

National Testing Agency

Question Paper Name :	Nanoelectronics Material Sciences Eng 30th June 2023 Shift 3
Subject Name :	Nanoelectronics Material Sciences Eng
Creation Date :	2023-06-30 23:01:13
Duration :	120
Total Marks :	400
Display Marks:	Yes

Nanoelectronics Material Sciences

Group Number :	1
Group Id :	686340426
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 :	686340847
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 :	6863401409
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 68634043039 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 : 68634043040 Question Type : MCQ Option Shuffling : No 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 :

686340170001. 1
686340170002. 2
686340170003. 3
686340170004. 4

Question Number : 2 Question Id : 68634043041 Question Type : MCQ Option Shuffling : No 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 :

686340170005. 1
686340170006. 2
686340170007. 3
686340170008. 4

Question Number : 3 Question Id : 68634043042 Question Type : MCQ Option Shuffling : No 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 :

686340170009. 1
686340170010. 2
686340170011. 3
686340170012. 4

Question Number : 4 Question Id : 68634043043 Question Type : MCQ Option Shuffling : No 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 :

686340170013. 1
686340170014. 2
686340170015. 3
686340170016. 4

Question Number : 5 Question Id : 68634043044 Question Type : MCQ Option Shuffling : No 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 tremendous 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 :

686340170017. 1
686340170018. 2
686340170019. 3
686340170020. 4

Question Id : 68634043039 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 : 68634043040 Question Type : MCQ Option Shuffling : No 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 :

686340170001. 1
686340170002. 2
686340170003. 3
686340170004. 4

Question Number : 2 Question Id : 68634043041 Question Type : MCQ Option Shuffling : No 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 :

686340170005. 1
686340170006. 2
686340170007. 3
686340170008. 4

Question Number : 3 Question Id : 68634043042 Question Type : MCQ Option Shuffling : No 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 :

686340170009. 1
686340170010. 2
686340170011. 3
686340170012. 4

Question Number : 4 Question Id : 68634043043 Question Type : MCQ Option Shuffling : No 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 :

686340170013. 1
686340170014. 2
686340170015. 3

Question Number : 5 Question Id : 68634043044 Question Type : MCQ Option Shuffling : No 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 tremendous 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 :

686340170017. 1
686340170018. 2
686340170019. 3
686340170020. 4

Sub-Section Number :

2

Sub-Section Id :

6863401410

Question Shuffling Allowed :

Yes

Is Section Default? :

null

Question Number : 6 Question Id : 68634043045 Question Type : MCQ Option Shuffling : No 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 :

686340170021. 1
686340170022. 2
686340170023. 3
686340170024. 4

Question Number : 6 Question Id : 68634043045 Question Type : MCQ Option Shuffling : No 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 :

686340170021. 1

686340170022. 2

686340170023. 3

686340170024. 4

Question Number : 7 Question Id : 68634043046 Question Type : MCQ Option Shuffling : No 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 :

686340170025. 1

686340170026. 2

686340170027. 3

686340170028. 4

Question Number : 7 Question Id : 68634043046 Question Type : MCQ Option Shuffling : No 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 :

686340170025. 1
686340170026. 2
686340170027. 3
686340170028. 4

Question Number : 8 Question Id : 68634043047 Question Type : MCQ Option Shuffling : No 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 :

686340170029. 1
686340170030. 2
686340170031. 3
686340170032. 4

Question Number : 8 Question Id : 68634043047 Question Type : MCQ Option Shuffling : No 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 :

686340170029. 1
686340170030. 2

686340170031. 3

686340170032. 4

Question Number : 9 Question Id : 68634043048 Question Type : MCQ Option Shuffling : No 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 :

686340170033. 1

686340170034. 2

686340170035. 3

686340170036. 4

Question Number : 9 Question Id : 68634043048 Question Type : MCQ Option Shuffling : No 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 :

686340170033. 1

686340170034. 2

686340170035. 3

686340170036. 4

Question Number : 10 Question Id : 68634043049 Question Type : MCQ Option Shuffling : No 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 :

686340170037. 1
686340170038. 2
686340170039. 3
686340170040. 4

Question Number : 10 Question Id : 68634043049 Question Type : MCQ Option Shuffling : No 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 :

686340170037. 1
686340170038. 2
686340170039. 3
686340170040. 4

Question Number : 11 Question Id : 68634043050 Question Type : MCQ Option Shuffling : No 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 :

686340170041. 1
686340170042. 2
686340170043. 3
686340170044. 4

Question Number : 11 Question Id : 68634043050 Question Type : MCQ Option Shuffling : No 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 :

686340170041. 1
686340170042. 2
686340170043. 3
686340170044. 4

Question Number : 12 Question Id : 68634043051 Question Type : MCQ Option Shuffling : No 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 :

686340170045. 1

686340170046. 2

686340170047. 3

686340170048. 4

Question Number : 12 Question Id : 68634043051 Question Type : MCQ Option Shuffling : No 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 :

686340170045. 1

686340170046. 2

686340170047. 3

686340170048. 4

Question Number : 13 Question Id : 68634043052 Question Type : MCQ Option Shuffling : No 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 :

686340170049. 1
686340170050. 2
686340170051. 3
686340170052. 4

Question Number : 13 Question Id : 68634043052 Question Type : MCQ Option Shuffling : No 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 :

686340170049. 1
686340170050. 2
686340170051. 3
686340170052. 4

Question Number : 14 Question Id : 68634043053 Question Type : MCQ Option Shuffling : No 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 1 year, 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 :

- 686340170053. 1
- 686340170054. 2
- 686340170055. 3
- 686340170056. 4

Question Number : 14 Question Id : 68634043053 Question Type : MCQ Option Shuffling : No 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 1 year, 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 :

- 686340170053. 1
- 686340170054. 2
- 686340170055. 3
- 686340170056. 4

Question Number : 15 Question Id : 68634043054 Question Type : MCQ Option Shuffling : No 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 :

- 686340170057. 1
- 686340170058. 2
- 686340170059. 3
- 686340170060. 4

Question Number : 15 Question Id : 68634043054 Question Type : MCQ Option Shuffling : No 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 :

686340170057. 1
686340170058. 2
686340170059. 3
686340170060. 4

Question Number : 16 Question Id : 68634043055 Question Type : MCQ Option Shuffling : No 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 :

686340170061. 1
686340170062. 2
686340170063. 3
686340170064. 4

Question Number : 16 Question Id : 68634043055 Question Type : MCQ Option Shuffling : No 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 :

- 686340170061. 1
- 686340170062. 2
- 686340170063. 3
- 686340170064. 4

Question Number : 17 Question Id : 68634043056 Question Type : MCQ Option Shuffling : No 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)

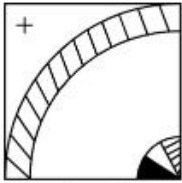
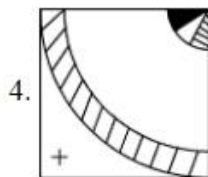
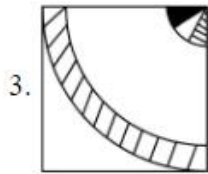
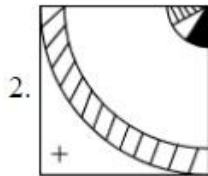
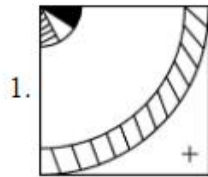


Fig (x)



Options :

686340170065. 1

686340170066. 2

686340170067. 3

686340170068. 4

Question Number : 17 Question Id : 68634043056 Question Type : MCQ Option Shuffling : No 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)

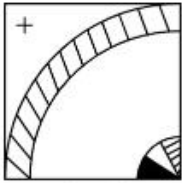
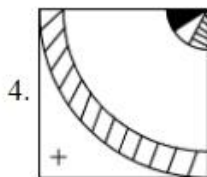
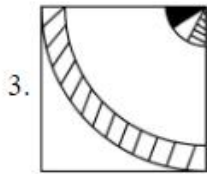
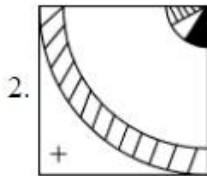
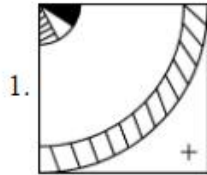


Fig (x)



Options :

686340170065. 1

686340170066. 2

686340170067. 3

686340170068. 4

Question Number : 18 Question Id : 68634043057 Question Type : MCQ Option Shuffling : No 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 :

686340170069. 1

686340170070. 2
686340170071. 3
686340170072. 4

Question Number : 18 Question Id : 68634043057 Question Type : MCQ Option Shuffling : No 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 :

686340170069. 1
686340170070. 2
686340170071. 3
686340170072. 4

Question Number : 19 Question Id : 68634043058 Question Type : MCQ Option Shuffling : No 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. 3GMW42NA
2. 3GMW42NV
3. 3GWM42NV
4. 3GMW42NA

Options :

686340170073. 1
686340170074. 2
686340170075. 3
686340170076. 4

Question Number : 19 Question Id : 68634043058 Question Type : MCQ Option Shuffling : No 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. 3DMW42NA

2. 3DWM42NV

3. 3GWM42NV

4. 3DWM42NV

Options :

686340170073. 1

686340170074. 2

686340170075. 3

686340170076. 4

Question Number : 20 Question Id : 68634043059 Question Type : MCQ Option Shuffling : No 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 :

686340170077. 1

686340170078. 2

686340170079. 3

686340170080. 4

Question Number : 20 Question Id : 68634043059 Question Type : MCQ Option Shuffling : No 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 :

686340170077. 1
686340170078. 2
686340170079. 3
686340170080. 4

Question Number : 21 Question Id : 68634043060 Question Type : MCQ Option Shuffling : No 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 :

686340170081. 1
686340170082. 2
686340170083. 3
686340170084. 4

Question Number : 21 Question Id : 68634043060 Question Type : MCQ Option Shuffling : No 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 :

686340170081. 1
686340170082. 2
686340170083. 3
686340170084. 4

Question Number : 22 Question Id : 68634043061 Question Type : MCQ Option Shuffling : No 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 :

686340170085. 1
686340170086. 2
686340170087. 3
686340170088. 4

Question Number : 22 Question Id : 68634043061 Question Type : MCQ Option Shuffling : No 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 :

686340170085. 1
686340170086. 2
686340170087. 3
686340170088. 4

Question Number : 23 Question Id : 68634043062 Question Type : MCQ Option Shuffling : No 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 :

686340170089. 1
686340170090. 2
686340170091. 3
686340170092. 4

Question Number : 23 Question Id : 68634043062 Question Type : MCQ Option Shuffling : No 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 :

686340170089. 1
686340170090. 2
686340170091. 3
686340170092. 4

Question Number : 24 Question Id : 68634043063 Question Type : MCQ Option Shuffling : No 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 :

686340170093. 1
686340170094. 2
686340170095. 3
686340170096. 4

Question Number : 24 Question Id : 68634043063 Question Type : MCQ Option Shuffling : No 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 :

686340170093. 1
686340170094. 2
686340170095. 3
686340170096. 4

Question Number : 25 Question Id : 68634043064 Question Type : MCQ Option Shuffling : No 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 :

686340170097. 1
686340170098. 2
686340170099. 3
686340170100. 4

Question Number : 25 Question Id : 68634043064 Question Type : MCQ Option Shuffling : No 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 :

686340170097. 1
686340170098. 2
686340170099. 3
686340170100. 4

Part B: Nanoelectronics Material Sciences

Section Id :	686340848
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 :	6863401411
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 26 Question Id : 68634043065 Question Type : MCQ Option Shuffling : No Is Question Mandatory :
No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

When an intrinsic semiconductor is doped with pentavalent impurity its fermi level

1. shift towards conduction band
2. shift towards valence band
3. does not change
4. show random shift

Options :

686340170101. 1
686340170102. 2
686340170103. 3
686340170104. 4

Question Number : 26 Question Id : 68634043065 Question Type : MCQ Option Shuffling : No Is Question Mandatory :
No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

जब एक आंतरिक अर्धचालक को पेंटावलेन्ट (pentavalent) प्रवेशनीय अशुद्धि के साथ योजित किया जाता है, तो उसका फेर्मी स्तर

1. चालकता पट्टी (conduction band) की ओर स्थानांतरित होता है।
2. वैलन्स पट्टी की ओर स्थानांतरित होता है।
3. परिवर्तन नहीं होता है।
4. यादृच्छिक बदलाव दर्शाता है।

Options :

686340170101. 1
686340170102. 2
686340170103. 3
686340170104. 4

Question Number : 27 Question Id : 68634043066 Question Type : MCQ Option Shuffling : No 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 PN Junction diode

- A. The depletion region width increases with an increase in applied reverse bias voltage.
- B. Depletion region width increases with an increase in applied forward bias voltage .
- C. Depletion region width depends upon the doping level of the doped semiconductor region.
- D. Depletion region width does not depend on the doping of doped semiconductor region.

Choose the correct answer from the options given below:

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

Options :

686340170105. 1
686340170106. 2
686340170107. 3
686340170108. 4

Question Number : 27 Question Id : 68634043066 Question Type : MCQ Option Shuffling : No Is Question Mandatory :
No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

PN जंक्शन डायोड में

1. पश्चिदिशिक बाइयास (reverse bias) वोल्टेज के बढ़ने से गैर संयोजन क्षेत्र की चौड़ाई बढ़ती है।
2. लागू की गई अग्रबाइयास (forward bias) वोल्टेज के बढ़ने से अवशय क्षेत्र की चौड़ाई बढ़ती है।
3. अवशय प्रदीप्तिशील सेमीकंडक्टर क्षेत्र के डोपिंग स्तर पर गैर संयोजन क्षेत्र की चौड़ाई निर्भर करती है।
4. अवशय प्रदीप्तिशील सेमीकंडक्टर क्षेत्र के डोपिंग पर अवशय क्षेत्र की चौड़ाई पर प्रभाव नहीं पड़ता।

नीचे दिए गए विकल्पों में से सही उत्तर दीजिए :

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

Options :

686340170105. 1
686340170106. 2
686340170107. 3
686340170108. 4

Question Number : 28 Question Id : 68634043067 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

Given below are two statements:

Statement I: The transition capacitance dominates in Reverse Bias region.

Statement II: Diffusion capacitance dominates in forward bias region.

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 :

686340170109. 1
686340170110. 2
686340170111. 3
686340170112. 4

Question Number : 28 Question Id : 68634043067 Question Type : MCQ Option Shuffling : No 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) : पश्चदिशिक बाइयास क्षेत्र (reverse bias region) में संक्रमण संधारित्र प्रभुत्व रखती है।

कथन (II) : अग्र बाइयास (forward bias) क्षेत्र में विसरण क्षमता प्रभुत्व रखती है।

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

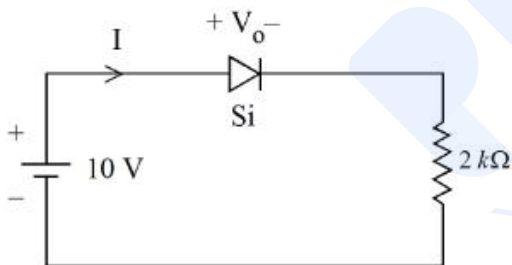
1. कथन I और कथन II दोनों सत्य हैं।
2. कथन I और कथन II दोनों असत्य हैं।
3. कथन I सत्य है लेकिन कथन II असत्य है।
4. कथन I असत्य है लेकिन कथन II सत्य है।

Options :

686340170109. 1
686340170110. 2
686340170111. 3
686340170112. 4

Question Number : 29 Question Id : 68634043068 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

For the following Circuit, determine the value of I



Assume the voltage drop across forward bias Si diode is 0.7V

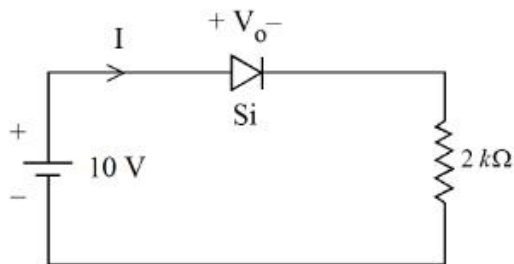
1. 3.65 mA
2. 4.65 mA
3. 5 mA
4. 0 mA

Options :

686340170113. 1
686340170114. 2
686340170115. 3
686340170116. 4

Question Number : 29 Question Id : 68634043068 Question Type : MCQ Option Shuffling : No 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 दिए गए सर्किट (परिपथ) के लिए, I का मान निर्धारण करें।



मान लीजिए कि अग्र बाइयास Si डायोड पर वोल्टेज गिरावट 0.7V है।

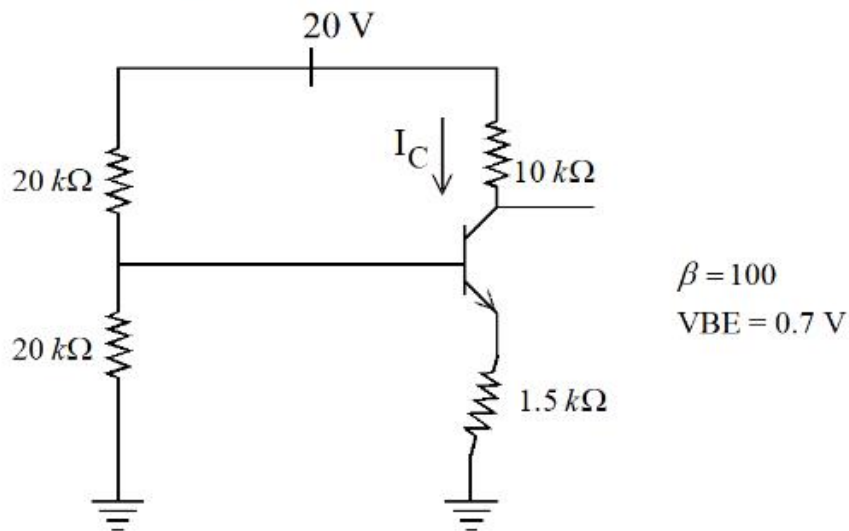
1. 3.65 mA
2. 4.65 mA
3. 5 mA
4. 0 mA

Options :

686340170113. 1
686340170114. 2
686340170115. 3
686340170116. 4

Question Number : 30 Question Id : 68634043069 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

For the following BJT Circuit



The value of I_C is :

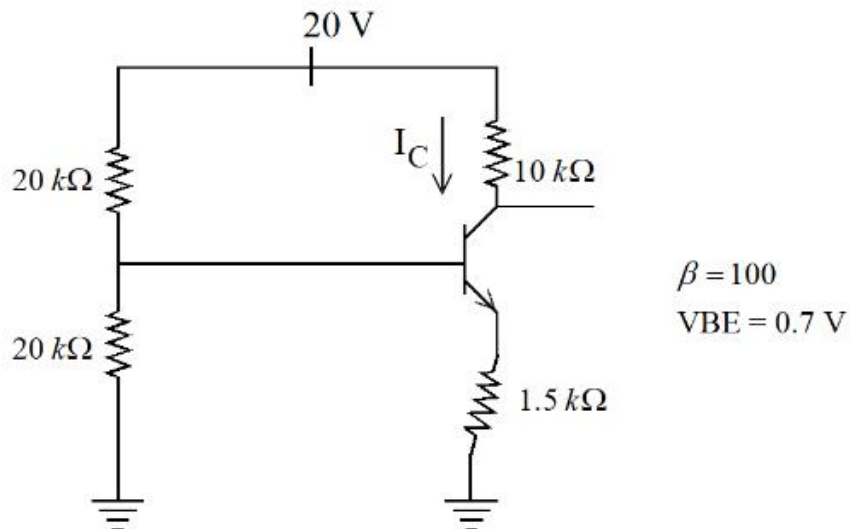
1. 5.75 mA
2. 5 mA
3. 5.10 mA
4. 5.95 mA

Options :

686340170117. 1
686340170118. 2
686340170119. 3
686340170120. 4

Question Number : 30 Question Id : 68634043069 Question Type : MCQ Option Shuffling : No 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 दिए गए BJT सर्किट (परिपथ) के लिए।



I_C की मान्यता है।

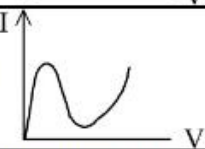
1. 5.75 mA
2. 5 mA
3. 5.10 mA
4. 5.95 mA

Options :

686340170117. 1
686340170118. 2
686340170119. 3
686340170120. 4

Question Number : 31 Question Id : 68634043070 Question Type : MCQ Option Shuffling : No 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.	VI characteristics of a Tunnel diode	I.	
B.	VI characteristics of PN diodes	II.	
C.	Tunnel Diode exhibits	III.	Negative resistance
D.	Ordinary diode exhibits	IV.	Positive resistance

Choose the correct answer from the options given below:

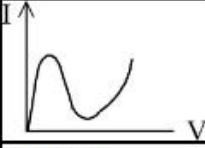
1. A-I, B-II, C-III, D-IV
2. A-II, B-I, C-III, D-IV
3. A-I, B-II, C-IV, D-III
4. A-II, B-I, C-IV, D-III

Options :

686340170121. 1
 686340170122. 2
 686340170123. 3
 686340170124. 4

Question Number : 31 Question Id : 68634043070 Question Type : MCQ Option Shuffling : No 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 :

सूची I		सूची II	
A.	टनल डायोड की VI विशेषता	I.	
B.	साधारण पीएन डायोड की VI विशेषता (VI characteristics)	II.	
C.	टनल डायोड प्रदर्शित करता है।	III.	Negative resistance
D.	साधारण डायोड प्रदर्शित करता है।	IV.	Positive resistance

निम्नलिखित विकल्पों में से सही उत्तर का चयन कीजिए :

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

Options :

686340170121. 1
686340170122. 2
686340170123. 3
686340170124. 4

Question Number : 32 Question Id : 68634043071 Question Type : MCQ Option Shuffling : No 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 JFET, for a particular value of gate voltage, the drain current saturates as we increase the V_{DS} beyond a certain level, it happens because :

1. Increased channel resistances due to the narrowing of the channel
2. the drain no longer attracts the electrons
3. all the electrons are exhausted
4. All the holes are exhausted

Options :

686340170125. 1
686340170126. 2
686340170127. 3
686340170128. 4

Question Number : 32 Question Id : 68634043071 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

JEFT में एक विशेष मान के लिए गेट वोल्टेज के साथ जब हम V_{DS} को निश्चित स्तर से अधिक बढ़ाते हैं, तो ड्रेन विद्युत (drain current) संघटित हो जाता है। यह उस कारण होता है क्योंकि -

1. चैनल के संकरे के कारण चैनल प्रतिरोध बढ़ जाता है।
2. ड्रेन (Drain) अब इलेक्ट्रॉन को आकर्षित नहीं करता है।
3. सभी इलेक्ट्रॉन खत्म हो जाते हैं।
4. सारे छिद्र (hole) खत्म हो गए हैं।

Options :

686340170125. 1
686340170126. 2
686340170127. 3
686340170128. 4

Question Number : 33 Question Id : 68634043072 Question Type : MCQ Option Shuffling : No 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 MOSFET, keeping all other factor constant, when SiO_2 /gate oxide, thickness is increased, the drain current will

1. Increase
2. Decrease
3. Remains constant
4. changes arbitrarily

Options :

686340170129. 1
686340170130. 2
686340170131. 3
686340170132. 4

Question Number : 33 Question Id : 68634043072 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

MOSFET में, अन्य सभी कारकों को स्थिर रखते हुए जब SiO_2 /गेट ऑक्साइड मोटाई बढ़ाई जाती है, तो ड्रेन विद्युत (drain current)

1. बढ़ जाएगा।
2. कम होगा।
3. स्थिर रहेगा।
4. अनुमानहीन परिवर्तनों

Options :

686340170129. 1
686340170130. 2
686340170131. 3
686340170132. 4

Question Number : 34 Question Id : 68634043073 Question Type : MCQ Option Shuffling : No 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 MOSFET has much higher Input impedance as compared to BJT, this can be attributed to

1. The presence of gate oxide in MOSFET
2. Due to the unipolar nature of MOSFET
3. MOSFET has lower channel doping
4. Both the source and the drain have same dopants

Options :

686340170133. 1
686340170134. 2
686340170135. 3
686340170136. 4

Question Number : 34 Question Id : 68634043073 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

MOSFET, BJT की तुलना में बहुत अधिक इनपुट आवेदनीकरण संपीड़न होता है जिसे इन कारणों से संबंधित किया जा सकता है :

1. MOSFET में गेट ऑक्साइड की मौजूदगी
2. MOSFET की एकपोलर प्रकृति के कारण
3. MOSFET में निम्नतम चैनल डोपिंग
4. स्रोत और ड्रेन में समान डोपेन्ट होने की वजह से

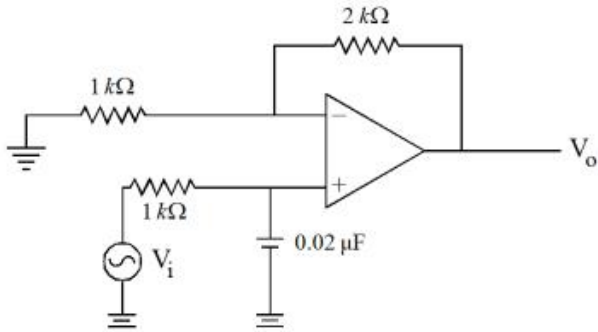
Options :

686340170133. 1
686340170134. 2
686340170135. 3
686340170136. 4

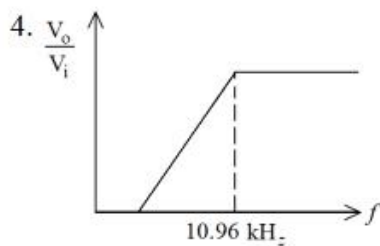
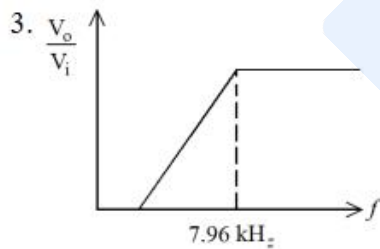
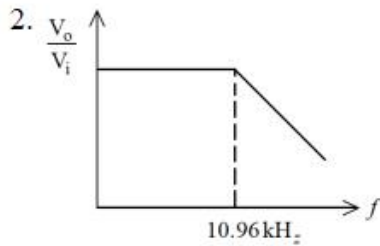
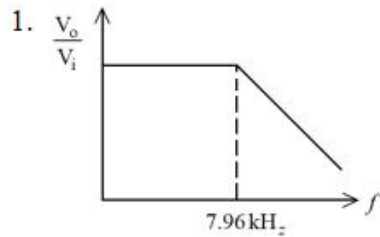
Question Number : 35 Question Id : 68634043074 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

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Consider the given OP-AMP circuit



The normalised frequency response(V_o/V_i vs f) is

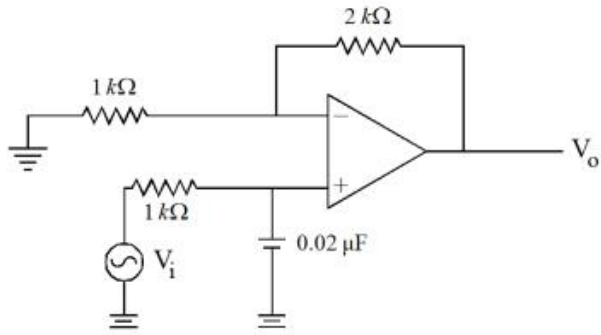


Options :

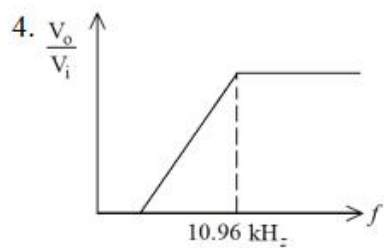
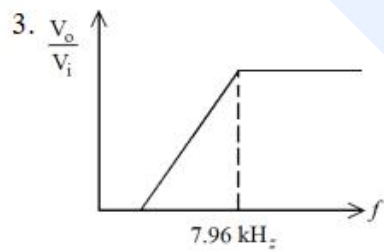
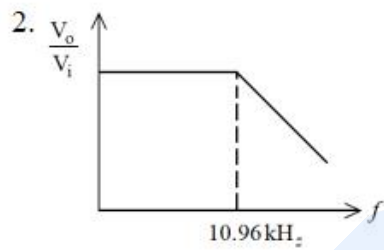
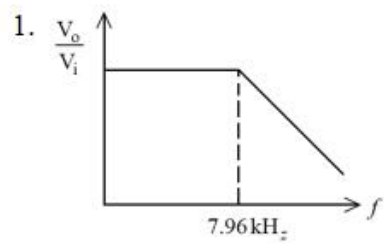
- 686340170137. 1
- 686340170138. 2
- 686340170139. 3
- 686340170140. 4

Correct Marks : 4 Wrong Marks : 1

दिए गए ऑप-एम्प (OP-AMP) परिपथ को ध्यान में रखें।



मानकीकृत आवृत्ति प्रतिक्रिया हैं।



Options :

686340170137. 1

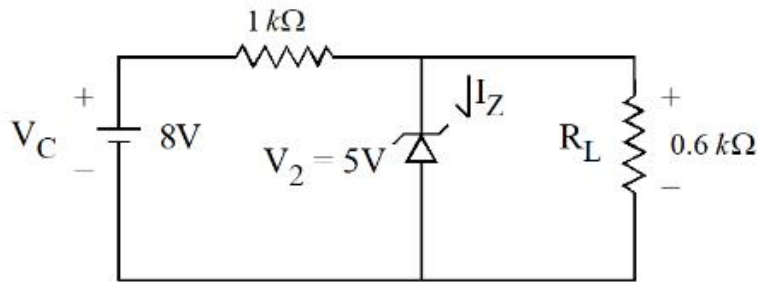
686340170138. 2

686340170139. 3

686340170140. 4

Question Number : 36 Question Id : 68634043075 Question Type : MCQ Option Shuffling : No 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 figure,



Determine the value of V_L

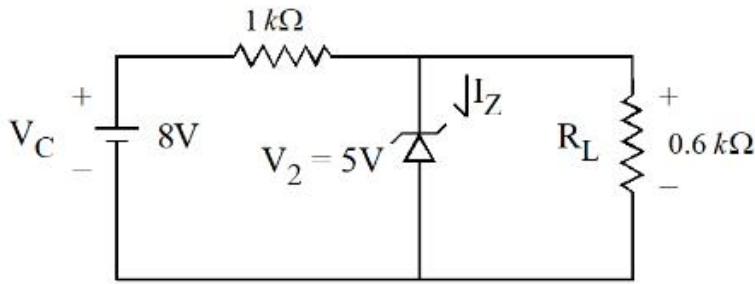
1. 3.1
2. 5.1
3. 3
4. 5

Options :

686340170141. 1
686340170142. 2
686340170143. 3
686340170144. 4

Question Number : 36 Question Id : 68634043075 Question Type : MCQ Option Shuffling : No 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 आकृति को ध्यान में रखें।



V_L की मान्यता निर्धारित करें।

1. 3.1
2. 5.1
3. 3
4. 5

Options :

686340170141. 1
686340170142. 2
686340170143. 3
686340170144. 4

Question Number : 37 Question Id : 68634043076 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

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

Assertion A: In an oscillator circuit, if the amplifier provide a phase shift of 180° , the feedback should also provide a phase shift of 180° .

Reason R: This is to ensure that total phase shift in the loop is 360° or 0°

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 :

686340170145. 1
686340170146. 2
686340170147. 3
686340170148. 4

Question Number : 37 Question Id : 68634043076 Question Type : MCQ Option Shuffling : No 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 है **अभिकथन (A)** के रूप में लिखित है तो दूसरा उसके **कारण (R)** के रूप में;

अभिकथन (A) : एक ऑसिलेटर सर्किट में, यदि एम्पलीफायर 180 डिग्री का फेज शिफ्ट प्रदान करता है, तो प्रतिक्रिया (feedback) को भी 180 डिग्री का फेज शिफ्ट प्रदान करनी चाहिए।

कारण (R) : यह सुनिश्चित करने के लिए है लूप फेज शिफ्ट 360 डिग्री हो या 0 डिग्री।

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

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

Options :

- 686340170145. 1
- 686340170146. 2
- 686340170147. 3
- 686340170148. 4

Question Number : 38 Question Id : 68634043077 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

The condition for maximum power to be transferred is represented by

1. $Z_L = Z_{TH}$
2. $Z_L = Z_{TH}^*$
3. $Z_L < Z_{TH}$
4. $Z_L > Z_{TH}$

Options :

- 686340170149. 1
- 686340170150. 2
- 686340170151. 3
- 686340170152. 4

Question Number : 38 Question Id : 68634043077 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

अधिकतम शक्ति संकलित करने की स्थिति को प्रतिष्ठित किया जाता है।

1. $Z_L = Z_{TH}$

2. $Z_L = Z_{TH}^*$

3. $Z_L < Z_{TH}$

4. $Z_L > Z_{TH}$

Options :

686340170149. 1

686340170150. 2

686340170151. 3

686340170152. 4

Question Number : 39 Question Id : 68634043078 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Advantage of using digital technique is _____

1. Only two levels ('ON' or 'OFF') of voltage or current are used, which make it easier to design circuitry.
2. Digital circuits are more prone to noise
3. Digital techniques provide lesser accuracy
4. Digital techniques enable placing of less integrated circuits (IC) on chips

Options :

686340170153. 1

686340170154. 2

686340170155. 3

686340170156. 4

Question Number : 39 Question Id : 68634043078 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

डिजिटल तकनीक का उपयोग करने के लाभ।

1. केवल दो स्तर ('चालू' या 'बंद') के वोल्टेज या करंट का उपयोग किया जाता है, जिससे सर्किट निर्माण करना आसान हो जाता है।
2. डिजिटल सर्किट शोर (noise) के प्रति अधिक संवेदनशील होते हैं।
3. डिजिटल तकनीक संख्यात्मक शैली में कम सटीकता प्रदान करती है।
4. डिजिटल तकनीकों की सहायता से चिप्स पर कम इंटीग्रेटेड सर्किट्स (IC) को स्थापित किया जा सकता है।

Options :

- 686340170153. 1
- 686340170154. 2
- 686340170155. 3
- 686340170156. 4

Question Number : 40 Question Id : 68634043079 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Convert $(573)_8$ to its hexadecimal equivalent

1. 100111011_2
2. 101111011_2
3. 100110011_2
4. 100111101_2

Options :

- 686340170157. 1
- 686340170158. 2
- 686340170159. 3
- 686340170160. 4

Question Number : 40 Question Id : 68634043079 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

(573)₈ को इसके हेक्साडेसिमल समकक्ष में परिवर्तित करें।

1. 100111011₂
2. 101111011₂
3. 100110011₂
4. 100111101₂

Options :

686340170157. 1
686340170158. 2
686340170159. 3
686340170160. 4

Question Number : 41 Question Id : 68634043080 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

Kirchhoff's current law (KCL) follows

1. Law of conservation of charge
2. Law of conservation of energy
3. An equipotential point at which two or more circuit elements are joined
4. a part of network which lies between junction points

Options :

686340170161. 1
686340170162. 2
686340170163. 3
686340170164. 4

Question Number : 41 Question Id : 68634043080 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

किर्चहोफ (Kirchhoff Law) का धारा (current) नियम अनुसरण करता है।

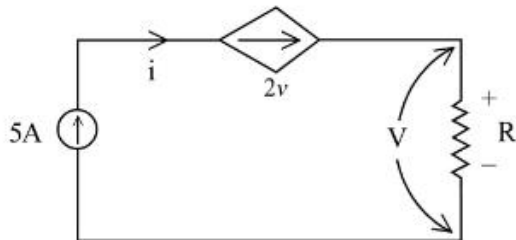
1. आवेश (charge) के संरक्षण का नियम।
2. ऊर्जा के संरक्षण का नियम।
3. एक समक्ष स्थान जहाँ दो या अधिक सर्किट तत्वों को जोड़ा जाता है।
4. एक नेटवर्क का एक हिस्सा जो संगम बिन्दु के बीच स्थित होता है।

Options :

686340170161. 1
686340170162. 2
686340170163. 3
686340170164. 4

Question Number : 42 Question Id : 68634043081 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Obtain the value of R in the circuit of given in the following figure:



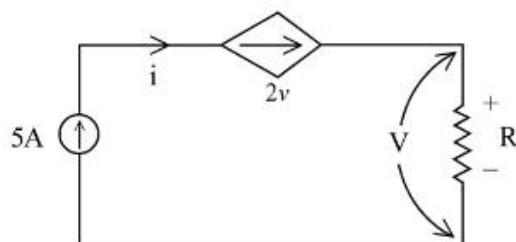
1. 0.25Ω
2. 0.50Ω
3. 0.75Ω
4. 0.125Ω

Options :

686340170165. 1
686340170166. 2
686340170167. 3
686340170168. 4

Question Number : 42 Question Id : 68634043081 Question Type : MCQ Option Shuffling : No 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 दिए गए आकृति के परिपथ (सर्किट) में R की मान्यता प्राप्त करें।



1. 0.25Ω
2. 0.50Ω
3. 0.75Ω
4. 0.125Ω

Options :

- 686340170165. 1
- 686340170166. 2
- 686340170167. 3
- 686340170168. 4

Question Number : 43 Question Id : 68634043082 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

Impedance (Z) of an AC Circuit

- 1. changes with system frequency
- 2. does not change with system frequency
- 3. is independent of sinusoidal voltage source
- 4. depends on phase angle

Options :

- 686340170169. 1
- 686340170170. 2
- 686340170171. 3
- 686340170172. 4

Question Number : 43 Question Id : 68634043082 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

प्रत्यावर्ती धारा (A. C) परिपथ (सर्किट) की प्रतिरोध (Impedance)

- 1. सिस्टम फ्रिक्वेंसी (आवृत्ति) के साथ परिवर्तन करता है।
- 2. सिस्टम फ्रिक्वेंसी (आवृत्ति) के साथ परिवर्तन नहीं होता है।
- 3. साइनसॉइडल वोल्टेज स्रोत पर आवंछित (असंगत) है।
- 4. फेज एंगल पर निर्भर करता है।

Options :

- 686340170169. 1
- 686340170170. 2
- 686340170171. 3
- 686340170172. 4

Question Number : 44 Question Id : 68634043083 Question Type : MCQ Option Shuffling : No 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: Norton theorem is converse of Thevenin's theorem

Statement II: The determination of internal resistance of the source network is identical in Norton's as well as Thevenin's theorem

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 :

686340170173. 1
686340170174. 2
686340170175. 3
686340170176. 4

Question Number : 44 Question Id : 68634043083 Question Type : MCQ Option Shuffling : No 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 : नॉर्टन (Norton) का सिद्धांत थेवनिन (Thevenin's) के सिद्धांत का उल्ट है।

कथन II : नॉर्टन और थेवनिन सिद्धांतों में स्रोत नेटवर्क की आंतरिक प्रतिरोध की निर्धारण एक समान होती है।

उपरोक्त कथनों के प्रकाश में दिए गए विकल्पों में सही उत्तर का चयन कीजिए :

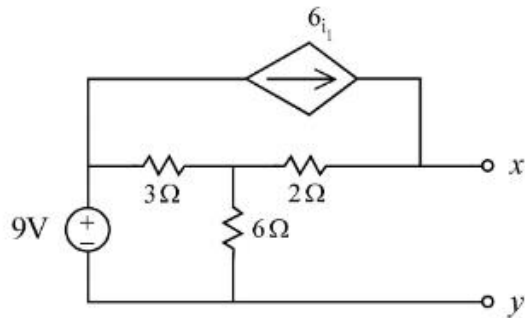
1. कथन I और कथन II दोनों सत्य हैं।
2. कथन I और कथन II दोनों असत्य हैं।
3. कथन I सत्य है लेकिन कथन II असत्य है।
4. कथन I असत्य है लेकिन कथन II सत्य है।

Options :

686340170173. 1
686340170174. 2
686340170175. 3
686340170176. 4

Question Number : 45 Question Id : 68634043084 Question Type : MCQ Option Shuffling : No 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 Norton's equivalent current to the left of x-y terminal as shown in figure



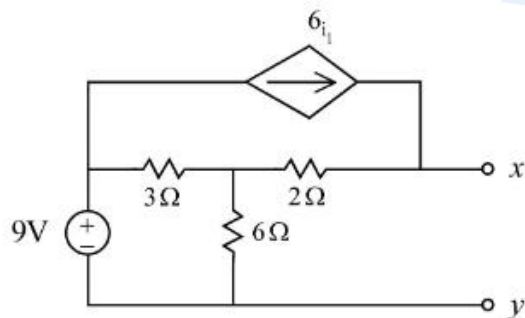
1. 4.5 A
2. 3.5 A
3. 4 A
4. 3 A

Options :

686340170177. 1
 686340170178. 2
 686340170179. 3
 686340170180. 4

Question Number : 45 Question Id : 68634043084 Question Type : MCQ Option Shuffling : No 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 परिपथ x-y टर्मिनल के बाईं ओर नॉर्टन विद्युत धारा का समकक्ष खोजें।



1. 4.5 A
2. 3.5 A
3. 4 A
4. 3 A

Options :

686340170177. 1
686340170178. 2
686340170179. 3
686340170180. 4

**Question Number : 46 Question Id : 68634043085 Question Type : MCQ Option Shuffling : No Is Question Mandatory :
No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1**

Maximum power transfer theorem is based on

- A. Ohm's law
- B. Thevenin's theorem
- C. Superposition theorem
- D. Reciprocity theorem
- E. Substitution theorem

Choose the correct answer from the options given below:

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

Options :

686340170181. 1
686340170182. 2
686340170183. 3
686340170184. 4

**Question Number : 46 Question Id : 68634043085 Question Type : MCQ Option Shuffling : No Is Question Mandatory :
No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1**

अधिकतम शक्ति स्थानांतरण प्रमये के मूल पर आधारित है।

- A. ओम का नियम (Ohm's law)
- B. थेवेनिन प्रमेय
- C. सुपरपोजिशन प्रमेय
- D. पारस्परिकता प्रमेय
- E. प्रतिस्थापन प्रमेय

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

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

Options :

- 686340170181. 1
- 686340170182. 2
- 686340170183. 3
- 686340170184. 4

Question Number : 47 Question Id : 68634043086 Question Type : MCQ Option Shuffling : No 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: Frequency deviation is proportional to the instantaneous amplitude of the modulating voltage.

Statement II: In FM, all components of the modulating signal having the same amplitude will deviate the carrier frequency by the same amount, no matter what are their frequencies.

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

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

Options :

- 686340170185. 1
- 686340170186. 2
- 686340170187. 3
- 686340170188. 4

Question Number : 47 Question Id : 68634043086 Question Type : MCQ Option Shuffling : No 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 : आवृत्ति विचलन मॉड्युलेशन वोल्टेज के क्षणिक आयाम के अनुपात में होता है।

कथन II : एफ एम (FM) में, मॉड्युलेटिंग संकेत के सभी घटक जो एक ही आंतरिकता वाले होंगे, वे कैरियर आवृत्ति को समान मात्रा में विचलित करेंगे, चाहे उनकी आवृत्तियाँ कुछ भी हों।

उपरोक्त कथनों के प्रकाश में दिए गए विकल्पों में सही उत्तर का चयन कीजिए :

1. कथन I और कथन II दोनों सत्य हैं।
2. कथन I और कथन 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 :

686340170185. 1
686340170186. 2
686340170187. 3
686340170188. 4

Question Number : 48 Question Id : 68634043087 Question Type : MCQ Option Shuffling : No 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.	Maximum frequency deviation	I.	$K_f V_m$
B.	maximum phase deviation	II.	$K_p V_m$
C.	Instantaneous value of the PM Voltage (V_{PM})	III.	$V_c \sin(\omega_c t + m_f \cos \omega_m t)$
D.	Instantaneous value of the FM Voltage (V_{FM})	IV.	$V_c \sin(\omega_c t + \Phi_c + K_p V_m \cos \omega_m t)$

Choose the correct answer from the options given below:

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

Options :

686340170189. 1
686340170190. 2
686340170191. 3
686340170192. 4

Question Number : 48 Question Id : 68634043087 Question Type : MCQ Option Shuffling : No 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 :

सूची I		सूची II	
A.	अधिकतम आवृत्ति विचलन	I.	$K_f V_m$
B.	अधिकतम चरण विचलन	II.	$K_p V_m$
C.	PM वोल्टेज (V_{PM}) की क्षणिक मान	III.	$V_c \sin(\omega_c t + m_f \cos \omega_m t)$
D.	FM वोल्टेज (V_{FM}) की क्षणिक मान	IV.	$V_c \sin(\omega_c t + \Phi_c + K_p V_m \cos \omega_m t)$

नीचे दिए गए विकल्पों में से सही उत्तर दीजिए :

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

Options :

686340170189. 1
686340170190. 2
686340170191. 3
686340170192. 4

Question Number : 49 Question Id : 68634043088 Question Type : MCQ Option Shuffling : No 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. Antenna is an electronic device designed to send and receive electromagnetic waves efficiently.
- B. The height of an antenna is specified in terms of wavelength(λ).
- C. Minimum height of a vertical antenna must be $\frac{\lambda}{4}$
- D. Minimum height of a vertical antenna must be $\frac{\lambda}{8}$
- E. Diversity of an antenna depends on its aperture.

Choose the correct answer from the options given below:

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

Options :

- 686340170193. 1
- 686340170194. 2
- 686340170195. 3
- 686340170196. 4

Question Number : 49 Question Id : 68634043088 Question Type : MCQ Option Shuffling : No 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. एंटीना एक इलेक्ट्रॉनिक उपकरण है जो विद्युतचुम्बकीय तरंगों को प्रभावी ढंग से भेजने और प्राप्त करने के लिए डिजाइन किया गया है।
- B. एक एंटीना की ऊँचाई तरंगदैर्घ्य के मान में निर्दिष्ट की जाती है।
- C. लंबवत एंटीना की न्यूनतम ऊँचाई $\frac{\lambda}{4}$ होनी चाहिए।
- D. लंबवत एंटीना की न्यूनतम ऊँचाई $\frac{\lambda}{8}$ होनी चाहिए।
- E. एंटीना की विविधता उसके एपर्चर पर निर्भर करती है।

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

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

Options :

- 686340170193. 1
- 686340170194. 2
- 686340170195. 3
- 686340170196. 4

Question Number : 50 Question Id : 68634043089 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**
Assertion A: For very high frequency A.C Supply, a capacitor behaves like a pure conductor.

Reason R: At very high frequency, capacitive reactance becomes negligibly small and capacitor behaves like a pure conductor.

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 :

686340170197. 1
686340170198. 2
686340170199. 3
686340170200. 4

Question Number : 50 Question Id : 68634043089 Question Type : MCQ Option Shuffling : No 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 है **अभिकथन (A)** के रूप में लिखित है तो दूसरा उसके **कारण (R)** के रूप में:

अभिकथन (A) : बहुत उच्च आवृत्ति A. C (प्रत्यावर्ती धारा) आपूर्ति के लिए, एक कैपेसिटर (संधारित्र) शुद्ध कंडक्टर की तरह व्यवहार करता है।

कारण (R) : बहुत उच्च आवृत्ति पर कैपेसिटर (संधारित्र) प्रतिघात नगण्य रूप से छोटा हो जाता है और संधारित्र शुद्ध चालक की तरह व्यवहार करता है।

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

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

Options :

686340170197. 1
686340170198. 2
686340170199. 3

Question Number : 51 Question Id : 68634043090 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Which of the following is NOT a true statement for a SR flipflop?

- A. For Inputs $S=0$ and $R=0$, outputs are unchanged.
- B. For inputs $S=0$ and $R=1$, outputs are reset to $\theta_n = 0$ and $\theta_{n+1} = 1$
- C. For inputs $S=1$ and $R=0$, outputs are set to $\theta_n = 1$ and $\theta_{n+1} = 0$
- D. For inputs $S=0$ and $R=1$, outputs are reset to $\theta_n = 1$ and $\theta_{n+1} = 1$
- E. For inputs $S=1$ and $R=0$, outputs are set to $\theta_n = 1$ and $\theta_{n+1} = 1$

Choose the correct answer from the options given below:

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

Options :

- 686340170201. 1
- 686340170202. 2
- 686340170203. 3
- 686340170204. 4

Question Number : 51 Question Id : 68634043090 Question Type : MCQ Option Shuffling : No 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 वाक्य एक एस आर (SR) फ्लिप फ्लोप के लिए सही नहीं है।

- A. $S=0$ और $R=0$ के लिए आउटपुट बिना परिवर्तित होते हैं।
- B. $S=0$ और $R=1$ के लिए आउटपुट $\theta_n=0$ और $\theta_{n+1}=1$ पर रिसेट किए जाते हैं।
- C. $S=1$ और $R=0$ के लिए आउटपुट $\theta_n=1$ और $\theta_{n+1}=0$ पर सेट किए जाते हैं।
- D. $S=0$ और $R=1$ के लिए आउटपुट $\theta_n=1$ और $\theta_{n+1}=1$ पर रिसेट किए जाते हैं।
- E. $S=1$ और $R=0$ के लिए आउटपुट $\theta_n = 1$ और $\theta_{n+1} = 1$ पर सेट किए जाते हैं।

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

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

Options :

- 686340170201. 1
- 686340170202. 2
- 686340170203. 3
- 686340170204. 4

Question Number : 52 Question Id : 68634043091 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

Given below are two statements:

Statement I: For an electric $\vec{E}$, $\vec{\nabla} \times \vec{E} = 0$ implies that the electric field is a conservative field.

Statement II: For magnetic field $\vec{B}$, $\vec{\nabla} \times \vec{B} = 0$ implies that the magnetic monopole can not exist.

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 :

- 686340170205. 1
- 686340170206. 2
- 686340170207. 3
- 686340170208. 4

Question Number : 52 Question Id : 68634043091 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं :

कथन I : एक विद्युत क्षेत्र $\vec{E}$ के लिए $\vec{\nabla} \times \vec{E} = 0$, इसका अर्थ होता है कि विद्युत क्षेत्र एक संरक्षणशील क्षेत्र है।

कथन II : एक चुम्बकीय क्षेत्र $\vec{B}$ के लिए $\vec{\nabla} \times \vec{B} = 0$ इसका अर्थ होता है कि चुम्बकीय क्षेत्र का एकांश प्रवेशक मौजूद नहीं होता है।

उपरोक्त कथनों के प्रकाश में दिए गए विकल्पों में सही उत्तर का चयन कीजिए :

1. कथन I और कथन II दोनों सत्य हैं।
2. कथन I और कथन 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 :

686340170205. 1
686340170206. 2
686340170207. 3
686340170208. 4

Question Number : 53 Question Id : 68634043092 Question Type : MCQ Option Shuffling : No 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: Maxwell's equations are a set of partial differential equations that together with the Lorentz force law form the foundation of classical electromagnetism, classical optics, and electric circuits.

Statement II: One important consequence of the Maxwell's equations is that they demonstrate how fluctuating electric and magnetic fields propagate at the speed of light, thereby known as electromagnetic radiation.

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 :

686340170209. 1
686340170210. 2
686340170211. 3
686340170212. 4

Question Number : 53 Question Id : 68634043092 Question Type : MCQ Option Shuffling : No 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 : मैक्सवेल के समीकरण पूर्ण विभाजन समीकरणों का एक सेट है जो साथ में लॉरेंट्ज बल के कानून के साथ मिलकर क्लासिकल विद्युतचुम्बकीयता, क्लासिकल प्रकाशिकी और विद्युत सर्किटों के आधार को तैयार करते हैं।

कथन II : मैक्सवेल के समीकरण का एक महत्वपूर्ण परिणाम यह है कि वे दिखाते हैं कि विचलित विद्युतीत और चुम्बकीय क्षेत्र प्रकाश की गति पर फैलते हैं, जिसके कारण उन्हें विद्युतचुम्बकीय प्रकाशीति के रूप में जाना जाता है।

उपरोक्त कथनों के प्रकाश में दिए गए विकल्पों में सही उत्तर का चयन कीजिए :

1. कथन I और कथन II दोनों सत्य हैं।
2. कथन I और कथन 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 :

686340170209. 1
686340170210. 2
686340170211. 3
686340170212. 4

Question Number : 54 Question Id : 68634043093 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Ampere's circuital law in magnetostatics is equivalent to which of the following law is electrostatics

- A. Biot- Savart Law
- B. Faraday's law
- C. Kirchhoff's law
- D. Coulomb's law
- E. Ohm's law

Choose the correct answer from the options given below:

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

Options :

- 686340170213. 1
- 686340170214. 2
- 686340170215. 3
- 686340170216. 4

Question Number : 54 Question Id : 68634043093 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

मैग्नेटोस्टैटिक्स में एम्पीयर का सर्किटल नियम, विद्युत स्थिरता में निम्नलिखित किस नियम के समकक्ष होता है।

- A. Biot- Savart Law
- B. Faraday's law
- C. Kirchhoff's law
- D. Coulomb's law
- E. Ohm's law

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

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

Options :

- 686340170213. 1
- 686340170214. 2
- 686340170215. 3
- 686340170216. 4

Question Number : 55 Question Id : 68634043094 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

How is the loop (Amperian loop) chosen when using Ampere's law to determine the magnetic field of a straight, long solenoid ?

- A. A circular loop, coaxial with the solenoid
- B. A rectangular loop in a plane containing the axis of the solenoid, the loop being totally within the Solenoid
- C. A rectangular loop in a plane perpendicular to the axis of the solenoid
- D. A rectangular loop in a plane containing the axis of the Solenoid the loop being partly inside the solenoid and partly outside it.

Choose the most appropriate answer from the options given below:

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

Options :

- 686340170217. 1
- 686340170218. 2
- 686340170219. 3
- 686340170220. 4

Question Number : 55 Question Id : 68634043094 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

सीधे और लंबे सोलेनॉइड के चुंबकीय बीजगणित की जाँच करने के लिए अम्पेयर का कानून उपयोग करते समय लूप (अम्पेरियन लूप) कैसे चुना जाता है ?

- A. एक गोलाकार लूप, सोलेनॉइड के साथ समाक्षीय
- B. सोलेनॉइड के धुरी में एक आयताकार लूप, जो पूरी तरह से सोलेनॉइड के अंदर होता है।
- C. सोलेनॉइड के धुरी के लगभग लंबाकार एकत्रित आयताकार लूप।
- D. सोलेनॉइड के धुरी को शामिल करने वाले तटस्थ एक आयताकार लूप, जो आंशिक रूप से सोलेनॉइड के अंदर और आंशिक रूप से बाहर होता है।

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

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

Options :

- 686340170217. 1
- 686340170218. 2

686340170219. 3

686340170220. 4

Question Number : 56 Question Id : 68634043095 Question Type : MCQ Option Shuffling : No 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 wire in the form of a square of side 'a' carries a current 'i'. Then the magnetic induction at the centre of the square wire is

(Magnetic permeability of free space = μ_0)

A. $\frac{\mu_0 i}{2\pi a}$

B. $\frac{\mu_0 i \sqrt{2}}{\pi a}$

C. $\frac{2\sqrt{2}\mu_0 i}{\pi a}$

D. $\frac{\mu_0 i}{\sqrt{2}\pi a}$

Choose the most appropriate answer from the options given below:

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

Options :

686340170221. 1

686340170222. 2

686340170223. 3

686340170224. 4

Question Number : 56 Question Id : 68634043095 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

एक तार जो 'a' लम्बाई के वर्ग के रूप में है। एक धारा 'i' लेती है। तब वर्गाकार तार के केंद्र में चुम्बकीय प्रेरण है। (μ_0 = चुम्बकीय प्रवाहनीयता)

A. $\frac{\mu_0 i}{2\pi a}$

B. $\frac{\mu_0 i \sqrt{2}}{\pi a}$

C. $\frac{2\sqrt{2}\mu_0 i}{\pi a}$

D. $\frac{\mu_0 i}{\sqrt{2}\pi a}$

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

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

Options :

686340170221. 1
686340170222. 2
686340170223. 3
686340170224. 4

Question Number : 57 Question Id : 68634043096 Question Type : MCQ Option Shuffling : No 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.	$\vec{\nabla} \times \vec{E} =$	I.	$\sigma \vec{E} + \frac{\partial \vec{D}}{\partial t}$
B.	$\vec{\nabla} \times \vec{H} =$	II.	$-\frac{\partial \vec{B}}{\partial t}$
C.	$\vec{\nabla} \cdot \vec{H} =$	III.	ρ_V
D.	$\vec{\nabla} \cdot \vec{D} =$	IV.	0

Choose the correct answer from the options given below:

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

Options :

686340170225. 1
 686340170226. 2
 686340170227. 3
 686340170228. 4

Question Number : 57 Question Id : 68634043096 Question Type : MCQ Option Shuffling : No 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 :

सूची I		सूची II	
A.	$\vec{\nabla} \times \vec{E} =$	I.	$\sigma \vec{E} + \frac{\partial \vec{D}}{\partial t}$
B.	$\vec{\nabla} \times \vec{H} =$	II.	$-\frac{\partial \vec{B}}{\partial t}$
C.	$\vec{\nabla} \cdot \vec{H} =$	III.	ρ_V
D.	$\vec{\nabla} \cdot \vec{D} =$	IV.	0

निम्नलिखित विकल्पों में सही उत्तर का चयन कीजिए :

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

Options :

686340170225. 1
 686340170226. 2
 686340170227. 3
 686340170228. 4

Question Number : 58 Question Id : 68634043097 Question Type : MCQ Option Shuffling : No 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.	Maxwell's 1st Equation	I.	Gauss's Law in magnetostatics
B.	Maxwell's 2nd Equation	II.	Gauss's law in electrostatics
C.	Maxwell's 3rd Equation	III.	modified form of Ampere's Circuital law
D.	Maxwell's 4th Equation	IV.	Faraday's law

Choose the correct answer from the options given below:

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

Options :

686340170229. 1
686340170230. 2
686340170231. 3
686340170232. 4

Question Number : 58 Question Id : 68634043097 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

सूची I का सूची II से मिलान कीजिए

सूची I		सूची II	
A.	मैक्सवेल का पहला समीकरण	I.	मैग्नेटोस्टैटिक्स गौस का नियम
B.	मैक्सवेल का दूसरा समीकरण	II.	विद्युत स्थिरता में गौस का नियम
C.	मैक्सवेल का तीसरा समीकरण	III.	एम्पेरे के नियम से
D.	मैक्सवेल का चौथा समीकरण	IV.	फराडे के नियम से

निम्नलिखित विकल्पों में से सही उत्तर का चयन कीजिए :

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

Options :

686340170229. 1
686340170230. 2
686340170231. 3

Question Number : 59 Question Id : 68634043098 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Maxwell's equations in free space or vacuum for time varying field

A. $\vec{\nabla} \times \vec{H} = \frac{\partial \vec{D}}{\partial t}$

B. $\vec{\nabla} \times \vec{B} = \mu_0 \frac{\partial \vec{D}}{\partial t}$

C. $\vec{\nabla} \times \vec{D} = -\epsilon_0 \frac{\partial \vec{B}}{\partial t}$

D. $\vec{\nabla} \cdot \vec{E} = \rho_v$

E. $\vec{\nabla} \times \vec{H} = \sigma \vec{E} + \frac{\partial \vec{D}}{\partial t}$

Choose the correct answer from the options given below:

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

Options :

686340170233. 1
686340170234. 2
686340170235. 3
686340170236. 4

Question Number : 59 Question Id : 68634043098 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

मुक्त स्थान (free space) या समय परिवर्ती क्षेत्र के लिए निर्वात में मैक्सवेल का समीकरण।

A. $\vec{\nabla} \times \vec{H} = \frac{\partial \vec{D}}{\partial t}$

B. $\vec{\nabla} \times \vec{B} = \mu_0 \frac{\partial \vec{D}}{\partial t}$

C. $\vec{\nabla} \times \vec{D} = -\epsilon_0 \frac{\partial \vec{B}}{\partial t}$

D. $\vec{\nabla} \cdot \vec{E} = \rho_V$

E. $\vec{\nabla} \times \vec{H} = \sigma \vec{E} + \frac{\partial \vec{D}}{\partial t}$

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

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

Options :

686340170233. 1
686340170234. 2
686340170235. 3
686340170236. 4

Question Number : 60 Question Id : 68634043099 Question Type : MCQ Option Shuffling : No 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 magnetic flux coming out of the curved surface in free space from the right circular cylinder of radius 2m, height 8m, and $45^\circ \leq \theta \leq 90^\circ$, (Φ - Azimuthal angle) when $H = [3.2 \times 10^6/r] \cos \phi \hat{a}_r$ and $\mu_0 = 4\pi \times 10^{-7} H / m$

1. 9.32 wb
2. 9.42 wb
3. 32.15 wb
4. 32.05 wb

Options :

686340170237. 1
686340170238. 2
686340170239. 3
686340170240. 4

Question Number : 60 Question Id : 68634043099 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

त्रिज्या 2 m, ऊँचाई 8 m और कोण $45^\circ \leq \theta \leq 90^\circ$, (जहाँ Φ -Azimuthal angle) के समवृत्तीय बेलन से मुक्त स्थान में घुमावदार (curved) सतह से निकलने वाले चुम्बकीय प्रवाह का पता लगाए, जब $H = [3.2 \times 10^6/r] \cos \phi \hat{a}_r$ और $\mu_0 = 4\pi \times 10^{-7} H / m$ है।

1. 9.32 wb
2. 9.42 wb
3. 32.15 wb
4. 32.05 wb

Options :

686340170237. 1
686340170238. 2
686340170239. 3
686340170240. 4

Question Number : 61 Question Id : 68634043100 Question Type : MCQ Option Shuffling : No 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 represent the unit of permeability?

A. $\frac{\text{newtons}}{(\text{ampere})^2}$

B. $\frac{\text{Volt} \times \text{second}}{\text{ampere} \times \text{metre}}$

C. $\frac{\text{henry}}{\text{metre}}$

D. $\frac{\text{joule}}{\text{metre}^3}$

Choose the correct answer from the options given below:

1. A, B, C only

2. A, B, D only

3. A, C, D only

4. B, C, D only

Options :

686340170241. 1

686340170242. 2

686340170243. 3

686340170244. 4

Question Number : 61 Question Id : 68634043100 Question Type : MCQ Option Shuffling : No 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 संपादक प्रवाहनीयता इकाई को प्रतिष्ठापित करता है

A. $\frac{\text{newtons}}{(\text{ampere})^2}$

B. $\frac{\text{Volt} \times \text{second}}{\text{ampere} \times \text{metre}}$

C. $\frac{\text{henry}}{\text{metre}}$

D. $\frac{\text{joule}}{\text{metre}^3}$

नीचे दिए गए विकल्पों में से सही उत्तर का चयन करें

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

Options :

686340170241. 1
686340170242. 2
686340170243. 3
686340170244. 4

Question Number : 62 Question Id : 68634043101 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

For 8085 microprocessor, after the execution of RST6, program execution is transformed to the location:

1. 48 H
2. 54 H
3. 60 H
4. 30 H

Options :

686340170245. 1
686340170246. 2
686340170247. 3
686340170248. 4

Question Number : 62 Question Id : 68634043101 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

8085 माइक्रोप्रोफेसर के लिए, RST6 के कार्यान्वयन के बाद, प्रोग्राम का कार्यान्वयन स्थान पर स्थानांतरित होता है।

1. 48 H
2. 54 H
3. 60 H
4. 30 H

Options :

686340170245. 1
686340170246. 2
686340170247. 3
686340170248. 4

Question Number : 63 Question Id : 68634043102 Question Type : MCQ Option Shuffling : No 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 size of Data bus in 8085 microprocessor is

1. 8 byte
2. 16 byte
3. 8 bit
4. 16 bit

Options :

686340170249. 1
686340170250. 2
686340170251. 3
686340170252. 4

Question Number : 63 Question Id : 68634043102 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

8085 माइक्रोप्रोसेसर मे डेटा बस का आकार है।

1. 8 byte
2. 16 byte
3. 8 bit
4. 16 bit

Options :

- 686340170249. 1
- 686340170250. 2
- 686340170251. 3
- 686340170252. 4

Question Number : 64 Question Id : 68634043103 Question Type : MCQ Option Shuffling : No 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 number of transistors in 8086 microprocessor is

- 1. 1 million transistor
- 2. 29000 transistor
- 3. 10 Billion transistor
- 4. 50000 transistor

Options :

- 686340170253. 1
- 686340170254. 2
- 686340170255. 3
- 686340170256. 4

Question Number : 64 Question Id : 68634043103 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

8086 माइक्रोप्रोसेसर में ट्रांजिस्टर्स की संख्या है।

- 1. 1 मिलियन ट्रांजिस्टर
- 2. 29000 ट्रांजिस्टर
- 3. 10 बिलियन ट्रांजिस्टर
- 4. 50000 ट्रांजिस्टर

Options :

- 686340170253. 1
- 686340170254. 2
- 686340170255. 3
- 686340170256. 4

Question Number : 65 Question Id : 68634043104 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

EPROM stand for

1. Erasable programmable Read only memory
2. Enable programmable Read only memory
3. Erasable Programmable Random only memory
4. Enhanced Programmable Read only memory

Options :

686340170257. 1
686340170258. 2
686340170259. 3
686340170260. 4

Question Number : 65 Question Id : 68634043104 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

EPROM का अर्थ है।

1. Erasable programmable Read only memory
2. Enable programmable Read only memory
3. Erasable Programmable Random only memory
4. Enhanced Programmable Read only memory

Options :

686340170257. 1
686340170258. 2
686340170259. 3
686340170260. 4

Question Number : 66 Question Id : 68634043105 Question Type : MCQ Option Shuffling : No 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 PUSH B instruction, the address bus contents in Ti's of memory. Write machine cycles are

1. PC+1 and PC+2
2. SP-1 and SP-2
3. PC+1 and SP-1
4. PC-1 and PC-2

Options :

686340170261. 1
686340170262. 2

686340170263. 3

686340170264. 4

Question Number : 66 Question Id : 68634043105 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

Push B निर्देश में, मेमोरी राइट मशीन साइकिल के T के दौरान पता बस की सामग्री होती है।

1. PC+1 और PC+2

2. SP-1 और SP-2

3. PC+1 और SP-1

4. PC-1 और PC-2

Options :

686340170261. 1

686340170262. 2

686340170263. 3

686340170264. 4

Question Number : 67 Question Id : 68634043106 Question Type : MCQ Option Shuffling : No 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 decimal equivalent of $6B2_{16}$ is

1. 1123_{10}

2. 1714_{10}

3. 1417_{10}

4. 2123_{10}

Options :

686340170265. 1

686340170266. 2

686340170267. 3

686340170268. 4

Question Number : 67 Question Id : 68634043106 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

$6B2_{16}$ का दशमलव (decimal) समकक्ष है।

1. $(1123)_{10}$
2. $(1714)_{10}$
3. $(1417)_{10}$
4. $(2123)_{10}$

Options :

686340170265. 1
686340170266. 2
686340170267. 3
686340170268. 4

Question Number : 68 Question Id : 68634043107 Question Type : MCQ Option Shuffling : No 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 fastest memory in computer is

1. Cache memory
2. On - chip register memory
3. Semiconductor memory
4. RAM

Options :

686340170269. 1
686340170270. 2
686340170271. 3
686340170272. 4

Question Number : 68 Question Id : 68634043107 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

कंप्यूटर में सबसे तेजी से एक्सेस की जाने वाली मेमोरी है।

1. Cache memory
2. On - chip register memory
3. Semiconductor (अर्धचालक) memory
4. RAM

Options :

686340170269. 1

686340170270. 2
686340170271. 3
686340170272. 4

Question Number : 69 Question Id : 68634043108 Question Type : MCQ Option Shuffling : No 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: Interrupts are externally initiated by I/O devices in 8085 microprocessor

Reason R: Interrupts are asynchronous in nature

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 :

686340170273. 1
686340170274. 2
686340170275. 3
686340170276. 4

Question Number : 69 Question Id : 68634043108 Question Type : MCQ Option Shuffling : No 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 है अभिकथन (A) के रूप में लिखित है तो दूसरा उसके कारण (R) के रूप में;

अभिकथन (A) : 8085 माइक्रोप्रोसेसर में I/O यंत्र द्वारा इंटरप्ट्स (व्यवधान) के बहरी रूप से आरंभ किया जाता है।

कारण (R) : व्यवधान (इंटरप्ट्स) प्रकृति में अतुल्यकालिक हैं।

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

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

Options :

686340170273. 1
686340170274. 2
686340170275. 3

Question Number : 70 Question Id : 68634043109 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

XTHL is

- A. One byte instructions
- B. One byte and 5- machine Cycle instruction.
- C. Two byte and two machine Cycle instruction.
- D. Three byte and 5- machine Cycle instruction.
- E. One byte and one machine Cycle instruction.

Choose the correct answer from the options given below:

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

Options :

- 686340170277. 1
- 686340170278. 2
- 686340170279. 3
- 686340170280. 4

Question Number : 70 Question Id : 68634043109 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

XTHL है।

- A. 1 बाइट इंस्टारक्शन
- B. 1 बाइट और 5 मशीन सर्इकल इंस्टारक्शन
- C. 2 बाइट और 2 मशीन सर्इकल इंस्टारक्शन
- D. 3 बाइट और 5 मशीन सर्इकल इंस्टारक्शन
- E. 1 बाइट और 1 मशीन सर्इकल इंस्टारक्शन

नीचे दिए गए विकल्पों में से सही उत्तर दीजिए :

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

Options :

686340170277. 1
686340170278. 2
686340170279. 3
686340170280. 4

**Question Number : 71 Question Id : 68634043110 Question Type : MCQ Option Shuffling : No Is Question Mandatory :
No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1**

Following machine cycle are involved in executing PUSH D instruction.

- A. Fetch and two read
- B. Fetch and two write
- C. Fetch, read and write
- D. Fetch, write and read
- E. Only Fetch machine cycle

Choose the correct answer from the option given below:

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

Options :

686340170281. 1
686340170282. 2
686340170283. 3
686340170284. 4

**Question Number : 71 Question Id : 68634043110 Question Type : MCQ Option Shuffling : No Is Question Mandatory :
No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1**

PUSH D निर्देश को कार्यान्वित करने में निम्नलिखित मशीन साइकिल शामिल होती है।

- A. Fetch और दो read
- B. Fetch और दो write
- C. Fetch, read और write
- D. Fetch, write और read
- E. केवल Fetch मशीन साइकिल

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

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

Options :

- 686340170281. 1
- 686340170282. 2
- 686340170283. 3
- 686340170284. 4

Question Number : 72 Question Id : 68634043111 Question Type : MCQ Option Shuffling : No 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 8086 microprocessor has

- A. 16-bit address and 20-bit data bus
- B. 16-bit data and 20-bit address bus
- C. Both address and data buses are 30-bit
- D. has 6-byte opcode fetch queue
- E. employs the concept of fetch execution overlap

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

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

Options :

- 686340170285. 1
- 686340170286. 2
- 686340170287. 3
- 686340170288. 4

Question Number : 72 Question Id : 68634043111 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

8086 माइक्रोप्रोसेसर में हैं :

- A. 16-bit एड्रेस (पता) और 20-bit डाटा बस।
- B. 16-bit डाटा और 20-bit एड्रेस बस।
- C. दोनों एड्रेस और डाटा बस 30-bit के हैं।
- D. 6-byte opcode फेच क्यू (queue)।
- E. फेच एवं एक्जीक्यूशन ओवरलैप की अवधारणा का उपयोग करता है।

नीचे दिए गए विकल्पों में से सही उत्तर का चयन करें

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

Options :

- 686340170285. 1
- 686340170286. 2
- 686340170287. 3
- 686340170288. 4

Question Number : 73 Question Id : 68634043112 Question Type : MCQ Option Shuffling : No 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.	8086 microprocessor	I.	Non-maskable interrupt
B.	Trap	II.	6500 transistor
C.	R I M	III.	20 bit address 16 bit data
D.	8085 microprocessor	IV.	Gives information about the pending interrupts

Choose the correct answer from the options given below:

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

Options :

- 686340170289. 1

686340170290. 2
686340170291. 3
686340170292. 4

Question Number : 73 Question Id : 68634043112 Question Type : MCQ Option Shuffling : No 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 :

सूची I		सूची II	
A.	8086 माइक्रोप्रोसेसर	I.	Non-markable interrupt
B.	Trap	II.	6500 ट्रांजिस्टर (transistor)
C.	RIM	III.	20 bit address 16 bit डेटा
D.	8085 माइक्रोप्रोसेसर	IV.	लंबित रुकावट के बारे में जानकारी देता है

निम्नलिखित विकल्पों में सही उत्तर का चयन कीजिए :

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

Options :

686340170289. 1
686340170290. 2
686340170291. 3
686340170292. 4

Question Number : 74 Question Id : 68634043113 Question Type : MCQ Option Shuffling : No 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:

Statements I : The size of Address bus in 8085 microprocessor is 16 bit.

Statements II : The lower order address bus is multiplexed with data bus in 8085 microprocessor.

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 :

686340170293. 1
686340170294. 2
686340170295. 3

Question Number : 74 Question Id : 68634043113 Question Type : MCQ Option Shuffling : No 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 : 8085 माइक्रोप्रोसेसर में एड्रेस बस का आकार 16-bit होता है।

कथन II : 8085 माइक्रोप्रोसेसर में निम्नक्रमी एड्रेस बस डाटा बस के साथ मल्टीप्लेक्स (multiplexed) किया जाता है।

उपरोक्त कथनों के आलोक में दिए गए विकल्पों में सही उत्तर का चयन कीजिए :

1. कथन I और कथन II दोनों सत्य हैं।
2. कथन I और कथन 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 :

- 686340170293. 1
- 686340170294. 2
- 686340170295. 3
- 686340170296. 4

Question Number : 75 Question Id : 68634043114 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Schrodinger equation is an equation of

1. Conservation of linear momentum
2. Conservation of energy
3. Conservation of angular momentum
4. Conservation of charge

Options :

- 686340170297. 1
- 686340170298. 2
- 686340170299. 3
- 686340170300. 4

Question Number : 75 Question Id : 68634043114 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

श्रेडिंगर (Schrödinger) का समीकरण एक समीकरण है।

1. लघु गतिमान संरक्षण (Conservation of linear momentum)
2. ऊर्जा संरक्षण (Conservation of energy)
3. कोणीय संज्ञान संरक्षण (Conservation of angular momentum)
4. आपात्र संरक्षण (Conservation of charge)

Options :

686340170297. 1
686340170298. 2
686340170299. 3
686340170300. 4

Question Number : 76 Question Id : 68634043115 Question Type : MCQ Option Shuffling : No 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 Einstein's relation it is found that when degeneracy of two states are equal, then

- A. Probability of absorption (B_{12}) is greater than stimulated emission (B_{21})
B. Probability of absorption (B_{12}) is equal to stimulated emission (B_{21})
C. $B_{12} = 0$ and $B_{21} = \infty$
D. $B_{12} = \infty$ and $B_{21} = 0$
E. $B_{12} = B_{21} = \frac{1}{2}$

Choose the correct answer from the options given below:

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

Options :

686340170301. 1
686340170302. 2
686340170303. 3
686340170304. 4

Question Number : 76 Question Id : 68634043115 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

आइंस्टीन के संबंध से पाया गया है कि जब दो स्थितियों का उत्काटता समान होती है, तब

- A. अवशोषण की संभावना (B_{12}) उत्कर्षित प्रकाशन (B_{21}) से अधिक होती है।
- B. अवशोषण की संभावना (B_{12}) उत्कर्षित प्रकाशन (B_{21}) से बराबर होती है।
- C. $B_{12} = 0$ and $B_{21} = \infty$
- D. $B_{12} = \infty$ and $B_{21} = 0$
- E. $B_{12} = B_{21} = \frac{1}{2}$

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

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

Options :

- 686340170301. 1
- 686340170302. 2
- 686340170303. 3
- 686340170304. 4

Question Number : 77 Question Id : 68634043116 Question Type : MCQ Option Shuffling : No 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 coordination numbers in case of simple cubic (SC), body centered cubic (BCC) and face centered cubic (FCC) are respectively given as

- 1. 12 : 15 : 25
- 2. 6 : 8 : 12
- 3. 8 : 18 : 28
- 4. 0 : 15 : 25

Options :

- 686340170305. 1
- 686340170306. 2
- 686340170307. 3
- 686340170308. 4

Question Number : 77 Question Id : 68634043116 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

सरल घन (sc), अतः केंद्रित घन (bcc) और फलक केंद्रित घन (fcc) के मामले में निर्देशांक संख्याएँ क्रमशः दी गई हैं।

1. $12 : 15 : 25$

2. $6 : 8 : 12$

3. $8 : 18 : 28$

4. $0 : 15 : 25$

Options :

686340170305. 1

686340170306. 2

686340170307. 3

686340170308. 4

Question Number : 78 Question Id : 68634043117 Question Type : MCQ Option Shuffling : No 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 energy and momentum difference between ground state ($n = 1$) and the first excited state ($n = 2$) for an atom in a box of length 2Å is

1. $E_2 - E_1 = 5 \times 10^{-20} \text{ J} ; P_2 - P_1 = 6.66 \times 10^{-34} \text{ kg m/sec}$

2. $E_2 - E_1 = 0.454 \times 10^{-17} \text{ J} ; P_2 - P_1 = 1.66 \times 10^{-24} \text{ kg m/sec}$

3. $E_2 - E_1 = 3 \times 10^{-12} \text{ J} ; P_2 - P_1 = 4.63 \times 10^{-20} \text{ kg m/sec}$

4. $E_2 - E_1 = 1.848 \times 10^{-10} \text{ J} ; P_2 - P_1 = 3.14 \times 10^{-21} \text{ kg m/sec}$

Options :

686340170309. 1

686340170310. 2

686340170311. 3

686340170312. 4

Question Number : 78 Question Id : 68634043117 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

2Å लंबी एक बक्से में एक मरमाणु के ग्राउन्ड (जमीनी) अवस्था ($n = 1$) और पहली उत्तेजित अवस्था ($n = 2$) के बीच ऊर्जा और पथमान अन्तर हैं।

1. $E_2 - E_1 = 5 \times 10^{-20} \text{ J}$; $P_2 - P_1 = 6.66 \times 10^{-34} \text{ kg m/sec}$

2. $E_2 - E_1 = 0.454 \times 10^{-17} \text{ J}$; $P_2 - P_1 = 1.66 \times 10^{-24} \text{ kg m/sec}$

3. $E_2 - E_1 = 3 \times 10^{-12} \text{ J}$; $P_2 - P_1 = 4.63 \times 10^{-20} \text{ kg m/sec}$

4. $E_2 - E_1 = 1.848 \times 10^{-10} \text{ J}$; $P_2 - P_1 = 3.14 \times 10^{-21} \text{ kg m/sec}$

Options :

686340170309. 1

686340170310. 2

686340170311. 3

686340170312. 4

Question Number : 79 Question Id : 68634043118 Question Type : MCQ Option Shuffling : No 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 **Assertion A** and the other is labelled as **Reason R**

Assertion A: Energy dispersive X-ray spectroscopy accessory is integrated with scanning electron microscopy SEM of elemental analysis.

Reason R: The interaction of incident electrons eject characteristic X-rays from the sample.

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 :

686340170313. 1

686340170314. 2

686340170315. 3

686340170316. 4

Question Number : 79 Question Id : 68634043118 Question Type : MCQ Option Shuffling : No 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 है अभिकथन (A) के रूप में लिखित है तो दूसरा उसके कारण (R) के रूप में:

अभिकथन (A) : ऊर्जा विस्तारी x-रेखा (x-rays) स्पेक्ट्रोस्कोपी सहायक तत्वात्मक विश्लेषण के स्कैनिंग इलेक्ट्रॉन माइक्रोस्कोप के साथ सम्मिलित होता है।

कारण (R) : आपतित इलेक्ट्रॉनों की परस्पर क्रिया नमूने से विशिष्ट x-ray उत्सर्जित करती है।

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

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

Options :

686340170313. 1
686340170314. 2
686340170315. 3
686340170316. 4

Question Number : 80 Question Id : 68634043119 Question Type : MCQ Option Shuffling : No 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 step index fibre has a bandwidth of

1. 20 kHz
2. 50 MHz
3. 100 GHz
4. 150 MHz

Options :

686340170317. 1
686340170318. 2
686340170319. 3
686340170320. 4

Question Number : 80 Question Id : 68634043119 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

स्टेप इंडेक्स (step-index) फाइबर का बैंडविड्थ (बैंड की चौड़ाई) होता है।

1. 20 kHz
2. 50 MHz
3. 100 GHz
4. 150 MHz

Options :

686340170317. 1
686340170318. 2
686340170319. 3
686340170320. 4

Question Number : 81 Question Id : 68634043120 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

Which of the following is not a necessary condition for quantum mechanical tunneling in a tunnel diode.

- A. Occupied energy states exist on the side from which the electron tunnels
- B. Unoccupied energy states exist on the side to which an electron can tunnel
- C. The tunneling potential barrier height should be high enough for finite tunneling probability
- D. The tunneling barrier width should be small enough that there is a finite tunneling probability
- E. The momentum should be conserved in the tunneling process

Choose the most appropriate answer from the options given below:

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

Options :

686340170321. 1
686340170322. 2
686340170323. 3
686340170324. 4

Question Number : 81 Question Id : 68634043120 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

टनल डायोड में क्वांटम (quantum) मैकेनिकल टनलिंग के लिए निम्नलिखित में से कौन-सी आवश्यक शर्त नहीं है।

- A. आपाती ऊर्जा स्थितियाँ उस तरफ मौजूद होती हैं जहाँ से इलेक्ट्रॉन टनलिंग करता है।
- B. खाली (unoccupied) ऊर्जा स्थितियाँ उस तरफ मौजूद होती हैं जहाँ से इलेक्ट्रॉन टनलिंग करता है।
- C. सुरंग बनाने की संभावित बाधा (tunneling potential barrier) की ऊँचाई सीमित सुरंग बनाने की संभावना के लिए पर्याप्त होनी चाहिए।
- D. सुरंग बनाने की संभावित बाधा (tunneling potential barrier) की चौड़ाई सीमित सुरंग बनाने की संभावना के लिए काफी छोटी होनी चाहिए।
- E. सुरंग बनाने की प्रक्रिया (tunneling process) में गति को संरक्षित रखा जाना चाहिए।

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

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

Options :

- 686340170321. 1
- 686340170322. 2
- 686340170323. 3
- 686340170324. 4

Question Number : 82 Question Id : 68634043121 Question Type : MCQ Option Shuffling : No 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: Most of the extraordinary optical properties of nanostructures arise from the quantum confinement of charge carriers in a nanostructure

Statement II: Most of the extraordinary mechanical properties of nanostructures arise from the quantum confinement of charge carriers in a nanostructure.

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 :

- 686340170325. 1
- 686340170326. 2
- 686340170327. 3
- 686340170328. 4

Question Number : 82 Question Id : 68634043121 Question Type : MCQ Option Shuffling : No 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 : नैनोस्ट्रक्चर (nanostructures) के अधिकांश असाधारण ऑप्टिकल गुण नैनोस्ट्रक्चर में वाहकों के क्वांटम परिसीमन से उत्पन्न होते हैं।

कथन II : नैनोस्ट्रक्चर के अधिकांश असाधारण यांत्रिक गुण नैनोस्ट्रक्चर में वाहकों के क्वांटम (quantum) परिसीमन से उत्पन्न होते हैं।

उपरोक्त कथनों के प्रकाश में दिए गए विकल्पों में सही उत्तर का चयन कीजिए :

1. कथन I और कथन II दोनों सत्य हैं।
2. कथन I और कथन 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 :

- 686340170325. 1
- 686340170326. 2
- 686340170327. 3
- 686340170328. 4

Question Number : 83 Question Id : 68634043122 Question Type : MCQ Option Shuffling : No 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 Superlattice is formed when

1. two quantum wells are separated by a thin barrier layer
2. two quantum wells are separated by a thick barrier layer
3. two quantum wires are joined together laterally
4. two quantum wires are joined together using a thick separator

Options :

- 686340170329. 1
- 686340170330. 2
- 686340170331. 3
- 686340170332. 4

Question Number : 83 Question Id : 68634043122 Question Type : MCQ Option Shuffling : No Is Question Mandatory :
No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

एक सुपरलैटिस तब बनता है जब

1. दो क्वांटम (quantum) वेल पतली बाधाप्रावर्तक परत द्वारा अलग होते हैं।
2. दो क्वांटम (quantum) वेल मोटी बाधाप्रावर्तक परत द्वारा अलग होते हैं।
3. दो क्वांटम तार सामंजस्यपूर्वक एक साथ जुड़ते हैं।
4. एक ठोस अलग करने का उपयोग करके दो क्वांटम तारों को एक साथ जोड़ा जाता है।

Options :

686340170329. 1

686340170330. 2

686340170331. 3

686340170332. 4

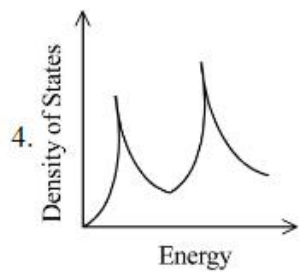
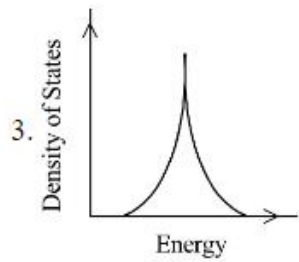
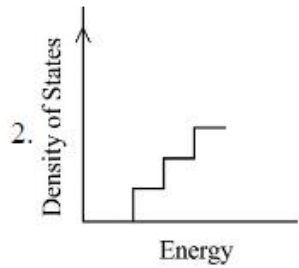
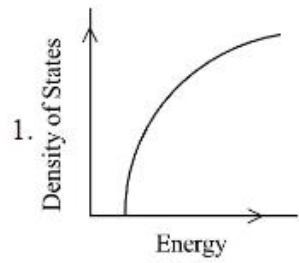
Question Number : 84 Question Id : 68634043123 Question Type : MCQ Option Shuffling : No Is Question Mandatory :

No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

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Which of the following curve represents the density of states of a quantum well?



Options :

686340170333. 1

686340170334. 2

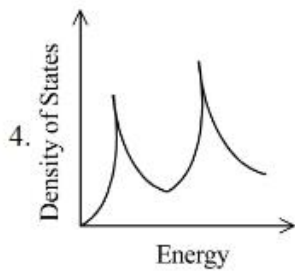
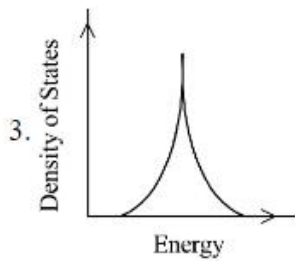
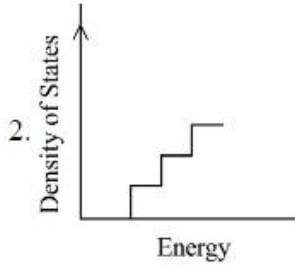
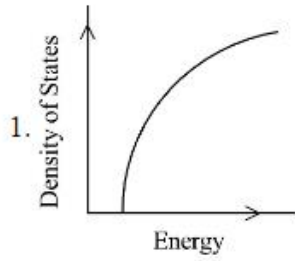
686340170335. 3

686340170336. 4

Question Number : 84 Question Id : 68634043123 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्नलिखित में से कौन-सी कर्व एक क्वांटम (quantum) वेल की अवस्था की घनत्वा (density of states) को प्रतिष्ठित करती है?



Options :

686340170333. 1

686340170334. 2

686340170335. 3

686340170336. 4

Question Number : 85 Question Id : 68634043124 Question Type : MCQ Option Shuffling : No 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 statement: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: Reduction in the size of a particle to the nanoscale range results in the increase in its chemical activity.

Reason R: Due to large surface to volume ratio a nanoparticle has more atoms on the surface in comparison to that in the volume, therefore the particles has a large surface energy.

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

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

Options :

686340170337. 1
686340170338. 2
686340170339. 3
686340170340. 4

Question Number : 85 Question Id : 68634043124 Question Type : MCQ Option Shuffling : No 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 है अभिकथन (A) के रूप में लिखित है तो दूसरा उसके कारण (R) के रूप में;

अभिकथन (A) : एक तत्व के आकार को नैनोस्केल क्षेणी में कम करने से उसकी चैनल गतिविधि में वृद्धि होती है।

कारण (R) : बड़े सतह से आयतन अनुपात के कारण, नैनो धातु में आयतों की संख्या सतह पर आयतों की तुलना में आयतों की संख्या अधिक होती है, इसलिए धातु में एक बड़ी सतही ऊर्जा होती है।

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

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

Options :

686340170337. 1
686340170338. 2
686340170339. 3
686340170340. 4

Question Number : 86 Question Id : 68634043125 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Probability of a particle to tunnel through a barrier of Length L is proportional to

Given $\alpha = \sqrt{\frac{2m}{\hbar^2}} (U_0 - E)$ where m is mass of the particle, U_0 is barrier height and E is energy of particle.

1. $e^{-\alpha L}$

2. $e^{-\alpha L^2}$

3. $\frac{\alpha}{L}$

4. $\frac{\alpha}{L^2}$

Options :

686340170341. 1

686340170342. 2

686340170343. 3

686340170344. 4

Question Number : 86 Question Id : 68634043125 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

$\alpha = \sqrt{\frac{2m}{\hbar^2}} (U_0 - E)$ जहाँ m कण का भार, बैरियर की ऊँचाई और E कण की ऊर्जा है।

1. $e^{-\alpha L}$

2. $e^{-\alpha L^2}$

3. $\frac{\alpha}{L}$

4. $\frac{\alpha}{L^2}$

Options :

686340170341. 1

686340170342. 2

686340170343. 3

686340170344. 4

Question Number : 87 Question Id : 68634043126 Question Type : MCQ Option Shuffling : No 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 scanning electron microscopy which of the following types of emitted electrons can be used to analyze the crystallographic information of the sample.

1. Backscattered electrons
2. Secondary electrons
3. Auger electrons
4. Transmitted electrons

Options :

686340170345. 1
686340170346. 2
686340170347. 3
686340170348. 4

Question Number : 87 Question Id : 68634043126 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

स्कैनिंग एलेक्ट्रॉन माइक्रोस्कोपी में, नमूने (sample) की क्रिस्टलोग्राफिक जानकारी का विश्लेषण करने के लिए निम्नलिखित में से कौन से प्रकार के उत्पन्न इलेक्ट्रॉन प्रयोग किए जा सकते हैं

1. बैक स्कैटेर्ड इलेक्ट्रॉन
2. सेकेण्डरी इलेक्ट्रॉन
3. आगर इलेक्ट्रॉन
4. प्रवाहित इलेक्ट्रॉन

Options :

686340170345. 1
686340170346. 2
686340170347. 3
686340170348. 4

Question Number : 88 Question Id : 68634043127 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

At present the highest point resolution achieved by a high resolution transmission electron microscope is:

1. $0.5 \text{ \AA}$
2. $0.05 \text{ \AA}$
3. $5 \text{ \AA}$
4. $1 \text{ \AA}$

Options :

686340170349. 1
686340170350. 2
686340170351. 3
686340170352. 4

Question Number : 88 Question Id : 68634043127 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

वर्तमान में एक उच्च संकलन पारगमन इलेक्ट्रॉन माइक्रोस्कोप द्वारा प्राप्त की गई सर्वोच्च बिन्दु संकलन हल (रिजायल्यूशन) क्या है ?

1. $0.5 \text{ \AA}$
2. $0.05 \text{ \AA}$
3. $5 \text{ \AA}$
4. $1 \text{ \AA}$

Options :

686340170349. 1
686340170350. 2
686340170351. 3
686340170352. 4

Question Number : 89 Question Id : 68634043128 Question Type : MCQ Option Shuffling : No 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.	optical band gap of a material	I.	Energy Dispersive X-ray spectroscopy
B.	Crystal structure of a material	II.	Raman spectroscopy
C.	Elemental information of a material	III.	X-ray diffraction
D.	Information about vibrational and rotation energy levels	IV.	UV-visible spectroscopy

Choose the correct answer from the options given below:

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

Options :

686340170353. 1
686340170354. 2
686340170355. 3
686340170356. 4

Question Number : 89 Question Id : 68634043128 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

सूची I का सूची II से मिलान कीजिए

सूची I		सूची II	
A.	पदार्थ का ऑप्टिकल बैंड अंतराल	I.	ऊर्जा प्रसारण एक्स-रे स्पेक्ट्रोस्कोपी
B.	पदार्थ की क्रिस्टल संरचना	II.	रमन स्पेक्ट्रोस्कोपी
C.	पदार्थ की तात्विक जानकारी	III.	एक्स-रे विकर्ण
D.	वाइब्रेशन और घुमावण ऊर्जा स्तरों के बारे में जानकारी	IV.	युवी-वी आई एस स्पेक्ट्रोस्कोपी (UV-visible spectroscopy)

निम्नलिखित विकल्पों में से सही उत्तर का चयन कीजिए :

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

Options :

686340170353. 1
686340170354. 2
686340170355. 3

Question Number : 90 Question Id : 68634043129 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Which of the following is not an advantage of a Thermistor?

1. low cost
2. flexibility in size and shape
3. high resolution
4. fast response

Options :

686340170357. 1
686340170358. 2
686340170359. 3
686340170360. 4

Question Number : 90 Question Id : 68634043129 Question Type : MCQ Option Shuffling : No 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 थर्मिस्टर का लाभ नहीं है ?

1. उच्च लागत
2. आकार और आवृत्ति में लचीलापन
3. उच्च संकलन
4. उच्च प्रतिक्रिया

Options :

686340170357. 1
686340170358. 2
686340170359. 3
686340170360. 4

Question Number : 91 Question Id : 68634043130 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Diode Thermal Sensor is based on:

1. Diffusion current in p-n junction
2. drift current in p-n junction
3. differential potential barrier in a p-n junction
4. the operation of a diode as a voltmeter

Options :

- 686340170361. 1
- 686340170362. 2
- 686340170363. 3
- 686340170364. 4

Question Number : 91 Question Id : 68634043130 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

डायोड थर्मल सेंसर निम्नलिखित पर आधारित है :

1. p-n जंक्शन में विसरण धारा (Diffusion current)
2. p-n जंक्शन में ड्रिफ्ट धारा
3. p-n जंक्शन में विभेदक पोटेंशियल बैरियर
4. एक डायोड के रूप में डायोड के परिचालन पर

Options :

- 686340170361. 1
- 686340170362. 2
- 686340170363. 3
- 686340170364. 4

Question Number : 92 Question Id : 68634043131 Question Type : MCQ Option Shuffling : No 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 effect is not related to the operation of a thermocouple?

1. Seeback effect
2. Peltier effect
3. Meissner effect
4. Thomson effect

Options :

- 686340170365. 1

686340170366. 2
686340170367. 3
686340170368. 4

Question Number : 92 Question Id : 68634043131 Question Type : MCQ Option Shuffling : No 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 प्रभाव थर्मोकपल के संचालन से संबंधित नहीं है ?

1. सीबैक प्रभाव
2. प्रेल्टीयर प्रभाव
3. मीस्त्रर प्रभाव
4. थॉमसन प्रभाव

Options :

686340170365. 1
686340170366. 2
686340170367. 3
686340170368. 4

Question Number : 93 Question Id : 68634043132 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Which of the following is not a chemical sensor:

1. Ion- Sensitive field effect transistor
2. Biosensor
3. Catalytic - metal sensor
4. Interdigital Transducer

Options :

686340170369. 1
686340170370. 2
686340170371. 3
686340170372. 4

Question Number : 93 Question Id : 68634043132 Question Type : MCQ Option Shuffling : No 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 रासायनिक संवेदक नहीं है ?

1. आयन चयनात्मक क्षेत्र प्रभाव ट्रांजिस्टर (Ion- Sensitive field effect transistor)
2. बायोसेसर
3. कैटलिटिक धातु संवेदक (Catalytic - metal sensor)
4. इंटरडिजिटल ट्रांसड्यूसर (Interdigital Transducer)

Options :

686340170369. 1
686340170370. 2
686340170371. 3
686340170372. 4

Question Number : 94 Question Id : 68634043133 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

'Hall Plate' is a type of:

1. Mechanical sensors
2. Optical sensors
3. Chemical sensors
4. Magnetic sensors

Options :

686340170373. 1
686340170374. 2
686340170375. 3
686340170376. 4

Question Number : 94 Question Id : 68634043133 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

हॉल प्लेट (Hall Plate) एक प्रकार की है।

1. मैकेनिकल संवेदक (Mechanical sensors)
2. ऑप्टिकल संवेदक (Optical sensors)
3. केमिकल संवेदक (Chemical sensors)
4. मैग्नेटिक संवेदक (Magnetic sensors)

Options :

686340170373. 1
686340170374. 2
686340170375. 3
686340170376. 4

Question Number : 95 Question Id : 68634043134 Question Type : MCQ Option Shuffling : No 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 is labelled as Reason R

Assertion A: Hall plates are not practical until the realization of semiconductors

Reason R: Hall effect is very strong in metals

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

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

Options :

686340170377. 1
686340170378. 2
686340170379. 3
686340170380. 4

Question Number : 95 Question Id : 68634043134 Question Type : MCQ Option Shuffling : No 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 है अभिकथन (A) के रूप में लिखित है तो दूसरा उसके कारण (R) के रूप में;

अभिकथन (A) : अर्धचालकों की प्राप्ति तक हॉल प्लेटें व्यावहारिक नहीं होते हैं।

कारण (R) : हॉल प्रभाव (Hall effect) धातुओं में बहुत मजबूत होता है।

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

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

Options :

686340170377. 1
686340170378. 2

686340170379. 3

686340170380. 4

Question Number : 96 Question Id : 68634043135 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

Correct sequence of steps in Photolithography process is:

- A. Wafer cleaning
- B. Coating of photoresist
- C. Pre-bake or primer coating
- D. Exposure
- E. Development

Choose the correct answer from the options given below:

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

Options :

- 686340170381. 1
- 686340170382. 2
- 686340170383. 3
- 686340170384. 4

Question Number : 96 Question Id : 68634043135 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

फोटोलिथोग्राफी प्रक्रिया में चरणों का सही क्रम है।

- A. वेफर सफाई (Wafer cleaning)
- B. आवरण (Coating) प्रतिच्छेदन पदार्थ का
- C. प्री-बेक या प्राइमर परत (Pre-bake or primer coating)
- D. एक्सपोजर (Exposure)
- E. वास्तविकीकरण (Development)

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

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

Options :

686340170381. 1
686340170382. 2
686340170383. 3
686340170384. 4

Question Number : 97 Question Id : 68634043136 Question Type : MCQ Option Shuffling : No 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	
Sensor Terminology		Meaning	
A.	Range	I.	The maximum of the measurand in the operating range of a sensor
B.	Full scale	II.	The minimum value of measurand or of a output signal
C.	Zero	III.	The smallest change in the measurand that the sensor is able to detect
D.	Resolution	IV.	The extent of values over which the measurand and intended to measure

Choose the correct answer from the options given below:

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

Options :

686340170385. 1
686340170386. 2
686340170387. 3
686340170388. 4

Question Number : 97 Question Id : 68634043136 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

सूची I का सूची II से मिलान कीजिए

सूची I	सूची II
संवेदक शब्दावली	अर्थ
A. श्रेणी (Range)	I. संवेदक के संचालन सीमा में माप-सीमा की अधिकतम
B. पूर्ण पैमाने (full scale)	II. आउटपुट संकेत के मापीमान का न्यूनतम मूल्य
C. शून्य (Zero)	III. माप में सबसे छोटा परिवर्तन जिसे संवेदक पता लगाने में सक्षम है
D. संकलन (Resolution)	IV. मापीमान को मापने के लिए जिन मानों की परिधि होती है, उसका विस्तार

निम्नलिखित विकल्पों में से सही उत्तर का चयन कीजिए :

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

Options :

686340170385. 1
686340170386. 2
686340170387. 3
686340170388. 4

Question Number : 98 Question Id : 68634043137 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Which of the following is not an electrochemical sensor?

1. Potentiometric sensors
2. Amperometric sensors
3. Magnetometric sensors
4. Impedimetric sensosr

Options :

686340170389. 1
686340170390. 2
686340170391. 3
686340170392. 4

Question Number : 98 Question Id : 68634043137 Question Type : MCQ Option Shuffling : No 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 वैद्युत रासायनिक संवेदक (electrochemical sensor) नहीं है ?

1. पोटेन्शियोमेट्रिक संवेदक (Potentiometric sensors)
2. एम्परोमेट्रिक संवेदक (Amperometric sensor)
3. मैग्नेटोमीट्रिक संवेदक (Magnetometric sensor)
4. बाधामापी संवेदक (Impedimetric sensor)

Options :

686340170389. 1
686340170390. 2
686340170391. 3
686340170392. 4

Question Number : 99 Question Id : 68634043138 Question Type : MCQ Option Shuffling : No 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 : Sensitivity of a sensor is defined as the ratio of the amount of change in output signal from an amount of change in the input measurand.

Statement II : Stability of a sensor is the ability of a sensor to maintain its performance over time.

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 :

686340170393. 1
686340170394. 2
686340170395. 3
686340170396. 4

Question Number : 99 Question Id : 68634043138 Question Type : MCQ Option Shuffling : No 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 : संवेदक की संवेदनशीलता को परिभाषित किया जाता है जिसमें आउटपुट संकेत में एकांतर मापीमान के परिवर्तन की मात्रा के अनुपात के रूप में होता है।

कथन II : संवेदक की स्थिरता उसकी क्षमता जो संवेदक को समय के साथ अपने प्रदर्शन को बनाए रखने में सक्षम बनाती है।

उपरोक्त कथनों के प्रकाश में दिए गए विकल्पों में सही उत्तर का चयन कीजिए :

1. कथन I और कथन II दोनों सत्य हैं।
2. कथन I और कथन 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 :

686340170393. 1
686340170394. 2
686340170395. 3
686340170396. 4

Question Number : 100 Question Id : 68634043139 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

Reason that limits the development of carbon Nanotubes as sensing element.

- A. Synthesis, methods produce mixture of metallic and semiconducting CNT's.
- B. Surface modified CNT's are compatible with living Organisms such as cells.
- C. CNT's are synthesized using expansive precursors.
- D. Single walled carbon nanotubes are extremely sensitive.

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

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

Options :

686340170397. 1
686340170398. 2
686340170399. 3
686340170400. 4

Question Number : 100 Question Id : 68634043139 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

वह कारण जो सेंसिंग तत्व के रूप में कार्बन नैनोट्यूब के विकास को सीमित करता है :

- A. संश्लेषण पद्धति धातुयुक्त और अर्धचालकीय कार्बन नैनोट्यूब का मिश्रण उत्पन्न करती है।
- B. पृष्ठीय संशोधित कार्बन नैनोट्यूब (Surface modified CNT) कोशिकाओं जैसे जीवित जीवों के साथ संगत होते हैं।
- C. सीएनटी को महंगे का उपयोग करके संश्लेषित किया जाता है।
- D. एकल दीवार वाले कार्बन नैनोट्यूब अत्यधिक संवेदनशील होते हैं।

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

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

Options :

- 686340170397. 1
- 686340170398. 2
- 686340170399. 3
- 686340170400. 4

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