરાબર 0 છે.

3. બરાબર $\pi+1$ છે.

4. નું અસ્તિત્વ નથી

Question Number : 71 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि $x\log_e(\log_e x)-x^2+y^2=4\ (y>0)$, तो

$x=e$ पर $\frac{dy}{dx}$ बराबर है :

Options :

1. $\frac{(2e-1)}{2\sqrt{4+e^2}}$

2. $\frac{e}{\sqrt{4+e^2}}$

3. $\frac{(1+2e)}{2\sqrt{4+e^2}}$

4. $\frac{(1+2e)}{\sqrt{4+e^2}}$

Question Number : 71 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

જો $x\log_e(\log_e x)-x^2+y^2=4\ (y>0)$ હોય, તો

$x=e$ આગળ $\frac{dy}{dx}=$_____.

Options :

$\frac{(2e-1)}{2\sqrt{4+e^2}}$

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2. $\frac{e}{\sqrt{4+e^2}}$

3. $\frac{(1+2e)}{2\sqrt{4+e^2}}$

4. $\frac{(1+2e)}{\sqrt{4+e^2}}$

Question Number : 71 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If $x\log_e(\log_e x) - x^2 + y^2 = 4\ (y > 0)$, then

$\frac{dy}{dx}$ at $x = e$ is equal to :

Options :

1. $\frac{(2e-1)}{2\sqrt{4+e^2}}$

2. $\frac{e}{\sqrt{4+e^2}}$

3. $\frac{(1+2e)}{2\sqrt{4+e^2}}$

4. $\frac{(1+2e)}{\sqrt{4+e^2}}$

Question Number : 72 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Let $f(x) = \begin{cases} -1, & -2 \le x < 0 \\ x^2 - 1, & 0 \le x \le 2 \end{cases}$ and

$g(x) = |f(x)| + f(|x|)$. Then, in the interval $(-2, 2)$, g is :

Options :

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2. not differentiable at one point

3. not differentiable at two points

4. differentiable at all points

Question Number : 72 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

माना $f(x)=\begin{cases}-1, & -2\le x<0\\ x^2-1, & 0\le x\le 2\end{cases}$ तथा

$g(x)=|f(x)|+f(|x|)$, तो अंतराल $(-2,2)$ में g :

Options :

1. संतत नहीं है

2. एक बिन्दु पर अवकलनीय नहीं है

3. दो बिन्दुओं पर अवकलनीय नहीं है

4. सभी बिन्दुओं पर अवकलनीय है

Question Number : 72 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

ધારોકે $f(x)=\begin{cases}-1, & -2\le x<0\\ x^2-1, & 0\le x\le 2\end{cases}$ અને

$g(x)=|f(x)|+f(|x|)$ છે. તો અંતરાલ $(-2,2)$ માં

g એ _____

Options :

1. સતત નથી.

2. એક બિંદુ આગળ વિકલનીય નથી

3. બે બિંદુઓ આગળ વિકલનીય નથી

4. બધાજ બિંદુઓ આગળ વિકલનીય છે.

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Question Number : 73 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The maximum value of the function $f(x)=3x^3-18x^2+27x-40$ on the set $S=\{x\in R: x^2+30\le 11x\}$ is :

Options :

1. 122

2. -122

3. 222

4. -222

Question Number : 73 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

समुच्चय $S=\{x\in R: x^2+30\le 11x\}$ पर फलन $f(x)=3x^3-18x^2+27x-40$ का अधिकतम मान है :

Options :

1. 122

2. -122

3. 222

4. -222

Question Number : 73 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

ગણ $S=\{x\in R: x^2+30\le 11x\}$ પર વિધેય $f(x)=3x^3-18x^2+27x-40$ ની મહત્તમ કિંમત _____ છે.

Options :

1. 122

2. -122

ZOLLEGE.in

3. 222

4. -222

Question Number : 74 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If $\int \frac{\sqrt{1-x^2}}{x^4}\,dx = A(x)\left(\sqrt{1-x^2}\right)^m + C$,

for a suitable chosen integer m and a function $A(x)$, where C is a constant of integration, then $(A(x))^m$ equals :

Options :

1. $\frac{1}{9x^4}$

2. $\frac{-1}{3x^3}$

3. $\frac{-1}{27x^9}$

4. $\frac{1}{27x^6}$

Question Number : 74 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

उपयुक्त पूर्णांक m तथा एक फलन $A(x)$ के लिए यदि

$\int \frac{\sqrt{1-x^2}}{x^4}\,dx = A(x)\left(\sqrt{1-x^2}\right)^m + C$,

जहाँ C एक समाकलन अचर है, तो $(A(x))^m$ बराबर है :

Options :

1. $\frac{1}{9x^4}$

ZOLLEGE.in

2. $\frac{-1}{3x^3}$

3. $\frac{-1}{27x^9}$

4. $\frac{1}{27x^6}$

Question Number : 74 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

યોગ્ય રીતે પસંદ કરેલ પૂર્ણાંક m અને વિધેય $A(x)$ માટે

જો $\int \frac{\sqrt{1-x^2}}{x^4}\,dx = A(x)\left(\sqrt{1-x^2}\right)^m + C$,

જ્યાં C એ સંકલનનો અચળાંક હોય, તો

$(A(x))^m =$ _____.

Options :

1. $\frac{1}{9x^4}$

2. $\frac{-1}{3x^3}$

3. $\frac{-1}{27x^9}$

4. $\frac{1}{27x^6}$

Question Number : 75 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The value of the integral $\int_{-2}^{2} \frac{\sin^2 x}{\left[\frac{x}{\pi}\right] + \frac{1}{2}}\,dx$

ZOLLEGE.in

Options :

1. $4-\sin 4$

2. 0

3. 4

4. $\sin 4$

Question Number : 75 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

समाकल $\int_{-2}^{2} \frac{\sin^2 x}{\left[\frac{x}{\pi}\right]+\frac{1}{2}} dx$

(जहाँ $[x]$, x के समान या उससे कम महत्तम पूर्णांक को दर्शाता है) का मान है :

Options :

1. $4-\sin 4$

2. 0

3. 4

4. $\sin 4$

Question Number : 75 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

સંકલિત $\int_{-2}^{2} \frac{\sin^2 x}{\left[\frac{x}{\pi}\right]+\frac{1}{2}} dx$ ની કિંમત _____

છે.

(જ્યાં $[x]$ એ x થી નાના અથવા x ને સમાન તમામ પૂર્ણાંકોમાં સૌથી મોટો પૂર્ણાંક દર્શાવે છે.)

Options :

1. $4-\sin 4$

ZOLLEGE.in

3. 4

4. $\sin 4$

Question Number : 76 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The area (in sq.units) of the region bounded by the curve $x^2=4y$ and the straight line $x=4y-2$ is :

Options :

1. $\frac{3}{4}$

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

3. $\frac{5}{4}$

4. $\frac{7}{8}$

Question Number : 76 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

वक्र $x^2=4y$ तथा सरल रेखा $x=4y-2$ द्वारा घिरे क्षेत्र का क्षेत्रफल (वर्ग इकाइयों में) है :

Options :

1. $\frac{3}{4}$

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

3. $\frac{5}{4}$

4. $\frac{7}{8}$

ZOLLEGE.in

Question Number : 76 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

વક્ર $x^2=4y$ અને રેખા $x=4y-2$ વડે આવૃત્ત પ્રદેશનું ક્ષેત્રફળ (ચો. એકમમાં) _____ છે.

Options :

1. $\frac{3}{4}$

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

3. $\frac{5}{4}$

4. $\frac{7}{8}$

Question Number : 77 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If $y(x)$ is the solution of the differential equation $\frac{dy}{dx}+\left(\frac{2x+1}{x}\right)y=e^{-2x}, x>0$,

where $y(1)=\frac{1}{2}e^{-2}$, then :

Options :

1. $y(\log_e 2)=\frac{\log_e 2}{4}$

2. $y(\log_e 2)=\log_e 4$

3. $y(x)$ is decreasing in $(0,1)$

4. $y(x)$ is decreasing in $\left(\frac{1}{2},1\right)$

Question Number : 77 Question Type : MCQ Option Shuffling : Yes Display Question Number No Option Orientation : Vertical

ZOLLEGE.in

यदि अवकल समीकरण

$\frac{dy}{dx} + \left(\frac{2x+1}{x}\right) y = e^{-2x}, x > 0$ का हल $y(x)$

है, जहाँ $y(1) = \frac{1}{2}e^{-2}$, तो :

Options :

1. $y(\log_e 2) = \frac{\log_e 2}{4}$

2. $y(\log_e 2) = \log_e 4$

3. $(0, 1)$ में $y(x)$ ह्रासमान है।

4. $\left(\frac{1}{2}, 1\right)$ में $y(x)$ ह्रासमान है।

Question Number : 77 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

જો $y(x)$ એ વિકલ સમીકરણ

$\frac{dy}{dx} + \left(\frac{2x+1}{x}\right) y = e^{-2x}, x > 0$ નો ઉકેલ

હોય, જ્યાં $y(1) = \frac{1}{2}e^{-2}$ તો _____.

Options :

1. $y(\log_e 2) = \frac{\log_e 2}{4}$

2. $y(\log_e 2) = \log_e 4$

3. $y(x)$ એ $(0, 1)$ માં ઘટતું વિધેય છે.

4. $y(x)$ એ $\left(\frac{1}{2}, 1\right)$ માં ઘટતું વિધેય છે.

Question Number : 78 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

ZOLLEGE.in

Two circles with equal radii are intersecting at the points $(0, 1)$ and $(0, -1)$. The tangent at the point $(0, 1)$ to one of the circles passes through the centre of the other circle. Then the distance between the centres of these circles is :

Options :

1. $2\sqrt{2}$

2. 1

3. 2

4. $\sqrt{2}$

Question Number : 78 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

बराबर त्रिज्या के दो वृत्त, बिन्दुओं $(0, 1)$ तथा $(0, -1)$ पर काटते हैं। इनमें से एक वृत्त के बिन्दु $(0, 1)$ पर स्पर्श रेखा दूसरे वृत्त के केन्द्र से होकर जाती है, तो इन वृत्तों के केन्द्रों के बीच की दूरी है :

Options :

1. $2\sqrt{2}$

2. 1

3. 2

4. $\sqrt{2}$

Question Number : 78 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

સમાન ત્રિજ્યા વાળા બે વર્તુળો એકબીજાને $(0, 1)$ અને $(0, -1)$ બિંદુઓ આગળ છેદે છે. આમાંના એક વર્તુળનો બિંદુ $(0, 1)$ આગળ નો સ્પર્શક, બીજા વર્તુળના કેન્દ્રમાંથી પસાર થાય છે. તો આ વર્તુળોના કેન્દ્રો વચ્ચેનું અંતર _____ છે.

Options :

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2. 1

3. 2

4. $\sqrt{2}$

Question Number : 79 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The straight line $x+2y=1$ meets the coordinate axes at A and B. A circle is drawn through A, B and the origin. Then the sum of perpendicular distances from A and B on the tangent to the circle at the origin is :

Options :

1. $4\sqrt{5}$

2. $\frac{\sqrt{5}}{4}$

3. $2\sqrt{5}$

4. $\frac{\sqrt{5}}{2}$

Question Number : 79 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

सरल रेखा $x+2y=1$ निदेशांक अक्षों को A तथा B पर काटती है। मूल बिन्दु, A तथा B से होकर जाने वाला वृत्त खींचा गया है, तो मूल बिन्दु पर वृत्त की स्पर्श रेखा की A तथा B से लम्बवत दूरियों का योग है :

Options :

1. $4\sqrt{5}$

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

ZOLLEGE.in

3. $2\sqrt{5}$

4. $\frac{\sqrt{5}}{2}$

Question Number : 79 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

રેખા $x+2y=1$ એ યામાક્ષોને A અને B બિંદુએ મળે છે. A, B અને ઉગમબિંદુ માંથી એક વર્તુળ દોરેલ છે. તો A અને B થી આ વર્તુળને ઉગમબિંદુએ દોરેલ સ્પર્શકનાં લંબ અંતરોનો સરવાળો _____ છે.

Options :

1. $4\sqrt{5}$

2. $\frac{\sqrt{5}}{4}$

3. $2\sqrt{5}$

4. $\frac{\sqrt{5}}{2}$

Question Number : 80 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

A square is inscribed in the circle $x^2+y^2-6x+8y-103=0$ with its sides parallel to the coordinate axes. Then the distance of the vertex of this square which is nearest to the origin is :

Options :

1. 6

2. $\sqrt{41}$

3. 13

ZOLLEGE.in

Question Number : 80 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

निदेशांक अक्षों के समान्तर भुजाओं का एक वर्ग, वृत्त $x^2+y^2-6x+8y-103=0$ के अंतर्गत है, तो इस वर्ग का वह शीर्ष जो मूल बिन्दु के सबसे निकट है, की दूरी है :

Options :

1. 6

2. $\sqrt{41}$

3. 13

4. $\sqrt{137}$

Question Number : 80 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

જેની બાજુઓ યામાક્ષોને સમાંતર હોય તેવો એક ચોરસ, વર્તુળ $x^2+y^2-6x+8y-103=0$ માં અંતર્ગત છે. તો ઉગમબિંદુથી આ ચોરસના સૌથી નજીકના શિરોબિંદુનું અંતર _____ છે.

Options :

1. 6

2. $\sqrt{41}$

3. 13

4. $\sqrt{137}$

Question Number : 81 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

परवलय $y^2=4x$ तथा अतिपरवलय $xy=2$ की एक उभयनिष्ठ स्पर्श रेखा का समीकरण है :

Options :

ZOLLEGE.in

2. $x+y+1=0$

3. $4x+2y+1=0$

4. $x+2y+4=0$

Question Number : 81 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

પરવલય $y^2=4x$ અને અતિવલય $xy=2$ ના એક સામાન્ય સ્પર્શકનું સમીકરણ _____ છે.

Options :

1. $x-2y+4=0$

2. $x+y+1=0$

3. $4x+2y+1=0$

4. $x+2y+4=0$

ZOLLEGE.in

Question Number : 81 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Equation of a common tangent to the parabola $y^2=4x$ and the hyperbola $xy=2$ is :

Options :

1. $x-2y+4=0$

2. $x+y+1=0$

3. $4x+2y+1=0$

4. $x+2y+4=0$

Question Number : 82 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If tangents are drawn to the ellipse $x^2+2y^2=2$ at all points on the ellipse other than its four vertices then the mid points

ZOLLEGE.in

Options :

1. $\frac{1}{2x^2}+\frac{1}{4y^2}=1$

2. $\frac{1}{4x^2}+\frac{1}{2y^2}=1$

3. $\frac{x^2}{2}+\frac{y^2}{4}=1$

4. $\frac{x^2}{4}+\frac{y^2}{2}=1$

Question Number : 82 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि दीर्घवृत्त $x^2+2y^2=2$ के चार शीर्षों के अतिरिक्त इसके सभी बिन्दुओं पर स्पर्श रेखायें खींची गई हैं, तो इन स्पर्श रेखाओं के निदेशांक अक्षों के बीच के अंत:खंडों के मध्य बिन्दु निम्न में से किस वक्र पर हैं?

Options :

1. $\frac{1}{2x^2}+\frac{1}{4y^2}=1$

2. $\frac{1}{4x^2}+\frac{1}{2y^2}=1$

3. $\frac{x^2}{2}+\frac{y^2}{4}=1$

4. $\frac{x^2}{4}+\frac{y^2}{2}=1$

Question Number : 82 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

ZOLLEGE.in

જો ઊપવલય $x^2+2y^2=2$ ના ચાર શિરોબિંદુઓ સિવાયના તમામ બિંદુઓ આગળ સ્પર્શકો દોરવામાં આવે તો આ સ્પર્શકોના યામાક્ષો વચ્ચે અંતરાયેલ ભાગના મધ્યબિંદુઓ _____ વક્ર પર આવેલ છે.

Options :

1. $\frac{1}{2x^2}+\frac{1}{4y^2}=1$

2. $\frac{1}{4x^2}+\frac{1}{2y^2}=1$

3. $\frac{x^2}{2}+\frac{y^2}{4}=1$

4. $\frac{x^2}{4}+\frac{y^2}{2}=1$

Question Number : 83 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The direction ratios of normal to the plane through the points $(0, -1, 0)$ and $(0, 0, 1)$ and making an angle $\frac{\pi}{4}$ with the plane $y-z+5=0$ are :

Options :

1. $\sqrt{2}, 1, -1$

2. $2\sqrt{3}, 1, -1$

3. $2, -1, 1$

4. $2, \sqrt{2}, -\sqrt{2}$

Note: For this question, ambiguity is found in question/answer. Candidate will get full marks for this question if any of the correct options are chosen.

Question Number : 83 Question Type : MCQ Option Shuffling : Yes Display Question Number

ZOLLEGE.in

बिन्दुओं $(0, -1, 0)$ तथा $(0, 0, 1)$ से होकर जाने वाले तथा समतल $y - z + 5 = 0$ के साथ $\frac{\pi}{4}$ का कोण बनाने वाले समतल के अभिलम्ब के दिक अनुपात (direction ratios) है :

Options :

1. $\sqrt{2}, 1, -1$
2. $2\sqrt{3}, 1, -1$
3. $2, -1, 1$
4. $2, \sqrt{2}, -\sqrt{2}$

Note: For this question, ambiguity is found in question/answer. Candidate will get full marks for this question if any of the correct options are chosen.

Question Number : 83 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

બિંદુઓ $(0, -1, 0)$ અને $(0, 0, 1)$ માંથી પસાર થતા અને સમતલ $y - z + 5 = 0$ સાથે $\frac{\pi}{4}$ નો ખૂણો બનાવતા સમતલના અભિલંબના દિક્ ગુણોત્તરો _____ છે.

Options :

1. $\sqrt{2}, 1, -1$
2. $2\sqrt{3}, 1, -1$
3. $2, -1, 1$
4. $2, \sqrt{2}, -\sqrt{2}$

Note: For this question, ambiguity is found in question/answer. Candidate will get full marks for this question if any of the correct options are chosen.

Question Number : 84 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

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The plane containing the line $\frac{x-3}{2}=\frac{y+2}{-1}=\frac{z-1}{3}$ and also containing its projection on the plane $2x+3y-z=5$, contains which one of the following points ?

Options :

1. $(0,-2,2)$

2. $(2,0,-2)$

3. $(2,2,0)$

4. $(-2,2,2)$

Question Number : 84 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

समतल, जिसमें रेखा $\frac{x-3}{2}=\frac{y+2}{-1}=\frac{z-1}{3}$ अन्तर्विष्ट है तथा इस रेखा का समतल $2x+3y-z=5$ पर प्रक्षेप (projection) भी अन्तर्विष्ट है, पर निम्न में से कौन सा बिन्दु स्थित है?

Options :

1. $(0,-2,2)$

2. $(2,0,-2)$

3. $(2,2,0)$

4. $(-2,2,2)$

Question Number : 84 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

રેખા $\frac{x-3}{2}=\frac{y+2}{-1}=\frac{z-1}{3}$ તેમજ સમતલ $2x+3y-z=5$ પરના તેના પ્રક્ષેપને

ZOLLEGE.in

1. $(0, -2, 2)$

2. $(2, 0, -2)$

3. $(2, 2, 0)$

4. $(-2, 2, 2)$

Question Number : 85 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Let $\vec{a}=\hat{i}+2\hat{j}+4\hat{k}$, $\vec{b}=\hat{i}+\lambda\hat{j}+4\hat{k}$ and

$\vec{c}=2\hat{i}+4\hat{j}+(\lambda^2-1)\hat{k}$ be coplanar

vectors. Then the non-zero vector $\vec{a}\times\vec{c}$ is :

Options :

1. $-10\hat{i}-5\hat{j}$

2. $-14\hat{i}-5\hat{j}$

3. $-10\hat{i}+5\hat{j}$

4. $-14\hat{i}+5\hat{j}$

Question Number : 85 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

माना $\vec{a}=\hat{i}+2\hat{j}+4\hat{k}$, $\vec{b}=\hat{i}+\lambda\hat{j}+4\hat{k}$ तथा

$\vec{c}=2\hat{i}+4\hat{j}+(\lambda^2-1)\hat{k}$ समतलीय सदिश हैं, तो

शून्येतर सदिश $\vec{a}\times\vec{c}$ है :

Options :

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1. $-10\hat{i}-5\hat{j}$

2. $-14\hat{i}-5\hat{j}$

3. $-10\hat{i}+5\hat{j}$

4. $-14\hat{i}+5\hat{j}$

Question Number : 85 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

જો $\vec{a}=\hat{i}+2\hat{j}+4\hat{k}$, $\vec{b}=\hat{i}+\lambda\hat{j}+4\hat{k}$ અને

$\vec{c}=2\hat{i}+4\hat{j}+(\lambda^2-1)\hat{k}$ એ સમતલીય સદિશો

હોય, તો શૂન્યેતર સદિશ $\vec{a}\times\vec{c}=$_____.

Options :

1. $-10\hat{i}-5\hat{j}$

2. $-14\hat{i}-5\hat{j}$

3. $-10\hat{i}+5\hat{j}$

4. $-14\hat{i}+5\hat{j}$

Question Number : 86 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

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The outcome of each of 30 items was observed ; 10 items gave an outcome $\frac{1}{2} - d$ each, 10 items gave outcome $\frac{1}{2}$ each and the remaining 10 items gave outcome $\frac{1}{2} + d$ each. If the variance of this outcome data is $\frac{4}{3}$ then $|d|$ equals :

Options :

1. $\sqrt{2}$

2. 2

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

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

Question Number : 86 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

30 आइटम (items) का परिणाम देखा गया; इनमें से 10 आइटम में प्रत्येक ने परिणाम $\frac{1}{2} - d$ दिया, 10 आइटम में प्रत्येक ने परिणाम $\frac{1}{2}$ दिया तथा बाकी 10 आइटम में प्रत्येक ने परिणाम $\frac{1}{2} + d$ दिया। यदि इन आँकड़ों का प्रसरण $\frac{4}{3}$ है, तो $|d|$ बराबर है :

Options :

1. $\sqrt{2}$

2. 2

$\sqrt{5}$

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

Question Number : 86 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

30 વસ્તુઓ માંથી પ્રત્યેક ના પરિણામ નું અવલોકન કરતાં; 10 વસ્તુઓમાં પ્રત્યેકનું પરિણામ $\frac{1}{2} - d$, 10 વસ્તુઓમાં પ્રત્યેકનું પરિણામ $\frac{1}{2}$ અને બાકીની 10 વસ્તુઓમાં પ્રત્યેકનું પરિણામ $\frac{1}{2} + d$ જોવા મળ્યું. જો આ પરિણામોની માહિતી નું વિચરણ $\frac{4}{3}$ હોય, તો $|d| =$ _____.

Options :

1. $\sqrt{2}$

2. 2

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

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

Question Number : 87 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Two integers are selected at random from the set {1, 2, ..., 11}. Given that the sum of selected numbers is even, the conditional probability that both the numbers are even is :

Options :

1. $\frac{2}{5}$

2. $\frac{1}{}$

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3. $\frac{3}{5}$

4. $\frac{7}{10}$

Question Number : 87 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

समुच्चय {1, 2, ..., 11} से दो पूर्णांक यादृच्छिक लिए गये हैं। दिया है कि ली गई संख्याओं का योग सम है, दोनों संख्याओं के सम होने की सप्रतिबंध (conditional) प्रायिकता है :

Options :

1. $\frac{2}{5}$

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

3. $\frac{3}{5}$

4. $\frac{7}{10}$

Question Number : 87 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

ગણ {1, 2, ..., 11} માંથી બે પૂર્ણાંકો યાદચ્છિક રીતે પસંદ કરવામાં આવે છે. જો પસંદ થયેલ સંખ્યાઓનો સરવાળો યુગ્મ છે તેમ આપેલ હોય, તો આ બન્ને સંખ્યાઓ યુગ્મ હોય તેની શરતી સંભાવના _____ છે.

Options :

1. $\frac{2}{5}$

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

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3. $\frac{3}{5}$

4. $\frac{7}{10}$

Question Number : 88 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Let $f_k(x) = \frac{1}{k}(\sin^k x + \cos^k x)$ for $k = 1, 2, 3, \ldots$. Then for all $x \in \mathbf{R}$, the value of $f_4(x) - f_6(x)$ is equal to :

Options :

1. $\frac{1}{12}$

2. $\frac{-1}{12}$

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

4. $\frac{5}{12}$

Question Number : 88 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

माना $k = 1, 2, 3, \ldots$ के लिए

$f_k(x) = \frac{1}{k}(\sin^k x + \cos^k x)$

तो सभी $x \in \mathbf{R}$ के लिए, $f_4(x) - f_6(x)$ का मान बराबर है :

Options :

1. $\frac{1}{12}$

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

4. $\frac{5}{12}$

Question Number : 88 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

ધારોકે $f_k(x) = \frac{1}{k}(\sin^k x + \cos^k x)$ જ્યાં $k = 1, 2, 3, \ldots.$ છે. તો પ્રત્યેક $x \in \mathbf{R}$ માટે $f_4(x) - f_6(x)$ ની કિંમત _____ છે.

Options :

1. $\frac{1}{12}$

2. $\frac{-1}{12}$

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

4. $\frac{5}{12}$

Question Number : 89 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

In a triangle, the sum of lengths of two sides is x and the product of the lengths of the same two sides is y. If $x^2 - c^2 = y$, where c is the length of the third side of the triangle, then the circumradius of the triangle is :

Options :

1. $\frac{c}{3}$

$\frac{c}{\sqrt{3}}$

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3. $\frac{y}{\sqrt{3}}$

4. $\frac{3}{2}y$

Question Number : 89 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

एक त्रिभुज की दो भुजाओं की लम्बाई का योग x है और इन्हीं दो भुजाओं की लम्बाई का गुणनफल y है। यदि $x^2 - c^2 = y$, जहाँ c त्रिभुज की तीसरी भुजा की लम्बाई है, तब त्रिभुज के परिवृत्त की त्रिज्या है :

Options :

1. $\frac{c}{3}$

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

3. $\frac{y}{\sqrt{3}}$

4. $\frac{3}{2}y$

Question Number : 89 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

એક ત્રિકોણમાં તેની બે બાજુઓની લંબાઇઓનો સરવાળો x અને તેજ બે બાજુઓ ની લંબાઇઓનો ગુણાકાર y છે. જો $x^2 - c^2 = y$, જ્યાં c એ આ ત્રિકોણની ત્રીજી બાજુની લંબાઈ હોય, તો આ ત્રિકોણની પરિત્રિજ્યા _____ છે.

Options :

1. $\frac{c}{3}$

2. c

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3. $\frac{y}{\sqrt{3}}$

4. $\frac{3}{2}y$

Question Number : 90 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If q is false and $p \wedge q \leftrightarrow r$ is true, then which one of the following statements is a tautology ?

Options :

1. $p \wedge r$

2. $p \vee r$

3. $(p \wedge r) \rightarrow (p \vee r)$

4. $(p \vee r) \rightarrow (p \wedge r)$

Question Number : 90 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि q असत्य है तथा $p \wedge q \leftrightarrow r$ सत्य है, तो निम्न में से कौन सा कथन एक पुनरुक्ति (tautology) है?

Options :

1. $p \wedge r$

2. $p \vee r$

3. $(p \wedge r) \rightarrow (p \vee r)$

4. $(p \vee r) \rightarrow (p \wedge r)$

Question Number : 90 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

જો q એ અસત્ય અને $p \wedge q \leftrightarrow r$ એ સત્ય હોય, તો

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1. $p \wedge r$
2. $p \vee r$
3. $(p \wedge r) \rightarrow (p \vee r)$
4. $(p \vee r) \rightarrow (p \wedge r)$

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