

# National Testing Agency

<b>Question Paper Name :</b>	Nano Science Nano Technology Eng 26th June 2023 Shift 1
<b>Subject Name :</b>	Nano Science Nano Technology Eng
<b>Creation Date :</b>	2023-06-26 18:20:54
<b>Duration :</b>	120
<b>Total Marks :</b>	400
<b>Display Marks:</b>	Yes

## Nano Science Nano Technology

<b>Group Number :</b>	1
<b>Group Id :</b>	920906252
<b>Group Maximum Duration :</b>	0
<b>Group Minimum Duration :</b>	120
<b>Show Attended Group? :</b>	No
<b>Edit Attended Group? :</b>	No
<b>Break time :</b>	0
<b>Group Marks :</b>	400
<b>Is this Group for Examiner? :</b>	No
<b>Examiner permission :</b>	Cant View
<b>Show Progress Bar? :</b>	No

## Part A

<b>Section Id :</b>	920906503
<b>Section Number :</b>	1
<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory
<b>Number of Questions :</b>	21
<b>Number of Questions to be attempted :</b>	21
<b>Section Marks :</b>	100
<b>Enable Mark as Answered Mark for Review and Clear Response :</b>	Yes
<b>Maximum Instruction Time :</b>	0
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	920906816
<b>Question Shuffling Allowed :</b>	No
<b>Is Section Default? :</b>	null

**Question Id : 92090625408 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

Amid consistent rise in deaths of pedestrians and cyclists, Punjab has taken the lead among the states and UTs to implement the 'right to walk' by making it mandatory for all road owning agencies, including the NHAI, to provide foot path and cycle tracks in all future expansion of roads and construction of new ones, reports **Dipak Dash**.

The state government has issued these directions following two court orders after PILs were filed at Punjab and Haryana HC and another in the Supreme Court.

As per a communication from Punjab chief secretary Vijay Kumar Janjua to Punjab government's traffic adviser, Navdeep Asija, "in future all expansions of existing roads and construction of new roads, a mandatory provision of cycle tracks and footpaths should be made by all road owning departments and agencies".

The letter sent last week added that all agencies such as the public works department, local bodies, NHAI and urban development departments have been instructed to prepare an action plan to construct footpaths and cycle tracks with a time frame and budget provision.

**TIMES VIEW:** The right to walk is a cool idea. Pedestrian walkways and cycle tracks must be built everywhere. However, we must also audit the existing tracks and examine their lacunae. For instance, such tracks are regularly invaded by motorbikes. That apart, pedestrian-only tracks often have huge gaps, which makes walking a dangerous exercise. In other words, the right to walk must be converted into a proper mission with every angle taken care of to make it a success.

### Sub questions

**Question Number : 1 Question Id : 92090625409 Question Type : MCQ Option Shuffling : No 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 : Amid consistent a decline in deaths of pedestrians and cyclists, Punjab has taken the lead among the states and UTs to implement the 'right to walk'.

Statement II : The state government has issued these directions following two court orders after PILs were filed.

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 :**

- 920906100401. 1
- 920906100402. 2
- 920906100403. 3
- 920906100404. 4

**Question Number : 2 Question Id : 92090625410 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

One of the lacunae associated with existing tracks, cycle tracks is:

- (1) motor bikes often use to go in them.
- (2) Right to walk is exclusive in such cycle tracks.
- (3) Cycle tracks are clean and properly lighted.
- (4) A much accomplished mission.

**Options :**

- 920906100405. 1
- 920906100406. 2
- 920906100407. 3
- 920906100408. 4

**Question Number : 3 Question Id : 92090625411 Question Type : MCQ Option Shuffling : No 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 department was not instructed to prepare action plan for foot path construction.

- |          |  |
|----------|--|
| (1) NHAI | (2) PWD                                |
| (3) UDD  | (4) Rural development department (RDD) |

**Options :**

- 920906100409. 1
- 920906100410. 2
- 920906100411. 3
- 920906100412. 4

**Question Number : 4 Question Id : 92090625412 Question Type : MCQ Option Shuffling : No 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 synonym of 'lacunae' is:

- |                       |                |
|-----------------------|----------------|
| (1) Characteristic    | (2) Cavity     |
| (3) Prominent portium | (4) Speciality |

**Options :**

- 920906100413. 1
- 920906100414. 2
- 920906100415. 3
- 920906100416. 4

**Question Number : 5 Question Id : 92090625413 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Full form of PIL is:

- |                                   |                                 |
|-----------------------------------|---------------------------------|
| (1) Private Insight Litigation    | (2) private Interest Litigation |
| (3) Public Independent Litigation | (4) Public Interest Litigation  |

**Options :**

- 920906100417. 1
- 920906100418. 2
- 920906100419. 3
- 920906100420. 4

**Question Id : 92090625408 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

Amid consistent rise in deaths of pedestrians and cyclists, Punjab has taken the lead among the states and UTs to implement the 'right to walk' by making it mandatory for all road owning agencies, including the NHAI, to provide foot path and cycle tracks in all future expansion of roads and construction of new ones, reports **Dipak Dash**.

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The letter sent last week added that all agencies such as the public works department, local bodies, NHAI and urban development departments have been instructed to prepare an action plan to construct footpaths and cycle tracks with a time frame and budget provision.

**TIMES VIEW:** The right to walk is a cool idea. Pedestrian walkways and cycle tracks must be built everywhere. However, we must also audit the existing tracks and examine their lacunae. For instance, such tracks are regularly invaded by motorbikes. That apart, pedestrian-only tracks often have huge gaps, which makes walking a dangerous exercise. In other words, the right to walk must be converted into a proper mission with every angle taken care of to make it a success.

### Sub questions

**Question Number : 1 Question Id : 92090625409 Question Type : MCQ Option Shuffling : No 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 : Amid consistent a decline in deaths of pedestrians and cyclists, Punjab has taken the lead among the states and UTs to implement the 'right to walk'.

Statement II : The state government has issued these directions following two court orders after PILs were filed.

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 :**

- 920906100401. 1
- 920906100402. 2
- 920906100403. 3
- 920906100404. 4

**Question Number : 2 Question Id : 92090625410 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

One of the lacunae associated with existing tracks, cycle tracks is:

- (1) motor bikes often use to go in them.
- (2) Right to walk is exclusive in such cycle tracks.
- (3) Cycle tracks are clean and properly lighted.
- (4) A much accomplished mission.

**Options :**

- 920906100405. 1
- 920906100406. 2
- 920906100407. 3
- 920906100408. 4

**Question Number : 3 Question Id : 92090625411 Question Type : MCQ Option Shuffling : No 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 department was not instructed to prepare action plan for foot path construction.

- |         |  |
|---------|--|
| (1) NHA | (2) PWD                                |
| (3) UDD | (4) Rural development department (RDD) |

**Options :**

- 920906100409. 1
- 920906100410. 2
- 920906100411. 3
- 920906100412. 4

**Question Number : 4 Question Id : 92090625412 Question Type : MCQ Option Shuffling : No 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 synonym of 'lacunae' is:

- |                       |                |
|-----------------------|----------------|
| (1) Characteristic    | (2) Cavity     |
| (3) Prominent portium | (4) Speciality |

**Options :**

- 920906100413. 1
- 920906100414. 2
- 920906100415. 3
- 920906100416. 4

**Question Number : 5 Question Id : 92090625413 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Full form of PIL is:

- |                                   |                                 |
|-----------------------------------|---------------------------------|
| (1) Private Insight Litigation    | (2) private Interest Litigation |
| (3) Public Independent Litigation | (4) Public Interest Litigation  |

**Options :**

- 920906100417. 1
- 920906100418. 2
- 920906100419. 3
- 920906100420. 4

**Sub-Section Number :**

**Sub-Section Id :** 920906817  
**Question Shuffling Allowed :** Yes  
**Is Section Default? :** null

**Question Number : 6 Question Id : 92090625414 Question Type : MCQ Option Shuffling : No 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) This in the best film that I am even seen.
- (2) This in best film that I have ever seen.
- (3) This in the best film that I have never seen.
- (4) This in the best film that I even seeing.

**Options :**

- 920906100421. 1
- 920906100422. 2
- 920906100423. 3
- 920906100424. 4

**Question Number : 6 Question Id : 92090625414 Question Type : MCQ Option Shuffling : No 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) This in the best film that I am even seen.
- (2) This in best film that I have ever seen.
- (3) This in the best film that I have never seen.
- (4) This in the best film that I even seeing.

**Options :**

- 920906100421. 1
- 920906100422. 2
- 920906100423. 3
- 920906100424. 4

**Question Number : 7 Question Id : 92090625415 Question Type : MCQ Option Shuffling : No 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 indirect narration for the following sentence:

The poor examinee said, "O God take pity on me."

- (1) The poor examinee prayed God to take pity on him.
- (2) The poor examinee, invoking God, implored him to take pity on him.
- (3) The poor examinee exclaimed that God take pity on him.
- (4) The poor examinee asked God to take pity on him.

**Options :**

920906100425. 1

920906100426. 2

920906100427. 3

920906100428. 4

**Question Number : 7 Question Id : 92090625415 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

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The poor examinee said, "O God take pity on me."

- (1) The poor examinee prayed God to take pity on him.
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- (3) The poor examinee exclaimed that God take pity on him.
- (4) The poor examinee asked God to take pity on him.

**Options :**

920906100425. 1

920906100426. 2

920906100427. 3

920906100428. 4

**Question Number : 8 Question Id : 92090625416 Question Type : MCQ Option Shuffling : No 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 voice form of the following sentence:

Why was she looking at the scenery?

- (1) Why was the scenery looking at by her?
- (2) Why was the scenery being looked at by her?
- (3) Why did she look at the scenery?
- (4) Why was the scenery being looked by her?

**Options :**

- 920906100429. 1
- 920906100430. 2
- 920906100431. 3
- 920906100432. 4

**Question Number : 8 Question Id : 92090625416 Question Type : MCQ Option Shuffling : No 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 voice form of the following sentence:

Why was she looking at the scenery?

- (1) Why was the scenery looking at by her?
- (2) Why was the scenery being looked at by her?
- (3) Why did she look at the scenery?
- (4) Why was the scenery being looked by her?

**Options :**

- 920906100429. 1
- 920906100430. 2
- 920906100431. 3
- 920906100432. 4

**Question Number : 9 Question Id : 92090625417 Question Type : MCQ Option Shuffling : No 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 is opposite in meaning to the following word:

barbaric

- |               |                 |
|---------------|-----------------|
| (1) primitive | (2) civilized   |
| (3) modern    | (4) uncivilized |

**Options :**

- 920906100433. 1
- 920906100434. 2
- 920906100435. 3
- 920906100436. 4

**Question Number : 9 Question Id : 92090625417 Question Type : MCQ Option Shuffling : No 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 is opposite in meaning to the following word:

barbaric

- |               |                 |
|---------------|-----------------|
| (1) primitive | (2) civilized   |
| (3) modern    | (4) uncivilized |

**Options :**

- 920906100433. 1
- 920906100434. 2
- 920906100435. 3
- 920906100436. 4

**Question Number : 10 Question Id : 92090625418 Question Type : MCQ Option Shuffling : No 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 the part of speech of the underlined word in the following sentence.

Natural thirst is more graciously gratified by water.

- |          |               |
|----------|---------------|
| (1) verb | (2) adjective |
| (3) noun | (4) adverb    |

**Options :**

- 920906100437. 1
- 920906100438. 2
- 920906100439. 3

920906100440. 4

**Question Number : 10 Question Id : 92090625418 Question Type : MCQ Option Shuffling : No 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 the part of speech of the underlined word in the following sentence.

Natural thirst is more graciously gratified by water.

- |          |               |
|----------|---------------|
| (1) verb | (2) adjective |
| (3) noun | (4) adverb    |

**Options :**

- 920906100437. 1
- 920906100438. 2
- 920906100439. 3
- 920906100440. 4

**Question Number : 11 Question Id : 92090625419 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Number of chromosome present in Human?

- |              |              |
|--------------|--------------|
| (1) 40 pairs | (2) 24 pairs |
| (3) 23 pairs | (4) 32 pairs |

**Options :**

- 920906100441. 1
- 920906100442. 2
- 920906100443. 3
- 920906100444. 4

**Question Number : 11 Question Id : 92090625419 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Number of chromosome present in Human?

- |              |              |
|--------------|--------------|
| (1) 40 pairs | (2) 24 pairs |
| (3) 23 pairs | (4) 32 pairs |

**Options :**

- 920906100441. 1

920906100442. 2

920906100443. 3

920906100444. 4

**Question Number : 12 Question Id : 92090625420 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

As of 2020, how many languages in India are given the status of classical languages in constitution of India?

- (1) six (2) eight  
(3) seven (4) five

**Options :**

920906100445. 1

920906100446. 2

920906100447. 3

920906100448. 4

**Question Number : 12 Question Id : 92090625420 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

As of 2020, how many languages in India are given the status of classical languages in constitution of India?

- (1) six (2) eight  
(3) seven (4) five

**Options :**

920906100445. 1

920906100446. 2

920906100447. 3

920906100448. 4

**Question Number : 13 Question Id : 92090625421 Question Type : MCQ Option Shuffling : No 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
Dadasaheb phalke Award Year	Lifetime achievement, Name of the awardee
(A) 2017	(I) Rajnikanth
(B) 2018	(II) Asha Parekh
(C) 2019	(III) Vinod Khanna
(D) 2022	(IV) Amitabh Bachchan

Choose the correct answer from the options given below:

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

**Options :**

- 920906100449. 1
- 920906100450. 2
- 920906100451. 3
- 920906100452. 4

**Question Number : 13 Question Id : 92090625421 Question Type : MCQ Option Shuffling : No 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
Dadasaheb phalke Award Year	Lifetime achievement, Name of the awardee
(A) 2017	(I) Rajnikanth
(B) 2018	(II) Asha Parekh
(C) 2019	(III) Vinod Khanna
(D) 2022	(IV) Amitabh Bachchan

Choose the correct answer from the options given below:

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

**Options :**

- 920906100449. 1
- 920906100450. 2
- 920906100451. 3
- 920906100452. 4

**Question Number : 14 Question Id : 92090625422 Question Type : MCQ Option Shuffling : No 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 : According to the Global Innovation Index, 2021 India has ranked 46<sup>th</sup> in the Global Innovation Index, 2021.

Statement II : According to the Global Innovation Index, 2021 the Republic of Korea Joins the top 5 of the GII for the first time in 2021.

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

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

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

**Options :**

920906100453. 1

920906100454. 2

920906100455. 3

920906100456. 4

**Question Number : 14 Question Id : 92090625422 Question Type : MCQ Option Shuffling : No 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 :

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Statement II : According to the Global Innovation Index, 2021 the Republic of Korea Joins the top 5 of the GII for the first time in 2021.

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

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

**Options :**

- 920906100453. 1
- 920906100454. 2
- 920906100455. 3
- 920906100456. 4

**Question Number : 15 Question Id : 92090625423 Question Type : MCQ Option Shuffling : No 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 is the first PIO women to set record of 1397 km (at  $-50^{\circ}\text{C}$ ) solo, unsupported track to South Pole?

- |                     |                   |
|---------------------|-------------------|
| (1) Harpreet Chandi | (2) Arunima Sinha |
| (3) Bachendri Pal   | (4) Junko Tabei   |

**Options :**

- 920906100457. 1
- 920906100458. 2
- 920906100459. 3
- 920906100460. 4

**Question Number : 15 Question Id : 92090625423 Question Type : MCQ Option Shuffling : No 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 is the first PIO women to set record of 1397 km (at  $-50^{\circ}\text{C}$ ) solo, unsupported track to South Pole?

- |                     |                   |
|---------------------|-------------------|
| (1) Harpreet Chandi | (2) Arunima Sinha |
| (3) Bachendri Pal   | (4) Junko Tabei   |

**Options :**

- 920906100457. 1
- 920906100458. 2
- 920906100459. 3
- 920906100460. 4

**Question Number : 16 Question Id : 92090625424 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

After interchanging the first and last digits in each of the following numbers, identify the correct sequence of numbers in the ascending order.

- A. 216
- B. 793
- C. 682
- D. 497
- E. 385

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

- |                   |                   |
|-------------------|-------------------|
| (1) B, C, A, E, D | (2) B, C, E, A, D |
| (3) C, B, E, A, D | (4) C, A, E, B, D |

**Options :**

- 920906100461. 1
- 920906100462. 2
- 920906100463. 3
- 920906100464. 4

**Question Number : 16 Question Id : 92090625424 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

After interchanging the first and last digits in each of the following numbers, identify the correct sequence of numbers in the ascending order.

- A. 216
- B. 793
- C. 682
- D. 497
- E. 385

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

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

**Options :**

- 920906100461. 1
- 920906100462. 2
- 920906100463. 3
- 920906100464. 4

**Question Number : 17 Question Id : 92090625425 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Rama said to mohan "Last Monday I defined the sister of the only son of any grandfather". Whom did rama defect?

- (1) Mother
- (2) Aunty
- (3) Daughter
- (4) Sister

**Options :**

- 920906100465. 1
- 920906100466. 2
- 920906100467. 3
- 920906100468. 4

**Question Number : 17 Question Id : 92090625425 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Rama said to mohan "Last Monday I defined the sister of the only son of any grandfather".  
Whom did rama defect?

- |              |            |
|--------------|------------|
| (1) Mother   | (2) Aunty  |
| (3) Daughter | (4) Sister |

**Options :**

- 920906100465. 1
- 920906100466. 2
- 920906100467. 3
- 920906100468. 4

**Question Number : 18 Question Id : 92090625426 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Preeti, Kirti, Rinki and Swati get one flower each from among Rose, Marigold, Dahlia or Tulip whose plants are placed in a sequence in the garden. Rinki gets the Dahlia flower. Marogold plant is adjacent to the Tulip plant. Preeti does not get the flower from the plant adjacent to the plant whose flower was given to Rinki. Dahlia plant is the only plant in between the Marigold and Rose plants. Which flower does preeti get?

- |            |              |
|------------|--------------|
| (1) Rose   | (2) Marigold |
| (3) Dahlia | (4) Tulip    |

**Options :**

- 920906100469. 1
- 920906100470. 2
- 920906100471. 3
- 920906100472. 4

**Question Number : 18 Question Id : 92090625426 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Preeti, Kirti, Rinki and Swati get one flower each from among Rose, Marigold, Dahlia or Tulip whose plants are placed in a sequence in the garden. Rinki gets the Dahlia flower. Marogold plant is adjacent to the Tulip plant. Preeti does not get the flower from the plant adjacent to the plant whose flower was given to Rinki. Dahlia plant is the only plant in between the Marigold and Rose plants. Which flower does preeti get?

- (1) Rose (2) Marigold  
(3) Dahlia (4) Tulip

**Options :**

920906100469. 1  
920906100470. 2  
920906100471. 3  
920906100472. 4

**Question Number : 19 Question Id : 92090625427 Question Type : MCQ Option Shuffling : No 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: 11, 18, 13, 20, 15, ..... Which one of the following numbers should come next in the series?

- (1) 21 (2) 22  
(3) 23 (4) 24

**Options :**

920906100473. 1  
920906100474. 2  
920906100475. 3  
920906100476. 4

**Question Number : 19 Question Id : 92090625427 Question Type : MCQ Option Shuffling : No 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: 11, 18, 13, 20, 15, ..... Which one of the following numbers should come next in the series?

- (1) 21 (2) 22  
(3) 23 (4) 24

**Options :**

920906100473. 1

920906100474. 2

920906100475. 3

920906100476. 4

**Question Number : 20 Question Id : 92090625428 Question Type : MCQ Option Shuffling : No 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 :

In a certain code 'BRIGHT' is written as 'ATHIGV' then in the same code

Statement I : 'NORTH' will be written as 'MPSVG' and

Statement II : 'WATER' will be written as 'VCSGS'

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 :**

920906100477. 1

920906100478. 2

920906100479. 3

920906100480. 4

**Question Number : 20 Question Id : 92090625428 Question Type : MCQ Option Shuffling : No 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 :

In a certain code 'BRIGHT' is written as 'ATHIGV' then in the same code

Statement I : 'NORTH' will be written as 'MPSVG' and

Statement II : 'WATER' will be written as 'VCSGS'

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 :**

- 920906100477. 1
- 920906100478. 2
- 920906100479. 3
- 920906100480. 4

**Question Number : 21 Question Id : 92090625429 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Mohan invest a certain sum at the rate of Simple Interest 5% per annum. Find the number of years for which Mohan has to invest the the sum to double his sum:

- (1) 25 years
- (2) 20 years
- (3) 18 years
- (4) 15 years

**Options :**

- 920906100481. 1
- 920906100482. 2
- 920906100483. 3
- 920906100484. 4

**Question Number : 21 Question Id : 92090625429 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Mohan invest a certain sum at the rate of Simple Interest 5% per annum. Find the number of years for which Mohan has to invest the the sum to double his sum:

- (1) 25 years (2) 20 years  
(3) 18 years (4) 15 years

**Options :**

920906100481. 1  
920906100482. 2  
920906100483. 3  
920906100484. 4

**Question Number : 22 Question Id : 92090625430 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Sonu and Monu start together from point A to reach to B, with speeds, 5 km/h and 3 km/h respectively. If Sonu reaches B one hour before Monu, then the distance between A and B is:

- (1) 5 km (2) 6 km  
(3) 6.5 km (4) 7.5 km

**Options :**

920906100485. 1  
920906100486. 2  
920906100487. 3  
920906100488. 4

**Question Number : 22 Question Id : 92090625430 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Sonu and Monu start together from point A to reach to B, with speeds, 5 km/h and 3 km/h respectively. If Sonu reaches B one hour before Monu, then the distance between A and B is:

- (1) 5 km (2) 6 km  
(3) 6.5 km (4) 7.5 km

**Options :**

920906100485. 1



920906100486. 2

920906100487. 3

920906100488. 4

**Question Number : 23 Question Id : 92090625431 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Renu speaks truth in 70% of the cases and Bina in 75% of the cases. The percentage of ceses they are likely to contradict each other in stating the same fact is:

(1) 15%

(2) 40%

(3) 7.5%

(4) 20%

**Options :**

920906100489. 1

920906100490. 2

920906100491. 3

920906100492. 4

**Question Number : 23 Question Id : 92090625431 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Renu speaks truth in 70% of the cases and Bina in 75% of the cases. The percentage of ceses they are likely to contradict each other in stating the same fact is:

(1) 15%

(2) 40%

(3) 7.5%

(4) 20%

**Options :**

920906100489. 1

920906100490. 2

920906100491. 3

920906100492. 4

**Question Number : 24 Question Id : 92090625432 Question Type : MCQ Option Shuffling : No 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  $a = 130$ ,  $b = 133$  and  $c = 137$ , There the value of  $a^3 + b^3 + c^3 - 3abc$  is

- (1) 14200 (2) 14400  
(3) 14800 (4) 13800

**Options :**

920906100493. 1  
920906100494. 2  
920906100495. 3  
920906100496. 4

**Question Number : 24 Question Id : 92090625432 Question Type : MCQ Option Shuffling : No 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  $a = 130$ ,  $b = 133$  and  $c = 137$ , There the value of  $a^3 + b^3 + c^3 - 3abc$  is

- (1) 14200 (2) 14400  
(3) 14800 (4) 13800

**Options :**

920906100493. 1  
920906100494. 2  
920906100495. 3  
920906100496. 4

**Question Number : 25 Question Id : 92090625433 Question Type : MCQ Option Shuffling : No 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 discount option in most beneficial for shop keeper?

- (A) Successive discount of 20%, 30% and then pay 10% Service Tax.
- (B) Successive discount of 30%, 10% and then pay 10% Service Tax.
- (C) Pay Service Tax of 10% first, then successive discount of 20%, 30%.
- (D) Pay Service Tax of 10% first, then successive discount of 30%, 20%.

Choose the most appropriate answer from the options given below:

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

**Options :**

- 920906100497. 1
- 920906100498. 2
- 920906100499. 3
- 920906100500. 4

**Question Number : 25 Question Id : 92090625433 Question Type : MCQ Option Shuffling : No 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 discount option in most beneficial for shop keeper?

- (A) Successive discount of 20%, 30% and then pay 10% Service Tax.
- (B) Successive discount of 30%, 10% and then pay 10% Service Tax.
- (C) Pay Service Tax of 10% first, then successive discount of 20%, 30%.
- (D) Pay Service Tax of 10% first, then successive discount of 30%, 20%.

Choose the most appropriate answer from the options given below:

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

**Options :**

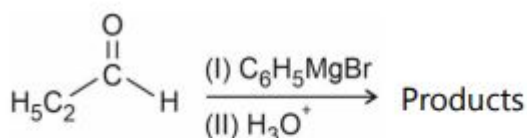
- 920906100497. 1
- 920906100498. 2
- 920906100499. 3
- 920906100500. 4

## Part B: Nano Science Nano Technology

Section Id :	920906504
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 :	920906818
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 26 Question Id : 92090625434 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1



Products obtained in the above reaction are

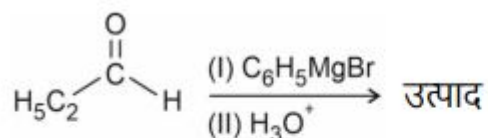
- (1) diastereomers + Mg(OH)Br
- (2) racemic mixture + Mg(OH)Br
- (3) meso compound + Mg(OH)Br
- (4) One Pure enantiomer + Mg(OH)Br

Options :

- 920906100501. 1
- 920906100502. 2
- 920906100503. 3
- 920906100504. 4

Question Number : 26 Question Id : 92090625434 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1



उपर्युक्त अभिक्रिया में प्राप्त होने वाले उत्पाद हैं :

- (1) डायास्टीरियोमर (अप्रतिबन्धी त्रिविम समावयव) + Mg(OH)Br
- (2) रेसिमिक मिश्रण + Mg(OH)Br
- (3) मेसो (मध्य) मौगिक + Mg(OH)Br
- (4) एक परिशुद्ध प्रतिबिम्बरूप (इनेन्शियोमर) + Mg(OH)Br

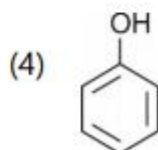
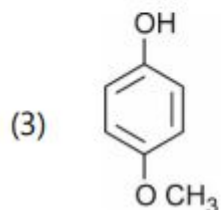
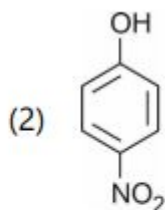
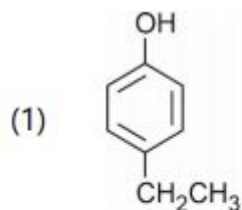
**Options :**

920906100501. 1  
 920906100502. 2  
 920906100503. 3  
 920906100504. 4

**Question Number : 27 Question Id : 92090625435 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Compound with highest  $K_a$  from the following is :



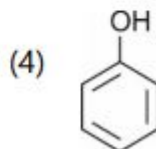
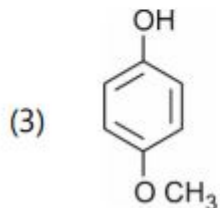
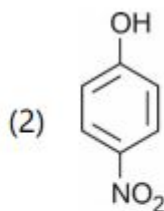
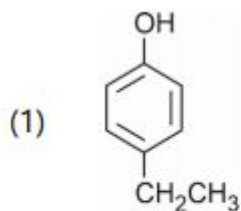
**Options :**

920906100505. 1  
 920906100506. 2  
 920906100507. 3  
 920906100508. 4

**Question Number : 27 Question Id : 92090625435 Question Type : MCQ Option Shuffling : No 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 अधिकतम  $K_a$  वाला यौगिक है :



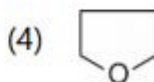
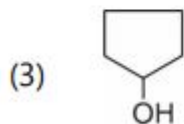
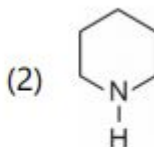
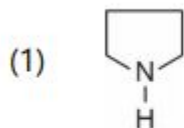
**Options :**

- 920906100505. 1
- 920906100506. 2
- 920906100507. 3
- 920906100508. 4

**Question Number : 28 Question Id : 92090625436 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Compound from the following with highest boiling point is :



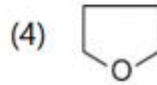
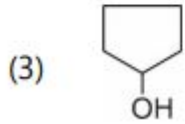
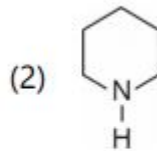
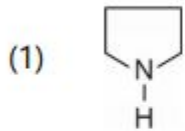
**Options :**

- 920906100509. 1
- 920906100510. 2
- 920906100511. 3
- 920906100512. 4

**Question Number : 28 Question Id : 92090625436 Question Type : MCQ Option Shuffling : No 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 उच्चतम क्रमांक वाला यौगिक है :



**Options :**

920906100509. 1

920906100510. 2

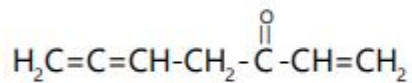
920906100511. 3

920906100512. 4

**Question Number : 29 Question Id : 92090625437 Question Type : MCQ Option Shuffling : No 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 the given compound the number of  $sp^3$ ,  $sp^2$  and  $sp$  hybridized carbon atoms respectively are :



(1) 0, 5, 2

(2) 5, 2, 0

(3) 1, 5, 1

(4) 1, 6, 0

**Options :**

920906100513. 1

920906100514. 2

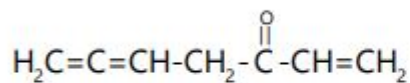
920906100515. 3

920906100516. 4

**Question Number : 29 Question Id : 92090625437 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

दिए गए यौगिक में क्रमशः  $sp^3$ ,  $sp^2$  और  $sp$  संकरित कार्बन अणुओं की संख्या होती है :



(1) 0, 5, 2

(2) 5, 2, 0

(3) 1, 5, 1

(4) 1, 6, 0

**Options :**

920906100513. 1

920906100514. 2

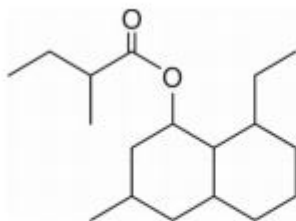
920906100515. 3

920906100516. 4

**Question Number : 30 Question Id : 92090625438 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Total number of chiral carbon atoms in the following compound is :



(1) 4

(2) 5

(3) 3

(4) 6

**Options :**

920906100517. 1

920906100518. 2

920906100519. 3

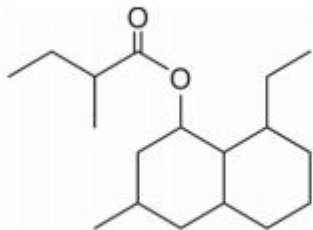
920906100520. 4

**Question Number : 30 Question Id : 92090625438 Question Type : MCQ Option Shuffling : No 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 यौगिक में काइरल कार्बन परमाणुओं की कुल संख्या है :



(1) 4

(2) 5

(3) 3

(4) 6

**Options :**

920906100517. 1

920906100518. 2

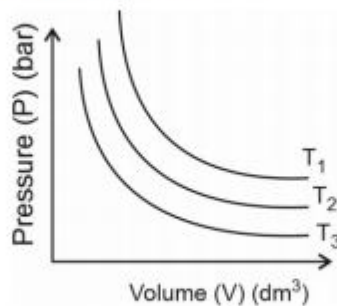
920906100519. 3

920906100520. 4

**Question Number : 31 Question Id : 92090625439 Question Type : MCQ Option Shuffling : No 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 is the graph of pressure  $p$  vs volume  $V$  of a gas at different temperature  $T_1$ ,  $T_2$  and  $T_3$ . The correct order of these temperature is



(1)  $T_1 < T_2 < T_3$

(2)  $T_1 = T_2 = T_3$

(3)  $T_1 > T_2 > T_3$

(4)  $T_1 < T_2 = T_3$

**Options :**

920906100521. 1

920906100522. 2

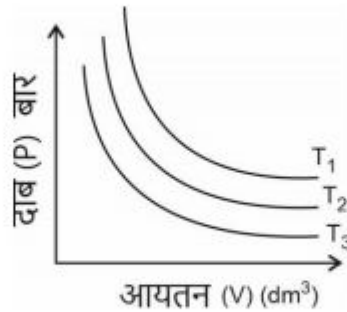
920906100523. 3

920906100524. 4

**Question Number : 31 Question Id : 92090625439 Question Type : MCQ Option Shuffling : No 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 एक गैस का दाब (p) बनाम आयतन (V) का भिन्न तापमान  $T_1$ ,  $T_2$  और  $T_3$  पर ग्राफ दिया गया है। इन तापमानों का सही क्रम है :



(1)  $T_1 < T_2 < T_3$

(2)  $T_1 = T_2 = T_3$

(3)  $T_1 > T_2 > T_3$

(4)  $T_1 < T_2 = T_3$

Options :

920906100521. 1

920906100522. 2

920906100523. 3

920906100524. 4

Question Number : 32 Question Id : 92090625440 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Solution of 20 g of ethylene glycol ( $C_2H_6O_2$ ) in 80 g water at  $25^\circ C$ . The mole fraction of ethylene glycol is : (molar mass of C : 12, O : 16, H : 1  $g\ mol^{-1}$ )

(1) 0.68

(2) 0.068

(3) 0.932

(4) 0.0932

Options :

920906100525. 1

920906100526. 2

920906100527. 3

920906100528. 4

Question Number : 32 Question Id : 92090625440 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

20 g एथिलीन ग्लाइकोल ( $C_2H_6O_2$ ) का  $25^\circ C$  पर 80 g जल में विलयन बना है। एथिलीन ग्लाइकोल का मोल फ्रैक्शन/ग्राम अणु अंश है : (ग्राम अणु द्रव्यमान है C : 12, O : 16, H : 1  $g\ mol^{-1}$ )

- (1) 0.68 (2) 0.068  
(3) 0.932 (4) 0.0932

**Options :**

920906100525. 1  
920906100526. 2  
920906100527. 3  
920906100528. 4

**Question Number : 33 Question Id : 92090625441 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

180 g of glucose (molar mass =  $180\ g\ mol^{-1}$ ) is dissolved in 1 kg of water. The boiling point of this solution is :

(Given  $K_b$  for water =  $0.52\ K\ kg\ mol^{-1}$ )

- (1) 370.3 K (2) 373.67 K  
(3) 276.3 K (4) 380.0 K

**Options :**

920906100529. 1  
920906100530. 2  
920906100531. 3  
920906100532. 4

**Question Number : 33 Question Id : 92090625441 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

180 g ग्लूकोस (ग्रामअणु द्रव्यमान =  $180\ g\ mol^{-1}$ ) को 1 kg जल में घोला गया। इस विलयन का क्वथनांक होगा : (यदि जल के लिए  $K_b = 0.52\ K\ kg\ mol^{-1}$  है।)

- (1) 370.3 K (2) 373.67 K  
(3) 276.3 K (4) 380.0 K

**Options :**

920906100529. 1  
920906100530. 2

920906100531. 3

920906100532. 4

**Question Number : 34 Question Id : 92090625442 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Rate constant for a certain reaction is found to be  $2.3 \times 10^{-5} \text{ L mol}^{-1}\text{s}^{-1}$ . The order of this reaction is

(1) 0

(2) 1

(3) 2

(4) 3

**Options :**

920906100533. 1

920906100534. 2

920906100535. 3

920906100536. 4

**Question Number : 34 Question Id : 92090625442 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

किसी अभिक्रिया के लिए दर नियतांक  $2.3 \times 10^{-5} \text{ L mol}^{-1}\text{s}^{-1}$  पाया गया है। इस अभिक्रिया का क्रम होगा :

(1) 0

(2) 1

(3) 2

(4) 3

**Options :**

920906100533. 1

920906100534. 2

920906100535. 3

920906100536. 4

**Question Number : 35 Question Id : 92090625443 Question Type : MCQ Option Shuffling : No 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 oxoacid of phosphorus from the following acting as reducing agent is

(1)  $\text{H}_3\text{PO}_4$

(2)  $\text{H}_4\text{P}_2\text{O}_7$

(3)  $\text{H}_4\text{P}_2\text{O}_6$

(4)  $\text{H}_4\text{P}_2\text{O}_5$

**Options :**

920906100537. 1  
920906100538. 2  
920906100539. 3  
920906100540. 4

**Question Number : 35 Question Id : 92090625443 Question Type : MCQ Option Shuffling : No 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 फोस्फोरस का ऑक्सो अम्ल जो अपचार्या कर्मक की भांति कार्य करता है, वह है :

- |                                      |                                      |
|--------------------------------------|--------------------------------------|
| (1) $\text{H}_3\text{PO}_4$          | (2) $\text{H}_4\text{P}_2\text{O}_7$ |
| (3) $\text{H}_4\text{P}_2\text{O}_6$ | (4) $\text{H}_4\text{P}_2\text{O}_5$ |

**Options :**

920906100537. 1  
920906100538. 2  
920906100539. 3  
920906100540. 4

**Question Number : 36 Question Id : 92090625444 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Correct IUPAC name of  $[\text{CoCl}_2(\text{en})_2]^+$  is :

- (1) dichloridodi ethane-1,2-diamine cobalt (I)
- (2) dichlorido-bis(ethane-1,2-diamine) cobalt (II)
- (3) Bichloridodi(Ethane-1,2-diamine) cobalt (III)
- (4) Dichloridobis(ethane-1-2-diamine) cobalt (III)

**Options :**

920906100541. 1  
920906100542. 2  
920906100543. 3  
920906100544. 4

**Question Number : 36 Question Id : 92090625444 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

[CoCl<sub>2</sub>(en)<sub>2</sub>]<sup>+</sup> का सही IUPAC नाम है :

- (1) डाइक्लोरिडो डाइएथेन – 1, 2-डाइएमीन कोबाल्ट (III)
- (2) डाइक्लोरिडो बिस(एथेन-1,2-डाइएमीन) कोबाल्ट (II)
- (3) बाइक्लोरिडो डाइ (एथेन-1, 2-डाइएमीन) कोबाल्ट (III)
- (4) डाइक्लोरिडो बिस (एथेन-1, 2-डाइएमीन) कोबाल्ट (III)

**Options :**

920906100541. 1  
920906100542. 2  
920906100543. 3  
920906100544. 4

**Question Number : 37 Question Id : 92090625445 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Highest oxidation state shown by Mn is :

- |        |        |
|--------|--------|
| (1) +5 | (2) +3 |
| (3) +7 | (4) +2 |

**Options :**

920906100545. 1  
920906100546. 2  
920906100547. 3  
920906100548. 4

**Question Number : 37 Question Id : 92090625445 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Mn द्वारा दर्शाया गई उच्चतम ऑक्सीकरण अवस्था है :

- |        |        |
|--------|--------|
| (1) +5 | (2) +3 |
| (3) +7 | (4) +2 |

**Options :**

920906100545. 1  
920906100546. 2  
920906100547. 3  
920906100548. 4

**Question Number : 38 Question Id : 92090625446 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Intensive property from the following is :

- |             |                     |
|-------------|---------------------|
| (1) Volume  | (2) Heat capacity   |
| (3) Density | (4) Internal energy |

**Options :**

920906100549. 1  
920906100550. 2  
920906100551. 3  
920906100552. 4

**Question Number : 38 Question Id : 92090625446 Question Type : MCQ Option Shuffling : No 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 अविस्तारात्मक (मात्रा स्वतंत्र) गुणधर्म है :

- |           |                  |
|-----------|------------------|
| (1) आयतन  | (2) ताप क्षमता   |
| (3) धनत्व | (4) आंतरिक ऊर्जा |

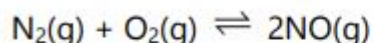
**Options :**

920906100549. 1  
920906100550. 2  
920906100551. 3  
920906100552. 4

**Question Number : 39 Question Id : 92090625447 Question Type : MCQ Option Shuffling : No 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 following reaction at equilibrium the value of  $K_c$  is :



$$[\text{N}_2] = 3.0 \times 10^{-3} \text{ M}; [\text{O}_2] = 4.2 \times 10^{-3} \text{ M}$$

$$[\text{NO}] = 2.8 \times 10^{-3} \text{ M}, T = 343 \text{ K.}$$

- |           |           |
|-----------|-----------|
| (1) 0.222 | (2) 0.444 |
| (3) 0.622 | (4) 0.288 |

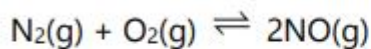
**Options :**

920906100553. 1  
920906100554. 2  
920906100555. 3  
920906100556. 4

**Question Number : 39 Question Id : 92090625447 Question Type : MCQ Option Shuffling : No 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 अभिक्रिया के साम्य में होने पर  $K_c$  का मान है :



$$[\text{N}_2] = 3.0 \times 10^{-3} \text{ M}; [\text{O}_2] = 4.2 \times 10^{-3} \text{ M}$$

$$[\text{NO}] = 2.8 \times 10^{-3} \text{ M}, T = 343 \text{ K.}$$

- |           |           |
|-----------|-----------|
| (1) 0.222 | (2) 0.444 |
| (3) 0.622 | (4) 0.288 |

**Options :**

920906100553. 1  
920906100554. 2  
920906100555. 3  
920906100556. 4

**Question Number : 40 Question Id : 92090625448 Question Type : MCQ Option Shuffling : No 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 Terms	List II Expressions
(A) $W_{\max}$	(I) $\Delta U + \Delta pV$
(B) $\Delta S_{\text{surr}}$	(II) $\Delta H_{\text{sys}} - T\Delta S_{\text{sys}}$
(C) $\Delta G_{\text{sys}}$	(III) $\frac{\Delta H_{\text{surr}}}{T}$
(D) $\Delta H$	(IV) $-2.303 nRT \log \frac{V_2}{V_1}$

Choose the correct answer from the options given below:

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

**Options :**

920906100557. 1
920906100558. 2
920906100559. 3
920906100560. 4

**Question Number : 40 Question Id : 92090625448 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

सूची I के साथ सूची II का मिलान कीजिए

सूची-I	सूची-II
(A) $W_{\max}$	(I) $\Delta U + \Delta pV$
(B) $\Delta S_{\text{surr}}$	(II) $\Delta H_{\text{sys}} - T\Delta S_{\text{sys}}$
(C) $\Delta G_{\text{sys}}$	(III) $\frac{\Delta H_{\text{surr}}}{T}$
(D) $\Delta H$	(IV) $-2.303 nRT \log \frac{V_2}{V_1}$

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

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

**Options :**

920906100557. 1
920906100558. 2
920906100559. 3
920906100560. 4

**Question Number : 41 Question Id : 92090625449 Question Type : MCQ Option Shuffling : No 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) : Viscosity of a liquid decreases as the temperature increases.

Reasons (R) : With rise in temperature kinetic energy of molecules increases.

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 :**

- 920906100561. 1
- 920906100562. 2
- 920906100563. 3
- 920906100564. 4

**Question Number : 41 Question Id : 92090625449 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

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

अभिकथन A : तापमान के बढ़ने पर द्रव की श्यानता कम होती है।

कारण R : तापमान के बढ़ने के साथ अणुओं की गतिज ऊर्जा में वृद्धि होती है।

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

- (1) A और R दोनों सही हैं और R, A की सही व्याख्या है
- (2) A और R दोनों सही हैं, लेकिन R, A की सही व्याख्या नहीं है
- (3) A सही हैं, लेकिन R सही नहीं है
- (4) A सही नहीं हैं, लेकिन R सही है

**Options :**

- 920906100561. 1
- 920906100562. 2
- 920906100563. 3
- 920906100564. 4

**Question Number : 42 Question Id : 92090625450 Question Type : MCQ Option Shuffling : No 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 transition metals from the following.

- A. Sc
- B. Cu
- C. Na
- D. Ni
- E. Ce

Choose the correct answer from the options given below :

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

**Options :**

920906100565. 1

920906100566. 2

920906100567. 3

920906100568. 4

**Question Number : 42 Question Id : 92090625450 Question Type : MCQ Option Shuffling : No 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 संक्रमण धातुओं की पहचान कीजिए :

- A. Sc
- B. Cu
- C. Na
- D. Ni
- E. Ce

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

- (1) केवल B और E
- (2) केवल A, B और E
- (3) केवल A, B और D
- (4) केवल C और D

**Options :**

920906100565. 1

920906100566. 2

920906100567. 3

920906100568. 4

**Question Number : 43 Question Id : 92090625451 Question Type : MCQ Option Shuffling : No 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) : Zn is considered as d-block element but not as a transition metal.

Reasons (R) : Transition metals are metals with incomplete d-subshell either in neutral atom or in the ionic state

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 :**

920906100569. 1

920906100570. 2

920906100571. 3

920906100572. 4

**Question Number : 43 Question Id : 92090625451 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

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

अभिकथन A : Zn को d-ब्लॉक तत्व माना जाता है लेकिन संक्रमण धातु नहीं माना जाता है।

कारण R : उदासीन परमाणु अथवा आयनी अवस्था में संक्रमण धातुएं अपूर्ण d-उपकोश (सबसेल) वाली धातुएं हैं।

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

- (1) A और R दोनों सही हैं और R, A की सही व्याख्या है
- (2) A और R दोनों सही हैं, लेकिन R, A की सही व्याख्या नहीं है
- (3) A सही हैं, लेकिन R सही नहीं है
- (4) A सही नहीं हैं, लेकिन R सही है

**Options :**

920906100569. 1  
920906100570. 2  
920906100571. 3  
920906100572. 4

**Question Number : 44 Question Id : 92090625452 Question Type : MCQ Option Shuffling : No 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 : For the first order reaction, rate of reaction is independent of concentration of reactants.

Statement II : For a zero order reaction rate constant is independent of concentration of reactants.

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 :**

920906100573. 1  
920906100574. 2

920906100575. 3

920906100576. 4

**Question Number : 44 Question Id : 92090625452 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

नीचे दो कथन दिए गए हैं:

कथन I : प्रथम क्रम का अभिक्रिया में, अभिक्रिया की दर अभिकारकों की सांद्रता से निरपेक्ष होती है।

कथन II : शून्य क्रम की अभिक्रिया के लिए दर नियतांक अभिकारकों की सांद्रता से निरपेक्ष होता 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 :**

920906100573. 1

920906100574. 2

920906100575. 3

920906100576. 4

**Question Number : 45 Question Id : 92090625453 Question Type : MCQ Option Shuffling : No 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
Type of solid	Example
(A) Molecular solid	(I) Ag
(B) Ionic solid	(II) SiO <sub>2</sub>
(C) Metallic solid	(III) I <sub>2</sub>
(D) Covalent solid	(IV) MgO

Choose the correct answer from the options given below:

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

**Options :**

920906100577. 1  
920906100578. 2  
920906100579. 3  
920906100580. 4

**Question Number : 45 Question Id : 92090625453 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

सूची I के साथ सूची II का मिलान कीजिए

सूची-I	सूची-II
(A) आण्विक ठोस	(I) Ag
(B) आयनां ठोस	(II) SiO <sub>2</sub>
(C) धात्विक ठोस	(III) I <sub>2</sub>
(D) सहसंयोजी ठोस	(IV) MgO

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

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

**Options :**



920906100577. 1  
920906100578. 2  
920906100579. 3  
920906100580. 4

**Question Number : 46 Question Id : 92090625454 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Reduction potentials are given below Arrange them in increasing order of oxidising strength.

- A.  $F_2(g) + 2e^- \rightarrow 2F^-$   $E^\circ = 2.87 V$   
B.  $O_2(g) + 4H^+ + 4e^- \rightarrow 2H_2O$   $E^\circ = 1.23V$   
C.  $Cu^{2+} + 2e^- \rightarrow Cu(s)$   $E^\circ = 0.34V$   
D.  $Pb^{2+} + 2e^- \rightarrow Pb(s)$   $E^\circ = -0.13 V$   
E.  $Fe^{2+} + 2e^- \rightarrow Fe(s)$   $E^\circ = -0.44 V$

Choose the correct answer from the options given below :

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

**Options :**

920906100581. 1  
920906100582. 2  
920906100583. 3  
920906100584. 4

**Question Number : 46 Question Id : 92090625454 Question Type : MCQ Option Shuffling : No 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 अपचयन विभव दिए गए हैं। इनको आँकसीकारी सामर्थ्य के बढ़ते क्रम में व्यवस्थित कीजिए :

- A.  $F_2(g) + 2e^- \rightarrow 2F^-$   $E^\circ = 2.87 V$   
B.  $O_2(g) + 4H^+ + 4e^- \rightarrow 2H_2O$   $E^\circ = 1.23V$   
C.  $Cu^{2+} + 2e^- \rightarrow Cu(s)$   $E^\circ = 0.34V$   
D.  $Pb^{2+} + 2e^- \rightarrow Pb(s)$   $E^\circ = -0.13 V$   
E.  $Fe^{2+} + 2e^- \rightarrow Fe(s)$   $E^\circ = -0.44 V$

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

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

**Options :**

920906100581. 1  
920906100582. 2  
920906100583. 3  
920906100584. 4

**Question Number : 47 Question Id : 92090625455 Question Type : MCQ Option Shuffling : No 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
(Oxide of nitrogen)	(Oxidation state of nitrogen)
(A) Nitrogen monoxide	(I) +3
(B) Dinitrogen trioxide	(II) +1
(C) Dinitrogen tetroxide	(III) +2
(D) Dinitrogen monoxide	(IV) +4

Choose the correct answer from the options given below:

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

**Options :**

920906100585. 1

920906100586. 2

920906100587. 3

920906100588. 4

**Question Number : 47 Question Id : 92090625455 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

सूची I के साथ सूची II का मिलान कीजिए

सूची-I (नाइट्रोजन के ऑक्साइड)	सूची-II (नाइट्रोजन की ऑक्सीकरण अवस्था)
(A) नाइट्रोजन मोनोऑक्साइड	(I) +3
(B) डाइनाइट्रोजन ट्राइऑक्साइड	(II) +1
(C) डाइनाइट्रोजन टेट्राऑक्साइड	(III) +2
(D) डाइनाइट्रोजन मोनोऑक्साइड	(IV) +4

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

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

**Options :**

920906100585. 1
920906100586. 2
920906100587. 3
920906100588. 4

**Question Number : 48 Question Id : 92090625456 Question Type : MCQ Option Shuffling : No 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 incorrect statements about inner transition series.

- A. The actinoids include elements from Ac to Lr.
- B. There are fourteen elements in Lanthanoid series.
- C. Actinoids are radioactive elements.
- D. Lanthanoids and actinoids are silvery in appearance.
- E. Actinoids are very less reactive and reactivity is lost if finely divided.

Choose the correct answer from the options given below :

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

**Options :**

920906100589. 1  
920906100590. 2  
920906100591. 3  
920906100592. 4

**Question Number : 48 Question Id : 92090625456 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

आंतरिक संक्रमण श्रेणी के विषय में गलत कथन की पहचान कीजिए।

- A. एक्टीनॉइड्स में  $A_c$  से  $L_r$  तक के तत्व सम्मिलित हैं।
- B. लैन्थेनॉइड्स श्रेणी में चौदह तत्व हैं।
- C. एक्टीनॉइड्स रेडियोधर्मी तत्व हैं।
- D. लैन्थेनॉइड्स और एक्टीनॉइड्स रूपहले (सिल्वरी) दिखाई देते हैं।
- E. एक्टीनाइड्स बहुत कम अभिक्रियाशील होते हैं और सूक्ष्मता से विभाजित होने पर अभिक्रियाशीलता लुप्त हो जाती है।

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

- (1) केवल A और E
- (2) केवल B, C और D
- (3) केवल C और E
- (4) केवल B, D और E

**Options :**

920906100589. 1  
920906100590. 2  
920906100591. 3  
920906100592. 4

**Question Number : 49 Question Id : 92090625457 Question Type : MCQ Option Shuffling : No 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
Complex/Complexion	Types of isomerism
(A) $[\text{Pt}(\text{NH}_3)_2\text{Cl}_2]$	(I) Ionisation isomerism
(B) $[\text{Co}(\text{en})_3]^{3+}$	(II) Linkage isomerism
(C) $\text{Hg}[\text{Co}(\text{SCN})_4]$	(III) Geometrical isomerism
(D) $[\text{Co}(\text{NH}_3)_5\text{SO}_4] \text{Br}$	(IV) Optical isomerism

Choose the correct answer from the options given below:

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

**Options :**

920906100593. 1

920906100594. 2

920906100595. 3

920906100596. 4

**Question Number : 49 Question Id : 92090625457 Question Type : MCQ Option Shuffling : No Is  
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum  
Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

सूची I के साथ सूची II का मिलान कीजिए

सूची-I (कॉम्प्लैक्स/कॉम्प्लैक्स आयन)	सूची-II (समावयवता का प्रकार)
(A) $[\text{Pt}(\text{NH}_3)_2\text{Cl}_2]$	(I) आयनीकरण समावयवता
(B) $[\text{Co}(\text{en})_3]^{3+}$	(II) सहलग्न समावयवता
(C) $\text{Hg}[\text{Co}(\text{SCN})_4]$	(III) ज्यामितीय समावयवता
(D) $[\text{Co}(\text{NH}_3)_5\text{SO}_4] \text{Br}$	(IV) प्रकाशिक समावयवता

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

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

**Options :**

920906100593. 1

920906100594. 2

920906100595. 3

920906100596. 4

**Question Number : 50 Question Id : 92090625458 Question Type : MCQ Option Shuffling : No 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 : Valence bond theory does not distinguish between weak and strong ligands

Statement II : Crystal field theory considers metal-Ligand bond to be covalent in nature.

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 :**

920906100597. 1  
920906100598. 2  
920906100599. 3  
920906100600. 4

**Question Number : 50 Question Id : 92090625458 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

नीचे दो कथन दिए गए हैं:

कथन I : संयोजकता आबंध सिद्धान्त निर्बल और प्रबल लिगान्ड्स के बीच अन्तर नहीं करता है।

कथन II : क्रिस्टल क्षेत्र सिद्धान्त में माना जाता है कि धातु-लिगान्ड आबंध की प्रकृति सहसंयोजी 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 :**

920906100597. 1  
920906100598. 2  
920906100599. 3  
920906100600. 4

**Question Number : 51 Question Id : 92090625459 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

$\alpha$ -decay from  $U^{238}$  can be explained by :

- |                                  |                               |
|----------------------------------|-------------------------------|
| (1) Quantum mechanical tunneling | (2) Wave nature of particle   |
| (3) Particle nature of wave      | (4) Rutherford backscattering |

**Options :**

920906100601. 1  
920906100602. 2  
920906100603. 3  
920906100604. 4



**Question Number : 51 Question Id : 92090625459 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

$U^{238}$  द्वारा  $\alpha$ -अपक्षय की व्याख्या निम्न द्वारा की जा सकती है :

- |                                      |                              |
|--------------------------------------|------------------------------|
| (1) क्वांटम यांत्रिक सुरंगन (टनलिंग) | (2) कणों की तरंग प्रकृति     |
| (3) तरंग की कण प्रकृति               | (4) रूदरफोर्ड पश्च प्रकीर्णन |

**Options :**

- 920906100601. 1
- 920906100602. 2
- 920906100603. 3
- 920906100604. 4

**Question Number : 52 Question Id : 92090625460 Question Type : MCQ Option Shuffling : No 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 : If unpolarized light is incident on a polarizer it transmits half of the intensity of light incident on it.
- Statement II : If circularly polarized light is incident on a polarizer, the transmitted light remains constant in intensity on rotation of the polarizer.

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 :**

- 920906100605. 1
- 920906100606. 2
- 920906100607. 3
- 920906100608. 4

**Question Number : 52 Question Id : 92090625460 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum**

**Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

नीचे दो कथन दिए गए हैं:

कथन I : दिये अध्रुवीकृत प्रकाश को ध्रुवक/पोलराइजर पर डाला जाता है तो वह अपने ऊपर आपतित प्रकाश की तीव्रता के आधे को संचरित करता है।

कथन II : यदि वृत्तीय ध्रुवित प्रकाश को ध्रुवक/पोलराइजर पर डाला जाता है, तो संचरित होने वाला प्रकाश पोलराइजर/ ध्रुवक को घूर्णित करने पर स्थिर रहता 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 :**

920906100605. 1

920906100606. 2

920906100607. 3

920906100608. 4

**Question Number : 53 Question Id : 92090625461 Question Type : MCQ Option Shuffling : No 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 the case of superconductivity state of a material which of the following is true?

- (1)  $\vec{B} = 0, \rho = 0$
- (2)  $\vec{B} = \text{constant}; \rho = 0$
- (3)  $\rho = 0, \vec{B} = \text{constant}$
- (4)  $\vec{B} = \text{constant}, \rho = \text{constant}$

( $\vec{B}$  is the magnetic field inside the material and  $\rho$  is the resistivity of the material)

**Options :**

920906100609. 1

920906100610. 2

920906100611. 3

920906100612. 4

**Question Number : 53 Question Id : 92090625461 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

पदार्थ की अतिचालक अवस्था में निम्नलिखित में से कौन सा सत्य है :

- (1)  $\vec{B} = 0, \rho = 0$  (2)  $\vec{B} = \text{स्थिर}; \rho = 0$   
(3)  $\rho = 0, \vec{B} = \text{स्थिर}$  (4)  $\vec{B} = \text{स्थिर}, \rho = \text{स्थिर}$

$\vec{B}$  पदार्थ के अंदर का चुंबकीय क्षेत्र और  $\rho$  पदार्थ का प्रतिरोधकता है)

**Options :**

920906100609. 1  
920906100610. 2  
920906100611. 3  
920906100612. 4

**Question Number : 54 Question Id : 92090625462 Question Type : MCQ Option Shuffling : No 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 particle is moving freely in +x axis. Which of the following was function represents the motion of the particle?

- (1)  $A \cos(kx' - \omega t)$  (2)  $Ae^{i(kx - \omega t)}$   
(3)  $Ae^{-i(kx - \omega t)}$  (4)  $A \sin(kx - \omega t)$

**Options :**

920906100613. 1  
920906100614. 2  
920906100615. 3  
920906100616. 4

**Question Number : 54 Question Id : 92090625462 Question Type : MCQ Option Shuffling : No 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 कण अक्ष पर गति कर रहा है निम्नलिखित में से कौन सा तरंग फलन कण की गति को प्रदर्शित करता है?

- (1)  $A \cos(kx' - \omega t)$  (2)  $Ae^{i(kx - \omega t)}$   
(3)  $Ae^{-i(kx - \omega t)}$  (4)  $A \sin(kx - \omega t)$

**Options :**

920906100613. 1

920906100614. 2

920906100615. 3

920906100616. 4

**Question Number : 55 Question Id : 92090625463 Question Type : MCQ Option Shuffling : No 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 a particle having narrow wave packet

- (1) wave length is short
- (2) position can be determined more accurately
- (3) energy can be determined more accurately
- (4) momentum can be determined more accurately

**Options :**

920906100617. 1

920906100618. 2

920906100619. 3

920906100620. 4

**Question Number : 55 Question Id : 92090625463 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

संकीर्ण तरंग पैकेट वाले कण के लिए :

- (1) तरंगदैर्घ्य छोटी होती है।
- (2) स्थान का निर्धारण अधिक यथार्थता से किया जा सकता है।
- (3) ऊर्जा का निर्धारण अधिक यथार्थ रूप से किया जा सकता है।
- (4) संवेग का निर्धारण अधिक यथार्थ रूप से किया जा सकता है।

**Options :**

920906100617. 1

920906100618. 2

920906100619. 3

920906100620. 4

**Question Number : 56 Question Id : 92090625464 Question Type : MCQ Option Shuffling : No 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 nearest neighbour distance of a **fcc** lattice, having lattice constant 'a' is equal to:

- (1)  $\frac{a}{2\sqrt{2}}$  (2)  $\frac{\sqrt{3}}{2}a$   
(3)  $\frac{a}{\sqrt{2}}$  (4)  $\sqrt{3}a$

**Options :**

920906100621. 1  
920906100622. 2  
920906100623. 3  
920906100624. 4

**Question Number : 56 Question Id : 92090625464 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

लैटिस (जालक) स्थिरांक 'a' वाले **fcc** लैटिस के लिए निकटतम प्रतिवेश दूरी बराबर होती है :

- (1)  $\frac{a}{2\sqrt{2}}$  के (2)  $\frac{\sqrt{3}}{2}a$  के  
(3)  $\frac{a}{\sqrt{2}}$  के (4)  $\sqrt{3}a$  के

**Options :**

920906100621. 1  
920906100622. 2  
920906100623. 3  
920906100624. 4

**Question Number : 57 Question Id : 92090625465 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Optical fibres work on the principle of

- (1) Diffraction (2) Interference  
(3) Total Internal Reflection (4) Polarization

**Options :**

920906100625. 1  
920906100626. 2

920906100627. 3

920906100628. 4

**Question Number : 57 Question Id : 92090625465 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

ऑप्टिकल (प्रकाशिक) फाइबर निम्न के सिद्धान्त पर कार्य करते है :

- |                         |               |
|-------------------------|---------------|
| (1) विवर्तन             | (2) व्यतिकरण  |
| (3) कुल आंतरिक परावर्तन | (4) ध्रुवीकरण |

**Options :**

920906100625. 1

920906100626. 2

920906100627. 3

920906100628. 4

**Question Number : 58 Question Id : 92090625466 Question Type : MCQ Option Shuffling : No 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 paramagnetic material has  $10^{28}$  atoms/m<sup>3</sup>. Its susceptibility at 350 K is  $2.8 \times 10^{-4}$ .  
Susceptibility of the material at 300 K is.

- |                           |                           |
|---------------------------|---------------------------|
| (1) $2.4 \times 10^{-4}$  | (2) $3.27 \times 10^{-4}$ |
| (3) $5.67 \times 10^{-4}$ | (4) $6.54 \times 10^{-4}$ |

**Options :**

920906100629. 1

920906100630. 2

920906100631. 3

920906100632. 4

**Question Number : 58 Question Id : 92090625466 Question Type : MCQ Option Shuffling : No 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 पराचुंबकीय पदार्थ में  $10^{28}$  परमाणु/धनमीटर हैं। 350 K पर पदार्थ की चुंबकीय प्रवृत्ति  $2.8 \times 10^{-4}$  है। पदार्थ की चुंबकीय प्रवृत्ति 300 K पर होगी

- (1)  $2.4 \times 10^{-4}$  (2)  $3.27 \times 10^{-4}$   
(3)  $5.67 \times 10^{-4}$  (4)  $6.54 \times 10^{-4}$

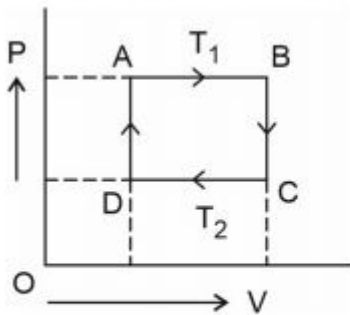
**Options :**

920906100629. 1  
920906100630. 2  
920906100631. 3  
920906100632. 4

**Question Number : 59 Question Id : 92090625467 Question Type : MCQ Option Shuffling : No 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 change of entropy in cycle ABCDA (as shown in figure) is :



- (1) positive (2) negative  
(3) zero (4) infinite

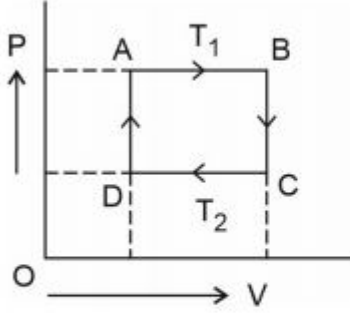
**Options :**

920906100633. 1  
920906100634. 2  
920906100635. 3  
920906100636. 4

**Question Number : 59 Question Id : 92090625467 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

चक्र ABCDA में एन्ट्रपी में परिवर्तन (जैसा कि चित्र में दिखाया गया है) हैं :



- |             |                |
|-------------|----------------|
| (1) धनात्मक | (2) श्रृणात्मक |
| (3) शून्य   | (4) अनंत       |

**Options :**

920906100633. 1  
 920906100634. 2  
 920906100635. 3  
 920906100636. 4

**Question Number : 60 Question Id : 92090625468 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

An electron makes a transition from the ground state A to an excited state B. It remains in the state B for a period of  $1.6 \times 10^{-12}$  s before returning back to ground state. The uncertainty in the energy of state

- |                              |                              |
|------------------------------|------------------------------|
| (1) $1.62 \times 10^{-4}$ eV | (2) $2.06 \times 10^{-4}$ eV |
| (3) $9.24 \times 10^{-4}$ eV | (4) $4.12 \times 10^{-4}$ eV |

**Options :**

920906100637. 1  
 920906100638. 2  
 920906100639. 3  
 920906100640. 4

**Question Number : 60 Question Id : 92090625468 Question Type : MCQ Option Shuffling : No 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 इडैक्ट्रोन आधारी अवस्था A से उत्तेजित अवस्था B में संक्रमण करता है। यह आधारी अवस्था में वायस आने से पहले  $1.6 \times 10^{-12} \text{ s}$  की समयावधि तक B अवस्था में रहता है। ऊर्जा की अवस्था में अनियतता है :

- (1)  $1.62 \times 10^{-4} \text{ eV}$  (2)  $2.06 \times 10^{-4} \text{ eV}$   
 (3)  $9.24 \times 10^{-4} \text{ eV}$  (4)  $4.12 \times 10^{-4} \text{ eV}$

**Options :**

920906100637. 1  
 920906100638. 2  
 920906100639. 3  
 920906100640. 4

**Question Number : 61 Question Id : 92090625469 Question Type : MCQ Option Shuffling : No 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 region of time varying electric and magnetic field,  $V$  and  $\vec{A}$  are scalar and vector potentials respectively. The electric field ( $\vec{E}$ ) in that region may be represented as:

- (1)  $\vec{E} = -\nabla V$  (2)  $\vec{E} = -\frac{\partial \vec{A}}{\partial t}$   
 (3)  $\vec{E} = -\nabla V - \frac{\partial \vec{A}}{\partial t}$  (4)  $\vec{E} = -\nabla V - \nabla \times \vec{A}$

**Options :**

920906100641. 1  
 920906100642. 2  
 920906100643. 3  
 920906100644. 4

**Question Number : 61 Question Id : 92090625469 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

समय परिवर्ती क्षेत्रों के विद्युत और चुंबकीय क्षेत्र में  $V$  और  $\vec{A}$  क्रमशः अदिश और सदिश विभव हैं। उस क्षेत्र में विद्युत क्षेत्र ( $\vec{E}$ ) को निम्न के रूप में प्रदर्शित किया जा सकता है।

- (1)  $\vec{E} = \nabla V$  (2)  $\vec{E} = -\frac{\partial \vec{A}}{\partial t}$   
 (3)  $\vec{E} = -\nabla V - \frac{\partial \vec{A}}{\partial t}$  (4)  $\vec{E} = -\nabla V - \nabla \times \vec{A}$

**Options :**

920906100641. 1  
920906100642. 2  
920906100643. 3  
920906100644. 4

**Question Number : 62 Question Id : 92090625470 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Newton's rings experiment was performed using two different media. The  $n^{\text{th}}$  dark ring in the two media were observed with their diameters in the ratio of 2 : 1. The ratio of the refractive indices of the two media is :

- (1) 2 : 1 (2) 4 : 1  
(3) 1 : 2 (4) 1 : 4

**Options :**

920906100645. 1  
920906100646. 2  
920906100647. 3  
920906100648. 4

**Question Number : 62 Question Id : 92090625470 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

न्यूटन के वल्य परिक्षण को दो भिन्न माध्यमों का उपयोग करके किया गया था। दोनों माध्यमों में  $n^{\text{th}}$  अदृष्टिवलय (डार्क रिंग) 2 : 1 के अनुपात में व्यास के साथ देखे गए। दोनों माध्यमों के अपवर्तनांकों का अनुपात होगा :

- (1) 2 : 1 (2) 4 : 1  
(3) 1 : 2 (4) 1 : 4

**Options :**

920906100645. 1  
920906100646. 2  
920906100647. 3  
920906100648. 4

**Question Number : 63 Question Id : 92090625471 Question Type : MCQ Option Shuffling : No 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 maxima for Bragg's diffraction of X-rays from KCl crystal ( $d = 0.314 \text{ nm}$ ) appears at  $30^\circ$ . The energy of a photon of the incident X-rays is :

- (1)  $3.15 \times 10^3 \text{ eV}$  (2)  $3.25 \times 10^3 \text{ eV}$   
(3)  $3.95 \times 10^3 \text{ eV}$  (4)  $6.50 \times 10^3 \text{ eV}$

**Options :**

920906100649. 1  
920906100650. 2  
920906100651. 3  
920906100652. 4

**Question Number : 63 Question Id : 92090625471 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

KCl क्रिस्टल ( $d = 0.314 \text{ nm}$ ) से X-किरणों के ब्रैग विवर्तन के लिए पृथक उच्चिष्ठ (फर्स्ट मैक्सिमा)  $30^\circ$  पर दिखाई दिया। आपतित X-किरणों के फोटोन की ऊर्जा हैं।

- (1)  $3.15 \times 10^3 \text{ eV}$  (2)  $3.25 \times 10^3 \text{ eV}$   
(3)  $3.95 \times 10^3 \text{ eV}$  (4)  $6.50 \times 10^3 \text{ eV}$

**Options :**

920906100649. 1  
920906100650. 2  
920906100651. 3  
920906100652. 4

**Question Number : 64 Question Id : 92090625472 Question Type : MCQ Option Shuffling : No 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 compound having the largest cohesive energy is :

- (1) Methane ( $\text{CH}_4$ ) (2) Diamond (C)  
(3) Sodium Chloride (NaCl) (4) Sodium (Na)

**Options :**

920906100653. 1  
920906100654. 2  
920906100655. 3  
920906100656. 4

**Question Number : 64 Question Id : 92090625472 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

अधिकतम संसंजक ऊर्जा वाला यौगिक है :

- |                              |                 |
|------------------------------|-----------------|
| (1) मीथेन (CH <sub>4</sub> ) | (2) हीरा (C)    |
| (3) सोडियम क्लोराइड (NaCl)   | (4) सोडियम (Na) |

**Options :**

- 920906100653. 1
- 920906100654. 2
- 920906100655. 3
- 920906100656. 4

**Question Number : 65 Question Id : 92090625473 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Lenz's law states that

- (1) If the flux is decreasing, the current will flow such that its field adds to the original flux
- (2) If the flux is decreasing, the current will flow such that its field cancels the original flux
- (3) If the flux is increasing, the current will flow such that its field adds to the original flux
- (4) If the flux is changing, the current will not try to nullify the flux charge

**Options :**

- 920906100657. 1
- 920906100658. 2
- 920906100659. 3
- 920906100660. 4

**Question Number : 65 Question Id : 92090625473 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

लेन्ज़ नियम कहता है कि :

- (1) यदि अभिवाह (फ्लक्स) कम हो रहा है ; तो धारा का प्रवाह ऐसा होगा कि उसका क्षेत्र मूल अभिवाह में वृद्धि करेगा।
- (2) यदि अभिवाह घट रहा है, तो धारा का प्रवाह ऐसा होगा कि उसका क्षेत्र मूल अभिवाह को निरस्त कर देगा।
- (3) यदि अभिवाह बढ़ रहा है, तो धारा प्रवाह ऐसा होगा कि उसका क्षेत्र मूल अभिवाह में वृद्धि करेगा।
- (4) यदि अभिवाह परिवर्तित हो रहा है, तो धारा अभिवाह परिवर्तन को शून्य करने का प्रयास करेगी।

**Options :**

920906100657. 1  
920906100658. 2  
920906100659. 3  
920906100660. 4

**Question Number : 66 Question Id : 92090625474 Question Type : MCQ Option Shuffling : No 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) : Divergence of magnetic field ( $\vec{\nabla} \cdot \vec{B}$ ) is always zero.

Reasons (R) : Magnetic monopoles do not exist in nature. Magnets are always found as dipoles. Therefore, magnetic lines of force always make a close loop.

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 :**

920906100661. 1  
920906100662. 2  
920906100663. 3  
920906100664. 4

**Question Number : 66 Question Id : 92090625474 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

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

अभिकथन A : चुंबकीय क्षेत्र का अपसरण सदैव ( $\vec{v} \cdot \vec{B}$ ) शून्य होता है।

कारण R : चुंबकीय एकध्रुव (मोनोपोल) पृथक्ता में नहीं पाए जाते हैं। चुंबक सदैव द्विध्रुव (डाइपोल) के रूप में पाए जाते हैं। अतः चुंबकीय बल रेखाएं सदैव एक संवृत लूप बनाती हैं।

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

- (1) A और R दोनों सही हैं और R, A की सही व्याख्या है
- (2) A और R दोनों सही हैं, लेकिन R, A की सही व्याख्या नहीं है
- (3) A सही हैं, लेकिन R सही नहीं है
- (4) A सही नहीं हैं, लेकिन R सही है

**Options :**

920906100661. 1

920906100662. 2

920906100663. 3

920906100664. 4

**Question Number : 67 Question Id : 92090625475 Question Type : MCQ Option Shuffling : No 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) : Interference pattern is obtained when light waves coming from the two coherent sources superimpose on each other.

Reasons (R) : If the two sources are coherent, the phase difference between the two waves coming from these two sources does not change with time.

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 :**

920906100665. 1
920906100666. 2
920906100667. 3
920906100668. 4

**Question Number : 67 Question Id : 92090625475 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

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

अभिकथन A : जब दो संसक्त स्रोतों से आने वाली प्रकाश तरंगें एक दूसरे पर अध्यारोपित होती हैं तो व्यतिकरण चित्राम/पैटर्न प्राप्त होता है।

कारण R : यदि दो स्रोत स्रोत संसक्त हों, तो इन दोनों स्रोतों से आने वाली दोनों तरंगों के बीच कला अंतर समय के साथ परिवर्तित नहीं होता है।

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

- (1) A और R दोनों सही हैं और R, A की सही व्याख्या है
- (2) A और R दोनों सही हैं, लेकिन R, A की सही व्याख्या नहीं है
- (3) A सही है, लेकिन R सही नहीं है
- (4) A सही नहीं है, लेकिन R सही है

**Options :**

920906100665. 1

920906100666. 2

920906100667. 3

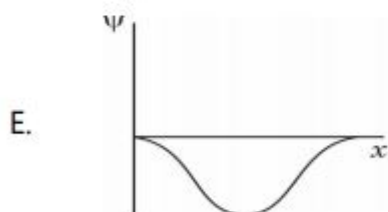
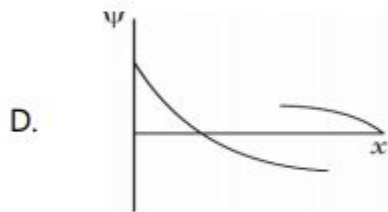
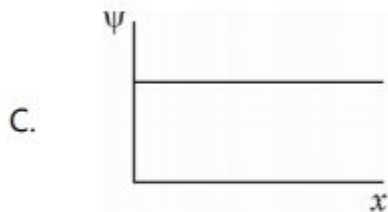
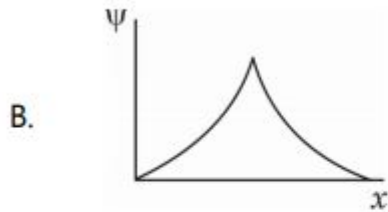
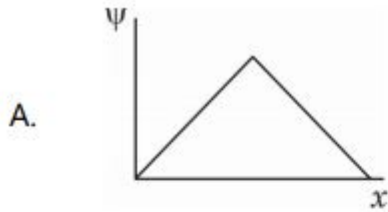
920906100668. 4

**Question Number : 68 Question Id : 92090625476 Question Type : MCQ Option Shuffling : No 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 wave functions cannot have physical significance in the interval shown?



Choose the correct answer from the options given below :

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

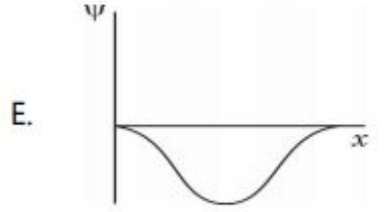
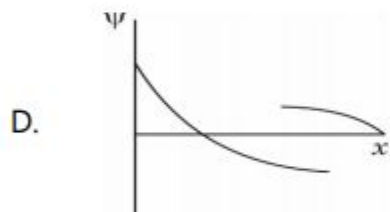
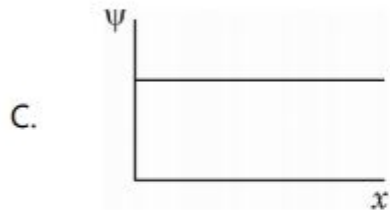
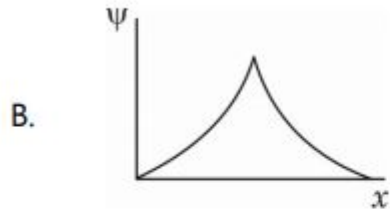
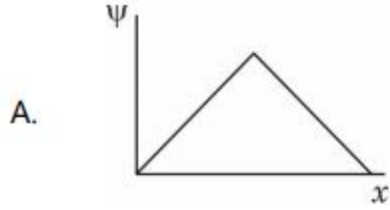
**Options :**

- 920906100669. 1
- 920906100670. 2
- 920906100671. 3
- 920906100672. 4

Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्नलिखित में से कौन से तरंग फलन का दर्शाए गए अंतराल में भौतिक महत्व नहीं हो सकता है?



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

- (1) केवल A, B और D
- (2) केवल A, C और D
- (3) केवल D, C और E
- (4) केवल A, B और C

Options :

920906100669. 1

920906100670. 2

920906100671. 3

920906100672. 4

**Question Number : 69 Question Id : 92090625477 Question Type : MCQ Option Shuffling : No 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) : As the absolute temperature  $T \rightarrow 0$ , the values of heat capacities ( $C_p$  and  $C_v$ ) tend to zero.

Reasons (R) : The entropy changes in all reversible isothermal processes tend to zero as temperature approaches absolute zero.

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

- (1) Both (A) and (R) are true and (R) is the correct explanation of (A)
- (2) Both (A) and (R) are true but (R) is NOT the correct explanation of (A)
- (3) (A) is true but (R) is false
- (4) (A) is false but (R) is true

**Options :**

920906100673. 1

920906100674. 2

920906100675. 3

920906100676. 4

**Question Number : 69 Question Id : 92090625477 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

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

अभिकथन A : परम तापमान  $T \rightarrow 0$  होने पर, ताप क्षमताओं ( $C_p$  और  $C_v$ ) के मान के शून्य होने की प्रवृत्ति होती है।

कारण R : सभी उत्क्रमणीय समतापी प्रक्रमों में एन्ट्रॉपी परिवर्तन तापमान के परम शून्य होने पर शून्य हो जाते हैं।

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

- (1) A और R दोनों सही हैं और R, A की सही व्याख्या है
- (2) A और R दोनों सही हैं, लेकिन R, A की सही व्याख्या नहीं है
- (3) A सही हैं, लेकिन R सही नहीं है
- (4) A सही नहीं हैं, लेकिन R सही है

**Options :**

920906100673. 1  
920906100674. 2  
920906100675. 3  
920906100676. 4

**Question Number : 70 Question Id : 92090625478 Question Type : MCQ Option Shuffling : No 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 : For a thermally isochoric system, the appropriate set of conditions for stable equilibrium is  
 $dS = 0, dV = 0, dU = 0, d^2S < 0$

Statement II : For a thermally isolated isobaric system, the appropriate set of conditions for stable equilibrium is  $dH = 0, dS < 0, dP = 0$  (All the thermodynamic variables i.e.  $V, U, S, H$  and  $P$  are used in their usually meanings,

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

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

**Options :**

920906100677. 1

920906100678. 2

920906100679. 3

920906100680. 4

**Question Number : 70 Question Id : 92090625478 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

नीचे दो कथन दिए गए हैं:

कथन I : तापीय रूप से विलग/पृथक समायतनिक तंत्र में, स्थायी साम्य के लिए स्थितियों का उपयुक्त सेट है –

$$dS = 0, dV = 0, dU = 0, d^2S < 0$$

कथन II : तापीय रूप से विलग/पृथक संभारिक तंत्र में, स्थायी साम्य के लिए स्थितियों का उपयुक्त सेट है –

$$dH = 0, dS < 0, dP = 0$$

(सभी ऊष्मागतिक चरों अर्थात्  $V$ ,  $U$ ,  $S$ ,  $H$  और  $P$  का उपयोग उनके सामान्य अर्थ में किया गया 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 :**

920906100677. 1

920906100678. 2

920906100679. 3

920906100680. 4

**Question Number : 71 Question Id : 92090625479 Question Type : MCQ Option Shuffling : No 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
Crystal structures	Angle between Axes
(A) Triclinic	(I) $\alpha = \beta = r = 90^\circ$
(B) Cubic	(II) $\alpha \neq \beta \neq r$
(C) Hexagonal	(III) $\alpha = \beta = r \neq 90^\circ < 120^\circ$
(D) Rhombohedral	(IV) $\alpha = \beta = 90^\circ, r = 120^\circ$

Choose the correct answer from the options given below:

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

**Options :**

920906100681. 1
920906100682. 2
920906100683. 3
920906100684. 4

**Question Number : 71 Question Id : 92090625479 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

सूची I के साथ सूची II का मिलान कीजिए

सूची-I (क्रिस्टल संरचना)	सूची-II (अक्षों के बीच कोण)
(A) त्रिनाक्ष	(I) $\alpha = \beta = r = 90^\circ$
(B) घनाकार	(II) $\alpha \neq \beta \neq r$
(C) षट्कोणीय	(III) $\alpha = \beta = r \neq 90^\circ < 120^\circ$
(D) त्रिसमनताक्ष	(IV) $\alpha = \beta = 90^\circ, r = 120^\circ$

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

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

**Options :**

920906100681. 1
920906100682. 2
920906100683. 3
920906100684. 4

**Question Number : 72 Question Id : 92090625480 Question Type : MCQ Option Shuffling : No 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) $\left(\frac{\partial T}{\partial P}\right)_S$	(I) $-\left(\frac{\partial V}{\partial T}\right)_P$
(B) $\left(\frac{\partial T}{\partial V}\right)_S$	(II) $\left(\frac{\partial P}{\partial T}\right)_V$
(C) $\left(\frac{\partial S}{\partial P}\right)_T$	(III) $-\left(\frac{\partial P}{\partial S}\right)_V$
(D) $\left(\frac{\partial S}{\partial V}\right)_T$	(IV) $\left(\frac{\partial V}{\partial S}\right)_P$

Choose the correct answer from the options given below:

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

**Options :**

920906100685. 1  
920906100686. 2  
920906100687. 3  
920906100688. 4

**Question Number : 72 Question Id : 92090625480 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

सूची I के साथ सूची II का मिलान कीजिए

सूची-I	सूची-II
(A) $\left(\frac{\partial T}{\partial P}\right)_S$	(I) $-\left(\frac{\partial V}{\partial T}\right)_P$
(B) $\left(\frac{\partial T}{\partial V}\right)_S$	(II) $\left(\frac{\partial P}{\partial T}\right)_V$
(C) $\left(\frac{\partial S}{\partial P}\right)_T$	(III) $-\left(\frac{\partial P}{\partial S}\right)_V$
(D) $\left(\frac{\partial S}{\partial V}\right)_T$	(IV) $\left(\frac{\partial V}{\partial S}\right)_P$

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

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

**Options :**

920906100685. 1  
920906100686. 2  
920906100687. 3  
920906100688. 4

**Question Number : 73 Question Id : 92090625481 Question Type : MCQ Option Shuffling : No Is  
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum  
Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

According to the classical free electron theory, which of the following statements are correct?

- A. Every free electron in a metal has average kinetic energy of  $\frac{3}{2}kT$ .
- B. Free electron model successfully explained temperature dependence of electrical conductivity.
- C. It does not explain why some crystals are metallic.
- D. It successfully explained the existence of conductors, semiconductors and insulators.
- E. It failed to explain the behaviour of good conductors and bad conductors.

Choose the correct answer from the options given below :

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

**Options :**

- 920906100689. 1
- 920906100690. 2
- 920906100691. 3
- 920906100692. 4

**Question Number : 73 Question Id : 92090625481 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

क्लैसिकल मुक्त इलैक्ट्रॉन सिद्धान्त सिद्धान्त के अनुसार निम्नलिखित में से कौन से कथन सही हैं?

- A. किसी धातु में प्रत्येक मुक्त इलैक्ट्रॉन की औसत गतिज ऊर्जा  $\frac{3}{2}kT$  होती है।
- B. मुक्त इलैक्ट्रॉन मॉडल ने वैद्युत चालकता की तापमान निर्भरता की सफल रूप से व्याख्या की है।
- C. ये इसकी व्याख्या नहीं करता है कि कुछ क्रिस्टल धात्विक क्यों होते हैं।
- D. यह चालकों, अर्ध चालकों और विद्युत्तरोदियों के अस्तित्व की सफल व्याख्या करता है।
- E. यह सुचालकों और कुचालकों के व्यवहार की व्याख्या करने में असफल रहा है।

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

- (1) केवल A, B और C
- (2) केवल B, C और D
- (3) केवल A, C और E
- (4) केवल C, D और E

**Options :**

- 920906100689. 1
- 920906100690. 2
- 920906100691. 3
- 920906100692. 4

**Question Number : 74 Question Id : 92090625482 Question Type : MCQ Option Shuffling : No 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 waves in increasing order of energy.

- A. Ultraviolet light waves.
- B. Infrared light waves
- C. X-rays.
- D. Visible light waves.
- E. Gamma waves.

Choose the correct answer from the options given below :

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

**Options :**

- 920906100693. 1
- 920906100694. 2
- 920906100695. 3
- 920906100696. 4

**Question Number : 74 Question Id : 92090625482 Question Type : MCQ Option Shuffling : No 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 तरंगों को ऊर्जा के बढ़ते क्रम में व्यवस्थित कीजिए :

- A. पराबैंगनी प्रकाश तरंगों
- B. अवरक्त प्रकारा तरंगों
- C. एक्स किरणों
- D. दृश्य प्रकाश तरंगों
- E. गामा तरंगों

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

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

**Options :**

- 920906100693. 1
- 920906100694. 2
- 920906100695. 3
- 920906100696. 4

**Question Number : 75 Question Id : 92090625483 Question Type : MCQ Option Shuffling : No 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 electric flux density  $\vec{D} = 2x\hat{i} + 4\hat{j}$ , then the numeric value of volume charge density is :

- (1) 4
- (2) 3
- (3) 2
- (4) 6

**Options :**

- 920906100697. 1
- 920906100698. 2
- 920906100699. 3
- 920906100700. 4

**Question Number : 75 Question Id : 92090625483 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

यदि वैद्युत अभिवाह घनत्व  $\vec{D} = 2x\hat{i} + 4\hat{j}$ , है, तो आयतन-आवेश घनत्व का संख्यात्मक मान होगा :

- (1) 4
- (2) 3
- (3) 2
- (4) 6

**Options :**

- 920906100697. 1
- 920906100698. 2
- 920906100699. 3
- 920906100700. 4

**Question Number : 76 Question Id : 92090625484 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Antigenic determinants are known as

- (1) Combining sites on lymphocytes
- (2) Portion of antigen involved in binding with Antibody
- (3) Portion of antibody involved in binding with antigen
- (4) Binding site on antibodies

**Options :**

920906100701. 1  
920906100702. 2  
920906100703. 3  
920906100704. 4

**Question Number : 76 Question Id : 92090625484 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

प्रतिजिन (एन्टीजनी) निर्धारक कहलाते हैं :

- (1) लसीकाणुओं (लिम्फोसाइट्स) पर संयोजन स्थल
- (2) प्रतिजन का प्रतिरक्षी (एन्टी बौडी) से बंधन करने वाला भाग
- (3) प्रतिरक्षी का प्रतिजन से बंधन में भागीदारी करने वाला भाग
- (4) प्रतिरक्षियों पर बंधनकारी स्थल

**Options :**

920906100701. 1  
920906100702. 2  
920906100703. 3  
920906100704. 4

**Question Number : 77 Question Id : 92090625485 Question Type : MCQ Option Shuffling : No 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 oxidative phosphorylation, oxidation of a molecule of glucose to CO<sub>2</sub> yields

- |                  |                  |
|------------------|------------------|
| (1) 30 or 32 ATP | (2) 28 or 30 ATP |
| (3) 32 or 34 ATP | (4) 31 or 32 ATP |

**Options :**

920906100705. 1  
920906100706. 2  
920906100707. 3

920906100708. 4

**Question Number : 77 Question Id : 92090625485 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

ऑक्सीकरणी फोस्फोरीलेशन में, ग्लूकोस के एक अणु के CO<sub>2</sub> में ऑक्सीकरण से लब्धि होती है :

- |                     |                     |
|---------------------|---------------------|
| (1) 30 या 32 ATP की | (2) 28 या 30 ATP की |
| (3) 32 या 34 ATP की | (4) 31 या 32 ATP की |

**Options :**

- 920906100705. 1
- 920906100706. 2
- 920906100707. 3
- 920906100708. 4

**Question Number : 78 Question Id : 92090625486 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Binding Energy  $\Delta G_b$  is

- (1) Covalent interaction between enzymes and substrate
- (2) Free energy derived by enzymes – substrate interaction
- (3) It increases activation energy of reaction
- (4) Provides unstability to enzyme-substrate interaction

**Options :**

- 920906100709. 1
- 920906100710. 2
- 920906100711. 3
- 920906100712. 4

**Question Number : 78 Question Id : 92090625486 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**



बंधन ऊर्जा,  $\Delta G_b$  है :

- (1) एन्जाइम और क्रियाधार (सबस्ट्रेट) के बीच सहसंयोजी अन्योन्यक्रिया
- (2) एन्जाइम-क्रियाधार अन्योन्य क्रिया द्वारा व्युत्पन्न मुक्त ऊर्जा
- (3) यह अभिक्रिया की सक्रियन ऊर्जा को बढ़ा देती है
- (4) एन्जाइम-क्रियाधार अन्योन्यक्रिया को अस्थिरता प्रदान करता है

**Options :**

920906100709. 1  
920906100710. 2  
920906100711. 3  
920906100712. 4

**Question Number : 79 Question Id : 92090625487 Question Type : MCQ Option Shuffling : No 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 hormone which is formed in corpus luteum as well as placenta and helps in maintaining pregnancy:

- |                  |  |
|------------------|--|
| (1) Estrogen     | (2) Progesterone                       |
| (3) Testosterone | (4) Follicle Stimulating Hormone (FSH) |

**Options :**

920906100713. 1  
920906100714. 2  
920906100715. 3  
920906100716. 4

**Question Number : 79 Question Id : 92090625487 Question Type : MCQ Option Shuffling : No 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 हार्मोन जो कॉर्पस ल्यूटियम और प्लेसेन्टा (अपरा) दोनों में बनता है और गर्भावस्था को बनाए रखने में सहायक होता है, वह है :

- |                   |  |
|-------------------|--|
| (1) एस्ट्रोजन     | (2) प्रोजेस्टेरोन                        |
| (3) टेस्टोस्टेरोन | (4) फॉलिकिल स्टीम्युलेटिंग हार्मोन (FSH) |

**Options :**

920906100713. 1  
920906100714. 2  
920906100715. 3  
920906100716. 4

**Question Number : 80 Question Id : 92090625488 Question Type : MCQ Option Shuffling : No 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 cross in which an unknown genotype is crossed with homozygous individual having recessive trait is known as :

- |                |                                   |
|----------------|-----------------------------------|
| (1) Back cross | (2) Dihybrid cross                |
| (3) Test cross | (4) Law of Independent Assortment |

**Options :**

- 920906100717. 1
- 920906100718. 2
- 920906100719. 3
- 920906100720. 4

**Question Number : 80 Question Id : 92090625488 Question Type : MCQ Option Shuffling : No 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 संकरण (क्रॉस) जिसमें किसी अज्ञात जीनप्ररूप का अप्रभावी विशेषक वाले समयुग्मजी व्यक्ति से संकरण करवाया जाता है, कहलाता है :

- |                              |                                   |
|------------------------------|-----------------------------------|
| (1) प्रतीप संकरण (बैक क्रॉस) | (2) द्विसंकर संकरण                |
| (3) परीक्षार्थ संकरण         | (4) Law of Independent Assortment |

**Options :**

- 920906100717. 1
- 920906100718. 2
- 920906100719. 3
- 920906100720. 4

**Question Number : 81 Question Id : 92090625489 Question Type : MCQ Option Shuffling : No 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 concentration of  $H^+$  in a solution of 0.01 M NaOH?

- |                  |                  |
|------------------|------------------|
| (1) $10^{-12}$ M | (2) $10^{-10}$ M |
| (3) $10^{-13}$ M | (4) $10^{-11}$ M |

**Options :**

- 920906100721. 1
- 920906100722. 2
- 920906100723. 3
- 920906100724. 4

**Question Number : 81 Question Id : 92090625489 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

0.01 M NaOH के विलयन में की सांद्रता क्या होगी?

- |                  |                  |
|------------------|------------------|
| (1) $10^{-12}$ M | (2) $10^{-10}$ M |
| (3) $10^{-13}$ M | (4) $10^{-11}$ M |

**Options :**

- 920906100721. 1
- 920906100722. 2
- 920906100723. 3
- 920906100724. 4

**Question Number : 82 Question Id : 92090625490 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Amino-acids which contains 'Sulfur' in its side-chain is

- |             |               |
|-------------|---------------|
| (1) serine  | (2) threonine |
| (3) alanine | (4) cysteine  |

**Options :**

- 920906100725. 1
- 920906100726. 2
- 920906100727. 3
- 920906100728. 4

**Question Number : 82 Question Id : 92090625490 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

ऐमीनो अम्ल जिसमें उसकी पार्श्व श्रंखला 'सल्फर' होता है, वह है :

- |            |              |
|------------|--------------|
| (1) सीरीन  | (2) थ्रिओनीन |
| (3) ऐलानिन | (4) सिस्टीन  |

**Options :**

- 920906100725. 1
- 920906100726. 2
- 920906100727. 3

920906100728. 4

**Question Number : 83 Question Id : 92090625491 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Experiments to prove that "DNA is the genetic material" using radioisotopes  $P^{32}$  and  $S^{35}$ , was performed by

- |                           |                   |
|---------------------------|-------------------|
| (1) Avery-Macleod-McCarty | (2) Chargaff      |
| (3) Rosalind Franklin     | (4) Hershey-Chase |

**Options :**

- 920906100729. 1
- 920906100730. 2
- 920906100731. 3
- 920906100732. 4

**Question Number : 83 Question Id : 92090625491 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

रेडियो आइसोटोप्स (विकिरण समस्थानिक)  $P^{32}$  और  $S^{35}$  के उपयोग द्वारा ये सिद्ध करने का परिक्षण कि "DNA आनुवंशिक पदार्थ है" किया गया था :

- |                                    |                      |
|------------------------------------|----------------------|
| (1) एवरी-मैकलियोड-मैककार्टी द्वारा | (2) चारगौफ द्वारा    |
| (3) रोजेलिन्ड फ्रैंकलिन द्वारा     | (4) हर्षी-चेस द्वारा |

**Options :**

- 920906100729. 1
- 920906100730. 2
- 920906100731. 3
- 920906100732. 4

**Question Number : 84 Question Id : 92090625492 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

$\alpha$ -amanitin, disrupts mRNA formation in animal cells by blocking

- |           |            |
|-----------|------------|
| (1) Pol I | (2) Pol II |
| (3) Pol V | (4) Pol IV |

**Options :**

- 920906100733. 1
- 920906100734. 2
- 920906100735. 3
- 920906100736. 4

**Question Number : 84 Question Id : 92090625492 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

$\alpha$ -एमेनिटिन जंतु कोशिकाओं में mRNA के बनने को \_\_\_\_\_ अवरुद्ध करके बाधित करता है

- |           |            |
|-----------|------------|
| (1) पोल I | (2) पोल II |
| (3) पोल V | (4) पोल IV |

**Options :**

- 920906100733. 1
- 920906100734. 2
- 920906100735. 3
- 920906100736. 4

**Question Number : 85 Question Id : 92090625493 Question Type : MCQ Option Shuffling : No 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 metal ion, that is very tightly bound to the enzyme protein is called,

- |                      |               |
|----------------------|---------------|
| (1) Prosthetic group | (2) Apoenzyme |
| (3) Holoenzyme       | (4) Co-Enzyme |

**Options :**

- 920906100737. 1
- 920906100738. 2
- 920906100739. 3
- 920906100740. 4

**Question Number : 85 Question Id : 92090625493 Question Type : MCQ Option Shuffling : No 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 धातु आयन, जो अत्यधिक दृढ़ता से एन्जाइम प्रोटीन से बद्ध होता है, वह कहलाता है :

- |                      |                |
|----------------------|----------------|
| (1) प्रोस्थेटिक समूह | (2) एपोएन्जाइम |
| (3) होलोएन्जाइम      | (4) कोएन्जाइम  |

**Options :**

920906100737. 1  
920906100738. 2  
920906100739. 3  
920906100740. 4

**Question Number : 86 Question Id : 92090625494 Question Type : MCQ Option Shuffling : No 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 nicks in DNA strand are sealed by

- |                    |                |
|--------------------|----------------|
| (1) DNA polymerase | (2) DNA gyrase |
| (3) DNA helicase   | (4) DNA ligase |

**Options :**

920906100741. 1  
920906100742. 2  
920906100743. 3  
920906100744. 4

**Question Number : 86 Question Id : 92090625494 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

DNA रज्जुकों में खांचे (निक्स) सीलबंद होती हैं :

- |                      |                   |
|----------------------|-------------------|
| (1) DNA पोलिमेरेस से | (2) DNA गाइरेस से |
| (3) DNA हेलीकेस से   | (4) DNA लाइगेस से |

**Options :**

920906100741. 1  
920906100742. 2  
920906100743. 3  
920906100744. 4

**Question Number : 87 Question Id : 92090625495 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Clotting of blood can be inhibited by

- |                 |             |
|-----------------|-------------|
| (1) Prothrombin | (2) Heparin |
| (3) Histamine   | (4) Fibrin  |

**Options :**

- 920906100745. 1
- 920906100746. 2
- 920906100747. 3
- 920906100748. 4

**Question Number : 87 Question Id : 92090625495 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

रक्त के स्कंदन (थक्का बनने) को रोका जा सकता है :

- |                      |                 |
|----------------------|-----------------|
| (1) प्रोथ्रोम्बिन से | (2) हिपेरिन से  |
| (3) हिस्टामीन से     | (4) फाइब्रिन से |

**Options :**

- 920906100745. 1
- 920906100746. 2
- 920906100747. 3
- 920906100748. 4

**Question Number : 88 Question Id : 92090625496 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Insertion or deletion of nucleotides changes the reading frame (triplets of nucleotides), such mutation is known as

- |                         |                        |
|-------------------------|------------------------|
| (1) Silent mutation     | (2) Mis-sense mutation |
| (3) Frameshift mutation | (4) Non-sense mutation |

**Options :**

- 920906100749. 1
- 920906100750. 2
- 920906100751. 3
- 920906100752. 4

**Question Number : 88 Question Id : 92090625496 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

न्यूक्लियोटाइडों का समावेशन अथवा विलोपन रीडिंग फ्रेम (न्यूक्लियोटाइडों के त्रिकों) को परिवर्तित कर देता है, ऐसे उत्परिवर्तन को कहते हैं :

- |                                 |                           |
|---------------------------------|---------------------------|
| (1) नीरव (साइलेन्ट) उत्परिवर्तन | (2) मिस-सेन्स उत्परिवर्तन |
| (3) फ्रेम-शिफ्ट उत्परिवर्तन     | (4) नोन-सेन्स उत्परिवर्तन |

**Options :**

- 920906100749. 1
- 920906100750. 2
- 920906100751. 3
- 920906100752. 4

**Question Number : 89 Question Id : 92090625497 Question Type : MCQ Option Shuffling : No 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) : Glycinuria condition is associated with excess Glycine excretion through urine.

Reasons (R) : This condition leads to the formation of oxalate renal stones.

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

- (1) Both (A) and (R) are true and (R) is the correct explanation of (A)
- (2) Both (A) and (R) are true but (R) is NOT the correct explanation of (A)
- (3) (A) is true but (R) is false
- (4) (A) is false but (R) is true

**Options :**

- 920906100753. 1
- 920906100754. 2
- 920906100755. 3
- 920906100756. 4

**Question Number : 89 Question Id : 92090625497 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**



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

अभिकथन A : ग्लाइसीनयूरिया स्थिति मूत्र में अत्यधिक ग्लाइसीन के उत्सर्जन से संबन्धित है।

कारण R : इस स्थिति से वृक्क में ऑक्सलेट स्टोन बन जाते हैं।

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

- (1) A और R दोनों सही हैं और R, A की सही व्याख्या है
- (2) A और R दोनों सही हैं, लेकिन R, A की सही व्याख्या नहीं है
- (3) A सही हैं, लेकिन R सही नहीं है
- (4) A सही नहीं हैं, लेकिन R सही है

**Options :**

- 920906100753. 1
- 920906100754. 2
- 920906100755. 3
- 920906100756. 4

**Question Number : 90 Question Id : 92090625498 Question Type : MCQ Option Shuffling : No 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 sequence of pumping blood and filling of chambers in Heart is called "Cardiac Cycle".

Reasons (R) : The volume of blood pumped by ventricles in one minute is called Heart Rate.

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

- (1) Both (A) and (R) are true and (R) is the correct explanation of (A)
- (2) Both (A) and (R) are true but (R) is NOT the correct explanation of (A)
- (3) (A) is true but (R) is false
- (4) (A) is false but (R) is true

**Options :**

- 920906100757. 1
- 920906100758. 2

920906100759. 3

920906100760. 4

**Question Number : 90 Question Id : 92090625498 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

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

अभिकथन A : हृदय में पंपिंग और कक्षों के भरने का अनुक्रम हृदयचक्र कहलाता है।

कारण R : एक मिनट में निलयों द्वारा पंप होने वाले रक्त के आयतन को हृदय दर कहते हैं।

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

- (1) A और R दोनों सही हैं और R, A की सही व्याख्या है
- (2) A और R दोनों सही हैं, लेकिन R, A की सही व्याख्या नहीं है
- (3) A सही है, लेकिन R सही नहीं है
- (4) A सही नहीं है, लेकिन R सही है

**Options :**

920906100757. 1

920906100758. 2

920906100759. 3

920906100760. 4

**Question Number : 91 Question Id : 92090625499 Question Type : MCQ Option Shuffling : No 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) : Mitochondria and Chloroplasts are known as semi-autonomous organelles of a cell.

Reasons (R) : They have DNA, RNA, ribosomes and can synthesize some proteins.

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

- (1) Both (A) and (R) are true and (R) is the correct explanation of (A)
- (2) Both (A) and (R) are true but (R) is NOT the correct explanation of (A)
- (3) (A) is true but (R) is false
- (4) (A) is false but (R) is true

**Options :**

- 920906100761. 1
- 920906100762. 2
- 920906100763. 3
- 920906100764. 4

**Question Number : 91 Question Id : 92090625499 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

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

अभिकथन A : माइटोकॉन्ड्रिया और क्लोरोप्लास्ट (दरितलवक) कोशिका के अर्ध-स्वायत्त अंगक कहलाते हैं।

कारण R : इनमें DNA, RNA, राइबोसोम होते हैं और कुछ प्रोटीनों का संश्लेषण कर सकते हैं।

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

- (1) A और R दोनों सही हैं और R, A की सही व्याख्या है
- (2) A और R दोनों सही हैं, लेकिन R, A की सही व्याख्या नहीं है
- (3) A सही हैं, लेकिन R सही नहीं है
- (4) A सही नहीं हैं, लेकिन R सही है

**Options :**

- 920906100761. 1
- 920906100762. 2
- 920906100763. 3

920906100764. 4

**Question Number : 92 Question Id : 92090625500 Question Type : MCQ Option Shuffling : No 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 are the five steps that occur in photochemical reaction centers?

- A. Excitation energy is transferred to neighbouring chlorophyll.
- B. Light excitation of chlorophyll molecule.
- C. Pathway of excited electron to ETC.
- D. Excitation of 'chlorophyll a' at reaction center.
- E. Energy of excitation transferred to adjacent chlorophyll.

Choose the correct answer from the options given below :

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

**Options :**

920906100765. 1

920906100766. 2

920906100767. 3

920906100768. 4

**Question Number : 92 Question Id : 92090625500 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

ऐसे कौन से पांच चरण हैं जो प्रकाशरासायनिक अभिक्रिया केंद्रों में पाए जाते हैं?

- A. उत्तेजन ऊर्जा निकटवर्ती क्लोरोफिल (पर्णहरित) में स्थानांतरित हो जाती है।
- B. क्लोरोफिल अणु का प्रकाश उत्तेजन।
- C. उत्तेजित इलेक्ट्रॉन का ETC में पथ।
- D. अभिक्रिया केंद्र पर 'क्लोरोफिल a' का उत्तेजन।
- E. उत्तेजन की ऊर्जा निकटवर्ती क्लोरोफिल में स्थानांतरित हो जाती है।

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

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

**Options :**

- 920906100765. 1
- 920906100766. 2
- 920906100767. 3
- 920906100768. 4

**Question Number : 93 Question Id : 92090625501 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Role of secondary messenger in G-protein signalling pathway is described in steps given below.

- A. Activated receptor binds to G-protein, then GTP is bound which in turn activates the G-protein.
- B. cAMP, activates another protein that leads to cellular response.
- C. Messenger binds to G-protein coupled receptor.
- D. Activated GTP or G-protein binds to Adenylyl cyclase, GTP becomes hydrolyzed and hence, activated Adenylyl cyclase.
- E. Adenylyl cyclase which became activated converts ATP and cAMP.

Choose the correct answer from the options given below :

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

**Options :**

- 920906100769. 1
- 920906100770. 2
- 920906100771. 3
- 920906100772. 4

**Question Number : 93 Question Id : 92090625501 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

G-प्रोटीन संकेतन पथ में द्वितीयक संदेशवाहक की भूमिका को नीचे दिए गए चरणों में वर्णित किया गया है।

- A. सक्रियित ग्राही G-प्रोटीन से बद्ध होता है, फिर GTP बद्ध हो जाता है, जो फिर G-प्रोटीन को सक्रियित करता है।
- B. cAMP अन्य प्रोटीन को सक्रियित करता है जससे कोशिकीय अनुक्रिया होती है।
- C. संदेशवाहक G-प्रोटीन युग्मित ग्राही से बद्ध हो जाता है।
- D. सक्रियित GTP या G-प्रोटीन एडिनिलिल साइक्लेस से बद्ध हो जाता है, GTP जलअपघटित हो जाता है और इसलिए एडिनिलिल साइक्लेस को सक्रियित कर देता है।
- E. एडिनिलिल साइक्लेस जो सक्रियित हो जाता है, ATP को cAMP में परिवर्तित कर देता है।

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

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

**Options :**

- 920906100769. 1
- 920906100770. 2
- 920906100771. 3
- 920906100772. 4

**Question Number : 94 Question Id : 92090625502 Question Type : MCQ Option Shuffling : No 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 : Keratins are fibrous proteins that are found in eukaryotes.

Statement II :  $\alpha$ -keratin is soft and soluble while  $\beta$ -keratin is tough and insoluble.

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 :**

- 920906100773. 1
- 920906100774. 2
- 920906100775. 3
- 920906100776. 4

**Question Number : 94 Question Id : 92090625502 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

नीचे दो कथन दिए गए हैं:

कथन I : किरेटिन तंतुमय प्रोटीन हैं जो ससीमकेन्दुकी जीवों (यूकैरियोट्स) में पाए जाते हैं।

कथन II :  $\alpha$ -किरेटिन मृदु और धुलनशील जबकि  $\beta$ -किरेटिन दृढ़ और अधुलनशील होता है।

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

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

**Options :**

- 920906100773. 1
- 920906100774. 2
- 920906100775. 3
- 920906100776. 4

**Question Number : 95 Question Id : 92090625503 Question Type : MCQ Option Shuffling : No 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 genetic polymorphism is defined as phenomenon of having multiple stable forms of one gene in population.

Statement II : MHC genes are expressed 'codominantly', i.e. they express proteins transcribed from both maternal and paternal chromosome.

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 :**

920906100777. 1

920906100778. 2

920906100779. 3

920906100780. 4

**Question Number : 95 Question Id : 92090625503 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

नीचे दो कथन दिए गए हैं:

कथन I : आनुवंशिक बहुरूपता को समष्टि में एक जीन के अनेक स्थिर रूपों में पाए जाने की परिघटना के रूप में परिभाषित किया जाता है।

कथन II : MHC जीन्स की अभिव्यक्ति "सहप्रभावीरूप से" होती है अर्थात् ये मातृ और पितृ गुणसूत्र (क्रोमोसोम) दोनों से अनुलेखित प्रोटीनों को अभिव्यक्त करते हैं।

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 :**

920906100777. 1

920906100778. 2

920906100779. 3

920906100780. 4

**Question Number : 96 Question Id : 92090625504 Question Type : MCQ Option Shuffling : No 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 : During DNA replication, the continuous strand or leading strand is the one in which  $5' \rightarrow 3'$  synthesis proceeds in the same direction as replication fork movement.

Statement II : The Lagging strand synthesis also proceeds in the same direction as replication fork movement.

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 :**

920906100781. 1

920906100782. 2

920906100783. 3

920906100784. 4

**Question Number : 96 Question Id : 92090625504 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

नीचे दो कथन दिए गए हैं:

कथन I : DNA प्रतिकृतियन (रेप्लीकेशन) के समय सतत रज्जुक या अग्र रज्जुक (लीडिंग स्ट्रैंड) वह होता है जिसमें 5' → 3' संश्लेषण उसी दिशा में गति करता है जहां प्रतिकृति दुशाख (रेप्लीकेशन फोर्क) की गति होती है।

कथन II : पश्च रज्जुक संश्लेषण भी उसी दिशा में आगे बढ़ता है जिसमें प्रतिकृति दुशाख की गति 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 :**

920906100781. 1

920906100782. 2

920906100783. 3

920906100784. 4

**Question Number : 97 Question Id : 92090625505 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

Which of the following statements are true?

- A. Monogenic inheritance have quantitative traits.
- B. Inheritance of coat colour in fowl shows incomplete dominance.
- C. Human blood groups are determined through multiple alleles.
- D. A cross between F<sub>1</sub> individual and a recessive parent is Test cross.
- E. Human skin colour is determined by a single pair of alleles.

Choose the correct answer from the options given below :

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

**Options :**

920906100785. 1

920906100786. 2

920906100787. 3

920906100788. 4

**Question Number : 97 Question Id : 92090625505 Question Type : MCQ Option Shuffling : No 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 कथन सही हैं?

- A. एकोद्भर्ग (मोनोजेनिक) वंशागति में मात्रात्मक विशेषक होते हैं।
- B. मूर्गे में कोट के रंग की वंशागति अपूर्ण प्रशाविता दर्शाती है।
- C. मानव रुधिर वर्णों का निर्धारण अनेक एलीलों से होता है।
- D.  $F_1$  व्यष्टि और अप्रभावी जनक के बीच संकरण परीक्षार्थ संकरण (टेस्ट क्रॉस) कहलाता है।
- E. मानव त्वचा के रंग का निर्धारण एलीनों के एक जोड़े द्वारा होता है।

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

- (1) केवल A, B और D
- (2) केवल B, D और E
- (3) केवल B, C और D
- (4) केवल A, E और C

**Options :**

920906100785. 1

920906100786. 2

920906100787. 3

920906100788. 4

**Question Number : 98 Question Id : 92090625506 Question Type : MCQ Option Shuffling : No 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 answers : Carcinogenicity with radiant energy causes damage to

- A. DNA
- B. mRNA
- C. rRNA
- D. tRNA
- E. RNA

Choose the correct answer from the options given below :

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

**Options :**

- 920906100789. 1
- 920906100790. 2
- 920906100791. 3
- 920906100792. 4

**Question Number : 98 Question Id : 92090625506 Question Type : MCQ Option Shuffling : No 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 विकल्पों को चुनिए : विकिरण ऊर्जा से कैंसरजनन द्वारा क्षति होती है :

- A. DNA की
- B. mRNA की
- C. rRNA की
- D. tRNA की
- E. RNA की

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

- (1) केवल B, D और E
- (2) केवल A
- (3) केवल B, C और D
- (4) केवल A, E और B

**Options :**

- 920906100789. 1
- 920906100790. 2
- 920906100791. 3
- 920906100792. 4

**Question Number : 99 Question Id : 92090625507 Question Type : MCQ Option Shuffling : No 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) Folic acid	(I) Faulty Blood Clotting
(B) Ascorbic acid	(II) Night blindness
(C) Retinol	(III) Anaemia
(D) Phylloquinone	(IV) Scurvy

Choose the correct answer from the options given below:

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

**Options :**

- 920906100793. 1
- 920906100794. 2
- 920906100795. 3
- 920906100796. 4

**Question Number : 99 Question Id : 92090625507 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

सूची I के साथ सूची II का मिलान कीजिए

सूची-I	सूची-II
(A) फोलेसिन	(I) त्रुटिपूर्ण रक्त स्कदन
(B) ऐस्कोर्बिक अम्ल	(II) नाइटब्लाइंडनेस/रतौंधी
(C) रेटीनोल	(III) एनीमिया/रक्ताल्पता
(D) फिल्लोक्वीनोन	(IV) स्कर्वी

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

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

**Options :**

920906100793. 1  
920906100794. 2  
920906100795. 3  
920906100796. 4

**Question Number : 100 Question Id : 92090625508 Question Type : MCQ Option Shuffling : No 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) Neimann-Pick disease	(I) Absence of tyrosinase inside melanocytes in skin
(B) Hunter's syndrome	(II) Excessive amounts of sphingomyelin deposition
(C) Gaucher's disease	(III) Mucopolysaccharidosis-II
(D) Albinism	(IV) High content of cerebroside

Choose the correct answer from the options given below:

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

**Options :**

920906100797. 1  
920906100798. 2  
920906100799. 3  
920906100800. 4

**Question Number : 100 Question Id : 92090625508 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Wrong Marks : 1**

सूची I के साथ सूची II का मिलान कीजिए

सूची-I	सूची-II
(A) नाइमन-पिक रोग	(I) त्वचा में मेलानोसाइट्स के अंदर टाइरोसिनेस की अनुपस्थिति
(B) हन्टर सिन्ड्रोम	(II) स्फिंगोमाइलिन निक्षेपण का अत्यधिक मात्रा
(C) गॉउशर रोग	(III) म्यूकोपोलीसैकेराइडोसिस-II
(D) एल्बीनिस्म/ वर्णकहीनता	(IV) सेरीब्रोसाइड की उच्च मात्रा

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

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

**Options :**

920906100797. 1  
920906100798. 2  
920906100799. 3  
920906100800. 4