

National Testing Agency

Question Paper Name :	Material Science and Technology Eng 24th June 2023 Shift 3
Subject Name :	Material Science and Technology Eng
Creation Date :	2023-06-24 20:43:10
Duration :	120
Total Marks :	400
Display Marks:	Yes

Material Science and Technology

Group Number :	1
Group Id :	920906244
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 :	920906487
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 :	920906792
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 92090624600 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

Russia's prime minister signed a set of agreements with China on Wednesday during a trip to Beijing, describing bilateral ties at an unprecedented high, despite criticism of their relationship in the West as the war in Ukraine drags on.

Prime Minister Mikhail Mishustin, the highest-ranking Russian official to visit Beijing since Moscow sent thousands of troops to Ukraine in February 2022, held talks with Chinese President Xi Jinping and Premier Li Qiang.

With the war in Ukraine in its second year and Russia increasingly feeling the weight of Western sanctions, Moscow is leaning on Beijing for support, far more than China on Russia, feeding on Chinese demand for oil and gas.

The pressure from the West has shown no sign of easing, with the Group of Seven's weekend declarations singling both countries out on a series of issues including Ukraine. The G7 agreed to tighten sanctions against Moscow and urged China to press Russia to withdraw its forces from Ukraine.

Sub questions

Question Number : 1 Question Id : 92090624601 Question Type : 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 : With the war in Ukraine in its third year and Russia increasingly feeling, the weight of western sanctions, Moscow is leaning on Beijing for support.

Statement II : The pressure from the West has shown no sign of easing, with the Group of Seven's weekend declarations singling both countries out on a series of issues including Ukraine.

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 true but Statement II is incorrect
- (4) Statement I is false but Statement II is correct

Options :

92090697201. 1
92090697202. 2
92090697203. 3
92090697204. 4

Question Number : 2 Question Id : 92090624602 Question Type : 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 out one word substitution for the following phrase from the options given below.

'Never done or known before'

- | | |
|-------------------|---------------------|
| (1) Unprecedented | (2) Unpronounceable |
| (3) Unprotected | (4) Unquiet |

Options :

92090697205. 1
92090697206. 2
92090697207. 3
92090697208. 4

Question Number : 3 Question Id : 92090624603 Question Type : 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

Pact means:

- | | |
|-------------------------|--------------------------------------|
| (1) Oral agreement | (2) Coherent understanding |
| (3) Written explanation | (4) Formal agreement between parties |

Options :

92090697209. 1
92090697210. 2
92090697211. 3
92090697212. 4

Question Number : 4 Question Id : 92090624604 Question Type : 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

Moscow is leaning on Beijing means:

- | | |
|-------------------------------|--------------------------------------|
| (1) supporting Beijing | (2) depending on Beijing |
| (3) giving support to Beijing | (4) entered into a pact with Beijing |

Options :

92090697213. 1
92090697214. 2
92090697215. 3
92090697216. 4

Question Number : 5 Question Id : 92090624605 Question Type : 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

Pressure from West on Moscow has shown no sign of easing. The underlined phrase means:

- (1) Pressure is increasing.
(2) Pressure is decreasing.
(3) Pressure is continuing at the usual rate.
(4) Pressure has become insignificant.

Options :

92090697217. 1
92090697218. 2
92090697219. 3
92090697220. 4

Question Id : 92090624600 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

Russia's prime minister signed a set of agreements with China on Wednesday during a trip to Beijing, describing bilateral ties at an unprecedented high, despite criticism of their relationship in the West as the war in Ukraine drags on.

Prime Minister Mikhail Mishustin, the highest-ranking Russian official to visit Beijing since Moscow sent thousands of troops to Ukraine in February 2022, held talks with Chinese President Xi Jinping and Premier Li Qiang.

With the war in Ukraine in its second year and Russia increasingly feeling the weight of Western sanctions, Moscow is leaning on Beijing for support, far more than China on Russia, feeding on Chinese demand for oil and gas.

The pressure from the West has shown no sign of easing, with the Group of Seven's weekend declarations singling both countries out on a series of issues including Ukraine. The G7 agreed to tighten sanctions against Moscow and urged China to press Russia to withdraw its forces from Ukraine.

Sub questions

Question Number : 1 Question Id : 92090624601 Question Type : 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 : With the war in Ukraine in its third year and Russia increasingly feeling, the weight of western sanctions, Moscow is leaning on Beijing for support.

Statement II : The pressure from the West has shown no sign of easing, with the Group of Seven's weekend declarations singling both countries out on a series of issues including Ukraine.

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 true but Statement II is incorrect
- (4) Statement I is false but Statement II is correct

Options :

92090697201. 1
92090697202. 2
92090697203. 3
92090697204. 4

Question Number : 2 Question Id : 92090624602 Question Type : 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 out one word substitution for the following phrase from the options given below.

'Never done or known before'

- | | |
|-------------------|---------------------|
| (1) Unprecedented | (2) Unpronounceable |
| (3) Unprotected | (4) Unquiet |

Options :

- 92090697205. 1
- 92090697206. 2
- 92090697207. 3
- 92090697208. 4

Question Number : 3 Question Id : 92090624603 Question Type : 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

Pact means:

- | | |
|-------------------------|--------------------------------------|
| (1) Oral agreement | (2) Coherent understanding |
| (3) Written explanation | (4) Formal agreement between parties |

Options :

- 92090697209. 1
- 92090697210. 2
- 92090697211. 3
- 92090697212. 4

Question Number : 4 Question Id : 92090624604 Question Type : 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

Moscow is leaning on Beijing means:

- | | |
|-------------------------------|--------------------------------------|
| (1) supporting Beijing | (2) depending on Beijing |
| (3) giving support to Beijing | (4) entered into a pact with Beijing |

Options :

- 92090697213. 1
- 92090697214. 2
- 92090697215. 3

Question Number : 5 Question Id : 92090624605 Question Type : 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

Pressure from West on Moscow has shown no sign of easing. The underlined phrase means:

- (1) Pressure is increasing.
- (2) Pressure is decreasing.
- (3) Pressure is continuing at the usual rate.
- (4) Pressure has become insignificant.

Options :

- 92090697217. 1
- 92090697218. 2
- 92090697219. 3
- 92090697220. 4

Sub-Section Number :

2

Sub-Section Id :

920906793

Question Shuffling Allowed :

Yes

Is Section Default? :

null

Question Number : 6 Question Id : 92090624606 Question Type : 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 preposition to complete the following sentence:

I infer _____ your statement that you are not willing to attend the conference;

- (1) from
- (2) with
- (3) across
- (4) to

Options :

- 92090697221. 1
- 92090697222. 2
- 92090697223. 3
- 92090697224. 4

Question Number : 6 Question Id : 92090624606 Question Type : 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 preposition to complete the following sentence:

I infer _____ your statement that you are not willing to attend the conference;

- | | |
|------------|----------|
| (1) from | (2) with |
| (3) across | (4) to |

Options :

- 92090697221. 1
- 92090697222. 2
- 92090697223. 3
- 92090697224. 4

Question Number : 7 Question Id : 92090624607 Question Type : 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 spelt word out of the given alternatives:

- | | |
|--------------|--------------|
| (1) Puerille | (2) Puerile |
| (3) Puerrile | (4) Purrrile |

Options :

- 92090697225. 1
- 92090697226. 2
- 92090697227. 3
- 92090697228. 4

Question Number : 7 Question Id : 92090624607 Question Type : 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 spelt word out of the given alternatives:

- | | |
|--------------|--------------|
| (1) Puerille | (2) Puerile |
| (3) Puerrile | (4) Purrrile |

Options :

- 92090697225. 1
- 92090697226. 2
- 92090697227. 3
- 92090697228. 4

Question Number : 8 Question Id : 92090624608 Question Type : 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 one word for the following sentence:

The plants and vegetation of a certain region.

- | | |
|------------|----------------|
| (1) flora | (2) fauna |
| (3) forest | (4) vegetation |

Options :

- 92090697229. 1
- 92090697230. 2
- 92090697231. 3
- 92090697232. 4

Question Number : 8 Question Id : 92090624608 Question Type : 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 one word for the following sentence:

The plants and vegetation of a certain region.

- | | |
|------------|----------------|
| (1) flora | (2) fauna |
| (3) forest | (4) vegetation |

Options :

- 92090697229. 1
- 92090697230. 2
- 92090697231. 3
- 92090697232. 4

Question Number : 9 Question Id : 92090624609 Question Type : 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 sentence.

- (1) I asked Anita if she had done all sums.
- (2) I ask Anita if she do all sums.
- (3) I asking Anita if she had done all sums.
- (4) I asked Anita if she done all sums.

Options :

- 92090697233. 1
- 92090697234. 2
- 92090697235. 3
- 92090697236. 4

Question Number : 9 Question Id : 92090624609 Question Type : 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 sentence.

- (1) I asked Anita if she had done all sums.
- (2) I ask Anita if she do all sums.
- (3) I asking Anita if she had done all sums.
- (4) I asked Anita if she done all sums.

Options :

- 92090697233. 1
- 92090697234. 2
- 92090697235. 3
- 92090697236. 4

Question Number : 10 Question Id : 92090624610 Question Type : 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 passive form of the following sentence.

Do you imitate others?

- (1) Have others been imitated by you?
- (2) Have others being imitated by you?
- (3) Are others imitating you?
- (4) Are others imitated by you?

Options :

- 92090697237. 1
- 92090697238. 2
- 92090697239. 3
- 92090697240. 4

Question Number : 10 Question Id : 92090624610 Question Type : 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 passive form of the following sentence.

Do you imitate others?

- (1) Have others been imitated by you?
- (2) Have others being imitated by you?
- (3) Are others imitating you?
- (4) Are others imitated by you?

Options :

- 92090697237. 1
- 92090697238. 2
- 92090697239. 3
- 92090697240. 4

Question Number : 11 Question Id : 92090624611 Question Type : 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 Union Ministry of India launched 'Temple 360' portal?

- (1) Ministry of Tourism
- (2) Ministry of Culture
- (3) Ministry of Housing and Urban Affairs
- (4) Ministry of Home Affairs

Options :

- 92090697241. 1
- 92090697242. 2
- 92090697243. 3
- 92090697244. 4

Question Number : 11 Question Id : 92090624611 Question Type : 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 Union Ministry of India launched 'Temple 360' portal?

- (1) Ministry of Tourism
- (2) Ministry of Culture
- (3) Ministry of Housing and Urban Affairs
- (4) Ministry of Home Affairs

Options :

- 92090697241. 1
- 92090697242. 2
- 92090697243. 3
- 92090697244. 4

Question Number : 12 Question Id : 92090624612 Question Type : 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

'Guidance' is the investment promotion agency of which Indian state?

- | | |
|---------------|-------------|
| (1) Tamilnadu | (2) Gujarat |
| (3) Kerala | (4) Delhi |

Options :

- 92090697245. 1
- 92090697246. 2
- 92090697247. 3
- 92090697248. 4

Question Number : 12 Question Id : 92090624612 Question Type : 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

'Guidance' is the investment promotion agency of which Indian state?

- | | |
|---------------|-------------|
| (1) Tamilnadu | (2) Gujarat |
| (3) Kerala | (4) Delhi |

Options :

- 92090697245. 1

92090697246. 2

92090697247. 3

92090697248. 4

Question Number : 13 Question Id : 92090624613 Question Type : 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 among the following is not a Noble Price winner?

(1) Ravindranath Tagore

(2) Dr. C.V. Raman

(3) Amritaya Sen

(4) Homi Jahangir Bhabha

Options :

92090697249. 1

92090697250. 2

92090697251. 3

92090697252. 4

Question Number : 13 Question Id : 92090624613 Question Type : 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 among the following is not a Noble Price winner?

(1) Ravindranath Tagore

(2) Dr. C.V. Raman

(3) Amritaya Sen

(4) Homi Jahangir Bhabha

Options :

92090697249. 1

92090697250. 2

92090697251. 3

92090697252. 4

Question Number : 14 Question Id : 92090624614 Question Type : 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 country is not the member of 'G 20'?

- | | |
|-----------|------------|
| (1) India | (2) Nepal |
| (3) China | (4) U.S.A. |

Options :

92090697253. 1
92090697254. 2
92090697255. 3
92090697256. 4

Question Number : 14 Question Id : 92090624614 Question Type : 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 country is not the member of 'G 20'?

- | | |
|-----------|------------|
| (1) India | (2) Nepal |
| (3) China | (4) U.S.A. |

Options :

92090697253. 1
92090697254. 2
92090697255. 3
92090697256. 4

Question Number : 15 Question Id : 92090624615 Question Type : 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 (Dance Form)	List II (Artist)
(A) Bharat Natyam	(I) Sonal Mansingh
(B) Kathak	(II) Rukmini Devi
(C) Kuchipudi	(III) Birju Maharaj
(D) Odissi	(IV) Yamini Reddy

Choose the correct answer from the options given below:

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

Options :

- 92090697257. 1
- 92090697258. 2
- 92090697259. 3
- 92090697260. 4

Question Number : 15 Question Id : 92090624615 Question Type : 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 (Dance Form)	List II (Artist)
(A) Bharat Natyam	(I) Sonal Mansingh
(B) Kathak	(II) Rukmini Devi
(C) Kuchipudi	(III) Birju Maharaj
(D) Odissi	(IV) Yamini Reddy

Choose the correct answer from the options given below:

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

Options :

- 92090697257. 1
- 92090697258. 2
- 92090697259. 3
- 92090697260. 4

Question Number : 16 Question Id : 92090624616 Question Type : 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

In a certain code BROTHER is written as EQRSKDU. How is RECENT written in that code:

- | | |
|------------|------------|
| (1) UHFHQW | (2) QDBDMS |
| (3) UDFDQS | (4) UDGDRS |

Options :

- 92090697261. 1
- 92090697262. 2
- 92090697263. 3
- 92090697264. 4

Question Number : 16 Question Id : 92090624616 Question Type : 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

In a certain code BROTHER is written as EQRSKDU. How is RECENT written in that code:

- | | |
|------------|------------|
| (1) UHFHQW | (2) QDBDMS |
| (3) UDFDQS | (4) UDGDRS |

Options :

- 92090697261. 1
- 92090697262. 2
- 92090697263. 3
- 92090697264. 4

Question Number : 17 Question Id : 92090624617 Question Type : 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 word which is least like others in the group:

- | | |
|-------------|----------------|
| (1) Bat | (2) Artic Term |
| (3) Ostrich | (4) Penguin |

Options :

- 92090697265. 1
- 92090697266. 2
- 92090697267. 3
- 92090697268. 4

Question Number : 17 Question Id : 92090624617 Question Type : 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 word which is least like others in the group:

- | | |
|-------------|----------------|
| (1) Bat | (2) Artic Term |
| (3) Ostrich | (4) Penguin |

Options :

- 92090697265. 1
- 92090697266. 2
- 92090697267. 3
- 92090697268. 4

Question Number : 18 Question Id : 92090624618 Question Type : 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

Six friends Astha, Bina, Chetna, Devika, Eshita and Falguni are sitting in a row facing towards North. Chetna is not sitting beside Devika who is sitting on the extreme right. Eshita is between Astha and Chetna. Astha is not sitting beside Falguni and Devika. Bina is between Falguni and Devika. Who is the immediate right of Astha?

- | | |
|------------|-------------|
| (1) Bina | (2) Chetna |
| (3) Eshita | (4) Falguni |

Options :

- 92090697269. 1
- 92090697270. 2
- 92090697271. 3
- 92090697272. 4

Question Number : 18 Question Id : 92090624618 Question Type : 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

Six friends Astha, Bina, Chetna, Devika, Eshita and Falguni are sitting in a row facing towards North. Chetna is not sitting beside Devika who is sitting on the extreme right. Eshita is between Astha and Chetna. Astha is not sitting beside Falguni and Devika. Bina is between Falguni and Devika. Who is the immediate right of Astha?

- | | |
|------------|-------------|
| (1) Bina | (2) Chetna |
| (3) Eshita | (4) Falguni |

Options :

92090697269. 1
92090697270. 2
92090697271. 3
92090697272. 4

Question Number : 19 Question Id : 92090624619 Question Type : 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

Look at the series: 1296, 648, 216, 108, 36,

Which one of the following numbers should come next in the series?

- | | |
|--------|--------|
| (1) 18 | (2) 16 |
| (3) 14 | (4) 12 |

Options :

92090697273. 1
92090697274. 2
92090697275. 3
92090697276. 4

Question Number : 19 Question Id : 92090624619 Question Type : 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

Look at the series: 1296, 648, 216, 108, 36,

Which one of the following numbers should come next in the series?

- | | |
|--------|--------|
| (1) 18 | (2) 16 |
| (3) 14 | (4) 12 |

Options :

92090697273. 1

92090697274. 2

92090697275. 3

92090697276. 4

Question Number : 20 Question Id : 92090624620 Question Type : 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

In a row of students, the position of Vijay from the left side of the row is 16th and the position of Vijay from the right side of the row is 28th. Find the total number of students in the row?

- | | |
|--------|--------|
| (1) 42 | (2) 43 |
| (3) 44 | (4) 45 |

Options :

92090697277. 1

92090697278. 2

92090697279. 3

92090697280. 4

Question Number : 20 Question Id : 92090624620 Question Type : 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

In a row of students, the position of Vijay from the left side of the row is 16th and the position of Vijay from the right side of the row is 28th. Find the total number of students in the row?

- | | |
|--------|--------|
| (1) 42 | (2) 43 |
| (3) 44 | (4) 45 |

Options :

92090697277. 1

92090697278. 2

92090697279. 3

92090697280. 4

Question Number : 21 Question Id : 92090624621 Question Type : 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 train 220 m long is moving at 54 km/h. Time taken by it to cross a person running in the same direction with speed of 18 km/h is:

- | | |
|----------|----------|
| (1) 30 s | (2) 20 s |
| (3) 25 s | (4) 22 s |

Options :

92090697281. 1

92090697282. 2

92090697283. 3

92090697284. 4

Question Number : 21 Question Id : 92090624621 Question Type : 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 train 220 m long is moving at 54 km/h. Time taken by it to cross a person running in the same direction with speed of 18 km/h is:

- | | |
|----------|----------|
| (1) 30 s | (2) 20 s |
| (3) 25 s | (4) 22 s |

Options :

92090697281. 1

92090697282. 2

92090697283. 3

92090697284. 4

Question Number : 22 Question Id : 92090624622 Question Type : 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 the such rate of Interest, the ratio of amount for one year under simple interest and for two years under compound interest compounded annually is 3:4. Find the rate of interest:

- (1) $16\frac{2}{3}\%$ (2) 20 %
(3) $33\frac{1}{3}\%$ (4) 30 %

Options :

92090697285. 1
92090697286. 2
92090697287. 3
92090697288. 4

Question Number : 22 Question Id : 92090624622 Question Type : 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 the such rate of Interest, the ratio of amount for one year under simple interest and for two years under compound interest compounded annually is 3:4. Find the rate of interest:

- (1) $16\frac{2}{3}\%$ (2) 20 %
(3) $33\frac{1}{3}\%$ (4) 30 %

Options :

92090697285. 1
92090697286. 2
92090697287. 3
92090697288. 4

Question Number : 23 Question Id : 92090624623 Question Type : 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 and B are the independent events such that $P(A \cup B) = \frac{7}{10}$ and $P(B) = \frac{5}{8}$. Then $P(A)$ is equal to:

- | | |
|-------------------|-------------------|
| (1) $\frac{3}{8}$ | (2) $\frac{4}{5}$ |
| (3) $\frac{1}{5}$ | (4) $\frac{3}{5}$ |

Options :

92090697289. 1

92090697290. 2

92090697291. 3

92090697292. 4

Question Number : 23 Question Id : 92090624623 Question Type : 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 and B are the independent events such that $P(A \cup B) = \frac{7}{10}$ and $P(B) = \frac{5}{8}$. Then $P(A)$ is equal to:

- | | |
|-------------------|-------------------|
| (1) $\frac{3}{8}$ | (2) $\frac{4}{5}$ |
| (3) $\frac{1}{5}$ | (4) $\frac{3}{5}$ |

Options :

92090697289. 1

92090697290. 2

92090697291. 3

92090697292. 4

Question Number : 24 Question Id : 92090624624 Question Type : 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 $3x+4y = 60$ and $4x+3y = 59$, then the value of $x+y$ is:

- | | |
|--------|--------|
| (1) 17 | (2) 15 |
| (3) 16 | (4) 18 |

Options :

92090697293. 1
92090697294. 2
92090697295. 3
92090697296. 4

Question Number : 24 Question Id : 92090624624 Question Type : 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 $3x+4y = 60$ and $4x+3y = 59$, then the value of $x+y$ is:

- | | |
|--------|--------|
| (1) 17 | (2) 15 |
| (3) 16 | (4) 18 |

Options :

92090697293. 1
92090697294. 2
92090697295. 3
92090697296. 4

Question Number : 25 Question Id : 92090624625 Question Type : 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 sphere of maximum possible size is made out of a solid wooden cylinder of height equal to its diameter of the base. The percentage of the wastage of the wood in the process is:

- | | |
|-------------|------------|
| (1) 100/3 % | (2) 80/3 % |
| (3) 70/3 % | (4) 30 % |

Options :

92090697297. 1
92090697298. 2
92090697299. 3
92090697300. 4

Question Number : 25 Question Id : 92090624625 Question Type : 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 sphere of maximum possible size is made out of a solid wooden cylinder of height equal to its diameter of the base. The percentage of the wastage of the wood in the process is:

- | | |
|-------------|------------|
| (1) 100/3 % | (2) 80/3 % |
| (3) 70/3 % | (4) 30 % |

Options :

92090697297. 1
 92090697298. 2
 92090697299. 3
 92090697300. 4

Part B: Material Science and Technology

Section Id :	920906488
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 :	920906794
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 26 Question Id : 92090624626 Question Type : 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 plane makes intercept as of $2\text{ \AA}$, $1\text{ \AA}$ & $0.5\text{ \AA}$ on the crystallographic axes of a Crystal with $a : b : c = 4 : 3 : 1$. The correct set of miller indices is?

1. (2 0 1)
2. (3 2 2)
3. (2 3 2)
4. (1 2 3)

Options :

92090697301. 1
 92090697302. 2
 92090697303. 3

Question Number : 26 Question Id : 92090624626 Question Type : 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

यदी किसी सतह $a : b : c = 4 : 3 : 1$ के साथ क्रिस्टल के क्रिस्टलोग्राफिक अक्षों पर $2 \text{ \AA}$, $1 \text{ \AA}$ & $0.5 \text{ \AA}$ का अवरोधन बनाता है। तो सही मिलर इंडिसेज़ समुच्चय है।

1. (2 0 1)
2. (3 2 2)
3. (2 3 2)
4. (1 2 3)

Options :

92090697301. 1
92090697302. 2
92090697303. 3
92090697304. 4

Question Number : 27 Question Id : 92090624627 Question Type : 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 resistivity of an n-type semiconductor using the following data :

The density of conduction electrons and holes are $6 \times 10^{13} \text{ cm}^{-3}$ and

$2 \times 10^{12} \text{ cm}^{-3}$ respectively

Mobility of conduction electrons = $2.0 \times 10^4 \text{ cm}^2 \text{ V}^{-1} \text{ s}^{-1}$

Mobility of holes = $100 \text{ cm}^2 \text{ V}^{-1} \text{ s}^{-1}$

1. 43.27 Ωm
2. 43.21 Ωm
3. 44.64 Ωm
4. 40.57 Ωm

Options :

92090697305. 1
92090697306. 2
92090697307. 3
92090697308. 4

Question Number : 27 Question Id : 92090624627 Question Type : 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 सूचनाओं का उपयोग करके एक n-टाइप के अर्धचालक की प्रतिरोधकता ज्ञात कीजिए:

संवाहक इलेक्ट्रॉनों और विवर (होल) का घनत्व क्रमशः $6 \times 10^{13} \text{ cm}^{-3}$ तथा $2 \times 10^{12} \text{ cm}^{-3}$.

संवाहक इलेक्ट्रॉनों की गतिशीलता = $2.0 \times 10^4 \text{ cm}^2 \text{ V}^{-1} \text{ s}^{-1}$

विवर (होल) की गतिशीलता = $100 \text{ cm}^2 \text{ V}^{-1} \text{ s}^{-1}$

1. 43.27 Ωm
2. 43.21 Ωm
3. 44.64 Ωm
4. 40.57 Ωm

Options :

92090697305. 1
92090697306. 2
92090697307. 3
92090697308. 4

Question Number : 28 Question Id : 92090624628 Question Type : 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

What is the full form of LED?

1. Light Emission device
2. Light - Emitting diode
3. Light - Electronic diode
4. Light - Electrical device

Options :

92090697309. 1
92090697310. 2
92090697311. 3
92090697312. 4

Question Number : 28 Question Id : 92090624628 Question Type : 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

LED का सही अर्थ है?

1. प्रकाश उत्सर्जन उपकरण
2. प्रकाश उत्सर्जक डायोड
3. प्रकाश इलेक्ट्रॉनिक उपकरण
4. प्रकाश विद्युत उपकरण

Options :

92090697309. 1

92090697310. 2

92090697311. 3

92090697312. 4

Question Number : 29 Question Id : 92090624629 Question Type : 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 Hall coefficient of sodium, based on free electron model. Sodium has BCC

structure and the side of the cube is $4.25 \text{ \AA}$.

1. $2.45 \times 10^{-15} \text{ m}^3\text{C}^{-1}$
2. $2.45 \times 10^{-9} \text{ m}^3\text{C}^{-1}$
3. $5 \times 10^2 \text{ m}^3\text{C}^{-1}$
4. $5 \times 10^4 \text{ m}^3\text{C}^{-1}$

Options :

92090697313. 1

92090697314. 2

92090697315. 3

92090697316. 4

Question Number : 29 Question Id : 92090624629 Question Type : 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 मॉडल के आधार पर सोडियम का हॉल गुणांक ज्ञात करें, सोडियम की BCC

संरचना है जिसमें घन (क्यूब) की भुजा $4.25 \text{ \AA}$ है।

1. $2.45 \times 10^{-15} \text{ m}^3\text{C}^{-1}$
2. $2.45 \times 10^{-9} \text{ m}^3\text{C}^{-1}$
3. $5 \times 10^2 \text{ m}^3\text{C}^{-1}$
4. $5 \times 10^4 \text{ m}^3\text{C}^{-1}$

Options :

92090697313. 1

92090697314. 2

92090697315. 3

92090697316. 4

Question Number : 30 Question Id : 92090624630 Question Type : 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 magnetic susceptibility of a Paramagnetic materials is -

1. Positive
2. Negative
3. Can be Positive or Negative
4. One

Options :

92090697317. 1

92090697318. 2

92090697319. 3

92090697320. 4

Question Number : 30 Question Id : 92090624630 Question Type : 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 अनुचुंबकीय (पैरामैग्नेटिक) पदार्थ की चुंबकीय आग्राहिता

1. सकारात्मक होती है
2. नकारात्मक होती है
3. सकारात्मक या नकारात्मक हो सकती है
4. एक होती है

Options :

92090697317. 1

92090697318. 2

92090697319. 3

92090697320. 4

Question Number : 31 Question Id : 92090624631 Question Type : 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 correct expression for Fermi Dirac distribution function:

(Here $f(E)$ = Fermi Dirac distribution function,

K_B = Boltzmann constant

μ = Chemical potential

E = Energy of electronic state

T = Temperature)

1. $f(E) = e^{(E-\mu)/K_B T} + 1$
2. $f(E) = \frac{1}{e^{(E-\mu)/K_B T} + 1}$
3. $f(E) = \frac{1}{e^{(E-\mu)/K_B T} - 1}$
4. $f(E) = \frac{1}{e^{(E+\mu)/K_B T} + 1}$

Options :

92090697321. 1

92090697322. 2

92090697323. 3

92090697324. 4

Question Number : 31 Question Id : 92090624631 Question Type : 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

फर्मी-डिराक वितरण फलन का सही प्ररूप है:

(यहाँ $f(E)$ = फर्मी-डिराक वितरण फलन,

K_B = बोल्ट्समैन नियतांक

μ = रासायनिक विभव

E = इलेक्ट्रॉनिक ऊर्जास्तर

T = तापमान)

1. $f(E) = e^{(E-\mu)/K_B T} + 1$
2. $f(E) = \frac{1}{e^{(E-\mu)/K_B T} + 1}$
3. $f(E) = \frac{1}{e^{(E-\mu)/K_B T} - 1}$
4. $f(E) = \frac{1}{e^{(E+\mu)/K_B T} + 1}$

Options :

92090697321. 1

92090697322. 2

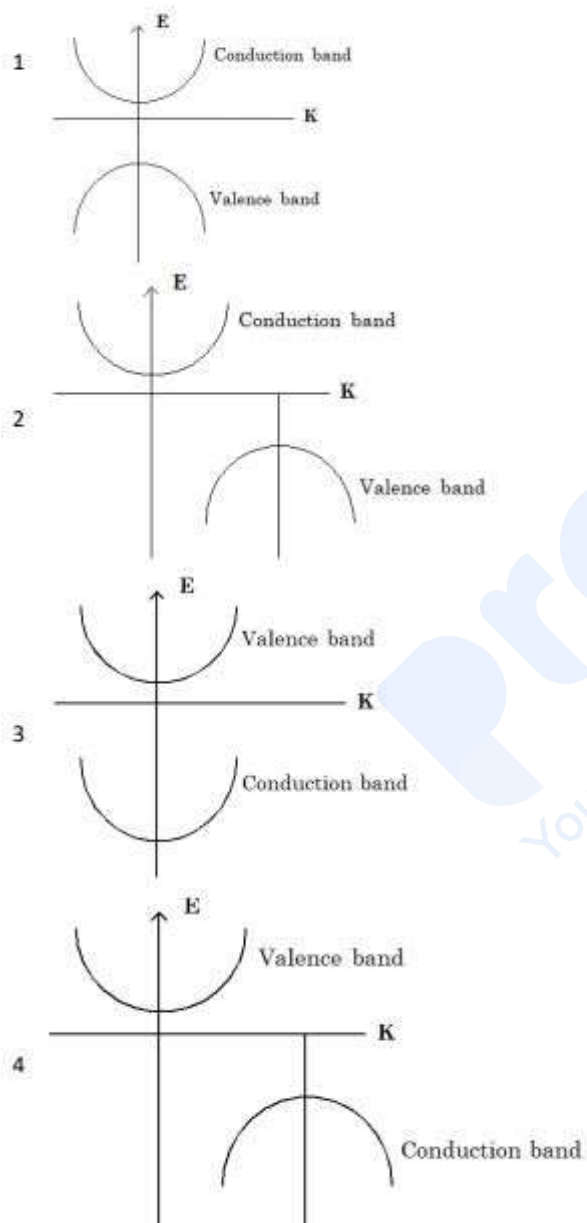
92090697323. 3

92090697324. 4

Question Number : 32 Question Id : 92090624632 Question Type : 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 curve is correct for direct band gap material. Here K is wave vector; E is energy of electron?



Options :

92090697325. 1

92090697326. 2

92090697327. 3

92090697328. 4

**Question Number : 32 Question Id : 92090624632 Question Type : 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**



प्रत्यक्ष बैंड गैप अर्ध चालक के लिये कौन सा वक्र सही है ?
(यहाँ K =तरंग सदिश, E = इलेक्ट्रॉन की ऊर्जा)

- 1.
- 2.
- 3.
- 4.

Options :

- 92090697325. 1
- 92090697326. 2
- 92090697327. 3
- 92090697328. 4

Question Number : 33 Question Id : 92090624633 Question Type : 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

Weidman - Franz Law states that the ratio of thermal conductivity and electrical conductivity of metal is :

K_B = Boltzmann constant

e = electronic charge

k = Thermal conductivity

σ = Electrical conductivity

1. $\frac{K}{\sigma} = \frac{\pi^2}{3} \left(\frac{K_B}{e} \right)^2 T$

2. $\frac{\delta}{K} = \frac{\pi^2}{3} \left(\frac{K_B}{e} \right)^2 T$

3. $K = \frac{\pi^3}{3} \left(\frac{K_B}{e} \right)^2 \frac{T}{\sigma}$

4. $\sigma = \frac{\pi^2}{3} \left(\frac{K_B}{e} \right)^2 \frac{T}{K}$

Options :

- 92090697329. 1
- 92090697330. 2
- 92090697331. 3
- 92090697332. 4

Question Number : 33 Question Id : 92090624633 Question Type : 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

वाइड मैन् – फ्रेंज का नियम कहता है कि धातु की ऊष्मीय चालकता और विद्युत चालकता का अनुपात है :

K_B = बोल्ट्समैन नियतांक

e = इलेक्ट्रॉन पर आवेश

k = ऊष्मीय चालकता

σ = विद्युत चालकता

$$1. \frac{K}{\sigma} = \frac{\pi^2}{3} \left(\frac{K_B}{e} \right)^2 T$$

$$2. \frac{\delta}{K} = \frac{\pi^2}{3} \left(\frac{K_B}{e} \right)^2 T$$

$$3. K = \frac{\pi^3}{3} \left(\frac{K_B}{e} \right)^2 \frac{T}{\sigma}$$

$$4. \sigma = \frac{\pi^2}{3} \left(\frac{K_B}{e} \right)^2 \frac{T}{K}$$

Options :

92090697329. 1

92090697330. 2

92090697331. 3

92090697332. 4

Question Number : 34 Question Id : 92090624634 Question Type : 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

Effective mass of the free electron in a semiconductor crystal is defined as :

$$1. \frac{1}{m^*} = \frac{1}{\hbar^2} \frac{d^2 E}{dK^2}$$

$$2. m^* = \frac{1}{\hbar^2} \frac{d^2 E}{dK^2}$$

$$3. m^* = \hbar^2 \frac{dE}{dK}$$

$$4. \frac{1}{m^*} = \frac{1}{\hbar^2} \frac{dE}{dK}$$

Options :

92090697333. 1

92090697334. 2

92090697335. 3

92090697336. 4

Question Number : 34 Question Id : 92090624634 Question Type : 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 अर्ध चालाक क्रिस्टल में एक मुक्त इलेक्ट्रान का द्रव्यमान परिभाषित होगा :

1. $\frac{1}{m^*} = \frac{1}{h^2} \frac{d^2 E}{dK^2}$

2. $m^* = \frac{1}{h^2} \frac{d^2 E}{dK^2}$

3. $m^* = h^2 \frac{dE}{dK}$

4. $\frac{1}{m^*} = \frac{1}{h^2} \frac{dE}{dK}$

Options :

92090697333. 1

92090697334. 2

92090697335. 3

92090697336. 4

Question Number : 35 Question Id : 92090624635 Question Type : 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

In a semiconductor, the effective mass of a hole is _____ the effective mass of an electron at the same point on an energy band.

1. same as
2. opposite to
3. comparatively less than
4. comparatively more than

Options :

92090697337. 1

92090697338. 2

92090697339. 3

92090697340. 4

Question Number : 35 Question Id : 92090624635 Question Type : 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 अर्धचालक में एक होल का प्रभावी द्रव्यमान ऊर्जा बंध पर एक ही बिन्दु पर एक इलेक्ट्रॉन कि प्रभावी द्रव्यमान के _____ होता है।

1. बराबर
2. विपरीत
3. अपेक्षाकृत कम
4. अपेक्षाकृत अधिक

Options :

92090697337. 1
92090697338. 2
92090697339. 3
92090697340. 4

Question Number : 36 Question Id : 92090624636 Question Type : 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 Approximation assumes that

1. the mutual interaction of electrons is neglected
2. the metallic ions play a major role
3. the metallic ions do not play any role
4. the metallic ions are considered to be mobile

Options :

92090697341. 1
92090697342. 2
92090697343. 3
92090697344. 4

Question Number : 36 Question Id : 92090624636 Question Type : 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 सन्निकटन (एफ्राक्सीमेसन) में यह धारणा है कि :

1. इलेक्ट्रॉन की पारस्परिक क्रिया उपेक्षित किया जा सकता है।
2. धात्विक आयन एक प्रमुख भूमिका निभाते हैं।
3. धात्विक आयन की कोई भूमिका नहीं होती है।
4. धात्विक आयनों को गतिशील माना जाता है।

Options :

92090697341. 1
92090697342. 2
92090697343. 3

Question Number : 37 Question Id : 92090624637 Question Type : 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 options is not true about X-Rays?

1. They consists of high energy photons.
2. They travel in straight line.
3. They are longitudinal waves.
4. Their wavelengths lie in the range from 0.01 nm to 10 nm.

Options :

92090697345. 1
92090697346. 2
92090697347. 3
92090697348. 4

Question Number : 37 Question Id : 92090624637 Question Type : 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

X-किरणों के बारे में निम्नलिखित में से कौन सा विकल्प सही नहीं है?

1. इनमें उच्च ऊर्जा प्रकाशाणु (फोटॉन) होते हैं।
2. वे सीधी रेखा में गमन करते हैं।
3. वे अनुदैर्घ्य तरंग हैं।
4. उनकी तरंग दैर्घ्य 0.01 - 10 nm है।

Options :

92090697345. 1
92090697346. 2
92090697347. 3
92090697348. 4

Question Number : 38 Question Id : 92090624638 Question Type : 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 S.I. unit of activity is (with reference to radioactive nuclide)

1. Curie (Ci)
2. Becquerel (Bq)
3. Sieverts (Sv)
4. Gauss (G)

Options :

92090697349. 1
92090697350. 2
92090697351. 3
92090697352. 4

Question Number : 38 Question Id : 92090624638 Question Type : 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

सक्रियता का S.I. मात्रक है:
(रेडियोधर्मी न्यूक्लाइड के संदर्भ में)

1. क्यूरी (Ci)
2. बेकुरेल (Bq)
3. सीवर्ट्स (Sv)
4. गॉस (G)

Options :

92090697349. 1
92090697350. 2
92090697351. 3
92090697352. 4

Question Number : 39 Question Id : 92090624639 Question Type : 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 are desirable properties for a material for making permanent magnets ?

1. high retentively and high coercivity
2. high retentively and low coercivity
3. low retentively and high coercivity
4. low retentively and low coercivity

Options :

92090697353. 1
92090697354. 2
92090697355. 3
92090697356. 4

Question Number : 39 Question Id : 92090624639 Question Type : 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 गुण एक पदार्थ से स्थायी चुम्बक बनाने के लिए वांछनीय हैं।

1. उच्च धारणशीलता तथा उच्च चुम्बकीय प्रतिरोधकता
2. उच्च धारणशीलता तथा निम्न चुम्बकीय प्रतिरोधकता
3. उच्च धारणशीलता तथा चुम्बकीय प्रतिरोधकता
4. निम्न धारणशीलता तथा चुम्बकीय प्रतिरोधकता

Options :

92090697353. 1

92090697354. 2

92090697355. 3

92090697356. 4

Question Number : 40 Question Id : 92090624640 Question Type : 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

Vander Waal derived the following equation of state for a real gas :

$$\left(P + \frac{a}{V^2}\right)(V - b) = nRT$$

Where a and b are small positive constants. Which of the following is true for 'a' and 'b'?

1. 'a' represents the average force of attraction between the molecules.
2. 'b' represents the average force of attraction between the molecules.
3. 'a' and 'b' both represent the average force of attraction between the molecules.
4. 'a' and 'b' both represent the total volume of molecules.

Options :

92090697357. 1

92090697358. 2

92090697359. 3

92090697360. 4

Question Number : 40 Question Id : 92090624640 Question Type : 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 वास्तविक गैस (रीयल गैस) के लिए वांडर वॉल ने निम्नलिखित अवस्था समीकरण की व्युत्पत्ति की:

$$\left(P + \frac{a}{V^2}\right)(V - b) = nRT$$

जहाँ a तथा b छोट सकारात्मक स्थिरांक हैं। 'a' और 'b' के विषय में से कौन सा विकल्प सही है?

1. 'a' अणुओं के बीच आकर्षण के औसत बल का प्रतिनिधित्व करता है।
2. 'b' अणुओं के बीच आकर्षण के औसत बल का प्रतिनिधित्व करता है।
3. 'a' और 'b' दोनों अणुओं के बीच औसत आकर्षण बल का प्रतिनिधित्व करते हैं।
4. 'a' और 'b' दोनों अणुओं की कुल आयतन का प्रतिनिधित्व करते हैं।

Options :

92090697357. 1
92090697358. 2
92090697359. 3
92090697360. 4

Question Number : 41 Question Id : 92090624641 Question Type : 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

Concept of temperature is introduced by

1. Zeroth Law of Thermodynamics
2. First Law of Thermodynamics
3. Second Law of Thermodynamics
4. Third Law of Thermodynamics

Options :

92090697361. 1
92090697362. 2
92090697363. 3
92090697364. 4

Question Number : 41 Question Id : 92090624641 Question Type : 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

तापमान की अवधारणा किसके द्वारा प्रस्ताविक की गई?

1. ऊष्मागतिकी का शून्य वाँ नियम
2. ऊष्मागतिकी का प्रथम नियम
3. ऊष्मागतिकी का द्वितीय नियम
4. ऊष्मागतिकी का तृतीय नियम

Options :

92090697361. 1
92090697362. 2
92090697363. 3
92090697364. 4

Question Number : 42 Question Id : 92090624642 Question Type : 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. Work done by a conservative force is dependent on the path taken.
B. Gravitational force is a conservative force
C. Frictional force is a conservative force
D. Work done during a round trip by a conservative force is non-zero.

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

1. A Only
2. B Only
3. C Only
4. D Only

Options :

92090697365. 1
92090697366. 2
92090697367. 3
92090697368. 4

Question Number : 42 Question Id : 92090624642 Question Type : 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. संरक्षी बल द्वारा किया गया कार्य लिए गए पथ पर निर्भर करता है।
- B. गुरुत्वाकर्षण बल एक संरक्षी बल है।
- C. घर्षण बल एक संरक्षी बल है।
- D. यात्रा के एक चक्कर के दौरान संरक्षी बल द्वारा किया गया कार्य होता है।

निम्नलिखित विकल्पों में सही उत्तर का चयन कीजिए:

- 1. केवल A
- 2. केवल B
- 3. केवल C
- 4. केवल D

Options :

- 92090697365. 1
- 92090697366. 2
- 92090697367. 3
- 92090697368. 4

Question Number : 43 Question Id : 92090624643 Question Type : 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

Rectilinear propagation of light means

- 1. It travels in vacuum
- 2. It travels in straight line
- 3. It is transverse in nature
- 4. It is plane - polarized

Options :

- 92090697369. 1
- 92090697370. 2
- 92090697371. 3
- 92090697372. 4

Question Number : 43 Question Id : 92090624643 Question Type : 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 के सरल रेखीय प्रसार का अर्थ है -

- 1. यह निर्वात में यात्रा करता है।
- 2. यह सीधी रेखा में यात्रा करता है।
- 3. यह अनुप्रस्थ प्रवृत्ति है।
- 4. यह समतल-ध्रुवित है।

Options :

- 92090697369. 1
- 92090697370. 2
- 92090697371. 3
- 92090697372. 4

Question Number : 44 Question Id : 92090624644 Question Type : 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 based on the wave nature of electromagnetic radiation ?

- 1. Photoelectric effect
- 2. Pair - production
- 3. Tunnelling phenomenon
- 4. Molecular collision

Options :

- 92090697373. 1
- 92090697374. 2
- 92090697375. 3
- 92090697376. 4

Question Number : 44 Question Id : 92090624644 Question Type : 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 विद्युत चुम्बकीय विकिरण की तरंग-प्रवृत्ति पर आधारित है?

- 1. प्रकाश विद्युत प्रभाव
- 2. पेयर उत्पादन
- 3. अंतरातंत्र लंघन (टेनलिंग) घटना
- 4. आणविक टकराव

Options :

- 92090697373. 1
- 92090697374. 2
- 92090697375. 3
- 92090697376. 4

Question Number : 45 Question Id : 92090624645 Question Type : 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

Electron Paramagnetic Resonance (EPR) spectroscopy is used to study.

1. Morphology of nanomaterials
2. Crystal structure of a solid
3. Reactive oxide species
4. Oxidation states of elements

Options :

92090697377. 1
92090697378. 2
92090697379. 3
92090697380. 4

Question Number : 45 Question Id : 92090624645 Question Type : 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

इलेक्ट्रॉन पैरामैग्नेटिक रेज़ोनेन्स (EPR) स्पेक्ट्रोस्कोपी का अध्ययन करने के लिए प्रयोग किया जाता है।

1. नैनो पदार्थ की मोर्फोलॉजी
2. एक ठोस की क्रिस्टल संरचना
3. प्रतिक्रियाशील ऑक्साइड के प्रकार
4. तत्वों की ऑक्सीकरण अवस्था

Options :

92090697377. 1
92090697378. 2
92090697379. 3
92090697380. 4

Question Number : 46 Question Id : 92090624646 Question Type : 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 : p- and n-type semiconductor are extrinsic semiconductors

Reason R : p- and n-type semiconductor are formed by the doping of trivalent and pentavalent impurities in intrinsic semiconductor respectively

In the light of the above statements, choose the **correct 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 :

- 92090697381. 1
- 92090697382. 2
- 92090697383. 3
- 92090697384. 4

Question Number : 46 Question Id : 92090624646 Question Type : 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 के रूप में लिखित है तो दूसरा उसके कारण के रूप में,

अभिकथन: p और n टाइप के अर्धचालक बाह्य अर्धचालक हैं।

कारण: p और n टाइप के अर्धचालक क्रमशः आंतरिक अर्धचालक में ट्राईवैलेंट और पेंटवैलेंट अशुद्धियों के डोपिंग से बनते हैं।

उपरोक्त कथन के आलोक में, नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए:

1. A और R दोनों सत्य हैं, और R, A की सही व्याख्या है
2. A और R दोनों सत्य हैं, और R, A की सही व्याख्या नहीं है
3. A सत्य है, लेकिन R असत्य हैं
4. A असत्य है, लेकिन R सत्य हैं

Options :

- 92090697381. 1
- 92090697382. 2
- 92090697383. 3
- 92090697384. 4

Question Number : 47 Question Id : 92090624647 Question Type : 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 materials increases the capacitance of a capacitor to maximum?

1. Air
2. Strontium Titanate
3. Paper
4. Distilled water

Options :

- 92090697385. 1
- 92090697386. 2
- 92090697387. 3
- 92090697388. 4

Question Number : 47 Question Id : 92090624647 Question Type : 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 पदार्थ एक संधारित्र की धारिता को अधिकतम तक बढ़ा देता है?

1. वायु
2. स्ट्रान्शियम टाइटेनेट
3. कागज
4. आसुत जल

Options :

92090697385. 1
92090697386. 2
92090697387. 3
92090697388. 4

Question Number : 48 Question Id : 92090624648 Question Type : 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

In an extrinsic semiconductor, which of the following is true? (n_p and n_e be the number of holes and electrons in a semiconductor respectively)

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

Options :

92090697389. 1
92090697390. 2
92090697391. 3
92090697392. 4

Question Number : 48 Question Id : 92090624648 Question Type : 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 बाह्य अर्धचालक के लिए (जहाँ n_p तथा n_e अर्धचालक क्रमशः होल तथा इलेक्ट्रॉनों की संख्या है)

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

Options :

92090697389. 1
92090697390. 2
92090697391. 3
92090697392. 4

Question Number : 49 Question Id : 92090624649 Question Type : 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

Moseley's law of the characteristic X-rays is $\sqrt{V} = a(z - b)$. In this

1. Both 'a' and 'b' depend on material used.
2. Both 'a' and 'b' are independent of material used.
3. 'a' is independent but 'b' depend on type of material used.
4. 'b' is independent but 'a' depends on material used.

Options :

92090697393. 1
92090697394. 2
92090697395. 3
92090697396. 4

Question Number : 49 Question Id : 92090624649 Question Type : 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

अभिलक्षण (कैरिक्टिस्टिक) X-किरणों के लिए मोसले का नियम $\sqrt{V} = a(z - b)$ है इसमें

1. 'a' और 'b' दोनों प्रयुक्त पदार्थ पर निर्भर करते हैं।
2. 'a' और 'b' दोनों प्रयुक्त पदार्थ से स्वतंत्र हैं।
3. 'a' स्वतंत्र है लेकिन 'b' प्रयुक्त पदार्थ के प्रकार पर निर्भर करता है।
4. 'b' स्वतंत्र है लेकिन 'a' प्रयुक्त पदार्थ पर निर्भर करता है।

Options :

92090697393. 1
92090697394. 2
92090697395. 3
92090697396. 4

Question Number : 50 Question Id : 92090624650 Question Type : 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 true ?

- A. A liquid - gas phase transition at the critical point is first order phase transition.
- B. A paramagnet - ferromagnet phase transition is first order phase transition.
- C. A liquid - gas phase transition away from the critical point is first order phase transition
- D. The plot of specific heat as a function of temperature shows a discontinuity in first order phase transition.

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

- 1. A and B
- 2. B and C
- 3. Only C
- 4. Only D

Options :

92090697397. 1

92090697398. 2

92090697399. 3

92090697400. 4

Question Number : 50 Question Id : 92090624650 Question Type : 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 कथन सत्य है?

- A. क्रिस्टल बिंदु पर एक तरल गैस प्रावस्था संक्रमण एक प्रथम कोटि का प्रावस्था संक्रमण है
- B. एक पैरामैग्नेटिक-फेरोमैग्नेटिक प्रावस्था संक्रमण एक प्रथम कोटि का प्रावस्था संक्रमण है
- C. क्रिस्टल बिंदु से दूर एक तरल गैस प्रावस्था संक्रमण एक प्रथम कोटि का प्रावस्था संक्रमण है
- D. प्रथम कोटि का प्रावस्था संक्रमण में तापमान के फलन रूप में विशिष्ट उष्मा का प्लॉट असततता दर्शाता है

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

- 1. A और B
- 2. B और C
- 3. केवल C
- 4. केवल D

Options :

92090697397. 1

92090697398. 2

92090697399. 3

92090697400. 4

Question Number : 51 Question Id : 92090624651 Question Type : 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

Graphene nanosheet is a

1. One dimensional nanostructure
2. Two dimensional nanostructure
3. Three dimensional nanostructure
4. Zero dimensional nanostructure

Options :

92090697401. 1
92090697402. 2
92090697403. 3
92090697404. 4

Question Number : 51 Question Id : 92090624651 Question Type : 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

ग्राफीन नैनोशीट है -

1. एक आयामी नैनो संरचना
2. दो आयामी नैनो संरचना
3. त्री आयामी नैनो संरचना
4. शून्य आयामी नैनो संरचना

Options :

92090697401. 1
92090697402. 2
92090697403. 3
92090697404. 4

Question Number : 52 Question Id : 92090624652 Question Type : 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

Carbon nanotubes possess

1. Zero degree of freedom
2. Zero degree of confinement
3. One degree of freedom
4. Two degree of confinement

Options :

92090697405. 1
92090697406. 2
92090697407. 3
92090697408. 4

Question Number : 52 Question Id : 92090624652 Question Type : 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

कार्बन नैनोट्यूब में होती है -

1. शून्य स्वतंत्रता की कोटि
2. शून्य रोध की कोटि
3. एक स्वतंत्रता की कोटि
4. दो रोध की कोटि

Options :

- 92090697405. 1
- 92090697406. 2
- 92090697407. 3
- 92090697408. 4

Question Number : 53 Question Id : 92090624653 Question Type : 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

'There is Plenty of Room at the bottom' statement was mentioned by.

1. Albert Einstein
2. Richard Feynman
3. Max Planck
4. James Chadwick

Options :

- 92090697409. 1
- 92090697410. 2
- 92090697411. 3
- 92090697412. 4

Question Number : 53 Question Id : 92090624653 Question Type : 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

'Plenty of Room at the bottom' किसके द्वारा वर्णित कथन है ?

1. अल्बर्ट आइंस्टीन
2. रिचर्ड फेनमैन
3. मैक्स प्लैंक
4. जेम्स चाडविक

Options :

- 92090697409. 1

92090697410. 2

92090697411. 3

92090697412. 4

Question Number : 54 Question Id : 92090624654 Question Type : 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

Calculate the de-Broglie wavelength of electron which is accelerated from rest through the potential difference of 80 volt. ($m_e = 3.1 \times 10^{-31}$ kg)

1. 1.37×10^{-2} m
2. 1.37×10^{-10} m
3. 1.37×10^{-15} m
4. 1.37×10^{-6} m

Options :

92090697413. 1

92090697414. 2

92090697415. 3

92090697416. 4

Question Number : 54 Question Id : 92090624654 Question Type : 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

इलेक्ट्रॉन की डी-ब्रॉग्ली तरंग दैर्घ्य की गणना करें। जिसे विरामावस्था से 80 वोल्ट के विभावान्तर द्वारा त्वरित किया जाता है। ($m_e = 3.1 \times 10^{-31}$ kg)

1. 1.37×10^{-2} m
2. 1.37×10^{-10} m
3. 1.37×10^{-15} m
4. 1.37×10^{-6} m

Options :

92090697413. 1

92090697414. 2

92090697415. 3

92090697416. 4

Question Number : 55 Question Id : 92090624655 Question Type : 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 statement

1. Nuclear forces are short range and charge independent
2. Nuclear forces are weak but exist everywhere
3. Nuclear forces are long range and charge dependent
4. Nuclear forces are strongest and charge dependent

Options :

92090697417. 1
92090697418. 2
92090697419. 3
92090697420. 4

Question Number : 55 Question Id : 92090624655 Question Type : 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 कथन चुनें -

1. परमाणु बल कम दूरी के होते हैं और आवेश से स्वतन्त्र होते हैं।
2. परमाणु बल कमजोर होते हैं लेकिन हर जगह पाए जाते हैं।
3. परमाणु बल लंबी दूरी के होते हैं और आवेश पर निर्भर हैं।
4. परमाणु बल सबसे मजबूत होते हैं और आवेश पर निर्भर होते हैं।

Options :

92090697417. 1
92090697418. 2
92090697419. 3
92090697420. 4

Question Number : 56 Question Id : 92090624656 Question Type : 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 low temperature regime, the higher energy states in Boltzmann distribution for several energy levels are almost empty.

Statement II : Under the condition $\Delta E = kT$, Boltzmann's ratio reduces to $\frac{N_i}{N_0} = \frac{1}{e}$

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 :

92090697421. 1
92090697422. 2
92090697423. 3
92090697424. 4

Question Number : 56 Question Id : 92090624656 Question Type : 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

दो कथन दिए गए हैं:

कथन I: कम तापमान वाले क्षेत्र में, ऊर्जा के विभिन्न स्तरों के बोल्डज़मैन वितरण में उच्च ऊर्जा अवस्थाएँ लगभग रिक्त होती हैं।

कथन II: कम तापमान पर, शर्त $\Delta E = kT$ में, बोल्डज़मैन का अनुपात घटकर $\frac{N_i}{N_o} = \frac{1}{e}$ हो जाता है।

उपरोक्त कथन के आलोक में, नीचे दिए गए विकल्पों में से सही उत्तर का 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 :

92090697421. 1
92090697422. 2
92090697423. 3
92090697424. 4

Question Number : 57 Question Id : 92090624657 Question Type : 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 element possess cubic crystal structure?

1. Silver (Ag)
2. Silicon (Si)
3. Carbon (Diamond)
4. Germanium (Ge)

Options :

92090697425. 1
92090697426. 2
92090697427. 3
92090697428. 4

Question Number : 57 Question Id : 92090624657 Question Type : 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 तत्व की क्रिस्टल संरचना क्यूबिक है।

1. सिल्वर (Ag)
2. सिलिकॉन (Si)
3. कार्बन (डायमण्ड)
4. जर्मेनियम (Ge)

Options :

92090697425. 1

92090697426. 2

92090697427. 3

92090697428. 4

Question Number : 58 Question Id : 92090624658 Question Type : 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

Decreasing the dimension of a nanoparticle, what kind of a shift is observed in the absorption edge in the absorption spectra of a semiconducting nanoparticle.

1. Red shift
2. Blue shift
3. Green shift
4. No shift

Options :

92090697429. 1

92090697430. 2

92090697431. 3

92090697432. 4

Question Number : 58 Question Id : 92090624658 Question Type : 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 नैनोकण के आयाम के कम होने पर, एक अर्धचालक नैनोकणों के अवशोषण स्पेक्ट्रा के अवशोषण किनारें में किस प्रकार का परिवर्तन देखा जाता है।

1. रेड शिफ्ट
2. ब्लू शिफ्ट
3. ग्रीन शिफ्ट
4. नो शिफ्ट

Options :

92090697429. 1

92090697430. 2

92090697431. 3

92090697432. 4

Question Number : 59 Question Id : 92090624659 Question Type : 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 related to crystal defects is incorrect?

1. Point defect is a simplest category of crystal imperfection.
2. A dislocation is a defect in which a line of atoms is not in its appropriate position.
3. Dislocations are of two types :
 - (i) Edge dislocation
 - (ii) Screw dislocation
4. Vacancies and interstitials are also type of dislocations only

Options :

92090697433. 1

92090697434. 2

92090697435. 3

92090697436. 4

Question Number : 59 Question Id : 92090624659 Question Type : 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 कथनों में से कौन सा क्रिस्टल दोष (डिफेक्ट) के संबंध में सही नहीं है।

1. बिंदु दोष क्रिस्टल अपूर्णता का सबसे सरल रूप है।
2. अव्यवस्था दोष वह है, जिसमें परमाणुओं की एक पंक्ति अपनी उचित स्थिति में नहीं होती है।
3. अव्यवस्था दो प्रकार की होती है:
 - (i) किनारे की अव्यवस्था (एज डिसलोकेशन)
 - (ii) पेंच अव्यवस्था (स्कू डिसलोकेशन)
4. रिक्तियां और अंतराल भी केवल अव्यवस्था के ही प्रकार हैं।

Options :

92090697433. 1
92090697434. 2
92090697435. 3
92090697436. 4

Question Number : 60 Question Id : 92090624660 Question Type : 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

Metallic gold has FCC structure with the unit cell dimension $4.08 \text{ \AA}$. Calculate the metallic radius of the Gold atom.

1. $1.38 \text{ \AA}$
2. $1.44 \text{ \AA}$
3. $3.44 \text{ \AA}$
4. $4.38 \text{ \AA}$

Options :

92090697437. 1
92090697438. 2
92090697439. 3
92090697440. 4

Question Number : 60 Question Id : 92090624660 Question Type : 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

धात्विक गोल्ड में यूनिट सेल के आयाम $4.08 \text{ \AA}$ के साथ FCC संरचना है, तो गोल्ड के परमाणु की धात्विक त्रिज्या की गणना करें।

1. $1.38 \text{ \AA}$
2. $1.44 \text{ \AA}$
3. $3.44 \text{ \AA}$
4. $4.38 \text{ \AA}$

Options :

92090697437. 1
92090697438. 2
92090697439. 3
92090697440. 4

Question Number : 61 Question Id : 92090624661 Question Type : 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 intermediate stage of sol-gel formation of nanoparticles?

1. Agglomeration
2. Condensation
3. Hydrolysis
4. Sputtering

Options :

92090697441. 1
92090697442. 2
92090697443. 3
92090697444. 4

Question Number : 61 Question Id : 92090624661 Question Type : 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 नैनोकणों के सोल-जेल निर्माण का मध्यवर्ती चरण नहीं है।

1. अग्लामरेशन
2. वाष्पीकरण
3. हाइड्रोलिसिस
4. स्पटरिंग

Options :

92090697441. 1
92090697442. 2
92090697443. 3
92090697444. 4

Question Number : 62 Question Id : 92090624662 Question Type : 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 method of synthesis of carbon nanotubes?

1. Laser ablation
2. Embossing
3. Arc discharge
4. Chemical vapour deposition

Options :

92090697445. 1
92090697446. 2
92090697447. 3
92090697448. 4

Question Number : 62 Question Id : 92090624662 Question Type : 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 सी कार्बन नैनो ट्यूब के संश्लेषण की विधि नहीं है।

1. लेजर ऐब्लेशन
2. एम्बोजिंग
3. आर्क डिस्चार्ज
4. रासायनिक वाष्प जमाव

Options :

92090697445. 1
92090697446. 2
92090697447. 3
92090697448. 4

Question Number : 63 Question Id : 92090624663 Question Type : 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

Select the option which is also referred as bucky ball.

1. Carbon nanotubes
2. C_{60}
3. Graphene
4. Quantum dots

Options :

92090697449. 1
92090697450. 2
92090697451. 3
92090697452. 4

Question Number : 63 Question Id : 92090624663 Question Type : 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 विकल्प का चयन करें जिसे 'बकी बॉल' भी कहा जाता है।

1. कार्बन नैनो ट्यूब
2. C_{60}
3. ग्राफीन
4. क्वान्टम डॉट्स

Options :

92090697449. 1

92090697450. 2

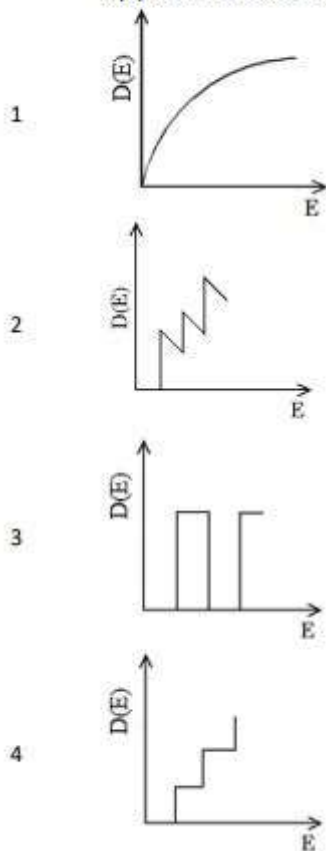
92090697451. 3

92090697452. 4

Question Number : 64 Question Id : 92090624664 Question Type : 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

Q-39. Following options represents the density of states ($D(E)$) verses energy (E) curves for materials of different dimensionality. Choose the option which represents the $D(E)$ for a 1-Dimensional material.



Options :

92090697453. 1

92090697454. 2

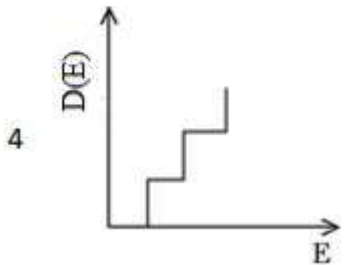
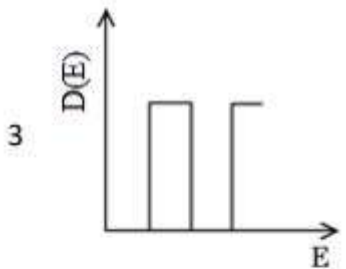
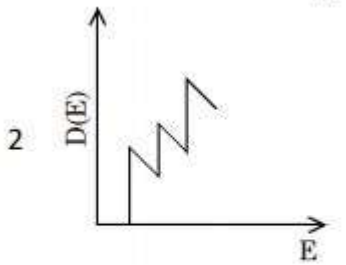
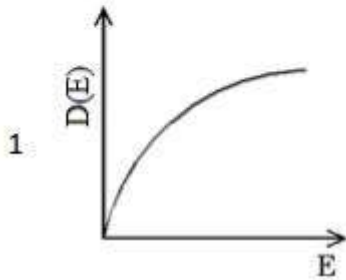
92090697455. 3

92090697456. 4

Question Number : 64 Question Id : 92090624664 Question Type : 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 विकल्प विभिन्न आयामी पदार्थों के लिए ऊर्जा अवस्थाओं के घनत्व ($D(E)$) बनाम ऊर्जा (E) के वक्रों को दर्शाते हैं। वह विकल्प चुने जो एक आयामी (1-D) पदार्थ का प्रतिनिधित्व करता है।



Options :

92090697453. 1

92090697454. 2

92090697455. 3

92090697456. 4

Question Number : 65 Question Id : 92090624665 Question Type : 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 option which doesn't represents thin film deposition technique?

1. Thermal evaporation
2. Pulsed laser deposition
3. Sputtering
4. Annealing

Options :

92090697457. 1
92090697458. 2
92090697459. 3
92090697460. 4

Question Number : 65 Question Id : 92090624665 Question Type : 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 विकल्प चुनें जो 'थिन फिल्म' (thin film) निक्षेपण तकनीकों का प्रतिनिधित्व नहीं करता?

1. थर्मल वाष्पीकरण
2. स्पंदित (पल्स) लेजर जमाव
3. स्पटरिंग
4. एनिलिंग

Options :

92090697457. 1
92090697458. 2
92090697459. 3
92090697460. 4

Question Number : 66 Question Id : 92090624666 Question Type : 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 : Periodicity of a crystal lattice leads to allowed and forbidden bands.

Reason R : An electron in a crystal moves in a region of constant potential rather than a periodically varying potential.

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 :

92090697461. 1
92090697462. 2
92090697463. 3
92090697464. 4

Question Number : 66 Question Id : 92090624666 Question Type : 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 के रूप में लिखित है तो दूसरा उसके कारण के रूप में,

अभिकथन: एक क्रिस्टल जालक की आवर्तता अनुमत और वर्जित बंधो को जन्म देती है।

कारण: एक क्रिस्टल में एक इलेक्ट्रॉन समय-समय पर बदलते विभव के बजाय निरंतर विभव वाले क्षेत्र में चलता है।

उपरोक्त कथन के आलोक में, नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए:

1. A और R दोनों सत्य हैं, और R, A की सही व्याख्या है
2. A और R दोनों सत्य हैं, और R, A की सही व्याख्या नहीं है
3. A सत्य है, लेकिन R असत्य हैं
4. A असत्य है, लेकिन R सत्य हैं

Options :

92090697461. 1
92090697462. 2
92090697463. 3
92090697464. 4

Question Number : 67 Question Id : 92090624667 Question Type : 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 : Soft iron is preferred over steel for making core in transformers and moving coil galvanometers.

Reason R : Hysteresis loop area of soft iron is small compared to that in steel and hence it has low retentivity and low coercivity.

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 :

92090697465. 1
92090697466. 2
92090697467. 3
92090697468. 4

Question Number : 67 Question Id : 92090624667 Question Type : 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 के रूप में लिखित है तो दूसरा उसके कारण के रूप में,

अभिकथन: एक क्रिस्टल जालक की आवर्तता अनुमत और वर्जित बंधो को जन्म देती है।

कारण: एक क्रिस्टल में एक इलेक्ट्रॉन समय-समय पर बदलते विभव के बजाय निरंतर विभव वाले क्षेत्र में चलता है।

उपरोक्त कथन के आलोक में, नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए:

1. A और R दोनों सत्य हैं, और R, A की सही व्याख्या है
2. A और R दोनों सत्य हैं, और R, A की सही व्याख्या नहीं है
3. A सत्य है, लेकिन R असत्य हैं
4. A असत्य है, लेकिन R सत्य हैं

Options :

92090697465. 1
92090697466. 2
92090697467. 3
92090697468. 4

Question Number : 68 Question Id : 92090624668 Question Type : 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 can actually change colour depending on the size of the gold nanoparticles.

Reason R : The colour of metal nanoparticles is size dependent due to surface plasmon absorption

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 :

92090697469. 1

92090697470. 2

92090697471. 3

92090697472. 4

Question Number : 68 Question Id : 92090624668 Question Type : 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 के रूप में लिखित है तो दूसरा उसके कारण के रूप में,

अभिकथन: गोल्ड वास्तव में, गोल्ड के नैनोकणों के आकार के आधार पर रंग बदल सकता है।

कारण: सतही प्लाज़मोन अवशोषण के कारण नैनो कणों का रंग आकार पर निर्भर होता है। उपरोक्त कथन के आलोक में, नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए:

1. A और R दोनों सत्य हैं, और R, A की सही व्याख्या है
2. A और R दोनों सत्य हैं, और R, A की सही व्याख्या नहीं है
3. A सत्य है, लेकिन R असत्य है
4. A असत्य है, लेकिन R सत्य है

Options :

92090697469. 1

92090697470. 2

92090697471. 3

92090697472. 4

Question Number : 69 Question Id : 92090624669 Question Type : 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 : Ferromagnetism is only observed in the materials having incomplete electron shells.

Reason R : The ferromagnetic material shows large and positive magnetic susceptibility due to presence of unpaired electrons.

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 :

92090697473. 1

92090697474. 2

92090697475. 3

92090697476. 4

Question Number : 69 Question Id : 92090624669 Question Type : 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 के रूप में लिखित है तो दूसरा उसके कारण के रूप में,

अभिकथन: लौह चुंबकत्व (फेरोमैग्नेटिज्म) केवल अपूर्ण इलेक्ट्रॉन शैल वाले पदार्थों में अवलोकित किया जाता है।

कारण: अयुग्मित इलेक्ट्रॉनों की उपस्थिति के कारण फेरोमैग्नेटिक पदार्थ बड़ी और सकारात्मक चुंबकीय सुग्राह्यता दर्शाते हैं।

उपरोक्त कथन के आलोक में, नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए:

1. A और R दोनों सत्य हैं, और R, A की सही व्याख्या है
2. A और R दोनों सत्य हैं, और R, A की सही व्याख्या नहीं है
3. A सत्य है, लेकिन R असत्य है
4. A असत्य है, लेकिन R सत्य है

Options :

92090697473. 1

92090697474. 2

92090697475. 3

92090697476. 4

Question Number : 70 Question Id : 92090624670 Question Type : 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 form of Debye scherrer equation for particle size determination.

- 1 $d = \frac{\beta\lambda}{k \cos \theta}$
- 2 $d = \frac{k\lambda}{\beta \cos \theta}$
- 3 $d = \frac{\beta \cos \theta}{k\lambda}$
- 4 $d = \frac{k\beta}{\lambda \cos \theta}$

Options :

92090697477. 1
92090697478. 2
92090697479. 3
92090697480. 4

Question Number : 70 Question Id : 92090624670 Question Type : 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

कण आकार निर्धारण के लिए डेबी शेरर समीकरण का सही रूप चुनें -

1. $d = \frac{\beta\lambda}{k \cos \theta}$
2. $d = \frac{k\lambda}{\beta \cos \theta}$
3. $d = \frac{\beta \cos \theta}{k\lambda}$
4. $d = \frac{k\beta}{\lambda \cos \theta}$

Options :

92090697477. 1
92090697478. 2
92090697479. 3
92090697480. 4

Question Number : 71 Question Id : 92090624671 Question Type : 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 : In a solid, nearly 10^{23} atoms per cm^3 are present, their levels are so close together that they form energy bands.

Reason R : The greater the number of interacting atoms, the greater overlap of their respective valence shell electrons wave functions.

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 :

92090697481. 1
92090697482. 2
92090697483. 3
92090697484. 4

Question Number : 71 Question Id : 92090624671 Question Type : 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 (A) के रूप में लिखित है तो दूसरा उसके कारण (R) के रूप में,

अभिकथन A : एक ठोस में, लगभग 10^{23} परमाणु प्रति cm^3 मौजूद होते हैं, उनके सतह (लेवल) एक साथ इतने करीब होते हैं कि वे ऊर्जा बैंड बनाते हैं।

कारण R : परस्पर क्रिया करने वाले परमाणुओं की संख्या जितनी अधिक होता है उसी प्रकार उनके संबंधित संयोजन कक्ष के इलेक्ट्रॉनों की तरंग फलन का अत्यधिक अधिव्यापन होता है।

उपरोक्त कथन के आलोक में, नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए:

1. A और R दोनों सत्य हैं, और R, A की सही व्याख्या है
2. A और R दोनों सत्य हैं, और R, A की सही व्याख्या नहीं है
3. A सत्य है, लेकिन R असत्य है
4. A असत्य है, लेकिन R सत्य है

Options :

92090697481. 1
92090697482. 2
92090697483. 3
92090697484. 4

Question Number : 72 Question Id : 92090624672 Question Type : 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 optical properties of a solid depends on the band gap between valence band and conduction band.

Reason R : Photons of visible light have energies from 1- 3 eV.

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 :

92090697485. 1
92090697486. 2
92090697487. 3
92090697488. 4

Question Number : 72 Question Id : 92090624672 Question Type : 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 (A) के रूप में लिखित है तो दूसरा उसके कारण (R) के रूप में,

अभिकथन A : एक ठोस के प्रकाशीय (ऑप्टिकल) गुण संयोजी बंध और संवाहक बंध के बीच बैंड गैप पर निर्भर करते हैं।

कारण R : दृश्यमान प्रकाश के प्रकाशाणुओं (फोटॉन) की ऊर्जा 1- 3 eV होती है।

उपरोक्त कथन के आलोक में, नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए:

1. A और R दोनों सत्य हैं, और R, A की सही व्याख्या है
2. A और R दोनों सत्य हैं, और R, A की सही व्याख्या नहीं है
3. A सत्य है, लेकिन R असत्य है
4. A असत्य है, लेकिन R सत्य है

Options :

92090697485. 1
92090697486. 2
92090697487. 3
92090697488. 4

Question Number : 73 Question Id : 92090624673 Question Type : 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 first order phase transition?

- A. Vaporization of liquid at its boiling point
- B. Transition from Ferromagnetic material to paramagnetic material
- C. Normal liquid Helium changes to superfluid Helium
- D. Transition from Superconducting state to normal state.

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

- 1. A and B
- 2. C and D
- 3. Only A
- 4. Only B

Options :

92090697489. 1

92090697490. 2

92090697491. 3

92090697492. 4

Question Number : 73 Question Id : 92090624673 Question Type : 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 दर्शाता है। प्रथम कोटि का प्रावस्था संक्रमण :

- A. अपने कथनांक पर तरल का वाष्पीकरण
- B. फेरोमैग्नेटिक पदार्थ से पैरामैग्नेटिक पदार्थ में संक्रमण
- C. सामान्य तरल हीलियम से सुपर तरल हीलियम में संक्रमण
- D. अतिचालक अवस्था से सामान्य अवस्था में संक्रमण

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

- 1. A तथा B
- 2. C तथा D
- 3. केवल A
- 4. केवल B

Options :

92090697489. 1

92090697490. 2

92090697491. 3

92090697492. 4

Question Number : 74 Question Id : 92090624674 Question Type : 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 inter planar spacing (d) in the crystals is given by

- 1 $d = \frac{a}{\sqrt{h^2 + k^2 + l^2}}$
- 2 $d = \frac{1}{\sqrt{h^2 + k^2 + l^2}}$
- 3 $d = \frac{a}{(h^2 + k^2 + l^2)^{\frac{1}{3}}}$
- 4 $d = \frac{1}{(h^2 + k^2 + l^2)^{\frac{1}{3}}}$

Options :

92090697493. 1
92090697494. 2
92090697495. 3
92090697496. 4

Question Number : 74 Question Id : 92090624674 Question Type : 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

क्रिस्टल में अंतरालीय (इंटरप्लानर) रिक्ती किसके द्वारा दी जाती है।

1. $d = \frac{a}{\sqrt{h^2 + k^2 + l^2}}$
2. $d = \frac{1}{\sqrt{h^2 + k^2 + l^2}}$
3. $d = \frac{a}{(h^2 + k^2 + l^2)^{\frac{1}{3}}}$
4. $d = \frac{1}{(h^2 + k^2 + l^2)^{\frac{1}{3}}}$

Options :

92090697493. 1
92090697494. 2
92090697495. 3
92090697496. 4

Question Number : 75 Question Id : 92090624675 Question Type : 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 sequence followed by Born - Haber cycle for NaCl is as follows :

- A. Solid Na and Cl are dissociated into constituent atoms
- B. Na^+ and Cl^- ions arrange themselves in the lattice with the release of lattice energy
- C. Energy ΔH , heat of dissociation, is supplied in order to break the lattice again into solid Na and Cl molecules.
- D. Gaseous sodium and chlorine atoms are ionized by providing ionization energy (I) in order to remove outermost electrons from sodium atom.

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

- 1. A, B, D, C
- 2. B, D, A, C
- 3. B, D, C, A
- 4. A, D, B, C

Options :

92090697497. 1

92090697498. 2

92090697499. 3

92090697500. 4

Question Number : 75 Question Id : 92090624675 Question Type : 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

NaCl के लिए बार्न-हेबर चक्र का क्रम इस प्रकार है:

- A. ठोस Na तथा Cl परमाणुओं में अलग हो जाते हैं।
- B. Na^+ तथा Cl^- आयन अपने जालक (लेटिस) में स्वयं व्यवस्थित होने के साथ जालकीय ऊर्जा मुक्त करते हैं।
- C. ठोस Na तथा Cl में पुनः जालक (लेटिस) को तोड़ने के लिए विघटन की उष्मा ΔH की ऊष्मीय विघटन की आपूर्ति की जाती है।
- D. आयनीकरण ऊर्जा की आपूर्ति करके सोडियम तथा क्लोरीन परमाणुओं को आयनित किया जाता है।

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

- 1. A, B, D, C
- 2. B, D, A, C
- 3. B, D, C, A
- 4. A, D, B, C

Options :

92090697497. 1

92090697498. 2

92090697499. 3

92090697500. 4

Question Number : 76 Question Id : 92090624676 Question Type : 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

Arrange the following in the order of increasing cohesive energy.

- A. Sodium chloride, NaCl
- B. Diamond, C
- C. Methane, CH₄
- D. Sodium, Na

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

- 1. C, A, D, B
- 2. C, A, B, D
- 3. C, D, A, B
- 4. A, B, C, D

Options :

- 92090697501. 1
- 92090697502. 2
- 92090697503. 3
- 92090697504. 4

Question Number : 76 Question Id : 92090624676 Question Type : 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 को संसजक ऊर्जा के बढ़ते हुए क्रम में व्यवस्थित कीजिए।

- A. सोडियम क्लोराईड, NaCl
- B. डायमण्ड, C
- C. मेथेन, CH₄
- D. सोडियम, Na

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

- 1. C, A, D, B
- 2. C, A, B, D
- 3. C, D, A, B
- 4. A, B, C, D

Options :

- 92090697501. 1
- 92090697502. 2
- 92090697503. 3
- 92090697504. 4

Question Number : 77 Question Id : 92090624677 Question Type : 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 regarding synthesis of nanomaterials ?

- a. Better size distribution is the limitation of sol-gel method.
- b. Solvothermal method uses water as a major component during synthesis.
- c. In inverse micelle technique, the size of nanoparticles is limited by micellar cavity.
- d. Hydro thermal method uses cyclohexane as a major component during synthesis.

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

- 1. a and b
- 2. b and c
- 3. a and c
- 4. c and d

Options :

- 92090697505. 1
- 92090697506. 2
- 92090697507. 3
- 92090697508. 4

Question Number : 77 Question Id : 92090624677 Question Type : 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

नैनो पदार्थ के संश्लेषण के संबंधन में सही कथन की पहचान करें।

- a. सोल-जेल विधि द्वारा बेहतर आकार वितरण की एक सीमा है।
- b. सोल्वो थर्मल विधि संश्लेषण में जल एक मुख्य घटक है।
- c. इनवर्स मिसेल तकनीक में, नैनोकणों का आकार मिसेलर कोटर (कैविटी) द्वारा सीमित होता है।
- d. हाइड्रोथर्मल विधि संश्लेषण में साईक्लो हेक्सैन एक मुख्य घटक है।

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

- 1. a तथा b
- 2. b तथा c
- 3. a तथा c
- 4. c तथा d

Options :

- 92090697505. 1
- 92090697506. 2
- 92090697507. 3
- 92090697508. 4

Question Number : 78 Question Id : 92090624678 Question Type : 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

Arrange the following cubic crystals in the order of increasing adiabatic elastic stiffness constants at room temperature

- A. K
- B. Al
- C. Ag
- D. Au
- E. Ta

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

- 1. $A < B < C < D < E$
- 2. $D < C < B < A < E$
- 3. $A < D < B < C < E$
- 4. $C < A < B < D < E$

Options :

- 92090697509. 1
- 92090697510. 2
- 92090697511. 3
- 92090697512. 4

Question Number : 78 Question Id : 92090624678 Question Type : 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 घनाकार क्रिस्टलों को रुद्धोष्म प्रात्यास्थ कठोरता नियतांक के बढ़ते हुए क्रम में लगाए।

- 1. K
- 2. Al
- 3. Ag
- 4. Au
- 5. Ta

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

- 1. $A < B < C < D < E$
- 2. $D < C < B < A < E$
- 3. $A < D < B < C < E$
- 4. $C < A < B < D < E$

Options :

- 92090697509. 1
- 92090697510. 2
- 92090697511. 3
- 92090697512. 4

Question Number : 79 Question Id : 92090624679 Question Type : 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 option which represents the order in which the following materials can be arranged with respect to their dimensionality (smallest to largest)

- A. Carbon nanotubes
- B. Graphite
- C. Graphene
- D. Fulleren

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

- 1. $A < D < C < B$
- 2. $B < A < C < D$
- 3. $D < A < C < B$
- 4. $C < B < D < A$

Options :

- 92090697513. 1
- 92090697514. 2
- 92090697515. 3
- 92090697516. 4

Question Number : 79 Question Id : 92090624679 Question Type : 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 पदार्थों अपने आयामों के अनुसार व्यवस्थित करें जो अपने क्रम को प्रदर्शित करते हैं। (छोटे से बड़ा)

- A. कार्बन नैनो ट्यूब
- B. ग्रेफाइट
- C. ग्राफीन
- D. फुलरीन

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

- 1. $A < D < C < B$
- 2. $B < A < C < D$
- 3. $D < A < C < B$
- 4. $C < B < D < A$

Options :

- 92090697513. 1
- 92090697514. 2
- 92090697515. 3
- 92090697516. 4

Question Number : 80 Question Id : 92090624680 Question Type : 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 orthorhombic crystal system

1. $a = b \neq c, \alpha = \beta = \gamma = 90^\circ$
2. $a \neq b \neq c, \alpha \neq \beta \neq \gamma \neq 90^\circ$
3. $a \neq b \neq c, \alpha = \beta = 90^\circ \neq \gamma$
4. $a \neq b \neq c, \alpha = \beta = \gamma = 90^\circ$

Options :

92090697517. 1

92090697518. 2

92090697519. 3

92090697520. 4

Question Number : 80 Question Id : 92090624680 Question Type : 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

विषमलंबाक्ष (ऑर्थोरोम्बिक) क्रिस्टल प्रणाली के लिए -

1. $a = b \neq c, \alpha = \beta = \gamma = 90^\circ$
2. $a \neq b \neq c, \alpha \neq \beta \neq \gamma \neq 90^\circ$
3. $a \neq b \neq c, \alpha = \beta = 90^\circ \neq \gamma$
4. $a \neq b \neq c, \alpha = \beta = \gamma = 90^\circ$

Options :

92090697517. 1

92090697518. 2

92090697519. 3

92090697520. 4

Question Number : 81 Question Id : 92090624681 Question Type : 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 crystallographic point group symmetry operation. 'Rotation -

$\frac{2\pi}{n}$ Reflection' rotation through n is followed by a reflection perpendicular to the axis.

Statement II : The is aforementioned 'axis' is then called $2n$ -fold rotation - reflection axis.

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 :

92090697521. 1
92090697522. 2
92090697523. 3
92090697524. 4

Question Number : 81 Question Id : 92090624681 Question Type : 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 (A) के रूप में लिखित है तो दूसरा उसके कारण (R) के रूप में,

अभिकथन I : क्रिस्टलोग्राफिक बिन्दु समूह समरूपता आपरेशन 'रोटेशन-रिफ्लेक्शन'

$\frac{2\pi}{n}$ में n से रोटेशन के बाद धूरी के लंबवत रिफ्लेक्शन होता है।

कारण II : पूर्वोक्त 'अक्ष' को तब $2n$ -गुना रोटेशन- रिफ्लेक्शन अक्ष कहा जाता है।

उपरोक्त कथन के आलोक में, नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए:

1. A और R दोनों सत्य हैं, और R, A की सही व्याख्या है
2. A और R दोनों सत्य हैं, और R, A की सही व्याख्या नहीं है
3. A सत्य है, लेकिन R असत्य हैं
4. A असत्य है, लेकिन R सत्य हैं

Options :

92090697521. 1
92090697522. 2
92090697523. 3
92090697524. 4

Question Number : 82 Question Id : 92090624682 Question Type : 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 :

According to quantum mechanics which statement is correct in the case of degeneracy.

Statement I : The degeneracy means the number of orbital with same energy.

Statement II : The energy of each electron occupying same energy level are degenerate.

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 :

92090697525. 1
92090697526. 2
92090697527. 3
92090697528. 4

Question Number : 82 Question Id : 92090624682 Question Type : 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

दो कथन दिए गए हैं:

क्वांटम यांत्रिकी के अनुसार अधःपतन की स्थिति में कौन सा कथन सही है।

कथन I : अधःपतन (डीजनरेसी) का अर्थ है समान ऊर्जा वाले कक्षकों की संख्या।

कथन II : समान ऊर्जा स्तर पर रहने वाले प्रत्येक इलेक्ट्रॉन की ऊर्जा अधः पतित होती है।

उपरोक्त कथन के आलोक में, नीचे दिए गए विकल्पों में से सही उत्तर का 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 :

92090697525. 1
92090697526. 2
92090697527. 3
92090697528. 4

Question Number : 83 Question Id : 92090624683 Question Type : 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 superconducting state of a material is defined to by two mutually independent properties, that are : zero resistivity and perfect diamagnetism

$$(\vec{E} = 0 \text{ and } \vec{B} = 0)$$

Statement II : The superconducting state of a material is defined by two mutually independent properties that are : zero entropy and zero temperature ($S = 0$ and $T = 0$).

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 :

92090697529. 1
92090697530. 2
92090697531. 3
92090697532. 4

Question Number : 83 Question Id : 92090624683 Question Type : 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

दो कथन दिए गए हैं:

कथन I : किसी पदार्थ की अतिचालक अवस्था को दो परस्पर स्वतंत्र गुणों द्वारा परिभाषित

किया जाता है, जो शून्य प्रतिरोधकता और पूर्ण प्रतिकुम्बकत्व $(\vec{E} = 0 \text{ and } \vec{B} = 0)$ है।

कथन II : किसी पदार्थ की अतिचालक अवस्था को दो परस्पर स्वतंत्र गुणों द्वारा परिभाषित

किया जाता है, जो शून्य एन्ट्रॉपी और शून्य तापमान ($S = 0$ और $T = 0$) है।

उपरोक्त कथन के आलोक में, नीचे दिए गए विकल्पों में से सही उत्तर का 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 :

92090697529. 1
92090697530. 2
92090697531. 3
92090697532. 4

Question Number : 84 Question Id : 92090624684 Question Type : 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 : As the distance between the ions increases it results in reduced lattice energy followed by fall in the melting point and hardness of the crystal.

Statement II : As the distance between the ions increases it results in increased coefficients of thermal expansion and compressibility.

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 :

92090697533. 1
92090697534. 2
92090697535. 3
92090697536. 4

Question Number : 84 Question Id : 92090624684 Question Type : 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

दो कथन दिए गए हैं:

कथन I: जैसे-जैसे आयनों के बीच की दूरी बढ़ती है, इसके परिणाम स्वरूप जालक (लेटिस) ऊर्जा कम हो जाती है और इससे गलनांक और क्रिस्टल की कठोरता में कमी आती है।

कथन II: जैसे-जैसे आयनों के बीच की दूरी बढ़ती है, इसके परिणाम स्वरूप ऊष्मीय विस्तार और संपीड्यता के गुणांक में वृद्धि होती है।

उपरोक्त कथन के आलोक में, नीचे दिए गए विकल्पों में से सही उत्तर का 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 :

92090697533. 1
92090697534. 2
92090697535. 3
92090697536. 4

Question Number : 85 Question Id : 92090624685 Question Type : 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 unit cell is always a primitive cell it is defined by a parallelepiped of longest possible sides by translations a , b , c along three crystallographic axes x , y , z .

Statement II : A unit cell can be a primitive or non primitive cell.

It is defined by a parallelepiped of shortest possible sides by translations a , b , c along three crystallographic axes x , y , z .

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 :

92090697537. 1

92090697538. 2

92090697539. 3

92090697540. 4

Question Number : 85 Question Id : 92090624685 Question Type : 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

दो कथन दिए गए हैं:

कथन I: एक यूनिट सेल हमेशा प्रिमिटिव सेल होता है। यह अंतरण a , b तथा c द्वारा तीन क्रिस्टलोग्राफिक अक्षों X , Y या Z के साथ सबसे लंबे संभावित भुजाओं वाले के समानांतर चतुर्भुज द्वारा परिभाषित किया जाता है।

कथन II: एक यूनिट सेल एक प्रिमिटिव सेल हो सकता है। यह अंतरण a , b तथा c द्वारा तीन क्रिस्टलोग्राफिक अक्षों X , Y तथा Z के साथ सबसे कम संभव भुजाओं के समानांतर चतुर्भुज द्वारा परिभाषित किया जाता है।

उपरोक्त कथन के आलोक में, नीचे दिए गए विकल्पों में से सही उत्तर का 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 :

92090697537. 1

92090697538. 2

92090697539. 3

92090697540. 4

Question Number : 86 Question Id : 92090624686 Question Type : 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 : Top down approach of synthesis of nanomaterials involves both physical vapour deposition (PVD) and chemical vapour deposition (CVD) method.

Statement II : Bottom up approach of synthesis of nanomaterials involves only chemical vapour deposition (CVD) methods.

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 :

92090697541. 1
92090697542. 2
92090697543. 3
92090697544. 4

Question Number : 86 Question Id : 92090624686 Question Type : 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

दो कथन दिए गए हैं:

कथन I: भौतिक वाष्प जमाव तथा रासायनिक वाष्प जमाव (CVD) दोनों नैनो पदार्थ संश्लेषण की टॉप-डाउन पहुंच हैं।

कथन II: रासायनिक वाष्प जमाव नैनो पदार्थ संश्लेषण का केवल वाट्स-अप पहुँच है।

उपरोक्त कथन के आलोक में, नीचे दिए गए विकल्पों में से सही उत्तर का 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 :

92090697541. 1
92090697542. 2
92090697543. 3
92090697544. 4

Question Number : 87 Question Id : 92090624687 Question Type : 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 Brillouin zone is the _____ volume entirely enclosed by planes that are _____ bisectors of the reciprocal lattice vectors drawn from the origin.

- A. Largest, parallel
- B. Smallest, parallel
- C. Largest, Perpendicular
- D. Smallest, Perpendicular

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

- 1. B Only
- 2. A Only
- 3. C Only
- 4. D Only

Options :

- 92090697545. 1
- 92090697546. 2
- 92090697547. 3
- 92090697548. 4

Question Number : 87 Question Id : 92090624687 Question Type : 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

पहला ब्रिलियम ज़ोन _____ आयतन है जो पूरी तरह से उन तलों से घिरा है जो मूल से खींचे गए पारस्परिक जालक सदिशों के _____ द्विभाजक है।

- A. विशालतम, समानांतर
- B. सबसे छोटा, समानांतर
- C. विशालतम, लंबवत
- D. सबसे छोटा, लंबवत

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

- 1. केवल B
- 2. केवल A
- 3. केवल C
- 4. केवल D

Options :

- 92090697545. 1
- 92090697546. 2
- 92090697547. 3
- 92090697548. 4

Question Number : 88 Question Id : 92090624688 Question Type : 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 about conservative force is/are correct?

- A. Gravitational force and spring force both are conservative in nature.
- B. Work done during a round trip by a conservative force is zero
- C. Frictional force and spring force are non-conservative in nature
- D. Work done by a conservative force depends on path taken

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

- 1. A and B only
- 2. B and C only
- 3. A, B and D only
- 4. B only

Options :

92090697549. 1

92090697550. 2

92090697551. 3

92090697552. 4

Question Number : 88 Question Id : 92090624688 Question Type : 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 संरक्षित बल सही है/हैं?

- A. गुरुत्वाकर्षण बल तथा स्प्रिंग बल दोनों की प्रवृत्ति संरक्षी हैं।
- B. संरक्षी त बल द्वारा पूर्ण यात्रा में किया गया कार्य शून्य है।
- C. घर्षण बल तथा स्प्रिंग बल की प्रवृत्ति असंरक्षी है।
- D. संरक्षी बल द्वारा किया गया कार्य लिए गए पथ पर निर्भर करता है।

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

- 1. केवल A और B
- 2. केवल B और C
- 3. केवल A, B और D
- 4. केवल B

Options :

92090697549. 1

92090697550. 2

92090697551. 3

92090697552. 4

Question Number : 89 Question Id : 92090624689 Question Type : 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

Self - cleaning action of Nano materials is based on the following effects :

- A. Lotus - effect
- B. Quantum confinement
- C. Super hydrophobic surface
- D. Super hydrophilic surface
- E. Kondo effect

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

- 1. A and E only
- 2. A and D only
- 3. A and C only
- 4. B and C only

Options :

92090697553. 1

92090697554. 2

92090697555. 3

92090697556. 4

Question Number : 89 Question Id : 92090624689 Question Type : 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

नैनो पदार्थ द्वारा स्वयं सफाई क्रिया (सेल्फ क्लोनिंग एक्शन) निम्नलिखित में से किसका प्रभाव है:

- A. लोटस प्रभाव
- B. क्वांटम रोध
- C. सुपर हाइड्रोफोबिक सतह
- D. सुपर हाइड्रोफिलिक सतह
- E. कोंडो प्रभाव

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

- 1. केवल A और E
- 2. केवल A और D
- 3. केवल A और C
- 4. केवल B और C

Options :

92090697553. 1

92090697554. 2

92090697555. 3

92090697556. 4

Question Number : 90 Question Id : 92090624690 Question Type : 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 : Buckyballs are the spherical structures also referred to as fullerenes.

Statement II : Buckyballs are a composite of carbon atoms linked to three other carbon atoms by wan-der wall bonds.

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 :

92090697557. 1

92090697558. 2

92090697559. 3

92090697560. 4

Question Number : 90 Question Id : 92090624690 Question Type : 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

दो कथन दिए गए हैं:

कथन I: बकी बॉल गोलाकार संरचनाएं हैं, जिन्हें फुलरीन भी कहा जाता है।

कथन II: बकी बॉल वांडर वाल्स बॉन्ड द्वारा तीन अन्य कार्बन परमाणुओं से जुड़े कार्बन परमाणुओं का एक सम्मिश्रण है।

उपरोक्त कथन के आलोक में, नीचे दिए गए विकल्पों में से सही उत्तर का 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 :

92090697557. 1

92090697558. 2

92090697559. 3

92090697560. 4

Question Number : 91 Question Id : 92090624691 Question Type : 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 phenomenon of total internal reflection the sufficient condition is :

- A. The refractive indices of two media are close to each other.
- B. The refractive indices of the two media are widely different.
- C. When light goes from optically denser medium to rarer medium.
- D. When light goes from optically rarer medium (smaller refractive index) to optically denser medium.

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

- 1. B only
- 2. A only
- 3. C only
- 4. D only

Options :

92090697561. 1

92090697562. 2

92090697563. 3

92090697564. 4

Question Number : 91 Question Id : 92090624691 Question Type : 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

पूर्ण आंतरिक परावर्तन की घटना के लिए पर्याप्त शर्त है:

- A. दो माध्यमों के अपवर्तनांक एक दूसरे के निकट हो।
- B. दो माध्यमों के अपवर्तनांक व्यापक रूप से भिन्न हो।
- C. जब प्रकाश सघन माध्यम से विरल माध्यम में जाये।
- D. जब प्रकाश विरल माध्यम (छोटे अपवर्तक सूचकांक) से सघन माध्यम में जाये।

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

- 1. केवल B
- 2. केवल A
- 3. केवल C
- 4. केवल D

Options :

92090697561. 1

92090697562. 2

92090697563. 3

92090697564. 4

Question Number : 92 Question Id : 92090624692 Question Type : 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 susceptibility in case of an ideal diamagnet is ?

- A. 0
- B. ∞
- C. -1
- D. 1
- E. 100

Choose the correct answer from the options given below :

- 1. A only
- 2. C only
- 3. B and D only
- 4. D and A only

Options :

- 92090697565. 1
- 92090697566. 2
- 92090697567. 3
- 92090697568. 4

Question Number : 92 Question Id : 92090624692 Question Type : 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 आदर्श प्रतिचुम्बक (डायमैग्नेट) के मामले में सुग्राह्यता का मान है?

- A. 0
- B. ∞
- C. -1
- D. 1
- E. 100

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

- 1. केवल A
- 2. केवल C
- 3. केवल B और D
- 4. केवल D और A

Options :

- 92090697565. 1
- 92090697566. 2
- 92090697567. 3
- 92090697568. 4

Question Number : 93 Question Id : 92090624693 Question Type : 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 type of carbon nano tube ?

- A. Stylo carbon nano tubes
- B. Double walled carbon nanotubes
- C. Multi walled carbon nanotubes
- D. Single walled carbon nanotubes
- E. Zero walled carbon nonotubes

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

- 1. B and C only
- 2. D and A only
- 3. A and E only
- 4. C and E only

Options :

92090697569. 1

92090697570. 2

92090697571. 3

92090697572. 4

Question Number : 93 Question Id : 92090624693 Question Type : 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 कार्बन नैनो ट्यूब का प्रकार नहीं है?

- A. स्टाइलो कार्बन नैनोट्यूब
- B. दोहरी दीवार वाले कार्बन नैनोट्यूब
- C. बहु-दीवार वाले कार्बन नैनोट्यूब
- D. एकल दीवार वाले कार्बन नैनोट्यूब
- E. शून्य दीवार वाले कार्बन नैनोट्यूब

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

- 1. केवल B और C
- 2. केवल D और A
- 3. केवल A
- 4. केवल C और E

Options :

92090697569. 1

92090697570. 2

92090697571. 3

92090697572. 4

Question Number : 94 Question Id : 92090624694 Question Type : 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. Carbon Quantum Dot	i. Degree of freedom - 1 Degree of confinement - 2
B. Carbon nanotubes	ii. Degree of freedom - 3 Degree of confinement - 0
C. Graphene sheet	iii. Degree of freedom - 0 Degree of confinement - 3
D. Graphite	iv. Degree of freedom - 2 Degree of confinement - 1

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

Options :

92090697573. 1
92090697574. 2
92090697575. 3
92090697576. 4

Question Number : 94 Question Id : 92090624694 Question Type : 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 का सूची II से मिलान कीजिए

सूची I	सूची II
A. कार्बन क्वांटम डॉट	i. स्वतंत्रता की डिग्री = 1 रोध की डिग्री = 2
B. कार्बन नैनो ट्यूब	ii. स्वतंत्रता की डिग्री = 3 रोध की डिग्री = 0
C. ग्राफीन शीट	iii. स्वतंत्रता की डिग्री = 0 रोध की डिग्री = 3
D. ग्रेफाइट	iv. स्वतंत्रता की डिग्री = 2 रोध की डिग्री = 1

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

Options :

92090697573. 1
92090697574. 2
92090697575. 3
92090697576. 4

Question Number : 95 Question Id : 92090624695 Question Type : 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. Top - down synthesis approach	I. Growth and self - assembly
B. Bottom up synthesis approach	II. conducting polymers
C. 1-D nano structure	III. Metal nanoparticles
D. 0-D nano structure	IV. Litho graphic patterning

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

Options :

92090697577. 1
92090697578. 2
92090697579. 3
92090697580. 4

Question Number : 95 Question Id : 92090624695 Question Type : 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 का सूची II से मिलान कीजिए

सूची I	सूची II
A. टॉप-डाउन संश्लेषण दृष्टिकोण	I. ग्रोथ व सैल्फ असेम्बली
B. बाटम-अप संश्लेषण दृष्टिकोण	II. संवहन बहुलक (पॉलिमर)
C. एक आयामी (1-0) नैनो संरचना	III. धातु नैनो कण
D. शून्य आयामी (0-D) नैनो संरचना	IV. लिथोग्राफिक पैटर्निंग

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

Options :

92090697577. 1
92090697578. 2
92090697579. 3
92090697580. 4

Question Number : 96 Question Id : 92090624696 Question Type : 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.	Gauss law in Electrostatics	I.	$\int \vec{B} \cdot d\vec{l} = \mu_0 I$
B.	Gausses law in magnetism	II.	$\vec{\nabla} \cdot \vec{E} = \rho/\epsilon_0$
C.	Ampere's law	III.	$\vec{\nabla} \cdot \vec{B} = 0$
D.	Faraday's law of Induction	IV.	$\oint \vec{E} \cdot d\vec{l} = -\frac{d\phi}{dt}$

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

Options :

92090697581. 1

92090697582. 2

92090697583. 3

92090697584. 4

Question Number : 96 Question Id : 92090624696 Question Type : 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 का सूची II से मिलान कीजिए

सूची I		सूची II	
A.	गॉस का इलेक्ट्रोस्टैटिक्स का नियम	I.	$\int \vec{B} \cdot d\vec{l} = \mu_0 I$
B.	गॉस का चुंबकत्व का नियम	II.	$\vec{\nabla} \cdot \vec{E} = \rho/\epsilon_0$
C.	एम्पीयर का नियम	III.	$\vec{\nabla} \cdot \vec{B} = 0$
D.	फैराडे का प्रवर्तन का नियम	IV.	$\oint \vec{E} \cdot d\vec{l} = -\frac{d\phi}{dt}$

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

Options :

92090697581. 1

92090697582. 2

92090697583. 3

92090697584. 4

Question Number : 97 Question Id : 92090624697 Question Type : 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 (Structure)		LIST II (Closest distance)	
A.	sc	I.	$a\frac{\sqrt{3}}{4}$
B.	bcc	II.	a
C.	fcc	III.	$\frac{a}{\sqrt{2}}$
D.	diamond structure	IV.	$a\frac{\sqrt{3}}{2}$

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

Options :

92090697585. 1

92090697586. 2

92090697587. 3

92090697588. 4

Question Number : 97 Question Id : 92090624697 Question Type : 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 का सूची II से मिलान कीजिए

सूची I (संरचना)		सूची II (निकटतम दूरी)	
A.	sc	I.	$a\frac{\sqrt{3}}{4}$
B.	bcc	II.	a
C.	fcc	III.	$\frac{a}{\sqrt{2}}$
D.	डॉयमण्ड संरचना	IV.	$a\frac{\sqrt{3}}{2}$

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

Options :

92090697585. 1
 92090697586. 2
 92090697587. 3
 92090697588. 4

Question Number : 98 Question Id : 92090624698 Question Type : 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.	K_{α}	I.	$\lambda = \frac{hc}{E_K - E_N}$
B.	K_{β}	II.	$\lambda = \frac{hc}{E_K - E_M}$
C.	K_{γ}	III.	$\lambda = \frac{hc}{E_K - E_L}$
D.	L_{α}	IV.	$\lambda = \frac{hc}{E_L - E_M}$

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

Options :

92090697589. 1
 92090697590. 2
 92090697591. 3
 92090697592. 4

Question Number : 98 Question Id : 92090624698 Question Type : 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 का सूची II से मिलान कीजिए

सूची I		सूची II	
A.	K_{α}	I.	$\lambda = \frac{hc}{E_K - E_N}$
B.	K_{β}	II.	$\lambda = \frac{hc}{E_K - E_M}$
C.	K_{γ}	III.	$\lambda = \frac{hc}{E_K - E_L}$
D.	L_{α}	IV.	$\lambda = \frac{hc}{E_L - E_M}$

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

Options :

92090697589. 1
92090697590. 2
92090697591. 3
92090697592. 4

Question Number : 99 Question Id : 92090624699 Question Type : 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.	1 dimensional structure	I.	confinement in one direction
B.	2 dimensional structure	II.	No confinement
C.	0 dimensional structure	III.	confinement in all three direction
D.	Bulk	IV.	confinement in two direction

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

Options :

92090697593. 1
92090697594. 2
92090697595. 3
92090697596. 4

Question Number : 99 Question Id : 92090624699 Question Type : 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 का सूची II से मिलान कीजिए

सूची I	सूची II
A. 1-आयामी (1-D) संरचना	I. एक आयाम में रोध
B. 2-आयामी (2-D) संरचना	II. कोई रोध नहीं
C. 0-आयामी (0-D) संरचना	III. सभी तीनों आयामों में रोध
D. बल्क संरचना	IV. दो आयामों में रोध

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

Options :

92090697593. 1
92090697594. 2
92090697595. 3
92090697596. 4

Question Number : 100 Question Id : 92090624700 Question Type : 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 solid	I. Diamond
B. Covalent bonding	II. Argon
C. Hydrogen bond	III. NaCl
D. Vander waals interaction	IV. HF

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

Options :

92090697597. 1
92090697598. 2
92090697599. 3
92090697600. 4

Question Number : 100 Question Id : 92090624700 Question Type : 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 का सूची II से मिलान कीजिए

सूची I	सूची II
A. आयनिक ठोस	I. डायमण्ड
B. सहसंयोजक बंध	II. आर्गन
C. हाइड्रोजन बंध	III. सोडियम क्लोराइड (NaCl)
D. वेडर वाल्स परस्पर क्रिया (इंटरैक्शन)	IV. HF

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

Options :

92090697597. 1
92090697598. 2
92090697599. 3
92090697600. 4

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