National Testing Agency

Question Paper Name:	Paper I EHG 9th April 2019 Shift 1
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Total Marks:	360
Display Marks:	Yes

Paper I

Group Number :	1
Group Id :	416529165
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 :	416529289
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:	416529429
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

In the density measurement of a cube, the mass and edge length are measured as (10.00 ± 0.10) kg and (0.10 ± 0.01) m, respectively. The error in the measurement of density is :

Options :

1. $0.10\ kg/m^3$

2. $0.07\ kg/m^3$

3. $0.31\ kg/m^3$

4. $0.01\ kg/m^3$

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

एक घनाकार गुटके का घनत्व निकालने के लिए, उसका द्रव्यमान तथा कोर की लम्बाई, क्रमशः, $(10.00 \pm 0.10)\ kg$ तथा $(0.10 \pm 0.01)\ m$ मापी जाती है। घनत्व के मापन की त्रुटि होगी :

Options :

1. $0.10\ kg/m^3$

2. $0.07\ kg/m^3$

3. $0.31\ kg/m^3$

4. $0.01\ kg/m^3$

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

એક ઘનની ઘનતાના માપનમાં તેનું દ્રવ્યમાન અને ધારોની લંબાઈ અનુક્રમે $(10.00 \pm 0.10)\ kg$ અને $(0.10 \pm 0.01)\ m$ માપવામાં આવે છે. આ ઘનતા માપનમાં ત્રુટિ છે :

Options :

1. $0.10\ kg/m^3$

2. $0.07\ kg/m^3$

3. $0.31\ kg/m^3$

4. $0.01\ kg/m^3$

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

The stream of a river is flowing with a speed of 2 km/h. A swimmer can swim at a speed of 4 km/h. What should be the direction of the swimmer with respect to the flow of the river to cross the river straight ?

Options :

1. 150°

2. 60°

3. 90°

4. 120°

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 नदी की धारा 2 km/h की गति से बह रही है। एक तैराक 4 km/h की गति से तैर सकता है। तैराक का नदी के प्रति तैरने की वह दिशा, जिससे वह नदी को सीधा पार कर सके, क्या होगी ?

Options :

1. 150°

2. 60°

3. 90°

4. 120°

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

કોઈ એક નદીની ધારા 2 km/h ની ઝડપથી વહે છે. એક તરવૈયો 4 km/h થી ઝડપથી તરી શકે છે. આ નદીને સીધી પાર કરવા આ તરવૈયાની પ્રવાહ સાથેની દિશા શું હશે?

Options :

1. $150°$

2. $60°$

3. $90°$

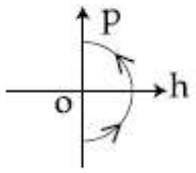
4. $120°$

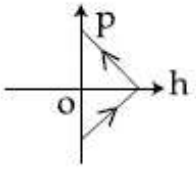
Question Number : 3 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

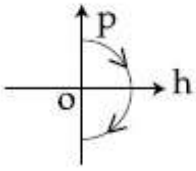
Correct Marks : 4 Wrong Marks : 1

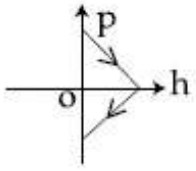
A ball is thrown vertically up (taken as $+z$-axis) from the ground. The correct momentum-height (p-h) diagram is :

Options :

1. 

2. 

3. 

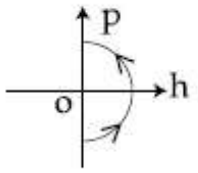
4. 

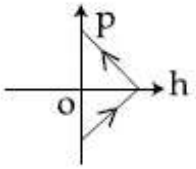
Question Number : 3 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

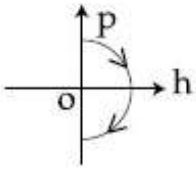
Correct Marks : 4 Wrong Marks : 1

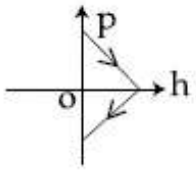
एक गेंद को ऊपर की ओर ऊर्ध्वाधर (मानो $+z$-अक्ष) दिशा में फेंका जाता है। इसका सही संवेग-ऊँचाई (p-h) चित्र होगा :

Options :

1. 

2. 

3. 

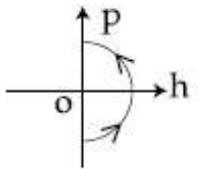
4. 

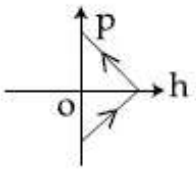
Question Number : 3 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

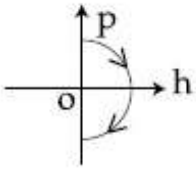
Correct Marks : 4 Wrong Marks : 1

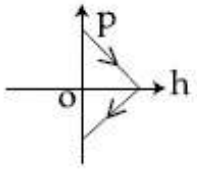
મેદાન પરથી એક દડાને ઉર્ધ્વદિશામાં (જેને $+z$-અક્ષની દિશા ગણો) ઉપર તરફ ઉછાળવામાં આવે છે. વેગમાન-યામ (p-h) આલેખ છે :

Options :

1. 

2. 

3. 

4. 

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 body of mass 2 kg makes an elastic collision with a second body at rest and continues to move in the original direction but with one fourth of its original speed. What is the mass of the second body ?

Options :

1. 1.5 kg

2. 1.2 kg

3. 1.0 kg

4. 1.8 kg

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

एक 2 kg द्रव्यमान के पिण्ड का प्रत्यास्थ संघट्ट एक स्थिर पिंड से होता है। पहला पिण्ड अपनी प्रारम्भिक दिशा में चलता रहता है लेकिन उसकी गति पहले से एक चौथाई हो जाती है। दूसरे पिण्ड का द्रव्यमान क्या होगा ?

Options :

1. 1.5 kg

2. 1.2 kg

3. 1.0 kg

4. 1.8 kg

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

2 kg દ્રવ્યમાન ધરાવતો એક પદાર્થ બીજા એક સ્થિર પદાર્થ સાથે સ્થિતિસ્થાપક સંઘાત અનુભવે છે. અને તે પોતાની મૂળ દિશામાં આગળ ગતિ કરવાનું ચાલુ રાખે છે. પરંતુ તેની ઝડપ મૂળ ઝડપથી ચોથા ભાગની થાય છે. બીજા પદાર્થનું દ્રવ્યમાન શું હશે?

Options :

1. 1.5 kg

2. 1.2 kg

3. 1.0 kg

4. 1.8 kg

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

A uniform cable of mass 'M' and length 'L' is placed on a horizontal surface such that its $\left(\frac{1}{n}\right)^{th}$ part is hanging below the edge of the surface. To lift the hanging part of the cable upto the surface, the work done should be :

Options :

1. $\frac{MgL}{n^2}$

2. $\frac{2MgL}{n^2}$

3. $\frac{MgL}{2n^2}$

4. $nMgL$

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

द्रव्यमान 'M' तथा लम्बाई 'L' की एक एकसमान केबल एक क्षैतिज समतल पर इस तरह रखी है कि इसकी $\frac{1}{n}$ लम्बाई का हिस्सा समतल की कोर से नीचे लटका है। इस लटके हुए केबल के हिस्से को समतल तक ऊपर खींचने के लिए किया गया कार्य होगा :

Options :

1. $\frac{MgL}{n^2}$

2. $\frac{2MgL}{n^2}$

3. $\frac{MgL}{2n^2}$

4. $nMgL$

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

'M' દ્રવ્યમાન અને 'L' લંબાઇના એક સમાંગ કેબલને સમક્ષિતિજ પર એ રીતે મુકેલ છે કે તેનો $\left(\frac{1}{n}\right)$ મો ભાગ આ સપાટીની ધારથી નીચે લટકતો રહે છે. કેબલના લટકતા આ ભાગને સપાટી ઊપર ખેચવા માટે કરવું પડતું કાર્ય હશે :

Options :

1. $\frac{MgL}{n^2}$

2. $\frac{2MgL}{n^2}$

3. $\frac{MgL}{2n^2}$

4. $nMgL$

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

The following bodies are made to roll up (without slipping) the same inclined plane from a horizontal plane : (i) a ring of radius R, (ii) a solid cylinder of radius $\frac{R}{2}$ and (iii) a solid sphere of radius $\frac{R}{4}$. If, in each case, the speed of the center of mass at the bottom of the incline is same, the ratio of the maximum heights they climb is :

Options :

1. $4:3:2$

2. $14:15:20$

3. $10:15:7$

4. $2:3:4$

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

निम्न वस्तुएँ एक क्षैतिज समतल से एक झुके हुए समतल पर लुढ़कते हुए (बिना फिसले) ऊपर की ओर चढ़ती हैं : (i) त्रिज्या R का एक वलय, (ii) त्रिज्या $\frac{R}{2}$ का एक ठोस बेलन तथा (iii) त्रिज्या $\frac{R}{4}$ का एक ठोस गोला। यदि प्रत्येक वस्तु के द्रव्यमान केन्द्र की गतियाँ झुके हुए समतल के निम्न बिन्दु पर बराबर हों, तो उनके द्वारा चढ़ी गयी अधिकतम ऊँचाइयों का अनुपात होगा :

Options :

1. $4:3:2$

2. $14:15:20$

3. $10:15:7$

4. $2:3:4$

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

સમક્ષિતિજ સપાટી પરથી નીચેના ઘન પદાર્થોને કોઈ એક ઢળતાં પાટિયાની ઉપર તરફ (સરક્યા સિવાય) ગબડાવવામાં આવે છે :

(i) R ત્રિજ્યાનું એક વલય (ii) $\frac{R}{2}$ ત્રિજ્યાનું એક નળાકાર (iii) $\frac{R}{4}$ ત્રિજ્યાનો એક ગોળો. જો દરેક કિસ્સામાં આ ઢળતાં પાટિયાના તળિયે દ્રવ્યમાન કેન્દ્રની ઝડપ સરખી હોય, તો મહત્તમ ઉંચાઇઓ ચઢે તેનો ગુણોત્તર _____ છે.

Options :

1. $4 : 3 : 2$

2. $14 : 15 : 20$

3. $10 : 15 : 7$

4. $2 : 3 : 4$

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

A stationary horizontal disc is free to rotate about its axis. When a torque is applied on it, its kinetic energy as a function of θ, where θ is the angle by which it has rotated, is given as $k\theta^2$. If its moment of inertia is I then the angular acceleration of the disc is :

Options :

1. $\frac{k}{I}\theta$

2. $\frac{2k}{I}\theta$

3. $\frac{k}{2I}\theta$

4. $\frac{k}{4I}\theta$

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

एक स्थिर क्षैतिज डिस्क अपनी अक्ष के परित: घूमने के लिये स्वतंत्र है। जब इस पर एक बल आघूर्ण लगाया जाता है, तो इसकी गतिज ऊर्जा θ के फलन में $k\theta^2$ से दी जाती है, जहाँ θ परिभ्रमण कोण है। यदि इसका जड़त्व आघूर्ण I है तो इसका कोणीय त्वरण होगा :

Options :

1. $\frac{k}{I}\theta$

2. $\frac{2k}{I}\theta$

3. $\frac{k}{2I}\theta$

4. $\frac{k}{4I}\theta$

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

એક ઉર્ધ્વ સ્થિર તકતી તેની અક્ષને સાપેક્ષે મુકત રીતે ભ્રમણ કરે છે. જ્યારે તેના પર બળયુગ્મ (ટોર્ક) લગાવવામાં આવે છે, ત્યારે તેની ગતિ ઉર્જા θ ના વિધેયમાં છે, જ્યાં θ એ એને ભ્રમણ આપે ત્યારનો ખૂણો છે કે જે $k\theta^2$ વડે આપવવામાં આવેલ છે. જો તેની જડત્વની ચાકમાત્રા I હોય તો આ તકતીનો કોણીય પ્રવેગ છે :

Options :

1. $\frac{k}{I}\theta$

2. $\frac{2k}{I}\theta$

3. $\frac{k}{2I}\theta$

4. $\frac{k}{4I}\theta$

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

द्रव्यमान 'M' तथा त्रिज्या 'a' का एक ठोस गोला एक एकसमान समकेन्द्रीय गोलीय आवरण, जिसकी मोटाई '2a' तथा द्रव्यमान '2M' है, से घिरा है। केन्द्र से '3a' दूरी पर गुरुत्वीय क्षेत्र होगा :

Options :

1. $\frac{GM}{9a^2}$

2. $\frac{2GM}{9a^2}$

3. $\frac{GM}{3a^2}$

4. $\frac{2GM}{3a^2}$

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

'M' દ્રવ્યમાન અને 'a' ત્રિજ્યાનો એક ઘન ગોળો લો. આ ગોળો 2a જાડાઈ અને 2M દ્રવ્યમાનના એક સમાન ગોળાકીય કવચ થી ઘેરાયેલ છે. કે જેથી તેમના કેન્દ્રથી '3a' અંતર પરનું ગુરૂત્વાકર્ષણ ક્ષેત્ર _____ છે.

Options :

1. $\frac{GM}{9a^2}$

2. $\frac{2GM}{9a^2}$

3. $\frac{GM}{3a^2}$

4. $\frac{2GM}{3a^2}$

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

A solid sphere of mass 'M' and radius 'a' is surrounded by a uniform concentric spherical shell of thickness 2a and mass 2M. The gravitational field at distance '3a' from the centre will be :

Options :

1. $\frac{GM}{9a^2}$

2. $\frac{2GM}{9a^2}$

3. $\frac{GM}{3a^2}$

4. $\frac{2GM}{3a^2}$

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

For a given gas at 1 atm pressure, rms speed of the molecules is 200 m/s at 127 °C. At 2 atm pressure and at 227 °C, the rms speed of the molecules will be :

Options :

1. $100\sqrt{5}$ m/s

2. $80\sqrt{5}$ m/s

3. 100 m/s

4. 80 m/s

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

1 atm दबाव तथा 127 °C तापमान पर एक दी हुयी गैस के अणुओं का वर्ग माध्य मूल वेग 200 m/s है। इसी गैस के अणुओं का वर्ग माध्य मूल वेग 227 °C तथा 2 atm दबाव पर होगा :

Options :

1. $100\sqrt{5}$ m/s

2. $80\sqrt{5}$ m/s

3. 100 m/s

4. 80 m/s

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

1 atm દબાણ પર, 127° C એ આપેલ વાયુના અણુઓની rms ઝડપ 200 m/s છે. 2 atm દબાણ પર અને 227° C એ આ અણુઓની rms ઝડપ હશે :

Options :

1. $100\sqrt{5}$ m/s

2. $80\sqrt{5}$ m/s

3. 100 m/s

4. 80 m/s

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 simple pendulum oscillating in air has period T. The bob of the pendulum is completely immersed in a non-viscous liquid. The density of the liquid is $\frac{1}{16}$th of the material of the bob. If the bob is inside liquid all the time, its period of oscillation in this liquid is :

Options :

1. $2T\sqrt{\frac{1}{10}}$

2. $4T\sqrt{\frac{1}{15}}$

3. $4T\sqrt{\frac{1}{14}}$

4. $2T\sqrt{\frac{1}{14}}$

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

एक सरल दोलक का हवा में आवर्तकाल T है। इस दोलक के गोलक को एक श्यानता रहित द्रव, जिसका घनत्व गोलक के घनत्व का $\frac{1}{16}$ है, में दोलन करवाते हैं। यदि दोलन के समय यह गोलक पूर्णतया: द्रव में रहता है तो इसका आवर्तकाल होगा :

Options :

1. $2T\sqrt{\frac{1}{10}}$

2. $4T\sqrt{\frac{1}{15}}$

3. $4T\sqrt{\frac{1}{14}}$

4. $2T\sqrt{\frac{1}{14}}$

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

હવામાં દોલન કરતા એક સાદા લોલકનો આવર્તકાળ T છે. આ લોલકના ગોળાને પૂર્ણતઃ એક અસ્નિગ્ધ પ્રવાહીમાં ડુબાડેલ છે. આ પ્રવાહીની ઘનતા એ આ ગોળાના દ્રવ્યની ઘનતાથી 16 માં ભાગની છે. આ પ્રવાહીમાં તેનો આવર્તકાળ _____ છે. આ ગોળો દરેક સમયે પ્રવાહીમાંજ રહે તેમ ધારીએ.

Options :

1. $2T\sqrt{\frac{1}{10}}$

2. $4T\sqrt{\frac{1}{15}}$

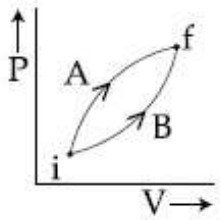
3. $4T\sqrt{\frac{1}{14}}$

4. $2T\sqrt{\frac{1}{14}}$

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

Following figure shows two processes A and B for a gas. If ΔQ_A and ΔQ_B are the amount of heat absorbed by the system in two cases, and ΔU_A and ΔU_B are changes in internal energies, respectively, then :



Options :

1. $\Delta Q_A = \Delta Q_B ; \Delta U_A = \Delta U_B$

2. $\Delta Q_A > \Delta Q_B , \Delta U_A > \Delta U_B$

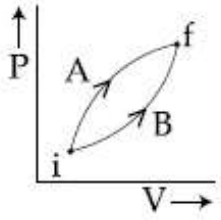
3. $\Delta Q_A > \Delta Q_B , \Delta U_A = \Delta U_B$

4. $\Delta Q_A < \Delta Q_B , \Delta U_A < \Delta U_B$

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

दिये गये चित्र में दो प्रक्रियाओं A व B को एक गैस के लिये दिखाया है। यदि ΔQ_A व ΔQ_B इन प्रक्रियाओं के दौरान शोषित ऊष्माएँ तथा ΔU_A व ΔU_B गैस की आंतरिक ऊर्जा के परिवर्तन हैं, तो :



Options :

1. $\Delta Q_A = \Delta Q_B ; \Delta U_A = \Delta U_B$

2. $\Delta Q_A > \Delta Q_B , \Delta U_A > \Delta U_B$

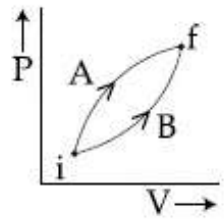
3. $\Delta Q_A > \Delta Q_B , \Delta U_A = \Delta U_B$

4. $\Delta Q_A < \Delta Q_B , \Delta U_A < \Delta U_B$

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

નીચેની આકૃતિ એક વાયુના નમુના માટે બે પ્રક્રિયાઓ A અને B દર્શાવે છે. જો ΔQ_A અને ΔQ_B એ તંત્ર વડે અનુક્રમે બે કિસ્સાઓમાં શોષિત ઉષ્માનો જથ્થો હોય, અને ΔU_A અને ΔU_B એ અનુક્રમે આંતરિક ઉર્જામાં થતો ફેરફાર હોય, તો :



Options :

1. $\Delta Q_A = \Delta Q_B ; \Delta U_A = \Delta U_B$

2. $\Delta Q_A > \Delta Q_B , \Delta U_A > \Delta U_B$

3. $\Delta Q_A > \Delta Q_B , \Delta U_A = \Delta U_B$

4. $\Delta Q_A < \Delta Q_B, \Delta U_A < \Delta U_B$

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

An HCl molecule has rotational, translational and vibrational motions. If the rms velocity of HCl molecules in its gaseous phase is $\bar{\nu}$, m is its mass and k_B is Boltzmann constant, then its temperature will be :

Options :

1. $\frac{m\bar{\nu}^2}{7k_B}$

2. $\frac{m\bar{\nu}^2}{5k_B}$

3. $\frac{m\bar{\nu}^2}{3k_B}$

4. $\frac{m\bar{\nu}^2}{6k_B}$

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

HCl अणु में घूर्णन, स्थानान्तरीय तथा कम्पन गतियाँ होती हैं। यदि HCl गैस के अणुओं का वर्ग माध्य मूल वेग $\bar{\nu}$ है, m इसका द्रव्यमान है, तो इसका तापमान होगा : (k_B : बोलट्समान नियतांक)

Options :

1. $\frac{m\bar{\nu}^2}{7k_B}$

2. $\frac{m\bar{\nu}^2}{5k_B}$

3. $\frac{m\bar{v}^2}{3k_B}$

4. $\frac{m\bar{v}^2}{6k_B}$

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

HCl અણુ એ ભ્રમણીય, સ્થાંનાંતરીય અને દોલિત (કમ્પિત) ગતિ ધરાવે છે. HCl અણુઓની તેમની વાયુ અવસ્થામાં rms ગતિ $\bar{v}$, તેમનુ દળ m અને k_B બોલ્ટ્સમાન અચળાંક છે. તો તેમનુ તાપમાન :

Options :

1. $\frac{m\bar{v}^2}{7k_B}$

2. $\frac{m\bar{v}^2}{5k_B}$

3. $\frac{m\bar{v}^2}{3k_B}$

4. $\frac{m\bar{v}^2}{6k_B}$

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

A string is clamped at both the ends and it is vibrating in its 4^{th} harmonic. The equation of the stationary wave is $Y = 0.3 \sin(0.157x) \cos(200\pi t)$. The length of the string is : (All quantities are in SI units.)

Options :

1. 80 m

2. 60 m

3. 40 m

4. 20 m

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

एक डोरी के दोनों सिरों को जकड़ कर रखा गया है तथा यह अपने चतुर्थ संनादी में कम्पन कर रही है। इस अप्रगामी तरंग का समीकरण है $Y = 0.3 \sin(0.157x)$ $\cos(200\pi t)$. इस डोरी की लम्बाई होगी :

(सभी राशियाँ SI मात्रक में हैं।)

Options :

1. 80 m

2. 60 m

3. 40 m

4. 20 m

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

એક દોરીને બન્ને છેડાથી જડેલી છે અને તે ચોથા-હાર્મોનિક્સ પર કંપન કરે છે. આ સ્થિત તરંગનું સમીકરણ $Y = 0.3 \sin(0.157x) \cos(200\pi t)$ છે. આ દોરીની લંબાઈ _____ છે.

(બધીજ રાશિઓ SI એકમમાં છે.)

Options :

1. 80 m

2. 60 m

3. 40 m

4. 20 m

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

The pressure wave, $P = 0.01 \sin[1000t - 3x]\ Nm^{-2}$, corresponds to the sound produced by a vibrating blade on a day when atmospheric temperature is 0°C. On some other day when temperature is T, the speed of sound produced by the same blade and at the same frequency is found to be $336\ ms^{-1}$. Approximate value of T is :

Options :

1. 12°C

2. 11°C

3. 15°C

4. 4°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

कंपन करती हुयी एक पत्ती द्वारा उत्पादित ध्वनि के अनुसार दबाव तरंग का रूप है $P = 0.01\ \sin[1000t - 3x]\ Nm^{-2}$ इस दिन वायुमण्डल का तापमान 0°C है। किसी और दिन जब तापमान T है तो उसी पत्ती द्वारा उसी आवृत्ति से उत्पादित ध्वनि की गति $336\ ms^{-1}$ पायी जाती है। T का लगभग मान होगा :

Options :

1. 12°C

2. 11°C

3. 15°C

4. 4°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

જ્યારે વાતાવરણનું તાપમાન 0°C છે તે દિવસે એક કંપિત ધાર (બ્લેડ) જે ધ્વનિ તરંગો ઉત્પન્ન કરે છે તે $P = 0.01 \sin[1000t - 3x]\ Nm^{-2}$ નું દાબિય-તરંગ (Pressure wave) ઉત્પન્ન કરેછે. બીજા કોઈ દિવસે તેજ આવૃતિએ કંપન કરતી તે ધાર દ્વારા ઉત્પન્ન થતા ધ્વનિની ઝડપ $336\ ms^{-1}$ માલુમ પડી. આ દિવસે વાતાવરણનું તાપમાન _____ ની નજીકનું હશે.

Options :

1. 12°C

2. 11°C

3. 15°C

4. 4°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

A capacitor with capacitance 5 μF is charged to 5 μC. If the plates are pulled apart to reduce the capacitance to 2 μF, how much work is done ?

Options :

1. 6.25×10^{-6} J

2. 2.16×10^{-6} J

3. 2.55×10^{-6} J

4. 3.75×10^{-6} J

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

5 μF धारिता के एक संधारित्र को 5 μC तक आवेशित किया जाता है। यदि संधारित्र की प्लेटों को दूर हटाकर उसकी धारिता 2 μF कर दी जाये तो किया गया कार्य होगा :

Options :

1. 6.25×10^{-6} J

2. 2.16×10^{-6} J

3. 2.55×10^{-6} J

4. 3.75×10^{-6} J

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

5 μF કેપેસિટન્સના એક કેપેસિટરને 5 μC સુધી વીજભારીત કરવામાં આવે છે. જો આ પ્લેટોને ખેંચીને એક બીજાથી દૂર કરી કેપેસિટન્સને ઘટાડી 2 μF કરવામાં આવે તો કેટલું કાર્ય થાય?

Options :

1. 6.25×10^{-6} J

2. 2.16×10^{-6} J

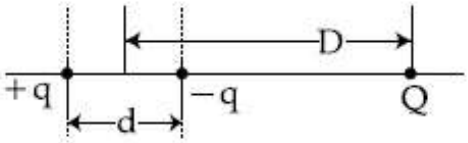
3. 2.55×10^{-6} J

4. 3.75×10^{-6} J

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

A system of three charges are placed as shown in the figure :



If D >> d, the potential energy of the system is best given by :

Options :

1. $\frac{1}{4\pi\epsilon_o}\left[+\frac{q^2}{d}+\frac{qQd}{D^2}\right]$

2. $\frac{1}{4\pi\epsilon_o}\left[-\frac{q^2}{d}-\frac{qQd}{2D^2}\right]$

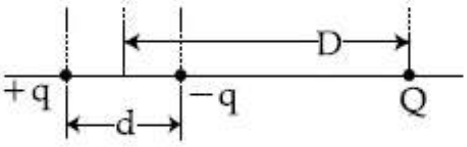
3. $\frac{1}{4\pi\epsilon_o}\left[-\frac{q^2}{d}+\frac{2qQd}{D^2}\right]$

4. $\frac{1}{4\pi\epsilon_o}\left[-\frac{q^2}{d}-\frac{qQd}{D^2}\right]$

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

तीन बिन्दु आवेशों का एक निकाय चित्र में दर्शित है।
यदि D >>d तो इस निकाय की लगभग स्थितिज ऊर्जा
होगी :



Options :

1. $\frac{1}{4\pi\epsilon_o}\left[+\frac{q^2}{d}+\frac{qQd}{D^2}\right]$

2. $\frac{1}{4\pi\epsilon_o}\left[-\frac{q^2}{d}-\frac{qQd}{2D^2}\right]$

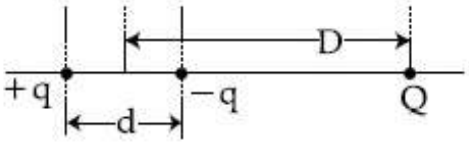
3. $\frac{1}{4\pi\epsilon_o}\left[-\frac{q^2}{d}+\frac{2qQd}{D^2}\right]$

4. $\frac{1}{4\pi\epsilon_o}\left[-\frac{q^2}{d}-\frac{qQd}{D^2}\right]$

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

આકૃતિમાં બતાવ્યા પ્રમાણે ચાર વીજભારોને મુકવામાં આવેલ છે.



જો D >> d, તો તંત્રની સ્થિતિ-ઉર્જાનો સચોટ અંદાજ _____ છે.

Options :

1. $\frac{1}{4\pi\epsilon_o}\left[+\frac{q^2}{d}+\frac{qQd}{D^2}\right]$

2. $\frac{1}{4\pi\epsilon_o}\left[-\frac{q^2}{d}-\frac{qQd}{2D^2}\right]$

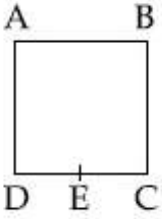
3. $\frac{1}{4\pi\epsilon_o}\left[-\frac{q^2}{d}+\frac{2qQd}{D^2}\right]$

4. $\frac{1}{4\pi\epsilon_o}\left[-\frac{q^2}{d}-\frac{qQd}{D^2}\right]$

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

A wire of resistance R is bent to form a square ABCD as shown in the figure. The effective resistance between E and C is : (E is mid-point of arm CD)



Options :

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

2. $\frac{1}{16}$ R

3. $\frac{7}{64}$ R

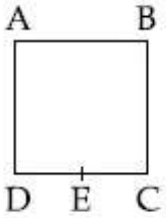
4. R

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

प्रतिरोध R के एक तार को चित्रानुसार एक वर्ग ABCD में मोड़ा गया है। बिन्दु E तथा C के बीच प्रभावी प्रतिरोध का मान होगा :

(E भुजा CD का मध्यबिन्दु है)



Options :

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

2. $\frac{1}{16}$ R

3. $\frac{7}{64}$ R

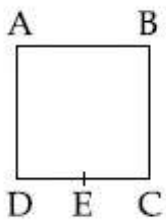
4. R

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

R અવરોધ ધરાવતા એક તારને ચોરસ ABCD બને તેમ વાળવામાં આવે છે. E અને C વચ્ચેનો અસરકારક અવરોધ _____ છે.

(E એ CD ભુજાનું મધ્યબિંદુ છે.)



Options :

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

2. $\frac{1}{16}$ R

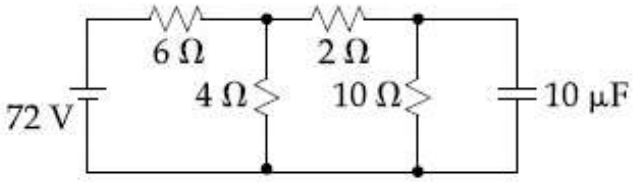
3. $\frac{7}{64}$ R

4. R

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

Determine the charge on the capacitor in the following circuit :



Options :

1. 2 μC

2. 200 μC

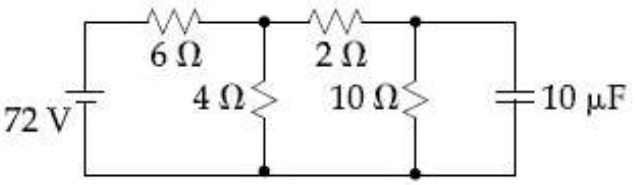
3. 60 μC

4. 10 μC

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

दिये गये परिपथ में संधारित्र पर आवेश ज्ञात कीजिये।



Options :

1. 2 μC

2. 200 μC

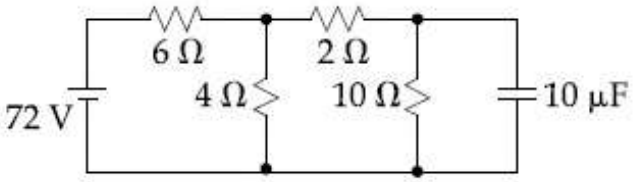
3. 60 μC

4. 10 μC

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

નીચે આપેલ પરિપથમાં કેપેસિટરમાં સંગ્રહિત વિદ્યુતભાર શોધો -



Options :

1. 2 μC

2. 200 μC

3. 60 μC

4. 10 μC

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

A rectangular coil (Dimension 5 cm × 2.5 cm) with 100 turns, carrying a current of 3 A in the clock-wise direction, is kept centered at the origin and in the X-Z plane. A magnetic field of 1 T is applied along X-axis. If the coil is tilted through 45° about Z-axis, then the torque on the coil is :

Options :

1. 0.27 Nm

2. 0.55 Nm

3. 0.38 Nm

4. 0.42 Nm

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 100 फेरे वाली आयताकार (5 cm × 2.5 cm) कुंडली में 3 A की धारा घड़ी की सुई की दिशा में बह रही है। इस कुंडली को मूल बिन्दु पर केन्द्रित करके X-Z समतल में रखा गया है। 1 T का चुम्बकीय क्षेत्र X-अक्ष की दिशा में है। यदि कुंडली को Z-अक्ष के परित: 45° से घुमाते हैं, तो इस पर लगा बल आघूर्ण होगा :

Options :

1. 0.27 Nm

2. 0.55 Nm

3. 0.38 Nm

4. 0.42 Nm

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

100 આંટા ધરાવતી અને ઘડિયાળનાં કાંટાની ગતિની દિશામાં 3 A પ્રવાહ ધારિત એક લંબચોરસ ગુંચળા (5 cm × 2.5 cm) ના કેન્દ્રને X-Z સમતલના ઉગમ બિંદુપર રાખવામાં આવેલ છે. X-અક્ષ તરફ 1 T નું ચુંબકીય ક્ષેત્ર આપવામાં આવે છે. જો આ ગૂંચળાને 45° નું Z-અક્ષ માં ભ્રમણ આપવામાં આવે, તો આ ગુંચળા પરનું ટોર્ક _____ છે.

Options :

1. 0.27 Nm

2. 0.55 Nm

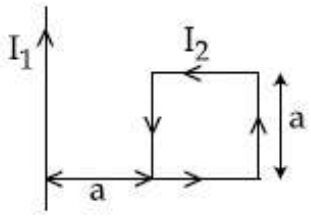
3. 0.38 Nm

4. 0.42 Nm

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

A rigid square loop of side 'a' and carrying current I_2 is lying on a horizontal surface near a long current I_1 carrying wire in the same plane as shown in figure. The net force on the loop due to the wire will be :



Options :

1. Zero

2. Attractive and equal to $\frac{\mu_o I_1 I_2}{3\pi}$

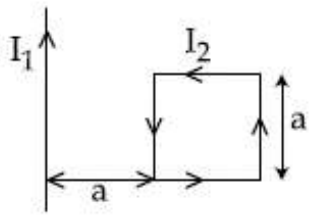
3. Repulsive and equal to $\frac{\mu_o I_1 I_2}{4\pi}$

4. Repulsive and equal to $\frac{\mu_o I_1 I_2}{2\pi}$

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

भुजा 'a' वाला एक दृढ़ वर्गाकार वलय, जिसमें धारा I_2 है, एक क्षैतिज समतल पर रखा है। इसी समतल पर धारा I_1 वाला एक तार चित्रानुसार रखा है। तार द्वारा इस वलय पर लगा कुल बल होगा :



Options :

1. शून्य

2. आकर्षक एवं $\frac{\mu_o I_1 I_2}{3\pi}$ के बराबर

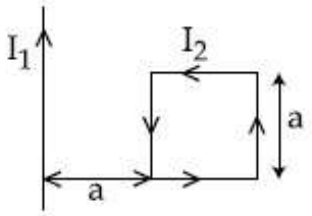
3. प्रतिकर्षक एवं $\frac{\mu_o I_1 I_2}{4\pi}$ के बराबर

4. प्रतिकर्षक एवं $\frac{\mu_o I_1 I_2}{2\pi}$ के बराबर

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

આકૃતિમાં બતાવ્યા પ્રમાણે 'a' બાજુનો અને I_2 પ્રવાહ ધારિત એક ચોરસ બંધગાળો સમક્ષિતિજ સપાટી પર એક લાંબા તાર કે જે પ્રવાહ I_1 ધારિત છે તેની નજીક તે જ સમતલમાં રહેલ છે. આ તારના લીધે બંધ ગાળા પર લાગતું ચોખ્ખુ બળ હશે :



Options :

1. શૂન્ય

2. આકર્ષિત અને $\frac{\mu_o I_1 I_2}{3\pi}$ જેટલું

3. અપાકર્ષિત અને $\frac{\mu_o I_1 I_2}{4\pi}$ જેટલું

4. અપાકર્ષિત અને $\frac{\mu_o I_1 I_2}{2\pi}$ જેટલું

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

The total number of turns and cross-section area in a solenoid is fixed. However, its length L is varied by adjusting the separation between windings. The inductance of solenoid will be proportional to :

Options :

1. L

2. L^2

3. $1/L^2$

4. $1/L$

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 परिनालिका में कुल फेरों की संख्या तथा अनुप्रस्थ क्षेत्रफल नियत है। किन्तु इसकी लम्बाई L को इसके फेरों के बीच दूरी बदलकर परिवर्तित कर सकते हैं। इस परिनालिका का स्वप्रेरकत्व समानुपाती होगा :

Options :

1. L

2. L^2

3. $1/L^2$

4. $1/L$

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

એક સોલેનોઇડમાં આંટાઓની સંખ્યા અને આડછેદનું ક્ષેત્રફળ અચળ રહે છે. પરંતુ, તેની લંબઈ L ને આંટાઓ વચ્ચેનું અંતર ગોઠવીને બદલી શકાય છે. સોલેનોઇડનું આત્મપ્રેરકત્વ _____ ના પ્રમાણમાં ચલે છે.

Options :

1. L

2. L^2

3. $1/L^2$

4. $1/L$

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

The magnetic field of a plane electromagnetic wave is given by :

$$\vec{B}=B_0\hat{i}[\cos(kz-\omega t)]+B_1\hat{j}\cos(kz+\omega t)$$

where $B_0=3\times10^{-5}$ T and $B_1=2\times10^{-6}$ T. The rms value of the force experienced by a stationary charge $Q=10^{-4}$ C at $z=0$ is closest to :

Options :

1. 0.6 N

2. 3×10^{-2} N

3. 0.9 N

4. 0.1 N

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

एक समतल विद्युत चुम्बकीय तरंग का चुम्बकीय क्षेत्र निम्न है :

$$\vec{B}=B_0\hat{i}[\cos(kz-\omega t)]+B_1\hat{j}\cos(kz+\omega t)$$

यहाँ $B_0=3\times10^{-5}$ T तथा $B_1=2\times10^{-6}$ T है। एक स्थिर आवेश $Q=10^{-4}$ C को $z=0$ पर रखा गया है। इसपर लगे वर्ग माध्य मूल बल का सन्निकट मान होगा :

Options :

1. 0.6 N

2. 3×10^{-2} N

3. 0.9 N

4. 0.1 N

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

એક સમતલ વિદ્યુતચુંબકીય તરંગના ચુંબકીય ક્ષેત્રને

$\vec{B}=B_0\,\hat{i}[\cos(kz-\omega t)]+B_1\,\hat{j}\cos(kz+\omega t)$

વડે આપવામાં આવે છે, જ્યાં $B_0=3\times10^{-5}$ T અને $B_1=2\times10^{-6}$ T. એક $Q=10^{-4}$ C વિજભારિત કણ વડે $z=0$ એ અનુભવાતું બળનુ rms મૂલ્ય _____ ની નજીકનું છે.

Options :

1. 0.6 N

2. 3×10^{-2} N

3. 0.9 N

4. 0.1 N

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

A concave mirror for face viewing has focal length of 0.4 m. The distance at which you hold the mirror from your face in order to see your image upright with a magnification of 5 is :

Options :

1. 0.16 m

2. 1.60 m

3. 0.32 m

4. 0.24 m

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

अपने चेहरे को देखने के लिये एक 0.4 m फोकस दूरी का अवतल दर्पण उपयोग करते हैं। यदि अपने प्रतिबिंब को सीधा और 5 गुना बड़ा देखना हो तो दर्पण की चेहरे से दूरी का मान होगा :

Options :

1. 0.16 m

2. 1.60 m

3. 0.32 m

4. 0.24 m

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

0.4 m કેન્દ્રલંબાઈનો એક અંતર્ગોળ અરિસો ચહેરો જોવા ઉપયોગમાં લેવામાં આવે છે. પ્રતિબિંબ ચત્તુ-ઉભુ અને મુળ સાઇઝથી 5 ગણું દેખાય તેમાટે તમે આ અરિસાને કેટલા અંતરે રાખશો?

Options :

1. 0.16 m

2. 1.60 m

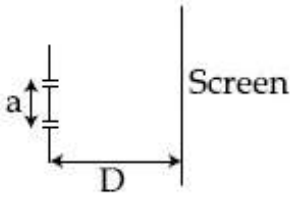
3. 0.32 m

4. 0.24 m

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

The figure shows a Young's double slit experimental setup. It is observed that when a thin transparent sheet of thickness t and refractive index μ is put in front of one of the slits, the central maximum gets shifted by a distance equal to n fringe widths. If the wavelength of light used is λ, t will be :



Options :

1. $\frac{D\lambda}{a(\mu - 1)}$

2. $\frac{nD\lambda}{a(\mu - 1)}$

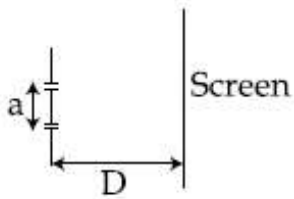
3. $\frac{2D\lambda}{a(\mu - 1)}$

4. $\frac{2nD\lambda}{a(\mu - 1)}$

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

चित्र में यंग का द्विझिर्री प्रयोग का विन्यास दिखाया है। यह पाया जाता है कि जब एक पतली पारदर्शी मोटाई t तथा अपवर्तनांक μ की झिल्ली एक झिरी के सामने लगाते हैं, तो केन्द्रीय अधिकतम अपने स्थान से n फ्रिंज-चौड़ाई से विस्थापित हो जाता है। यदि इस प्रयोग में उपयोग किये गये प्रकाश की तरंगदैर्घ्य λ है तो t का मान होगा :



Options :

1. $\frac{D\lambda}{a(\mu - 1)}$

2. $\frac{nD\lambda}{a(\mu - 1)}$

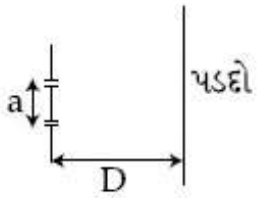
3. $\frac{2D\lambda}{a(\mu - 1)}$

4. $\frac{2nD\lambda}{a(\mu - 1)}$

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

આકૃતિમાં યંગના બે-સ્લિટના પ્રયોગની પ્રાયોગિક ગોઠવણી બતાવેલ છે. એમ જોવા મળ્યુ છે કે જ્યારે μ વક્રિભવનાંક ધરાવતી એક પાતળી t જાડાઇની પારદર્શક શીટને આ ગોઠવણીની કોઈપણ એક સ્લીટ સામે રાખવામાં આવે છે ત્યારે મધ્યસ્થ અધિકતમ n શલાકાઓની જાડાઈ જેટલી ખસે છે. જો ઉપયોગમાં લેવાતી તરંગ લંબાઈ λ હોય , તો t હશે :



Options :

1. $\frac{D\lambda}{a(\mu - 1)}$

2. $\frac{nD\lambda}{a(\mu - 1)}$

3. $\frac{2D\lambda}{a(\mu - 1)}$

4. $\frac{2nD\lambda}{a(\mu - 1)}$

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

Taking the wavelength of first Balmer line in hydrogen spectrum (n = 3 to n = 2) as 660 nm, the wavelength of the 2nd Balmer line (n = 4 to n = 2) will be :

Options :

1. 488.9 nm

2. 889.2 nm

3. 388.9 nm

4. 642.7 nm

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 हाइड्रोजन स्पेक्ट्रम की प्रथम बामर लाईन (n = 3 से n = 2) की तरंगदैर्घ्य 660 nm, हो तो दूसरी बामर लाईन (n = 4 से n = 2) की तरंगदैर्घ्य होगी :

Options :

1. 488.9 nm

2. 889.2 nm

3. 388.9 nm

4. 642.7 nm

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

હાઇડ્રોજન વર્ણપટમાં પહેલી બામ્ર લાઇન (n = 3 થી n = 2) ની તરંગ લંબાઇ 660 nm લો તો બીજી બામ્ર લાઇન (n = 4 થી n = 2) ની તરંગ લંબાઇ હશે :

Options :

1. 488.9 nm

2. 889.2 nm

3. 388.9 nm

4. 642.7 nm

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

The electric field of light wave is given as

$$\vec{E} = 10^{-3}\cos\left(\frac{2\pi x}{5\times 10^{-7}} - 2\pi \times 6 \times 10^{14}\, t\right)\hat{x}\ \frac{N}{C}$$

This light falls on a metal plate of work function 2eV. The stopping potential of the photo-electrons is :

Given, $E\ (\text{in eV}) = \frac{12375}{\lambda(\text{in } \mathring{A})}$

Options :

1. 0.72 V

2. 0.48 V

3. 2.48 V

4. 2.0 V

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

प्रकाश की एक तरंग का विद्युत क्षेत्र निम्न है,

$$\vec{E} = 10^{-3}\cos\left(\frac{2\pi x}{5\times 10^{-7}} - 2\pi \times 6 \times 10^{14}\, t\right)\hat{x}\ \frac{N}{C}$$

यह प्रकाश एक धातु की प्लेट पर आपतित है जिसका कार्य फलन 2 eV है । प्रकाशिक इलेकट्रॉनों के निरोधी विभव का मान होगा :

दिया है $E\ (\text{eV में}) = \frac{12375}{\lambda(\mathring{A}\text{ में})}$

Options :

1. 0.72 V

2. 0.48 V

3. 2.48 V

4. 2.0 V

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

ધાતુની એક સપાટીપર પ્રકાશનો વિદ્યુતક્ષેત્રિય સદિશ

$$\vec{E} = 10^{-3}\cos\left(\frac{2\pi x}{5\times10^{-7}} - 2\pi\times6\times10^{14}\,t\right)\hat{x}\,\frac{N}{C}$$

વડે અપાય છે. જેનું કાર્યવિધેય (વર્ક ફંક્શન) 2eV છે ફોટો-ઇલેક્ટ્રોન્સનું સ્ટોપિંગ-વિભવ (પોટેન્શિયલ) થશે :

$E\,(eV) = \frac{12375}{\lambda(\mathring{A})}$ લો.

Options :

1. 0.72 V

2. 0.48 V

3. 2.48 V

4. 2.0 V

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

An NPN transistor is used in common emitter configuration as an amplifier with 1 kΩ load resistance. Signal voltage of 10 mV is applied across the base-emitter. This produces a 3 mA change in the collector current and 15 μA change in the base current of the amplifier. The input resistance and voltage gain are :

Options :

1. 0.33 kΩ, 300

2. 0.33 kΩ, 1.5

3. 0.67 kΩ, 300

4. 0.67 kΩ, 200

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

एक NPN ट्रान्सिस्टर को उभयनिष्ठ उत्सर्जक विन्यास में एक प्रवर्धक (amplifier) की तरह उपयोग करते हैं। इसमें 1 kΩ का लोड प्रतिरोध लगा है। 10 mV का सिग्नल वोल्टेज आधार व उत्सर्जक के बीच में लगाने पर संग्राहक धारा में 3 mA का और आधार धारा में 15 μA का परिवर्तन होता है। निवेश प्रतिरोध तथा वोल्टेज लब्धि (gain) के मान होंगे :

Options :

1. 0.33 kΩ, 300

2. 0.33 kΩ, 1.5

3. 0.67 kΩ, 300

4. 0.67 kΩ, 200

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

1 kΩ અવરોધનો ઉપયોગ કરીને એક NPN ટ્રાન્સિસ્ટરનો કોમન એમિટર સંરચનામાં એમ્પ્લિફાયર (વિવર્ધક) તરીકે ઉપયોગ કરવામાં આવે છે. બેઝ-એમિટર સાપેક્ષે 10 mV નું વોલ્ટેજ સિગ્નલ આપવામાં આવે છે. આ ટ્રાન્સિસ્ટરના કલેક્ટર પ્રવાહમાં 3 mA નો અને બેઝ પ્રવાહમાં 15 μA બદલાવ ઉત્પન્ન કરે છે. ઇનપુટ અવરોધ અને વોલ્ટેજ ગેઇન છે :

Options :

1. 0.33 kΩ, 300

2. 0.33 kΩ, 1.5

3. 0.67 kΩ, 300

4. 0.67 kΩ, 200

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

A signal Acosωt is transmitted using $v_0 \sin\omega_0 t$ as carrier wave. The correct amplitude modulated (AM) signal is :

Options :

1. $v_0 \sin\omega_0 t + A\cos\omega t$

2. $(v_0 + A)\cos\omega t \sin\omega_0 t$

3. $v_0 \sin\omega_0 t + \frac{A}{2}\sin(\omega_0 - \omega)t + \frac{A}{2}\sin(\omega_0 + \omega)t$

4. $v_0 \sin[\omega_0(1 + 0.01A\sin\omega t)t]$

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 सिग्नल Acosωt का संचार वाहक तरंग $v_0 \sin\omega_0 t$ से किया जाता है। सही आयाम मॉडुलित सिग्नल होगा :

Options :

1. $v_0 \sin\omega_0 t + A\cos\omega t$

2. $(v_0 + A)\cos\omega t \sin\omega_0 t$

3. $v_0 \sin\omega_0 t + \frac{A}{2}\sin(\omega_0 - \omega)t + \frac{A}{2}\sin(\omega_0 + \omega)t$

4. $v_0 \sin[\omega_0(1 + 0.01A\sin\omega t)t]$

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

$v_0 \sin\omega_0 t$ નો કેરિયર તરીકે ઉપયોગ કરીને એક સિગ્નલ A cosωt ને પ્રસારિત કરવામાં આવેછે. સાચું એમ્પ્લીટ્યુડ મોડ્યુલેટેડ (AM) સિગ્નલ છે :

Options :

1. $v_0 \sin\omega_0 t + A\cos\omega t$

2. $(v_0 + A)\cos\omega t \sin\omega_0 t$

3. $v_0 \sin\omega_0 t + \frac{A}{2}\sin(\omega_0 - \omega)t + \frac{A}{2}\sin(\omega_0 + \omega)t$

4. $v_0 \sin[\omega_0(1+0.01A\sin\omega t)t]$

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

If 'M' is the mass of water that rises in a capillary tube of radius 'r', then mass of water which will rise in a capillary tube of radius '2r' is :

Options :

1. 4 M

2. 2 M

3. M

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

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

यदि एक 'r' त्रिज्या की केशिका नली में चढ़े हुए पानी का द्रव्यमान 'M' है तो '2r' त्रिज्या की केशिका नली में चढ़ने वाले पानी का द्रव्यमान होगा :

Options :

1. 4 M

2. 2 M

3. M

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

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

'r' ત્રિજ્યાવાળી એક કેશનળીમાં ઉપર ચડતાં પાણીનું દ્રવ્યમાન જો 'M' હોય, તો '2r' ત્રિજ્યાની કેશનળીમાં ઉપર ચડતાં પાણીનું દ્રવ્યમાન _____ છે.

Options :

1. 4 M

2. 2 M

3. M

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

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

A moving coil galvanometer has resistance 50 Ω and it indicates full deflection at 4 mA current. A voltmeter is made using this galvanometer and a 5 kΩ resistance. The maximum voltage, that can be measured using this voltmeter, will be close to :

Options :

1. 10 V

2. 15 V

3. 20 V

4. 40 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

एक चल कुंडली धारामापी का प्रतिरोध 50 Ω है तथा यह 4 mA धारा से पूर्ण विक्षेप दिखाता है। इसे 5 kΩ प्रतिरोध का उपयोग करके एक वोल्टमीटर बनाते हैं। इस वोल्टमीटर से अधिकतम नापे जा सकने वाले वोल्टेज का निकटतम मान होगा :

Options :

1. 10 V

2. 15 V

3. 20 V

4. 40 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

એક ગેલ્વેનોમીટર $50\ \Omega$ અવરોધનું ચલિત ગુચળું ધરાવે છે કે જે માંથી જ્યારે $4\ mA$ પ્રવાહ પસાર થાય ત્યારે તે પૂર્ણ સ્કેલ આવર્તન બતાવે છે. આ ગેલ્વેનોમીટરને $5\ k\Omega$ નો અવરોધ શ્રેણીમાં જોડી વોલ્ટમીટર બનાવવામાં આવે છે. આ વોલ્ટમીટરથી મપાતો મહત્તમ વોલ્ટેજ _____ ની નજીકનો હશે.

Options :

1. 10 V

2. 15 V

3. 20 V

4. 40 V

Chemistry

Section Id :	416529290
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:	416529430
Question Shuffling Allowed :	Yes

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

The major product of the following reaction is :

$CH_3CH=CHCO_2CH_3 \xrightarrow{LiAlH_4}$

Options :

1. $CH_3CH_2CH_2CO_2CH_3$

2. $CH_3CH=CHCH_2OH$

3. $CH_3CH_2CH_2CH_2OH$

4. $CH_3CH_2CH_2CHO$

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 अभिक्रिया का मुख्य उत्पाद है :

$CH_3CH=CHCO_2CH_3 \xrightarrow{LiAlH_4}$

Options :

1. $CH_3CH_2CH_2CO_2CH_3$

2. $CH_3CH=CHCH_2OH$

3. $CH_3CH_2CH_2CH_2OH$

4. $CH_3CH_2CH_2CHO$

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 આપેલી પ્રક્રિયાની મુખ્ય નીપજ શોધો?

$CH_3CH=CHCO_2CH_3 \xrightarrow{LiAlH_4}$

Options :

1. $CH_3CH_2CH_2CO_2CH_3$

2. $CH_3CH=CHCH_2OH$

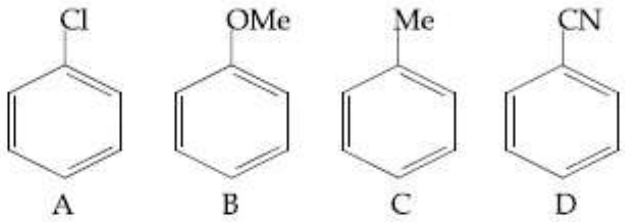
3. $CH_3CH_2CH_2CH_2OH$

4. $CH_3CH_2CH_2CHO$

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

The increasing order of reactivity of the following compounds towards aromatic electrophilic substitution reaction is :



Options :

1. A < B < C < D

2. D < A < C < B

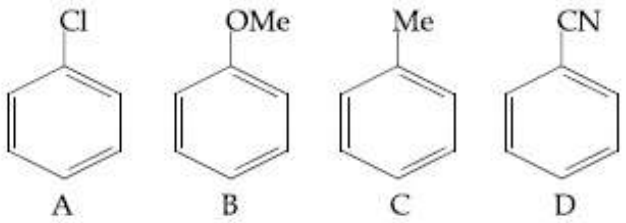
3. D < B < A < C

4. B < C < A < D

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 यौगिकों के ऐरोमैटिक इलेक्ट्रॉनस्नेही प्रतिस्थापन अभिक्रिया के लिए अभिक्रियाशीलता का बढ़ता क्रम है :



Options :

1. A < B < C < D

2. D < A < C < B

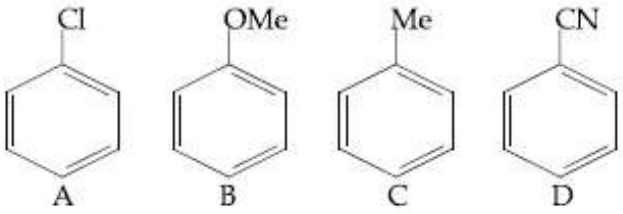
3. D < B < A < C

4. $B < C < A < D$

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 આપેલા સંયોજનોને, ઈલેક્ટ્રોન અનુરાગી એરોમેટિક વિસ્થાપન પ્રક્રિયાઓના પ્રત્યેની સક્રિયતા માટેનો ચઢતો ક્રમ શોધો?



Options :

1. $A < B < C < D$

2. $D < A < C < B$

3. $D < B < A < C$

4. $B < C < A < D$

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 :

$$CH_3C{\equiv}CH \xrightarrow[\text{(ii) DI}]{\text{(i) DCl (1 equiv.)}}$$

Options :

1. $CH_3CD_2CH(Cl)(I)$

2. $CH_3CD(I)CHD(Cl)$

3. $CH_3CD(Cl)CHD(I)$

4. $CH_3C(I)(Cl)CHD_2$

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 :

$$CH_3C{\equiv}CH \xrightarrow[\text{(ii) DI}]{\text{(i) DCl (1 समतुल्य)}}$$

Options :

1. $CH_3CD_2CH(Cl)(I)$

2. $CH_3CD(I)CHD(Cl)$

3. $CH_3CD(Cl)CHD(I)$

4. $CH_3C(I)(Cl)CHD_2$

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?

$$CH_3C{\equiv}CH \xrightarrow[\text{(ii) DI}]{\text{(i) DCl (1 equiv.)}}$$

Options :

1. $CH_3CD_2CH(Cl)(I)$

2. $CH_3CD(I)CHD(Cl)$

3. $CH_3CD(Cl)CHD(I)$

4. $CH_3C(I)(Cl)CHD_2$

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

Which of the following statements is not true about sucrose ?

Options :

1. On hydrolysis, it produces glucose and fructose

2. It is a non reducing sugar

3. The glycosidic linkage is present between C_1 of α-glucose and C_1 of β-fructose

4. It is also named as invert sugar

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

सुक्रोस के संबंध में निम्नलिखित में से कौन-सा कथन **सही नहीं** है?

Options :

1. जल अपघटित होने पर, यह ग्लूकोस तथा फ्रक्टोज बनाता है।

2. यह एक अनअपचायी शर्करा है।

3. α-ग्लूकोस के C_1 तथा β-फ्रक्टोज के C_1 के बीच ग्लाइकोसाइडी बंध होता है।

4. यह एक अपवृत्त शर्करा की तरह भी जाना जाता है।

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

સુક્રોઝ માટે નીચેનામાંથી કયું વિધાન સાચુ નથી?

Options :

1. તેનું જળવિભાજન કરતા ગ્લુકોઝ અને ફ્રુક્ટોઝ આપે છે.

2. તે નોન્‌રિડ્યુશીંગ શર્કરા છે.

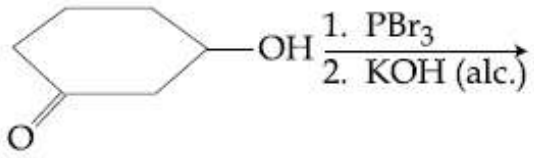
3. તેમાં α- ગ્લુકોઝ ના C_1 અને β-ફ્રુક્ટોઝના C_1 ની વચ્ચે ગ્લાયકોસાઈડીક જોડાણ હાજર છે.

4. તેઓને અપવૃત શર્કરા (Invert Sugar) નું નામ પણ આપેલ છે.

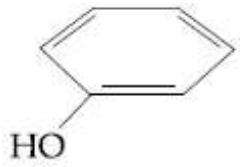
Question Number : 35 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

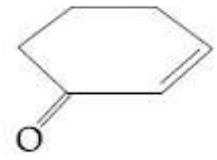
Correct Marks : 4 Wrong Marks : 1

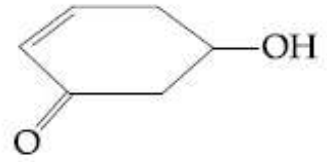
The major product of the following reaction is :

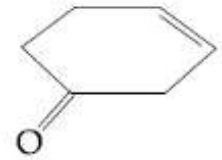


Options :

1. 

2. 

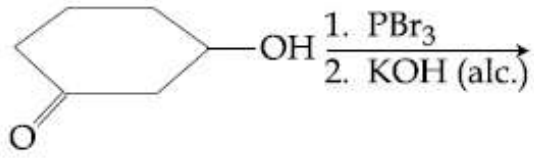
3. 

4. 

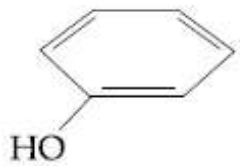
Question Number : 35 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

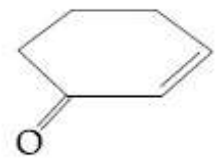
Correct Marks : 4 Wrong Marks : 1

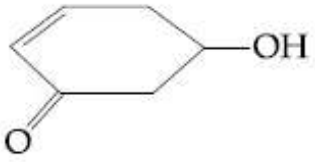
निम्नलिखित अभिक्रिया का मुख्य उत्पाद है :

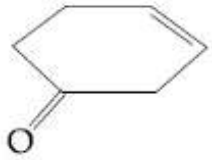


Options :

1. 

2. 

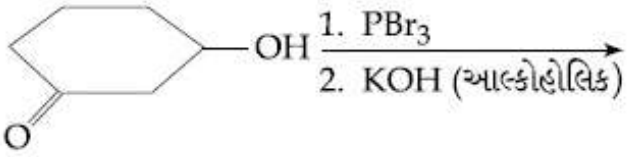
3. 

4. 

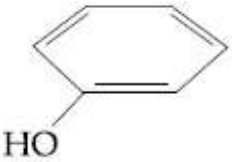
Question Number : 35 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

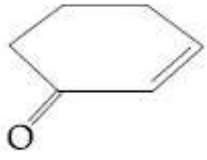
Correct Marks : 4 Wrong Marks : 1

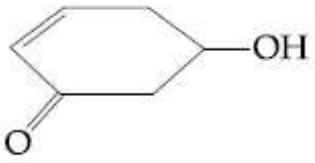
નીચે આપેલી પ્રક્રિયાની મુખ્ય નીપજ શોધો?

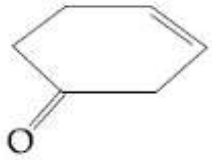


Options :

1. 

2. 

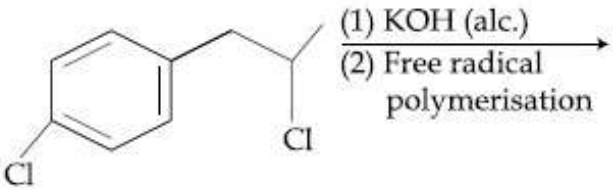
3. 

4. 

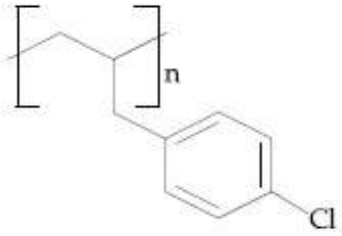
Question Number : 36 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

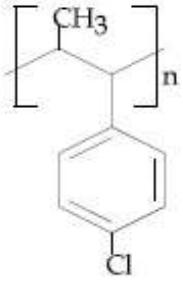
Correct Marks : 4 Wrong Marks : 1

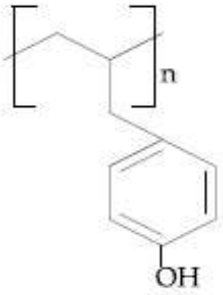
The major product of the following reaction is :

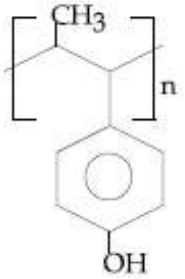


Options :

1.


2.


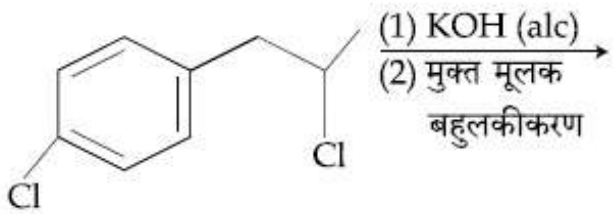
3.


4.


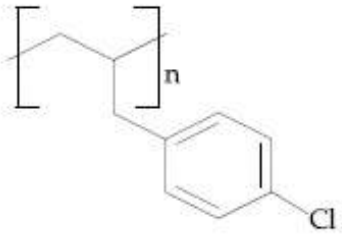
Question Number : 36 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

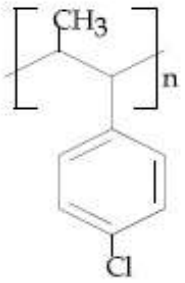
Correct Marks : 4 Wrong Marks : 1

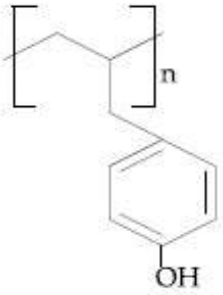
निम्नलिखित अभिक्रिया का मुख्य उत्पाद है :

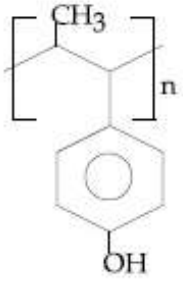


Options :

1. 

2. 

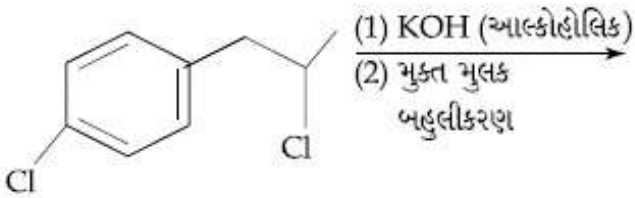
3. 

4. 

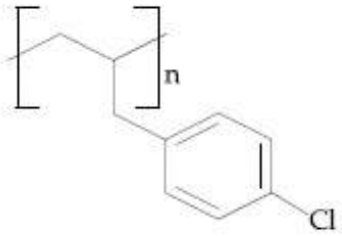
Question Number : 36 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

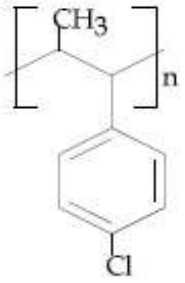
Correct Marks : 4 Wrong Marks : 1

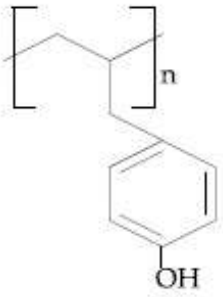
નીચે આપેલી પ્રક્રિયાની મુખ્ય નીપજ શોધો ?

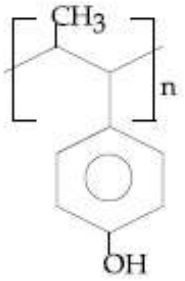


Options :

1. 

2. 

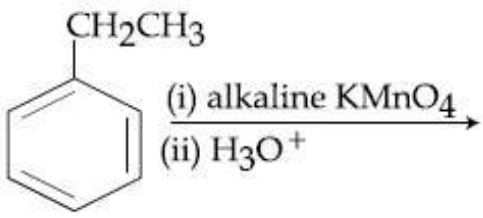
3. 

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

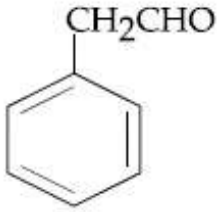
The major product of the following reaction is :

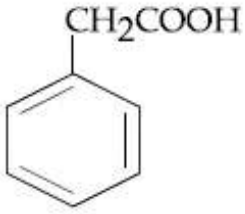


Options :

1. 

2. 

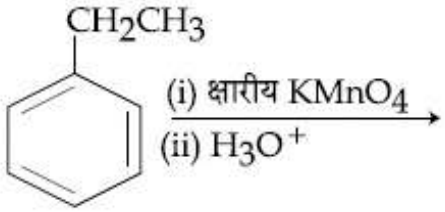
3. 

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 का मुख्य उत्पाद है :

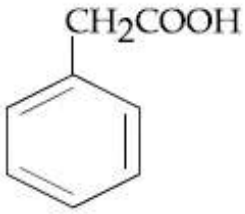


Options :

1. 

2. 

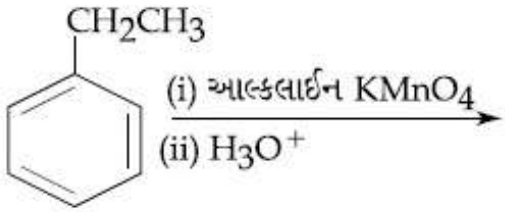
3. 

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

નીચેની પ્રક્રિયાની સાચી નીપજ :

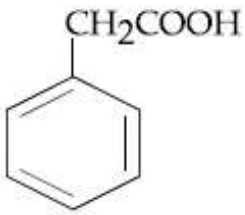


Options :

1. 

2. 

3. 

4. 

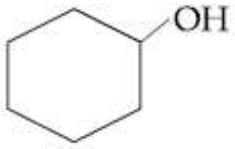
Question Number : 38 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

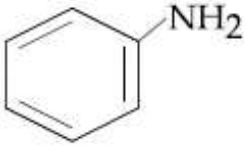
Correct Marks : 4 Wrong Marks : 1

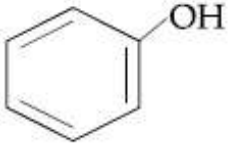
The organic compound that gives following qualitative analysis is :

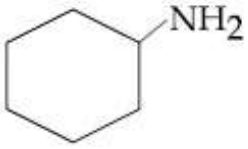
	Test	Inference
(a)	Dil. HCl	Insoluble
(b)	NaOH solution	soluble
(c)	Br_2/water	Decolourization

Options :

1. 

2. 

3. 

4. 

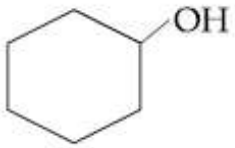
Question Number : 38 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

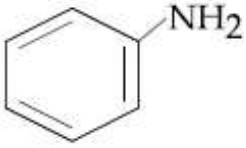
Correct Marks : 4 Wrong Marks : 1

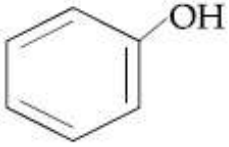
कार्बनिक यौगिक जो निम्नलिखित गुणात्मक विश्लेषण देता है, वह है :

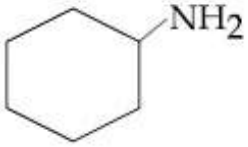
	परीक्षण	अनुमान
(a)	तनु HCl	अघुलनशील
(b)	NaOH विलयन	घुलनशील
(c)	Br_2/जल	रंग का लुप्त होना (विवर्णन)

Options :

1. 

2. 

3. 

4. 

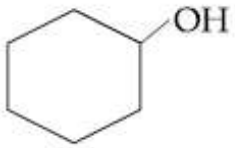
Question Number : 38 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

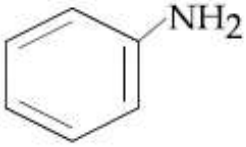
Correct Marks : 4 Wrong Marks : 1

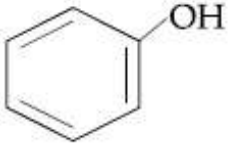
કાર્બનિક સંયોજન જે નીચે આપેલી ગુણાત્મક કસોટી આપે છે તે શોધો ?

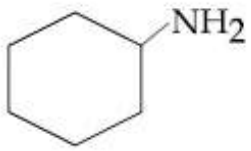
	કસોટી	તરાણ
(a)	મંદ HCl	અદ્રાવ્ય
(b)	NaOH નું દ્રાવણ	દ્રાવ્ય
(c)	Br_2/પાણીમાં	રંગ વિહિનીકરણ

Options :

1. 

2. 

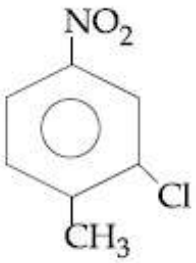
3. 

4. 

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 IUPAC name of the following compound is :



Options :

1. 5-chloro-4-methyl-1-nitrobenzene

2. 2-chloro-1-methyl-4-nitrobenzene

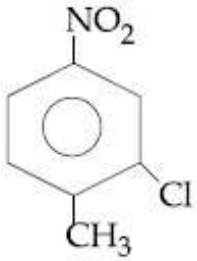
3. 2-methyl-5-nitro-1-chlorobenzene

4. 3-chloro-4-methyl-1-nitrobenzene

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

निम्नलिखित यौगिक का **सही** IUPAC नाम है :



Options :

1. 5-क्लोरो-4-मेथिल-1-नाइट्रोबेन्ज़ीन

2. 2-क्लोरो-1-मेथिल-4-नाइट्रोबेन्ज़ीन

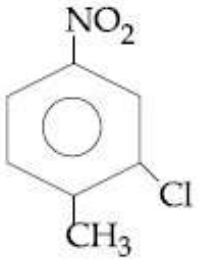
3. 2-मेथिल-5-नाइट्रो-1-क्लोरोबेन्ज़ीन

4. 3-क्लोरो-4-मेथिल-1-नाइट्रोबेन्ज़ीन

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

આપેલા સંયોજનનું સાચું IUPAC નામ આપો :



Options :

1. 5-ક્લોરો-4-મિથાઈલ-1-નાઈટ્રોબેન્ઝિન

2. 2-ક્લોરો-1-મિથાઇલ-4-નાઈટ્રોબેન્ઝિન

3. 2-મિથાઈલ-5-નાઇટ્રો-1-ક્લોરોબેન્ઝિન

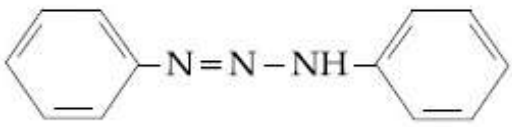
4. 3-ક્લોરો-4-મિથાઇલ-1-નાઈટ્રોબેન્ઝિન

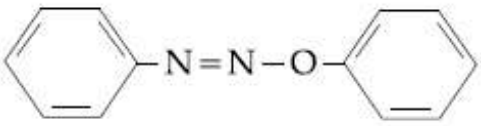
Question Number : 40 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

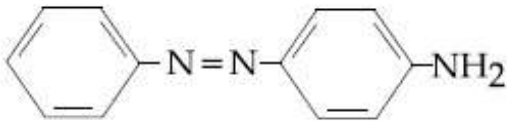
Correct Marks : 4 Wrong Marks : 1

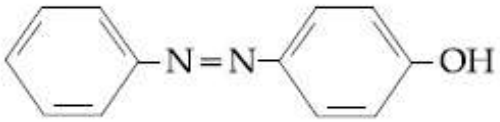
Aniline dissolved in dilute HCl is reacted with sodium nitrite at 0°C . This solution was added dropwise to a solution containing equimolar mixture of aniline and phenol in dil. HCl. The structure of the major product is :

Options :

1. 

2. 

3. 

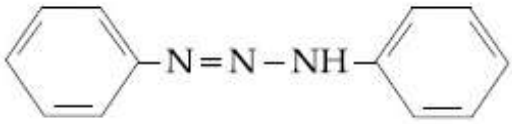
4. 

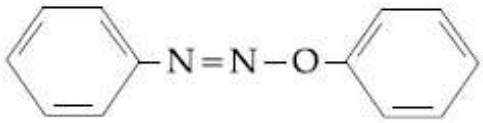
Question Number : 40 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

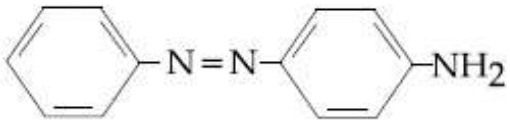
Correct Marks : 4 Wrong Marks : 1

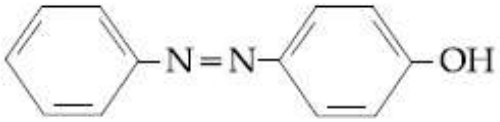
तनु HCl में घुली हुई ऐनिलीन को सोडियम नाइट्राइट के साथ 0°C पर अभिक्रियित किया जाता है। इस विलयन को ऐनिलीन तथा फिनॉल के सममोलीय मिश्रण के तनु HCl विलयन में बूंद-बूंद करके मिलाया जाता है। मुख्य उत्पाद की संरचना है :

Options :

1. 

2. 

3. 

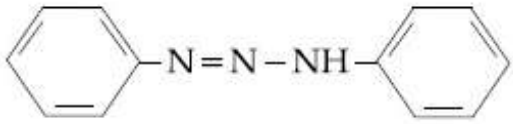
4. 

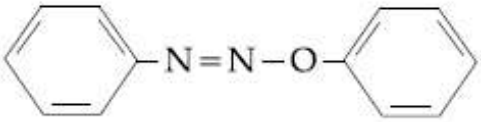
Question Number : 40 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

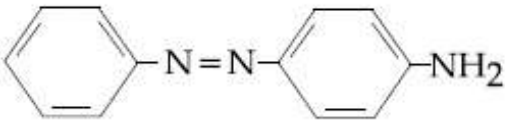
Correct Marks : 4 Wrong Marks : 1

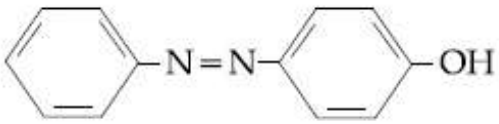
એનિલીન ને મંદ HCl માં ઓગાળી તેની સોડિયમ નાઇટ્રાઈટ સાથે 0°C પર પ્રક્રિયા કરવામાં આવે છે. આ દ્રાવણને ટીપે ટીપે મંદ HCl માં બનેલા એનિલીન અને ફિનોલના સમમોલર મિશ્રણમાં ઉમેરવામાં આવે છે. તો મુખ્ય નીપજ નું બંધારણ આપો?

Options :

1. 

2. 

3. 

4. 

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

The element having greatest difference between its first and second ionization energies, is :

Options :

1. K

2. Ca

3. Ba

4. Sc

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

प्रथम तथा द्वितीय आयनन ऊर्जाओं के बीच सर्वाधिक अन्तर जिस तत्त्व में है, वह है :

Options :

1. K

2. Ca

3. Ba

4. Sc

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

તત્વ કે જેનો, તેની પ્રથમ અને દ્વિતીય આયનીકરણ શક્તિ
વચ્ચેનો તફાવત સૌથી વધુ છે તે :

Options :

1. K

2. Ca

3. Ba

4. Sc

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

The ore that contains the metal in the
form of fluoride is :

Options :

1. sphalerite

2. cryolite

3. magnetite

4. malachite

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

अयस्क जिसमें धातु फ्लोराइड के रूप में है, वह है :

Options :

1. स्फैलेराइट

2. क्राइयोलाइट

3. मैग्नेटाइट

4. मैलेकाइट

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

કાચી ધાતુ (અયસ્ક) કે જેમાં ધાતુ જે ફ્લોરાઈડ રૂપે છે તે :

Options :

1. સ્ફાલેરાઈટ

2. ક્રાયોલાઈટ

3. મેગ્નેટાઈટ

4. મેલેચાઈટ

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

The number of water molecule(s) **not** coordinated to copper ion directly in $CuSO_4 \cdot 5H_2O$, is :

Options :

1. 1

2. 2

3. 3

4. 4

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

$CuSO_4 \cdot 5H_2O$ में, कॉपर आयन के साथ सीधे रूप से उपसहसंयोजित **नहीं** होने वाला/वाले जल के अणु(ओं) की संख्या है :

Options :

1. 1

2. 2

3. 3

4. 4

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

$CuSO_4 \cdot 5H_2O$ માં કોપર આયનની સાથે સીધા સંવર્ગીય ન હોય તેવા પાણીના અણુઓની સંખ્યા છે :

Options :

1. 1

2. 2

3. 3

4. 4

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

Magnesium powder burns in air to give :

Options :

1. MgO only

2. $Mg(NO_3)_2$ and Mg_3N_2

3. MgO and Mg_3N_2

4. MgO and $Mg(NO_3)_2$

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

मैग्नीशियम पाउडर वायु में जलकर देता है :

Options :

1. MgO मात्र

2. $Mg(NO_3)_2$ तथा Mg_3N_2

3. MgO तथा Mg_3N_2

4. MgO तथा $Mg(NO_3)_2$

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

મેગ્નેશિયમના ભૂકાને હવામાં દહન કરતા શું મળે?

Options :

1. ફક્ત MgO

2. $Mg(NO_3)_2$ અને Mg_3N_2

3. MgO અને Mg_3N_2

4. MgO અને $Mg(NO_3)_2$

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

The correct order of the oxidation states of nitrogen in NO, N_2O, NO_2 and N_2O_3 is :

Options :

1. $NO_2 < NO < N_2O_3 < N_2O$

2. $NO_2 < N_2O_3 < NO < N_2O$

3. $N_2O < NO < N_2O_3 < NO_2$

4. $N_2O < N_2O_3 < NO < NO_2$

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

NO, N_2O, NO_2 तथा N_2O_3 में नाइट्रोजन की ऑक्सीकरण अवस्थाओं का **सही** क्रम है :

Options :

1. $NO_2 < NO < N_2O_3 < N_2O$

2. $NO_2 < N_2O_3 < NO < N_2O$

3. $N_2O < NO < N_2O_3 < NO_2$

4. $N_2O < N_2O_3 < NO < NO_2$

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

NO, N_2O, NO_2 અને N_2O_3 માં નાઈટ્રોજનની ઑક્સિડેશન અવસ્થાનો સાચો ક્રમાંક આપો :

Options :

1. $NO_2 < NO < N_2O_3 < N_2O$

2. $NO_2 < N_2O_3 < NO < N_2O$

3. $N_2O < NO < N_2O_3 < NO_2$

4. $N_2O < N_2O_3 < NO < NO_2$

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

C_{60}, an allotrope of carbon contains :

Options :

1. 20 hexagons and 12 pentagons.

2. 12 hexagons and 20 pentagons.

3. 16 hexagons and 16 pentagons.

4. 18 hexagons and 14 pentagons.

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

कार्बन के एक अपररूप C_{60} में होते हैं :

Options :

1. 20 षट्भुज तथा 12 पंचभुज

2. 12 षट्भुज तथा 20 पंचभुज

3. 16 षट्भुज तथा 16 पंचभुज

4. 18 षट्भुज तथा 14 पंचभुज

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

C_{60} કાર્બનનો એક બહુરૂપ (allotrope) શું ધરાવે છે?

Options :

1. 20 ષટ્કોણો અને 12 પંચકોણો

2. 12 ષટ્કોણો અને 20 પંચકોણો

3. 16 ષટ્કોણો અને 16 પંચકોણો

4. 18 ષટ્કોણો અને 14 પંચકોણો

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

Match the catalysts **(Column I)** with products **(Column II)**.

	Column I		**Column II**
	Catalyst		**Product**
(A)	V_2O_5	(i)	Polyethylene
(B)	$TiCl_4/Al(Me)_3$	(ii)	ethanal
(C)	$PdCl_2$	(iii)	H_2SO_4
(D)	Iron Oxide	(iv)	NH_3

Options :

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

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

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

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

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

उत्प्रेरकों (**कालम I**) को उत्पादों (**कालम II**) के साथ सुमेलित कीजिए :

	कालम I		**कालम II**
	उत्प्रेरक		**उत्पाद**
(A)	V_2O_5	(i)	पालिथीन
(B)	$TiCl_4/Al(Me)_3$	(ii)	एथेनल
(C)	$PdCl_2$	(iii)	H_2SO_4
(D)	आयरन आक्साइड	(iv)	NH_3

Options :

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

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

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

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

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

ઉદ્દીપકો (**સ્તંભ I**) ને નીપજો (**સ્તંભ II**) સાથે જોડો :

	સ્તંભ I		**સ્તંભ II**
	ઉદ્દીપકો		**નીપજો**
(A)	V_2O_5	(i)	પોલીઈથીલીન
(B)	$TiCl_4/Al(Me)_3$	(ii)	ઈથેનાલ
(C)	$PdCl_2$	(iii)	H_2SO_4
(D)	આર્યન ઓક્સાઈડ	(iv)	NH_3

Options :

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

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

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

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

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

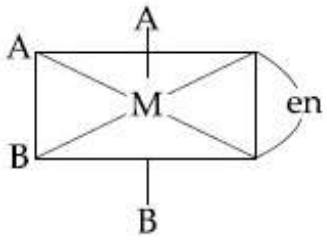
Correct Marks : 4 Wrong Marks : 1

The one that will show optical activity is :

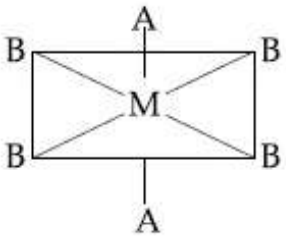
(en = ethane-1,2-diamine)

Options :

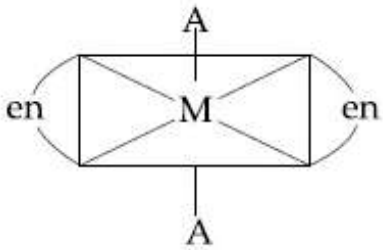
1.



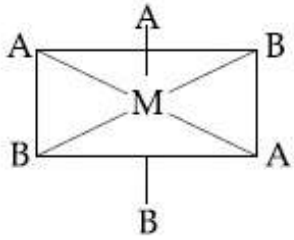
2.



3.



4.



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

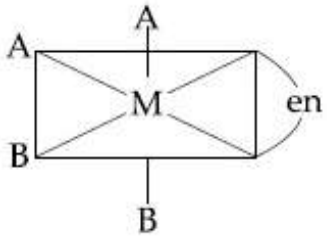
Correct Marks : 4 Wrong Marks : 1

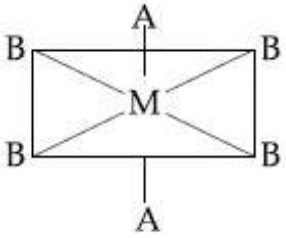
जो ध्रुवण घूर्णकता प्रदर्शित करता है वह है :

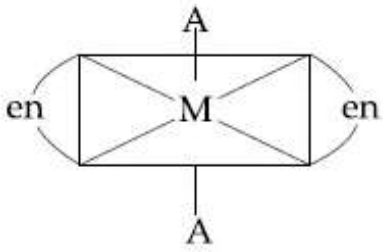
(en = एथेन-1,2-डाइऐमीन)

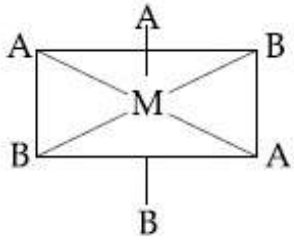
Options :

1.



2. 

3. 

4. 

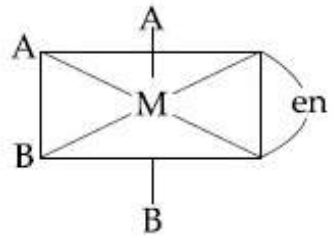
Question Number : 48 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

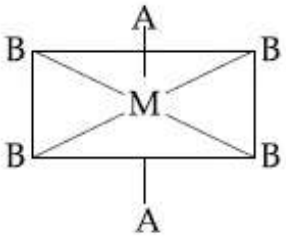
Correct Marks : 4 Wrong Marks : 1

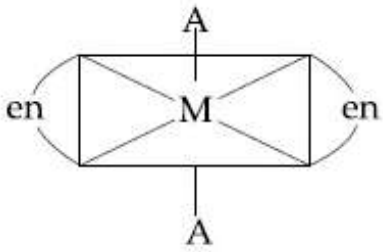
એ કે જે પ્રકાશ ક્રિયાશીલતા દર્શાવે છે તે :

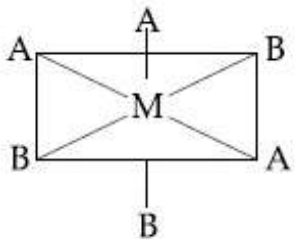
(en = ઈથેન-1, 2-ડાયએમાઈન)

Options :

1. 

2. 

3. 

4. 

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 degenerate orbitals of $[Cr(H_2O)_6]^{3+}$ are :

Options :

1. $d_{x^2-y^2}$ and d_{xy}

2. d_{xz} and d_{yz}

3. d_{z^2} and d_{xz}

4. d_{yz} and d_{z^2}

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

$[Cr(H_2O)_6]^{3+}$ के अपह्रासित कक्षक हैं :

Options :

1. $d_{x^2-y^2}$ तथा d_{xy}

2. d_{xz} तथा d_{yz}

3. d_{z^2} तथा d_{xz}

4. d_{yz} तथा d_{z^2}

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

$[Cr(H_2O)_6]^{3+}$ ની ડીજનરેટ કક્ષકો કઈ?

Options :

1. $d_{x^2-y^2}$ અને d_{xy}

2. d_{xz} અને d_{yz}

3. d_{z2} અને d_{xz}

4. d_{yz} અને d_{z2}

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

Excessive release of CO_2 into the atmosphere results in :

Options :

1. depletion of ozone

2. formation of smog

3. global warming

4. polar vortex

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

पर्यावरण में CO_2 का अत्यधिक निस्सर्जन का परिणाम है :

Options :

1. ओज़ोन का अवक्षय

2. धूमकुहा का बनना

3. भूमंडलीय तापन

4. ध्रुवीय भ्रमिल (vortex)

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

વાતાવરણમાં વધુ પડતો CO_2 વાયુ મુક્ત થવાથી શું કારણભૂત બને છે?

Options :

1. ઓઝોનનો ઘટાડો

2. ધુમ ધુમ્મસ નું બનવુ

3. ગ્લોબલ વોર્મીંગ

4. ધ્રુવીય ડમરી (વમળ)

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

For a reaction,

$N_2(g) + 3\,H_2(g) \rightarrow 2\,NH_3(g)$; identify dihydrogen ($H_2$) as a limiting reagent in the following reaction mixtures.

Options :

1. 14 g of N_2 + 4 g of H_2

2. 28 g of N_2 + 6 g of H_2

3. 35 g of N_2 + 8 g of H_2

4. 56 g of N_2 + 10 g of H_2

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

अभिक्रिया

$N_2(g) + 3\,H_2(g) \rightarrow 2\,NH_3(g)$ के लिए निम्नलिखित अभिक्रियात्मक मिश्रणों में डाइहाइड्रोजन (H_2) को सीमांत अभिकर्मक के रूप में पहचानिये :

Options :

1. N_2 का 14 g + H_2 का 4 g

2. N_2 का 28 g + H_2 का 6 g

3. N_2 का 35 g + H_2 का 8 g

4. N_2 का 56 g + H_2 का 10 g

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

આપેલ પ્રક્રિયા,

$N_2(g) + 3H_2(g) \rightarrow 2NH_3(g)$ માટે, નીચે આપેલી પ્રક્રિયા મિશ્રણ માટે, ડાઈહાઈડ્રોજન (H_2) સિમાંત પ્રક્રિયક (limiting reagent) તરીકે ઓળખો :

Options :

1. N_2, 14 g + H_2, 4 g

2. N_2, 28 g + H_2, 6 g

3. N_2 35 g + H_2, 8 g

4. N_2, 56 g + H_2, 10 g

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

Consider the van der Waals constants, a and b, for the following gases.

Gas	Ar	Ne	Kr	Xe
a/(atm dm^6 mol^{-2})	1.3	0.2	5.1	4.1
b/(10^{-2} dm^3 mol^{-1}	3.2	1.7	1.0	5.0

Which gas is expected to have the highest critical temperature ?

Options :

1. Ar

2. Ne

3. Kr

4. Xe

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

निम्नलिखित गैसों के वान्डरवाल्स स्थिरांक a तथा b पर विचार कीजिए :

गैस	Ar	Ne	Kr	Xe
a/(atm dm^6 mol^{-2})	1.3	0.2	5.1	4.1
b/(10^{-2} dm^3 mol^{-1})	3.2	1.7	1.0	5.0

निम्नलिखित में से किसके लिए क्रांतिक ताप के सर्वाधिक होने की संभावना होगी ?

Options :

1. Ar

2. Ne

3. Kr

4. Xe

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

નીચે આપેલા વાયુઓ માટે વાનડરવાલ્સના અચળાંકો a અને b ધ્યાનમાં લો :

વાયુ	Ar	Ne	Kr	Xe
a/(atm dm^6 mol^{-2})	1.3	0.2	5.1	4.1
b/(10^{-2} dm^3 mol^{-1})	3.2	1.7	1.0	5.0

સૌથી વધુ ક્રાંતિક તાપમાન ધરાવવાની અપેક્ષા કોની?

Options :

1. Ar

2. Ne

3. Kr

4. Xe

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

For any given series of spectral lines of atomic hydrogen, let $\Delta\bar{\nu} = \bar{\nu}_{max} - \bar{\nu}_{min}$ be the difference in maximum and minimum frequencies in cm^{-1}. The ratio $\Delta\bar{\nu}_{Lyman} / \Delta\bar{\nu}_{Balmer}$ is :

Options :

1. 27 : 5

2. 4 : 1

3. 9 : 4

4. 5 : 4

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

परमाणु हाइड्रोजन के स्पेक्ट्रल रेखाओं की दी गई शृंखलाओं के लिए यदि उच्चतम तथा निम्नतम आवृत्तियों में अन्तर $\Delta\bar{\nu} = \bar{\nu}_{max} - \bar{\nu}_{min}$ (cm^{-1} में) है तो अनुपात $\Delta\bar{\nu}_{Lyman} / \Delta\bar{\nu}_{Balmer}$ होगा :

Options :

1. 27 : 5

2. 4 : 1

3. 9 : 4

4. 5 : 4

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

આપેલ પરમાણ્વીય હાઈડ્રોજન થી વર્ણપટ રેખાઓની શ્રેણીમાટે, જો $\Delta\bar{\nu} = \bar{\nu}_{max} - \bar{\nu}_{min}$ એ મહત્તમ અને ન્યૂનતમ આવૃત્તિઓનો તફાવત (cm^{-1} માં) હોય તો $\Delta\bar{\nu}_{લાયમન} / \Delta\bar{\nu}_{બામર}$ નો ગુણોત્તર શોધો :

Options :

1. $27:5$

2. $4:1$

3. $9:4$

4. $5:4$

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

Among the following, the molecule expected to be stabilized by anion formation is :

C_2, O_2, NO, F_2

Options :

1. O_2

2. C_2

3. NO

4. F_2

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

निम्नलिखित में से, अणु जिसकी ऋणायन बनकर स्थायीकृत होने की संभावना है, वह है :

C_2, O_2, NO, F_2

Options :

1. O_2

2. C_2

3. NO

4. F_2

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

આપેલા પૈકી, ક્યા અણુની ઋણ આયન બનાવી સ્થાયી થવાની શક્યતા છે?

C_2, O_2, NO, F_2

Options :

1. O_2

2. C_2

3. NO

4. F_2

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

Among the following, the set of parameters that represents path functions, is :

(A) $q + w$

(B) q

(C) w

(D) $H - TS$

Options :

1. (A) and (D)

2. (B) and (C)

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

4. (A), (B) and (C)

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

निम्नलिखित में से, प्राचलों का वह समुच्चय जो पथ फलनों को दर्शाता है, वह है :

(A) $q+w$

(B) q

(C) w

(D) $H-TS$

Options :

1. (A) तथा (D)

2. (B) तथा (C)

3. (B), (C) तथा (D)

4. (A), (B) तथा (C)

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

નીચે આપેલા પૈકી, પરિમાણોની જોડ જે પથ વિધેયો (path functions) દર્શાવે છે?

(A) $q+w$

(B) q

(C) w

(D) $H-TS$

Options :

1. (A) અને (D)

2. (B) અને (C)

3. (B), (C) અને (D)

4. (A), (B) અને (C)

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

Liquid 'M' and liquid 'N' form an ideal solution. The vapour pressures of pure liquids 'M' and 'N' are 450 and 700 mmHg, respectively, at the same temperature. Then correct statement is :

(x_M = Mole fraction of 'M' in solution;

x_N = Mole fraction of 'N' in solution;

y_M = Mole fraction of 'M' in vapour phase;

y_N = Mole fraction of 'N' in vapour phase)

Options :

1. $\frac{x_M}{x_N} = \frac{y_M}{y_N}$

2. $\frac{x_M}{x_N} > \frac{y_M}{y_N}$

3. $\frac{x_M}{x_N} < \frac{y_M}{y_N}$

4. $(x_M - y_M) < (x_N - y_N)$

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

પ્રવાહી 'M' અને પ્રવાહી 'N' આદર્શ દ્રાવણ બનાવે છે. સમાન તાપમાને, શુદ્ધ પ્રવાહી 'M' અને 'N' બાષ્પ દબાણ અનુક્રમે, 450 અને 700 mmHg છે. તો સાચું વિધાન કયું છે?

જ્યાં x_M = 'M' નો દ્રાવણમાં મોલ અંશ

x_N = 'N' નો દ્રાવણમાં મોલ અંશ

y_M = 'M' નો વાયુ અવસ્થામાં (કલામાં) મોલ અંશ

y_N = 'N' નો વાયુ અવસ્થા (કલામાં) મોલ અંશ

Options :

1. $\frac{x_M}{x_N} = \frac{y_M}{y_N}$

2. $\frac{x_M}{x_N} > \frac{y_M}{y_N}$

3. $\frac{x_M}{x_N} < \frac{y_M}{y_N}$

4. $(x_M - y_M) < (x_N - y_N)$

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

द्रव 'M' तथा द्रव 'N' एक आदर्श विलयन बनाते हैं। शुद्ध द्रव 'M' तथा 'N' के वाष्प दाब उसी ताप पर क्रमशः 450 तथा 700 mmHg हैं तो **सही** कथन है :

जहाँ x_M = विलयन में 'M' का मोलर अंश ;

x_N = विलयन में 'N' का मोलर अंश ;

y_M = वाष्प अवस्था में 'M' का मोलर अंश ;

y_N = वाष्प अवस्था में 'N' का मोलर अंश ;

Options :

1. $\frac{x_M}{x_N} = \frac{y_M}{y_N}$

2. $\frac{x_M}{x_N} > \frac{y_M}{y_N}$

3. $\frac{x_M}{x_N} < \frac{y_M}{y_N}$

4. $(x_M - y_M) < (x_N - y_N)$

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

The osmotic pressure of a dilute solution of an ionic compound XY in water is four times that of a solution of 0.01 M $BaCl_2$ in water. Assuming complete dissociation of the given ionic compounds in water, the concentration of XY (in mol L^{-1}) in solution is :

Options :

1. 4×10^{-2}

2. 16×10^{-4}

3. 6×10^{-2}

4. 4×10^{-4}

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

जल में एक आयनिक यौगिक XY के तनु विलयन का परासरणीय दाब, 0.01 M $BaCl_2$ के जल में विलयन के परासरणीय दाब का चार गुना है। दिए गये आयनिक यौगिकों का जल में वियोजन पूर्ण मानते हुए, विलयन में XY की सांद्रता ($mol\ L^{-1}$ में) होगी :

Options :

1. 4×10^{-2}

2. 16×10^{-4}

3. 6×10^{-2}

4. 4×10^{-4}

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

આયોનીક સંયોજન 'XY' નું પાણીમાં બનાવેલ મંદ દ્રાવણનું અભિસરણ દબાણ, 0.01 M $BaCl_2$ નાં પાણીમાં બનાવેલ દ્રાવણ ચાર ગણું છે. ધારો કે આપેલા આયોનિક પદાર્થનું પાણીમાં સંપૂર્ણ વિયોજન થાય છે. તો દ્રાવણમાં XY ($mol\ L^{-1}$ માં) નું સાદ્રણ શોધો?

Options :

1. 4×10^{-2}

2. 16×10^{-4}

3. 6×10^{-2}

4. 4×10^{-4}

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

The standard Gibbs energy for the given cell reaction in kJ mol^{-1} at 298 K is :

$Zn(s) + Cu^{2+}(aq) \rightarrow Zn^{2+}(aq) + Cu(s)$,

$E^o = 2$ V at 298 K

(Faraday's constant, $F = 96000$ C mol^{-1})

Options :

1. 192

2. 384

3. -384

4. -192

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

दिये गये सेल अभिक्रिया के लिए 298 K पर मानक गिब्स ऊर्जा (kJ mol^{-1} में) है :

$Zn(s) + Cu^{2+}(aq) \rightarrow Zn^{2+}(aq) + Cu(s)$,

298 K पर $E^o = 2$ V

(फैराडे स्थिरांक, $F = 96000$ C mol^{-1})

Options :

1. 192

2. 384

3. -384

4. -192

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

298 K એ, એક કોષનો પ્રમાણિત ઈલેક્ટ્રોડ પોટેન્શીયમ 2V છે. 298 K એ નીચે આપેલી પ્રક્રિયા માટે પ્રમાણિત ગીબ્સ ઉર્જા kJ mol^{-1} માં શોધો :

$Zn(s) + Cu^{2+}(aq) \rightarrow Zn^{2+}(aq) + Cu(s)$,

(ફેરાડે નો અચળાંક $F = 96000\ C\ mol^{-1}$)

Options :

1. 192

2. 384

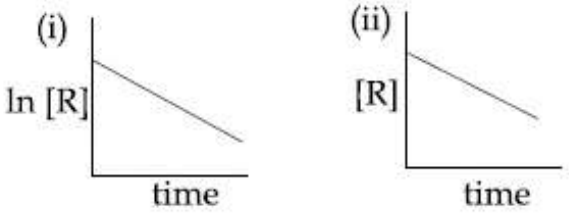
3. -384

4. -192

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

The given plots represent the variation of the concentration of a reactant R with time for two different reactions (i) and (ii). The respective orders of the reactions are :



Options :

1. 0, 1

2. 1, 0

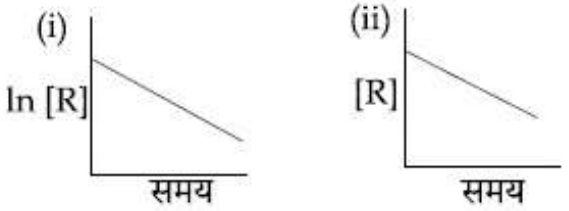
3. 1, 1

4. 0, 2

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

नीचे दिये गये प्लाट, दो अभिक्रियाओं (i) तथा (ii) के लिए, अभिकर्मक R की सान्द्रता का समय के साथ होनेवाले परिवर्तन को निरूपित करते हैं। अभिक्रियाओं के क्रमिक कोटि हैं :



Options :

1. 0, 1

2. 1, 0

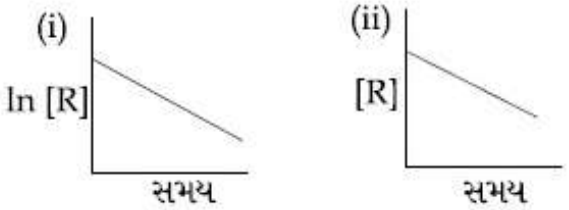
3. 1, 1

4. 0, 2

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

નીચે આપેલ આલેખો, બે જૂદી-જૂદી પ્રક્રિયાઓ માટે, સમયની સાથે પ્રક્રિયક (R) થી સાંદ્રતામાં થતા ફેરફારનું નિદર્શન કરે છે. પ્રક્રિયાઓનો ક્રમ અનુક્રમે છે :



Options :

1. 0, 1

2. 1, 0

3. 1, 1

4. 0, 2

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

The aerosol is a kind of colloid in which :

Options :

1. liquid is dispersed in water

2. gas is dispersed in liquid

3. gas is dispersed in solid

4. solid is dispersed in gas

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

एरोसॉल एक ऐसा कोलायड है, जिसमें :

Options :

1. जल में द्रव परिक्षिप्त है।

2. द्रव में गैस परिक्षिप्त है।

3. ठोस में गैस परिक्षिप्त है।

4. गैस में ठोस परिक्षिप्त है।

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

વાયુ વિલય (aerosol) એ એવા પ્રકારનો કલિલ છે કે જેમાં :

Options :

1. પાણીમાં પ્રવાહોનું વિક્ષેપન

2. પ્રવાહીમાં વાયુનું વિક્ષેપન

3. ઘનમા વાયુનું વિક્ષેપન

4. વાયુમાં ઘનનું વિક્ષેપન

Section Id :	416529291
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:	416529431
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

If the function $f: \mathbf{R}-\{1, -1\} \to A$ defined by $f(x) = \frac{x^2}{1-x^2}$, is surjective, then A is equal to :

Options :

1. $\mathbf{R}-[-1, 0)$

2. $\mathbf{R}-\{-1\}$

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

4. $[0, \infty)$

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

यदि फलन $f: \mathbf{R}-\{1, -1\} \to A$, $f(x) = \frac{x^2}{1-x^2}$ द्वारा परिभाषित है तथा आच्छादी (surjective) है, तो A बराबर है :

Options :

1. $\mathbf{R}-[-1, 0)$

2. $\mathbf{R}-\{-1\}$

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

4. $[0, \infty)$

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 વિધેય $f: \mathbf{R}-\{1, -1\} \to A$ એ $f(x)=\frac{x^2}{1-x^2}$

દ્વારા વ્યાખ્યાયિત વ્યાપ્ત વિધેય હોય, તો

$A =$ _____.

Options :

1. $\mathbf{R}-[-1, 0)$

2. $\mathbf{R}-\{-1\}$

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

4. $[0, \infty)$

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

All the points in the set

$S=\left\{\frac{\alpha+i}{\alpha-i} : \alpha \in \mathbf{R}\right\}$ $(i = \sqrt{-1})$ lie on a :

Options :

1. circle whose radius is $\sqrt{2}$.

2. circle whose radius is 1.

3. straight line whose slope is 1.

4. straight line whose slope is -1.

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

समुच्चय $S=\left\{\frac{\alpha+i}{\alpha-i} : \alpha \in \mathbf{R}\right\}$ $(i = \sqrt{-1})$ के

सभी बिंदु जिस पर स्थित हैं; वह है :

Options :

1. एक वृत्त जिसकी त्रिज्या $\sqrt{2}$ है।

2. एक वृत्त जिसकी त्रिज्या 1 है।

3. एक सरल रेखा जिसकी ढाल (slope) 1 है।

4. एक सरल रेखा जिसकी ढाल -1 है।

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

ગણ $S=\left\{\frac{\alpha+i}{\alpha-i} : \alpha \in \mathbf{R}\right\}$ $(i=\sqrt{-1})$ માંના તમામ

બિંદુઓ _____ પર છે.

Options :

1. જેની ત્રિજ્યા $\sqrt{2}$ હોય તેવા વર્તુળ

2. જેની ત્રિજ્યા 1 હોય તેવા વર્તુળ

3. જેનો ઢાળ 1 હોય તેવી સુરેખા

4. જેનો ઢાળ -1 હોય તેવી સુરેખા

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 p, q $\in$ **R**. If $2-\sqrt{3}$ is a root of the quadratic equation, $x^2+px+q=0$, then :

Options :

1. $p^2-4q+12=0$

2. $q^2-4p-16=0$

3. $p^2-4q-12=0$

4. $q^2+4p+14=0$

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 : 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 $p, q \in \mathbf{R}$, यदि $2-\sqrt{3}$ द्विघाती समीकरण $x^2+px+q=0$ का एक मूल है, तो :

Options :

1. $p^2-4q+12=0$

2. $q^2-4p-16=0$

3. $p^2-4q-12=0$

4. $q^2+4p+14=0$

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 : 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

ધારો કે $p, q \in \mathbf{R}$ છે. જો $2-\sqrt{3}$ એ દ્વિઘાત સમીકરણ $x^2+px+q=0$ નું એક બીજ હોય, તો :

Options :

1. $p^2-4q+12=0$

2. $q^2-4p-16=0$

3. $p^2-4q-12=0$

4. $q^2+4p+14=0$

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 : 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 α and β be the roots of the equation $x^2+x+1=0$. Then for $y \neq 0$ in $\mathbf{R}$,

$$\begin{vmatrix} y+1 & \alpha & \beta \\ \alpha & y+\beta & 1 \\ \beta & 1 & y+\alpha \end{vmatrix}$$ is equal to :

Options :

1. $y(y^2-3)$

2. y^3-1

3. $y(y^2-1)$

4. y^3

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 α तथा β, समीकरण $x^2+x+1=0$ के मूल हैं,

तो $\mathbf{R}$ में $y \neq 0$ के लिए $\begin{vmatrix} y+1 & \alpha & \beta \\ \alpha & y+\beta & 1 \\ \beta & 1 & y+\alpha \end{vmatrix}$ बराबर

है :

Options :

1. $y(y^2-3)$

2. y^3-1

3. $y(y^2-1)$

4. y^3

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

જો α અને β એ સમીકરણ $x^2+x+1=0$ નાં બીજ

હોય, તો $y \neq 0$, $y \in \mathbf{R}$ માટે $\begin{vmatrix} y+1 & \alpha & \beta \\ \alpha & y+\beta & 1 \\ \beta & 1 & y+\alpha \end{vmatrix}$

= _____ .

Options :

1. $y(y^2-3)$

2. y^3-1

3. $y(y^2-1)$

4. y^3

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

$$\begin{bmatrix}1 & 1\\0 & 1\end{bmatrix}\cdot\begin{bmatrix}1 & 2\\0 & 1\end{bmatrix}\cdot\begin{bmatrix}1 & 3\\0 & 1\end{bmatrix}\cdot\ldots\ldots\cdot\begin{bmatrix}1 & n-1\\0 & 1\end{bmatrix}=\begin{bmatrix}1 & 78\\0 & 1\end{bmatrix},$$

then the inverse of $\begin{bmatrix}1 & n\\0 & 1\end{bmatrix}$ is :

Options :

1. $\begin{bmatrix}1 & 0\\12 & 1\end{bmatrix}$

2. $\begin{bmatrix}1 & 0\\13 & 1\end{bmatrix}$

3. $\begin{bmatrix}1 & -13\\0 & 1\end{bmatrix}$

4. $\begin{bmatrix}1 & -12\\0 & 1\end{bmatrix}$

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

$$\begin{bmatrix}1 & 1\\0 & 1\end{bmatrix}\cdot\begin{bmatrix}1 & 2\\0 & 1\end{bmatrix}\cdot\begin{bmatrix}1 & 3\\0 & 1\end{bmatrix}\cdot\ldots\ldots\cdot\begin{bmatrix}1 & n-1\\0 & 1\end{bmatrix}=\begin{bmatrix}1 & 78\\0 & 1\end{bmatrix}$$

है, तो $\begin{bmatrix}1 & n\\0 & 1\end{bmatrix}$ का व्युत्क्रम (inverse) है :

Options :

1. $\begin{bmatrix}1 & 0\\12 & 1\end{bmatrix}$

2. $\begin{bmatrix} 1 & 0 \\ 13 & 1 \end{bmatrix}$

3. $\begin{bmatrix} 1 & -13 \\ 0 & 1 \end{bmatrix}$

4. $\begin{bmatrix} 1 & -12 \\ 0 & 1 \end{bmatrix}$

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

$\begin{bmatrix} 1 & 1 \\ 0 & 1 \end{bmatrix}\cdot\begin{bmatrix} 1 & 2 \\ 0 & 1 \end{bmatrix}\cdot\begin{bmatrix} 1 & 3 \\ 0 & 1 \end{bmatrix}\cdot\ldots\ldots\ldots\cdot\begin{bmatrix} 1 & n-1 \\ 0 & 1 \end{bmatrix}=\begin{bmatrix} 1 & 78 \\ 0 & 1 \end{bmatrix}$,

તો $\begin{bmatrix} 1 & n \\ 0 & 1 \end{bmatrix}$ નો વ્યસ્ત _____ છે.

Options :

1. $\begin{bmatrix} 1 & 0 \\ 12 & 1 \end{bmatrix}$

2. $\begin{bmatrix} 1 & 0 \\ 13 & 1 \end{bmatrix}$

3. $\begin{bmatrix} 1 & -13 \\ 0 & 1 \end{bmatrix}$

4. $\begin{bmatrix} 1 & -12 \\ 0 & 1 \end{bmatrix}$

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

A committee of 11 members is to be formed from 8 males and 5 females. If m is the number of ways the committee is formed with at least 6 males and n is the number of ways the committee is formed with at least 3 females, then :

Options :

1. $n = m - 8$

2. $m = n = 78$

3. $m = n = 68$

4. $m + n = 68$

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

8 पुरुषों तथा 5 महिलाओं में से 11 सदस्यों की एक कमेटी बनाई जानी है। यदि कम से कम 6 पुरुषों वाली कमेटी बनाने के m तरीके हैं तथा कम से कम 3 महिलाओं वाली कमेटी बनाने के n तरीके हैं, तो :

Options :

1. $n = m - 8$

2. $m = n = 78$

3. $m = n = 68$

4. $m + n = 68$

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

8 પુરૂષો અને 5 સ્ત્રીઓ માંથી 11 સભ્યોની એક સમિતી ની રચના કરવામાં આવે છે. જો ઓછામાં ઓછા 6 પુરૂષો ધરાવતી સમિતી રચવાની રીતો ની સંખ્યા m અને ઓછામાં ઓછી 3 સ્ત્રીઓ ધરાવતી સમિતી રચવાની રીતોની સંખ્યા n હોય, તો :

Options :

1. $n = m - 8$

2. $m = n = 78$

3. $m = n = 68$

4. $m+n=68$

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 the sum of the first n terms of a non-constant A.P., $a_1, a_2, a_3, \ldots\ldots$ be $50n + \frac{n(n-7)}{2}A$, where A is a constant. If d is the common difference of this A.P., then the ordered pair (d, a_{50}) is equal to :

Options :

1. $(50, 50+46A)$

2. $(A, 50+46A)$

3. $(A, 50+45A)$

4. $(50, 50+45A)$

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 भिन्न पदों वाली समांतर श्रेढ़ी (non-constant A.P.) $a_1, a_2, a_3, \ldots\ldots$ के प्रथम n पदों का योगफल $50n + \frac{n(n-7)}{2}A$ है, जहाँ A एक अचर है। यदि इस समांतर श्रेढ़ी का सार्वअंतर d है, तो क्रमित युग्म (d, a_{50}) बराबर है :

Options :

1. $(50, 50+46A)$

2. $(A, 50+46A)$

3. $(A, 50+45A)$

4. $(50, 50+45A)$

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

ધારો કે અચળ ન હોય તેવી સમાંતર શ્રેણી (A.P.) $a_1, a_2, a_3, \ldots\ldots$ ના પ્રથમ n પદોનો સરવાળો $50n+\frac{n(n-7)}{2}A$ છે. જ્યાં A અચળ છે. જો d એ આ સમાંતર શ્રેણીનો સામાન્ય તફાવત હોય, તો ક્રમયુક્ત જોડ (d, a_{50}) = _____.

Options :

1. $(50, 50+46A)$

2. $(A, 50+46A)$

3. $(A, 50+45A)$

4. $(50, 50+45A)$

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

Let $\sum_{k=1}^{10} f(a+k)=16(2^{10}-1)$, where the function f satisfies $f(x+y)=f(x)\,f(y)$ for all natural numbers x, y and $f(1)=2$. Then the natural number 'a' is :

Options :

1. 2

2. 3

3. 4

4. 16

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

माना $\sum_{k=1}^{10} f(a+k)=16(2^{10}-1)$ है, जहाँ सभी प्राकृत संख्याओं x, y के लिए, फलन f, $f(x+y)=f(x)f(y)$ को संतुष्ट करता है तथा $f(1)=2$ है। तो प्राकृत संख्या 'a' बराबर है :

Options :

1. 2

2. 3

3. 4

4. 16

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

ધારોકે $\sum_{k=1}^{10} f(a+k)=16(2^{10}-1)$, જ્યાં વિધેય f એ પ્રત્યેક પ્રાકૃતિક સંખ્યાઓ x અને y માટે $f(x+y)=f(x)f(y)$ ને સંતોષે છે તથા $f(1)=2$. તો પ્રાકૃતિક સંખ્યા 'a' = _____.

Options :

1. 2

2. 3

3. 4

4. 16

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

If the fourth term in the Binomial expansion of $\left(\frac{2}{x}+x^{\log_8 x}\right)^6$ $(x>0)$ is 20×8^7, then a value of x is :

Options :

1. 8^2

2. 8

3. 8^3

4. 8^{-2}

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

यदि $\left(\frac{2}{x} + x^{\log_8 x}\right)^6$ $(x > 0)$ के द्विपद प्रसार का

चौथा पद 20×8^7 है, तो x का एक मान है :

Options :

1. 8^2

2. 8

3. 8^3

4. 8^{-2}

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

જો $\left(\frac{2}{x} + x^{\log_8 x}\right)^6$ $(x > 0)$ ના દ્વિપદી વિસ્તરણમાં

ચોથું પદ 20×8^7 હોય, તો x ની કિંમત _____ છે.

Options :

1. 8^2

2. 8

3. 8^3

4. 8^{-2}

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

If the function f defined on $\left(\frac{\pi}{6}, \frac{\pi}{3}\right)$ by

$$f(x)=\begin{cases}\frac{\sqrt{2}\cos x-1}{\cot x-1}, & x\neq\frac{\pi}{4}\\ k, & x=\frac{\pi}{4}\end{cases}$$

is continuous, then k is equal to :

Options :

1. 2

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

3. 1

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

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

यदि फलन f, $\left(\frac{\pi}{6}, \frac{\pi}{3}\right)$ पर इस प्रकार परिभाषित है

कि $f(x)=\begin{cases}\frac{\sqrt{2}\cos x-1}{\cot x-1}, & x\neq\frac{\pi}{4}\\ k, & x=\frac{\pi}{4}\end{cases}$

संतत है, तो k बराबर है :

Options :

1. 2

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

3. 1

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

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 $\left(\frac{\pi}{6}, \frac{\pi}{3}\right)$ પર $f(x)=\begin{cases}\frac{\sqrt{2}\cos x-1}{\cot x-1}, & x\neq\frac{\pi}{4}\\ k, & x=\frac{\pi}{4}\end{cases}$

દ્વારા વ્યાખ્યાયિત વિધેય f સતત હોય, તો $k=$_____.

Options :

1. 2

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

3. 1

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

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

Let $f(x)=15-|x-10|; x\in\mathbf{R}$. Then the set of all values of x, at which the function, $g(x)=f(f(x))$ is not differentiable, is :

Options :

1. $\{10\}$

2. $\{10, 15\}$

3. $\{5, 10, 15\}$

4. $\{5, 10, 15, 20\}$

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

माना $f(x)=15-|x-10|; x\in\mathbf{R}$ है, तो x के उन सभी मानों का समुच्चय, जिन पर फलन $g(x)=f(f(x))$ अवकलनीय नहीं है, है :

Options :

1. $\{10\}$

2. {10, 15}

3. {5, 10, 15}

4. {5, 10, 15, 20}

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

ધારો કે $f(x)=15-|x-10|; x \in \mathbf{R}$ છે, તો વિધેય $g(x)=f(f(x))$ વિકલનીય ન હોય તેવી x ની તમામ કિંમતોનો ગણ _____ છે.

Options :

1. {10}

2. {10, 15}

3. {5, 10, 15}

4. {5, 10, 15, 20}

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 S be the set of all values of x for which the tangent to the curve $y=f(x)=x^3-x^2-2x$ at (x, y) is parallel to the line segment joining the points $(1, f(1))$ and $(-1, f(-1))$, then S is equal to :

Options :

1. $\left\{\frac{1}{3}, 1\right\}$

2. $\left\{\frac{1}{3}, -1\right\}$

3. $\left\{-\frac{1}{3}, -1\right\}$

4. $\left\{-\frac{1}{3}, 1\right\}$

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 S, x के उन सभी मानों का समुच्चय है, जिन पर वक्र $y=f(x)=x^3-x^2-2x$ के बिंदु (x, y) पर खींची गई स्पर्श रेखा बिंदुओं $(1, f(1))$ तथा $(-1, f(-1))$ को मिलाने वाले रेखाखण्ड के समांतर है, तो S बराबर है :

Options :

1. $\left\{\frac{1}{3}, 1\right\}$

2. $\left\{\frac{1}{3}, -1\right\}$

3. $\left\{-\frac{1}{3}, -1\right\}$

4. $\left\{-\frac{1}{3}, 1\right\}$

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

ધારો કે ગણ S એ x ની એવી તમામ કિંમતોનો ગણ છે કે જ્યાં વક્ર $y=f(x)=x^3-x^2-2x$ ને (x, y) બિંદુએ દોરેલ સ્પર્શક એ બિંદુઓ $(1, f(1))$ અને $(-1, f(-1))$ ને જોડતા રેખાખંડને સમાંતર હોય, તો S= _____.

Options :

1. $\left\{\frac{1}{3}, 1\right\}$

2. $\left\{\frac{1}{3}, -1\right\}$

3. $\left\{-\frac{1}{3}, -1\right\}$

4. $\left\{-\frac{1}{3}, 1\right\}$

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

If $f(x)$ is a non-zero polynomial of degree four, having local extreme points at $x = -1, 0, 1$; then the set

$$S = \{x \in \mathbf{R} : f(x) = f(0)\}$$

contains exactly :

Options :

1. two irrational and two rational numbers.

2. two irrational and one rational number.

3. four rational numbers.

4. four irrational numbers.

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

यदि $f(x)$, घात चार का एक शून्येत्तर बहुपद है, जिसके स्थानीय चरम बिंदु $x = -1, 0, 1$ पर हैं, तो समुच्चय $S = \{x \in \mathbf{R} : f(x) = f(0)\}$ में मात्र :

Options :

1. दो अपरिमेय तथा दो परिमेय संख्याएँ हैं।

2. दो अपरिमेय तथा एक परिमेय संख्या है।

3. चार परिमेय संख्याएँ हैं।

4. चार अपरिमेय संख्याएँ हैं।

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

જો $f(x)$ એ એવી શૂન્યેત્તર ચતુર્ઘાત બહુપદી છે કે જેને $x=-1, 0, 1$ આગળ સ્થાનીય આત્યંતિક બિંદુઓ છે. તો ગણ $S=\{x \in \mathbf{R} : f(x)=f(0)\}$, એ બરાબર _____ ધરાવે છે.

Options :

1. બે અસંમેય અને બે સંમેય સંખ્યાઓ

2. બે અસંમેય અને બે સંમેય સંખ્યાઓ

3. ચાર સંમેય સંખ્યાઓ

4. ચાર અસંમેય સંખ્યાઓ

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

The integral $\int \sec^{2/3}x \operatorname{cosec}^{4/3}x \, dx$ is equal to :

(Here C is a constant of integration)

Options :

1. $-3 \cot^{-1/3}x + C$

2. $-3 \tan^{-1/3}x + C$

3. $-\frac{3}{4} \tan^{-4/3}x + C$

4. $3 \tan^{-1/3}x + C$

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

समाकल $\int \sec^{2/3}x \operatorname{cosec}^{4/3}x \, dx$ बराबर है :

(यहाँ C एक समाकलन अचर है)

Options :

1. $-3 \cot^{-1/3}x + C$

2. $-3\tan^{-1/3}x + C$

3. $-\frac{3}{4}\tan^{-4/3}x + C$

4. $3\tan^{-1/3}x + C$

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

$\int \sec^{2/3}x \operatorname{cosec}^{4/3}x\,dx =$ _____.

(અહીં C એ સંકલનનો અચળાંક છે)

Options :

1. $-3\cot^{-1/3}x + C$

2. $-3\tan^{-1/3}x + C$

3. $-\frac{3}{4}\tan^{-4/3}x + C$

4. $3\tan^{-1/3}x + C$

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 $\int_0^{\pi/2} \frac{\sin^3 x}{\sin x + \cos x}dx$ is :

Options :

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

2. $\frac{\pi-1}{4}$

3. $\frac{\pi-2}{8}$

4. $\frac{\pi-2}{4}$

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

$\int_0^{\pi/2} \frac{\sin^3 x}{\sin x + \cos x} dx$ का मान है :

Options :

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

2. $\frac{\pi-1}{4}$

3. $\frac{\pi-2}{8}$

4. $\frac{\pi-2}{4}$

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

$\int_0^{\pi/2} \frac{\sin^3 x}{\sin x+\cos x} dx$ ની કિંમત _____ છે.

Options :

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

2. $\frac{\pi-1}{4}$

3. $\frac{\pi-2}{8}$

4. $\frac{\pi-2}{4}$

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 $A=\{(x,y): x^2 \le y \le x+2\}$ is :

Options :

1. $\frac{31}{6}$

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

3. $\frac{13}{6}$

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

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

क्षेत्र $A=\{(x,y):x^2\le y\le x+2\}$ का क्षेत्रफल (वर्ग इकाइयों में) है :

Options :

1. $\frac{31}{6}$

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

3. $\frac{13}{6}$

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

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

પ્રદેશ $A=\{(x,\ y)\ :\ x^2\le y\le x+2\}$ નું ક્ષેત્રફળ (ચો. એકમ માં) _____ છે.

Options :

1. $\frac{31}{6}$

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

3. $\frac{13}{6}$

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

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

The solution of the differential equation

$x\frac{dy}{dx} + 2y = x^2 \ (x \neq 0)$ with $y(1) = 1$, is :

Options :

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

2. $y = \frac{4}{5}x^3 + \frac{1}{5x^2}$

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

4. $y = \frac{x^3}{5} + \frac{1}{5x^2}$

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

अवकल समीकरण $x\frac{dy}{dx} + 2y = x^2 \ (x \neq 0)$ का

हल जिसके लिए $y(1) = 1$ है, है :

Options :

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

2. $y = \frac{4}{5}x^3 + \frac{1}{5x^2}$

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

4. $y = \frac{x^3}{5} + \frac{1}{5x^2}$

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

વિકલ સમીકરણ $x\frac{dy}{dx} + 2y = x^2 \ (x \neq 0)$ જ્યાં $y(1) = 1$ નો ઉકેલ _____ છે.

Options :

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

2. $y = \frac{4}{5}x^3 + \frac{1}{5x^2}$

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

4. $y = \frac{x^3}{5} + \frac{1}{5x^2}$

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

If the tangent to the curve, $y = x^3 + ax - b$ at the point $(1, -5)$ is perpendicular to the line, $-x + y + 4 = 0$, then which one of the following points lies on the curve ?

Options :

1. $(2, -1)$

2. $(2, -2)$

3. $(-2, 1)$

4. $(-2, 2)$

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

यदि वक्र $y=x^3+ax-b$ के बिंदु $(1, -5)$ पर खींची गई स्पर्शरेखा, रेखा $-x+y+4=0$ पर लंबवत है, तो निम्न में से कौन सा एक बिंदु, वक्र पर स्थित है?

Options :

1. $(2, -1)$

2. $(2, -2)$

3. $(-2, 1)$

4. $(-2, 2)$

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

જો વક્ર $y=x^3+ax-b$ ને $(1, -5)$ બિંદુએ દોરેલ સ્પર્શક રેખા, $-x+y+4=0$ ને લંબ હોય, તો નીચેના માંથી ક્યું બિંદુ આ વક્ર પર આવેલું છે?

Options :

1. $(2, -1)$

2. $(2, -2)$

3. $(-2, 1)$

4. $(-2, 2)$

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

Slope of a line passing through P(2, 3) and intersecting the line, $x+y=7$ at a distance of 4 units from P, is :

Options :

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

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

3. $\frac{\sqrt{7}-1}{\sqrt{7}+1}$

4. $\frac{1-\sqrt{7}}{1+\sqrt{7}}$

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

P(2, 3) से हो कर जाने वाली एक रेखा, जो रेखा $x+y=7$ को P से 4 इकाई की दूरी पर प्रतिच्छेदित करती है, की ढाल (slope) है :

Options :

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

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

3. $\frac{\sqrt{7}-1}{\sqrt{7}+1}$

4. $\frac{1-\sqrt{7}}{1+\sqrt{7}}$

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

P(2, 3) માંથી પસાર થતી અને રેખા $x+y=7$ ને બિંદુ P થી 4 એકમ અંતરે છેદતી રેખાનો ઢાળ _____ છે.

Options :

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

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

3. $\frac{\sqrt{7}-1}{\sqrt{7}+1}$

4. $\frac{1-\sqrt{7}}{1+\sqrt{7}}$

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

If a tangent to the circle $x^2+y^2=1$ intersects the coordinate axes at distinct points P and Q, then the locus of the mid-point of PQ is :

Options :

1. $x^2+y^2-2xy=0$

2. $x^2+y^2-2x^2y^2=0$

3. $x^2+y^2-4x^2y^2=0$

4. $x^2+y^2-16x^2y^2=0$

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

यदि वृत्त $x^2+y^2=1$ की एक स्पर्शरेखा निर्देशांक अक्षों को भिन्न बिंदुओं P तथा Q पर प्रतिच्छेद करती है, तो PQ के मध्यबिंदु का बिंदुपथ (locus) है :

Options :

1. $x^2+y^2-2xy=0$

2. $x^2+y^2-2x^2y^2=0$

3. $x^2+y^2-4x^2y^2=0$

4. $x^2+y^2-16x^2y^2=0$

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

જો વર્તુળ $x^2+y^2=1$ નો સ્પર્શક યામાક્ષોને ભિન્ન બિંદુઓ P અને Q માં છેદે તો PQ ના મધ્યબિંદુ નો બિંદુપથ _____ છે.

Options :

1. $x^2+y^2-2xy=0$

2. $x^2+y^2-2x^2y^2=0$

3. $x^2+y^2-4x^2y^2=0$

4. $x^2+y^2-16x^2y^2=0$

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

If one end of a focal chord of the parabola, $y^2=16x$ is at (1, 4), then the length of this focal chord is :

Options :

1. 25

2. 24

3. 22

4. 20

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

यदि परवलय $y^2=16x$ की एक नाभिजीवा का एक छोर (1, 4) पर है, तो इस नाभिजीवा की लंबाई है :

Options :

1. 25

2. 24

3. 22

4. 20

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

જો પરવલય $y^2=16x$ ની નાભિજીવાનું એક અંત્યબિંદુ $(1, 4)$ આગળ હોય તો આ નાભિજીવાની લંબાઈ _____ છે.

Options :

1. 25

2. 24

3. 22

4. 20

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 the line $y=mx+7\sqrt{3}$ is normal to the hyperbola $\frac{x^2}{24}-\frac{y^2}{18}=1$, then a value of m is :

Options :

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

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

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

4. $\frac{\sqrt{15}}{2}$

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 रेखा $y=mx+7\sqrt{3}$, अतिपरवलय $\frac{x^2}{24}-\frac{y^2}{18}=1$ का अभिलंब है, तो m का एक मान है :

Options :

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

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

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

4. $\frac{\sqrt{15}}{2}$

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

જો રેખા $y=mx+7\sqrt{3}$ એ અતિવલય $\frac{x^2}{24}-\frac{y^2}{18}=1$ નો અભિલંબ હોય, તો m ની કિંમત _____ છે.

Options :

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

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

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

4. $\frac{\sqrt{15}}{2}$

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

If the line, $\frac{x-1}{2}=\frac{y+1}{3}=\frac{z-2}{4}$ meets the plane, $x+2y+3z=15$ at a point P, then the distance of P from the origin is :

Options :

1. $7/2$

2. $9/2$

3. $2\sqrt{5}$

4. $\sqrt{5}/2$

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

यदि रेखा $\frac{x-1}{2}=\frac{y+1}{3}=\frac{z-2}{4}$, समतल $x+2y+3z=15$ को बिंदु P पर मिलती है, तो P की मूल बिंदु से दूरी है :

Options :

1. $7/2$

2. $9/2$

3. $2\sqrt{5}$

4. $\sqrt{5}/2$

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

જો રેખા $\frac{x-1}{2}=\frac{y+1}{3}=\frac{z-2}{4}$ એ સમતલ $x+2y+3z=15$ ને બિંદુ P માં મળે, તો બિંદુ P નું ઉગમબિંદુથી અંતર _____ છે.

Options :

1. $7/2$

2. $9/2$

3. $2\sqrt{5}$

4. $\sqrt{5}/2$

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

A plane passing through the points $(0, -1, 0)$ and $(0, 0, 1)$ and making an angle $\frac{\pi}{4}$ with the plane $y - z + 5 = 0$, also passes through the point :

Options :

1. $(\sqrt{2}, -1, 4)$

2. $(-\sqrt{2}, -1, -4)$

3. $(-\sqrt{2}, 1, -4)$

4. $(\sqrt{2}, 1, 4)$

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

बिंदुओं $(0, -1, 0)$ तथा $(0, 0, 1)$ से हो कर जाने वाला एक समतल, जो समतल $y - z + 5 = 0$ के साथ $\frac{\pi}{4}$ का कोण बनाता है, निम्न में से किस बिंदु से होकर जाता है?

Options :

1. $(\sqrt{2}, -1, 4)$

2. $(-\sqrt{2}, -1, -4)$

3. $(-\sqrt{2}, 1, -4)$

4. $(\sqrt{2}, 1, 4)$

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

બિંદુઓ $(0, -1, 0)$ અને $(0, 0, 1)$ માંથી પસાર થતું તથા સમતલ $y-z+5=0$ સાથે $\frac{\pi}{4}$ માપનો ખૂણો બનાવતું સમતલ બિંદુ _____ માંથી પણ પસાર થાય છે.

Options :

1. $(\sqrt{2}, -1, 4)$

2. $(-\sqrt{2}, -1, -4)$

3. $(-\sqrt{2}, 1, -4)$

4. $(\sqrt{2}, 1, 4)$

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 $\vec{\alpha}=3\hat{i}+\hat{j}$ and $\vec{\beta}=2\hat{i}-\hat{j}+3\hat{k}$. If $\vec{\beta} = \vec{\beta}_1-\vec{\beta}_2$, where $\vec{\beta}_1$ is parallel to $\vec{\alpha}$ and $\vec{\beta}_2$ is perpendicular to $\vec{\alpha}$, then $\vec{\beta}_1 \times \vec{\beta}_2$ is equal to :

Options :

1. $\frac{1}{2}(-3\hat{i}+9\hat{j}+5\hat{k})$

2. $\frac{1}{2}(3\hat{i}-9\hat{j}+5\hat{k})$

3. $-3\hat{i}+9\hat{j}+5\hat{k}$

4. $3\hat{i}-9\hat{j}-5\hat{k}$

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 $\vec{\alpha}=3\hat{i}+\hat{j}$ तथा $\vec{\beta}=2\hat{i}-\hat{j}+3\hat{k}$ हैं। यदि $\vec{\beta}=\vec{\beta}_1-\vec{\beta}_2$ है, जहाँ $\vec{\beta}_1$ सदिश $\vec{\alpha}$ के समांतर है तथा $\vec{\beta}_2$ सदिश $\vec{\alpha}$ के लंबवत है, तो $\vec{\beta}_1\times\vec{\beta}_2$ बराबर है :

Options :

1. $\frac{1}{2}(-3\hat{i}+9\hat{j}+5\hat{k})$

2. $\frac{1}{2}(3\hat{i}-9\hat{j}+5\hat{k})$

3. $-3\hat{i}+9\hat{j}+5\hat{k}$

4. $3\hat{i}-9\hat{j}-5\hat{k}$

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

ધારોકે $\vec{\alpha}=3\hat{i}+\hat{j}$ અને $\vec{\beta}=2\hat{i}-\hat{j}+3\hat{k}$. જો $\vec{\beta}=\vec{\beta}_1-\vec{\beta}_2$ જ્યાં $\vec{\beta}_1$ એ $\vec{\alpha}$ ને સમાંતર અને $\vec{\beta}_2$ એ $\vec{\alpha}$ ને લંબ હોય, તો $\vec{\beta}_1\times\vec{\beta}_2$ = _____.

Options :

1. $\frac{1}{2}(-3\hat{i}+9\hat{j}+5\hat{k})$

2. $\frac{1}{2}(3\hat{i}-9\hat{j}+5\hat{k})$

3. $-3\hat{i}+9\hat{j}+5\hat{k}$

4. $3\hat{i}-9\hat{j}-5\hat{k}$

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

Four persons can hit a target correctly with probabilities $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}$ and $\frac{1}{8}$ respectively. If all hit at the target independently, then the probability that the target would be hit, is :

Options :

1. $\frac{25}{32}$

2. $\frac{1}{192}$

3. $\frac{7}{32}$

4. $\frac{25}{192}$

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

चार व्यक्तियों के एक लक्ष्य पर ठीक प्रकार से प्रहार करने की प्रायिकताएँ क्रमशः $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}$ तथा $\frac{1}{8}$ हैं। यदि सभी इस लक्ष्य पर स्वतंत्र रूप से प्रहार करते हैं, तो लक्ष्य पर आघात होने की प्रायिकता है :

Options :

1. $\frac{25}{32}$

2. $\frac{1}{192}$

3. $\frac{7}{32}$

4. $\frac{25}{192}$

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

ચાર વ્યક્તિઓના સાચા નિશાન વેધવાની સંભાવના ઓ અનુક્રમે $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}$ અને $\frac{1}{8}$ છે. જો બધા જ સ્વતંત્ર રીતે નિશાન તાકે, તો નિશાન વેધાય તેની સંભાવના _____ છે.

Options :

1. $\frac{25}{32}$

2. $\frac{1}{192}$

3. $\frac{7}{32}$

4. $\frac{25}{192}$

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

If the standard deviation of the numbers $-1, 0, 1, k$ is $\sqrt{5}$ where $k > 0$, then k is equal to :

Options :

1. $\sqrt{6}$

2. $2\sqrt{\frac{10}{3}}$

3. $2\sqrt{6}$

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

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

यदि संख्याओं $-1, 0, 1, k$ का मानक विचलन $\sqrt{5}$ है,
जहाँ $k > 0$ है, तो k बराबर है :

Options :

1. $\sqrt{6}$

2. $2\sqrt{\frac{10}{3}}$

3. $2\sqrt{6}$

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

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

જો સંખ્યાઓ $-1, 0, 1, k$ જ્યાં $k > 0$ નું પ્રમાણિત
વિચલન $\sqrt{5}$ હોય, તો $k =$ _____.

Options :

1. $\sqrt{6}$

2. $2\sqrt{\frac{10}{3}}$

3. $2\sqrt{6}$

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

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

The value of
$\cos^2 10^\circ - \cos 10^\circ \cos 50^\circ + \cos^2 50^\circ$ is :

Options :

1. $\frac{3}{4} + \cos 20^\circ$

2. $3/4$

3. $\frac{3}{2}(1+\cos 20^\circ)$

4. $3/2$

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

$\cos^2 10^\circ - \cos 10^\circ \cos 50^\circ + \cos^2 50^\circ$ का मान है :

Options :

1. $\frac{3}{4} + \cos 20^\circ$

2. $3/4$

3. $\frac{3}{2}(1+\cos 20^\circ)$

4. $3/2$

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

$\cos^2 10^\circ - \cos 10^\circ \cos 50^\circ + \cos^2 50^\circ$ ની કિંમત _____ છે.

Options :

1. $\frac{3}{4} + \cos 20^\circ$

2. $3/4$

3. $\frac{3}{2}(1+\cos 20^\circ)$

4. $3/2$

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

Let $S=\{\theta\epsilon[-2\pi, 2\pi] : 2\cos^2\theta+3\sin\theta=0\}$.

Then the sum of the elements of S is :

Options :

1. $\frac{13\pi}{6}$

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

3. 2π

4. π

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

माना

$S=\{\theta\epsilon[-2\pi, 2\pi] : 2\cos^2\theta+3\sin\theta=0\}$ है,

तो S के अवयवों का योगफल है :

Options :

1. $\frac{13\pi}{6}$

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

3. 2π

4. π

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

ધારોકે

$S=\{\theta\epsilon[-2\pi, 2\pi] : 2\cos^2\theta+3\sin\theta=0\}$

તો S ના સભ્યોનો સરવાળો _____ છે.

Options :

1. $\frac{13\pi}{6}$

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

3. 2π

4. π

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

For any two statements p and q, the negation of the expression $p \vee (\sim p \wedge q)$ is :

Options :

1. $\sim p \wedge \sim q$

2. $\sim p \vee \sim q$

3. $p \wedge q$

4. $p \leftrightarrow q$

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

किन्हीं दो कथनों p तथा q के लिए, व्यंजक $p \vee (\sim p \wedge q)$ का निषेधन (negation) है :

Options :

1. $\sim p \wedge \sim q$

2. $\sim p \vee \sim q$

3. $p \wedge q$

4. $p \leftrightarrow q$

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

કોઈપણ બે વિધાનો p અને q માટે, નિરૂપણ $p \vee (\sim p \wedge q)$ નું નિષેધ _____ છે.

Options :

1. $\sim p \wedge \sim q$
2. $\sim p \vee \sim q$
3. $p \wedge q$
4. $p \leftrightarrow q$