National Testing Agency

Question Paper Name :	Mathematics Eng 30th June 2023 Shift 3
Subject Name :	Mathematics Eng
Creation Date :	2023-06-30 23:01:23
Duration :	120
Total Marks :	400
Display Marks:	Yes

Mathematics

Group Number :	1
Group Id :	686340420
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 :	686340835
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 :	6863401391
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 68634042433 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

Before the 1920s, film used to be silent with just the action on the scene along with subtitles. Come the decade of 1920 and the advent of new technology, the filmmakers had the possibility to synchronise a soundtrack with the action on the screen. This included dialogues, musical score and special effects. After this development, the movies were called talkies since the audience was able to hear the actors talk with each other. There was no stopping from then on and the next significant development was the introduction of colour. However, colour movies were somewhat slow to catch on, especially when compared to the addition of sound to the movie. Another reason for this slow acceptance of colour was the considerable developing and processing cost it entailed. With passing of time, and improving technology, the colour processing became as affordable as black-and-white films. More and more movies were filmed in colour to a point when the film makers did away with black-and-white films.

Sub questions

Question Number : 1 Question Id : 68634042434 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Movies that had no sound were called _____ movies

1. dumb
2. mute
3. muffled
4. silent

Options :
686340167601. 1
686340167602. 2
686340167603. 3
686340167604. 4

Question Number : 2 Question Id : 68634042435 Question Type : MCQ Option Shuffling : No 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 acceptance of colour movies was a little slow compared to the _____

1. simileys
2. selfies
3. besties
4. talkies

Options :
686340167605. 1
686340167606. 2
686340167607. 3
686340167608. 4

Question Number : 3 Question Id : 68634042436 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Colour movies were little slow on the uptake owing to their high _____ and _____ costs.

1. processing/ developing
2. reviewing/developing
3. filming / processing
4. filming/developing

Options :
686340167609. 1
686340167610. 2
686340167611. 3
686340167612. 4

Question Number : 4 Question Id : 68634042437 Question Type : MCQ Option Shuffling : No 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 _____ of the soundtrack to the action in the film revolutionized the process of film making.

1. stitching
2. synchronization
3. adhering
4. business

Options :
686340167613. 1
686340167614. 2
686340167615. 3
686340167616. 4

Question Number : 5 Question Id : 68634042438 Question Type : MCQ Option Shuffling : No 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 main idea of the passage?

1. Film making is an easy job.
2. Advancement in technology has had a tremandous impact on film making
3. Silent movies and talkies were destined to become obsolete
4. Colour movies with a soundtrack are better than black-and-white movies with a soundtrack.

Options :

686340167617. 1
686340167618. 2
686340167619. 3
686340167620. 4

Question Id : 68634042433 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

Before the 1920s, film used to be silent with just the action on the scene along with subtitles. Come the decade of 1920 and the advent of new technology, the filmmakers had the possibility to synchronise a soundtrack with the action on the screen. This included dialogues, musical score and special effects. After this development, the movies were called talkies since the audience was able to hear the actors talk with each other. There was no stopping from then on and the next significant development was the introduction of colour. However, colour movies were somewhat slow to catch on, especially when compared to the addition of sound to the movie. Another reason for this slow acceptance of colour was the considerable developing and processing cost it entailed. With passing of time, and improving technology, the colour processing became as affordable as black-and-white films. More and more movies were filmed in colour to a point when the film makers did away with black-and-white films.

Sub questions

Question Number : 1 Question Id : 68634042434 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Movies that had no sound were called _____ movies

1. dumb
2. mute
3. muffled
4. silent

Options :

686340167601. 1
686340167602. 2
686340167603. 3
686340167604. 4

Question Number : 2 Question Id : 68634042435 Question Type : MCQ Option Shuffling : No 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 acceptance of colour movies was a little slow compared to the _____

1. simileys
2. selfies
3. besties
4. talkies

Options :
686340167605. 1
686340167606. 2
686340167607. 3
686340167608. 4

Question Number : 3 Question Id : 68634042436 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Colour movies were little slow on the uptake owing to their high _____ and _____ costs.

1. processing/ developing
2. reviewing/developing
3. filming / processing
4. filming/developing

Options :
686340167609. 1
686340167610. 2
686340167611. 3
686340167612. 4

Question Number : 4 Question Id : 68634042437 Question Type : MCQ Option Shuffling : No 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 _____ of the soundtrack to the action in the film revolutionized the process of film making.

1. stitching
2. synchronization
3. adhering
4. business

Options :
686340167613. 1
686340167614. 2
686340167615. 3

686340167616. 4

Question Number : 5 Question Id : 68634042438 Question Type : MCQ Option Shuffling : No 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 main idea of the passage?

1. Film making is an easy job.

2. Advancement in technology has had a tremandous impact on film making

3. Silent movies and talkies were destined to become obsolete

4. Colour movies with a soundtrack are better than black-and-white movies with a soundtrack.

Options :
686340167617. 1
686340167618. 2
686340167619. 3
686340167620. 4

Sub-Section Number :	2
Sub-Section Id :	6863401392
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 6 Question Id : 68634042439 Question Type : MCQ Option Shuffling : No 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 sequence of the four phrases given below to make a meaningful sentence.

A. the tangled oak treetops that you can barely see the sky
B. moss and lichen drip so thickly from
C. in the southwest of England
D. in Wistman's Wood in Dartmoor National Park

1. A, B, C, D

2. D, C, B, A

3. B, D, A, C

4. C, A, D, B

Options :
686340167621. 1
686340167622. 2
686340167623. 3
686340167624. 4

Question Number : 6 Question Id : 68634042439 Question Type : MCQ Option Shuffling : No 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 sequence of the four phrases given below to make a meaningful sentence.

A. the tangled oak treetops that you can barely see the sky
B. moss and lichen drip so thickly from
C. in the southwest of England
D. in Wistman's Wood in Dartmoor National Park

1. A, B, C, D

2. D, C, B, A

3. B, D, A, C

4. C, A, D, B

Options :
686340167621. 1
686340167622. 2
686340167623. 3
686340167624. 4

Question Number : 7 Question Id : 68634042440 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Which of the following is a one-word substitute for "the art of beautiful handwriting"?

1. Epigraphy

2. Calligraphy

3. Cartography

4. Topography

Options :
686340167625. 1
686340167626. 2
686340167627. 3
686340167628. 4

Question Number : 7 Question Id : 68634042440 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Which of the following is a one-word substitute for "the art of beautiful handwriting"?

1. Epigraphy
2. Calligraphy
3. Cartography
4. Topography

Options :
686340167625. 1
686340167626. 2
686340167627. 3
686340167628. 4

Question Number : 8 Question Id : 68634042441 Question Type : MCQ Option Shuffling : No 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 can be taken to be synonym for 'obstreperous'?

1. objectionable
2. sycophantic
3. disruptive
4. obsequious

Options :
686340167629. 1
686340167630. 2
686340167631. 3
686340167632. 4

Question Number : 8 Question Id : 68634042441 Question Type : MCQ Option Shuffling : No 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 can be taken to be synonym for 'obstreperous'?

1. objectionable
2. sycophantic
3. disruptive
4. obsequious

Options :
686340167629. 1
686340167630. 2

686340167631. 3
686340167632. 4

Question Number : 9 Question Id : 68634042442 Question Type : MCQ Option Shuffling : No 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 pair of prepositions to fill in the blanks of the following sentence:

She walked _____ her friend _____ the rally to support the workers.

1. beside, during
2. besides, beside
3. during, beside
4. with, on

Options :
686340167633. 1
686340167634. 2
686340167635. 3
686340167636. 4

Question Number : 9 Question Id : 68634042442 Question Type : MCQ Option Shuffling : No 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 pair of prepositions to fill in the blanks of the following sentence:

She walked _____ her friend _____ the rally to support the workers.

1. beside, during
2. besides, beside
3. during, beside
4. with, on

Options :
686340167633. 1
686340167634. 2
686340167635. 3
686340167636. 4

Question Number : 10 Question Id : 68634042443 Question Type : MCQ Option Shuffling : No 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 Word		LIST II Type of pronoun	
A.	what	I.	reflexive
B.	myself	II.	relative
C.	his	III.	indefinite
D.	somewhere	IV.	possessive

Choose the most appropriate answer from the options given below:

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

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

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

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

Options :
686340167637. 1
686340167638. 2
686340167639. 3
686340167640. 4

Question Number : 10 Question Id : 68634042443 Question Type : MCQ Option Shuffling : No 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 Word		LIST II Type of pronoun	
A.	what	I.	reflexive
B.	myself	II.	relative
C.	his	III.	indefinite
D.	somewhere	IV.	possessive

Choose the most appropriate answer from the options given below:

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

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

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

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

Options :
686340167637. 1
686340167638. 2
686340167639. 3
686340167640. 4

Question Number : 11 Question Id : 68634042444 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Find the average of first five multiples of 3 and first five multiples of 5.

1. 20

2. 16

3. 12

4. 22

Options :
686340167641. 1
686340167642. 2
686340167643. 3
686340167644. 4

Question Number : 11 Question Id : 68634042444 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Find the average of first five multiples of 3 and first five multiples of 5.

1. 20

2. 16

3. 12

4. 22

Options :
686340167641. 1
686340167642. 2
686340167643. 3
686340167644. 4

Question Number : 12 Question Id : 68634042445 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Simplify

$0.9 - [2.3 - 3.2 - (7.3 - 5.4 - 3.7)]$

1. 0.18

2. 0

3. 1.8

4. –2.6

Options :
686340167645. 1
686340167646. 2
686340167647. 3
686340167648. 4

Question Number : 12 Question Id : 68634042445 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Simplify

$0.9 - [2.3 - 3.2 - (7.3 - 5.4 - 3.7)]$

1. 0.18

2. 0

3. 1.8

4. –2.6

Options :
686340167645. 1
686340167646. 2
686340167647. 3
686340167648. 4

Question Number : 13 Question Id : 68634042446 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Perimeter of a square is same as perimeter of a rectangle. If sides of rectangle are in the ratio 17:11, then find the ratio in the areas of the square and the rectangle.

1. 17:11

2. 10:9

3. 114:113

4. 196:187

Options :
686340167649. 1
686340167650. 2
686340167651. 3
686340167652. 4

Question Number : 13 Question Id : 68634042446 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Perimeter of a square is same as perimeter of a rectangle. If sides of rectangle are in the ratio 17:11, then find the ratio in the areas of the square and the rectangle.

1. 17:11

2. 10:9

3. 114:113

4. 196:187

Options :
686340167649. 1
686340167650. 2
686340167651. 3
686340167652. 4

Question Number : 14 Question Id : 68634042447 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

On a certain sum of money lent at 16% per annum, the difference between the compound interest for 1year, payable half yearly and the simple interest for 1 year is ₹ 56. The sum is:

1. ₹ 5,780

2. ₹ 7,805

3. ₹ 7,850

4. ₹ 8,750

Options :
686340167653. 1
686340167654. 2
686340167655. 3
686340167656. 4

Question Number : 14 Question Id : 68634042447 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

On a certain sum of money lent at 16% per annum, the difference between the compound interest for 1year, payable half yearly and the simple interest for 1 year is ₹ 56. The sum is:

1. ₹ 5,780
2. ₹ 7,805
3. ₹ 7,850
4. ₹ 8,750

Options :
686340167653. 1
686340167654. 2
686340167655. 3
686340167656. 4

Question Number : 15 Question Id : 68634042448 Question Type : MCQ Option Shuffling : No 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 age of three boys is 22 years. Eight times the age of the youngest of them is 3 times the sum of the ages of the other two boys. Find the age of the eldest of them if he is 8 years older to the youngest of them.

1. 24 years
2. 25 years
3. 26 years
4. 28 years

Options :
686340167657. 1
686340167658. 2
686340167659. 3
686340167660. 4

Question Number : 15 Question Id : 68634042448 Question Type : MCQ Option Shuffling : No 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 age of three boys is 22 years. Eight times the age of the youngest of them is 3 times the sum of the ages of the other two boys. Find the age of the eldest of them if he is 8 years older to the youngest of them.

1. 24 years

2. 25 years

3. 26 years

4. 28 years

Options :
686340167657. 1
686340167658. 2
686340167659. 3
686340167660. 4

Question Number : 16 Question Id : 68634042449 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Given below is the statement followed by two conclusions numbered I and II.

Statement : Our securities investment carry market risk. Consult your investment advisor or agent before investing.

Conclusions I : One should not invest in securities.

II : The investment advisor calculates the market risk with certainty.

Identify which of the conclusions follows the given statement:

1. Only II follows

2. Only I follows

3. Both I and II follows

4. Either I or II follows

Options :
686340167661. 1
686340167662. 2
686340167663. 3
686340167664. 4

Question Number : 16 Question Id : 68634042449 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Given below is the statement followed by two conclusions numbered I and II.

Statement : Our securities investment carry market risk. Consult your investment advisor or agent before investing.

Conclusions I : One should not invest in securities.

II : The investment advisor calculates the market risk with certainty.

Identify which of the conclusions follows the given statement:

1. Only II follows
2. Only I follows
3. Both I and II follows
4. Either I or II follows

Options :

686340167661. 1
686340167662. 2
686340167663. 3
686340167664. 4

Question Number : 17 Question Id : 68634042450 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Find the correct water image of the given figure (X)

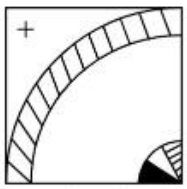
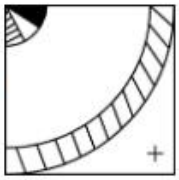
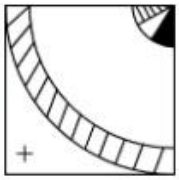
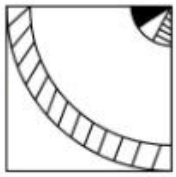
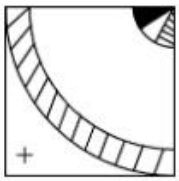


Fig (*x*)

1. 

2. 

3. 

4. 

Options :

686340167665. 1

686340167666. 2

686340167667. 3

686340167668. 4

Question Number : 17 Question Id : 68634042450 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Find the correct water image of the given figure (X)

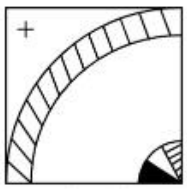
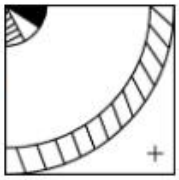
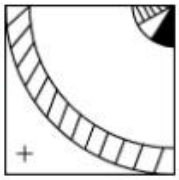
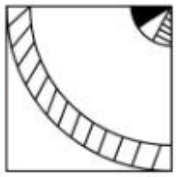
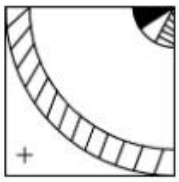


Fig (*x*)

1. 

2. 

3. 

4. 

Options :

686340167665. 1

686340167666. 2

686340167667. 3

686340167668. 4

Question Number : 18 Question Id : 68634042451 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

In a certain coding system, if 2 = 5, 4 = 18, 6 = 39 then 10 = ?

1. 105

2. 104

3. 89

4. 54

Options :

686340167669. 1
686340167670. 2
686340167671. 3
686340167672. 4

Question Number : 18 Question Id : 68634042451 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

In a certain coding system, if 2 = 5, 4 = 18, 6 = 39 then 10 = ?

1. 105
2. 104
3. 89
4. 54

Options :
686340167669. 1
686340167670. 2
686340167671. 3
686340167672. 4

Question Number : 19 Question Id : 68634042452 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Find the mirror image of the given combination

"AN54WMG3"

1. ƐƃMW4ƧИA
2. ƐƃWM4ƧNA
3. 3GWMㄣƧИA
4. ƐƃWM4ƧИA

Options :
686340167673. 1
686340167674. 2
686340167675. 3
686340167676. 4

Question Number : 19 Question Id : 68634042452 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Find the mirror image of the given combination

"AN54WMG3"

1. ƐƃMW4ƧИA

2. ƐƃWM4ƧNA

3. 3GWMЧƧИA

4. ƐƆWMЧƧИA

Options :

686340167673. 1

686340167674. 2

686340167675. 3

686340167676. 4

Question Number : 20 Question Id : 68634042453 Question Type : MCQ Option Shuffling : No 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 you were born on 6th November, 1983, which was a Sunday, then on which day of the week does your birthday fall in 1984?

1. Monday

2. Wednesday

3. Tuesday

4. Friday

Options :

686340167677. 1

686340167678. 2

686340167679. 3

686340167680. 4

Question Number : 20 Question Id : 68634042453 Question Type : MCQ Option Shuffling : No 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 you were born on 6th November, 1983, which was a Sunday, then on which day of the week does your birthday fall in 1984?

1. Monday

2. Wednesday

3. Tuesday

4. Friday

Options :
686340167677. 1
686340167678. 2
686340167679. 3
686340167680. 4

Question Number : 21 Question Id : 68634042454 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Satellite having the same orbital period as the period of rotation of the earth about its own axis is known as _____

1. Polar Satellite

2. Stationary Satellite

3. Geostationary Satellite

4. INSAT

Options :
686340167681. 1
686340167682. 2
686340167683. 3
686340167684. 4

Question Number : 21 Question Id : 68634042454 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Satellite having the same orbital period as the period of rotation of the earth about its own axis is known as _____

1. Polar Satellite

2. Stationary Satellite

3. Geostationary Satellite

4. INSAT

Options :

686340167681. 1

686340167682. 2

686340167683. 3

686340167684. 4

Question Number : 22 Question Id : 68634042455 Question Type : MCQ Option Shuffling : No 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 Aluminium company		**LIST II Location**
A.	BALCO	I.	HIRAKUND
B.	HINDALCO	II.	KORBA
C.	Indian Aluminum Company	III.	KORAPUT
D.	NALCO	IV.	RENUKOAT

Choose the most appropriate answer from the options given below:

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

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

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

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

Options :

686340167685. 1

686340167686. 2

686340167687. 3

686340167688. 4

Question Number : 22 Question Id : 68634042455 Question Type : MCQ Option Shuffling : No 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 Aluminium company		LIST II Location	
A.	BALCO	I.	HIRAKUND
B.	HINDALCO	II.	KORBA
C.	Indian Aluminum Company	III.	KORAPUT
D.	NALCO	IV.	RENUKOAT

Choose the most appropriate answer from the options given below:

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

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

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

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

Options :

686340167685. 1

686340167686. 2

686340167687. 3

686340167688. 4

Question Number : 23 Question Id : 68634042456 Question Type : MCQ Option Shuffling : No 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 speaker can stop a member of Parliament from speaking and let another member speak. This phenomenon is known as _____

1. Decorum

2. Crossing the floor

3. Interpellation

4. Yielding the floor

Options :

686340167689. 1

686340167690. 2

686340167691. 3

686340167692. 4

Question Number : 23 Question Id : 68634042456 Question Type : MCQ Option Shuffling : No 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 speaker can stop a member of Parliament from speaking and let another member speak. This phenomenon is known as _____

1. Decorum

2. Crossing the floor

3. Interpellation

4. Yielding the floor

Options :

686340167689. 1

686340167690. 2

686340167691. 3

686340167692. 4

Question Number : 24 Question Id : 68634042457 Question Type : MCQ Option Shuffling : No 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 Religious Institution		**LIST II Founder**	
A.	Arya Samaj	I.	Gopal Krishna Gokhle
B.	Ramakrishna Mission	II.	N.M.Joshi
C.	Servant of Indian society	III.	Dayanand Saraswati
D.	Social Sevice League	IV.	Swami Vivekananda

Choose the most appropriate answer from the options given below:

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

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

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

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

Options :

686340167693. 1

686340167694. 2

686340167695. 3

686340167696. 4

Question Number : 24 Question Id : 68634042457 Question Type : MCQ Option Shuffling : No 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 Religious Institution		LIST II Founder	
A.	Arya Samaj	I.	Gopal Krishna Gokhle
B.	Ramakrishna Mission	II.	N.M.Joshi
C.	Servant of Indian society	III.	Dayanand Saraswati
D.	Social Sevice League	IV.	Swami Vivekananda

Choose the most appropriate answer from the options given below:

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

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

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

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

Options :
686340167693. 1
686340167694. 2
686340167695. 3
686340167696. 4

Question Number : 25 Question Id : 68634042458 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Point of origin of earthquake wave is known as _____

1. Seismic zone

2. Focus

3. Photosphere

4. Epicentre

Options :
686340167697. 1
686340167698. 2
686340167699. 3
686340167700. 4

Question Number : 25 Question Id : 68634042458 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Point of origin of earthquake wave is known as _____

1. Seismic zone

2. Focus

3. Photosphere

4. Epicentre

Options :
686340167697. 1
686340167698. 2
686340167699. 3
686340167700. 4

Part B: Mathematics

Section Id :	686340836
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 :	6863401393
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 26 Question Id : 68634042459 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Let $f : Z \to Z_2$ be a homomorphism of groups defined by

$$f(a) = \begin{cases} 0, & \text{if } a \text{ is even} \\ 1, & \text{if } a \text{ is odd} \end{cases}$$

then Kerf is :

1. The set of all odd integers

2. The set of all even integers

3. The set of all natural numbers

4. The set of all real numbers

Options :

686340167701. 1
686340167702. 2
686340167703. 3
686340167704. 4

Question Number : 26 Question Id : 68634042459 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

माना $f : Z \to Z_2$ समूहों की समाकारिता है जो $f(a) = \begin{cases} 0, & \text{यदि } a \text{ सम है} \\ 1, & \text{यदि } a \text{ विषम है} \end{cases}$ द्वारा परिभाषित है,

तब Kerf है:

1. सभी विषम पूर्णांकों का समुच्चय
2. सभी सम पूर्णांकों का समुच्चय
3. सभी प्राकृतिक संख्याओं का समुच्चय
4. सभी वास्तविक संख्याओं का समुच्चय

Options :
686340167701. 1
686340167702. 2
686340167703. 3
686340167704. 4

Question Number : 27 Question Id : 68634042460 Question Type : MCQ Option Shuffling : No 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 order of 16 in $(\mathbb{Z}_{24}, +_{24})$ is:

1. 2
2. 3
3. 4
4. 6

Options :
686340167705. 1
686340167706. 2
686340167707. 3
686340167708. 4

Question Number : 27 Question Id : 68634042460 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

$(\mathbb{Z}_{24}, +_{24})$ में 16 की कोटि है:

1. 2

2. 3

3. 4

4. 6

Options :
686340167705. 1
686340167706. 2
686340167707. 3
686340167708. 4

Question Number : 28 Question Id : 68634042461 Question Type : MCQ Option Shuffling : No 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 one of the following is correct :-

1. Z is an ideal of Q

2. Z is an ideal of R

3. Q is an ideal of R

4. nZ is an ideal of Z, where n is an integer

Options :
686340167709. 1
686340167710. 2
686340167711. 3
686340167712. 4

Question Number : 28 Question Id : 68634042461 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

निम्नलिखित में से कौन सा एक सही है -

1. Z, Q का एक गुणजावली है

2. Z, R का एक गुणजावली है

3. Q, R का एक गुणजावली है

4. nZ, Z का एक गुणजावली है, जहाँ n एक पूर्णांक है

Options :
686340167709. 1

686340167710. 2
686340167711. 3
686340167712. 4

Question Number : 29 Question Id : 68634042462 Question Type : MCQ Option Shuffling : No 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 order of the given permutation $\begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 2 & 4 & 6 & 1 & 7 & 3 & 8 & 9 & 5 \end{pmatrix}$ is :

1. 4

2. 8

3. 12

4. 6

Options :
686340167713. 1
686340167714. 2
686340167715. 3
686340167716. 4

Question Number : 29 Question Id : 68634042462 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

दिए गए क्रमचय $\begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 2 & 4 & 6 & 1 & 7 & 3 & 8 & 9 & 5 \end{pmatrix}$ की कोटि है -

1. 4

2. 8

3. 12

4. 6

Options :
686340167713. 1
686340167714. 2
686340167715. 3
686340167716. 4

Question Number : 30 Question Id : 68634042463 Question Type : MCQ Option Shuffling : No 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 he following is incorrect ?

1. Z is a subring of the ring $(Q, +, \cdot)$ of rational numbers

2. Q is a subring of the ring $(R, +, \cdot)$ of real numbers

3. C is a subring of the ring $(R, +, \cdot)$ of real numbers

4. Set E of even integers is a subring of the ring $(Z, +, \cdot)$ of integers

Options :
686340167717. 1
686340167718. 2
686340167719. 3
686340167720. 4

Question Number : 30 Question Id : 68634042463 Question Type : MCQ Option Shuffling : No 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 गलत है -

1. Z परिमेय संख्याओं के वलय $(Q, +, \cdot)$ का उपवलय है

2. Q वास्तविक संख्याओं के वलय $(R, +, \cdot)$ का उपवलय है

3. C वास्तविक संख्याओं के वलय $(R, +, \cdot)$ का उपवलय है

4. सम पूर्णांकों का समुच्चय E पूर्णांकों के वलय $(Z, +, \cdot)$ का उपवलय है

Options :
686340167717. 1
686340167718. 2
686340167719. 3
686340167720. 4

Question Number : 31 Question Id : 68634042464 Question Type : MCQ Option Shuffling : No 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 : Every cyclic group is abelian

Statement II : (Z,+) is a cyclic group with 1 and -1 as the only generators

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 :
686340167721. 1
686340167722. 2
686340167723. 3
686340167724. 4

Question Number : 31 Question Id : 68634042464 Question Type : MCQ Option Shuffling : No 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 : प्रत्येक चक्रीय समूह आबेली है।

कथन II : (Z,+) एक चक्रीय समूह है जिसके जनक केवल 1 तथा - 1 हैं ।

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

1. कथन I और II दोनों सही हैं

2. कथन I और II दोनों गलत हैं

3. कथन I सही है , लेकिन कथन II गलत है

4. कथन I गलत है , लेकिन कथन II सही है

Options :
686340167721. 1
686340167722. 2
686340167723. 3
686340167724. 4

Question Number : 32 Question Id : 68634042465 Question Type : MCQ Option Shuffling : No 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 : Let G a finite group and H a subgroup of G. Then , the order of H is a divisor of the order of G. That is , |H| divides |G|

Statement II : Let a be an element in a finite group G . Then , O(a) divides |G|

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 :
686340167725. 1
686340167726. 2
686340167727. 3
686340167728. 4

Question Number : 32 Question Id : 68634042465 Question Type : MCQ Option Shuffling : No 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 : माना G एक परिमित समूह है तथा H, G का उपसमूह है, तब , H की कोटि G की कोटि की भाजक है | अर्थात|H|, |G| को विभाजित करता है

कथन II : माना a परिमित समूह G में एक अवयव है , तब 0(a), |G| को विभाजित करता है |

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

1. कथन I और II दोनों सत्य हैं

2. कथन I और II दोनों असत्य हैं

3. कथन I सत्य है , लेकिन कथन II असत्य है

4. कथन I असत्य है , लेकिन कथन II सत्य है

Options :

686340167725. 1
686340167726. 2
686340167727. 3
686340167728. 4

Question Number : 33 Question Id : 68634042466 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Let $F : R^4 \rightarrow R^3$ be the linear mapping defined by :

$F(x,y,z,t) = (x-y+z+t, 2x-2y+3z+4t, 3x-3y+4z+5t)$, then nullity (F) equals

1. 0
2. 1
3. 2
4. 3

Options :
686340167729. 1
686340167730. 2
686340167731. 3
686340167732. 4

Question Number : 33 Question Id : 68634042466 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

माना $F : R^4 \rightarrow R^3$ एक रैखिक प्रतिचित्रण है जो निम्न प्रकार परिभाषित है :

$F(x,y,z,t) = (x-y+z+t, 2x-2y+3z+4t, 3x-3y+4z+5t)$, तब शून्यता (F) बराबर है -

1. 0
2. 1
3. 2
4. 3

Options :
686340167729. 1
686340167730. 2
686340167731. 3
686340167732. 4

Question Number : 34 Question Id : 68634042467 Question Type : MCQ Option Shuffling : No 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 rank of matrix $A = \begin{bmatrix} 1 & 3 & 1 & -2 & -3 \\ 1 & 4 & 3 & -1 & -4 \\ 2 & 3 & -4 & -7 & -3 \\ 3 & 8 & 1 & -7 & -8 \end{bmatrix}$

1. 4

2. 3

3. 2

4. 1

Options :

686340167733. 1
686340167734. 2
686340167735. 3
686340167736. 4

Question Number : 34 Question Id : 68634042467 Question Type : MCQ Option Shuffling : No 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 $A = \begin{bmatrix} 1 & 3 & 1 & -2 & -3 \\ 1 & 4 & 3 & -1 & -4 \\ 2 & 3 & -4 & -7 & -3 \\ 3 & 8 & 1 & -7 & -8 \end{bmatrix}$ की जाति है -

1. 4

2. 3

3. 2

4. 1

Options :

686340167733. 1
686340167734. 2
686340167735. 3
686340167736. 4

Question Number : 35 Question Id : 68634042468 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let $A=\begin{bmatrix}2 & 3\\ 4 & -1\end{bmatrix}$, then the matrix B that represents the linear operator A relative to the basis $S=\{u_1,u_2\}=\left\{[1,3]^T,[2,5]^T\right\}$, is:

1. $\begin{bmatrix}53 & 89\\ 32 & 54\end{bmatrix}$
2. $\begin{bmatrix}-53 & -89\\ 32 & 54\end{bmatrix}$
3. $\begin{bmatrix}53 & 55\\ 98 & 23\end{bmatrix}$
4. $\begin{bmatrix}53 & -23\\ 89 & 45\end{bmatrix}$

Options :

686340167737. 1
686340167738. 2
686340167739. 3
686340167740. 4

Question Number : 35 Question Id : 68634042468 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

माना $A=\begin{bmatrix}2 & 3\\ 4 & -1\end{bmatrix}$, तब आधार $S=\{u_1,u_2\}=\left\{[1,3]^T,[2,5]^T\right\}$ के सापेक्ष रेखीय प्रचालक A को दर्शाने वाली आव्यूह B है -

1. $\begin{bmatrix}53 & 89\\ 32 & 54\end{bmatrix}$
2. $\begin{bmatrix}-53 & -89\\ 32 & 54\end{bmatrix}$
3. $\begin{bmatrix}53 & 55\\ 98 & 23\end{bmatrix}$
4. $\begin{bmatrix}53 & -23\\ 89 & 45\end{bmatrix}$

Options :

686340167737. 1
686340167738. 2
686340167739. 3
686340167740. 4

Question Number : 36 Question Id : 68634042469 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Consider the following linear equations :-

$3x+7y+z=0$

$5x+9y-z=0$

$9x+13y+kz=0$

For what values of k the above system of equations has an infinite number of solutions -

1. 2
2. -5
3. -7
4. 6

Options :
686340167741. 1
686340167742. 2
686340167743. 3
686340167744. 4

Question Number : 36 Question Id : 68634042469 Question Type : MCQ Option Shuffling : No 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 रेखिक समीकरण निकाय पर विचार कीजिए

$3x+7y+z=0$
$5x+9y-z=0$
$9x+13y+kz=0$

k के किस मान के लिए समीकरणों के इस निकाय के अनन्त हल हैं -

1. 2
2. -5
3. -7
4. 6

Options :
686340167741. 1
686340167742. 2
686340167743. 3
686340167744. 4

Question Number : 37 Question Id : 68634042470 Question Type : MCQ Option Shuffling : No 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 $A = \begin{bmatrix} 2 & 2 \\ 1 & 3 \end{bmatrix}$, then sum of eigenvalues of A is 3 .

Statement II : If λ is an eigenvalue of T, where T is invertible linear operator, then λ^{-1} is an eigenvalue of T^{-1}

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 :
686340167745. 1
686340167746. 2
686340167747. 3
686340167748. 4

Question Number : 37 Question Id : 68634042470 Question Type : MCQ Option Shuffling : No 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 $A = \begin{bmatrix} 2 & 2 \\ 1 & 3 \end{bmatrix}$, तब A के अभिलक्षणिक मानों का योग 3 है |

कथन II : यदि T का अभिलक्षणिक मान λ है, जहाँ T व्युत्क्रमणीय रेखीय प्रचालक है, तब T^{-1} का अभिलक्षणिक मान λ^{-1} है |

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

1. कथन I और II दोनों सत्य हैं

2. कथन I और II दोनों असत्य हैं

3. कथन I सत्य है , लेकिन कथन II असत्य है

4. कथन I असत्य है , लेकिन कथन II सत्य है

Options :

686340167745. 1
686340167746. 2
686340167747. 3
686340167748. 4

Question Number : 38 Question Id : 68634042471 Question Type : MCQ Option Shuffling : No 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. Suppose U and W are finite - dimensional subspace of a vector space V, then $\dim(U+W) = \dim U + \dim W - \dim(U \cap W)$
B. let $V = R^3, W = \{(a,b,c : a \geq 0)\}$, then W is a subspace of V
C. If $u = (1,2), v = (3,-5)$, then u and v are linearly independent
D. (1,1,1) and (1,0,1) form a basis of R^3

choose the most appropriate answer from the options given below

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

Options :
686340167749. 1
686340167750. 2
686340167751. 3
686340167752. 4

Question Number : 38 Question Id : 68634042471 Question Type : MCQ Option Shuffling : No 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. मान लो U और W सदिश समष्टि V के परीमित विमीय उपसमिष्ट हैं , तब $\dim(U+W) = \dim U + \dim W - \dim(U \cap W)$
B. माना $V = R^3, W = \{(a,b,c : a \geq 0)\}$, तो V की उपसमिष्ट W है
C. यदि $u = (1,2), v = (3,-5)$, तब u तथा v रैखिकीय स्वतंत्र है |
D. (1,1,1) तथा (1,0,1), R^3 का आधार बनाते हैं |

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

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

Options :

686340167749. 1

686340167750. 2

686340167751. 3

686340167752. 4

Question Number : 39 Question Id : 68634042472 Question Type : MCQ Option Shuffling : No 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.	A square matrix A is said to be symmetric if	I.	A=A′
B.	A square matrix A is said to be skew symmetric if	II.	A= -A′
C.	If A is any square matrix then	III.	A +A′ is a symmetric matrix
D.	If A is any square matrix then	IV.	A-A′ is a skew symmetric matrix

Choose the correct answer from the options given below:

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

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

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

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

Options :

686340167753. 1

686340167754. 2

686340167755. 3

686340167756. 4

Question Number : 39 Question Id : 68634042472 Question Type : MCQ Option Shuffling : No 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 के साथ मिलान कीजिए :

LIST I		LIST II	
A.	वर्ग आव्यूह A सममित कहलाती है यदि	I.	A=A'
B.	वर्ग आव्यूह A विषम - सममित कहलाती है यदि	II.	A= -A'
C.	यदि A कोई वर्ग आव्यूह है तब	III.	A +A' सममित आव्यूह है
D.	यदि A कोई वर्ग आव्यूह है तब	IV.	A-A' विषम-सममित आव्यूह है

निम्नलिखित विकल्पों में से सही उत्तर का चयन कीजिए :

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

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

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

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

Options :
686340167753. 1
686340167754. 2
686340167755. 3
686340167756. 4

Question Number : 40 Question Id : 68634042473 Question Type : MCQ Option Shuffling : No 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 $f(x,y)=x^2+y^2+6x+12$, then minimum value of f is:

1. 39

2. 3

3. 12

4. 8

Options :
686340167757. 1
686340167758. 2
686340167759. 3
686340167760. 4

Question Number : 40 Question Id : 68634042473 Question Type : MCQ Option Shuffling : No 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 $f(x,y)=x^2+y^2+6x+12$, तब f का न्यूनतम मान है :

1. 39

2. 3

3. 12

4. 8

Options :

686340167757. 1
686340167758. 2
686340167759. 3
686340167760. 4

Question Number : 41 Question Id : 68634042474 Question Type : MCQ Option Shuffling : No 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 function $f(x,y)=\begin{cases}\frac{x^3-y^3}{x^2+y^2}, when\ x\neq 0, y\neq 0\\ k \quad\quad , when\ x=0, y=0\end{cases}$ is continuous at (0,0) , then k is equal to :

1. 2

2. 3

3. 1

4. 0

Options :

686340167761. 1
686340167762. 2
686340167763. 3
686340167764. 4

Question Number : 41 Question Id : 68634042474 Question Type : MCQ Option Shuffling : No 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 $f(x,y)=\begin{cases}\frac{x^3-y^3}{x^2+y^2}, & \text{जब } x\neq 0, y\neq 0\\ k, & \text{जब } x=0, y=0\end{cases}$ $(0,0)$ पर सतत है, तब k बराबर है :

1. 2

2. 3

3. 1

4. 0

Options :

686340167761. 1
686340167762. 2
686340167763. 3
686340167764. 4

Question Number : 42 Question Id : 68634042475 Question Type : MCQ Option Shuffling : No 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

Homogeneous function		Degree	
A.	$f(x,y)=\frac{x^{\frac{1}{3}}+y^{\frac{1}{3}}}{x^{\frac{1}{2}}+y^{\frac{1}{2}}}$	I.	3
B.	$f(x,y)=\frac{x+y}{\sqrt{x}+\sqrt{y}}$	II.	$\frac{1}{2}$
C.	$f(x,y)=\frac{x^4+y^4}{x+y}$	III.	1
D.	$f(x,y)=\frac{\sqrt{x^3+y^3}}{\sqrt{x}+\sqrt{y}}$	IV.	$-\frac{1}{6}$

Choose the correct answer from the options given below:

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

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

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

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

Options :

686340167765. 1
686340167766. 2
686340167767. 3

686340167768. 4

Question Number : 42 Question Id : 68634042475 Question Type : MCQ Option Shuffling : No 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

समघात फलन		घात	
A.	$f(x,y)=\frac{x^{\frac{1}{3}}+y^{\frac{1}{3}}}{x^{\frac{1}{2}}+y^{\frac{1}{2}}}$	I.	3
B.	$f(x,y)=\frac{x+y}{\sqrt{x}+\sqrt{y}}$	II.	$\frac{1}{2}$
C.	$f(x,y)=\frac{x^4+y^4}{x+y}$	III.	1
D.	$f(x,y)=\frac{\sqrt{x^3+y^3}}{\sqrt{x}+\sqrt{y}}$	IV.	$-\frac{1}{6}$

निम्नलिखित विकल्पों में से सही उत्तर का चयन कीजिए :

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

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

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

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

Options :
686340167765. 1
686340167766. 2
686340167767. 3
686340167768. 4

Question Number : 43 Question Id : 68634042476 Question Type : MCQ Option Shuffling : No 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 $u = \sin^{-1}\left[\frac{x+y}{\sqrt{x}+\sqrt{y}}\right]$ and $x^2u_{xx} + 2xyu_{xy} + y^2u_{yy} = \frac{-\sin u \cos 2u}{m^2 \cos^3 u}$ then , m is equal to:

1. 2

2. 4

3. -2

4. 1

Options :

686340167769. 1
686340167770. 2
686340167771. 3
686340167772. 4

Question Number : 43 Question Id : 68634042476 Question Type : MCQ Option Shuffling : No 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 $u = \sin^{-1}\left[\frac{x+y}{\sqrt{x}+\sqrt{y}}\right]$ तथा $x^2u_{xx} + 2xyu_{xy} + y^2u_{yy} = \frac{-\sin u \cos 2u}{m^2 \cos^3 u}$ तब m बराबर है:

1. 2

2. 4

3. -2

4. 1

Options :

686340167769. 1
686340167770. 2
686340167771. 3
686340167772. 4

Question Number : 44 Question Id : 68634042477 Question Type : MCQ Option Shuffling : No 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 infinite series $\sum_{n=1}^{\infty}\left(1+\frac{1}{n}\right)^{-n^2}$ is:

1. Convergent
2. Divergent
3. Oscillating finitely
4. Oscillating infinitely

Options :
686340167773. 1
686340167774. 2
686340167775. 3
686340167776. 4

Question Number : 44 Question Id : 68634042477 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

अनन्त श्रेणी $\sum_{n=1}^{\infty}\left(1+\frac{1}{n}\right)^{-n^2}$ है :

1. अभिसारी
2. अपसारी
3. सीमित दोलनी
4. असीमित दोलनी

Options :
686340167773. 1
686340167774. 2
686340167775. 3
686340167776. 4

Question Number : 45 Question Id : 68634042478 Question Type : MCQ Option Shuffling : No 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 infinite series $\sum_{n=1}^{\infty} \frac{3^n}{4^{n+2}}$ is:

1. Divergent to ∞
2. Converges to $\frac{1}{16}$
3. Converges to $\frac{3}{16}$
4. Converges to $\frac{1}{4}$

Options :
686340167777. 1
686340167778. 2
686340167779. 3
686340167780. 4

Question Number : 45 Question Id : 68634042478 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

अनन्त श्रेणी $\sum_{n=1}^{\infty} \frac{3^n}{4^{n+2}}$ है:

1. ∞ पर अपसारी
2. $\frac{1}{16}$ पर अभिसरित
3. $\frac{3}{16}$ पर अभिसरित
4. $\frac{1}{4}$ पर अभिसरित

Options :
686340167777. 1
686340167778. 2
686340167779. 3
686340167780. 4

Question Number : 46 Question Id : 68634042479 Question Type : MCQ Option Shuffling : No 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 f and g are two continuous function on their common domain D, then

A. f + g is continuous on D
B. $f - g$ is continuous on D
C. $\frac{f}{g}$ is continuous on D $-\{x : g(x) = 0\}$
D. αf is continuous on D, where α is any real number
E. $\frac{1}{f}$ is continuous on $D - \{x : f(x) = 0\}$

choose the correct answer from the options given below

1. A, B, D, E

2. B, C, D, E

3. A, B ,C ,E

4. A ,B, C ,D

Options :
686340167781. 1
686340167782. 2
686340167783. 3
686340167784. 4

Question Number : 46 Question Id : 68634042479 Question Type : MCQ Option Shuffling : No 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 f तथा g अपने उभयनिष्ठ प्रान्त D में दो सतत फलन हैं , तब

A. $f + g$, D पर सतत है

B. $f - g$, D पर सतत है
C. $\frac{f}{g}$, D $-\{x : g(x) = 0\}$ पर सतत है
D. αf, D पर सतत है जहाँ α कोई वास्तविक संख्या है
E. $\frac{1}{f}$, $D - \{x : f(x) = 0\}$ पर सतत है

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए

1. A, B, D, E

2. B, C, D, E

3. A, B ,C ,E

4. A ,B, C ,D

Options :
686340167781. 1

686340167782. 2
686340167783. 3
686340167784. 4

Question Number : 47 Question Id : 68634042480 Question Type : MCQ Option Shuffling : No 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. $f(x)$ be a real function defined on an interval [a,b]. $f(x)$ have to be maximum value in[a,b], if there exists a points c in [a,b] such that $f(x) \geq f(c)$ for all $x \in [a,b]$
B. Let $f(x)$ be a real function defined on an interval [a,b]. $f(x)$ is said to have the minimum value in interval [a,b], if there exists a point $c \in [a,b]$ such that $f(x) \leq f(c)$ for all $x \in [a,b]$
C. $f(x) = -(x-1)^2 + 2$, $x \in R$, max value = 2, min value does not exist
D. $f(x) = -|x+1| + 3$, $x \in R$, Max. values = 3, min value = 2

choose the correct answer from the options given below:

1. A, B, C

2. B, C, D

3. A, C

4. A, B, C, D

Options :
686340167785. 1
686340167786. 2
686340167787. 3
686340167788. 4

Question Number : 47 Question Id : 68634042480 Question Type : MCQ Option Shuffling : No 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. माना $f(x)$ अन्तराल $[a,b]$ पर परिभाषित वास्तविक फलन है। . $f(x)$ $[a,b]$ में उच्चतम मान रखता है यदि $[a,b]$ में बिंदु c इस प्रकार विद्यमान है कि $f(x) \geq f(c)$, x सभी , $x \in [a,b]$ के लिए

B. माना $f(x)$ अन्तराल $[a,b]$ पर परिभाषित वास्तविक फलन है | $f(x)$, $[a,b]$ में निम्नतम मान रखता है यदि बिंदु c ∈ [a,b] में इस प्रकार विद्यमान है, $f(x) \leq f(c)$, सभी $x \in [a,b]$ के लिए

C. $f(x) = -(x-1)^2 + 2$, x ∈ R, उच्चतम मान = 2 , निम्नतम मान अस्तित्व मे नहीं है

D. $f(x) = -|x+1| + 3$, $x \in R$ उच्चतम मान = 3 , न्यूनतम मान= 2

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए

1. A, B, C

2. B, C, D

3. A, C

4. A, B, C, D

Options :

686340167785. 1

686340167786. 2

686340167787. 3

686340167788. 4

Question Number : 48 Question Id : 68634042481 Question Type : MCQ Option Shuffling : No 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.	Series $\sum_{n=1}^{\infty} \frac{1}{n^{\frac{3}{2}}}$ is	I.	Monotone and convergent both
B.	Series $\sum_{n=1}^{\infty} \frac{3^n}{n^2}$ is	II.	e^{-2}
C.	$\lim_{n\to\infty}\left(\frac{n+1}{n+2}\right)^{2n+1}$	III.	Divergent to ∞
D.	seqence $x_n = 1+\frac{1}{2!}+\frac{1}{3!}+.....+\frac{1}{n!}$ *for* $n \in N$	IV.	Convergent

Choose the correct answer from the options given below:

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

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

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

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

Options :

686340167789. 1

686340167790. 2

686340167791. 3

686340167792. 4

Question Number : 48 Question Id : 68634042481 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

सूची I के साथ सूची II का मिलान कीजिए

सूची I		सूची II	
A.	श्रेणी $\sum_{n=1}^{\infty}\frac{1}{n^{\frac{3}{2}}}$	I.	एकदिष्ट तथा अभिसारी दोनों
B.	श्रेणी $\sum_{n=1}^{\infty}\frac{3^n}{n^2}$ है	II.	e^{-2}
C.	$\lim_{n\to\infty}\left(\frac{n+1}{n+2}\right)^{2n+1}$ है	III.	अपसारी ∞ पर
D.	अनुक्रम $x_n = 1+\frac{1}{2!}+\frac{1}{3!}+.....+\frac{1}{n!}$ $for\ n \in N$	IV.	अभिसारी

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए

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

Options :
686340167789. 1
686340167790. 2
686340167791. 3
686340167792. 4

Question Number : 49 Question Id : 68634042482 Question Type : MCQ Option Shuffling : No 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 set of all points, where the function $f(x)=\frac{x}{(1+|x|)}$ is differentiable , is

1. $(0,\infty)$
2. $(-\infty,\infty)$
3. $(-\infty,0)\cup(0,\infty)$
4. $[-1,0]$

Options :
686340167793. 1
686340167794. 2
686340167795. 3
686340167796. 4

Question Number : 49 Question Id : 68634042482 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

सभी बिन्दुओं का समुच्चय, जहाँ फलन $f(x)=\frac{x}{(1+|x|)}$ अवकलनीय है, है -

1. $(0,\infty)$
2. $(-\infty,\infty)$
3. $(-\infty,0)\cup(0,\infty)$
4. $[-1,0]$

Options :
686340167793. 1
686340167794. 2
686340167795. 3
686340167796. 4

Question Number : 50 Question Id : 68634042483 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

The value of $\lim_{n\to\infty}\frac{1}{n}\left[1+2^{\frac{1}{2}}+3^{\frac{1}{3}}+...n^{\frac{1}{n}}\right]$ is

1. 0
2. -1
3. 1
4. 2

Options :
686340167797. 1
686340167798. 2
686340167799. 3
686340167800. 4

Question Number : 50 Question Id : 68634042483 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

$\lim_{n\to\infty}\frac{1}{n}\left[1+2^{\frac{1}{2}}+3^{\frac{1}{3}}+...n^{\frac{1}{n}}\right]$ का मान है :-

1. 0

2. -1

3. 1

4. 2

Options :

686340167797. 1
686340167798. 2
686340167799. 3
686340167800. 4

Question Number : 51 Question Id : 68634042484 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

The value of C in Rolle's theorem where $-\frac{\pi}{2}<C<\frac{\pi}{2}$ and $f(x)=\cos x$ on $\left[-\frac{\pi}{2},\frac{\pi}{2}\right]$ is equal to :

1. 0

2. π

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

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

Options :

686340167801. 1
686340167802. 2
686340167803. 3
686340167804. 4

Question Number : 51 Question Id : 68634042484 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

रोले के प्रमेय में 'C' का मान क्या होगा , जहाँ $-\frac{\pi}{2} < C < \frac{\pi}{2}$ तथा $f(x) = \cos x, \left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$ पर है :

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

Options :
686340167801. 1
686340167802. 2
686340167803. 3
686340167804. 4

Question Number : 52 Question Id : 68634042485 Question Type : MCQ Option Shuffling : No 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 : Draw back in Lagrange's method of undetermined multipliers is that nature of stationary point cannot be determined

Statement II : $\sum_{n=1}^{\infty}(-1)^{n-1}\frac{1}{n\sqrt{n}}$ is convergent

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 :
686340167805. 1
686340167806. 2
686340167807. 3
686340167808. 4

Question Number : 52 Question Id : 68634042485 Question Type : MCQ Option Shuffling : No 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 : अनिर्धारित गुणक की लग्रांज विधि मैं यह कमियाँ हैं कि स्तब्ध बिन्दु की प्रकृति निर्धारित नहीं की जा सकती है।

कथन II : $\sum_{n=1}^{\infty}(-1)^{n-1}\frac{1}{n\sqrt{n}}$ अभिसारी है

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

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

Options :
686340167805. 1
686340167806. 2
686340167807. 3
686340167808. 4

Question Number : 53 Question Id : 68634042486 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

The value of the integral $\oint_C \frac{dz}{3-\bar{z}}, C:|z|=1$ is

1. $\frac{2\pi i}{3}$
2. $\frac{2\pi i}{9}$
3. $\frac{\pi i}{9}$
4. $\frac{\pi i}{3}$

Options :
686340167809. 1
686340167810. 2
686340167811. 3
686340167812. 4

Question Number : 53 Question Id : 68634042486 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

समाकल $\oint_C \frac{dz}{3-\bar{z}}, C:|z|=1$ का मान है

1. $\frac{2\pi i}{3}$
2. $\frac{2\pi i}{9}$
3. $\frac{\pi i}{9}$
4. $\frac{\pi i}{3}$

Options :
686340167809. 1
686340167810. 2
686340167811. 3
686340167812. 4

Question Number : 54 Question Id : 68634042487 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

The value of $\int_C \frac{3z^2+7z+1}{z+1}\,dz$, where C is the circle $|z|=\frac{1}{2}$ is

1. 0
2. 1
3. πi
4. 2πi

Options :
686340167813. 1
686340167814. 2
686340167815. 3
686340167816. 4

Question Number : 54 Question Id : 68634042487 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

$\int_C \frac{3z^2+7z+1}{z+1}dz$ का मान है , जहाँ C वृत्त $|z|=\frac{1}{2}$ है.

1. 0

2. 1

3. πi

4. 2πi

Options :
686340167813. 1
686340167814. 2
686340167815. 3
686340167816. 4

Question Number : 55 Question Id : 68634042488 Question Type : MCQ Option Shuffling : No 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 $\int_0^{1+i}\left(x^2-iy\right)dz=\alpha+i\beta$ along the path $y=x$, then value of $\alpha-\beta$ is:

1. 0

2. 1

3. 2

4. 3

Options :
686340167817. 1
686340167818. 2
686340167819. 3
686340167820. 4

Question Number : 55 Question Id : 68634042488 Question Type : MCQ Option Shuffling : No 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 पथ $y=x$ के साथ साथ $\int_0^{1+i}\left(x^2-iy\right)dz=\alpha+i\beta$ है, तब $\alpha-\beta$ का मान है:

1. 0

2. 1

3. 2

4. 3

Options :
686340167817. 1
686340167818. 2
686340167819. 3
686340167820. 4

Question Number : 56 Question Id : 68634042489 Question Type : MCQ Option Shuffling : No 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 $u = x^2 - y^2$ is real part of an analytic function f(z), then f(z) is:

1. Z
2. Z^2
3. $\bar{Z}^2$
4. $z + \frac{1}{z}$

Options :
686340167821. 1
686340167822. 2
686340167823. 3
686340167824. 4

Question Number : 56 Question Id : 68634042489 Question Type : MCQ Option Shuffling : No 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 $u = x^2 - y^2$ विश्लेषिक फलन $f(z)$ का वास्तविक भाग है , तब $f(z)$ बराबर है

1. Z
2. Z^2
3. $\bar{Z}^2$
4. $z + \frac{1}{z}$

Options :
686340167821. 1
686340167822. 2
686340167823. 3
686340167824. 4

Question Number : 57 Question Id : 68634042490 Question Type : MCQ Option Shuffling : No 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 one of the following is harmonic function

1. $f(x,y)=x^2-y^2-2xy-2x+3y$
2. $f(x,y)=x^3+y^3$
3. $f(x,y)=x^4+y^4-xy$
4. $f(x,y)=x^2+y^2+2xy$

Options :
686340167825. 1
686340167826. 2
686340167827. 3
686340167828. 4

Question Number : 57 Question Id : 68634042490 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

निम्नलिखित में से कौन- सा एक प्रसंवादी फलन है : -

1. $f(x,y)=x^2-y^2-2xy-2x+3y$
2. $f(x,y)=x^3+y^3$
3. $f(x,y)=x^4+y^4-xy$
4. $f(x,y)=x^2+y^2+2xy$

Options :
686340167825. 1
686340167826. 2
686340167827. 3
686340167828. 4

Question Number : 58 Question Id : 68634042491 Question Type : MCQ Option Shuffling : No 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 integral $\int_C \frac{z^2+6z+2}{z-2}\,dz = 0$, where C is the circle $|z| = 3$

Reason R : If there is no pole inside and on the contour C, then the value of the integral of the function along C is 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 :

686340167829. 1

686340167830. 2

686340167831. 3

686340167832. 4

Question Number : 58 Question Id : 68634042491 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं : एक अभिकथन (ASSERTION A) के रूप में लिखित है तो दूसरा उसके कारण (REASON R) के रूप में'

अभिकथन A : समाकल $\int_C \frac{z^2+6z+2}{z-2}\,dz = 0$, जहाँ C वृत्त $|z| = 3$ है

कारण R : यदि परिरेखा के भीतर तथा परिरेखा पर कोई भी अनन्तक नहीं है, तब फलन का C के साथ -साथ समाकल का मान शून्य होगा |

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए

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

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

3. A सत्य है, लेकिन R असत्य है

4. A असत्य है, लेकिन R सत्य है

Options :

686340167829. 1

686340167830. 2
686340167831. 3
686340167832. 4

Question Number : 59 Question Id : 68634042492 Question Type : MCQ Option Shuffling : No 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.	$f(z)=z^3$	I.	Not analytic any where
B.	$f(z)=\frac{1}{z}$	II.	Analytic at Z = 0 only
C.	$f(z)=\overline{z}$	III.	Analytic everywhere
D.	$f(z)=z\overline{z}$	IV.	Not analytic at Z = 0

Choose the correct answer from the options given below:

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

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

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

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

Options :
686340167833. 1
686340167834. 2
686340167835. 3
686340167836. 4

Question Number : 59 Question Id : 68634042492 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

सूचि I के साथ सूचि II का मिलान कीजिए

सूचि I		सूचि II	
A.	$f(z)=z^3$	I.	कहीं भी विश्लेषिक नहीं है
B.	$f(z)=\frac{1}{z}$	II.	केवल Z=0 पर विश्लेषिक है
C.	$f(z)=\overline{z}$	III.	सभी जगह विश्लेषिक है
D.	$f(z)=z\overline{z}$	IV.	Z=0 पर विश्लेषिक नहीं है

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए

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

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

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

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

Options :

686340167833. 1
686340167834. 2
686340167835. 3
686340167836. 4

Question Number : 60 Question Id : 68634042493 Question Type : MCQ Option Shuffling : No 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. $f(z)$ is analytic then $U_x = V_y, U_y = -V_x$

B. Polar C–R equation is $U_r = \frac{1}{r}V_\theta, U_\theta = -rV_r$

C. Two curves are said to be orthogonal to each other, when they intersect at acute angle at each of their points of intersection

D. $\int_C \frac{dz}{z-1} = 2\pi i$ **where** $C : |z-1| = \frac{1}{2}$

choose the correct answer from the options given below:

1. A, B, C Only

2. B, C, D Only

3. A ,B ,D Only

4. A ,C ,D Only

Options :

686340167837. 1
686340167838. 2
686340167839. 3
686340167840. 4

Question Number : 60 Question Id : 68634042493 Question Type : MCQ Option Shuffling : No 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. $f(z)$ विशलेषिक है तब $U_x = V_y, U_y = -V_x$

B.धुरवीय C–R समीकरण $U_r = \frac{1}{r}V_\theta, U_\theta = -rV_r$ है

C. दो वक्र एक दूसरे के लंबकोणीय कहलाते हैं जब उनमें से प्रत्येक प्रतिछेदी बिन्दुओं पर न्यूनकोण पर प्रतिछेद करते हैं |

D. $\int_C \frac{dz}{z-1} = 2\pi i$, जहाँ $C : |z-1| = \frac{1}{2}$

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए

1. केवल A, B, C

2. केवल B, C, D

3. केवल A ,B ,D

4. केवल A ,C ,D

Options :

686340167837. 1
686340167838. 2
686340167839. 3
686340167840. 4

Question Number : 61 Question Id : 68634042494 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Let $Z^3 = \overline{Z}$ where Z is a complex number on the unit circle then Z is a solution of _____:

1. $Z^2 = 1$

2. $Z^3 = 1$

3. $Z^4 = 1$

4. $Z^9 = 1$

Options :
686340167841. 1
686340167842. 2
686340167843. 3
686340167844. 4

Question Number : 61 Question Id : 68634042494 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

माना $Z^3 = \overline{Z}$, जहाँ Z इकाई वृत्त पर सम्मिश्र संख्या है, तब Z समीकरण _____ का हल है : -

1. $Z^2 = 1$

2. $Z^3 = 1$

3. $Z^4 = 1$

4. $Z^9 = 1$

Options :
686340167841. 1
686340167842. 2
686340167843. 3
686340167844. 4

Question Number : 62 Question Id : 68634042495 Question Type : MCQ Option Shuffling : No 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 $f(x+iy)=x^3-3xy^2+i\Psi(x,y)$ where $i=\sqrt{-1}$ and $f(x+iy)$ is an analytic function, then $\Psi(x,y)$ is :

1. y^3-3x^2y
2. $3x^2y-y^3$
3. x^4-4x^3y
4. $xy-y^2$

Options :

686340167845. 1
686340167846. 2
686340167847. 3
686340167848. 4

Question Number : 62 Question Id : 68634042495 Question Type : MCQ Option Shuffling : No 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 $f(x+iy)=x^3-3xy^2+i\Psi(x,y)$ जहाँ $i=\sqrt{-1}$ तथा $f(x+iy)$ एक विश्लेषिक फलन है, तब $\Psi(x,y)$ है:

1. y^3-3x^2y
2. $3x^2y-y^3$
3. x^4-4x^3y
4. $xy-y^2$

Options :

686340167845. 1
686340167846. 2
686340167847. 3
686340167848. 4

Question Number : 63 Question Id : 68634042496 Question Type : MCQ Option Shuffling : No 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 $f(z) = u + iv$ is an analytic function, then u and v are both harmonic function .

Statement II : If $f(z)$ is analytic within and on a closed curve C, and if a is any point within C, then $f(a) = \frac{1}{2\pi i}\int_C \frac{f(z)}{z-a}dz$

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 :
686340167849. 1
686340167850. 2
686340167851. 3
686340167852. 4

Question Number : 63 Question Id : 68634042496 Question Type : MCQ Option Shuffling : No 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 $f(z) = u + iv$ एक विश्लेषिक फलन है, तब u तथा v दोनों प्रसंवादी फलन है|

कथन II : यदि $f(z)$ संव्रत वक्र C के अन्दर तथा संव्रत वक्र पर विश्लेषिक है तथा a, C के अन्दर कोई बिंदु है , तब $f(a) = \frac{1}{2\pi i}\int_C \frac{f(z)}{z-a}dz$

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

1. कथन I और II दोनों सहीं हैं

2. कथन I और II दोनों गलत हैं

3. कथन I सही है , लेकिन कथन II गलत है

4. कथन I गलत है , लेकिन कथन II सही है

Options :
686340167849. 1
686340167850. 2

686340167851. 3
686340167852. 4

Question Number : 64 Question Id : 68634042497 Question Type : MCQ Option Shuffling : No 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 $\int_0^1 \int_0^x \left(x^2 + y^2\right) dy\, dx$ is:

1. $\frac{1}{6}$
2. $\frac{1}{2}$
3. $\frac{1}{3}$
4. 1

Options :
686340167853. 1
686340167854. 2
686340167855. 3
686340167856. 4

Question Number : 64 Question Id : 68634042497 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

समाकलन $\int_0^1 \int_0^x \left(x^2 + y^2\right) dy\, dx$ है:

1. $\frac{1}{6}$
2. $\frac{1}{2}$
3. $\frac{1}{3}$
4. 1

Options :
686340167853. 1
686340167854. 2
686340167855. 3
686340167856. 4

Question Number : 65 Question Id : 68634042498 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Double integal $\int_0^2 \int_0^{\sqrt{2x-x^2}} \frac{xdydx}{\sqrt{x^2+y^2}}$ equals:

1. $\frac{2}{3}$
2. $\frac{4}{3}$
3. $\frac{1}{3}$
4. $\frac{8}{3}$

Options :

686340167857. 1
686340167858. 2
686340167859. 3
686340167860. 4

Question Number : 65 Question Id : 68634042498 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

द्विश : समाकल $\int_0^2 \int_0^{\sqrt{2x-x^2}} \frac{xdydx}{\sqrt{x^2+y^2}}$ बराबर है:

1. $\frac{2}{3}$
2. $\frac{4}{3}$
3. $\frac{1}{3}$
4. $\frac{8}{3}$

Options :

686340167857. 1
686340167858. 2
686340167859. 3
686340167860. 4

Question Number : 66 Question Id : 68634042499 Question Type : MCQ Option Shuffling : No 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 $\iint_R (x+y)\,dydx = A$, where R is the region bounded by $x=0, x=2, y=x, y=x+2$, then $\frac{A}{12}$ is equal to:

1. 1

2. 4

3. 12

4. 6

Options :

686340167861. 1
686340167862. 2
686340167863. 3
686340167864. 4

Question Number : 66 Question Id : 68634042499 Question Type : MCQ Option Shuffling : No 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 $\iint_R (x+y)\,dydx = A$,जहाँ $x=0, x=2, y=x, y=x+2$, द्वारा परिबद्ध क्षेत्र है, तब $\frac{A}{12}$ बराबर है:

1. 1

2. 4

3. 12

4. 6

Options :

686340167861. 1
686340167862. 2
686340167863. 3
686340167864. 4

Question Number : 67 Question Id : 68634042500 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

The value of double integal $\int_0^{\infty}\int_0^{x} e^{-xy}\,ydydx$ is equal to:

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

Options :
686340167865. 1
686340167866. 2
686340167867. 3
686340167868. 4

Question Number : 67 Question Id : 68634042500 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

द्विश समाकल $\int_0^{\infty}\int_0^{x} e^{-xy}\,ydydx$ का मान बराबर है:

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

Options :
686340167865. 1
686340167866. 2
686340167867. 3
686340167868. 4

Question Number : 68 Question Id : 68634042501 Question Type : MCQ Option Shuffling : No 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 volume generated by the revolution of the cardioid $r = a(1-\cos\theta)$ about its axis is:

1. $\frac{8}{3}\pi a^3$
2. $\frac{4}{3}\pi a^3$
3. $\frac{2}{3}\pi a^3$
4. $\frac{16}{3}\pi a^3$

Options :
686340167869. 1
686340167870. 2
686340167871. 3
686340167872. 4

Question Number : 68 Question Id : 68634042501 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

अपनी अक्ष के चारों तरफ कार्डीऑइड $r = a(1-\cos\theta)$ के परिक्रमण द्वारा जनित आयतन है -

1. $\frac{8}{3}\pi a^3$
2. $\frac{4}{3}\pi a^3$
3. $\frac{2}{3}\pi a^3$
4. $\frac{16}{3}\pi a^3$

Options :
686340167869. 1
686340167870. 2
686340167871. 3
686340167872. 4

Question Number : 69 Question Id : 68634042502 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Given below are two statements

Statement I : In cylindrical co-ordinates , $Volume = \iiint_V r dr d\phi dz$

Statement II : In spherical polar Co-ordinates, $Volume = \iiint_V r^2 \cos\theta \, dr d\theta d\phi$

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 :
686340167873. 1
686340167874. 2
686340167875. 3
686340167876. 4

Question Number : 69 Question Id : 68634042502 Question Type : MCQ Option Shuffling : No 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 : बेलनाकार निर्देशांक में, आयतन $Volume = \iiint_V r dr d\phi dz$

कथन II : गोलाकार ध्रुवीय निर्देशांक में, आयतन $Volume = \iiint_V r^2 \cos\theta \, dr d\theta d\phi$

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

1. कथन I और II दोनों सहीं हैं

2. कथन I और II दोनों गलत हैं

3. कथन I सही है , लेकिन कथन II गलत है

4. कथन I गलत है , लेकिन कथन II सही है

Options :
686340167873. 1
686340167874. 2
686340167875. 3

686340167876. 4

Question Number : 70 Question Id : 68634042503 Question Type : MCQ Option Shuffling : No 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 $\iiint_R xyz\ dxdydz = \frac{m}{n}$, where , m,n, are coprime and $R: 0 \le x \le 1, 1 \le y \le 2, 2 \le z \le 3$, then m.n is equal to:

1. 135

2. 90

3. 150

4. 120

Options :
686340167877. 1
686340167878. 2
686340167879. 3
686340167880. 4

Question Number : 70 Question Id : 68634042503 Question Type : MCQ Option Shuffling : No 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 $\iiint_R xyz\ dxdydz = \frac{m}{n}$, जहाँ, m,n असहभाज्य हैं तथा $R: 0 \le x \le 1, 1 \le y \le 2, 2 \le z \le 3$, तब m.n बराबर है:

1. 135

2. 90

3. 150

4. 120

Options :
686340167877. 1
686340167878. 2
686340167879. 3
686340167880. 4

Question Number : 71 Question Id : 68634042504 Question Type : MCQ Option Shuffling : No 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 integral $\iiint \left(x^2+y^2+z^2\right) dxdydz$ taken over the volume enclosed by the sphere $x^2+y^2+z^2=1$ is $\frac{4\pi}{5}$

Reason R : $\int_0^1 \int_0^1 x\, dxdy = \frac{1}{2}$

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

1. Both A and R are correct and R is the correct explanation of A
2. Both A and R are correct but R is NOT the correct explanation of A
3. A is correct but R is not correct
4. A is not correct but R is correct

Options :

686340167881. 1
686340167882. 2
686340167883. 3
686340167884. 4

Question Number : 71 Question Id : 68634042504 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

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

अभिकथन A : गोले $x^2+y^2+z^2=1$ द्वारा परिबद्ध आयतन पर लिया गया समाकल $\iiint \left(x^2+y^2+z^2\right) dxdydz$ का मान $\frac{4\pi}{5}$ है |

कारण R : $\int_0^1 \int_0^1 x\, dxdy = \frac{1}{2}$

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

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

Options :

686340167881. 1
686340167882. 2
686340167883. 3

686340167884. 4

Question Number : 72 Question Id : 68634042505 Question Type : MCQ Option Shuffling : No 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 volume of the cylindrical column standing on the area common to the parabolas $y^2 = x, x^2 = y$ and cut off by the surface $z = 12 + y - x^2$ is:

1. $\frac{569}{280}$
2. $\frac{569}{140}$
3. $\frac{569}{210}$
4. $\frac{569}{70}$

Options :
686340167885. 1
686340167886. 2
686340167887. 3
686340167888. 4

Question Number : 72 Question Id : 68634042505 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

परवलयों $y^2 = x, x^2 = y$ के उभयनिष्ट क्षेत्र पर खड़े तथा पृष्ठ $z = 12 + y - x^2$ द्वारा अन्तकीय बेलनाकार स्तंभ का आयतन है:

1. $\frac{569}{280}$
2. $\frac{569}{140}$
3. $\frac{569}{210}$
4. $\frac{569}{70}$

Options :
686340167885. 1
686340167886. 2
686340167887. 3
686340167888. 4

Question Number : 73 Question Id : 68634042506 Question Type : MCQ Option Shuffling : No 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 $x = \frac{1}{3}(2u + v)$ and $y = \frac{1}{3}(u - v)$, then $dxdy = \frac{-1}{3}dudv$

Statement II : Area in Polar Co-ordinater $= \int_{\theta_1}^{\theta_1} \int_{r_1}^{r_2} rd\theta dr$

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 :
686340167889. 1
686340167890. 2
686340167891. 3
686340167892. 4

Question Number : 73 Question Id : 68634042506 Question Type : MCQ Option Shuffling : No 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 $x=\frac{1}{3}(2u+v)$ तथा $y=\frac{1}{3}(u-v)$, तब $dxdy=\frac{-1}{3}dudv$

कथन II : ध्रुवीय निर्देशांकों में क्षेत्रफल $=\int_{\theta_1}^{\theta_1}\int_{r_1}^{r_2} rd\theta dr$

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

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

Options :
686340167889. 1
686340167890. 2
686340167891. 3
686340167892. 4

Question Number : 74 Question Id : 68634042507 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

The surface area of the cylinder $x^2+z^2=4$ inside the cylinder $x^2+y^2=4$ is:

1. 4
2. 8
3. 16
4. 32

Options :
686340167893. 1
686340167894. 2
686340167895. 3
686340167896. 4

Question Number : 74 Question Id : 68634042507 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

बेलन $x^2 + z^2 = 4$ के अन्दर बेलन $x^2 + y^2 = 4$ का पृष्ठीय क्षेत्रफल है -

1. 4
2. 8
3. 16
4. 32

Options :
686340167893. 1
686340167894. 2
686340167895. 3
686340167896. 4

Question Number : 75 Question Id : 68634042508 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Integrating factors of the equation $y\,(\,2xy + e^x\,)\,dx - e^x\,dy = 0$ is:

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

Options :
686340167897. 1
686340167898. 2
686340167899. 3
686340167900. 4

Question Number : 75 Question Id : 68634042508 Question Type : MCQ Option Shuffling : No 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 $y\,(\,2xy + e^x\,)\,dx - e^x\,dy = 0$ का समाकलन गुणक है-

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

Options :
686340167897. 1
686340167898. 2
686340167899. 3
686340167900. 4

Question Number : 76 Question Id : 68634042509 Question Type : MCQ Option Shuffling : No 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 cardioid $r = a(1+\cos\theta)$, a being the parameter is:

1. $r = a(1-\cos\theta)$
2. $r = a\cos\theta$
3. $r = a(1+\cos\theta)$
4. $r = a(1+\sin\theta)$

Options :
686340167901. 1
686340167902. 2
686340167903. 3
686340167904. 4

Question Number : 76 Question Id : 68634042509 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

कार्डीऑइड $r=a(1+\cos\theta)$ का लंबकोणीय पथ, जहाँ a प्राचल है, है: -

1. $r=a(1-\cos\theta)$

2. $r=a\cos\theta$

3. $r=a(1+\cos\theta)$

4. $r=a(1+\sin\theta)$

Options :
686340167901. 1
686340167902. 2
686340167903. 3
686340167904. 4

Question Number : 77 Question Id : 68634042510 Question Type : MCQ Option Shuffling : No 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 Differential Equation		LIST II Particular Integral (P.I)	
A.	$(D^2+6D+9)y=e^{3x}$	I.	$\frac{x}{6}\sin 3x$
B.	$(D^2-6D+9)y=3$	II.	$-\frac{1}{5}\cos 3x$
C.	$(D^2+4)y=\cos 3x$	III.	$\frac{1}{3}$
D.	$(D^2+9)y=\cos 3x$	IV.	$\frac{1}{36}e^{3x}$

Choose the correct answer from the options given below:

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

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

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

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

Options :
686340167905. 1
686340167906. 2
686340167907. 3
686340167908. 4

Question Number : 77 Question Id : 68634042510 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

सूचि I के साथ सूचि II का मिलान कीजिए

सूचि I अवकल समीकरण		सूचि II विशेष समाकल	
A.	$(D^2+6D+9)y=e^{3x}$	I.	$\frac{x}{6}\sin 3x$
B.	$(D^2-6D+9)y=3$	II.	$-\frac{1}{5}\cos 3x$
C.	$(D^2+4)y=\cos 3x$	III.	$\frac{1}{3}$
D.	$(D^2+9)y=\cos 3x$	IV.	$\frac{1}{36}e^{3x}$

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए

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

Options :

686340167905. 1
686340167906. 2
686340167907. 3
686340167908. 4

Question Number : 78 Question Id : 68634042511 Question Type : MCQ Option Shuffling : No 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 solution of the differential equation $\frac{dy}{dx}+y=3e^{x}y^{3}$ is:

1. $\frac{1}{y^2}=6e^{x}+ce^{2x}$
2. $\frac{1}{y^2}=6e^{-x}+ce^{2x}$
3. $\frac{1}{y^2}=6e^{x}+ce^{-2x}$
4. $\frac{1}{y^2}=6e^{-x}+ce^{-2x}$

Options :

686340167909. 1

686340167910. 2
686340167911. 3
686340167912. 4

Question Number : 78 Question Id : 68634042511 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

अवकल समीकरण $\frac{dy}{dx} + y = 3e^x y^3$ का हल है-

1. $\frac{1}{y^2} = 6e^x + ce^{2x}$
2. $\frac{1}{y^2} = 6e^{-x} + ce^{2x}$
3. $\frac{1}{y^2} = 6e^x + ce^{-2x}$
4. $\frac{1}{y^2} = 6e^{-x} + ce^{-2x}$

Options :
686340167909. 1
686340167910. 2
686340167911. 3
686340167912. 4

Question Number : 79 Question Id : 68634042512 Question Type : MCQ Option Shuffling : No 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 particular Integral (P.I) of $\left(D^2 - 4D + 4\right) y = x^3 e^{2x}$ is $e^{mx} \frac{x^n}{20}$, then $m^2 + n^2 + 1$ is equal to:

1. 29
2. 30
3. 31
4. 28

Options :
686340167913. 1
686340167914. 2
686340167915. 3
686340167916. 4

Question Number : 79 Question Id : 68634042512 Question Type : MCQ Option Shuffling : No 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 $\left(D^2-4D+4\right)y=x^3e^{2x}$ का विशेष समाकल $e^{mx}\frac{x^n}{20}$ है, तब m^2+n^2+1 बराबर है:

1. 29
2. 30
3. 31
4. 28

Options :

686340167913. 1
686340167914. 2
686340167915. 3
686340167916. 4

Question Number : 80 Question Id : 68634042513 Question Type : MCQ Option Shuffling : No 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 : Mdx + Ndy = 0 is said to be an exact differential equation if it satisfies the following condition $\frac{\partial M}{\partial x}=\frac{\partial N}{\partial y}$

Statement II : If Mdx + Ndy = 0 is not an exact differential equation and $\frac{1}{N}\left(\frac{\partial M}{\partial y}-\frac{\partial N}{\partial x}\right)=f(x)$, then I.F. $=e^{\int f(x)dx}$

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 :

686340167917. 1
686340167918. 2
686340167919. 3
686340167920. 4

Question Number : 80 Question Id : 68634042513 Question Type : MCQ Option Shuffling : No 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 : Mdx + Ndy = 0 यथातथ अवकल समीकरण कहलाती है यदि यह प्रतिबंध $\frac{\partial M}{\partial x}=\frac{\partial N}{\partial y}$ को संतुष्ट करती है।

कथन II : यदि Mdx + Ndy = 0 यथातथ अवकल समीकरण नहीं है तथा $\frac{1}{N}\left(\frac{\partial M}{\partial y}-\frac{\partial N}{\partial x}\right)=f(x)$, तब समाकलन गुणक $=e^{\int f(x)dx}$।

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

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

Options :
686340167917. 1
686340167918. 2
686340167919. 3
686340167920. 4

Question Number : 81 Question Id : 68634042514 Question Type : MCQ Option Shuffling : No 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 $x^2y''-2xy'-4y=x^4$, then $C.F.=\frac{C_1}{x}+C_2x^4$

Statement II : If $\left(D^2-8D+15\right)y=0$, then auxiliary equation has equal roots.

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 :
686340167921. 1
686340167922. 2
686340167923. 3
686340167924. 4

Question Number : 81 Question Id : 68634042514 Question Type : MCQ Option Shuffling : No 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 $x^2y'' - 2xy' - 4y = x^4$, तब पुश्क फलन $C.F. = \frac{C_1}{x} + C_2x^4$

कथन II : यदि $\left(D^2 - 8D + 15\right)y = 0$, तब सहायक समीकरण समान मूल रखता है

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

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

Options :
686340167921. 1
686340167922. 2
686340167923. 3
686340167924. 4

Question Number : 82 Question Id : 68634042515 Question Type : MCQ Option Shuffling : No 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 solution of the differential equation $y'' + y = 6\sin x$ is:

1. $y(x) = C_1e^x + C_2e^{-x} + 3x\cos x$
2. $y(x) = C_1e^x + C_2e^{-x} - 3x\cos x$
3. $y(x) = C_1\cos x + C_2\sin x - 3\sin x$
4. $y(x) = C_1\cos x + C_2\sin x - 3x\cos x$

Options :
686340167925. 1
686340167926. 2
686340167927. 3
686340167928. 4

Question Number : 82 Question Id : 68634042515 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

अवकल समीकरण $y'' + y = 6\sin x$ का व्यापक हल है-

1. $y(x) = C_1 e^x + C_2 e^{-x} + 3x\cos x$
2. $y(x) = C_1 e^x + C_2 e^{-x} - 3x\cos x$
3. $y(x) = C_1 \cos x + C_2 \sin x - 3\sin x$
4. $y(x) = C_1 \cos x + C_2 \sin x - 3x\cos x$

Options :
686340167925. 1
686340167926. 2
686340167927. 3
686340167928. 4

Question Number : 83 Question Id : 68634042516 Question Type : MCQ Option Shuffling : No 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 solution of the differential equation $2x^2\frac{d^2y}{dx^2} + x\frac{dy}{dx} - 6y = 0$ is:

1. $y(x) = C_1 x^2 + \frac{C_2}{x\sqrt{x}}$
2. $y(x) = C_1 x^2 + C_2 x^{\frac{3}{2}}$
3. $y(x) = \frac{C_1}{x^2} + C_2 x^{\frac{3}{2}}$
4. $y(x) = C_1 x^{-\frac{3}{2}} + C_2 x^4$

Options :
686340167929. 1
686340167930. 2
686340167931. 3
686340167932. 4

Question Number : 83 Question Id : 68634042516 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

अवकल समीकरण $2x^2\frac{d^2y}{dx^2}+x\frac{dy}{dx}-6y=0$ का व्यापक हल है:

1. $y(x)=C_1x^2+\frac{C_2}{x\sqrt{x}}$
2. $y(x)=C_1x^2+C_2x^{\frac{3}{2}}$
3. $y(x)=\frac{C_1}{x^2}+C_2x^{\frac{3}{2}}$
4. $y(x)=C_1x^{-\frac{3}{2}}+C_2x^4$

Options :
686340167929. 1
686340167930. 2
686340167931. 3
686340167932. 4

Question Number : 84 Question Id : 68634042517 Question Type : MCQ Option Shuffling : No 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 Differential Equation		LIST II I.F	
A.	$y'+y=\sin x$	I.	x
B.	$y'-y=x^2$	II.	$\frac{1}{x}$
C.	$y'+\frac{1}{x}y=e^x$	III.	e^x
D.	$y'-\frac{1}{x}y=1$	IV.	e^{-x}

Choose the correct answer from the options given below:

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

Options :
686340167933. 1
686340167934. 2
686340167935. 3
686340167936. 4

Question Number : 84 Question Id : 68634042517 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

सूचि I के साथ सूचि II का मिलान कीजिए

सूचि I अवकल समीकरण		सूचि II समाकलन गुणक	
A.	$y'+y=\sin x$	I.	x
B.	$y'-y=x^2$	II.	$\frac{1}{x}$
C.	$y'+\frac{1}{x}y=e^x$	III.	e^x
D.	$y'-\frac{1}{x}y=1$	IV.	e^{-x}

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए

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

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

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

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

Options :
686340167933. 1
686340167934. 2
686340167935. 3
686340167936. 4

Question Number : 85 Question Id : 68634042518 Question Type : MCQ Option Shuffling : No 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 : A given family of curves is said to be 'self - orthogonal' if the family of orthogonal trajectory is the same as the given family of curves

Reason R : For finding orthogonal trajectory , replace $\frac{dy}{dx}$ by $-\frac{dx}{dy}$ in $f\left(x, y, \frac{dy}{dx}\right)=0$

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 :

686340167937. 1
686340167938. 2
686340167939. 3
686340167940. 4

Question Number : 85 Question Id : 68634042518 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

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

अभिकथन A : दिए गए वक्र का परिवार स्वलांबिक कहलाता है यदि लंबकोणीय पथ का परिवार दिए गए परिवार के समान है ।

कारण R : लंबकोणीय पथ को प्राप्त करने के लिए, $f\left(x, y, \frac{dy}{dx}\right)=0$ में $\frac{dy}{dx}$ को $-\frac{dx}{dy}$ से प्रतिस्थापित करते हैं।

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

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

Options :

686340167937. 1
686340167938. 2
686340167939. 3

686340167940. 4

Question Number : 86 Question Id : 68634042519 Question Type : MCQ Option Shuffling : No 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 $\vec{r} = x\hat{i} + y\hat{j} + z\hat{k}$ and $r = \sqrt{x^2 + y^2 + z^2}$, then $grad\left(\frac{1}{r}\right)$ is equal to :

1. $-\frac{\vec{r}}{r^3}$
2. $-\frac{\vec{r}}{r^2}$
3. $\frac{\vec{r}}{r^3}$
4. $\frac{\vec{r}}{r}$

Options :
686340167941. 1
686340167942. 2
686340167943. 3
686340167944. 4

Question Number : 86 Question Id : 68634042519 Question Type : MCQ Option Shuffling : No 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 $\vec{r} = x\hat{i} + y\hat{j} + z\hat{k}$ तथा $r = \sqrt{x^2 + y^2 + z^2}$, तब $grad\left(\frac{1}{r}\right)$ बराबर है :

1. $-\frac{\vec{r}}{r^3}$
2. $-\frac{\vec{r}}{r^2}$
3. $\frac{\vec{r}}{r^3}$
4. $\frac{\vec{r}}{r}$

Options :
686340167941. 1
686340167942. 2
686340167943. 3
686340167944. 4

Question Number : 87 Question Id : 68634042520 Question Type : MCQ Option Shuffling : No 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 $\vec{F}=(x+2y+az)\hat{i}+(bx-3y-z)\hat{j}+(4x+cy+2z)\hat{k}$ is irrotational , where a, b and c are constant , then $a^2 + b^2 + c^2$ is equal to :

1. 5

2. 7

3. 19

4. 21

Options :
686340167945. 1
686340167946. 2
686340167947. 3
686340167948. 4

Question Number : 87 Question Id : 68634042520 Question Type : MCQ Option Shuffling : No 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 $\vec{F}=(x+2y+az)\hat{i}+(bx-3y-z)\hat{j}+(4x+cy+2z)\hat{k}$ अर्घूणी है , जहाँ a, b तथा c स्थिरांक हैं, तब $a^2 + b^2 + c^2$ बराबर है:

1. 5

2. 7

3. 19

4. 21

Options :
686340167945. 1
686340167946. 2
686340167947. 3
686340167948. 4

Question Number : 88 Question Id : 68634042521 Question Type : MCQ Option Shuffling : No 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 $\bar{A}=\left(3x^2+6y\right)\hat{i}-14yz\hat{j}+20xz^2\hat{k}$, then the line integral $\int_C \vec{A}.d\bar{r}$ from (0 ,0 , 0) to (1, 1,1) , along the curve C ; x = t , y = t^2, z = t^3 is :

1. 7
2. 6
3. 5
4. 4

Options :
686340167949. 1
686340167950. 2
686340167951. 3
686340167952. 4

Question Number : 88 Question Id : 68634042521 Question Type : MCQ Option Shuffling : No 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 $\bar{A}=\left(3x^2+6y\right)\hat{i}-14yz\hat{j}+20xz^2\hat{k}$ तब (0, 0, 0) से (1, 1, 1) तक वक्र C ; x = t , y = t^2, z = t^3 के साथ साथ रेखा समाकल $\int_C \vec{A}.d\bar{r}$ है-

1. 7
2. 6
3. 5
4. 4

Options :
686340167949. 1
686340167950. 2
686340167951. 3
686340167952. 4

Question Number : 89 Question Id : 68634042522 Question Type : MCQ Option Shuffling : No 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 directional derivative of $\phi(x,y,z)=x^2yz+4xz^2$ at (1, -2, 1) in the direction of $2\hat{i}-\hat{j}-2\hat{k}$ is

1. $-\frac{1}{3}$
2. $\frac{2}{3}$
3. $-\frac{13}{3}$
4. $\frac{13}{3}$

Options :
686340167953. 1
686340167954. 2
686340167955. 3
686340167956. 4

Question Number : 89 Question Id : 68634042522 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

$2\hat{i}-\hat{j}-2\hat{k}$ की दिशा में $(1,-2,1)$ पर $\phi(x,y,z)=x^2yz+4xz^2$ का दिक् - अवकलज है -

1. $-\frac{1}{3}$
2. $\frac{2}{3}$
3. $-\frac{13}{3}$
4. $\frac{13}{3}$

Options :
686340167953. 1
686340167954. 2
686340167955. 3
686340167956. 4

Question Number : 90 Question Id : 68634042523 Question Type : MCQ Option Shuffling : No 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. $\oint_C \vec{F}.d\vec{r} = \iint_S Curl\ \vec{F}.\hat{n}ds$

B. $\int_C Mdx + Ndy = \iint_R \left(\frac{\partial N}{\partial x} + \frac{\partial M}{\partial y}\right) dxdy$

C. grad is a vector normal to the surface Ø = C

D. ∇Ø is the maximum rate of change of Ø

choose the correct answer from the options given below

1. A, B, D Only

2. B, C, D Only

3. A, C, D Only

4. A, D Only

Options :
686340167957. 1
686340167958. 2
686340167959. 3
686340167960. 4

Question Number : 90 Question Id : 68634042523 Question Type : MCQ Option Shuffling : No 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. $\oint_C \vec{F}.d\vec{r} = \iint_S Curl\ \vec{F}.\hat{n}ds$

B. $\int_C Mdx + Ndy = \iint_R \left(\frac{\partial N}{\partial x} + \frac{\partial M}{\partial y}\right) dxdy$

C. grad ø पृष्ठ ø = C पर सदिश अभिलंब है

D. ∇ø, ø की अधिकतम परिवर्तन - दर है

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए

1. केवल A, B, D

2. केवल B, C, D

3. केवल A, C, D

4. केवल A, D

Options :
686340167957. 1
686340167958. 2

686340167959. 3
686340167960. 4

Question Number : 91 Question Id : 68634042524 Question Type : MCQ Option Shuffling : No 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 $\phi(x,y), \Psi(x,y), \frac{\partial \phi}{\partial y}$ and $\frac{\partial \psi}{\partial x}$ are continuous functions over region R bounded by simple closed curve C in xy-plane , then $\oint_C (\phi dx + \psi dy) = \iint_R \left(\frac{\partial \psi}{\partial x} - \frac{\partial \phi}{\partial y} \right) dxdy$

Statement II : $\vec{F}$ be a vector point function and volume V enclosed by a closed surface , then volume integral = $\iiint_V \vec{F}.dV$

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 and Statement II are incorrect
4. Statement I is incorrect but Statement II is correct

Options :
686340167961. 1
686340167962. 2
686340167963. 3
686340167964. 4

Question Number : 91 Question Id : 68634042524 Question Type : MCQ Option Shuffling : No 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 $\phi(x,y), \Psi(x,y), \frac{\partial \phi}{\partial y}$ तथा $\frac{\partial \psi}{\partial x}$ xy–समतल में सरल संवृत वक्र द्वारा परिबद्ध क्षेत्र R पर सतत फलन हैं , तब $\oint_C (\phi dx + \psi dy) = \iint_R \left(\frac{\partial \psi}{\partial x} - \frac{\partial \phi}{\partial y} \right) dxdy$

कथन II : $\vec{F}$ सदिश बिंदु फलन है तथा आयतन V संवृत पृष्ठ द्वारा परिबद्ध है, तब आयतन समाकल $\iiint_V \vec{F}.dV$

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

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

Options :

686340167961. 1
686340167962. 2
686340167963. 3
686340167964. 4

Question Number : 92 Question Id : 68634042525 Question Type : MCQ Option Shuffling : No 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 given vector $\vec{F}=(y^2 - z^2 + 3yz - 2x)\hat{i} + (3xz + 2xy)\hat{j} + (3xy - 2xz + 2z)\hat{k}$ is solenoidal

Reason R : A vector $\vec{F}$ is said to be solenoidal if $div\ \vec{F} = 0$

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 :

686340167965. 1
686340167966. 2

686340167967. 3
686340167968. 4

Question Number : 92 Question Id : 68634042525 Question Type : MCQ Option Shuffling : No 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 है : एक अभिकथन (ASSERTION A) के रूप में लिखित है तो दूसरा उसके कारण (REASON R) के रूप में :

अभिकथन A : दिया गया सदिश $\vec{F}=\left(y^2-z^2+3yz-2x\right)\hat{i}+(3xz+2xy)\,\hat{j}+(3xy-2xz+2z)\hat{k}$ परिनालिकीय है|

कारण R : कोई सादेश $\vec{F}$ परिनालिकीय कहलाता है यदि $div\ \vec{F}=0$

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

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

Options :
686340167965. 1
686340167966. 2
686340167967. 3
686340167968. 4

Question Number : 93 Question Id : 68634042526 Question Type : MCQ Option Shuffling : No 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 curl of vector $\vec{A}=\left(2xy-3yz\right)\hat{i}+\left(x^2+axz-4z^2\right)\hat{j}-\left(3xy+byz\right)\hat{k}$ is zero , then a + b is equal to :

1. 8
2. –3
3. 5
4. 11

Options :
686340167969. 1
686340167970. 2
686340167971. 3
686340167972. 4

Question Number : 93 Question Id : 68634042526 Question Type : MCQ Option Shuffling : No 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 सादेश $\vec{A} = (2xy - 3yz)\hat{i} + (x^2 + axz - 4z^2)\hat{j} - (3xy + byz)\hat{k}$ का Curl शून्य है, तब a + b बराबर है:

1. 8
2. –3
3. 5
4. 11

Options :
686340167969. 1
686340167970. 2
686340167971. 3
686340167972. 4

Question Number : 94 Question Id : 68634042527 Question Type : MCQ Option Shuffling : No 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.	$\phi = y^2, \nabla\phi$ at (1, 1,1)	I.	$\hat{i}$
B.	$\phi = x, \nabla\phi$ at (1, –1,2)	II.	$-6\hat{k}$
C.	$\phi = 2x^3, \nabla\phi$ at (0, 1,2)	III.	$2\hat{j}$
D.	$\phi = 3z^2, \nabla\phi$ at (1, 2,–1)	IV.	$\vec{0}$

Choose the correct answer from the options given below:

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

Options :
686340167973. 1
686340167974. 2
686340167975. 3
686340167976. 4

Question Number : 94 Question Id : 68634042527 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

सूची I के साथ सूची II का मिलान कीजिए

सूची I		सूची II	
A.	$\phi = y^2, \nabla\phi$ at (1, 1,1)	I.	$\hat{i}$
B.	$\phi = x, \nabla\phi$ at (1, −1,2)	II.	$-6\hat{k}$
C.	$\phi = 2x^3, \nabla\phi$ at (0, 1,2)	III.	$2\hat{j}$
D.	$\phi = 3z^2, \nabla\phi$ at (1, 2,−1)	IV.	$\vec{0}$

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए

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

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

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

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

Options :

686340167973. 1
686340167974. 2
686340167975. 3
686340167976. 4

Question Number : 95 Question Id : 68634042528 Question Type : MCQ Option Shuffling : No 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. vector $\vec{V}$ is said to be solenoidal if div $\vec{V} = 0$

B. Vector $\vec{F}$ is said to be irrotational if curl $\vec{F} = \vec{0}$

C. If $\vec{F}$ represents the force acting on a particle along arc AB , then total work done $\int_A^B \vec{F} \times \overrightarrow{dr}$

D. Volume integral $\iiint_V \vec{F} \times dV$

choose the correct answer from the options given below

1. A, B, C Only

2. A, B, D Only

3. B, D Only

4. A, B Only

Options :

686340167977. 1
686340167978. 2
686340167979. 3
686340167980. 4

Question Number : 95 Question Id : 68634042528 Question Type : MCQ Option Shuffling : No 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. सदिश $\vec{V}$ परिनालिकीय कहलाता है यदि $\vec{\nabla} \times \vec{V} = 0$

B. सदिश $\vec{F}$ अर्घूणी कहलाता है यदि $\vec{F} = \vec{0}$

C. यदि $\vec{F}$ चाप AB, के समानान्तर कण पर लगे हुए बल को दर्शाता है तब कुल किया कार्य $\int_A^B \vec{F} \times \overrightarrow{dr}$

D. आयतन समाकल $\iiint_V \vec{F} \times dV$

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए

1. केवल A, B, C

2. केवल A, B, D

3. केवल B, D

4. केवल A, B

Options :
686340167977. 1
686340167978. 2
686340167979. 3
686340167980. 4

Question Number : 96 Question Id : 68634042529 Question Type : MCQ Option Shuffling : No 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 region represented by the inequation system $x, y \geq o, y \geq 5, x + y \geq 3$ **is**

1. Unbounded in first quadrant

2. Unbounded in first and second quadrants

3. Bounded in first quadrant

4. Bounded in first and second quadrant

Options :
686340167981. 1
686340167982. 2
686340167983. 3

686340167984. 4

Question Number : 96 Question Id : 68634042529 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

असमिका निकाय $x, y \geq o, y \geq 5, x + y \geq 3$ द्वारा प्रर्दशित क्षेत्र है -

1. प्रथम चतुर्थांशं में अपरिबद्ध
2. प्रथम तथा द्वितीय चतुर्थांशं में अपरिबद्ध
3. प्रथम चतुर्थांशं में परिबद्ध
4. प्रथम तथा द्वितीय चतुर्थांशं में परिबद्ध

Options :
686340167981. 1
686340167982. 2
686340167983. 3
686340167984. 4

Question Number : 97 Question Id : 68634042530 Question Type : MCQ Option Shuffling : No 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 maximum value of Z = x + 2y subjected to the constraints $x + 2y \geq 100, 2x - y \leq 0, 2x + y \leq 200, x \geq 0, y \geq 0$ **, is :**

1. 250
2. 100
3. 350
4. 400

Options :
686340167985. 1
686340167986. 2
686340167987. 3
686340167988. 4

Question Number : 97 Question Id : 68634042530 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

व्यवरोधों $x+2y \geq 100, 2x-y \leq 0, 2x+y \leq 200, x \geq 0, y \geq 0$, के अंतर्गत $Z = x + 2y$ का अधिकतम मान है:

1. 250
2. 100
3. 350
4. 400

Options :

686340167985. 1
686340167986. 2
686340167987. 3
686340167988. 4

Question Number : 98 Question Id : 68634042531 Question Type : MCQ Option Shuffling : No 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 set is convex ?

1. $\{(x,y): x^2 + y^2 \geq 1\}$
2. $\{(x,y): y^2 \geq x\}$
3. $\{(x,y): 3x^2 + 4y^2 \geq 5\}$
4. $\{(x,y): y \geq 2, y \leq 4\}$

Options :

686340167989. 1
686340167990. 2
686340167991. 3
686340167992. 4

Question Number : 98 Question Id : 68634042531 Question Type : MCQ Option Shuffling : No 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 समुच्चय अवमुख है -

1. $\{(x,y): x^2 + y^2 \geq 1\}$
2. $\{(x,y): y^2 \geq x\}$
3. $\{(x,y): 3x^2 + 4y^2 \geq 5\}$
4. $\{(x,y): y \geq 2, y \leq 4\}$

Options :
686340167989. 1
686340167990. 2
686340167991. 3
686340167992. 4

Question Number : 99 Question Id : 68634042532 Question Type : MCQ Option Shuffling : No 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 there is no feasible region in LPP , then the problem has :

1. Unique solution
2. Infinite solutions
3. Unbounded solution
4. No solution

Options :
686340167993. 1
686340167994. 2
686340167995. 3
686340167996. 4

Question Number : 99 Question Id : 68634042532 Question Type : MCQ Option Shuffling : No 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 रैखिक प्रोग्रामन समस्या में कोई भी सुसंगत क्षेत्र नहीं है, तब समस्या का _____.

1. अद्वितीय हल है
2. अनन्त हल हैं
3. अपरिबद्ध हल है
4. कोई हल नहीं है

Options :
686340167993. 1
686340167994. 2
686340167995. 3
686340167996. 4

Question Number : 100 Question Id : 68634042533 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

From the given system of constraints

A. $3x + 5y \leq 90$
B. $x + 2y \leq 30$
C. $2x + y \leq 30$
D. $x \geq 0, y \geq 0$

The redundant constraint is :

1. D

2. A

3. B

4. C

Options :
686340167997. 1
686340167998. 2
686340167999. 3
686340168000. 4

Question Number : 100 Question Id : 68634042533 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

व्यवरोधों के दिए गए निकाय :

A. $3x + 5y \leq 90$
B. $x + 2y \leq 30$
C. $2x + y \leq 30$
D. $x \geq 0, y \geq 0$

में से अतिरेक व्यवरोध है :

1. D

2. A

3. B

4. C

Options :

686340167997. 1

686340167998. 2

686340167999. 3

686340168000. 4