National Testing Agency

Question Paper Name :	Material Science and Technology Eng 12th June 2023 Shift 1
Subject Name :	Material Science and Technology Eng
Creation Date :	2023-06-12 13:16:41
Duration :	120
Total Marks :	400
Display Marks:	Yes

Material Science and Technology

Group Number :	1
Group Id :	920906134
Group Maximum Duration :	0
Group Minimum Duration :	120
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	400
Is this Group for Examiner? :	No
Examiner permission :	Cant View
Show Progress Bar? :	No

Part A

Section Id :	920906267
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	21
Number of Questions to be attempted :	21
Section Marks :	100
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	920906437
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 92090613468 Question Type : COMPREHENSION Sub Question Shuffling Allowed : Yes Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (1 to 5)

Question Label : Comprehension

Two Indiana on finals in final list of Rs 2Cr global nursing award

NAOMI CANTON

London: Shanti Teresa Lakra, a nurse working with primitive tribes in the Andaman and Nicobar Islands, and Kerala-born Jincy Jerry from Ireland are among honouring nursing staff worldwide. Lakra from GB Pant Hospital in Port Blair was awarded the Padma Shri in 2011 for her incredible service to the tribal community of Andaman and Nicobar – gaining their trust over the year, overcoming the language barrier and providing medical assistance whenever they needed it.

Lakra and Jerry, the assistant director of nursing for infection prevention and control at Mater Misericordiae University Hospital in Dublin, were selected from 52,000 entries sent by 202 countries for the Aster Guardians Global Nursing Award 2023, which carries a prize-money of more than Rs. 2Crore. The finalists will be evaluated by a judging panel and the result declared at a ceremony in London on may 12, coinciding with International Nurses Day. As many as 13,156 nurses applied from India in the second editions of the award.

"My whole world belongs to the tribes-folk living in a very interior and isolated part of Andaman and Nicobar," Lakra said. When the 2004 tsunami his the island of the Onge tribe and drove them deep into the jungle, she made her home with them and lived in an open tent. She recalled assisting an Onge teenager deliver a premature baby weighing less than a kilo on the night of the tsunami. Lakra said if she wins the award, she will use the cash to create an NGO to provide healthcare to the endangered native islanders. Lakra, born in Rangat on Middle Anadaman Island, also wants to fund Onge youngsters wishing to train as nurses.

Jerry, who moved to Dublin in 2006 after training as a nurse Delhi's Jamia Hamadard, was nominated for a robotic system she introduced in her Dublin hospital in March 2020. Inspired by the banking sector, it has drastically reduced the administrative work of nurses, eliminating human error, allowing nurses to spend more time with patients and improving job satisfaction and staff retention.

Sub questions

Question Number : 1 Question Id : 92090613469 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Antonym of the word barrier is

(1) Fence
(2) Opening
(3) Obstacle
(4) Barren

Options :

92090653201. 1

92090653202. 2
92090653203. 3
92090653204. 4

Question Number : 2 Question Id : 92090613470 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Meaning of the word Primitive:

(1) Earliest ancestor
(2) Substance for priming something
(3) Earliest times in history
(4) primipara

Options :

92090653205. 1
92090653206. 2
92090653207. 3
92090653208. 4

Question Number : 3 Question Id : 92090613471 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

"Nurses day" is celebrated internationally on:

(1) 12th April
(2) 12th May
(3) 2nd Wednesday of May
(4) March last friday

Options :

92090653209. 1
92090653210. 2
92090653211. 3
92090653212. 4

Question Number : 4 Question Id : 92090613472 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Why Shanti Teresa Lakra was in news?

(A) She is working with primitive tribes in the Lakshyadeep Island.

(B) She won Padmashri award in 2021.

(C) She was a finalist for the Aster Guardians Global Nursing Award 2023.

(D) She assisted in delivery of a premature baby on the night of the tsunami.

Choose the correct answer from the options given below :

(1) (C) only

(2) (A) and (C)

(3) (B) and (C)

(4) (B) and (D)

Options :

92090653213. 1

92090653214. 2

92090653215. 3

92090653216. 4

Question Number : 5 Question Id : 92090613473 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Primitive tribes in this passage refers to:

(1) Old tribes of Andaman

(2) Onge tribe

(3) Tribe folk living in very interior and isolated part of Andaman and Nicobar

(4) Natives of Rangat on middle Andaman Island.

Options :

92090653217. 1

92090653218. 2

92090653219. 3

92090653220. 4

Question Id : 92090613468 Question Type : COMPREHENSION Sub Question Shuffling Allowed : Yes Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (1 to 5)

Question Label : Comprehension

Two Indiana on finals in final list of Rs 2Cr global nursing award

NAOMI CANTON

London: Shanti Teresa Lakra, a nurse working with primitive tribes in the Andaman and Nicobar Islands, and Kerala-born Jincy Jerry from Ireland are among honouring nursing staff worldwide. Lakra from GB Pant Hospital in Port Blair was awarded the Padma Shri in 2011 for her incredible service to the tribal community of Andaman and Nicobar – gaining their trust over the year, overcoming the language barrier and providing medical assistance whenever they needed it.

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"My whole world belongs to the tribes-folk living in a very interior and isolated part of Andaman and Nicobar," Lakra said. When the 2004 tsunami his the island of the Onge tribe and drove them deep into the jungle, she made her home with them and lived in an open tent. She recalled assisting an Onge teenager deliver a premature baby weighing less than a kilo on the night of the tsunami. Lakra said if she wins the award, she will use the cash to create an NGO to provide healthcare to the endangered native islanders. Lakra, born in Rangat on Middle Anadaman Island, also wants to fund Onge youngsters wishing to train as nurses.

Jerry, who moved to Dublin in 2006 after training as a nurse Delhi's Jamia Hamadard, was nominated for a robotic system she introduced in her Dublin hospital in March 2020. Inspired by the banking sector, it has drastically reduced the administrative work of nurses, eliminating human error, allowing nurses to spend more time with patients and improving job satisfaction and staff retention.

Sub questions

Question Number : 1 Question Id : 92090613469 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Antonym of the word barrier is

(1) Fence (2) Opening

(3) Obstacle (4) Barren

Options :

92090653201. 1

92090653202. 2

92090653203. 3

92090653204. 4

Question Number : 2 Question Id : 92090613470 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Meaning of the word Primitive:

(1) Earliest ancestor
(2) Substance for priming something
(3) Earliest times in history
(4) primipara

Options :

92090653205. 1

92090653206. 2

92090653207. 3

92090653208. 4

Question Number : 3 Question Id : 92090613471 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

"Nurses day" is celebrated internationally on:

(1) 12th April
(2) 12th May
(3) 2nd Wednesday of May
(4) March last friday

Options :

92090653209. 1

92090653210. 2

92090653211. 3

92090653212. 4

Question Number : 4 Question Id : 92090613472 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Why Shanti Teresa Lakra was in news?

(A) She is working with primitive tribes in the Lakshyadeep Island.

(B) She won Padmashri award in 2021.

(C) She was a finalist for the Aster Guardians Global Nursing Award 2023.

(D) She assisted in delivery of a premature baby on the night of the tsunami.

Choose the correct answer from the options given below :

(1) (C) only

(2) (A) and (C)

(3) (B) and (C)

(4) (B) and (D)

Options :

92090653213. 1

92090653214. 2

92090653215. 3

92090653216. 4

Question Number : 5 Question Id : 92090613473 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Primitive tribes in this passage refers to:

(1) Old tribes of Andaman

(2) Onge tribe

(3) Tribe folk living in very interior and isolated part of Andaman and Nicobar

(4) Natives of Rangat on middle Andaman Island.

Options :

92090653217. 1

92090653218. 2

92090653219. 3

92090653220. 4

Sub-Section Number :	2
Sub-Section Id :	920906438
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 6 Question Id : 92090613474 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Fill in the blank with suitable word from the options given below:

The lion is at ____and has brought havoc in this area.

(1) Bay
(2) Sea
(3) Open
(4) Large

Options :

92090653221. 1
92090653222. 2
92090653223. 3
92090653224. 4

Question Number : 6 Question Id : 92090613474 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Fill in the blank with suitable word from the options given below:

The lion is at ____and has brought havoc in this area.

(1) Bay
(2) Sea
(3) Open
(4) Large

Options :

92090653221. 1
92090653222. 2
92090653223. 3
92090653224. 4

Question Number : 7 Question Id : 92090613475 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Choose the appropriate one word substitute for:

A study, analysis and collection of currency and especially coins used throughout history.

(1) Ornithology
(2) Philology
(3) Philately
(4) Numismatics

Options :

92090653225. 1
92090653226. 2
92090653227. 3
92090653228. 4

Question Number : 7 Question Id : 92090613475 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Choose the appropriate one word substitute for:

A study, analysis and collection of currency and especially coins used throughout history.

(1) Ornithology
(2) Philology
(3) Philately
(4) Numismatics

Options :

92090653225. 1

92090653226. 2

92090653227. 3

92090653228. 4

Question Number : 8 Question Id : 92090613476 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Fill in the blanks with appropriate preposition from the options given below:

Degradation of a body ____ water ____ a substance or condition ____ such a degree that the water fails ___ meet specific purpose.

(1) of, by, to, to
(2) for, to, of, to
(3) of, to, by, for
(4) of, from, in, to

Options :

92090653229. 1

92090653230. 2

92090653231. 3

92090653232. 4

Question Number : 8 Question Id : 92090613476 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Fill in the blanks with appropriate preposition from the options given below:

Degradation of a body ____ water ____ a substance or condition ____ such a degree that the water fails ___ meet specific purpose.

(1) of, by, to, to
(2) for, to, of, to
(3) of, to, by, for
(4) of, from, in, to

Options :

92090653229. 1

92090653230. 2

92090653231. 3

92090653232. 4

Question Number : 9 Question Id : 92090613477 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Synonym of the word "ALMS" is:

(1) Blessings
(2) Prayers
(3) Worship
(4) Charity

Options :

92090653233. 1

92090653234. 2

92090653235. 3

92090653236. 4

Question Number : 9 Question Id : 92090613477 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Synonym of the word "ALMS" is:

(1) Blessings
(2) Prayers
(3) Worship
(4) Charity

Options :

92090653233. 1

92090653234. 2

92090653235. 3

92090653236. 4

Question Number : 10 Question Id : 92090613478 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Correct the underlined phrase and choose appropriate option to replace it.

Primitive man <u>believing that a crime created</u> in imbalance which could be rectified only by punishing the wrongdoer.

(1) Believed that a crime creats
(2) Believes that a crime created
(3) Believed that a crime created
(4) Believed that a criminal created

Options :

92090653237. 1

92090653238. 2

92090653239. 3

92090653240. 4

Question Number : 10 Question Id : 92090613478 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Correct the underlined phrase and choose appropriate option to replace it.

Primitive man <u>believing that a crime created</u> in imbalance which could be rectified only by punishing the wrongdoer.

(1) Believed that a crime creats
(2) Believes that a crime created
(3) Believed that a crime created
(4) Believed that a criminal created

Options :

92090653237. 1

92090653238. 2

92090653239. 3

92090653240. 4

Question Number : 11 Question Id : 92090613479 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The surface area of a sphere of radius 7cm is: (Take $\pi = \frac{22}{7}$)

(1) 4158 cm^2
(2) 540 cm^2
(3) 616 cm^2
(4) 280 cm^2

Options :

92090653241. 1

92090653242. 2

92090653243. 3

92090653244. 4

Question Number : 11 Question Id : 92090613479 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The surface area of a sphere of radius 7cm is: (Take $\pi = \frac{22}{7}$)

(1) 4158 cm^2 (2) 540 cm^2

(3) 616 cm^2 (4) 280 cm^2

Options :

92090653241. 1

92090653242. 2

92090653243. 3

92090653244. 4

Question Number : 12 Question Id : 92090613480 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Find the value of '?' in the following

784 ÷ 14 + 598 ÷ 13 + ? = 99 % of 2500

(1) 2475 (2) 2373

(3) 2565 (4) 2285

Options :

92090653245. 1

92090653246. 2

92090653247. 3

92090653248. 4

Question Number : 12 Question Id : 92090613480 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Find the value of '?' in the following

784 ÷ 14 + 598 ÷ 13 + ? = 99 % of 2500

(1) 2475 (2) 2373

(3) 2565 (4) 2285

Options :

92090653245. 1
92090653246. 2
92090653247. 3
92090653248. 4

Question Number : 13 Question Id : 92090613481 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

During festival sale, a shop offered 10% discount on all items. What would a customer have to pay on purchase of a jacket marked at ₹1450 and two shirts marked at ₹850 each?

(1) ₹2735
(2) ₹2835
(3) ₹3150
(4) ₹2935

Options :

92090653249. 1
92090653250. 2
92090653251. 3
92090653252. 4

Question Number : 13 Question Id : 92090613481 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

During festival sale, a shop offered 10% discount on all items. What would a customer have to pay on purchase of a jacket marked at ₹1450 and two shirts marked at ₹850 each?

(1) ₹2735
(2) ₹2835
(3) ₹3150
(4) ₹2935

Options :

92090653249. 1
92090653250. 2
92090653251. 3
92090653252. 4

Question Number : 14 Question Id : 92090613482 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

A car covers 20km in 12 minutes. If its speed is reduced by 20km/hr, then time taken to cover the same distance will be

(1) $\frac{1}{3}$ hour (2) $\frac{1}{2}$ hour

(3) $\frac{2}{3}$ hour (4) $\frac{1}{4}$ hour

Options :

92090653253. 1

92090653254. 2

92090653255. 3

92090653256. 4

Question Number : 14 Question Id : 92090613482 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

A car covers 20km in 12 minutes. If its speed is reduced by 20km/hr, then time taken to cover the same distance will be

(1) $\frac{1}{3}$ hour (2) $\frac{1}{2}$ hour

(3) $\frac{2}{3}$ hour (4) $\frac{1}{4}$ hour

Options :

92090653253. 1

92090653254. 2

92090653255. 3

92090653256. 4

Question Number : 15 Question Id : 92090613483 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

A certain sum on simple interest becomes Rs 14880 in 3 years and Rs 16800 in 5 years. Find the rate of interest.

(1) 6.5% (2) 7%

(3) 8% (4) 8.25%

Options :

92090653257. 1

92090653258. 2
92090653259. 3
92090653260. 4

Question Number : 15 Question Id : 92090613483 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

A certain sum on simple interest becomes Rs 14880 in 3 years and Rs 16800 in 5 years. Find the rate of interest.

(1) 6.5% (2) 7%

(3) 8% (4) 8.25%

Options :

92090653257. 1
92090653258. 2
92090653259. 3
92090653260. 4

Question Number : 16 Question Id : 92090613484 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Bhuvan is fifteenth from the front in queue of boys. There are thrice as many behind him as There were in front. How many boys are there between Bhuvan and the seventh boy from the end of the queue?

(1) 33 (2) 34

(3) 35 (4) 36

Options :

92090653261. 1
92090653262. 2
92090653263. 3
92090653264. 4

Question Number : 16 Question Id : 92090613484 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Bhuvan is fifteenth from the front in queue of boys. There are thrice as many behind him as There were in front. How many boys are there between Bhuvan and the seventh boy from the end of the queue?

(1) 33
(2) 34
(3) 35
(4) 36

Options :
92090653261. 1
92090653262. 2
92090653263. 3
92090653264. 4

Question Number : 17 Question Id : 92090613485 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Statement : There should be only one university throughout India.

Arguments : (I) This will make the degrees procured by students, comparable for offering jobs.

(II) This is the only way to bring about uniformity in the educational standards.

Which of the above argument(s) hold for the statement?

(1) Only argument I
(2) Only argument II
(3) Argument I and argument II
(4) Neither argument I nor argument II

Options :
92090653265. 1
92090653266. 2
92090653267. 3
92090653268. 4

Question Number : 17 Question Id : 92090613485 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Statement : There should be only one university throughout India.

Arguments : (I) This will make the degrees procured by students, comparable for offering jobs.

(II) This is the only way to bring about uniformity in the educational standards.

Which of the above argument(s) hold for the statement?

(1) Only argument I

(2) Only argument II

(3) Argument I and argument II

(4) Neither argument I nor argument II

Options :

92090653265. 1

92090653266. 2

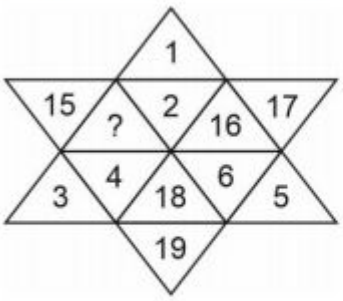
92090653267. 3

92090653268. 4

Question Number : 18 Question Id : 92090613486 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Find the missing number.



(1) 13 (2) 14

(3) 20 (4) 21

Options :

92090653269. 1

92090653270. 2

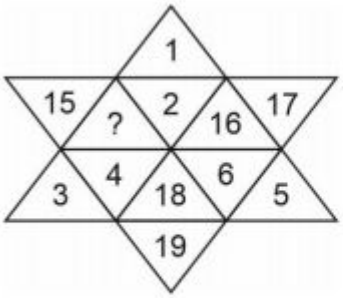
92090653271. 3

92090653272. 4

Question Number : 18 Question Id : 92090613486 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Find the missing number.



(1) 13 (2) 14

(3) 20 (4) 21

Options :

92090653269. 1

92090653270. 2

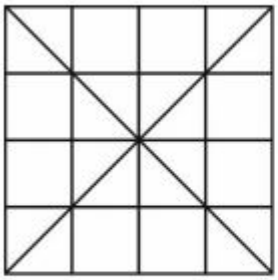
92090653271. 3

92090653272. 4

Question Number : 19 Question Id : 92090613487 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Find the number of triangles in the following figure.

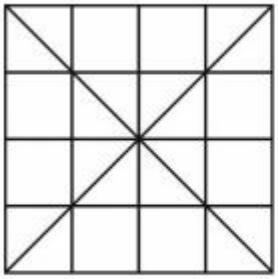


(1) 48
(2) 42
(3) 44
(4) 38

Options :
92090653273. 1
92090653274. 2
92090653275. 3
92090653276. 4

Question Number : 19 Question Id : 92090613487 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Find the number of triangles in the following figure.



(1) 48
(2) 42
(3) 44
(4) 38

Options :
92090653273. 1
92090653274. 2
92090653275. 3
92090653276. 4

Question Number : 20 Question Id : 92090613488 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Identify the water image of the following fig (X)

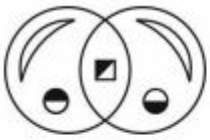
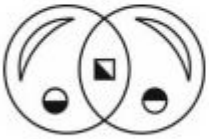
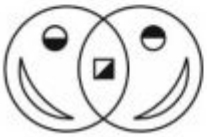
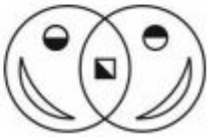


fig (X)

(1) 

(2) 

(3) 

(4) 

Options :

92090653277. 1

92090653278. 2

92090653279. 3

92090653280. 4

Question Number : 20 Question Id : 92090613488 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Identify the water image of the following fig (X)

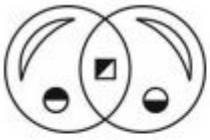
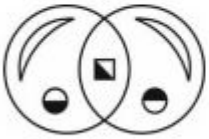
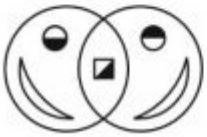
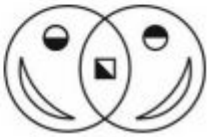


fig (X)

(1) 

(2) 

(3) 

(4) 

Options :

92090653277. 1

92090653278. 2

92090653279. 3

92090653280. 4

Question Number : 21 Question Id : 92090613489 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The Name of India's 1st Drone which can carry human passengers?

(1) Varuna
(2) Hanu
(3) Garuda
(4) Udan Khatola

Options :

92090653281. 1

92090653282. 2

92090653283. 3

92090653284. 4

Question Number : 21 Question Id : 92090613489 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The Name of India's 1st Drone which can carry human passengers?

(1) Varuna
(2) Hanu
(3) Garuda
(4) Udan Khatola

Options :

92090653281. 1

92090653282. 2

92090653283. 3

92090653284. 4

Question Number : 22 Question Id : 92090613490 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

National emergency is declared under which of the article of Indian Constitution?

(1) Article 342
(2) Article 350
(3) Article 362
(4) Article 352

Options :

92090653285. 1

92090653286. 2

92090653287. 3

92090653288. 4

Question Number : 22 Question Id : 92090613490 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

National emergency is declared under which of the article of Indian Constitution?

(1) Article 342 (2) Article 350

(3) Article 362 (4) Article 352

Options :

92090653285. 1

92090653286. 2

92090653287. 3

92090653288. 4

Question Number : 23 Question Id : 92090613491 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Given below are two statements :

Statement I : The National wealth is the measurement of total National Income of the country on a given time.

Statement II : National income is the measurement of flow of services and goods in economic system. It is the production power of economic system in a given time period.

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

(1) Both Statement I and Statement II are correct

(2) Both Statement I and Statement II are incorrect

(3) Statement I is correct but Statement II is incorrect

(4) Statement I is incorrect but Statement II is correct

Options :

92090653289. 1

92090653290. 2

92090653291. 3
92090653292. 4

Question Number : 23 Question Id : 92090613491 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Given below are two statements :

Statement I : The National wealth is the measurement of total National Income of the country on a given time.

Statement II : National income is the measurement of flow of services and goods in economic system. It is the production power of economic system in a given time period.

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

(1) Both Statement I and Statement II are correct

(2) Both Statement I and Statement II are incorrect

(3) Statement I is correct but Statement II is incorrect

(4) Statement I is incorrect but Statement II is correct

Options :
92090653289. 1
92090653290. 2
92090653291. 3
92090653292. 4

Question Number : 24 Question Id : 92090613492 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Who out of the following became the first ever player in football to score 700 goals in club football and also the leading Scores in international football?

(1) Lionel Messi
(2) Cristiano Ronaldo
(3) Pele
(4) Robert Lewandowski

Options :

92090653293. 1

92090653294. 2

92090653295. 3

92090653296. 4

Question Number : 24 Question Id : 92090613492 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Who out of the following became the first ever player in football to score 700 goals in club football and also the leading Scores in international football?

(1) Lionel Messi
(2) Cristiano Ronaldo
(3) Pele
(4) Robert Lewandowski

Options :

92090653293. 1

92090653294. 2

92090653295. 3

92090653296. 4

Question Number : 25 Question Id : 92090613493 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Which of the following diseases are caused by houseflies?

(A) Cholera
(B) Malaria
(C) Typhoid
(D) Dysentery
(E) Dengue

Choose the correct answer from the options given below :

(1) (A), (B) and (D) only
(2) (A), (B) and (E) only
(3) (A), (C) and (D) only
(4) (A), (D) and (E) only

Options :
92090653297. 1
92090653298. 2
92090653299. 3
92090653300. 4

Question Number : 25 Question Id : 92090613493 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Which of the following diseases are caused by houseflies?

(A) Cholera
(B) Malaria
(C) Typhoid
(D) Dysentery
(E) Dengue

Choose the correct answer from the options given below :

(1) (A), (B) and (D) only
(2) (A), (B) and (E) only
(3) (A), (C) and (D) only
(4) (A), (D) and (E) only

Options :
92090653297. 1
92090653298. 2
92090653299. 3
92090653300. 4

Part B: Material Science and Technology

Section Id :	920906268
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	75
Number of Questions to be attempted :	75
Section Marks :	300
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	920906439
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 26 Question Id : 92090613494 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

'Zeeman Effect' phenomenon involves___

(1) Splitting of spectral lines by an electric field

(2) Splitting of spectral lines by a magnetic field

(3) Splitting of white light into seven colours

(4) Bending of light around the corners of an obstacle

Options :

92090653301. 1

92090653302. 2

92090653303. 3

92090653304. 4

Question Number : 26 Question Id : 92090613494 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

'ज़ीमन प्रभाव' परिघटना क्या है?

(1) विद्युत क्षेत्र द्वारा वर्ण क्रमीय रेखाओ का विभाजन

(2) चुम्बकीय क्षेत्र द्वारा वर्ण क्रमीय रेखाओ का विभाजन

(3) श्वेत प्रकाश का सप्त रंगो में विभाजित होना

(4) बाधा के कोनों से प्रकाश का मुड़ना

Options :

92090653301. 1

92090653302. 2

92090653303. 3

92090653304. 4

Question Number : 27 Question Id : 92090613495 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Which of the following is a top-down approach for the synthesis of nanomaterials?

(1) Chemical Vapour Deposition (CVD) (2) Ball-milling

(3) Physical Vapour Deposition (4) Hydrothermal method

Options :

92090653305. 1

92090653306. 2

92090653307. 3

92090653308. 4

Question Number : 27 Question Id : 92090613495 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्न में से कौन सा नैनो कणों के संश्लेषण के लिए टॉप-डाऊन दृष्टिकोण है?

(1) रासायनिक वाष्प जमाव (2) बॉल मिलिंग

(3) भौतिक वाष्प जमाव (4) हाइड्रोथर्मल विधि

Options :

92090653305. 1

92090653306. 2

92090653307. 3

92090653308. 4

Question Number : 28 Question Id : 92090613496 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The condition for diffraction of light is:

Where; λ is the wavelength of source used. a=size of the obstacle.

(1) $\lambda \geq a$ (2) $\lambda < a$

(3) $\lambda \approx a$ (4) $\lambda >> a$

Options :

92090653309. 1

92090653310. 2

92090653311. 3

92090653312. 4

Question Number : 28 Question Id : 92090613496 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

प्रकाश का विवतन केलिए कौन सी शर्त सही है?

(1) $\lambda \geq a$ (2) $\lambda < a$

(3) $\lambda \approx a$ (4) $\lambda >> a$

Options :

92090653309. 1

92090653310. 2

92090653311. 3

92090653312. 4

Question Number : 29 Question Id : 92090613497 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Reduction in the grain size of a material from bulk scale to nanometer scale, results in

(1) shift in the position of absorption edge in UV-visible spectrum towards higher wavelength side.

(2) no shift in the position of absorption edge in UV-visible spectrum.

(3) shift in the position of absorption edge in UV-visible spectrum towards lower wavelength side.

(4) random shifting of absorption edge in UV-visible spectrum.

Options :

92090653313. 1

92090653314. 2

92090653315. 3

92090653316. 4

Question Number : 29 Question Id : 92090613497 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

बल्क पैमाने से नैनो मीटर पैमाने तक पदार्थ आकार में कमी का परिणाम हैं

(1) यू.वी. विजिबिल स्पैक्ट्रम में अवशोषण की स्थिति का किनारा खिसकना उच्च तरंग दैर्घ्य की ओर

(2) यू.वी. विजिबिल स्पैक्ट्रम में अवशोषण की स्थिति का किनारा ना खिसकना

(3) यू.वी. विजिबिल स्पैक्ट्रम में अवशोषण की स्थिति का किनारा खिसकना निम्न तरंग दैर्घ्य की ओर

(4) यू.वी. विजिबिल स्पैक्ट्रम में चोटियों का बेतरतीब खिसकना

Options :

92090653313. 1

92090653314. 2

92090653315. 3

92090653316. 4

Question Number : 30 Question Id : 92090613498 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

A n – type semiconductor is

(1) positively charged

(2) electrically neutral

(3) negatively charged

(4) electrically at 0 K but charged at higher temperatures

Options :

92090653317. 1

92090653318. 2

92090653319. 3

92090653320. 4

Question Number : 30 Question Id : 92090613498 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

एक n – टाइप अर्धचालक है।

(1) धनात्मक आवेश

(2) विद्युत उदासहीन

(3) ऋणात्मक आवेश

(4) 0 K पर विद्युत उदासहीन परन्तु उच्च तापमान पर आवेशित

Options :

92090653317. 1

92090653318. 2

92090653319. 3

92090653320. 4

Question Number : 31 Question Id : 92090613499 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The Bragg's angle for the first order diffraction from (111) plane in a crystal is $60°$. Calculate the interatomic spacing if X – rays of wavelength 1.8×10^{-10} m are used.

(1) 2.8×10^{-9} m

(2) 3.2×10^{-8} m

(3) 1.8×10^{-10} m

(4) 0.6×10^{-11} m

Options :

92090653321. 1

92090653322. 2
92090653323. 3
92090653324. 4

Question Number : 31 Question Id : 92090613499 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

एक क्रिस्टल में (111) तल से प्रथम कोटि के विवर्तन के लिए ब्रैग्स कोण 60° है । यदि X – किरणों जिसको तरंग दैर्ध्य 1.8 $\times 10^{-10}$ m है का प्रयोग किया जाता है तो अन्तरा परमाणु अन्तराण का परिकलन करें।

(1) 2.8×10^{-9}m
(2) 3.2×10^{-8}m
(3) 1.8×10^{-10}m
(4) 0.6×10^{-11}m

Options :

92090653321. 1
92090653322. 2
92090653323. 3
92090653324. 4

Question Number : 32 Question Id : 92090613500 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

If n_p and n_e are number of holes and number of conduction electrons in an extrinsic semiconductor respectively, then which of the following is true

(1) $n_p > n_e$
(2) $n_p = n_e$
(3) $n_p < n_e$
(4) $n_p \neq n_e$

Options :

92090653325. 1
92090653326. 2
92090653327. 3
92090653328. 4

Question Number : 32 Question Id : 92090613500 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

यदि n_p तथा n_e एक बाह्य अर्धचालक में क्रमशः कोटरों और इलेक्ट्रोनों की संख्या हैं तो निम्नलिखित में कौन सा सही है?

(1) $n_p > n_e$ (2) $n_p = n_e$

(3) $n_p < n_e$ (4) $n_p \neq n_e$

Options :

92090653325. 1

92090653326. 2

92090653327. 3

92090653328. 4

Question Number : 33 Question Id : 92090613501 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

An Aluminium crystal is bent into a radius of curvature of 6 cm. The value of minimum dislocation density is (Hint: Burgers vector = 3 Å)

(1) $3.2 \times 10^{-10} m^{-2}$ (2) $4.89 \times 10^{10} m^{-2}$

(3) $5.5 \times 10^{10} m^{-2}$ (4) $6.4 \times 10^{10} m^{-2}$

Options :

92090653329. 1

92090653330. 2

92090653331. 3

92090653332. 4

Question Number : 33 Question Id : 92090613501 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

एक एल्यूमीनीयम को जब 6 सेमी (6 cm) की वक्रता त्रिज्या में मोड़ा जाता है, तो न्यूनतम विस्थापन घनत्व के मान की गणना करें (संकेत : बर्गर सदिश = 3 Å)

(1) $3.2 \times 10^{-10} m^{-2}$ (2) $4.89 \times 10^{10} m^{-2}$

(3) $5.5 \times 10^{10} m^{-2}$ (4) $6.4 \times 10^{10} m^{-2}$

Options :

92090653329. 1

92090653330. 2

92090653331. 3

92090653332. 4

Question Number : 34 Question Id : 92090613502 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

If a, b and c are translational vectors of primitive unit cell. Which of the following correctly represents the primitive translation vectors of reciprocal lattice?

(1) $\vec{a}^* = 2\pi\frac{\vec{a}\times\vec{b}}{\vec{a}.(\vec{b}\times\vec{c})};\vec{b}^* = 2\pi\frac{\vec{b}\times\vec{c}}{\vec{a}.(\vec{b}\times\vec{c})};\vec{c}^* = 2\pi\frac{\vec{c}\times\vec{a}}{\vec{a}.(\vec{b}\times\vec{c})}$

(2) $\vec{a}^* = 2\pi\frac{\vec{b}\times\vec{c}}{\vec{a}.(\vec{b}\times\vec{c})};\vec{b}^* = 2\pi\frac{\vec{c}\times\vec{a}}{\vec{a}.(\vec{b}\times\vec{c})};\vec{c}^* = 2\pi\frac{\vec{a}\times\vec{b}}{\vec{a}.(\vec{b}\times\vec{c})}$

(3) $\vec{a}^* = \frac{1}{2\pi}\frac{\vec{a}\times\vec{b}}{\vec{a}.(\vec{b}\times\vec{c})};\vec{b}^* = \frac{1}{2\pi}\frac{\vec{b}\times\vec{c}}{\vec{a}.(\vec{b}\times\vec{c})};\vec{c}^* = 2\pi\frac{\vec{c}\times\vec{a}}{\vec{a}.(\vec{b}\times\vec{c})}$

(4) $\vec{a}^* = 2\pi\frac{\vec{c}\times\vec{a}}{\vec{a}.(\vec{b}\times\vec{c})};\vec{b}^* = 2\pi\frac{\vec{a}\times\vec{b}}{\vec{a}.(\vec{b}\times\vec{c})};\vec{c}^* = 2\pi\frac{\vec{b}\times\vec{a}}{\vec{a}.(\vec{b}\times\vec{c})}$

Options :

92090653333. 1

92090653334. 2

92090653335. 3

92090653336. 4

Question Number : 34 Question Id : 92090613502 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

यदि a, b तथा c अभाज्य एकक कोष्टिका के स्थानातरीय सदिश हैं : तो निम्नलिखित में से व्युत्क्रम जालक के अभाज्य स्थानांतरण सदिश (वेक्टर) को सही रूप में दर्शाता है।

(1) $\vec{a}^* = 2\pi\frac{\vec{a}\times\vec{b}}{\vec{a}.(\vec{b}\times\vec{c})};\vec{b}^* = 2\pi\frac{\vec{b}\times\vec{c}}{\vec{a}.(\vec{b}\times\vec{c})};\vec{c}^* = 2\pi\frac{\vec{c}\times\vec{a}}{\vec{a}.(\vec{b}\times\vec{c})}$

(2) $\vec{a}^* = 2\pi\frac{\vec{b}\times\vec{c}}{\vec{a}.(\vec{b}\times\vec{c})};\vec{b}^* = 2\pi\frac{\vec{c}\times\vec{a}}{\vec{a}.(\vec{b}\times\vec{c})};\vec{c}^* = 2\pi\frac{\vec{a}\times\vec{b}}{\vec{a}.(\vec{b}\times\vec{c})}$

(3) $\vec{a}^* = \frac{1}{2\pi}\frac{\vec{a}\times\vec{b}}{\vec{a}.(\vec{b}\times\vec{c})};\vec{b}^* = \frac{1}{2\pi}\frac{\vec{b}\times\vec{c}}{\vec{a}.(\vec{b}\times\vec{c})};\vec{c}^* = 2\pi\frac{\vec{c}\times\vec{a}}{\vec{a}.(\vec{b}\times\vec{c})}$

(4) $\vec{a}^* = 2\pi\frac{\vec{c}\times\vec{a}}{\vec{a}.(\vec{b}\times\vec{c})};\vec{b}^* = 2\pi\frac{\vec{a}\times\vec{b}}{\vec{a}.(\vec{b}\times\vec{c})};\vec{c}^* = 2\pi\frac{\vec{b}\times\vec{a}}{\vec{a}.(\vec{b}\times\vec{c})}$

Options :

92090653333. 1
92090653334. 2
92090653335. 3
92090653336. 4

Question Number : 35 Question Id : 92090613503 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

An electron in the conduction band:

(1) is bound to its parent atom
(2) has no charge
(3) is located near the top of the crystal
(4) has a higher energy than an electron in valence band.

Options :
92090653337. 1
92090653338. 2
92090653339. 3
92090653340. 4

Question Number : 35 Question Id : 92090613503 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

प्रवाहकत्त्व बंध में एक विद्युदअणु (इलैक्ट्रान)।

(1) अपने मूल परमाणु से बंधा हुआ होता है।
(2) कोई आवेश नहीं रखता।
(3) क्रिस्टल के शीर्ष के समीप स्थित होता है।
(4) संयोजी बंध में विद्युदअणु को तुलना में अधिक ऊर्जा रखता है।

Options :
92090653337. 1
92090653338. 2
92090653339. 3
92090653340. 4

Question Number : 36 Question Id : 92090613504 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

For characteristic X – rays, Moseley's law is expressed as $\sqrt{\nu} = a\,(Z - b)$. Which of the following statement is true in this regard?

(1) Both 'a' and 'b' depend on the material.

(2) 'b' is independent, but 'a' depends on the material.

(3) 'a' is independent but 'b' depends on the material.

(4) Both 'a' and 'b' are independent of the material.

Options :

92090653341. 1

92090653342. 2

92090653343. 3

92090653344. 4

Question Number : 36 Question Id : 92090613504 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

अभिलक्षणिक X – किरणों के लिए, मोसले का नियम दर्शाता है $\sqrt{\nu} = a\,(Z - b)$. निम्नलिखित में कौन सा कथन इस संबंध में सत्य है।

(1) 'a' तथा 'b' दोनों पदार्थ पर निर्भर करते हैं

(2) 'b' स्वतन्त्र है, लेकिन 'a' पदार्थ पर निर्भर करता हैं

(3) 'a' स्वतंत्र है, लेकिन 'b' पदार्थ पर निर्भर करता हैं

(4) 'a' तथा 'b' दोनों पदार्थ से स्वतंत्र हैं

Options :

92090653341. 1

92090653342. 2

92090653343. 3

92090653344. 4

Question Number : 37 Question Id : 92090613505 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

1 Bohr Magneton is given by

(1) $\frac{e\hbar}{2m}$ (2) $\frac{e\hbar}{mc}$

(3) $\frac{e\hbar}{m}$ (4) $\frac{e\hbar}{2mc}$

Options :

92090653345. 1
92090653346. 2
92090653347. 3
92090653348. 4

Question Number : 37 Question Id : 92090613505 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्न में से कौन सा विकल्प बोर मैगनेटान को सही दर्शाता है?

(1) $\frac{e\hbar}{2m}$ (2) $\frac{e\hbar}{mc}$

(3) $\frac{e\hbar}{m}$ (4) $\frac{e\hbar}{2mc}$

Options :

92090653345. 1
92090653346. 2
92090653347. 3
92090653348. 4

Question Number : 38 Question Id : 92090613506 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The paramagnetic susceptibility of the Fermi gas of conduction electrons is:

(1) $\chi = 3N\mu^2 / 2\ E_F$ (2) $\chi = 2N\mu^2 / 2\ E_F$

(3) $\chi = 2N\mu^2 / 3\ E_F$ (4) $\chi = 3N\mu / E_F$

Options :

92090653349. 1
92090653350. 2
92090653351. 3
92090653352. 4

Question Number : 38 Question Id : 92090613506 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

प्रवाहक इलेक्ट्रानों की फ़र्मी गैस की अनुचुम्बकीय सुग्राहिता क्या है?

(1) $\chi = 3N\mu^2 / 2\ E_F$

(2) $\chi = 2N\mu^2 / 2\ E_F$

(3) $\chi = 2N\mu^2 / 3\ E_F$

(4) $\chi = 3N\mu / E_F$

Options :

92090653349. 1

92090653350. 2

92090653351. 3

92090653352. 4

Question Number : 39 Question Id : 92090613507 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Sieverts (Sv) is used to measure

(1) loudness of sound

(2) radiation dosage

(3) light intensity

(4) recombination rate of charge carriers

Options :

92090653353. 1

92090653354. 2

92090653355. 3

92090653356. 4

Question Number : 39 Question Id : 92090613507 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

सीवर्ट्स (Sieverts) का प्रयोग मापने के लिए किया जाता है।

(1) ध्वनि की प्रवाहकता

(2) विकिरण खुराक

(3) प्रकाश तीव्रता

(4) आवेश वाहको की पुनर्सं योजन दर

Options :

92090653353. 1

92090653354. 2

92090653355. 3

92090653356. 4

Question Number : 40 Question Id : 92090613508 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The ratio of nearest neighbour distance in simple cubic, body centered cubic and face centered cubic crystal structures of equal sides is respectively:

(1) $1:\frac{\sqrt{3}}{2}:\frac{1}{\sqrt{2}}$

(2) $1:\frac{3\sqrt{3}}{8}:\frac{1}{2\sqrt{2}}$

(3) $1:\frac{8}{3\sqrt{3}}:2\sqrt{2}$

(4) $1:\frac{8}{3\sqrt{3}}:2$

Options :

92090653357. 1

92090653358. 2

92090653359. 3

92090653360. 4

Question Number : 40 Question Id : 92090613508 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

समान भुजाओं वाले साधारण घन, पिन्ड केन्द्रीय घन तथा फलक केन्द्रीय घन क्रिस्टल संरचनाओं के लिए निकटतम पड़ोसी की दूरी का अनुपात हैः

(1) $1:\frac{\sqrt{3}}{2}:\frac{1}{\sqrt{2}}$

(2) $1:\frac{3\sqrt{3}}{8}:\frac{1}{2\sqrt{2}}$

(3) $1:\frac{8}{3\sqrt{3}}:2\sqrt{2}$

(4) $1:\frac{8}{3\sqrt{3}}:2$

Options :

92090653357. 1

92090653358. 2

92090653359. 3

92090653360. 4

Question Number : 41 Question Id : 92090613509 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

For an anisotropic dielectric media, the relative permittivity is:

(1) a scalar quantity
(2) a vector quantity
(3) a tensor quantity
(4) an imaginary number

Options :

92090653361. 1
92090653362. 2
92090653363. 3
92090653364. 4

Question Number : 41 Question Id : 92090613509 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

असमदैशिक परावैद्युत माध्यम के लिए, सापेक्ष पारगम्यता है।

(1) अदिश राशि
(2) सदिश राशि
(3) प्रदिश राशि
(4) एक काल्पनिक संख्या

Options :

92090653361. 1
92090653362. 2
92090653363. 3
92090653364. 4

Question Number : 42 Question Id : 92090613510 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Out of the following which is not a chemical method of the synthesis of nanomaterials?

(1) Hydrothermal method
(2) Sol-gel method
(3) Co-precipitation method
(4) Laser-ablation method.

Options :

92090653365. 1
92090653366. 2
92090653367. 3
92090653368. 4

Question Number : 42 Question Id : 92090613510 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्नलिखित में से कौन से नैनो कणों के संश्लेषण की रासायनिक विधि नहीं है?

(1) हाइड्रो थर्मल विधि

(2) विलय – जेल (सोल जेल) विधि

(3) सह अवक्षेपण विधि

(4) लेज़र एब्लेशन विधि

Options :

92090653365. 1

92090653366. 2

92090653367. 3

92090653368. 4

Question Number : 43 Question Id : 92090613511 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The slopes of isothermal and adiabatic curves are related as:

(1) Isothermal curve slope = Adiabatic curve slope

(2) Isothermal curve slope = γ (Adiabatic curve slope)

(3) Adiabatic curve slope = γ (Isothermal curve slope)

(4) Adiabatic curve slope = $\frac{\gamma}{2}$ (Isothermal curve slope)

Options :

92090653369. 1

92090653370. 2

92090653371. 3

92090653372. 4

Question Number : 43 Question Id : 92090613511 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

सम तापीय और रुद्धोष्म प्रक्रमों के ढलान का वक्रों के ढलान किस प्रकार संमबन्धित है।

(1) समतापीय वक्र ढलान = रुद्धोष्म वक्र ढलान

(2) समतापीय वक्र ढलान = γ (रुद्धोष्म वक्र ढलान)

(3) रुद्धोष्म वक्र ढलान = γ (समतपीय वक्र ढलान)

(4) रुद्धोष्म वक्र ढलान = $\frac{\gamma}{2}$ (समतपीय वक्र ढलान)

Options :

92090653369. 1

92090653370. 2

92090653371. 3

92090653372. 4

Question Number : 44 Question Id : 92090613512 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Critical Temperature is defined as:

(1) minimum temperature at which a gas can be liquefied by applying pressure.

(2) lowest temperature at which a gas can be liquefied at constant pressure.

(3) minimum temperature at which a gas cannot be liquefied by applying pressure.

(4) highest temperature at which a gas cannot be liquefied by decreasing pressure.

Options :

92090653373. 1

92090653374. 2

92090653375. 3

92090653376. 4

Question Number : 44 Question Id : 92090613512 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

क्रांतिक तापमान निम्न में से किस तरह परिभाषित किया जाता है?

(1) वह न्यूनतम तापमान जिस पर दाब लगाकर गैस को द्रवित किया जा सकता है

(2) वहा निम्नतम तापमान जिस पर स्थिर दाब द्वारा गैस को द्रवित किया जा सकता है

(3) न्यूनतम तापमान जिस पर दाब लगाकर गैस को द्रवित नहीं किया जा सकता हैं

(4) उच्चतम तापमान जिस पर दबाव कम करके गैस को द्रवित नहीं किया जा सकता है

Options :

92090653373. 1

92090653374. 2

92090653375. 3

92090653376. 4

Question Number : 45 Question Id : 92090613513 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The enthalpy of unit mass of any system is

(1) $H = U+PV + S$

(2) $H= U+PV-S$

(3) $H = U + PV$

(4) $H = E + TS$

Options :

92090653377. 1

92090653378. 2

92090653379. 3

92090653380. 4

Question Number : 45 Question Id : 92090613513 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

किसी भी प्रणाली की इकाई द्वयमान की तापीय धारिता (एन्थैल्पी) है।

(1) $H = U+PV + S$

(2) $H= U+PV-S$

(3) $H = U + PV$

(4) $H = E + TS$

Options :

92090653377. 1

92090653378. 2

92090653379. 3

92090653380. 4

Question Number : 46 Question Id : 92090613514 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The value of Fermi energy of an electron in Fermi level is?

(1) $E_f = \frac{h^2}{2m}\left(\frac{3N}{8\pi V}\right)^{\frac{2}{3}}$

(2) $E_f = \frac{\hbar}{2m}\left(\frac{3N}{8\pi V}\right)^{\frac{1}{3}}$

(3) $E_f = \frac{h}{2m}\left(\frac{3N}{8\pi^2 V}\right)^{\frac{3}{2}}$

(4) $E_f = \frac{\hbar^2}{2m}\left(\frac{2N}{8\pi^2 V}\right)^{\frac{2}{3}}$

Options :

92090653381. 1

92090653382. 2

92090653383. 3

92090653384. 4

Question Number : 46 Question Id : 92090613514 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

फ़र्मी सतह में एक विद्युदअणु (इलेक्ट्रान) की फ़र्मी ऊर्जा का मान होता है?

(1) $E_f = \frac{h^2}{2m}\left(\frac{3N}{8\pi V}\right)^{\frac{2}{3}}$

(2) $E_f = \frac{\hbar}{2m}\left(\frac{3N}{8\pi V}\right)^{\frac{1}{3}}$

(3) $E_f = \frac{h}{2m}\left(\frac{3N}{8\pi^2 V}\right)^{\frac{3}{2}}$

(4) $E_f = \frac{\hbar^2}{2m}\left(\frac{2N}{8\pi^2 V}\right)^{\frac{2}{3}}$

Options :

92090653381. 1

92090653382. 2

92090653383. 3

92090653384. 4

Question Number : 47 Question Id : 92090613515 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Number of vibrational degrees of freedom in water molecule:

(1) Two
(2) Three
(3) Four
(4) One

Options :

92090653385. 1
92090653386. 2
92090653387. 3
92090653388. 4

Question Number : 47 Question Id : 92090613515 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

जल के अणु में स्पंदनीय स्वतंत्रता की कोटियों की संख्या है:

(1) दो
(2) तीन
(3) चार
(4) एक

Options :

92090653385. 1
92090653386. 2
92090653387. 3
92090653388. 4

Question Number : 48 Question Id : 92090613516 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The device which converts heat energy into Mechanical work is:

(1) Motor
(2) Generator
(3) Heat Engine
(4) Energy converter

Options :

92090653389. 1
92090653390. 2
92090653391. 3
92090653392. 4

Question Number : 48 Question Id : 92090613516 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum

Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

वह उपकरण जो ऊष्मीय ऊर्जा को यांत्रिक ऊर्जा में परिवर्तित करता है।

(1) मोटर
(2) जनरेटर
(3) ताप (ऊष्मा) इजन
(4) ऊर्जा परिवर्तक

Options :
92090653389. 1
92090653390. 2
92090653391. 3
92090653392. 4

Question Number : 49 Question Id : 92090613517 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

The ratio of two specific heats $\left(\frac{C_P}{C_V}\right)$ of a diatomic gas is:

(1) 1.66
(2) 1.33
(3) 1.40
(4) 1.52

Options :
92090653393. 1
92090653394. 2
92090653395. 3
92090653396. 4

Question Number : 49 Question Id : 92090613517 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

द्विपरमाणुक गैस की विशिष्ट ऊष्माओ (C_p/C_v) का अनुपात है।

(1) 1.66
(2) 1.33
(3) 1.40
(4) 1.52

Options :
92090653393. 1
92090653394. 2
92090653395. 3
92090653396. 4

Question Number : 50 Question Id : 92090613518 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Which of the following is not an experimental method in X – ray diffration study?

(1) Rotating crystal method
(2) Powder method
(3) Laue's method
(4) Miller method

Options :

92090653397. 1

92090653398. 2

92090653399. 3

92090653400. 4

Question Number : 50 Question Id : 92090613518 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्नलिखित में से कौन X – किरण विवर्तन अध्ययन में प्रायोगिक विधि नहीं है?

(1) घूर्णन क्रिस्टल विधि
(2) चूर्ण (पाउडर) विधि
(3) लावे (Laue's) की विधि
(4) मिलर विधि

Options :

92090653397. 1

92090653398. 2

92090653399. 3

92090653400. 4

Question Number : 51 Question Id : 92090613519 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The First Law of thermodynamics is based on the principle of:

(1) Conservation of mass
(2) Conservation of momentum
(3) Conservation of energy
(4) Conservation of entropy

Options :

92090653401. 1

92090653402. 2

92090653403. 3
92090653404. 4

Question Number : 51 Question Id : 92090613519 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

ऊष्मप्रवैगिकी का प्रथम नियम किस सिद्धांत पर आधारित है।

(1) द्रव्यमान का संरक्षण
(2) संवेग का संरक्षण
(3) ऊर्जा का संरक्षण
(4) एंट्रॉपी का संरक्षण

Options :

92090653401. 1
92090653402. 2
92090653403. 3
92090653404. 4

Question Number : 52 Question Id : 92090613520 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

When a transverse mechanical wave moves along X – axis, the particles of the medium vibrate:

(1) along X – Y plane
(2) along X - axis
(3) along Y – Z plane
(4) along X – Z plane

Options :

92090653405. 1
92090653406. 2
92090653407. 3
92090653408. 4

Question Number : 52 Question Id : 92090613520 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

एक यांत्रिक अनुप्रस्थ तरंग X –अक्ष के साथ चलती है माध्यम के कण कम्पन करते हैं।

(1) X – Y सतह के समानांतर
(2) X – सतह के समानांतर
(3) Y – Z सतह के समानांतर
(4) X – Z सतह के समानांतर

Options :

92090653405. 1

92090653406. 2

92090653407. 3

92090653408. 4

Question Number : 53 Question Id : 92090613521 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Drude's model, deals with the theory of conduction in

(1) semiconductors (2) insulators

(3) metals (4) dielectrics

Options :

92090653409. 1

92090653410. 2

92090653411. 3

92090653412. 4

Question Number : 53 Question Id : 92090613521 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

ड्रूड का मॉडल ———————— प्रवाहकत्व के सिद्धांत से संबंधित है।

(1) अर्ध चालकीय (2) अचालकीय

(3) धात्वीय (4) परावैद्युकीय

Options :

92090653409. 1

92090653410. 2

92090653411. 3

92090653412. 4

Question Number : 54 Question Id : 92090613522 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Which of the following represents the Bloch's function in one dimension?

(1) $\psi(x) = exp\ (\pm ikx) u_k(x)$ where $u_k(x+a) = u_k(x)$

(2) $\psi\left(\vec{r}\right) = \exp\left(\pm i\vec{k}\cdot\vec{r}\right) u_k\left(\vec{r}\right)$ where $u_k\left(\vec{r}\cdot\vec{a}\right) = u_k\left(\vec{r}\right)$

(3) $\psi(x) = \sin(ikx) u_k(x)$ where $u_k(x+a) = u_k(x) + u_k(a)$

(4) $\psi(x) = \cos(ikx) u_k(x)$ where $u_k(x+a) = u_k(x) + u_k(a)$

Options :

92090653413. 1

92090653414. 2

92090653415. 3

92090653416. 4

Question Number : 54 Question Id : 92090613522 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्नलिखित में से कौन सा एक विमिय ब्लॉश (Bloch) फलन का प्रतिनिधित्व करता है।

(1) $\psi(x) = exp\ (\pm ikx) u_k(x)$ where $u_k(x+a) = u_k(x)$

(2) $\psi\left(\vec{r}\right) = \exp\left(\pm i\vec{k}\cdot\vec{r}\right) u_k\left(\vec{r}\right)$ where $u_k\left(\vec{r}\cdot\vec{a}\right) = u_k\left(\vec{r}\right)$

(3) $\psi(x) = \sin(ikx) u_k(x)$ where $u_k(x+a) = u_k(x) + u_k(a)$

(4) $\psi(x) = \cos(ikx) u_k(x)$ where $u_k(x+a) = u_k(x) + u_k(a)$

Options :

92090653413. 1

92090653414. 2

92090653415. 3

92090653416. 4

Question Number : 55 Question Id : 92090613523 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Which law states, "It is not possible to have a process in which the entropy of an isolated system is decreased"?

(1) First law of thermodynamics
(2) Second law of thermodynamics
(3) Kelvin – Planck statement
(4) Gibb's Helmhottz law

Options :

92090653417. 1

92090653418. 2

92090653419. 3

92090653420. 4

Question Number : 55 Question Id : 92090613523 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्नलिखित में से कौन सा नियम बताता है कि एक ऐसी प्रक्रिया संभव नहीं है जिसमें एक पृथक प्रणाली की एंट्रॉपी घटती है।

(1) ऊष्मा गतिकी का प्रयम नियम
(2) ऊष्मा गतिकी का द्वितीय नियम
(3) केल्विन – प्लाँक कथन
(4) गिब्स – हेल्महोल्ट्ज नियम

Options :

92090653417. 1

92090653418. 2

92090653419. 3

92090653420. 4

Question Number : 56 Question Id : 92090613524 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

First Brillouin zone of the face-centered cubic latter is _____

(1) a cube
(2) a rhombic dodecahedron
(3) a truncated octahedron
(4) a rhombus

Options :

92090653421. 1

92090653422. 2

92090653423. 3

92090653424. 4

Question Number : 56 Question Id : 92090613524 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

फलक केन्द्रित घनीय जालक का प्रथम ब्रिलियन ज़ोन है ————

(1) एक घन (क्यूब)

(2) एक विषमलम्बाक्ष द्वादशफलक (रोम्बिक डोडेकाहेड्रान)

(3) एक खण्डित अष्टफलक (टर्नकेटेड ऑक्टाहेड्रान)

(4) एक समचतुर्भुज

Options :

92090653421. 1

92090653422. 2

92090653423. 3

92090653424. 4

Question Number : 57 Question Id : 92090613525 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Given below are two statements: One is labelled as Assertion (A) and the other is labelled as Reason (R).

Assertion (A) : Solar cells converts light energy into electrical energy.

Reasons (R) : Solar cells always work in reverse biased condition.

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

(1) Both (A) and (R) are correct and (R) is the correct explanation of (A)

(2) Both (A) and (R) are correct but (R) is NOT the correct explanation of (A)

(3) (A) is correct but (R) is incorrect

(4) (A) is incorrect but (R) is correct

Options :

92090653425. 1

92090653426. 2

92090653427. 3
92090653428. 4

Question Number : 57 Question Id : 92090613525 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं:

कथन I : सौर सेल प्रकाश ऊर्जा को विद्युत ऊर्जा में परिवर्तित करते हैं।

कथन II : सोलर सेल हमेशा विपरीत उत्क्रम अभिनत (रिवर्स बायस्ड) अवस्था में कार्य करता हैं।

उपरोक्त कथन के आलोक में, नीचे दिए गए विकल्पों में से सही उत्तरका चयन कीजिए

(1) कथन I और II दोनों सत्य हैं
(2) कथन I और II दोनों असत्य हैं
(3) कथन I सत्य है, लेकिन कथन II असत्य है
(4) कथन I असत्य है, लेकिन कथन II सत्य है

Options :
92090653425. 1
92090653426. 2
92090653427. 3
92090653428. 4

Question Number : 58 Question Id : 92090613526 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Newton's law of cooling is a special case of:

(1) Stefan's law
(2) Planck's law
(3) Wein's displacement law
(4) Kirchoff's law

Options :
92090653429. 1
92090653430. 2
92090653431. 3
92090653432. 4

Question Number : 58 Question Id : 92090613526 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum

Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

न्यूटन का शीतलन का नियम निम्न में से किस नियम की विशेष स्थिति है?

(1) स्टीफन का नियम
(2) प्लाँक का नियम
(3) वीन का विस्थापन नियम
(4) किरचॉफ का नियम

Options :
92090653429. 1
92090653430. 2
92090653431. 3
92090653432. 4

Question Number : 59 Question Id : 92090613527 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

The unit cell dimension of bcc iron is 2.81 Å. The radius of iron atom is

(1) 1.22 Å
(2) 1.44 Å
(3) 5.22 Å
(4) 6.44 Å

Options :
92090653433. 1
92090653434. 2
92090653435. 3
92090653436. 4

Question Number : 59 Question Id : 92090613527 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

BCC लोहे (आइरन) का इकाई विमा 2.81 Å है। लोहे के परमाणु (एटम) की घत्विक त्रिज्या ज्ञात कीजिए:

(1) 1.22 Å
(2) 1.44 Å
(3) 5.22 Å
(4) 6.44 Å

Options :
92090653433. 1
92090653434. 2
92090653435. 3
92090653436. 4

Question Number : 60 Question Id : 92090613528 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Which of the following solid is held together by Van der Waal forces?

(1) Ionic crystals
(2) Covalent solids
(3) Metallic solids
(4) Moleculer solids

Options :

92090653437. 1

92090653438. 2

92090653439. 3

92090653440. 4

Question Number : 60 Question Id : 92090613528 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्नलिखित में से कौन सा ठोप्स वान्डर वाल बालों द्वारा एक साथ बंधा होता है?

(1) आयनिक क्रिस्टल
(2) सहसंयोजक ठोस
(3) धात्विक ठोस
(4) आणविक ठोस

Options :

92090653437. 1

92090653438. 2

92090653439. 3

92090653440. 4

Question Number : 61 Question Id : 92090613529 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Find the intensity of Magnetization of a steel bar magnet having a magnetic moment of 2.5 Am^2 and mass of 6.6×10^{-3} kg. The density of steel is 7.9×10^{3} kgm^{-3}.

(1) $\approx 3.0 \times 10^{6}$ Am^{-1}
(2) 8.3×10^{-7} m^3
(3) $\approx 3.0 \times 10^{-6}$ Am^{-1}
(4) 8.3×10^{7} m^3

Options :

92090653441. 1

92090653442. 2

92090653443. 3

92090653444. 4

Question Number : 61 Question Id : 92090613529 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

स्टील बार चुम्बक के चुम्बकीकरण की तीव्रता प्राप्त करे जिसका चुम्बकीय आघूर्ण $2.5Am^2$, द्रव्यमान 6.6×10^{-3} kg तथा स्टील का घनत्व $7.9 \times 10^3 kg\ m^{-3}$ है।

(1) $\approx 3.0 \times 10^6\ Am^{-1}$ (2) $8.3 \times 10^{-7}\ m^3$

(3) $\approx 3.0 \times 10^{-6}\ Am^{-1}$ (4) $8.3 \times 10^7\ m^3$

Options :

92090653441. 1

92090653442. 2

92090653443. 3

92090653444. 4

Question Number : 62 Question Id : 92090613530 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Which of the following noble gas atoms has the lowest ionization energy?

(1) Helium (He) (2) Argon (Ar)

(3) Xenon (Xe) (4) Neon (Ne)

Options :

92090653445. 1

92090653446. 2

92090653447. 3

92090653448. 4

Question Number : 62 Question Id : 92090613530 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्न में दिये गये नोबेल गैस परमाणुओं में से किसकी आयनकारी ऊर्जा सब से कम होती है?

(1) हीलियम (He)

(2) आर्गन (Ar)

(3) ज़ेनान (Xe)

(4) नियान (Ne)

Options :

92090653445. 1

92090653446. 2

92090653447. 3

92090653448. 4

Question Number : 63 Question Id : 92090613531 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Which law / theory states that the ratio between thermal and electrical conductivity is constant for all metals?

(1) Free - electron Model

(2) Weidermann – Franz law

(3) Ohm's law

(4) Band theory of solids

Options :

92090653449. 1

92090653450. 2

92090653451. 3

92090653452. 4

Question Number : 63 Question Id : 92090613531 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

कौन सा नियम/सिद्धांत बताता है कि तापीय एवं विद्युत चालकता के बीच का अनुपात सभी धातुओ के लिए नियत होता है?

(1) मुक्त इलेक्ट्रान मॉडल

(2) वाइडर मैन – फ्रांज नियम

(3) ओम का नियम

(4) ठोस पादर्थों का बैण्ड सिद्धांत (बैन्ड थियोरी ऑफ सोलिड)

Options :

92090653449. 1
92090653450. 2
92090653451. 3
92090653452. 4

Question Number : 64 Question Id : 92090613532 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Which of the following elements posseses Diamond crystal structure?

(1) Silicon (Si)
(2) Magnesium (Mg)
(3) Gold (Au)
(4) Silver (Ag)

Options :

92090653453. 1
92090653454. 2
92090653455. 3
92090653456. 4

Question Number : 64 Question Id : 92090613532 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्नलिखित में कौन सा तत्व हीरे की क्रिस्टल संरचना धारण करता है?

(1) सिलिकॉन (Si)
(2) मैगनीशियम (Mg)
(3) सोना (गोल्ड) (Au)
(4) चाँदी (सिल्वर) (Ag)

Options :

92090653453. 1
92090653454. 2
92090653455. 3
92090653456. 4

Question Number : 65 Question Id : 92090613533 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Laser stands for -

(1) Light Amplification by Stimulated Emission of Radiation
(2) Light Amplitude by Stimulated Emission of Radiation
(3) Light Amplification by Stimulated Emission of Rays
(4) Light Amplification by Strong Emission of Radiations

Options :
92090653457. 1
92090653458. 2
92090653459. 3
92090653460. 4

Question Number : 65 Question Id : 92090613533 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

लेज़र का अर्थ है।

(1) विकिरण के उद्दीपित उत्सर्जन द्वारा प्रकाश का प्रवर्धन
(2) विकिरण के उद्दीपित उत्सर्जन द्वारा प्रकाश का आयाम
(3) किरणों के उद्दीपित उत्सर्जन द्वारा प्रकाश का प्रवर्धन
(4) किरण के प्रबल उत्सर्जन द्वारा प्रकाश का प्रवर्धन

Options :
92090653457. 1
92090653458. 2
92090653459. 3
92090653460. 4

Question Number : 66 Question Id : 92090613534 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

A second order phase transistion is one in which

(A) The plot of entropy as a function of temperature shows a discontinunity.

(B) The plot of specific heat as a function of temperature shows a discontinunity.

(C) The plot of volume as a function of pressure shows a discontinunity.

(D) The plot of compressibility as a function of temperature is continuous.

Choose the correct answer from the options given below :

(1) (A) & (B)

(2) (B) & (D)

(3) Only B

(4) Only D

Options :

92090653461. 1

92090653462. 2

92090653463. 3

92090653464. 4

Question Number : 66 Question Id : 92090613534 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

एक द्वितीय अनुक्रम अवस्था अवस्थांतर वह है जिसमें

A. तापमान के फलन के रूप में एन्ट्रॉपी का प्लॉट असांत्यता को दर्शाता है।

B. तापमान के फलन के रूप में विशिष्ट ऊष्मा का प्लॉट असांत्यता को दर्शाता है।

C. दाब के फलन के रूप में आयतन का प्लॉट असांत्यता को दर्शाता है।

D. तापमान के फलन के रूप में संकुचकता का प्लॉट निरंतर होता है।

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए :

(1) A और B

(2) B और D

(3) केवल B

(4) केवल D

Options :

92090653461. 1

92090653462. 2

92090653463. 3

92090653464. 4

Question Number : 67 Question Id : 92090613535 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Given below are two statements: One is labelled as Assertion (A) and the other is labelled as Reason (R).

Assertion A : Gold Nano-particles of size 2 nm, 10 nm and 15 nm possess different colours.

Reasons R : Surface plasmons formed on the surface of the metal nanoparticles of different sizes absorb different wavelengths when exposed to light.

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

(1) Both A and R are correct and R is the correct explanation of A

(2) Both A and R are correct but R is NOT the correct explanation of A

(3) A is correct but R is not correct

(4) A is not correct but R is correct

Options :

92090653465. 1

92090653466. 2

92090653467. 3

92090653468. 4

Question Number : 67 Question Id : 92090613535 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं: एक अभिकथन (Assertion A) के रूप में लिखित है तो दूसरा उसके कारण (Reason R) के रूप में;

अभिकथन A : सोने (गोल्ड) नैने कण के आकार 2 nm, 10 nm एवं 15 nm विभिन्न रंग धारण करता है।

कारण R : भिन्न आकारों के कारण नैनों कणों की सतहों पर बनने वाले सतही प्लाज़मोन भिन्न तरंग दैघ्यों को अवशोषित करते हैं जब उन नैनोकणों को प्रकाशित किया जाता है।

उपरोक्त कथन के आलोक में, नीचे दिए गए विकल्पों में से सबसे उपयुक्त उत्तर का चयन कीजिए

(1) A और R दोनों सही हैं और R, A की सही व्याख्या है

(2) A और R दोनों सही हैं, लेकिन R, A की सही व्याख्या नहीं है

(3) A सही हैं, लेकिन R सही नहीं है

(4) A सही नहीं हैं, लेकिन R सही है

Options :

92090653465. 1

92090653466. 2

92090653467. 3

92090653468. 4

Question Number : 68 Question Id : 92090613536 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Orthorhombic crystal posseses the point groups:

(1) C_3V, S_6, D_3, D_3d

(2) C_4, C_4V, C_4h, S_4, D_4, D_4h, D_2d

(3) C_2V, D_2, D_2h, D_2d

(4) C_2, C_2h, C_1h

Options :

92090653469. 1

92090653470. 2

92090653471. 3

92090653472. 4

Question Number : 68 Question Id : 92090613536 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

आर्थोरोम्बिक क्रिस्टल में बिन्दु समूह होते हैं।

(1) C_3V, S_6, D_3, D_3d

(2) $C_4, C_4V, C_{vh}, S_4, D_4, D_3h, D_2d$

(3) C_2V, D_2, D_2h

(4) C_2, C_2h, C_1h

Options :

92090653469. 1

92090653470. 2

92090653471. 3

92090653472. 4

Question Number : 69 Question Id : 92090613537 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Given below are two statements: One is labelled as Assertion (A) and the other is labelled as Reason (R).

Assertion A : Brillouin Zone is a Wigner Seitz cell in reciprocal space.

Reasons R : A reciprocal lattice can not be devided into zones in the same way as a bravais lattice is divided into Wigner Seitz cells.

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

(1) Both A and R are correct and R is the correct explanation of A

(2) Both A and R are correct but R is NOT the correct explanation of A

(3) A is correct but R is not correct

(4) A is not correct but R is correct

Options :

92090653473. 1

92090653474. 2

92090653475. 3

92090653476. 4

Question Number : 69 Question Id : 92090613537 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं:

कथन I : ब्रिलियन ज़ोन रैसीप्रोकल स्पेस में एक विग्नर सीट्ज़ सेल है।

कथन II : एक रैसीप्रोकल जालक ब्रिलियन ज़ोनों में नहीं बाँटा जा सकता जैसे कि एक ब्रावे जालक विग्नर सीट्ज़ सेलों में बाँटा जा सकता है।

उपरोक्त कथन के आलोक में, नीचे दिए गए विकल्पों में से सही उत्तरका चयन कीजिए

(1) कथन I और II दोनों सत्य हैं

(2) कथन I और II दोनों असत्य हैं

(3) कथन I सत्य है, लेकिन कथन II असत्य है

(4) कथन I असत्य है, लेकिन कथन II सत्य है

Options :

92090653473. 1

92090653474. 2

92090653475. 3

92090653476. 4

Question Number : 70 Question Id : 92090613538 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Identify the crystal which does not show Zinc blende structure?

(1) CuCl (2) AgI

(3) BeTe (4) BaTe

Options :

92090653477. 1

92090653478. 2

92090653479. 3

92090653480. 4

Question Number : 70 Question Id : 92090613538 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

उस क्रिस्टल की पहचाल करें जो जिंक ब्लेंड (zinc blende) संरचना दिखाता है।

(1) CuCl (2) AgI

(3) BeTe (4) BaTe

Options :

92090653477. 1

92090653478. 2

92090653479. 3

92090653480. 4

Question Number : 71 Question Id : 92090613539 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Given below are two statements : One is labelled as Assertion (A) and the other is labelled as Reason (R).

Assertion A : An increase in the entropy of a system can be described as an increase in the disorder of the system.

Reasons R : Entropy is a measure of unavailable energy.

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

(1) Both (A) and (R) are true and R is the correct explanation of A

(2) Both (A) and (R) are true but R is NOT the correct explanation of A

(3) A is true but R is false

(4) A is false but R is true

Options :

92090653481. 1

92090653482. 2

92090653483. 3

92090653484. 4

Question Number : 71 Question Id : 92090613539 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं:

कथन I : एक प्रणाली की एन्ट्रापी में वृद्धि को प्रणाली के विकार में वृद्धि के रूप में वर्णित किया जा सकता है।

कथन II : एन्ट्रॉपी अनुपलब्द ऊर्जा की एक माप है।

उपरोक्त कथन के आलोक में, नीचे दिए गए विकल्पों में से सही उत्तरका चयन कीजिए

(1) कथन I और II दोनों सत्य हैं

(2) कथन I और II दोनों असत्य हैं

(3) कथन I सत्य है, लेकिन कथन II असत्य है

(4) कथन I असत्य है, लेकिन कथन II सत्य है

Options :

92090653481. 1

92090653482. 2

92090653483. 3

92090653484. 4

Question Number : 72 Question Id : 92090613540 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Given below are two statements : One is labelled as Assertion (A) and the other is labelled as Reason (R).

Assertion A : The effective mass of an electron moving in a crystal depends on the shape of the E – k curve and given by :

$$m^* = \frac{\hbar^2}{\left(\frac{d^2E}{dk^2}\right)}$$

Reasons R : An electron in a crystal interacts with the potential of the crystal and its response towards the external force is different from that of a free electron.

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

(1) Both (A) and (R) are true and (R) is the correct explanation of (A)

(2) Both (A) and (R) are true but (R) is NOT the correct explanation of (A)

(3) (A) is true but (R) is false

(4) (A) is false but (R) is true

Options :

92090653485. 1
92090653486. 2
92090653487. 3
92090653488. 4

Question Number : 72 Question Id : 92090613540 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं:

कथन I : एक क्रिस्टल में गतिमान इलेक्ट्रान का प्रभावी द्रव्यमान $E - k$ वक्र के आकार पर निर्भर करता है, और इसके द्वारा दिया गया है।

$$m^* = \frac{\hbar^2}{\left(\frac{d^2E}{dk^2}\right)}$$

कथन II : एक क्रिस्टल में एक इलेक्ट्रान क्रिस्टल के विभव के साथ अन्योन्य क्रिया करता है और एक बाह्य बल की तरफ उसकी अनुक्रिया एक मुक्त इलेक्ट्रॉन की तुलना में भिन्न होती है।

उपरोक्त कथन के आलोक में, नीचे दिए गए विकल्पों में से सही उत्तरका चयन कीजिए

(1) कथन I और II दोनों सत्य हैं

(2) कथन I और II दोनों असत्य हैं

(3) कथन I सत्य है, लेकिन कथन II असत्य है

(4) कथन I असत्य है, लेकिन कथन II सत्य है

Options :

92090653485. 1

92090653486. 2

92090653487. 3

92090653488. 4

Question Number : 73 Question Id : 92090613541 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Choose the correct differction condition in terms of Reciprocal lattice vector

(1) $2\vec{K}\cdot\vec{K}+G^2=0$

(2) $2\vec{K}\cdot\vec{G}+G^2=0$

(3) $2\vec{K}\cdot\vec{G}+K^2=0$

(4) $2\vec{K}\cdot\vec{G}-G^2=0$

Options :

92090653489. 1

92090653490. 2

92090653491. 3

92090653492. 4

Question Number : 73 Question Id : 92090613541 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

रैसीप्रोकल जालक सदिश के संदर्भ में विवर्तन की सही शर्त चुनें।

(1) $2\vec{K}\cdot\vec{K}+G^2=0$

(2) $2\vec{K}\cdot\vec{G}+G^2=0$

(3) $2\vec{K}\cdot\vec{G}+K^2=0$

(4) $2\vec{K}\cdot\vec{G}-G^2=0$

Options :

92090653489. 1

92090653490. 2

92090653491. 3

92090653492. 4

Question Number : 74 Question Id : 92090613542 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Which of the following represents monoclinic crystal system:

(1) $a=b=c,\propto=\beta=\gamma=90^{\circ}$

(2) $a\neq b=c,\propto=\beta=90^{\circ},\gamma=120^{\circ}$

(3) $a\neq b\neq c,\propto=\beta=90^{\circ},\neq\gamma$

(4) $a=b\neq c,\ \alpha=\beta=120^{\circ}\neq\gamma$

Options :

92090653493. 1

92090653494. 2

92090653495. 3

92090653496. 4

Question Number : 74 Question Id : 92090613542 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

मोनोक्लिनिक क्रिस्टल सिस्टम के लिए।

(1) $a=b=c,\propto=\beta=\gamma=90^{\circ}$

(2) $a\neq b=c,\propto=\beta=90^{\circ},\gamma=120^{\circ}$

(3) $a\neq b\neq c,\propto=\beta=90^{\circ},\neq\gamma$

(4) $a=b\neq c,\ \alpha=\beta=120^{\circ}\neq\gamma$

Options :

92090653493. 1
92090653494. 2
92090653495. 3
92090653496. 4

Question Number : 75 Question Id : 92090613543 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Which option correctly represents the relation between three elastic moduli, i,e., Young's Modulus (Y), Bulk modulus (B) and shear modulus (η) and Poisson's ratio (σ).

(1) $Y=\eta(1+2\sigma), Y=B(3-2\sigma)$ (2) $Y=2\eta(1+\sigma), Y=3B(3-2\sigma)$

(3) $Y=2\eta(1-\sigma), Y=3B(1+2\sigma)$ (4) $Y=\eta(2+\sigma), Y=B(3-2\sigma)$

Options :

92090653497. 1
92090653498. 2
92090653499. 3
92090653500. 4

Question Number : 75 Question Id : 92090613543 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

कौन सा विकल्प ठीक प्रकार से प्रत्यास्थता गुणाँकों जैसे कि यंग के प्रत्यास्थाता गुणाँक (Y), आयतन प्रत्यास्थता गुणाँक (B), अपरूपण प्रत्यास्था गुणाँक (η) और पॉइसन के अनुपात (σ) के बीच संबंध का प्रतिनिधित्व करता है।

(1) $Y=\eta(1+2\sigma), Y=B(3-2\sigma)$ (2) $Y=2\eta(1+\sigma), Y=3B(3-2\sigma)$

(3) $Y=2\eta(1-\sigma), Y=3B(1+2\sigma)$ (4) $Y=\eta(2+\sigma), Y=B(3-2\sigma)$

Options :

92090653497. 1
92090653498. 2
92090653499. 3
92090653500. 4

Question Number : 76 Question Id : 92090613544 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

If a light is incident normally on the interface separating two media (having different refractive indices); What will be the change in the path of light?

(1) It will bend towards the normal.

(2) It will bend away from the normal.

(3) It is will go undeviated.

(4) It will bounce back and retrace its path.

Options :

92090653501. 1

92090653502. 2

92090653503. 3

92090653504. 4

Question Number : 76 Question Id : 92090613544 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

यदि एक प्रकाश समान्यतः दो माध्यमों को पृथक करने वाले अंतराफलक (इंटरफेस) पर आपतित होता है (विभिन्न अपवर्तनांक होते हैं); प्रकाश के पथ में क्या परिवर्तन होगा?

(1) यह लम्ब की और झुकेगा

(2) यह लम्ब से दूर झुकेगा

(3) यह अविचलित ही निकसित हो जाएगा

(4) यह पीछे की ओर जायेगा और अपना रास्ता वापस लेगा

Options :

92090653501. 1

92090653502. 2

92090653503. 3

92090653504. 4

Question Number : 77 Question Id : 92090613545 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Which is correct for all ideal gases

(1) C_V is a function of T only

(2) C_P is a function of T only, and is greater than C_V

(3) $C_P - C_v$ is not a function of T, but equal to R.

(4) The ratio $\frac{C_P}{C_V} = \gamma$ is a function of T only, and is greater than 1.

Choose the correct answer from the options given below :

(1) (A) and (B)

(2) (A) and (C)

(3) (C) and (D)

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

Options :

92090653505. 1

92090653506. 2

92090653507. 3

92090653508. 4

Question Number : 77 Question Id : 92090613545 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

जो सभी आदर्श गैसों के लिए सही है।

A. C_V केवल T का फलन है।

B. C_P केवल T का एक फलन है, और C_V बड़ा है।

C. $C_P - C_V$, T का फलन नहीं है, लेकिन R के बराबर है।

D. $\frac{C_P}{C_V} = \gamma$ का अनुपात केवल T का एक फलन है, और 1 से बड़ा है।

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए :

(1) A और B

(2) A और C

(3) C और D

(4) A, B, C और D

Options :

92090653505. 1

92090653506. 2
92090653507. 3
92090653508. 4

Question Number : 78 Question Id : 92090613546 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

For ideal liquids, the modulus of rigidity is

(1) infinity
(2) finite non zero
(3) unity
(4) zero

Options :

92090653509. 1
92090653510. 2
92090653511. 3
92090653512. 4

Question Number : 78 Question Id : 92090613546 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

आदर्श द्रव्यों के लिए, दृढ़ता गुणाँक है:

(1) असीमित
(2) परिमित गैर शून्य
(3) इकाई
(4) शून्य

Options :

92090653509. 1
92090653510. 2
92090653511. 3
92090653512. 4

Question Number : 79 Question Id : 92090613547 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

According to Wiedemann - Franz – Lorentz law, which of the following represents the correct relationship between thermal conductivity (K_e) and electrical condirectivity (σ) in a solid (where : k is Boltzmann constant, e is electronic charge, T is Temperature)

(A) $\frac{K_e}{\sigma} = \left(\frac{\pi^2 k^2}{3e^2}\right) T^2$

(B) $\frac{K_e}{\sigma} = \left(\frac{\pi^2 k^2}{3e^2}\right) T$

(C) $\frac{K_e}{T^2} = \left(\frac{\pi^2 k^2}{3e^2}\right) \sigma$

(D) $\frac{K_e \sigma}{\sqrt{T}} = \left(\frac{\pi^2 k}{3e^2}\right)$

(E) $\frac{K_e}{T} = \left(\frac{\pi^2 k^2}{3e^2}\right) \sigma$

Choose the correct answer from the options given below :

(1) (B) and (E)

(2) (A) and (B)

(3) (C) and (D)

(4) (D) and (A)

Options :

92090653513. 1

92090653514. 2

92090653515. 3

92090653516. 4

Question Number : 79 Question Id : 92090613547 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

विडेमैन-फ्रांज-लोरेंत्ज़ के नियमानुसार, निम्नलिखित में से कौन सा एक ठोस में तापीय चालकता (K_e) और विद्युत चालकता (σ) के बीच सही संबंध का प्रतिनिधित्व करता हैं। (जहाँ k = बोल्ट्जमैन स्थिरांक, e = इलेक्ट्रानिक आवेश, T = तापमान)

(A) $\frac{K_e}{\sigma} = \left(\frac{\pi^2 k^2}{3e^2}\right) T^2$

(B) $\frac{K_e}{\sigma} = \left(\frac{\pi^2 k^2}{3e^2}\right) T$

(C) $\frac{K_e}{T^2} = \left(\frac{\pi^2 k^2}{3e^2}\right) \sigma$

(D) $\frac{K_e \sigma}{\sqrt{T}} = \left(\frac{\pi^2 k}{3e^2}\right)$

(E) $\frac{K_e}{T} = \left(\frac{\pi^2 k^2}{3e^2}\right) \sigma$

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए :

(1) केवल B और E

(2) केवल A और B

(3) केवल C और D

(4) केवल D और A

Options :

92090653513. 1

92090653514. 2

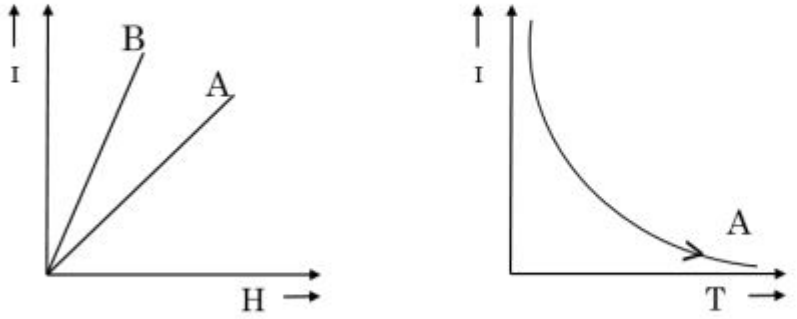
92090653515. 3

92090653516. 4

Question Number : 80 Question Id : 92090613548 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Figure shows variation of intensity of magnetisations (I) versus the applied magnetic field (H) of two materials A and B. Identify materials A and B respectively.

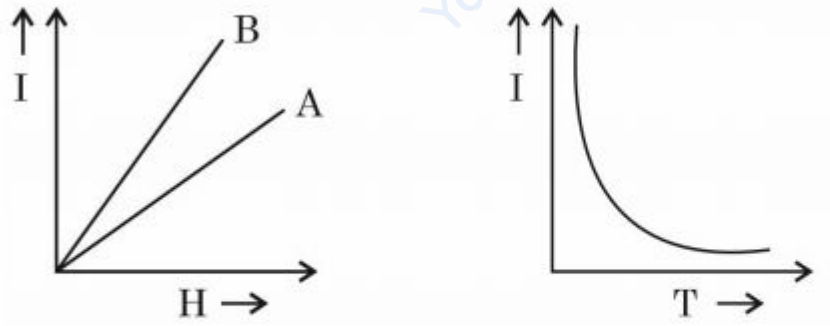


(1) Diamagnetic and Ferromagnetic (2) Paramagnetic and Diamagnetic
(3) Paramagnetic and Ferromagnetic (4) Diamagnetic and Paramagnetic

Options :
92090653517. 1
92090653518. 2
92090653519. 3
92090653520. 4

Question Number : 80 Question Id : 92090613548 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

रेखा चित्र दो पदार्थों A तथा B पर लागू चुबंकीय क्षेत्र तीव्रता (H) की तुलना में चुबंकत्व (I) की तीव्रता में बदलाव को दिखता है।



पदार्थ A और B की पहचा करे

(1) प्रति चुंबकीय तथा लौह - चुंबकीय (2) परम चुंबकीय तथा प्रति चुंबकीय
(3) परम चुंबकीय तथा लौह - चुंबकीय (4) प्रति चुंबकीय तथा परम चुंबकीय

Options :
92090653517. 1
92090653518. 2

92090653519. 3
92090653520. 4

Question Number : 81 Question Id : 92090613549 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Given below are two statements :

Statement I : Internal energy of a Fermi gas at a given temperature decreases as the volume increases.

Statement II : Internal energy of any system remains unchanged during free expansion.

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

(1) Both Statement I and Statement II are correct
(2) Both Statement I and Statement II are incorrect
(3) Statement I is correct but Statement II is incorrect
(4) Statement I is incorrect but Statement II is correct

Options :

92090653521. 1
92090653522. 2
92090653523. 3
92090653524. 4

Question Number : 81 Question Id : 92090613549 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं:

कथन I : दिए गए तापमान पर फर्मी गैस का आंतरिक तापमान आयतन बढ़ाने पर घटता है।

कथन II : मुक्त विस्तार के दौरान किसी भी व्यवस्था/प्रणाली की आंतरिक ऊर्जा अपरिवर्तित रहती है।

उपरोक्त कथन के आलोक में, नीचे दिए गए विकल्पों में से सही उत्तरका चयन कीजिए

(1) कथन I और II दोनों सत्य हैं

(2) कथन I और II दोनों असत्य हैं

(3) कथन I सत्य है, लेकिन कथन II असत्य है

(4) कथन I असत्य है, लेकिन कथन II सत्य है

Options :

92090653521. 1

92090653522. 2

92090653523. 3

92090653524. 4

Question Number : 82 Question Id : 92090613550 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Given below are two statements :

Statement I : A particle whose energy is less than the potential barrier may still tunnel through it.

Statement II : Wider the potential barrier more the chance that a quantum particle can get through it.

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

(1) Both Statement I and Statement II are true

(2) Both Statement I and Statement II are false

(3) Statement I is true but Statement II is false

(4) Statement I is false but Statement II is true

Options :

92090653525. 1

92090653526. 2

92090653527. 3

92090653528. 4

Question Number : 82 Question Id : 92090613550 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं:

कथन I : एक कण जिसकी ऊर्जा विभव अवरोध से कम है, वह अमी भी इसके माध्यम से अंतरातंत्र लंघन (टनल) कर सकता है।

कथन II : विभव अवरोध जितना अधिक होगा, कण के गुजरने की संभावना उतनी ही अधिक होगी।

उपरोक्त कथन के आलोक में, नीचे दिए गए विकल्पों में से सही उत्तरका चयन कीजिए

(1) कथन I और II दोनों सत्य हैं

(2) कथन I और II दोनों असत्य हैं

(3) कथन I सत्य है, लेकिन कथन II असत्य है

(4) कथन I असत्य है, लेकिन कथन II सत्य है

Options :

92090653525. 1

92090653526. 2

92090653527. 3

92090653528. 4

Question Number : 83 Question Id : 92090613551 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Given below are two statements :

Statement I : X-rays are used for determination of crystal structure based on Bragg's law.

Statement II : Particle nature of X-rays is used in the determination of crystal structure.

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

(1) Both Statement I and Statement II are true

(2) Both Statement I and Statement II are false

(3) Statement I is true but Statement II is false

(4) Statement I is false but Statement II is true

Options :

92090653529. 1
92090653530. 2
92090653531. 3
92090653532. 4

Question Number : 83 Question Id : 92090613551 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं:

कथन I : ब्रैग्स के नियम के आधार पर क्रिस्टल संरचना के निर्धारण के लिए X–किरणों का उपयोग किया जाता है।

कथन II : X–किरणों के कण की प्रवृति का उपयोग क्रिस्टल संरचना के निर्धारण के लिए किया जाता है।

उपरोक्त कथन के आलोक में, नीचे दिए गए विकल्पों में से सही उत्तरका चयन कीजिए

(1) कथन I और II दोनों सत्य हैं

(2) कथन I और II दोनों असत्य हैं

(3) कथन I सत्य है, लेकिन कथन II असत्य है

(4) कथन I असत्य है, लेकिन कथन II सत्य है

Options :

92090653529. 1

92090653530. 2

92090653531. 3

92090653532. 4

Question Number : 84 Question Id : 92090613552 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Given below are two statements :

Statement I : In free electron approximation, electron-ion interactions are neglected.

Statement II : Free electron approximation successfully explains the non-spherical shape of Fermi surface.

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

(1) Both Statement I and Statement II are true

(2) Both Statement I and Statement II are false

(3) Statement I is true but Statement II is false

(4) Statement I is false but Statement II is true

Options :

92090653533. 1
92090653534. 2
92090653535. 3
92090653536. 4

Question Number : 84 Question Id : 92090613552 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं:

कथन I : मुक्त इलेक्ट्रॉन सन्निकटन में, इलेक्ट्रॉन आयन अन्योन्य क्रिया की उपेक्षा की जाती है।

कथन II : मुक्त इलेक्ट्रान सन्निकरण फ़र्मी सतह की अगोलीय संरचना की सफलतापूर्वक व्याख्या करता है।

उपरोक्त कथन के आलोक में, नीचे दिए गए विकल्पों में से सही उत्तरका चयन कीजिए

(1) कथन I और II दोनों सत्य हैं

(2) कथन I और II दोनों असत्य हैं

(3) कथन I सत्य है, लेकिन कथन II असत्य है

(4) कथन I असत्य है, लेकिन कथन II सत्य है

Options :

92090653533. 1

92090653534. 2

92090653535. 3

92090653536. 4

Question Number : 85 Question Id : 92090613553 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Given below are two statements :

Statement I : When the dimensions of a bulk materials is reduced to nanometer scale it results in depression of its melting point.

Statement II : When the dimensions of a bulk material is reduced to nanometer scale it result in blue shift of the absorption edge of its UV-visible spectrum.

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

(1) Both Statement I and Statement II are correct

(2) Both Statement I and Statement II are incorrect

(3) Statement I is correct but Statement II is incorrect

(4) Statement I is incorrect but Statement II is correct

Options :

92090653537. 1

92090653538. 2

92090653539. 3

92090653540. 4

Question Number : 85 Question Id : 92090613553 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं:

कथन I : जब एक बड़े पदार्थ के आकार को नैनो मीटर पैमाने तक कम/छोटा किया जाता है, तो इसके परिणाम स्वरूप इसके गलनांक में कमी होती है।

कथन II : जब एक बड़े पदार्थ के आकार को नैनोमीटर पैमाने तक कम/छोटा किया जाता है, तो इसके परिणाम स्वरूप इसके यू.वी. विजिबल स्पैक्ट्रैम अवशोषण किनारा ब्लू शिफ्ट होता है।

उपरोक्त कथन के आलोक में, नीचे दिए गए विकल्पों में से सही उत्तरका चयन कीजिए

(1) कथन I और II दोनों सत्य हैं

(2) कथन I और II दोनों असत्य हैं

(3) कथन I सत्य है, लेकिन कथन II असत्य है

(4) कथन I असत्य है, लेकिन कथन II सत्य है

Options :

92090653537. 1

92090653538. 2

92090653539. 3

92090653540. 4

Question Number : 86 Question Id : 92090613554 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Given below are two statements :

Statement I : When size of a conductor is made less than its mean free path, the charge transport shifts towards ballestic regime.

Statement II : When size of a conductor is made less than its mean free path, the charge transport shifts towards diffusive regime.

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

(1) Both Statement I and Statement II are true

(2) Both Statement I and Statement II are false

(3) Statement I is true but Statement II is false

(4) Statement I is false but Statement II is true

Options :
92090653541. 1
92090653542. 2
92090653543. 3
92090653544. 4

Question Number : 86 Question Id : 92090613554 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं:

कथन I : जब एक चालक के आकार को उसके मीन फ्री पाथ से छोटा कर दिया जाता है तो विद्युत परिवहन बैलिस्टिक परिवहन प्रणाली की तरफ खिसक जाता है।

कथन II : जब एक चालक के आकार को उसके मीन फ्री पाथ से छोटा किया जाता है तो उसका विद्युत परिवहन विसरण परिवहन प्रणाली की तरह खिसक जाता है।

उपरोक्त कथन के आलोक में, नीचे दिए गए विकल्पों में से सही उत्तरका चयन कीजिए

(1) कथन I और II दोनों सत्य हैं

(2) कथन I और II दोनों असत्य हैं

(3) कथन I सत्य है, लेकिन कथन II असत्य है

(4) कथन I असत्य है, लेकिन कथन II सत्य है

Options :

92090653541. 1

92090653542. 2

92090653543. 3

92090653544. 4

Question Number : 87 Question Id : 92090613555 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The Clausius Clapeyron Equation is

(1) $\frac{dP}{dT}=\frac{L}{T(V_2-V_1)}$

(2) $\frac{dP}{dT}=\frac{L}{L(V_2-V_1)}$

(3) $\frac{dP}{dT}=TL(V_2-V_1)$

(4) $\frac{dT}{dP}=\frac{L}{T(V_2-V_1)}$

Options :

92090653545. 1

92090653546. 2

92090653547. 3

92090653548. 4

Question Number : 87 Question Id : 92090613555 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

वन्लॉसियस क्लैपेरान समीकरण है।

(1) $\frac{dP}{dT} = \frac{L}{T(V_2 - V_1)}$

(2) $\frac{dP}{dT} = \frac{L}{L(V_2 - V_1)}$

(3) $\frac{dP}{dT} = TL(V_2 - V_1)$

(4) $\frac{dT}{dP} = \frac{L}{T(V_2 - V_1)}$

Options :

92090653545. 1

92090653546. 2

92090653547. 3

92090653548. 4

Question Number : 88 Question Id : 92090613556 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Identify the correct statements:

(A) Light-Emitting Diode (LED) works under Forward biased condition.

(B) Light-Emitting Diode (LED) emits photons when electron hole recombination occurs.

(C) LED works under reverse – biased condition.

(D) The process that occurs in LED is reversed in a solar cell.

Choose the correct answer from the options given below :

(1) (B), (C) and (D) Only

(2) (A) and (B) Only

(3) (A), (B) and (D) Only

(4) (C) and (D) Only

Options :

92090653549. 1

92090653550. 2

92090653551. 3

92090653552. 4

Question Number : 88 Question Id : 92090613556 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

सही कथनों को पहचानिये ।

प्रकाश-उत्सर्जक-डायोड (एल ई डी) अग्र अभिनत स्थिति में कार्य करता है।

A. प्रकाश-उत्सर्जक-डायोड (एल ई डी) अग्रिम पक्षपाती स्थिति के तहत कार्य करता है।

B. प्रकाश-उत्सर्जक-डायोड (एल ई डी) इलेक्ट्रॉन-रंध्र पुनर्संयोजन होने पर प्रकाशाणु (फोटॉन) उत्सर्जन करता है।

C. प्रकाश-उत्सर्जक-डायोड (एल ई डी) उत्क्रम अभिनत स्थिति के तहत कार्य करता है।

D. एल ई डी में होने वाली प्रक्रिया और सेल में उल्ट जाती है।

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए :

(1) केवल B, C और D

(2) केवल A और B

(3) केवल A, B और D

(4) केवल C और D

Options :

92090653549. 1

92090653550. 2

92090653551. 3

92090653552. 4

Question Number : 89 Question Id : 92090613557 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Spring Force (Hook's law) is given by

$$\vec{F} = -K\vec{d}$$

(A) Hook's law is a linear relationship between force is a variable force.

(B) Spring force is a variable force.

(C) If spring is stretched toward positive x – axis then force is negative.

(D) If spring is compressed towards negative x – axis then force is positive.

Choose the correct answer from the options given below :

(1) (A) and (C) Only

(2) (A) and (D) Only

(3) (A), (B) and (C) Only

(4) (A), (B), (C) and (D) Only

Options :

92090653553. 1
92090653554. 2
92090653555. 3
92090653556. 4

Question Number : 89 Question Id : 92090613557 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

स्प्रिंग बल (हुक का नियम) द्वारा दिया जाता है।

$$\vec{F} = -K\vec{d}$$

A. हुक का नियम बल और विस्थापन के बीच एक रैखिक संबंध है।

B. स्प्रिंगबल चर बल है।

C. यदि स्पिंग को धनात्मक X–अक्ष की ओर खींचा जाता है तो बल ऋणात्मक होता है।

D. यदि स्प्रिंग ऋणात्मक X–अक्ष की ओर संकुचित होता है तो बल धनात्मक होता है।

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए :

(1) केवल A और C

(2) केवल A और D

(3) केवल A, B और C

(4) केवल A, B, C और D

Options :

92090653553. 1
92090653554. 2
92090653555. 3
92090653556. 4

Question Number : 90 Question Id : 92090613558 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Which of the following statements are correct in the case of Scanning Tunneling Microscope (STM).

(A) Invented by Gert Binning and Henrich Rohrer

(B) Used to study surfaces on atomic scale

(C) Based on Tunnelling phenomenon

(D) Invented by Ernst Ruska

(E) Electrons can tunnel only if gap is of micro dimensions

Choose the correct answer from the options given below :

(1) (B), (C) and (D) Only

(2) (B), (C) and (E) Only

(3) (C) and (D) Only

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

Options :

92090653557. 1

92090653558. 2

92090653559. 3

92090653560. 4

Question Number : 90 Question Id : 92090613558 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

स्कैनिंग टनलिंग माइक्रोस्कोप (एस टी एम/STM) के बारे में सही कथन है?

A. गर्ड बिनिग और हेनरिक रोहरर द्वारा अविष्कार किया गया

B. परमाणु पैमाने पर सतहों का अध्ययन करने के लिए उपयोग किया जाता है।

C. अंतरातंत्र लंघन (टनलिंग) घटना पर आधारित है।

D. परमाणु तभी अंतरातंत्र लांघ (टनल) सकता है, जब माइक्रो पैमाने में हो।

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए :

(1) केवल B, C और D

(2) केवल B, C और E

(3) केवल C और D

(4) केवल A, B और C

Options :

92090653557. 1

92090653558. 2

92090653559. 3
92090653560. 4

Question Number : 91 Question Id : 92090613559 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Which of the following is/are incorrect about Fermi-Dirac distribution function?

(A) It gives the probability that an orbital is occupied at any energy E in an ideal electron gas in thermal equilibrium.

(B) $f(E)=\frac{1}{exp\left[(E+\mu)/K_BT\right]-1}$

(C) In expression of $f(E)$, μ is independent of temperature.

(D) At all temperatures, $f(E)$ is equal to ½ when $E=\mu$

Choose the correct answer from the options given below :

(1) (A) and (C) only

(2) (B) and (C) only

(3) (B) and (D) only

(4) (B) only

Options :

92090653561. 1
92090653562. 2
92090653563. 3
92090653564. 4

Question Number : 91 Question Id : 92090613559 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्नलिखित में से कौन सा फर्मी-डिराक वितरण फलन के बारे में गलत है।

A. यह ऊष्मीय साम्यवस्था में एक आदर्श इलेक्ट्रान गैस में किसी ऊर्जा (E) पर एक आर्बिटल के अधिवासित होने की प्राथमिकता को बताता है।

B. $f(E)=\frac{1}{exp\left[(E+\mu)/K_BT\right]-1}$

C. $f(E)$ की अभिव्यक्ति में, μ तापमान से स्वतन्त्र है।

D. समी तापमानों पर, $f(E)$ ½ के बराबर है तो जब $E=\mu$

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए :

(1) केवल A और C

(2) केवल B और C

(3) केवल B और D

(4) केवल B

Options :

92090653561. 1

92090653562. 2

92090653563. 3

92090653564. 4

Question Number : 92 Question Id : 92090613560 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Which of the following is not a nanomaterial

(A) Graphene

(B) Carbon nanotubes

(C) Graphite

(D) Fullerene

Choose the correct answer from the options given below :

(1) (B) only

(2) (D) only

(3) (A) only

(4) (C) only

Options :

92090653565. 1

92090653566. 2
92090653567. 3
92090653568. 4

Question Number : 92 Question Id : 92090613560 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

निम्नलिखित में से कौन सा एक नैनों पदार्थ नहीं है?

A. ग्राफीन

B. कार्ब नैनोटयूब

C. ग्रफाइट

D. फुलरीन

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए :

(1) केवल B

(2) केवल D

(3) केवल A

(4) केवल C

Options :
92090653565. 1
92090653566. 2
92090653567. 3
92090653568. 4

Question Number : 93 Question Id : 92090613561 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Free electron theory predicts a constant value of Hall coefficient i.e. $R_H = -\frac{1}{nec}$.

Identify the incorrect statement regarding Hall coefficient (R_H)

(1) R_H is independent of temperature

(2) R_H is independent of pressure

(3) R_H is independent of relaxation time

(4) R_H is independent of the strength of magnetic field

Options :

92090653569. 1
92090653570. 2
92090653571. 3
92090653572. 4

Question Number : 93 Question Id : 92090613561 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

मुक्त इलेक्ट्रॉन सिद्धांत हॉल गुणांक के एक स्थिर मूल्य का पूर्वानुमान करता है, जोकि $R_H = -\frac{1}{nec}$

(1) R_H तापमान से स्वतंत्र है

(2) R_H दाब से स्वतंत्र है

(3) R_H विश्रांति समय से स्वतंत्र है

(4) R_H चुंबकीय क्षेत्र की तीव्रता से स्वतंत्र है

Options :

92090653569. 1
92090653570. 2
92090653571. 3
92090653572. 4

Question Number : 94 Question Id : 92090613562 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Match List I with List II :

	List I		List II
(A)	Ionic Bond	(I)	Electron gas
(B)	Covalent Bond	(II)	Electric attraction
(C)	Molecular Bond	(III)	Vander Waal forces
(D)	Metallic Bond	(IV)	Shared electrons

Choose the correct answer from the options given below:

(1) (A)-(I), (B)-(IV), (C)-(III), (D)-(II)

(2) (A)-(I), (B)-(III), (C)-(IV), (D)-(II)

(3) (A)-(II), (B)-(IV), (C)-(I), (D)-(III)

(4) (A)-(II), (B)-(IV), (C)-(III), (D)-(I)

Options :

92090653573. 1
92090653574. 2
92090653575. 3

92090653576. 4

Question Number : 94 Question Id : 92090613562 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

सूची I के साथ सूची II का मिलान कीजिए

	सूची-I		सूची –II
(A)	आयनिक बंध	(I)	इलेक्ट्रॉन गैस
(B)	सह संयोजक बंध	(II)	विद्युत आकर्षण
(C)	आणविक बंध	(III)	वांडर वॉल बल
(D)	धात्विक बंध	(IV)	सॉक्षा इलेक्ट्रॉन

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए:

(1) (A)-(I), (B)-(IV), (C)-(III), (D)-(II)

(2) (A)-(I), (B)-(III), (C)-(IV), (D)-(II)

(3) (A)-(II), (B)-(IV), (C)-(I), (D)-(III)

(4) (A)-(II), (B)-(IV), (C)-(III), (D)-(I)

Options :

92090653573. 1

92090653574. 2

92090653575. 3

92090653576. 4

Question Number : 95 Question Id : 92090613563 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Match List I with List II :

List I (Crystal structure of the soild)		List II (Packing fraction)	
(A)	sc	(I)	74%
(B)	bcc	(II)	68%
(C)	fcc	(III)	52%
(D)	Diamond structure	(IV)	34%

Choose the correct answer from the options given below:

(1) (A)-(III), (B)-(IV), (C)-(II), (D)-(I)
(2) (A)-(III), (B)-(II), (C)-(I), (D)-(IV)
(3) (A)-(III), (B)-(IV), (C)-(II), (D)-(I)
(4) (A)-(I), (B)-(II), (C)-(IV), (D)-(III)

Options :
92090653577. 1
92090653578. 2
92090653579. 3
92090653580. 4

Question Number : 95 Question Id : 92090613563 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

सूची I के साथ सूची II का मिलान कीजिए

सूची-I (ठोस की क्रिस्टल संरचना)		सूची –II (पैंकिंग अंश)	
(A)	sc	(I)	74%
(B)	bcc	(II)	68%
(C)	fcc	(III)	52%
(D)	डायमण्ड संरचन	(IV)	34%

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए:

(1) (A)-(III), (B)-(IV), (C)-(II), (D)-(II)
(2) (A)-(III), (B)-(II), (C)-(I), (D)-(IV)
(3) (A)-(III), (B)-(IV), (C)-(II), (D)-(I)
(4) (A)-(I), (B)-(II), (C)-(IV), (D)-(III)

Options :

92090653577. 1
92090653578. 2
92090653579. 3
92090653580. 4

Question Number : 96 Question Id : 92090613564 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Match List I with List II :

	List I		List II
(A)	Ionic Bonding	(I)	Argon
(B)	Covalent Bonding	(II)	HF
(C)	Hydrogen Bonding	(III)	NaCl
(D)	Vander Waals interaction	(IV)	Diamond

Choose the correct answer from the options given below:

(1) (A)-(I), (B)-(II), (C)-(III), (D)-(IV)
(2) (A)-(III), (B)-(IV), (C)-(II), (D)-(I)
(3) (A)-(III), (B)-(IV), (C)-(I), (D)-(II)
(4) (A)-(I), (B)-(II), (C)-(IV), (D)-(III)

Options :

92090653581. 1
92090653582. 2
92090653583. 3
92090653584. 4

Question Number : 96 Question Id : 92090613564 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

सूची I के साथ सूची II का मिलान कीजिए

	सूची-I		सूची –II
(A)	आयनिक बंध	(I)	आर्गन
(B)	सह संयोजक बंध	(II)	HF
(C)	हाइड्रोजन बंध	(III)	NaCl
(D)	वांडर वॉल अन्योन्यक्रिया	(IV)	डामंड

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए:

(1) (A)-(I), (B)-(II), (C)-(III), (D)-(IV)

(2) (A)-(III), (B)-(IV), (C)-(II), (D)-(I)

(3) (A)-(III), (B)-(IV), (C)-(I), (D)-(II)

(4) (A)-(I), (B)-(II), (C)-(IV), (D)-(III)

Options :

92090653581. 1

92090653582. 2

92090653583. 3

92090653584. 4

Question Number : 97 Question Id : 92090613565 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Match List I with List II :

	List I		List II
(A)	Meissner effect	(I)	Broadening of spectral lines
(B)	Twin paradox	(II)	Perfect dimagnetism
(C)	Wave-particle duality	(III)	Theory of relativity
(D)	Heisenberg's uncertainity principle	(IV)	De Broglie Hypothesis

Choose the correct answer from the options given below:

(1) (A)-(III), (B)-(II), (C)-(IV), (D)-(I)

(2) (A)-(II), (B)-(III), (C)-(IV), (D)-(I)

(3) (A)-(I), (B)-(II), (C)-(III), (D)-(IV)

(4) (A)-(II), (B)-(IV), (C)-(III), (D)-(I)

Options :

92090653585. 1

92090653586. 2
92090653587. 3
92090653588. 4

Question Number : 97 Question Id : 92090613565 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

सूची I के साथ सूची II का मिलान कीजिए

	सूची-I		सूची –II
(A)	मीस्नर प्रभाव	(I)	वर्ण क्रमीय रेखाओं का फैलाव
(B)	ट्विन विरोधाभास	(II)	पूर्ण प्रतिचुंबकीय
(C)	तरंग-कण द्वैत	(III)	सामेक्षता का सिद्धांत
(D)	हाइजेन बर्ग का अनिश्चितता सिद्धांत	(IV)	डी ब्रोगली सिद्धांत

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए:

(1) (A)-(III), (B)-(II), (C)-(IV), (D)-(I)

(2) (A)-(II), (B)-(III), (C)-(IV), (D)-(I)

(3) (A)-(I), (B)-(II), (C)-(III), (D)-(IV)

(4) (A)-(II), (B)-(IV), (C)-(III), (D)-(I)

Options :

92090653585. 1
92090653586. 2
92090653587. 3
92090653588. 4

Question Number : 98 Question Id : 92090613566 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Match List I with List II :

	List I		List II
(A)	Mosley's Law	(I)	$\lambda=2d\ \sin\theta$, Where λ-wavelength, d-interplanar spacing, θ-angle
(B)	Bragg's Law	(II)	$\lambda_m T = b$ Where λ_m- wavelength, T-Temperature, b-constant
(C)	Curie's Law	(III)	$\chi = C/T$, Where χ-susceptability, C-constant, T-temperature
(D)	Wien's Displacement Law	(IV)	$\sqrt{\nu} = a(Z-b)$ Where ν-frequency, Z-atomic number, a and b are constants.

Choose the correct answer from the options given below:

(1) (A)-(IV), (B)-(I), (C)-(III), (D)-(II)
(2) (A)-(IV), (B)-(I), (C)-(II), (D)-(III)
(3) (A)-(I), (B)-(II), (C)-(III), (D)-(IV)
(4) (A)-(II), (B)-(III), (C)-(I), (D)-(IV)

Options :
92090653589. 1
92090653590. 2
92090653591. 3
92090653592. 4

Question Number : 98 Question Id : 92090613566 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

सूची I के साथ सूची II का मिलान कीजिए

	सूची-I		सूची –II
(A)	मोसले का नियम	(I)	$\lambda = 2d\ \sin\theta$ जहां $\lambda =$ तरंग दैर्ध्य $d =$ अंतर प्लैनर स्पेसिंग ; $\theta =$ कोण
(B)	ब्रैग का नियम	(II)	$\lambda_m T = b$ जहाँ तरंग दैर्ध्य ; $T =$ तापमान ; $b =$ स्थिरांक
(C)	क्यूरी का नियम	(III)	$\chi = c / \lambda$ जहाँ $\chi =$ सुग्राह्यता ; $c =$ स्थिरांक; $T =$ तापमान
(D)	वेन का विस्थापन नियम	(IV)	$\sqrt{\nu} = a(Z - b)$ जहाँ ν = आवृति ; Z= परमाणु संख्या ; a और b = स्थिराँक

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए:

(1) (A)-(IV), (B)-(I), (C)-(III), (D)-(II)

(2) (A)-(IV), (B)-(I), (C)-(II), (D)-(III)

(3) (A)-(I), (B)-(II), (C)-(III), (D)-(IV)

(4) (A)-(II), (B)-(III), (C)-(I), (D)-(IV)

Options :

92090653589. 1

92090653590. 2

92090653591. 3

92090653592. 4

Question Number : 99 Question Id : 92090613567 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Match List I with List II :

	List I		List II
(A)	Perfect diamagnetism	(I)	Hard superconductors
(B)	Type-I superconductors	(II)	$\vec{E}=0$ & $\vec{B}=0$
(C)	Perfect conductors	(III)	Soft superconductors
(D)	Type-II superconductors	(IV)	ρ (resistivity) = 0

Choose the correct answer from the options given below:

(1) (A)-(I), (B)-(III), (C)-(IV), (D)-(II)
(2) (A)-(II), (B)-(III), (C)-(IV), (D)-(I)
(3) (A)-(IV), (B)-(II), (C)-(I), (D)-(III)
(4) (A)-(III), (B)-(II), (C)-(I), (D)-(IV)

Options :
92090653593. 1
92090653594. 2
92090653595. 3
92090653596. 4

Question Number : 99 Question Id : 92090613567 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

सूची I के साथ सूची II का मिलान कीजिए

	सूची-I		सूची –II
(A)	पूर्ण प्रति चुबंकत्व	(I)	ठोस अतिचालक (सुपर कंडक्टर)
(B)	टाइप-I अति चालक (सुपर कंडक्टर)	(II)	$\vec{E}=0$ & $B=0$
(C)	पूर्ण चालक (कंडक्टर)	(III)	मृदु अतिचालक (सुपर कंडक्टर)
(D)	टाइप-II अतिचालक (सुपर कंडक्टर)	(IV)	ρ (प्रतिरोधकता) = 0

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए:

(1) (A)-(I), (B)-(III), (C)-(IV), (D)-(II)
(2) (A)-(II), (B)-(III), (C)-(IV), (D)-(I)
(3) (A)-(IV), (B)-(II), (C)-(I), (D)-(III)
(4) (A)-(III), (B)-(II), (C)-(I), (D)-(IV)

Options :

92090653593. 1

92090653594. 2

92090653595. 3

92090653596. 4

Question Number : 100 Question Id : 92090613568 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Match List I with List II :

	List I		List II
(A)	Triclinic	(I)	$a_1 = a_2 \neq a_3\,;\ \alpha = \beta = \gamma = 90^\circ$
(B)	Tetragonel	(II)	$a_1 = a_2 \neq a_3\,;\ \alpha = \beta = 90^\circ,\ \gamma = 120^\circ$
(C)	Cubic	(III)	$a_1 \neq a_2 \neq a_3\,;\ \alpha \neq \beta \neq \gamma \neq 90^\circ$
(D)	Hexagonal	(IV)	$a_1 = a_2 = a_3\,;\ \alpha = \beta = \gamma = 90^\circ$

Choose the correct answer from the options given below:

(1) (A)-(I), (B)-(II), (C)-(III), (D)-(IV)

(2) (A)-(II), (B)-(IV), (C)-(III), (D)-(I)

(3) (A)-(III), (B)-(I), (C)-(IV), (D)-(II)

(4) (A)-(III), (B)-(II), (C)-(I), (D)-(IV)

Options :

92090653597. 1

92090653598. 2

92090653599. 3

92090653600. 4

Question Number : 100 Question Id : 92090613568 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

सूची I के साथ सूची II का मिलान कीजिए

	सूची-I		सूची –II
(A)	ट्राई क्लिनिक	(I)	$a_1 = a_2 \neq a_3$; $\alpha = \beta = \gamma = 90^\circ$
(B)	टेट्रागोनल	(II)	$a_1 = a_2 \neq a_3$; $\alpha = \beta = 90^\circ$, $\gamma = 120^\circ$
(C)	घन (क्यूबिक)	(III)	$a_1 \neq a_2 \neq a_3$; $\alpha \neq \beta \neq \gamma \neq 90^\circ$
(D)	षट्कोणीय (हेक्सागोनल)	(IV)	$a_1 = a_2 = a_3$; $\alpha = \beta = \gamma = 90^\circ$

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए:

(1) (A)-(I), (B)-(II), (C)-(III), (D)-(IV)

(2) (A)-(II), (B)-(IV), (C)-(III), (D)-(I)

(3) (A)-(III), (B)-(I), (C)-(IV), (D)-(II)

(4) (A)-(III), (B)-(II), (C)-(I), (D)-(IV)

Options :

92090653597. 1

92090653598. 2

92090653599. 3

92090653600. 4