National Testing Agency

Question Paper Name :	Geophysics Eng 13th June 2023 Shift 3
Subject Name :	Geophysics Eng
Creation Date :	2023-06-13 20:04:07
Duration :	120
Total Marks :	400
Display Marks:	Yes

Geophysics

Group Number :	1
Group Id :	686340180
Group Maximum Duration :	0
Group Minimum Duration :	120
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	400
Is this Group for Examiner? :	No
Examiner permission :	Cant View
Show Progress Bar? :	No

Part A

Section Id :	686340359
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	21
Number of Questions to be attempted :	21
Section Marks :	100
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	686340598
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 68634018128 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

Learning Characteristics

Some of the important characteristics of learning are as given below:

1. Learning is Unitary: It implies that the learner reacts as a whole persons to the whole situation in a unified way. It means that the learner responds intellectually, emotionally, physically and spiritually at the same time. This attitude helps in the achievement of educational goals.

Development of skills: A skill is a learned activity that one develops through practice and reflection. It is the ability to perform a learned activity well and at will. Skill, as an ability to perform something, includes proficiency, competence, and expertise in the activity. Skill refers to learning psycho-motor behaviours required in the activities such as driving a car or swinging a tennis racket. The development of skills entails the following stages:

a. Cognitive Stage: Achieved through declarative knowledge
b. Associative Stage: Combining individual steps into larger units
c. Automated Stage: Where the whole procedure can be accomplished without much attention. In the last stage, the brain process shifts from reflective to reflexive.

Development of Attitudes: Attitude is mental state held by an individual which affects the way that person responds to events and organizes responses. Attitudes are commonly held to have three essential components or dimensions:

i. A Cognitive Dimension: Beliefs and rationalizations which explains the holding of the attitudes
ii. An Affective Dimension: Emotional aspects of attitudes, such as likes, dislikes, feeling of distaste, and
iii. A Conative or Behavioural Dimension which involves the extent to which the individual are prepared to act on the attitude that they hold.

2. Learning may be planned or unplanned
3. Learning can be active as well as passive
4. Learning is usually individual, but it can also be collectively generated in groups
5. Learning is treated both as a process and as an outcome learning is life long process
6. Learning may be incremental-it may add cumulatively to the prior learning or transformation
7. Learning can be stimulated or triggered by any experience, failure, success, and anything else.

Sub questions

Question Number : 1 Question Id : 68634018129 Question Type : MCQ Option Shuffling : No 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 synonyms of 'unitary' are:

A. Plenary
B. Unabridged
C. Deficient
D. Outright

Choose the correct option:

1. A and D

2. A, B and C

3. A, B and D

4. A and D

Options :
68634071601. 1
68634071602. 2
68634071603. 3
68634071604. 4

Question Number : 2 Question Id : 68634018130 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Read the statements carefully and answer.

Statement I: Unitary learning refers to the reaction of the whole person to the whole situation who facilitates learning.

Statement II: Skill refers to learning psycho-motor behaviours in different activities.

In the light of the above statements, choose the most appropriate 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 :
68634071605. 1
68634071606. 2
68634071607. 3
68634071608. 4

Question Number : 3 Question Id : 68634018131 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Which of the following is not a dimension of attitude?

1. Beliefs and rationalization

2. Emotional aspects

3. Conative dimension

4. Active and passive dimension

Options :
68634071609. 1
68634071610. 2
68634071611. 3
68634071612. 4

Question Number : 4 Question Id : 68634018132 Question Type : MCQ Option Shuffling : No 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 analysis: dissection, then synthesis: _____ ?

A. disintegration
B. integration
C. coalescence
D. differentiation

Choose the appropriate answer:

1. A and C

2. A and D

3. B and C

4. C and D

Options :
68634071613. 1
68634071614. 2
68634071615. 3
68634071616. 4

Question Number : 5 Question Id : 68634018133 Question Type : MCQ Option Shuffling : No 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 true about learning?

A. It is active as well as passive.
B. Learning is always individual in nature.
C. It can be added cumulatively to the prior learning.
D. It can be stimulated by only negative experiences.

Choose the correct answer from the options given below:

1. A and B

2. A and C

3. B and C

4. A, B and D

Options :

68634071617. 1
68634071618. 2
68634071619. 3
68634071620. 4

Question Id : 68634018128 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

Learning Characteristics

Some of the important characteristics of learning are as given below:

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3. Learning can be active as well as passive
4. Learning is usually individual, but it can also be collectively generated in groups
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7. Learning can be stimulated or triggered by any experience, failure, success, and anything else.

Sub questions

Question Number : 1 Question Id : 68634018129 Question Type : MCQ Option Shuffling : No 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 synonyms of 'unitary' are:

A. Plenary
B. Unabridged
C. Deficient
D. Outright

Choose the correct option:

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2. A, B and C

3. A, B and D

4. A and D

Options :
68634071601. 1
68634071602. 2
68634071603. 3
68634071604. 4

Question Number : 2 Question Id : 68634018130 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Read the statements carefully and answer.

Statement I: Unitary learning refers to the reaction of the whole person to the whole situation who facilitates learning.

Statement II: Skill refers to learning psycho-motor behaviours in different activities.

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

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4. Statement I is false but Statement II is true

Options :
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68634071606. 2
68634071607. 3
68634071608. 4

Question Number : 3 Question Id : 68634018131 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Which of the following is not a dimension of attitude?

1. Beliefs and rationalization

2. Emotional aspects

3. Conative dimension

4. Active and passive dimension

Options :
68634071609. 1
68634071610. 2
68634071611. 3
68634071612. 4

Question Number : 4 Question Id : 68634018132 Question Type : MCQ Option Shuffling : No 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 analysis: dissection, then synthesis: _____ ?

A. disintegration
B. integration
C. coalescence
D. differentiation

Choose the appropriate answer:

1. A and C

2. A and D

3. B and C

4. C and D

Options :
68634071613. 1
68634071614. 2
68634071615. 3
68634071616. 4

Question Number : 5 Question Id : 68634018133 Question Type : MCQ Option Shuffling : No 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 true about learning?

A. It is active as well as passive.
B. Learning is always individual in nature.
C. It can be added cumulatively to the prior learning.
D. It can be stimulated by only negative experiences.

Choose the correct answer from the options given below:

1. A and B

2. A and C

3. B and C

4. A, B and D

Options :
68634071617. 1
68634071618. 2
68634071619. 3
68634071620. 4

Sub-Section Number :	2
Sub-Section Id :	686340599
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 6 Question Id : 68634018134 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Select the appropriate meaning of the foreign word: ultra vires

1. Beyond one's authority

2. Super virus

3. Excellent

4. Under consideration

Options :
68634071621. 1
68634071622. 2
68634071623. 3
68634071624. 4

Question Number : 6 Question Id : 68634018134 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Select the appropriate meaning of the foreign word: ultra vires

1. Beyond one's authority
2. Super virus
3. Excellent
4. Under consideration

Options :
68634071621. 1
68634071622. 2
68634071623. 3
68634071624. 4

Question Number : 7 Question Id : 68634018135 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Synonym of the word 'Aversion' is:

1. Dislike
2. Audacious
3. Desolate
4. Alleviate

Options :
68634071625. 1
68634071626. 2
68634071627. 3
68634071628. 4

Question Number : 7 Question Id : 68634018135 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Synonym of the word 'Aversion' is:

1. Dislike
2. Audacious
3. Desolate
4. Alleviate

Options :
68634071625. 1
68634071626. 2

68634071627. 3
68634071628. 4

Question Number : 8 Question Id : 68634018136 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Fill in the blanks with appropriate prepositions given in order from the options given below:

Just days before the Russian invasion _____ Ukraine, _____ Moscow's forces massing _____ the border, officials in the medieval town of Lutzen, Germany, afforded landmark status _____ a Sovietera world war II memorial standing outside a kindergarden in the town center.

1. in, with, of, for

2. in, to, on, with

3. of, with, on, to

4. of, on, to, in

Options :
68634071629. 1
68634071630. 2
68634071631. 3
68634071632. 4

Question Number : 8 Question Id : 68634018136 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Fill in the blanks with appropriate prepositions given in order from the options given below:

Just days before the Russian invasion _____ Ukraine, _____ Moscow's forces massing _____ the border, officials in the medieval town of Lutzen, Germany, afforded landmark status _____ a Sovietera world war II memorial standing outside a kindergarden in the town center.

1. in, with, of, for

2. in, to, on, with

3. of, with, on, to

4. of, on, to, in

Options :
68634071629. 1
68634071630. 2
68634071631. 3
68634071632. 4

Question Number : 9 Question Id : 68634018137 Question Type : MCQ Option Shuffling : No 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 word substitution for 'Connected with the brain' is:

1. Celestial

2. Cardiac

3. Cerebral

4. Carnival

Options :
68634071633. 1
68634071634. 2
68634071635. 3
68634071636. 4

Question Number : 9 Question Id : 68634018137 Question Type : MCQ Option Shuffling : No 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 word substitution for 'Connected with the brain' is:

1. Celestial

2. Cardiac

3. Cerebral

4. Carnival

Options :
68634071633. 1
68634071634. 2
68634071635. 3
68634071636. 4

Question Number : 10 Question Id : 68634018138 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Fill in the blanks with suitable words given below.

Stuti _____ a bit _____ she was not invited by her friend to attend the party.

1. expressed, than

2. surprised, about

3. grumbled, when

4. took, before

Options :

68634071637. 1
68634071638. 2
68634071639. 3
68634071640. 4

Question Number : 10 Question Id : 68634018138 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Fill in the blanks with suitable words given below.

Stuti _____ a bit _____ she was not invited by her friend to attend the party.

1. expressed, than

2. surprised, about

3. grumbled, when

4. took, before

Options :
68634071637. 1
68634071638. 2
68634071639. 3
68634071640. 4

Question Number : 11 Question Id : 68634018139 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

3 boys and 5 girls can complete one work in 8 days. 7 boys can complete the work in 4 days. Number of girls required to finish the work in half day is:

1. 940

2. 280

3. 560

4. 412

Options :
68634071641. 1
68634071642. 2
68634071643. 3
68634071644. 4

Question Number : 11 Question Id : 68634018139 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

3 boys and 5 girls can complete one work in 8 days. 7 boys can complete the work in 4 days. Number of girls required to finish the work in half day is:

1. 940

2. 280

3. 560

4. 412

Options :
68634071641. 1
68634071642. 2
68634071643. 3
68634071644. 4

Question Number : 12 Question Id : 68634018140 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

$\frac{8}{3}$ of 40% of $\frac{18}{39}$ of 156 = _____ ?

1. 152.6

2. 76.8

3. 38.4

4. 54.63

Options :
68634071645. 1
68634071646. 2
68634071647. 3
68634071648. 4

Question Number : 12 Question Id : 68634018140 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

$\frac{8}{3}$ of 40% of $\frac{18}{39}$ of 156 = _____ ?

1. 152.6

2. 76.8

3. 38.4

4. 54.63

Options :

68634071645. 1

68634071646. 2

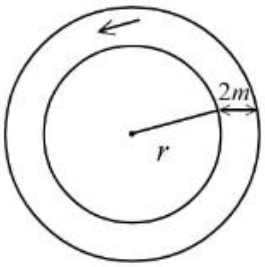
68634071647. 3

68634071648. 4

Question Number : 13 Question Id : 68634018141 Question Type : MCQ Option Shuffling : No 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 area of the circular round shown as 92 π m^2 then value of r is:



1. 18 m
2. $\sqrt{22}$ m
3. 2.2 m
4. 22 m

Options :

68634071649. 1

68634071650. 2

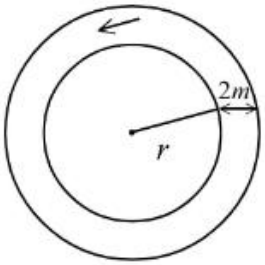
68634071651. 3

68634071652. 4

Question Number : 13 Question Id : 68634018141 Question Type : MCQ Option Shuffling : No 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 area of the circular round shown as 92 π m^2 then value of r is:



1. 18 m
2. $\sqrt{22}$ m
3. 2.2 m
4. 22 m

Options :
68634071649. 1
68634071650. 2
68634071651. 3
68634071652. 4

Question Number : 14 Question Id : 68634018142 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

$$\frac{108^2-104^2}{32^2-28^2} = \_\_\_\_\_ ?$$

1. $3 \cdot 2\overline{6}$
2. $3 \cdot 2\overline{9}$
3. $3 \cdot 5\overline{3}$
4. $3 \cdot 62$

Options :
68634071653. 1
68634071654. 2
68634071655. 3
68634071656. 4

Question Number : 14 Question Id : 68634018142 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

$$\frac{108^2 - 104^2}{32^2 - 28^2} = \_\_\_\_\_ ?$$

1. $3 \cdot 2\overline{6}$
2. $3 \cdot 2\overline{9}$
3. $3 \cdot 5\overline{3}$
4. $3 \cdot 62$

Options :
68634071653. 1
68634071654. 2
68634071655. 3
68634071656. 4

Question Number : 15 Question Id : 68634018143 Question Type : MCQ Option Shuffling : No 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 average of first 50 terms of the given series 1,3,5,7 _____ is:

1. 45
2. 50
3. 75
4. 100

Options :
68634071657. 1
68634071658. 2
68634071659. 3
68634071660. 4

Question Number : 15 Question Id : 68634018143 Question Type : MCQ Option Shuffling : No 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 average of first 50 terms of the given series 1,3,5,7 _____ is:

1. 45
2. 50
3. 75
4. 100

Options :
68634071657. 1

68634071658. 2
68634071659. 3
68634071660. 4

Question Number : 16 Question Id : 68634018144 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Next number in the given series
27, 64, 125, 216, 343, _____ is:

1. 416

2. 512

3. 686

4. 559

Options :
68634071661. 1
68634071662. 2
68634071663. 3
68634071664. 4

Question Number : 16 Question Id : 68634018144 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Next number in the given series
27, 64, 125, 216, 343, _____ is:

1. 416

2. 512

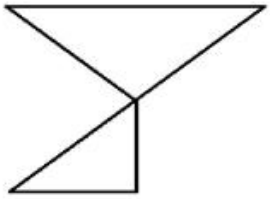
3. 686

4. 559

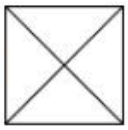
Options :
68634071661. 1
68634071662. 2
68634071663. 3
68634071664. 4

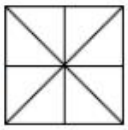
Question Number : 17 Question Id : 68634018145 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

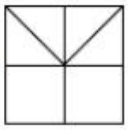
Problem figure is embedded in which of the following alternatives?

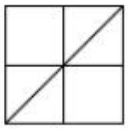


Problem figure

1. 

2. 

3. 

4. 

Options :

68634071665. 1

68634071666. 2

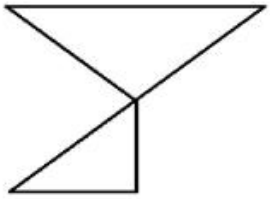
68634071667. 3

68634071668. 4

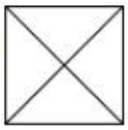
Question Number : 17 Question Id : 68634018145 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

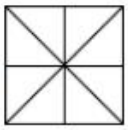
Correct Marks : 4 Wrong Marks : 1

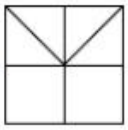
Problem figure is embedded in which of the following alternatives?

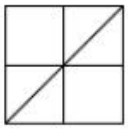


Problem figure

1. 

2. 

3. 

4. 

Options :

68634071665. 1
68634071666. 2
68634071667. 3
68634071668. 4

Question Number : 18 Question Id : 68634018146 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

BLOCKED is related to YOLXPVW in the same way as OZFMXS is related to _____

1. LAUNCH
2. DEBATE
3. RESULT
4. LABOUR

Options :

68634071669. 1
68634071670. 2
68634071671. 3
68634071672. 4

Question Number : 18 Question Id : 68634018146 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

BLOCKED is related to YOLXPVW in the same way as OZFMXS is related to _____

1. LAUNCH
2. DEBATE
3. RESULT
4. LABOUR

Options :
68634071669. 1
68634071670. 2
68634071671. 3
68634071672. 4

Question Number : 19 Question Id : 68634018147 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Pointing towards a girl, Anand said "This girl is the daughter of a only child of my father". What is the relation of Anand's wife to that girl?

1. Daughter
2. Mother
3. Aunt
4. Sister

Options :
68634071673. 1
68634071674. 2
68634071675. 3
68634071676. 4

Question Number : 19 Question Id : 68634018147 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Pointing towards a girl, Anand said "This girl is the daughter of a only child of my father". What is the relation of Anand's wife to that girl?

1. Daughter

2. Mother

3. Aunt

4. Sister

Options :
68634071673. 1
68634071674. 2
68634071675. 3
68634071676. 4

Question Number : 20 Question Id : 68634018148 Question Type : MCQ Option Shuffling : No 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 joint family of seven persons A, B, C, D, E, F and G, how B is related to E?

Given that -

A. There are two married couples
B. G is a house wife and her husband in a lawyer
C. C is the wife of B, A is an engineer and grand daughter of G'
D. D is the father-in-law of C, a doctor and father of E, a professor
E. F is A's brother and B's son

Choose the correct answer from the options given below:

1. Sister

2. Uncle

3. Cousin

4. Brother

Options :
68634071677. 1
68634071678. 2
68634071679. 3
68634071680. 4

Question Number : 20 Question Id : 68634018148 Question Type : MCQ Option Shuffling : No 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 joint family of seven persons A, B, C, D, E, F and G, how B is related to E?

Given that -

A. There are two married couples
B. G is a house wife and her husband in a lawyer
C. C is the wife of B, A is an engineer and grand daughter of G'
D. D is the father-in-law of C, a doctor and father of E, a professor
E. F is A's brother and B's son

Choose the correct answer from the options given below:

1. Sister

2. Uncle

3. Cousin

4. Brother

Options :

68634071677. 1
68634071678. 2
68634071679. 3
68634071680. 4

Question Number : 21 Question Id : 68634018149 Question Type : MCQ Option Shuffling : No 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 Indian, who win the Noble Prize, is:

1. C.V. Raman

2. Amritaya Sen

3. Rabindra Nath Tagore

4. Chandershekhar Subramaniam

Options :

68634071681. 1
68634071682. 2
68634071683. 3
68634071684. 4

Question Number : 21 Question Id : 68634018149 Question Type : MCQ Option Shuffling : No 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 Indian, who win the Noble Prize, is:

1. C.V. Raman

2. Amritaya Sen

3. Rabindra Nath Tagore

4. Chandershekhar Subramaniam

Options :
68634071681. 1
68634071682. 2
68634071683. 3
68634071684. 4

Question Number : 22 Question Id : 68634018150 Question Type : MCQ Option Shuffling : No 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 founding members of OPEC in 1960.

A. Qatar
B. Iran
C. Iraq
D. Kuwait
E. Saudi Arabia
F. Venezuela

Choose the correct answer from the options given below:

1. B, C, D, E and F only

2. A, B, C, D and E only

3. A, B, D, E and F only

4. A, C, D, E and F only

Options :
68634071685. 1
68634071686. 2
68634071687. 3
68634071688. 4

Question Number : 22 Question Id : 68634018150 Question Type : MCQ Option Shuffling : No 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 founding members of OPEC in 1960.

A. Qatar
B. Iran
C. Iraq
D. Kuwait
E. Saudi Arabia
F. Venezuela

Choose the correct answer from the options given below:

1. B, C, D, E and F only

2. A, B, C, D and E only

3. A, B, D, E and F only

4. A, C, D, E and F only

Options :
68634071685. 1
68634071686. 2
68634071687. 3
68634071688. 4

Question Number : 23 Question Id : 68634018151 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Which is the largest Upanishad?

1. Brihadara nyaba

2. Chadogya

3. Aitareya

4. Katho

Options :
68634071689. 1
68634071690. 2
68634071691. 3
68634071692. 4

Question Number : 23 Question Id : 68634018151 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Which is the largest Upanishad?

1. Brihadara nyaba

2. Chadogya

3. Aitareya

4. Katho

Options :
68634071689. 1
68634071690. 2
68634071691. 3
68634071692. 4

Question Number : 24 Question Id : 68634018152 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Arbitration is defined as:

1. the settlement of labour disputes that takes place between employer and the employees

2. the settlement of disputes between different companies of a large organisation

3. the accounting for expenses or charges as applicable rather than as paid

4. the indicator of self sufficiency of a country

Options :
68634071693. 1
68634071694. 2
68634071695. 3
68634071696. 4

Question Number : 24 Question Id : 68634018152 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Arbitration is defined as:

1. the settlement of labour disputes that takes place between employer and the employees

2. the settlement of disputes between different companies of a large organisation

3. the accounting for expenses or charges as applicable rather than as paid

4. the indicator of self sufficiency of a country

Options :
68634071693. 1
68634071694. 2

68634071695. 3
68634071696. 4

Question Number : 25 Question Id : 68634018153 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Year 2023 is celebrated as International Year of.

1. Plant Health
2. Millets
3. Save Earth
4. Sustainable Development

Options :
68634071697. 1
68634071698. 2
68634071699. 3
68634071700. 4

Question Number : 25 Question Id : 68634018153 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Year 2023 is celebrated as International Year of.

1. Plant Health
2. Millets
3. Save Earth
4. Sustainable Development

Options :
68634071697. 1
68634071698. 2
68634071699. 3
68634071700. 4

Part B: Geophysics

Section Id :	686340360
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 :	686340600
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 26 Question Id : 68634018154 Question Type : MCQ Option Shuffling : No 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 person is standing inside a lift descending at 3 ms^{-2} acceleration. The ficticious force acting on the person in this non inertial frame of lift is (Mass of man = 75 kg and g = 10ms^{-2}):

1. 525 N
2. − 525 N
3. 225 N
4. − 225 N

Options :
68634071701. 1
68634071702. 2
68634071703. 3
68634071704. 4

Question Number : 26 Question Id : 68634018154 Question Type : MCQ Option Shuffling : No 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 व्यक्ति 3 ms^{-2} के त्वरण से नीचे की ओर गतिमान लिफ्ट के अन्दर खड़ा है। लिफ्ट के इस अजड़त्वीय फ्रेम में व्यक्ति पर कार्यरत आभासी बल है (व्यक्ति का द्रव्यमान = 75 kg एवं g = 10 ms^{-2}) :

1. 525 N
2. − 525 N
3. 225 N
4. − 225 N

Options :
68634071701. 1
68634071702. 2
68634071703. 3
68634071704. 4

Question Number : 27 Question Id : 68634018155 Question Type : MCQ Option Shuffling : No 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 force exerted on the rocket is 10×10^{19} erg. If exhaust speed of the rocket is 200 km/s, then the fuel consumed by rocket motor in 40 seconds is:

1. 2.5×10^{10} kg

2. 40×10^{10} kg

3. 2.0×10^{11} kg

4. 5.0×10^{11} kg

Options :
68634071705. 1
68634071706. 2
68634071707. 3
68634071708. 4

Question Number : 27 Question Id : 68634018155 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

रॉकेट पर लगने वाला बल 10×10^{19} erg है। यदि रॉकेट से निर्गत धुंए की चाल 200 km s^{-1} हो तो 40 सेकंड में रॉकेट मोटर द्वारा व्यय इंधन है:

1. 2.5×10^{10} kg

2. 40×10^{10} kg

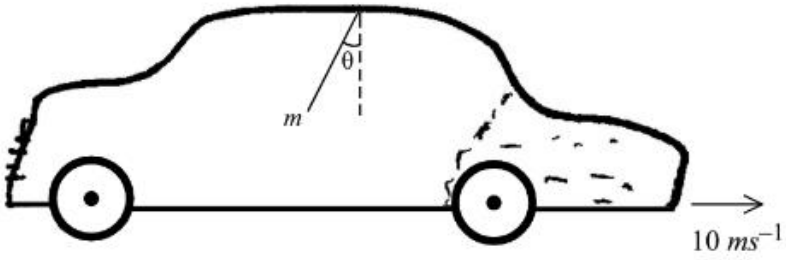
3. 2.0×10^{11} kg

4. 5.0×10^{11} kg

Options :
68634071705. 1
68634071706. 2
68634071707. 3
68634071708. 4

Question Number : 28 Question Id : 68634018156 Question Type : MCQ Option Shuffling : No 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 object of mass m is hanging in a car which is accelerating at 10 ms^2 (as shown in figure). The tension in the string in the non inertial car frame is (given, g = acceleration due to gravity):



1. m ($g^2 + 10)^{1/2}$

2. m ($g^2 + 50)^{1/2}$

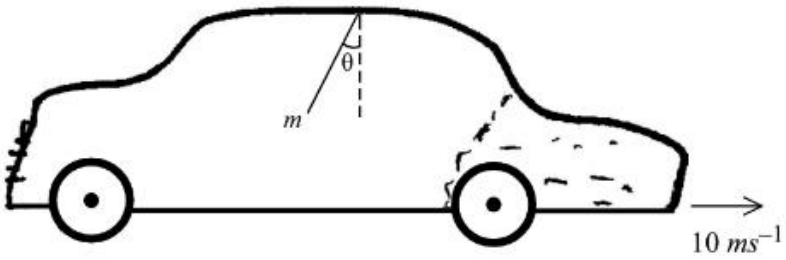
3. m (g + 100)

4. m (g^2+100)$^{1/2}$

Options :
68634071709. 1
68634071710. 2
68634071711. 3
68634071712. 4

Question Number : 28 Question Id : 68634018156 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

प्रदर्शित चित्र के अनुसार, m द्रव्यमान की एक वस्तु 10 ms^{-2} के त्वरित हो रही एक कार में लटक रही है। अजड़त्वीय कार फ्रेम में डोरी में तनाव है (दिया है, g = गुरुत्वीय त्वरण):



1. m ($g^2 + 10)^{1/2}$

2. m ($g^2 + 50)^{1/2}$

3. m (g + 100)

4. m (g^2+100)$^{1/2}$

Options :
68634071709. 1
68634071710. 2
68634071711. 3

68634071712. 4

Question Number : 29 Question Id : 68634018157 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Two sources at rest are sending light signals towards each other. A per Galilean transformation the velocity of approach of the signals is:

1. c

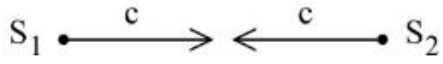
2. 2c

3. 1.5 c

4. 0.8 c

Options :
68634071713. 1
68634071714. 2
68634071715. 3
68634071716. 4

Question Number : 29 Question Id : 68634018157 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1



विराम में स्थित दो स्रोत एक दूसरे की ओर प्रकाश सिग्नल भेज रहे हैं। गैलीलियन रूपान्तरण के अनुसार, एक दूसरे की ओर आने वाले सिग्नलों का वेग है:

1. c

2. 2c

3. 1.5 c

4. 0.8 c

Options :
68634071713. 1
68634071714. 2
68634071715. 3
68634071716. 4

Question Number : 30 Question Id : 68634018158 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Read the following equations of two simple harmonic motions along X axis and Y axis respectively.

x = a sin ωt and y = b sin (ωt + θ), where x and y are displacement of time t.

The resultant of motion of particle under the influence of above SHMs is:

1. $\frac{x^2}{a^2}+\frac{y^2}{b^2}+\frac{2xy}{ab}\cos\phi=\sin^2\phi$
2. $\frac{y^2}{a^2}-\frac{x^2}{a^2}+\frac{2xy}{ab}\cos\phi=\sin^2\phi$
3. $\frac{y^2}{b^2}-\frac{x^2}{a^2}-\frac{2xy}{ab}\cos\phi=\sin^2\phi$
4. $\frac{y^2}{b^2}-\frac{x^2}{a^2}+\frac{xy}{2ab}\cos\phi=\sin^2\phi$

Options :
68634071717. 1
68634071718. 2
68634071719. 3
68634071720. 4

Question Number : 30 Question Id : 68634018158 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

क्रमश:X तथा Y अक्षों के अनुदिश दो सरल आवर्त गतियों के लिए निम्नलिखित समीकरणें पढ़िए

x = a sin ωt एवं

y = b sin (ωt +θ), जहाँ समय t पर विस्थापन x व y हैं। उपरोक्त सरल आवर्त गतियों के प्रभाव के अन्तर्गत कण की परिणामी गति निम्न प्रकार है:

1. $\frac{x^2}{a^2}+\frac{y^2}{b^2}+\frac{2xy}{ab}\cos\phi=\sin^2\phi$
2. $\frac{y^2}{a^2}-\frac{x^2}{a^2}+\frac{2xy}{ab}\cos\phi=\sin^2\phi$
3. $\frac{y^2}{b^2}-\frac{x^2}{a^2}-\frac{2xy}{ab}\cos\phi=\sin^2\phi$
4. $\frac{y^2}{b^2}-\frac{x^2}{a^2}+\frac{xy}{2ab}\cos\phi=\sin^2\phi$

Options :
68634071717. 1
68634071718. 2
68634071719. 3
68634071720. 4

Question Number : 31 Question Id : 68634018159 Question Type : MCQ Option Shuffling : No 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 moment of Inertia of a thick shell about its diameter with external and internal radii 3 m, 2 m respectively is 84.4 kg m^2 if mass of the shell is 19 kg .

Reason R: Moment of inertia of such shell about diameter is $\frac{2}{5}\left(\frac{R^5-r^5}{R^2-r^2}\right)$

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 and 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 :
68634071721. 1
68634071722. 2
68634071723. 3
68634071724. 4

Question Number : 31 Question Id : 68634018159 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं, एक अभिकथन A के रुप में लिखित है तो दूसरा उसके कारण R के रुप में है

अभिकथन A: क्रमश: 3m तथा 2m की बाह्य तथा आन्तरिक त्रिज्याओं के एक मोटे गोलीय कोश का इसके व्यास के परित जडत्व अघूर्ण 84.4 kg m^2 है जबकि कोश का द्रव्यमान 19 kg है।

कारण R: इस कोश का व्यास के परित: जडत्व आघूर्ण $\frac{2}{5}\left(\frac{R^5-r^5}{R^2-r^2}\right)$

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

1. दोनों कथन I और II सही है
2. दोनों कथन I और II गलत है
3. कथन I सही है, लेकिन कथन II गलत है
4. कथन I गलत है, लेकिन कथन II सही है

Options :
68634071721. 1
68634071722. 2

68634071723. 3
68634071724. 4

Question Number : 32 Question Id : 68634018160 Question Type : MCQ Option Shuffling : No 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 quantities which are invariant under Galilean transformation are:

A. Length
B. Velocity
C. Acceleration
D. Momentum

Choose the correct option

1. A and C

2. A, B and C

3. B and C

4. Only D

Options :
68634071725. 1
68634071726. 2
68634071727. 3
68634071728. 4

Question Number : 32 Question Id : 68634018160 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

कौन सी राशियाँ गैलीलिपन रूपान्तरण में अपरिवर्तित रहती हैं:

A. लम्बाई
B. वेग
C. त्वरण
D. संवेग

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

1. A एवं C

2. A, B एवं C

3. B एवं C

4. केवल D

Options :

68634071725. 1
68634071726. 2
68634071727. 3
68634071728. 4

Question Number : 33 Question Id : 68634018161 Question Type : MCQ Option Shuffling : No 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 moment of inertia of a thin rod of mass M about on axis passing through its one end and perpendicular to its length(l) is $M\left[\frac{l^2}{12}+\frac{l^2}{4}\right]$

Statement II: Radius of gyration of a thick shell of external radius R and internal radius r about its diameter is K, such that $K^2=\frac{2}{5}\left(\frac{R^5-r^5}{R^2-r^2}\right)$

In the light of the above statements, choose the most appropriate 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 :
68634071729. 1
68634071730. 2
68634071731. 3
68634071732. 4

Question Number : 33 Question Id : 68634018161 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं:

कथन I: एक M द्रव्यमान की पतली छड़ का इसकी लम्बाई (l) के लम्बवत तथा एवं इसके एक सिरे से गुजरने वाली अक्ष के परित: जड़त्व आघूर्ण $M\left[\frac{l^2}{12}+\frac{l^2}{4}\right]$

कथन II: बाह्य त्रिज्या R तथा आन्तरिक त्रिज्या r को एक मोटे गोलीय कोश की इसके व्यास के परित: घूर्णन त्रिज्या K है, जबकि $K^2=\frac{2}{5}\left(\frac{R^5-r^5}{R^2-r^2}\right)$

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

1. दोनों कथन I और II सही है
2. दोनों कथन I और II गलत है
3. कथन I सही है, लेकिन कथन II गलत है
4. कथन I गलत है, लेकिन कथन II सही है

Options :
68634071729. 1
68634071730. 2
68634071731. 3
68634071732. 4

Question Number : 34 Question Id : 68634018162 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Two simple harmonic motions (SHMs):

A. acting on a particle in the same direction gives phenomenon of beats .
B. acting on a particle on perpendicular directions given phenomenon of Lissajous figure.
C. acting on a particle on the same direction gives phenomenon of Lissajous figure.
D. acting on a particle in perpendicular directions gives phenomenon of beats.

Choose the correct statements answer from the options given below:

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

Options :
68634071733. 1
68634071734. 2

68634071735. 3
68634071736. 4

Question Number : 34 Question Id : 68634018162 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

दो सरल आवर्त गतियाँ (स.आ.ग.)

A. किसी कण पर समान दिशा में कार्यरत स.आ.ग. विस्पन्द परिघटना प्रदान करती हैं।
B. किसी कण पर लम्बवत दिशा में कार्परत स.आ.ग. लिसॉजस चित्र प्रदान करती हैं।
C. किसी कम पर समान दिशा में कार्परत स.आ.ग. लिसॉजस चित्र प्रदान करती हैं।
D. किसी कण पर लम्बवत दिशा में कार्यरत स.आ.ग. विस्पन्द परिघटना प्रदान करती हैं।

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

1. केवल A व B

2. केवल C व D

3. केवल A व C

4. केवल B व D

Options :
68634071733. 1
68634071734. 2
68634071735. 3
68634071736. 4

Question Number : 35 Question Id : 68634018163 Question Type : MCQ Option Shuffling : No 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 MI (Moment of Inertia)		List II (Radius of Gyration)
A.	Solid sphere rotating about its tangent	I.	$\frac{R^2}{4}$
B.	Hollow cylinder about its own axis with external radius R	II.	$\frac{R^2}{3}$
C.	MI of thin rod about an x axis passing through centre and perpendicular to length	III.	$\left(\frac{7}{5}\right)R^2$
D.	MI of disc about its diameter	IV.	$\frac{\left(R^2+r^2\right)}{2}$

Choose the correct answer from the options given below:

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

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

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

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

Options :

68634071737. 1

68634071738. 2

68634071739. 3

68634071740. 4

Question Number : 35 Question Id : 68634018163 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

सूची I का सूची II से मिलान कीजिए

सूची I (जड़त्व आघूर्ण)		सूची II (घूर्णन त्रिज्या)	
A.	स्पर्शज्या के परित: घूमता हुआ ठोस गोला	I.	$\frac{R^2}{4}$
B.	अपनी अक्ष के परित: घूमता हुआ बाह्य त्रिज्या R का खोखला बेलन	II.	$\frac{R^2}{3}$
C.	पतली छड़ के केन्द्र से गुजरने वाली लम्बाई के अक्ष के परित: उसका जड़त्व आघूर्ण	III.	$\left(\frac{7}{5}\right)R^2$
D.	व्यास के परित: घूमने वाली चकती का जड़त्व आघूर्ण	IV.	$\frac{\left(R^2+r^2\right)}{2}$

निम्नलिखित विकल्पों में से सही उत्तर का चयन कीजिए :

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

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

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

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

Options :
68634071737. 1
68634071738. 2
68634071739. 3
68634071740. 4

Question Number : 36 Question Id : 68634018164 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Electric field $\vec{E}$ is a conservative field. For the steady field, $\vec{\nabla}\times\vec{E}$ is :

1. 1

2. Zero

3. $-\frac{\partial\vec{B}}{at}$

4. $\frac{\partial\vec{B}}{at}$

Options :
68634071741. 1
68634071742. 2
68634071743. 3
68634071744. 4

Question Number : 36 Question Id : 68634018164 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

वैद्युत क्षेत्र $\vec{E}$ एक संरक्षी क्षेत्र है। स्थाई क्षेत्र के लिए, $\vec{\nabla} \times \vec{E}$ क्या है:

1. 1
2. Zero
3. $-\frac{\partial \vec{B}}{at}$
4. $\frac{\partial \vec{B}}{at}$

Options :
68634071741. 1
68634071742. 2
68634071743. 3
68634071744. 4

Question Number : 37 Question Id : 68634018165 Question Type : MCQ Option Shuffling : No 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 is accelerated through a potential difference of 4.55 kV. The velocity of electron, if it initially started from rest is (given, mass of electron = 9.1×10^{-31} kg):

1. $2 \times 10^{7}\ ms^{-1}$
2. $4 \times 10^{7}\ ms^{-1}$
3. $3 \times 10^{7}\ ms^{-1}$
4. $5 \times 10^{7}\ ms^{-1}$

Options :
68634071745. 1
68634071746. 2
68634071747. 3
68634071748. 4

Question Number : 37 Question Id : 68634018165 Question Type : MCQ Option Shuffling : No 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 इलैक्ट्रॉन को 4.55 kV विभवान्तर द्वारा त्वरित किया जाता है। यदि यह विरामावस्था से प्रारम्भ करता है तो इसका वेग है (दिया है, इलैक्ट्रॉन का द्रव्यमान = 9.1×10^{-31} kg):

1. $2 \times 10^7\ ms^{-1}$
2. $4 \times 10^7\ ms^{-1}$
3. $3 \times 10^7\ ms^{-1}$
4. $5 \times 10^7\ ms^{-1}$

Options :
68634071745. 1
68634071746. 2
68634071747. 3
68634071748. 4

Question Number : 38 Question Id : 68634018166 Question Type : MCQ Option Shuffling : No 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 the fields of an electromagnetic wave propagate in a medium are represented as:

$\vec{E} = 20 \cos(\omega t + 15°)\ Vm^{-1}$ and $\vec{H} = 0.5 \cos(\omega t - 15°)\ Am^{-1}$

The intrinsic impedance of the medium is:

1. $40 \angle 0°$
2. $40 \angle 15°$
3. $40 \angle 30°$
4. $40 \angle -30°$

Options :
68634071749. 1
68634071750. 2
68634071751. 3
68634071752. 4

Question Number : 38 Question Id : 68634018166 Question Type : MCQ Option Shuffling : No 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 किसी माध्यम में संचरित एक विद्युत चुंबकीय तरंग के क्षेत्र निम्न प्रकार निरुपित हैं:

$\vec{E} = 20 \cos(\omega t + 15°)\ Vm^{-1}$ तथा $\vec{H} = 0.5 \cos(\omega t - 15°)\ Am^{-1}$

माध्यम की निज प्रतिबाधा क्या है:

1. $40 \angle 0°$
2. $40 \angle 15°$
3. $40 \angle 30°$
4. $40 \angle -30°$

Options :
68634071749. 1
68634071750. 2
68634071751. 3
68634071752. 4

Question Number : 39 Question Id : 68634018167 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

When an electromagnetic wave propagates in a conductive medium, the successive maximum amplitudes of the magnetic field intensity $\vec{H}$ occurs $\frac{1}{n}$ cycles later than the maximum amplitude of the electric field intensity $\vec{E}$. The value of 'n' is :

1. 1
2. 2
3. 4
4. 8

Options :
68634071753. 1
68634071754. 2
68634071755. 3
68634071756. 4

Question Number : 39 Question Id : 68634018167 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

जब एक विद्युत चुंबकीय तरंग एक सुचालक माध्यम में संरचित होती है तो वैद्युत क्षेत्र की तीव्रता $\vec{H}$ का अधिकतम आयाम से $\frac{1}{n}$ चक्रों के पश्चात चुम्बकीय क्षेत्र की तीव्रता $\vec{E}$ का अनुयाई अधिकतम आयाम प्राप्त होता है। 'n' का मान है :

1. 1

2. 2

3. 4

4. 8

Options :
68634071753. 1
68634071754. 2
68634071755. 3
68634071756. 4

Question Number : 40 Question Id : 68634018168 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Which of the following is essential for diffraction pattern:

1. Polychromatic light

2. A narrow slit

3. two coherent sources

4. Screen at a distance of less than 4m from the slit

Options :
68634071757. 1
68634071758. 2
68634071759. 3
68634071760. 4

Question Number : 40 Question Id : 68634018168 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

विवर्तन पैटर्न के लिए निम्न में से क्या आवश्यक है:

1. बहुवर्णी प्रकाश

2. एक पतली झिर्री

3. दो कला सम्बद्ध स्रोत

4. पर्दा व झिर्री के बिच की दूरी 4 m से कम

Options :

68634071757. 1
68634071758. 2
68634071759. 3
68634071760. 4

Question Number : 41 Question Id : 68634018169 Question Type : MCQ Option Shuffling : No 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 intrinsic impedance of two different media may be same, even if they have different permittivities and permeabilities

Reason R: The intrinsic impedance of a medium does not depend on permittivity and permeability of the medium .

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 :
68634071761. 1
68634071762. 2
68634071763. 3
68634071764. 4

Question Number : 41 Question Id : 68634018169 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं, एक अभिकथन A के रुप में लिखित है तो दूसरा उसके कारण Rके रुप में है।

अभिकथन A: दो अलग-अलग माध्यमों की आन्तरिक (निज) प्रतिबाधा समान हो सकती है जब उनकी वैद्युतशीलताएँ तथा चुम्बकशीलताएँ अलग-अलग हैं।

कारण R: किसी माध्यम की आन्तरिक प्रतिबाधा माध्यम की वैद्युतशीलता तथा चुम्बकशीलता पर निर्भर नहीं करती है।

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

1. A और R दोनों सत्य हैं और R, A की सही व्याख्या है

2. A और R दोनों सत्य हैं और R, A की सही व्याख्या नहीं है

3. A सत्य है लेकिन R असत्य है

4. A असत्य है लेकिन R सत्य है

Options :

68634071761. 1

68634071762. 2

68634071763. 3

68634071764. 4

Question Number : 42 Question Id : 68634018170 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Read the following statements:

A. A p-type semiconductor is uncharged.
B. When semiconductor is doped with a donor impurity, electron concentration decreases.
C. In a semiconductor, there are no free electron at 0 K.
D. In normal operation of a transistor, the base collector junction is forward biased.

Choose the correct answer from the options given below:

1. A and C only

2. B and D only

3. A and B only

4. C and D only

Options :

68634071765. 1

68634071766. 2

68634071767. 3

68634071768. 4

Question Number : 42 Question Id : 68634018170 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्नलिखित कथनों को पढ़िए:

A. एक p प्रकार अर्द्धचालक अनावेशित होता है।
B. जब अर्द्धचालक को एक दाता प्रकार की अशुद्धि के साथ अपमिश्रण किया जाता है तो इलैक्ट्रॉन सान्द्रता घटती है।
C. एक अर्द्धचालक मे 0 K पर कोई मुक्त इलैक्ट्रॉन नहीं होता है।
D. ट्रांजिस्टर की सामान्य क्रिया मे, आधार संग्राहक संधि अग्र अभिनत होती है।

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

1. केवल A व C

2. केवल B व D

3. केवल A व B

4. केवल C व D

Options :
68634071765. 1
68634071766. 2
68634071767. 3
68634071768. 4

Question Number : 43 Question Id : 68634018171 Question Type : MCQ Option Shuffling : No 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 a charge moves with uniform velocity, it produces time varying electromagnetic field.

Statement II: If charge oscillates with a frequency of 2 GHz, it produces the electromagnetic radiation of 2 GHz

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 :
68634071769. 1
68634071770. 2
68634071771. 3
68634071772. 4

Question Number : 43 Question Id : 68634018171 Question Type : MCQ Option Shuffling : No 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: यदि एक आवेश एक समान वेग से गति करता है तो यह समय परिवर्ती वैद्युतचुंबकीय क्षेत्र उत्पन्न करता है।

कथन II: यदि कोई आवेश 2 GHz, आवृत्ति से वोलन करता है तो यह 2 GHz का वैद्युतचुंबकीय विकिरण उत्पन्न करता है।

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

1. कथन I और II दोनों सही है
2. कथन I और II दोनों गलत है
3. कथन I सही है, लेकिन कथन II गलत है
4. कथन I गलत है, लेकिन कथन II सही है

Options :
68634071769. 1
68634071770. 2
68634071771. 3
68634071772. 4

Question Number : 44 Question Id : 68634018172 Question Type : MCQ Option Shuffling : No 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 Maxwell's equations which are NOT valid for traveling electromagnetic wave are:

A. $\vec{\nabla}.\vec{D} = \rho_v$

B. $\vec{\nabla} \times \vec{E} = 0$

C. $\oint \vec{H} \times \vec{dl} = J_c + \int_s \frac{\partial D}{\partial t} dS$

D. $\vec{\nabla} \times \vec{H} = \vec{J}$

E. $\oint \vec{E}.\vec{dl} = 0$

Choose the correct answer from the options given below:

1. C and E only

2. B and D only

3. A, B and D only

4. B, D and E only

Options :

68634071773. 1
68634071774. 2
68634071775. 3
68634071776. 4

Question Number : 44 Question Id : 68634018172 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

कोन सी मैक्सवेल समीकरणें संरचित वैद्युतचुंबकीय तरंग के लिए मान्य नहीं हैं:

A. $\vec{\nabla}.\vec{D} = \rho_V$

B. $\vec{\nabla} \times \vec{E} = 0$

C. $\oint \vec{H} \times \vec{dl} = J_c + \int_S \frac{\partial D}{\partial t} dS$

D. $\vec{\nabla} \times \vec{H} = \vec{J}$

E. $\oint \vec{E}.\vec{dl} = 0$

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

1. केवल C व E

2. केवल B व D

3. केवल A, B व D

4. केवल B, D व E

Options :
68634071773. 1
68634071774. 2
68634071775. 3
68634071776. 4

Question Number : 45 Question Id : 68634018173 Question Type : MCQ Option Shuffling : No 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 (Type of wave)		List II (Detection)	
A.	Microwave	I.	Photocells
B.	X-rays	II.	Point contact diode
C.	Infrared	III.	Ionisation chamber
D.	Ultraviolet	IV.	Thermopiles Bolometer

Choose the correct answer from the options given below:

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

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

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

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

Options :
68634071777. 1
68634071778. 2
68634071779. 3
68634071780. 4

Question Number : 45 Question Id : 68634018173 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

सूची I का सूची II से मिलान कीजिए

सूची I (तरंग का प्रकार)		सूची II (संसूचन)	
A.	सूक्ष्म तरंग	I.	प्रकाश सेल
B.	X- किरण	II.	बिन्दु संपर्क डायोड
C.	अवरक्त	III.	आयनिक प्रकोष्ठ
D.	पराबैंगनी	IV.	थर्मोपाइल्स वॉलोमीटर

निम्नलिखित विकल्पों में से सही उत्तर का चयन कीजिए :

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

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

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

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

Options :
68634071777. 1
68634071778. 2
68634071779. 3
68634071780. 4

Question Number : 46 Question Id : 68634018174 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Brewter's law is related to the study:

1. particle nature of light.
2. mechanical nature of light.
3. Longitudinal nature of light.
4. Transverse nature of light.

Options :
68634071781. 1
68634071782. 2
68634071783. 3
68634071784. 4

Question Number : 46 Question Id : 68634018174 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

ब्रूस्टर नियम का किस अध्ययन से संबन्धित है:

1. प्रकाश की कण प्रकृति।
2. प्रकाश की यांत्रिक प्रकृति।
3. प्रकाश की अनुदैर्ध्य प्रकृति।
4. प्रकाश की अनुप्रस्थ प्रकृति।

Options :
68634071781. 1
68634071782. 2
68634071783. 3
68634071784. 4

Question Number : 47 Question Id : 68634018175 Question Type : MCQ Option Shuffling : No 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 laser works as four level laser using indirect pumping:

1. Ruby

2. He-Ne

3. Semiconductor

4. Nd: YAG

Options :
68634071785. 1
68634071786. 2
68634071787. 3
68634071788. 4

Question Number : 47 Question Id : 68634018175 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

निम्नलिखित में से कौन सा लेजर अप्रत्यक्ष पम्पिंग का उपयोग करके चार स्तरीय लेजर की तरह कार्य करता है:

1. रुबी

2. हिलियम -नियॉन

3. अर्द्धचालक

4. Nd: YAG

Options :
68634071785. 1
68634071786. 2
68634071787. 3
68634071788. 4

Question Number : 48 Question Id : 68634018176 Question Type : MCQ Option Shuffling : No 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 Newton's ring experiment the diameter of n^{th} ring changes from 1.6 cm to 1.25 cm when liquid is introduced in the gap between the lens and the glass plate. The refractive index of the liquid is nearly:

1. 1.3

2. 1.4

3. 1.5

4. 1.6

Options :
68634071789. 1

68634071790. 2
68634071791. 3
68634071792. 4

Question Number : 48 Question Id : 68634018176 Question Type : MCQ Option Shuffling : No 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 रिंग प्रयोग में, n वीं रिंग का व्यास 1.6 cm से 1.25 cm बदल जाता है जब लेंस व काँच की प्लेट के मध्य अन्तराल में द्रव डाल दिया जाये। द्रव का अपवर्तनांक लगभग है:

1. 1.3
2. 1.4
3. 1.5
4. 1.6

Options :
68634071789. 1
68634071790. 2
68634071791. 3
68634071792. 4

Question Number : 49 Question Id : 68634018177 Question Type : MCQ Option Shuffling : No 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 unpolarized light of intensity (I_o) is incident on a polarizer, then it gets transmited and stays constant in intensity on rotation of the polarizer. The intensity of transmitted light is :

1. I_o
2. $\frac{I_0}{2}$
3. $2\ I_o$
4. Zero

Options :
68634071793. 1
68634071794. 2
68634071795. 3
68634071796. 4

Question Number : 49 Question Id : 68634018177 Question Type : MCQ Option Shuffling : No 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 I_o तीव्रता का अध्रुवित प्रकाश किसी ध्रुवक (पोलेराइज़र) पर आपतित होता है तब यह पारगमित होता तथा ध्रुवक को घुमाने पर इसकी तीव्रता स्थिर रहती है। पारगमित प्रकाश की तीव्रता है:

1. I_o
2. $\frac{I_0}{2}$
3. $2\ I_o$
4. Zero

Options :
68634071793. 1
68634071794. 2
68634071795. 3
68634071796. 4

Question Number : 50 Question Id : 68634018178 Question Type : MCQ Option Shuffling : No 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 Huygens wave theory, which of the following wave does not produced secondary wavelets:

1. Light traveling in air
2. gravitational wave
3. wave traveling in free space
4. Ultrasonic wave

Options :
68634071797. 1
68634071798. 2
68634071799. 3
68634071800. 4

Question Number : 50 Question Id : 68634018178 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

हाइगेन्स के तरंग सिद्धान्त के अनुसार, निम्न में से कौन सी तरंग द्वितीयक तरंगिकांए उत्पन्न करती है:

1. वायु में गतिमान प्रकाश
2. गुरुत्वीय तरंग
3. मुक्त आकाश में गतिमान तरंग
4. प्रघाती (अल्ट्रासोनिक) तरंग

Options :
68634071797. 1
68634071798. 2
68634071799. 3
68634071800. 4

Question Number : 51 Question Id : 68634018179 Question Type : MCQ Option Shuffling : No 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: Two sources S_1 and S_2 emit the following two waves $y_1 = a_1 \sin \omega t$ and $y_2 = a_2 \sin(\omega t \pm \delta)$. These waves produce interference pattern if δ changes randomly with time.

Reason R: S_1 and S_2 must be coherent for the production of interference pattern.

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 and 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 :
68634071801. 1
68634071802. 2
68634071803. 3
68634071804. 4

Question Number : 51 Question Id : 68634018179 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं, एक अभिकथन (A) के रुप में लिखित है तो दूसरा उसके कारण (R)के रुप में है:

अभिकथन A: दो स्रोत S_1 वा S_2 निम्लिखित दो तरंगें उत्सर्जित करते हैं $y_1 = a_1 \sin \omega t$ एवं $y_2 = a_2 \sin(\omega t \pm \delta)$। यदि δ समय के सात यादृच्छिक रुप से बदला हो तब यह तरंगें व्यक्तिकरण पैटर्न उत्पन्न करती हैं।

कारण R: व्यतिकरण पैटर्न उत्पन्न करने के लिए S_1 व S_2 कला संबद्ध होने चाहिए।

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

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

Options :
68634071801. 1
68634071802. 2
68634071803. 3
68634071804. 4

Question Number : 52 Question Id : 68634018180 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Read the following statements for Newton's rings:

A. The thickness of the ring increases when ring number increases.
B. Fringe width decreases when ring number increases.
C. Fringe width decreases when ring number decreases.
D. The thickness of the ring increases when ring number decreases.

Choose the correct answer from the options given below:

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

Options :
68634071805. 1
68634071806. 2
68634071807. 3
68634071808. 4

Question Number : 52 Question Id : 68634018180 Question Type : MCQ Option Shuffling : No 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 रिंग के लिए निम्लिखित कथन पढिए:

A. रिंग संख्या के बढ़ने पर रिंग की मोटाई बढ़ती है।
B. रिंग संख्या के बढ़ने पर फ्रिंज की चौड़ी घटती है।
C. रिंग संख्या के घटने पर फ्रिंज की चौड़ी घटती है
D. रिंग संख्या के घटने पर रिंग की मोटाई बढ़ती है

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

1. केवल A व B

2. केवल C व D

3. केवल A व C

4. केवल B व D

Options :
68634071805. 1
68634071806. 2
68634071807. 3
68634071808. 4

Question Number : 53 Question Id : 68634018181 Question Type : MCQ Option Shuffling : No 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: Stimulated emission can take place only between two energy levels, when upper level is meta stable.

Statement II: Metastable state and population inversion are not required for stimulated emission.

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 :
68634071809. 1
68634071810. 2
68634071811. 3
68634071812. 4

Question Number : 53 Question Id : 68634018181 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं:

कथन I: जब उच्च स्तर मितस्थायी हो तभी दो ऊर्जा स्तरों के बीच उद्दीपित उत्सर्जन होता है।

कथन II: उद्दीपित उत्सर्जन के लिए मितस्थायी अवस्था एवं जनसंख्या व्युत्क्रम आवश्यक नहीं होता है।

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

1. दोनों कथन I और II सही है
2. दोनों कथन I और II गलत है
3. कथन I सही है, लेकिन कथन II गलत है
4. कथन I गलत है, लेकिन कथन II सही है

Options :
68634071809. 1
68634071810. 2
68634071811. 3
68634071812. 4

Question Number : 54 Question Id : 68634018182 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Read the following statements:

A. A sodium atom radiates for 5 ps. The coherence length of light from a sodium lamp is 1.5 mm.
B. Wave packet is a harmonic wave.
C. A wave train contains about a million wave oscillations in it.
D. Coherence refers to the connection between the phase of light waves at one point and time with the phase of light waves at another point and time.

Choose the most appropriate answer from the options given below:

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

Options :
68634071813. 1
68634071814. 2
68634071815. 3

68634071816. 4

Question Number : 54 Question Id : 68634018182 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

निम्नलिखित कथनों को पढ़िए:

A. एक सोडियम परमाणु 5ps के लिए विकिरण देता है। सोडियम लैम्प के प्रकाश की संबद्धता लम्बाई 1.5mm है।
B. तरंग पैकेट एक आवर्त तरंग है।
C. एक तरंग रेल में लगभग दस लाख तरंग दोलन होते हैं।
D. संबद्धता किसी बिन्दु एवं समय पर प्रकाश तरंगो की कला तथा किसी दूसरे बिन्दु एवं समय पर प्रकाश तरंगो की कला के बीच सम्बन्ध बताती है।

नीचे दिए गए विकल्पों में से सबसे उचित उत्तर का चयन कीजिए:

1. केवल A व B

2. केवल B व C

3. केवल A, C व D

4. केवल A, B व C

Options :
68634071813. 1
68634071814. 2
68634071815. 3
68634071816. 4

Question Number : 55 Question Id : 68634018183 Question Type : MCQ Option Shuffling : No 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.	Semiconductor laser	I.	CD player
B.	Ruby laser	II.	bar code reading
C.	Helium- Neon laser	III.	four level molecular laser
D.	Carbon dioxide laser	IV.	doped insulator laser

Choose the correct answer from the options given below:

1. A-IV, B-I, C-IV, D-II

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

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

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

Options :

68634071817. 1
68634071818. 2
68634071819. 3
68634071820. 4

Question Number : 55 Question Id : 68634018183 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

सूची I का सूची II से मिलान कीजिए

सूची I		सूची II	
A.	अर्द्धचालक लेजर	I.	सी डी प्लेयर
B.	रुबी लेजर	II.	बार कोड रीडिंग
C.	हीलियम नियॉन लेजर	III.	चार स्तर अणु लेजर
D.	कार्बन डाई आक्साइड लेजर	IV.	अपमिश्रित कुचालक लेजर

निम्नलिखित विकल्पों में से सही उत्तर का चयन कीजिए :

1. A-IV, B-I, C-IV, D-II

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

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

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

Options :
68634071817. 1
68634071818. 2
68634071819. 3
68634071820. 4

Question Number : 56 Question Id : 68634018184 Question Type : MCQ Option Shuffling : No 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 slope between E_k (kinetic energy of photo electron) and v (frequency of radiation) has the dimensions similar to:

1. angular frequency

2. angular momentum

3. momentum

4. energy

Options :
68634071821. 1
68634071822. 2
68634071823. 3
68634071824. 4

Question Number : 56 Question Id : 68634018184 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

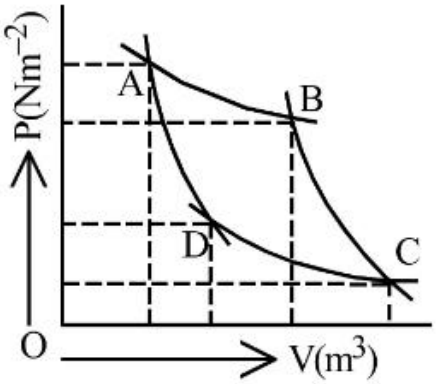
फोटो इलैक्ट्रान की गतिज ऊर्जा E_k एवं विकिरण की आवृत्ति ν के बीच प्रवणता की विमा किसके समान है:

1. कोणीय आवृत्ति
2. कोणीय संवेग
3. संवेग
4. ऊर्जा

Options :
68634071821. 1
68634071822. 2
68634071823. 3
68634071824. 4

Question Number : 57 Question Id : 68634018185 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Change in entropy for the process A B C D A (as shown in figure) is :

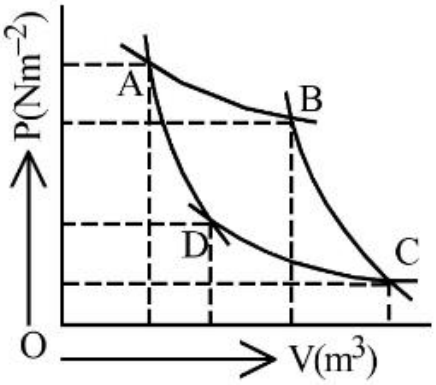


1. Greater than 1
2. In between zero and 1
3. less than zero
4. equal to zero

Options :
68634071825. 1
68634071826. 2
68634071827. 3
68634071828. 4

Question Number : 57 Question Id : 68634018185 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

प्रक्रम A B C D A (प्रदर्शित चित्रानुसार) के लिए एन्ट्रॉपी में परिवर्तन है :



1. 1 से अधिक
2. शून्य व 1 के बीच
3. शून्य से कम
4. शून्य के बराबर

Options :
68634071825. 1
68634071826. 2
68634071827. 3
68634071828. 4

Question Number : 58 Question Id : 68634018186 Question Type : MCQ Option Shuffling : No 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 Maxwell's relation from the options given below (Given, P = pressure, V = volume, T = temperature and S = entropy):

1. $\left(\frac{\partial P}{\partial S}\right)_V = \left(\frac{\partial T}{\partial V}\right)_S$
2. $\left(\frac{\partial S}{\partial S}\right)_T = \left(\frac{\partial V}{\partial T}\right)_P$
3. $\left(\frac{\partial P}{\partial T}\right)_V = \left(\frac{\partial S}{\partial V}\right)_T$
4. $\left(\frac{\partial P}{\partial S}\right)_T = \left(\frac{\partial V}{\partial T}\right)_S$

Options :
68634071829. 1

68634071830. 2
68634071831. 3
68634071832. 4

Question Number : 58 Question Id : 68634018186 Question Type : MCQ Option Shuffling : No 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 दिये गये विकल्पो से सही मैक्सवेल संबन्ध चुनिए (दिया P= दाब, V= आयतन, T= तापमान तथा S= एन्ट्रापी):

1. $\left(\frac{\partial P}{\partial S}\right)_V = \left(\frac{\partial T}{\partial V}\right)_S$
2. $\left(\frac{\partial S}{\partial S}\right)_T = \left(\frac{\partial V}{\partial T}\right)_P$
3. $\left(\frac{\partial P}{\partial T}\right)_V = \left(\frac{\partial S}{\partial V}\right)_T$
4. $\left(\frac{\partial P}{\partial S}\right)_T = \left(\frac{\partial V}{\partial T}\right)_S$

Options :
68634071829. 1
68634071830. 2
68634071831. 3
68634071832. 4

Question Number : 59 Question Id : 68634018187 Question Type : MCQ Option Shuffling : No 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 specific light is used in an experiment on photoelectric effect. The stopping potential is related to:

1. longest wavelength
2. largest frequency
3. mean wavelength
4. smallest frequency

Options :
68634071833. 1
68634071834. 2
68634071835. 3
68634071836. 4

Question Number : 59 Question Id : 68634018187 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

प्रकाश वैद्युत प्रभाव के प्रयोग में एक विशिष्ट प्रकाश का उपयोग किया जाता है। निरोधी विभव किससे संबन्धित है:

1. अधिकतम तरंगदैर्ध्य

2. अधिकतम आवृत्ति

3. माध्य तरंगदैर्ध्य

4. न्यूनतम आवृत्ति

Options :
68634071833. 1
68634071834. 2
68634071835. 3
68634071836. 4

Question Number : 60 Question Id : 68634018188 Question Type : MCQ Option Shuffling : No 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 solid is converted into liquid, there is an increase in volume. Then quantity $\left(\frac{dP}{dT}\right)$ is :

1. positive

2. negative

3. zero

4. infinite

Options :
68634071837. 1
68634071838. 2
68634071839. 3
68634071840. 4

Question Number : 60 Question Id : 68634018188 Question Type : MCQ Option Shuffling : No 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 किसी ठोस द्रव्य में बदला जाता है, इसका आयतन बढता है। तब राशि $\left(\frac{dP}{dT}\right)$ है:

1. धनात्मक

2. ऋणात्मक

3. शून्य

4. अनंत

Options :
68634071837. 1
68634071838. 2
68634071839. 3
68634071840. 4

Question Number : 61 Question Id : 68634018189 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**.

Assertion A: An electron is in a box of side 0.1 mm. Its first permitted energy is 37.5 eV.

Reason R: Permitted electron energies in the above box are 37.5 n^2 eV (given h = 6.62×10^{-34}Js and mass of electron= 9.1×10^{-31} kg)

In the light of the above statements, choose the **correct** 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 :
68634071841. 1
68634071842. 2
68634071843. 3
68634071844. 4

Question Number : 61 Question Id : 68634018189 Question Type : MCQ Option Shuffling : No 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 रुप में लिखित है तो दूसरा उसके कारण (Reason R)के रुप में

अभिकथन A: एक इलैक्टान 0.1 mm चौड़ाई के एक बॉक्स में स्थित है। इसकी प्रथम अनुमत ऊर्जा is 37.5 eV है।

कारण R: उपरोक्स बॉक्स में अनुमत इलैक्ट्रन ऊर्जा 37.5 n^2 eV हैं, (दिया है, h = 6.62×10^{-34} Js एवं इलैक्ट्रान का द्रव्यमान = 9.1×10^{-31} kg)

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

1. A और R दोनों सहीं हैं तथा R, A की सही व्याख्या है
2. A और R दोनों सहीं हैं तथा R, A की सही व्याख्या नहीं है
3. A सही है लेकिन R गलत है
4. A गलत है लेकिन R सही है

Options :
68634071841. 1
68634071842. 2
68634071843. 3
68634071844. 4

Question Number : 62 Question Id : 68634018190 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Read the following statements:

A. Paramagnetic substance can be used as working substance of an engine.
B. Only gas can be used as working substance in the operation of the engine.
C. Enthalpy is a function of entropy and pressure .
D. According to laws of thermodynamics, internal energy is the function of pressure and volume.

Choose the correct answer from the options given below:

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

Options :
68634071845. 1
68634071846. 2
68634071847. 3
68634071848. 4

Question Number : 62 Question Id : 68634018190 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

निम्नलिखित कथनों को पढ़िए:

A. किसी इंजन में कार्यकारी पदार्थ के रुप में अनुचुम्बकीय पदार्थ का उपयोग किया जा सकता है।
B. इंजन की क्रिया में केवल गैस को कार्यकारी पदार्थ के रुप में प्रयोग किया जा सकता है।
C. एन्थॉल्पी एन्ट्रापी तथा दाब का फलन होती है।
D. उष्मागतिकी के नियमानुसार, आन्तरिक ऊर्जा दाब एवं आयतन का फलन होती है।

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

1. केवल A व B

2. केवल B व C

3. केवल C व D

4. केवल A व C

Options :
68634071845. 1
68634071846. 2
68634071847. 3
68634071848. 4

Question Number : 63 Question Id : 68634018191 Question Type : MCQ Option Shuffling : No 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 principle of Michelson Morley experiment is based on division of amplitude.

Statement II: Michelson Morley experiment can be used for measurement of refractive indices of liquids and gases.

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 :
68634071849. 1
68634071850. 2
68634071851. 3
68634071852. 4

Question Number : 63 Question Id : 68634018191 Question Type : MCQ Option Shuffling : No 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: माइकल्सन मोर्ले प्रयोग का सिद्धांत आयाम के विभाजन पर आधारित है।

कथन II: माइकल्सन मोर्ले प्रयोग का उपयोग द्रवों व गैसों के अपवर्तनांकों के मापन में किया जा सकता है।

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

1. दोनों कथन I और II सही है
2. दोनों कथन I और II सही नहीं है
3. कथन I सही है, लेकिन कथन II गलत है
4. कथन I गलत है, लेकिन कथन II सही है

Options :
68634071849. 1
68634071850. 2
68634071851. 3
68634071852. 4

Question Number : 64 Question Id : 68634018192 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

The correct statements on Raman Effect are:

A. For elastic scattering, the frequency of scattered light remains the same as that of incident radiation.
B. The color of the sky on a clear day is blue due to the scattering of radiation.
C. Raman effect is related with inelastic scattering.
D. Nature of Rayleigh scattering is inelastic.

Choose the correct answer from the options given below:

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

Options :
68634071853. 1
68634071854. 2
68634071855. 3
68634071856. 4

Question Number : 64 Question Id : 68634018192 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

रमन प्रभाव पर आधारित कथन नीचे दिये गये है:

A. प्रत्यास्थ प्रकीर्णन के लिए प्रकीर्णित प्रकाश की आवृत्ति आपतित विकिरण की आवृति के समान होती है।
B. विकिरण के प्रकीर्णन के कारण साफ दिन में आकाश का रंग नीला होता है।
C. रमन प्रभाव अप्रत्यास्थ प्रकीर्णन से संबंधित है।
D. रैले प्रकीर्णन का प्रकार अप्रत्यास्थ होता है।

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

1. केवल A, B व D

2. केवल A, B व C

3. केवल B व D

4. केवल C व D

Options :
68634071853. 1
68634071854. 2
68634071855. 3
68634071856. 4

Question Number : 65 Question Id : 68634018193 Question Type : MCQ Option Shuffling : No 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 (Equation Name)		List II (Values)	
A.	TdS equation	I.	$\frac{dP}{dT}=\frac{L}{TdV}$
B.	Gibbs-Helmholtz equation	II.	TdS = dU +PdV
C.	Law of conservation of energy	III.	$H=G - T\left(\frac{dG}{dT}\right)_P$
D.	Clausius clapeyron equation	IV.	$Tds = CpdT -T\left(\frac{\partial V}{\partial T}\right)_P$

Choose the correct answer from the options given below:

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

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

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

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

Options :

68634071857. 1
68634071858. 2
68634071859. 3
68634071860. 4

Question Number : 65 Question Id : 68634018193 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

सूची I का सूची II से मिलान कीजिए

सूची I (समीकरणों का नाम)		सूची II (मान)	
A.	TdS समीकरण	I.	$\frac{dP}{dT}=\frac{L}{TdV}$
B.	गिब्स हैल्महोल्टज समीकरण	II.	TdS = dU +PdV
C.	ऊर्जा संरक्षण का नियम	III.	$H=G - T\left(\frac{dG}{dT}\right)_P$
D.	क्लॉसियस क्लेपरॉन समीकरण	IV.	$Tds = CpdT -T\left(\frac{\partial V}{\partial T}\right)_P$

निम्नलिखित विकल्पों में से सही उत्तर का चयन कीजिए

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

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

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

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

Options :

68634071857. 1
68634071858. 2
68634071859. 3
68634071860. 4

Question Number : 66 Question Id : 68634018194 Question Type : MCQ Option Shuffling : No 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 $\overrightarrow{A} = (2xy+3yz)\hat{i} + (x^2+xz-4z^2)\hat{j} - (3xy+yz)\hat{k}$, then curl of $\overrightarrow{A}$ at (2,-1, 1) is:

1. $-\hat{i}+6\hat{j}+2\hat{k}$
2. $-\hat{i}-6\hat{j}+2\hat{k}$
3. $-\hat{i}+6\hat{j}-2\hat{k}$
4. $-\hat{i}-6\hat{j}-2\hat{k}$

Options :
68634071861. 1
68634071862. 2
68634071863. 3
68634071864. 4

Question Number : 66 Question Id : 68634018194 Question Type : MCQ Option Shuffling : No 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 $\overrightarrow{A} = (2xy+3yz)\hat{i} + (x^2+xz-4z^2)\hat{j} - (3xy+yz)\hat{k}$, तो बिन्दु f $\overrightarrow{A}$ पर (2,-1, 1) का कर्ल है:

1. $-\hat{i}+6\hat{j}+2\hat{k}$
2. $-\hat{i}-6\hat{j}+2\hat{k}$
3. $-\hat{i}+6\hat{j}-2\hat{k}$
4. $-\hat{i}-6\hat{j}-2\hat{k}$

Options :
68634071861. 1
68634071862. 2
68634071863. 3
68634071864. 4

Question Number : 67 Question Id : 68634018195 Question Type : MCQ Option Shuffling : No 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 angle between the tangents to the curve $\vec{r} = t^3\hat{i} - 3t\hat{j} + t^2\hat{k}$ at points $t = \pm 1$ is:

1. $\cos^{-1}\left(\frac{9}{11}\right)$
2. $\cos^{-1}\left(\frac{7}{11}\right)$
3. $\cos^{-1}\left(\frac{5}{11}\right)$
4. $\cos^{-1}\left(\frac{3}{11}\right)$

Options :
68634071865. 1
68634071866. 2
68634071867. 3
68634071868. 4

Question Number : 67 Question Id : 68634018195 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

$t = \pm 1$ बिन्दुओं पर वक्र $\vec{r} = t^3\hat{i} - 3t\hat{j} + t^2\hat{k}$ की स्पर्ज्याओं के बीच का कोण है:

1. $\cos^{-1}\left(\frac{9}{11}\right)$
2. $\cos^{-1}\left(\frac{7}{11}\right)$
3. $\cos^{-1}\left(\frac{5}{11}\right)$
4. $\cos^{-1}\left(\frac{3}{11}\right)$

Options :
68634071865. 1
68634071866. 2
68634071867. 3
68634071868. 4

Question Number : 68 Question Id : 68634018196 Question Type : MCQ Option Shuffling : No 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 $\phi = 3xy^2 - y^3z^2$. The area of the parallelogram, whose adjacent sides are $2\hat{i} + \hat{j} - 4\hat{k}$ at the point (1,-1,-1), is :

1. $6\sqrt{5}$
2. $8\sqrt{5}$
3. $10\sqrt{5}$
4. $5\sqrt{5}$

Options :
68634071869. 1
68634071870. 2
68634071871. 3
68634071872. 4

Question Number : 68 Question Id : 68634018196 Question Type : MCQ Option Shuffling : No 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 $\phi = 3xy^2 - y^3z^2$ है। समान्तर चतुर्भुज जिसकी संलग्न भुजाएँ $2\hat{i} + \hat{j} - 4\hat{k}$ तथा बिन्दु (1,-1,-1) पर gradΦ हैं, का क्षेत्रफल हैं:

1. $6\sqrt{5}$
2. $8\sqrt{5}$
3. $10\sqrt{5}$
4. $5\sqrt{5}$

Options :
68634071869. 1
68634071870. 2
68634071871. 3
68634071872. 4

Question Number : 69 Question Id : 68634018197 Question Type : MCQ Option Shuffling : No 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 $y_1 = e^{-x}\cos x$ and $y_2 = e^{-x}\sin x$ are the two solutions of $\frac{d^2y}{dx^2}+2\frac{dy}{dx}+2y=0$, then correct statement is:

1. y_1 and y_2 are linearly independent.

2. y_1 and y_2 are linearly dependent.

3. y_1 can be expressed as a scalar multiple of y_2.

4. y_2 can be expressed as a vector multiple of y_2.

Options :
68634071873. 1
68634071874. 2
68634071875. 3
68634071876. 4

Question Number : 69 Question Id : 68634018197 Question Type : MCQ Option Shuffling : No 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 $\frac{d^2y}{dx^2}+2\frac{dy}{dx}+2y=0$ के दो हल $y_1 = e^{-x}\cos x$ and $y_2 = e^{-x}\sin x$ हों, तो सही कथन है:

1. y_1 व y_2 रेखीय निर्भर नहीं हैं।

2. y_1 व y_2 रेखीय निर्भर हैं।

3. y_1 को y_2 के अदिश गुणन के रुप में विस्तार किया जा सकता है।

4. y_2 को y_1 के सदिश गुणन के रुप में विस्तार किया जा सकता है।

Options :
68634071873. 1
68634071874. 2
68634071875. 3
68634071876. 4

Question Number : 70 Question Id : 68634018198 Question Type : MCQ Option Shuffling : No 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 force which is not conservative is :

1. $\vec{F} = (2xy + z^2)\hat{i} + x^2\hat{j} + 2xz\,\hat{k}$

2. $\vec{F} = (y^2 - x^2)\hat{i} + 2xy\,\hat{j}$

3. $\vec{F} = (x^2 + z^2)\hat{i} + 2yz\,\hat{j} + z^2\,\hat{k}$

4. $\vec{F} = yz\,\hat{i} + 2x\,\hat{j} + xy\,\hat{k}$

Options :
68634071877. 1
68634071878. 2
68634071879. 3
68634071880. 4

Question Number : 70 Question Id : 68634018198 Question Type : MCQ Option Shuffling : No 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 बल, जो संरक्षी नहीं है :

1. $\vec{F} = (2xy + z^2)\hat{i} + x^2\hat{j} + 2xz\,\hat{k}$

2. $\vec{F} = (y^2 - x^2)\hat{i} + 2xy\,\hat{j}$

3. $\vec{F} = (x^2 + z^2)\hat{i} + 2yz\,\hat{j} + z^2\,\hat{k}$

4. $\vec{F} = yz\,\hat{i} + 2x\,\hat{j} + xy\,\hat{k}$

Options :
68634071877. 1
68634071878. 2
68634071879. 3
68634071880. 4

Question Number : 71 Question Id : 68634018199 Question Type : MCQ Option Shuffling : No 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 for simple Harmonic motion (consider all motions in their usual meaning):

List I (Physical quantities)		List II (Values)	
A.	Velocity	I.	aω
B.	Maximum velocity	II.	$\omega\sqrt{a^2-x^2}$
C.	Acceleration	III.	$a\omega^2\sin(\omega t+\Phi)$
D.	Maximum acceleration	IV.	$a\omega^2$

Choose the correct answer from the options given below:

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

2. A-I, B-I, C-IV, D-III

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

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

Options :
68634071881. 1
68634071882. 2
68634071883. 3
68634071884. 4

Question Number : 71 Question Id : 68634018199 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

सरल आवर्त गति के लिए सूची I का सूची II से मिलान कीजिए (सभी संकेतो का प्रचलित अर्थ मानकर)

सूची I (भौतिक राशियाँ)		सूची II (मान)	
A.	वेग	I.	aω
B.	अधिकतम वेग	II.	$\omega\sqrt{a^2-x^2}$
C.	त्वरण	III.	$a\omega^2\sin(\omega t+\Phi)$
D.	अधिकतम त्वरण	IV.	$a\omega^2$

निम्नलिखित विकल्पों में से सही उत्तर का चयन कीजिए :

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

2. A-I, B-I, C-IV, D-III

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

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

Options :
68634071881. 1
68634071882. 2
68634071883. 3

68634071884. 4

Question Number : 72 Question Id : 68634018200 Question Type : MCQ Option Shuffling : No 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: Gauss's theorem is used to show that curl of the gradient of scalar function is equal to zero.

Statement II: Stoke's theorem is used to show that divergence of the curl of a vector function is equal to zero.

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 :
68634071885. 1
68634071886. 2
68634071887. 3
68634071888. 4

Question Number : 72 Question Id : 68634018200 Question Type : MCQ Option Shuffling : No 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: गॉउस प्रमेय का उपयोग यह दर्शाता है कि अदिश फलन की प्रवणता का कर्ल शून्य के बराबर होता है।

कथन II: स्टोक प्रमेय का उपयोग यह दर्शाता है कि सदिश फलन के कर्ल का अपसरण शून्य के बराबर होता है।

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

1. दोनों कथन I और II सही है
2. दोनों कथन I और II गलत है
3. कथन I सही है, लेकिन कथन II गलत है
4. कथन I गलत है, लेकिन कथन II सही है

Options :
68634071885. 1
68634071886. 2
68634071887. 3

68634071888. 4

Question Number : 73 Question Id : 68634018201 Question Type : MCQ Option Shuffling : No 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: If $f'(x) = \frac{1}{5-x^2}$ and f(o)= 2, then $2.2 \leq f(1) \leq 2.25$

Reason R: If y= f(x) is continious at each point of [a, b] and differentiable at each point of (a, b) then there is atleast on number c between a and b for which $\frac{f(b)-f(a)}{b-a} = f'(c)$

In the light of the above statements, choose the **correct** 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 :
68634071889. 1
68634071890. 2
68634071891. 3
68634071892. 4

Question Number : 73 Question Id : 68634018201 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं, एक अभिकथन (A) के रुप में लिखित है तो दूसरा उसके कारण (R)के रुप में है।

अभिकथन A: यदि $f'(x) = \frac{1}{5-x^2}$ तथा f(o)= 2

तब $2.2 \leq f(1) \leq 2.25$

कारण R: यदि [a, b] के प्रत्येक बिन्दु पर y= f(x) सतत है एवं (a, b) के प्रत्येक बिन्दु पर अवकलित है, तो a व b के बीच कम से कम एक संख्या c जिसके लिए $\frac{f(b)-f(a)}{b-a} = f'(c)$

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

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

Options :
68634071889. 1
68634071890. 2
68634071891. 3
68634071892. 4

Question Number : 74 Question Id : 68634018202 Question Type : MCQ Option Shuffling : No 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 $ax^2 + 2hxy + by^2 = 0$; then $\frac{dy}{dx}$ is

1. $\frac{ax+hy}{hx+by}$
2. $-\frac{(ax+hy)}{hx+by}$
3. $\frac{ax-hy}{hx+by}$
4. $-\frac{(ax+by)}{hx-by}$

Options :
68634071893. 1
68634071894. 2
68634071895. 3
68634071896. 4

Question Number : 74 Question Id : 68634018202 Question Type : MCQ Option Shuffling : No 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 $ax^2 + 2hxy + by^2 = 0$; तो $\frac{dy}{dx}$ है:

1. $\frac{ax+hy}{hx+by}$
2. $-\frac{(ax+hy)}{hx+by}$
3. $\frac{ax-hy}{hx+by}$
4. $-\frac{(ax+by)}{hx-by}$

Options :
68634071893. 1
68634071894. 2
68634071895. 3
68634071896. 4

Question Number : 75 Question Id : 68634018203 Question Type : MCQ Option Shuffling : No 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 rod of length l supported from its one end O gets deflected by $y = K(9x^4 - 13lx^3 + 3l^3x)$ if x is horizontal distance from O and K is positive constant, then value of x giving maximum deflection is :

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

Options :
68634071897. 1
68634071898. 2
68634071899. 3
68634071900. 4

Question Number : 75 Question Id : 68634018203 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

l लम्बाई की एक छड़ जो अपने एक सिरे O से जुड़ी है यह $y=K(9x^4 - 13lx^3 + 3l^3x)$ द्वारा विक्षेपित होती है। यदि O से क्षैतिज दूरी x तथा K एक धनात्मक नियतांक हो तो अधिकतम विक्षेप के लिए x का मान है:

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

Options :
68634071897. 1
68634071898. 2
68634071899. 3
68634071900. 4

Question Number : 76 Question Id : 68634018204 Question Type : MCQ Option Shuffling : No 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 general value of $\text{Log}(1+i)+\log(1-i)$, where $\text{Log}3 = \log 3 + 2n\pi i$, is:

1. $\log\sqrt{2} + 4n\pi i$
2. $\log 2 + 4n\pi i$
3. $\log\left(\frac{1}{2}\right) + 4n\pi i$
4. $\log 4 + 2n\pi i$

Options :
68634071901. 1
68634071902. 2
68634071903. 3
68634071904. 4

Question Number : 76 Question Id : 68634018204 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

जब $\text{Log}3 = \log 3 + 2n\pi i$ हो तब $\text{Log}(1+i) + \log(1-i)$ का सामान्य मान क्या है:

1. $\log\sqrt{2} + 4n\pi i$
2. $\log 2 + 4n\pi i$
3. $\log\left(\frac{1}{2}\right) + 4n\pi i$
4. $\log 4 + 2n\pi i$

Options :
68634071901. 1
68634071902. 2
68634071903. 3
68634071904. 4

Question Number : 77 Question Id : 68634018205 Question Type : MCQ Option Shuffling : No 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 asymptotes of the function $y = \frac{x}{x-1}$ are:

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

Options :
68634071905. 1
68634071906. 2
68634071907. 3
68634071908. 4

Question Number : 77 Question Id : 68634018205 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

फलन $y = \frac{x}{x-1}$ के अनंतस्पर्शी हैं:

1. $y = 1, x = 1$

2. $y = 1, x = 2$

3. $x = 1, y = 2$

4. $x = 0, y = 0$

Options :
68634071905. 1
68634071906. 2
68634071907. 3
68634071908. 4

Question Number : 78 Question Id : 68634018206 Question Type : MCQ Option Shuffling : No 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 real and imaginary parts of $\cos t \cos^{-1}\left(\frac{3i}{4}\right)$

1. $\frac{\pi}{8}, -\log 2$

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

3. $\frac{\pi}{2}, -\log 3$

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

Options :
68634071909. 1
68634071910. 2
68634071911. 3
68634071912. 4

Question Number : 78 Question Id : 68634018206 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

$\cos^{-1}\left(\frac{3i}{4}\right)$ के वास्तविक एवं काल्पनिक भाग है:

1. $\frac{\pi}{8}, -\log 2$
2. $\frac{\pi}{4}, -\log 2$
3. $\frac{\pi}{2}, -\log 3$
4. $\frac{\pi}{2}, -\log 2$

Options :
68634071909. 1
68634071910. 2
68634071911. 3
68634071912. 4

Question Number : 79 Question Id : 68634018207 Question Type : MCQ Option Shuffling : No 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 series expansion of $\tan^{-1}x$ is:

1. $x+\frac{x^3}{3}+\frac{x^5}{5}+...\infty$
2. $x-\frac{x^2}{2}+\frac{x^5}{3}+...\infty$
3. $-x-\frac{x^3}{2}-\frac{x^5}{3}+...\infty$
4. $x-\frac{x^3}{3}+\frac{x^5}{5}+...\infty$

Options :
68634071913. 1
68634071914. 2
68634071915. 3
68634071916. 4

Question Number : 79 Question Id : 68634018207 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

$\tan^{-1}x$ का श्रेणी प्रसार है:

1. $x+\frac{x^3}{3}+\frac{x^5}{5}+...\infty$

2. $x-\frac{x^2}{2}+\frac{x^5}{3}+...\infty$

3. $-x-\frac{x^3}{2}-\frac{x^5}{3}+...\infty$

4. $x-\frac{x^3}{3}+\frac{x^5}{5}+...\infty$

Options :
68634071913. 1
68634071914. 2
68634071915. 3
68634071916. 4

Question Number : 80 Question Id : 68634018208 Question Type : MCQ Option Shuffling : No 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 $\frac{d^3y}{dx^3}+2\frac{d^2y}{ax^2}+\frac{dy}{dx}=0$ is:

1. $y=C_1e^x+C_2e^{2x}$

2. $y=C_1+\left(C_2+C_3x\right)e^{-x}$

3. $y=\left(C_1+C_2x+C_3x^2\right)e^{-x}$

4. $y=C_1+C_2e^{-x}$

Options :
68634071917. 1
68634071918. 2
68634071919. 3
68634071920. 4

Question Number : 80 Question Id : 68634018208 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

$\frac{d^3y}{dx^3}+2\frac{d^2y}{ax^2}+\frac{dy}{dx}=0$ का हल हैं:

1. $y=C_1e^x+C_2e^{2x}$
2. $y=C_1+(C_2+C_3x)e^{-x}$
3. $y=(C_1+C_2x+C_3x^2)e^{-x}$
4. $y=C_1+C_2e^{-x}$

Options :
68634071917. 1
68634071918. 2
68634071919. 3
68634071920. 4

Question Number : 81 Question Id : 68634018209 Question Type : MCQ Option Shuffling : No 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 square sheet of side *a* is used to make an open top box by cutting squares of side x from each corner. The value of x for which the volume of the box is as large as possible is:

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

Options :
68634071921. 1
68634071922. 2
68634071923. 3
68634071924. 4

Question Number : 81 Question Id : 68634018209 Question Type : MCQ Option Shuffling : No 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 भुजा की एक वर्गाकार चादर का उपयोग इसके प्रत्येक कोने से x भुजा के वर्गों को काटकर एक खुले शीर्ष का बॉक्स बनाने में किया जाता है। x का वह मान जिसके लिए बॉक्स का अधिक से अधिक आयतन संभव है:

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

Options :

68634071921. 1
68634071922. 2
68634071923. 3
68634071924. 4

Question Number : 82 Question Id : 68634018210 Question Type : MCQ Option Shuffling : No 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 $w = x^2 + y - z\sin t$ and $x + y = t$, then the value $\frac{\left(\frac{\partial w}{\partial x}\right)_{yz}}{\left(\frac{\partial w}{\partial x}\right)_{tz}}$ is equal to:

1. $\frac{2x+\sin(x+y)}{2x+1}$
2. $\frac{2x-\cos(x+y)}{2x+1}$
3. $\frac{2x+\cos(x+y)}{2x-1}$
4. $\frac{2x+\sin(x+y)}{2x-1}$

Options :

68634071925. 1
68634071926. 2
68634071927. 3
68634071928. 4

Question Number : 82 Question Id : 68634018210 Question Type : MCQ Option Shuffling : No 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 $w = x^2 + y - z\sin t$ and $x + y = t$, एवं हो तो $\frac{\left(\frac{\partial w}{\partial x}\right)_{yz}}{\left(\frac{\partial w}{\partial x}\right)_{tz}}$ का मान है:

1. $\frac{2x+\sin(x+y)}{2x+1}$
2. $\frac{2x-\cos(x+y)}{2x+1}$
3. $\frac{2x+\cos(x+y)}{2x-1}$
4. $\frac{2x+\sin(x+y)}{2x-1}$

Options :
68634071925. 1
68634071926. 2
68634071927. 3
68634071928. 4

Question Number : 83 Question Id : 68634018211 Question Type : MCQ Option Shuffling : No 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 ω is the cube root of unity then, value of $(1 - \omega)^6$ is :

1. − 9
2. 0
3. −27
4. ±3

Options :
68634071929. 1
68634071930. 2
68634071931. 3
68634071932. 4

Question Number : 83 Question Id : 68634018211 Question Type : MCQ Option Shuffling : No 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 ω इकाई का घन मूल हो तो $(1 - \omega)^6$ का मान है:

1. − 9

2. 0

3. −27

4. ±3

Options :

68634071929. 1
68634071930. 2
68634071931. 3
68634071932. 4

Question Number : 84 Question Id : 68634018212 Question Type : MCQ Option Shuffling : No 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 integral of $\int_0^{\infty} \frac{\sin t}{t}\, dt$ is:

1. 0

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

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

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

Options :

68634071933. 1
68634071934. 2
68634071935. 3
68634071936. 4

Question Number : 84 Question Id : 68634018212 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

$\int_0^{\infty} \frac{\sin t}{t}\, dt$ का समाकलन है:

1. 0
2. $-\frac{\pi}{2}$
3. $\frac{\pi}{2}$
4. $\frac{\pi}{4}$

Options :
68634071933. 1
68634071934. 2
68634071935. 3
68634071936. 4

Question Number : 85 Question Id : 68634018213 Question Type : MCQ Option Shuffling : No 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: Differential equation $(x^2+1)\frac{dy}{dx}+xy-0$ can be solved by variable separable method.

Reason R: A differential equation of the type $f(y)\frac{dy}{dx}=g(x)$ can be solved by variable separable method as $\int f(y)dy=\int g(x)dx$

In the light of the above statements, choose the **correct** 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 :
68634071937. 1
68634071938. 2
68634071939. 3
68634071940. 4

Question Number : 85 Question Id : 68634018213 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं, एक अभिकथन (A) के रुप में लिखित है तो दूसरा उसके कारण (R)के रुप में

अभिकथन A: अवकल समीकरण $(x^2+1)\frac{dy}{dx}+xy-0$ को चर पृथकीकृत प्रक्रिया द्वारा हल किया जा सकता है।

कारण R: $f(y)\frac{dy}{dx}=g(x)$ प्रकार की अवकल समीकरण को चर पृथकीकृत प्रक्रिया द्वारा निम्न प्रकार हल किया जा सकता है $\int f(y)dy=\int g(x)dx$

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

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

Options :
68634071937. 1
68634071938. 2
68634071939. 3
68634071940. 4

Question Number : 86 Question Id : 68634018214 Question Type : MCQ Option Shuffling : No 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: For a non conservative force field $\vec{F}$, scalar potential can not be defined.

Reason R: Curl of a gradient is always zero.

In the light of the above statements, choose the **correct** 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 :
68634071941. 1
68634071942. 2
68634071943. 3
68634071944. 4

Question Number : 86 Question Id : 68634018214 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं, एक अभिकथन A के रुप में लिखित है तो दूसरा उसके कारण R के रुप में

अभिकथन A: किसी असंरक्षी बल क्षेत्र $\vec{F}$ के लिए अदिश विभव परिभाषित नहीं किया जा सकता है।

कारण R: किसी प्रवणता का कर्ल सदैव शून्य होता है।

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

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

Options :
68634071941. 1
68634071942. 2
68634071943. 3
68634071944. 4

Question Number : 87 Question Id : 68634018215 Question Type : MCQ Option Shuffling : No 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 distance of a point doing SHM from its mean position at three successive second are x_1, x_2, x_3 respectively. Given $x = a \sin \omega t$. The value of $\omega = \cos^{-1}\frac{x_1 + x_2}{2x_3}$

Statement II: The time period of the above SHM is $= \frac{2\pi}{\cos^{-1}\left(\frac{x_1 + x_3}{2x_2}\right)}$

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 :
68634071945. 1
68634071946. 2
68634071947. 3
68634071948. 4

Question Number : 87 Question Id : 68634018215 Question Type : MCQ Option Shuffling : No 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: तीन क्रमबद्ध सेकंड पर. सरल आवर्त गति करते हुए किसी कण की दूरी क्रमश: x_1, x_2, x_3 हैं। दिया है $x = a \sin \omega t$। $\omega = \cos^{-1} \frac{x_1 + x_2}{2x_3}$ है।

कथन II: उपरोक्त सरल आवर्त गति का अवर्तकाल $\frac{2\pi}{\cos^{-1}\left(\frac{x_1 + x_3}{2x_2}\right)}$ है।

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

1. दोनों कथन I और II सत्य हैं
2. दोनों कथन I और II सत्य नहीं हैं
3. कथन I सत्य है, लेकिन कथन II असत्य है
4. कथन I असत्य है, लेकिन कथन II सत्य है

Options :
68634071945. 1
68634071946. 2
68634071947. 3
68634071948. 4

Question Number : 88 Question Id : 68634018216 Question Type : MCQ Option Shuffling : No 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 inverse of the matrix A, if exists is:

Where $A=\begin{bmatrix}1 & 2 & 1\\ 2 & 1 & -1\\ 1 & 5 & 4\end{bmatrix}$

1. $\begin{bmatrix}1 & 0 & 0\\ -2 & 1 & 0\\ -3 & 1 & 1\end{bmatrix}$

2. $|A|=0$

3. $\begin{bmatrix}1 & 2 & 1\\ 0 & -3 & -3\\ 0 & 0 & 0\end{bmatrix}$

4. $\begin{bmatrix}1 & 2 & 1\\ 0 & 1 & -1\\ 1 & 5 & 4\end{bmatrix}$

Options :

68634071949. 1

68634071950. 2

68634071951. 3

68634071952. 4

Question Number : 88 Question Id : 68634018216 Question Type : MCQ Option Shuffling : No 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 संभव हो तो आव्याहू A का व्युत्क्रम है जबकि $A=\begin{bmatrix}1 & 2 & 1\\ 2 & 1 & -1\\ 1 & 5 & 4\end{bmatrix}$

1. $\begin{bmatrix}1 & 0 & 0\\ -2 & 1 & 0\\ -3 & 1 & 1\end{bmatrix}$

2. $|A|=0$

3. $\begin{bmatrix}1 & 2 & 1\\ 0 & -3 & -3\\ 0 & 0 & 0\end{bmatrix}$

4. $\begin{bmatrix}1 & 2 & 1\\ 0 & 1 & -1\\ 1 & 5 & 4\end{bmatrix}$

Options :

68634071949. 1

68634071950. 2

68634071951. 3

68634071952. 4

Question Number : 89 Question Id : 68634018217 Question Type : MCQ Option Shuffling : No 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 any matrix A, B $\in M_{n \times n}$ (F), det(A B) = det(A). det(B).

Statement II: If M is skew-symmetric matrix of odd order , then M is singular.

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 :
68634071953. 1
68634071954. 2
68634071955. 3
68634071956. 4

Question Number : 89 Question Id : 68634018217 Question Type : MCQ Option Shuffling : No 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: आव्यूह A, B $\in M_{n \times n}$ (F) के लिए, सारणिक (A B)= सारणिक (A) सारणिक (B)

कथन II: यदि M विषम क्रम का विषम कममित आव्यूह है तो M एकाकी है।

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

1. दोनों कथन I और II सही है
2. दोनों कथन I और II गलत है
3. कथन I सही है, लेकिन कथन II गलत है
4. कथन I गलत है, लेकिन कथन II सही है

Options :
68634071953. 1
68634071954. 2

68634071955. 3
68634071956. 4

Question Number : 90 Question Id : 68634018218 Question Type : MCQ Option Shuffling : No 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 positive number(s) which is /are root(s) of the equation $x-3\sqrt{x}=4$:

1. 1, 16

2. 16

3. 1

4. 1, 4

Options :
68634071957. 1
68634071958. 2
68634071959. 3
68634071960. 4

Question Number : 90 Question Id : 68634018218 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

समीकरण $x-3\sqrt{x}=4$ के धनात्मक मूल हैं:

1. 1, 16

2. 16

3. 1

4. 1, 4

Options :
68634071957. 1
68634071958. 2
68634071959. 3
68634071960. 4

Question Number : 91 Question Id : 68634018219 Question Type : MCQ Option Shuffling : No 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 the equation $x^2-15-m\,(2x-8)=0$ has equal roots, The values of m is:

1. 2, 5

2. 3, 2

3. 3, 5

4. 1, 5

Options :
68634071961. 1
68634071962. 2
68634071963. 3
68634071964. 4

Question Number : 91 Question Id : 68634018219 Question Type : MCQ Option Shuffling : No 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 समीकरण $x^2-15-m\,(2x-8)=0$ के मूल समान हो तो m के मान हैं:

1. 2, 5

2. 3, 2

3. 3, 5

4. 1, 5

Options :
68634071961. 1
68634071962. 2
68634071963. 3
68634071964. 4

Question Number : 92 Question Id : 68634018220 Question Type : MCQ Option Shuffling : No 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

Discriminant of the equation		LIST II	
A.	Zero	I.	Real and rational
B.	Positive and a perfect square	II.	Complex
C.	Positive and not a perfect square	III.	Real and equal
D.	Negative	IV.	Real and irrational

Choose the correct answer from the options given below:

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

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

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

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

Options :
68634071965. 1
68634071966. 2
68634071967. 3
68634071968. 4

Question Number : 92 Question Id : 68634018220 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

सूची I का सूची II से मिलान कीजिए

सूची I (समीकरण के विविक्तकर)		सूची II	
A.	शून्य	I.	वास्तविक एवं परिमेय
B.	धनात्मक एवं एक पूर्ण वर्ग	II.	सम्मिश्र
C.	धनात्मक एवं पूर्ण वर्ग नहीं	III.	वास्तविक एवं बराबर
D.	ऋणात्मक	IV.	वास्तविक एवं अपरिमेय

निम्नलिखित विकल्पों में से सही उत्तर का चयन कीजिए :

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

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

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

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

Options :
68634071965. 1
68634071966. 2
68634071967. 3
68634071968. 4

Question Number : 93 Question Id : 68634018221 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Determine which of the following systems of linear equations have unique solutions:

A. $\begin{aligned} x_1 + 3x_2 &= 4 \\ 2x_1 + 5x_2 &= 3 \end{aligned}$

B. $\begin{aligned} x_1 + 2x_2 &= 5 \\ x_1 - x_2 &= -1 \end{aligned}$

C. $\begin{aligned} x_4 + 2x_2 &= 0 \\ x_4 - 4x_2 &= 0 \end{aligned}$

D. $x_1 + 2x_2 - 3x_3 + x_4 = 0$

Choose the most appropriate answer from the options given below:

1. A, B, D only

2. A, B only

3. A, C, D only

4. A, B, C only

Options :
68634071969. 1
68634071970. 2
68634071971. 3
68634071972. 4

Question Number : 93 Question Id : 68634018221 Question Type : MCQ Option Shuffling : No 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 रेखीय समीकरणों के निकीयों का हल अद्वितीय हैं:

A. $x_1 + 3x_2 = 4$
$2x_1 + 5x_2 = 3$

B. $x_1 + 2x_2 = 5$
$x_1 - x_2 = -1$

C. $x_4 + 2x_2 = 0$
$x_4 - 4x_2 = 0$

D. $x_1 + 2x_2 - 3x_3 + x_4 = 0$

नीचे दिए गए विकल्पों में से सबसे उचित उत्तर का चयन कीजिए:

1. केवल A, B, D

2. केवल A, B

3. केवल A, C, D

4. केवल A, B, C

Options :
68634071969. 1
68634071970. 2
68634071971. 3
68634071972. 4

Question Number : 94 Question Id : 68634018222 Question Type : MCQ Option Shuffling : No 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 relation $y = \log_3 x$ implies:

1. $x^y = 3$

2. $3^y = x$

3. $x^3 = y$

4. $y^x = 3$

Options :
68634071973. 1
68634071974. 2
68634071975. 3
68634071976. 4

Question Number : 94 Question Id : 68634018222 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

संबन्ध $y = \log_3 x$ प्रदर्शित करता है:

1. $x^y = 3$
2. $3^y = x$
3. $x^3 = y$
4. $y^x = 3$

Options :
68634071973. 1
68634071974. 2
68634071975. 3
68634071976. 4

Question Number : 95 Question Id : 68634018223 Question Type : MCQ Option Shuffling : No 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 particular integral of $\frac{d^2y}{dx^2}+3\frac{dy}{dx}+2y=\sin\left(e^x\right)$, if the complementary functions are $y_1 = e^{-x}$ and $y_2 = e^{-2x}$, is:

1. $e^{2x} \sin(e^x)$
2. $e^{-2x} \sin(e^x)$
3. $-e^{-2x} \sin(e^x)$
4. $-e^{2x} \sin(e^x)$

Options :
68634071977. 1
68634071978. 2
68634071979. 3
68634071980. 4

Question Number : 95 Question Id : 68634018223 Question Type : MCQ Option Shuffling : No 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 $y_1 = e^{-x}$ and $y_2 = e^{-2x}$ पूरक फलन हो तो $\frac{d^2y}{dx^2} + 3\frac{dy}{dx} + 2y = \sin\left(e^x\right)$ का निश्चित समाकलन है:

1. $e^{2x} \sin(e^x)$
2. $e^{-2x} \sin(e^x)$
3. $-e^{-2x} \sin(e^x)$
4. $-e^{2x} \sin(e^x)$

Options :
68634071977. 1
68634071978. 2
68634071979. 3
68634071980. 4

Question Number : 96 Question Id : 68634018224 Question Type : MCQ Option Shuffling : No 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 orthogonal trajectory of the family of curves $r^2 = a\sin 2\theta$ is :

1. $r^2 = a\sin 2\theta$
2. $r^2 = -a\cos 2\theta$
3. $r^2 = -a\sin 2\theta$
4. $r^2 = a\cos 2\theta$

Options :
68634071981. 1
68634071982. 2
68634071983. 3
68634071984. 4

Question Number : 96 Question Id : 68634018224 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

वक्र $r^2 = a \sin 2\theta$ के परिवार का लम्ब प्रक्षेप्य पथ है:

1. $r^2 = a \sin 2\theta$
2. $r^2 = -a\cos 2\theta$
3. $r^2 = -a\sin 2\theta$
4. $r^2 = a\cos 2\theta$

Options :

68634071981. 1

68634071982. 2

68634071983. 3

68634071984. 4

Question Number : 97 Question Id : 68634018225 Question Type : MCQ Option Shuffling : No 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 determinant of the matrix $A=\begin{bmatrix} 2 & 0 & 0 & 1 \\ 0 & 1 & 3 & -3 \\ -2 & -3 & -5 & 2 \\ 4 & -4 & 4 & -6 \end{bmatrix}$ is:

1. 0

2. 30

3. 32

4. −10

Options :

68634071985. 1

68634071986. 2

68634071987. 3

68634071988. 4

Question Number : 97 Question Id : 68634018225 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

आव्यूह $A=\begin{bmatrix} 2 & 0 & 0 & 1 \\ 0 & 1 & 3 & -3 \\ -2 & -3 & -5 & 2 \\ 4 & -4 & 4 & -6 \end{bmatrix}$ का सारणिक का मान है:

1. 0

2. 30

3. 32

4. −10

Options :

68634071985. 1

68634071986. 2

68634071987. 3

68634071988. 4

Question Number : 98 Question Id : 68634018226 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Read the following statements:

A. The value of determinant remains unaltered if the rows are interchanged into columns and vice versa.
B. If the two rows of a determinant are interchanged, the sign of the value of the determinant does not change.
C. If the two rows of a determinant are identical, the value of the determinant is zero.

Choose the most appropriate answer for correct statement from the options given below:

1. B and C only

2. A, B and C only

3. A and C only

4. B only

Options :
68634071989. 1
68634071990. 2
68634071991. 3
68634071992. 4

Question Number : 98 Question Id : 68634018226 Question Type : MCQ Option Shuffling : No 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 कथन पढ़िए

A. यदि सारणिक की पंक्तियों को स्तम्भों में तथा स्तम्भों को पंक्तियो में बदल दिया जाता है तो इसका मान अपरिवर्तित रहता है।
B. यदि सारणिक की दो पंक्तियों को आपस में परिवर्तित किया जाए तो सारणिक का चिन्ह अपरिवर्तित रहता है।
C. यदि सारणिक की दो पंक्तियाँ एक सम्मन हो तो सारणिक का मान शून्य होता है।

नीचे दिए गए विकल्पों में से सही कथनों के लिए सबसे उचित उत्तर का चयन कीजिए:

1. केवल B व C

2. केवल A, B व C

3. केवल A व C

4. केवल B

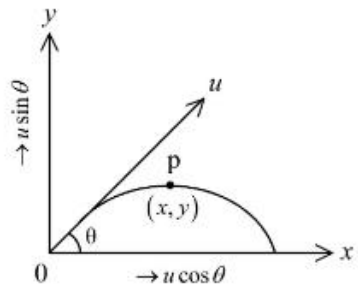
Options :
68634071989. 1
68634071990. 2
68634071991. 3
68634071992. 4

Question Number : 99 Question Id : 68634018227 Question Type : MCQ Option Shuffling : No 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**.

Statement I: The equation of path of the projectile shown in the picture is $y = x\tan\theta - \frac{gx^2}{2x^2\cos^2\theta}$.



Statement II: The greatest height reached by a projectile thrown at 30° angle for θ and u= 20 m/s is 10 m (g=10 m/s^2).

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

1. Both statements (I) and (II) are true
2. Both statements (I) and (II) are false
3. Statement I is true but statements II is false
4. Statements I is false but statements II is true

Options :

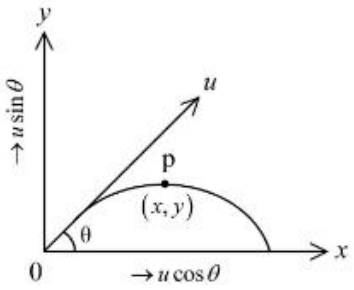
68634071993. 1
68634071994. 2
68634071995. 3
68634071996. 4

Question Number : 99 Question Id : 68634018227 Question Type : MCQ Option Shuffling : No 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: चित्र से प्रदर्शित प्रक्षेय पथ का समीकरण $y = x\tan\theta - \frac{gx^2}{2x^2\cos^2\theta}$ है



कथन II: 30° के कोण पर 20 m/s को वेग से प्रक्षेपित प्रक्षेप्य की अधिकतम ऊँचाई 10 m है ($g=10\ m/s^{-2}$)।

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

1. दोनों कथन I और II दोनों सही है
2. दोनों कथन I और II गलत है
3. कथन I सही है, लेकिन कथन II गलत है
4. कथन I गलत है, लेकिन कथन II सही है

Options :
68634071993. 1
68634071994. 2
68634071995. 3
68634071996. 4

Question Number : 100 Question Id : 68634018228 Question Type : MCQ Option Shuffling : No 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: Lorentz force is expressed as $\vec{F} = q\vec{E} + q\left(\vec{v} \times \vec{B}\right)$ where $\vec{F}, q, \vec{E}, \vec{v}$ and $\vec{B}$ have their usual meaning.

Statement II: Magnetic force on an electron, moving in Y direction inside field B directed along Z direction acts in negative X-direction.

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 :
68634071997. 1
68634071998. 2
68634071999. 3
68634072000. 4

Question Number : 100 Question Id : 68634018228 Question Type : MCQ Option Shuffling : No 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: लोरेञ्ज बल को SYMBOL से निरुपित किया जाता है जहाँ $\vec{F}, q, \vec{E}, \vec{v}$ एवं $\vec{B}$ अपना प्रचलित अर्थ दर्शाते है।

कथन II: Zके अक्ष के अनुदिश क्षेत्र $\vec{B}$ में Y दिशा में गतिमान इलैक्ट्रान पर लगने वाले चुम्बकीय बल की दिशा ऋणात्मक x अक्ष की दिशा में होती है।

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

1. दोनों कथन I और II सही है
2. दोनों कथन I और II गलत है
3. कथन I सही है, लेकिन कथन II गलत है
4. कथन I गलत है, लेकिन कथन II सही है

Options :
68634071997. 1
68634071998. 2
68634071999. 3
68634072000. 4