

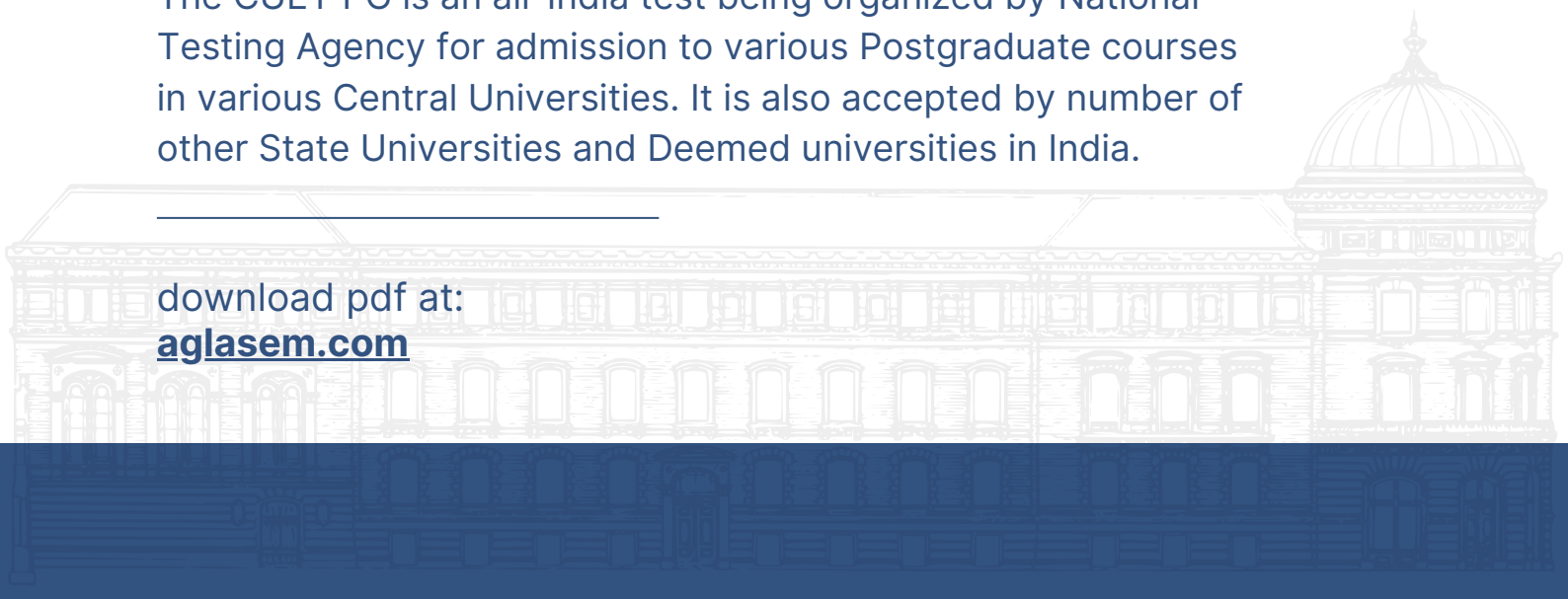


Common University Entrance Test (PG)

CUET PG 2023 Question Paper

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Question Paper Name :	Mechanical Engineering Eng 14th June 2023 Shift 1
Subject Name :	Mechanical Engineering Eng
Creation Date :	2023-06-15 01:36:29
Duration :	120
Total Marks :	400
Display Marks:	Yes

Mechanical Engineering

Group Number :	1
Group Id :	920906163
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 :	920906325
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 :	920906529
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 92090616400 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

TOI's Tiger Anthem celebrates the 'biggest superstars' of India

A mother with her child, lilting music, and a message that celebrates a milestone. India's first tiger anthema – a song and a short film on a tigress and her cub-composed and created as a part of Time of India's #savingourstripes initiative, was launched by Union environment minister Bhupender Yadav on Wednesday. TOI's initiative marks the golden jubilee of project tiger.

Shantanu Moitra, music director of films like "3 Idiots" and "Parineeta", composed the song. "Usually, I compose songs for Bollywood superstars, but after working on this anthem, I have realized that the tiger is the biggest superstar," he said. Acclaimed wildlife filmmaker S Nallamuthu shot the visuals, and poet/lyricist Tanveer Ghazi penned the words.

The short film celebrates the bond between a tigress and her cub. The target audience for the foot-tapping song is today's children, who will have to carry forward the spirit that made project Tiger a world-class success.

Launching the anthem, Yadav praised it for focusing on the simple joys of nature and for reminding humans that animals aren't greedy.

Sub questions

Question Number : 1 Question Id : 92090616401 Question Type : MCQ Option Shuffling : No 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 option does not mean 'lift'?

- (1) A gentel rhythm in a tune.
- (2) A cheerful tune.
- (3) The detachable frong part of a gun carriage.
- (4) A characteristic rising and salling of the voice.

Options :

- 92090664801. 1
- 92090664802. 2
- 92090664803. 3
- 92090664804. 4

Question Number : 2 Question Id : 92090616402 Question Type : MCQ Option Shuffling : No 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 : TOI's initiative marks the silver jubilee of project Tiger.

Statement II : Acclaimed wildlife filmmaker S. Nallamuthu shot the visuals.

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 :

- 92090664805. 1
- 92090664806. 2
- 92090664807. 3
- 92090664808. 4

Question Number : 3 Question Id : 92090616403 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Who is the music director of the films "3 Idiots" and "Parineeta"?

- | | |
|---------------------|-------------------|
| (1) Shantanu | (2) S. Nallanuthu |
| (3) Bhupender Yadav | (4) Tanveer Ghazi |

Options :

- 92090664809. 1
- 92090664810. 2
- 92090664811. 3
- 92090664812. 4

Question Number : 4 Question Id : 92090616404 Question Type : MCQ Option Shuffling : No 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 meaning of the term 'acclaim'?

- (1) Praise enthusiastically and publicly
- (2) Claim again
- (3) Accentuate
- (4) Accentor

Options :

92090664813. 1

92090664814. 2

92090664815. 3

92090664816. 4

Question Number : 5 Question Id : 92090616405 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Which union minister was present in the TOI's tiger Anthem ceremony?

- (1) Minister of finance
- (2) Minister of home affairs
- (3) Minister of children welfare
- (4) Minister of environment

Options :

92090664817. 1

92090664818. 2

92090664819. 3

92090664820. 4

Question Id : 92090616400 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

TOI's Tiger Anthem celebrates the 'biggest superstars' of India

A mother with her child, lilting music, and a message that celebrates a milestone. India's first tiger anthema – a song and a short film on a tigress and her cub-composed and created as a part of Time of India's #savingourstripes initiative, was launched by Union environment minister Bhupender Yadav on Wednesday. TOI's initiative marks the golden jubilee of project tiger.

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The short film celebrates the bond between a tigress and her cub. The target audience for the foot-tapping song is today's children, who will have to carry forward the spirit that made project Tiger a world-class success.

Launching the anthem, Yadav praised it for focusing on the simple joys of nature and for reminding humans that animals aren't greedy.

Sub questions

Question Number : 1 Question Id : 92090616401 Question Type : MCQ Option Shuffling : No 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 option does not mean 'lift'?

- (1) A gentel rhythm in a tune.
- (2) A cheerful tune.
- (3) The detachable frong part of a gun carriage.
- (4) A characteristic rising and salling of the voice.

Options :

- 92090664801. 1
- 92090664802. 2
- 92090664803. 3
- 92090664804. 4

Question Number : 2 Question Id : 92090616402 Question Type : MCQ Option Shuffling : No 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 : TOI's initiative marks the silver jubilee of project Tiger.

Statement II : Acclaimed wildlife filmmaker S. Nallamuthu shot the visuals.

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 :

- 92090664805. 1
- 92090664806. 2
- 92090664807. 3
- 92090664808. 4

Question Number : 3 Question Id : 92090616403 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Who is the music director of the films “3 Idiots” and “Parineeta”?

- | | |
|---------------------|-------------------|
| (1) Shantanu | (2) S. Nallanuthu |
| (3) Bhupender Yadav | (4) Tanveer Ghazi |

Options :

- 92090664809. 1
- 92090664810. 2
- 92090664811. 3
- 92090664812. 4

Question Number : 4 Question Id : 92090616404 Question Type : MCQ Option Shuffling : No 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 meaning of the term 'acclaim'?

- (1) Praise enthusiastically and publicly
- (2) Claim again
- (3) Accentuate
- (4) Accentor

Options :

- 92090664813. 1
- 92090664814. 2
- 92090664815. 3
- 92090664816. 4

Question Number : 5 Question Id : 92090616405 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Which union minister was present in the TOI's tiger Anthem ceremony?

- (1) Minister of finance
- (2) Minister of home affairs
- (3) Minister of children welfare
- (4) Minister of environment

Options :

- 92090664817. 1
- 92090664818. 2
- 92090664819. 3
- 92090664820. 4

Sub-Section Number :

2

Sub-Section Id :

920906530

Question Shuffling Allowed :

Yes

Is Section Default? :

null

Question Number : 6 Question Id : 92090616406 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Pick out the antonym of 'purify'.

- (1) Corrective
- (2) Pure
- (3) Contaminate
- (4) Clumsy

Options :

- 92090664821. 1
- 92090664822. 2
- 92090664823. 3

92090664824. 4

Question Number : 6 Question Id : 92090616406 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Pick out the antonym of 'purify'.

- | | |
|-----------------|------------|
| (1) Corrective | (2) Pure |
| (3) Contaminate | (4) Clumsy |

Options :

- 92090664821. 1
- 92090664822. 2
- 92090664823. 3
- 92090664824. 4

Question Number : 7 Question Id : 92090616407 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Pick out the meaning of the underlined idiom in the following sentence.

At last, the truth has come out.

- | | |
|--------------|----------------|
| (1) confided | (2) escaped |
| (3) evaded | (4) transpired |

Options :

- 92090664825. 1
- 92090664826. 2
- 92090664827. 3
- 92090664828. 4

Question Number : 7 Question Id : 92090616407 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Pick out the meaning of the underlined idiom in the following sentence.

At last, the truth has come out.

- | | |
|--------------|----------------|
| (1) confided | (2) escaped |
| (3) evaded | (4) transpired |

Options :

- 92090664825. 1
- 92090664826. 2
- 92090664827. 3
- 92090664828. 4

Question Number : 8 Question Id : 92090616408 Question Type : MCQ Option Shuffling : No 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 active voice form of the following sentence.

Dry fruits are sold by Jawahar.

- | | |
|-------------------------------|----------------------------------|
| (1) Jawahar sold dry fruits. | (2) Jawahar has sold dry fruits. |
| (3) Jawahar sells dry fruits. | (4) Jawahar had sold dry fruits. |

Options :

- 92090664829. 1
- 92090664830. 2
- 92090664831. 3
- 92090664832. 4

Question Number : 8 Question Id : 92090616408 Question Type : MCQ Option Shuffling : No 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 active voice form of the following sentence.

Dry fruits are sold by Jawahar.

- | | |
|-------------------------------|----------------------------------|
| (1) Jawahar sold dry fruits. | (2) Jawahar has sold dry fruits. |
| (3) Jawahar sells dry fruits. | (4) Jawahar had sold dry fruits. |

Options :

- 92090664829. 1
- 92090664830. 2
- 92090664831. 3

92090664832. 4

Question Number : 9 Question Id : 92090616409 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Pick out the synonym of the word Optimist.

- | | |
|------------------|-------------|
| (1) Destructive | (2) Hopeful |
| (3) Disappointed | (4) Funny |

Options :

92090664833. 1
92090664834. 2
92090664835. 3
92090664836. 4

Question Number : 9 Question Id : 92090616409 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Pick out the synonym of the word Optimist.

- | | |
|------------------|-------------|
| (1) Destructive | (2) Hopeful |
| (3) Disappointed | (4) Funny |

Options :

92090664833. 1
92090664834. 2
92090664835. 3
92090664836. 4

Question Number : 10 Question Id : 92090616410 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Choose the correct sentence.

- (1) I know what he done came as a shock.
- (2) I know which he did came as a shock.
- (3) I know what he did came as a shock.
- (4) I know which he done came as a shock.

Options :

92090664837. 1
92090664838. 2
92090664839. 3
92090664840. 4

Question Number : 10 Question Id : 92090616410 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Choose the correct sentence.

- (1) I know what he done came as a shock.
- (2) I know which he did came as a shock.
- (3) I know what he did came as a shock.
- (4) I know which he done came as a shock.

Options :

92090664837. 1
92090664838. 2
92090664839. 3
92090664840. 4

Question Number : 11 Question Id : 92090616411 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Member of Parliament will lose his membership if he is continuously absent from his sessions for :

- | | |
|-------------|--------------|
| (1) 30 days | (2) 60 days |
| (3) 90 days | (4) 120 days |

Options :

92090664841. 1
92090664842. 2
92090664843. 3
92090664844. 4

Question Number : 11 Question Id : 92090616411 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Member of Parliament will lose his membership if he is continuously absent from his sessions for :

- | | |
|-------------|--------------|
| (1) 30 days | (2) 60 days |
| (3) 90 days | (4) 120 days |

Options :

- 92090664841. 1
- 92090664842. 2
- 92090664843. 3
- 92090664844. 4

Question Number : 12 Question Id : 92090616412 Question Type : MCQ Option Shuffling : No 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 World Meteorology Day is celebrated on:

- | | |
|----------------|-----------------|
| (1) March 16th | (2) April 20th |
| (3) May 20th | (4) August 20th |

Options :

- 92090664845. 1
- 92090664846. 2
- 92090664847. 3
- 92090664848. 4

Question Number : 12 Question Id : 92090616412 Question Type : MCQ Option Shuffling : No 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 World Meteorology Day is celebrated on:

- | | |
|----------------|-----------------|
| (1) March 16th | (2) April 20th |
| (3) May 20th | (4) August 20th |

Options :

- 92090664845. 1
- 92090664846. 2
- 92090664847. 3
- 92090664848. 4

Question Number : 13 Question Id : 92090616413 Question Type : MCQ Option Shuffling : No 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 film introduced playback singing in india?

- | | |
|------------------------|---------------------|
| (1) Raja Harishchandra | (2) Life of Krishna |
| (3) Alam Ara | (4) Mughal-e-Azam |

Options :

- 92090664849. 1
- 92090664850. 2
- 92090664851. 3
- 92090664852. 4

Question Number : 13 Question Id : 92090616413 Question Type : MCQ Option Shuffling : No 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 film introduced playback singing in india?

- | | |
|------------------------|---------------------|
| (1) Raja Harishchandra | (2) Life of Krishna |
| (3) Alam Ara | (4) Mughal-e-Azam |

Options :

- 92090664849. 1
- 92090664850. 2
- 92090664851. 3
- 92090664852. 4

Question Number : 14 Question Id : 92090616414 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Identity the correct combination of the diseases against which MMR vaccine is used:

- | | |
|-----------------------------------|-----------------------------------|
| (1) Measles, Mumps, Rubella | (2) Malaria, Mumps, Rubella |
| (3) Malaria, Malnutrition, Rabies | (4) Measles, Malnutrition, Rabies |

Options :

- 92090664853. 1
- 92090664854. 2
- 92090664855. 3
- 92090664856. 4

Question Number : 14 Question Id : 92090616414 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum

Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Identify the correct combination of the diseases against which MMR vaccine is used:

- | | |
|-----------------------------------|-----------------------------------|
| (1) Measles, Mumps, Rubella | (2) Malaria, Mumps, Rubella |
| (3) Malaria, Malnutrition, Rabies | (4) Measles, Malnutrition, Rabies |

Options :

- 92090664853. 1
- 92090664854. 2
- 92090664855. 3
- 92090664856. 4

Question Number : 15 Question Id : 92090616415 Question Type : MCQ Option Shuffling : No 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 which city Food Corporation of India established the first food museum?

- | | |
|-------------|---------------|
| (1) Kolkata | (2) Mohali |
| (3) Lucknow | (4) Thanjavur |

Options :

- 92090664857. 1
- 92090664858. 2
- 92090664859. 3
- 92090664860. 4

Question Number : 15 Question Id : 92090616415 Question Type : MCQ Option Shuffling : No 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 which city Food Corporation of India established the first food museum?

- | | |
|-------------|---------------|
| (1) Kolkata | (2) Mohali |
| (3) Lucknow | (4) Thanjavur |

Options :

- 92090664857. 1
- 92090664858. 2
- 92090664859. 3
- 92090664860. 4

Question Number : 16 Question Id : 92090616416 Question Type : MCQ Option Shuffling : No 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 next number in the following series :

21, 35, 53, 75, _____

(1) 105

(2) 109

(3) 101

(4) 99

Options :

92090664861. 1

92090664862. 2

92090664863. 3

92090664864. 4

**Question Number : 16 Question Id : 92090616416 Question Type : MCQ Option Shuffling : No 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 next number in the following series :

21, 35, 53, 75, _____

(1) 105

(2) 109

(3) 101

(4) 99

Options :

92090664861. 1

92090664862. 2

92090664863. 3

92090664864. 4

**Question Number : 17 Question Id : 92090616417 Question Type : MCQ Option Shuffling : No 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 following question has one statement and three conclusions. Check the conclusions on the basis of the statement and choose the correct option.

Statement :

Meena is the only daughter of Mr. & Mrs. Joshi.

Conclusion :

(i) Mr. & Mrs. Joshi have two children.

(ii) Meena has no brother.

(iii) Meena has a step brother.

(1) Only (i) follows

(2) Only (ii) follows

(3) Only (i) and (iii) follows

(4) None of them follows

Options :

92090664865. 1

92090664866. 2

92090664867. 3

92090664868. 4

Question Number : 17 Question Id : 92090616417 Question Type : MCQ Option Shuffling : No 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 following question has one statement and three conclusions. Check the conclusions on the basis of the statement and choose the correct option.

Statement :

Meena is the only daughter of Mr. & Mrs. Joshi.

Conclusion :

(i) Mr. & Mrs. Joshi have two children.

(ii) Meena has no brother.

(iii) Meena has a step brother.

(1) Only (i) follows

(2) Only (ii) follows

(3) Only (i) and (iii) follows

(4) None of them follows

Options :

92090664865. 1

92090664866. 2

92090664867. 3

92090664868. 4

Question Number : 18 Question Id : 92090616418 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

In the question, statement and assumptions are given. Consider the statement and choose the correct option from the following on the basis of the assumptions

Statement :

A multinational company has started displaying the list of Holidays of the year on the internet rather than displaying on the notice board.

Assumptions:

- (i) All the employees have internet facility at home.
 - (ii) Most of the employees referred to the list on both notice board and internet earlier.
- (1) Only (i) is implicit
 - (2) Only (ii) is implicit
 - (3) Neither (i) nor (ii) is implicit
 - (4) Both (i) and (ii) are implicit

Options :

- 92090664869. 1
- 92090664870. 2
- 92090664871. 3
- 92090664872. 4

Question Number : 18 Question Id : 92090616418 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

In the question, statement and assumptions are given. Consider the statement and choose the correct option from the following on the basis of the assumptions

Statement :

A multinational company has started displaying the list of Holidays of the year on the internet rather than displaying on the notice board.

Assumptions:

- (i) All the employees have internet facility at home.
 - (ii) Most of the employees referred to the list on both notice board and internet earlier.
- (1) Only (i) is implicit
 - (2) Only (ii) is implicit
 - (3) Neither (i) nor (ii) is implicit
 - (4) Both (i) and (ii) are implicit

Options :

- 92090664869. 1
- 92090664870. 2
- 92090664871. 3
- 92090664872. 4

Question Number : 19 Question Id : 92090616419 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

V is wife of R. T is brother of V. S is the mother of R. W is father-in-law of V. Y is mother-in-law of S. How is V related to Y?

- | | |
|---------------------------|---------------------|
| (1) Niece | (2) Grand daughter |
| (3) Grand daughter-in-law | (4) Daughter-in-law |

Options :

- 92090664873. 1
- 92090664874. 2
- 92090664875. 3
- 92090664876. 4

Question Number : 19 Question Id : 92090616419 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

V is wife of R. T is brother of V. S is the mother of R. W is father-in-law of V. Y is mother-in-law of S. How is V related to Y?

- | | |
|---------------------------|---------------------|
| (1) Niece | (2) Grand daughter |
| (3) Grand daughter-in-law | (4) Daughter-in-law |

Options :

92090664873. 1
92090664874. 2
92090664875. 3
92090664876. 4

Question Number : 20 Question Id : 92090616420 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Some girls are sitting in a row. Kamla is sitting 10th from left and Veena is 7th from right. They have 10 girls in between them. How many girls are sitting in the row?

- | | |
|--------|--------|
| (1) 18 | (2) 27 |
| (3) 28 | (4) 29 |

Options :

92090664877. 1
92090664878. 2
92090664879. 3
92090664880. 4

Question Number : 20 Question Id : 92090616420 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Some girls are sitting in a row. Kamla is sitting 10th from left and Veena is 7th from right. They have 10 girls in between them. How many girls are sitting in the row?

- | | |
|--------|--------|
| (1) 18 | (2) 27 |
| (3) 28 | (4) 29 |

Options :

92090664877. 1
92090664878. 2
92090664879. 3
92090664880. 4

Question Number : 21 Question Id : 92090616421 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Values of K for which the quadratic equation $2x^2 - Kx + K = 0$ has equal roots are:

- | | |
|----------|----------|
| (1) 8, 4 | (2) 4, 4 |
| (3) 0, 4 | (4) 0, 8 |

Options :

- 92090664881. 1
- 92090664882. 2
- 92090664883. 3
- 92090664884. 4

Question Number : 21 Question Id : 92090616421 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Values of K for which the quadratic equation $2x^2 - Kx + K = 0$ has equal roots are:

- | | |
|----------|----------|
| (1) 8, 4 | (2) 4, 4 |
| (3) 0, 4 | (4) 0, 8 |

Options :

- 92090664881. 1
- 92090664882. 2
- 92090664883. 3
- 92090664884. 4

Question Number : 22 Question Id : 92090616422 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Cost price of 100 copies of a book is equal to the selling price of 60 copies of the same book. The gain or loss percentage is:

- | | |
|-----------------------|-----------------------|
| (1) $66\frac{2}{3}\%$ | (2) $67\frac{1}{2}\%$ |
| (3) 67% | (4) 66% |

Options :

- 92090664885. 1
- 92090664886. 2
- 92090664887. 3

Question Number : 22 Question Id : 92090616422 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Cost price of 100 copies of a book is equal to the selling price of 60 copies of the same book. The gain or loss percentage is:

- | | |
|-----------------------|-----------------------|
| (1) $66\frac{2}{3}\%$ | (2) $67\frac{1}{2}\%$ |
| (3) 67% | (4) 66% |

Options :

92090664885. 1
92090664886. 2
92090664887. 3
92090664888. 4

Question Number : 23 Question Id : 92090616423 Question Type : MCQ Option Shuffling : No 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, B, C and D entered into a partnership. 'A' contributed one-third of the capital, 'B' contributed one-fourth, 'C' contributed one-fifth and 'D' contributed the rest. All four of them agreed to share profit in the ratio of their capital. What is the share of 'D' when total profit is ₹ 6000?

- | | |
|-------------|-------------|
| (1) ₹ 2,000 | (2) ₹ 1,600 |
| (3) ₹ 1,200 | (4) ₹ 1,300 |

A, B, C और D एक साझेदारी शुरू करते हैं। 'A' कुल पूंजी के एक तिहाई भाग का योगदान करता है, 'B' एक चौथाई भाग का योगदान करता है, 'C' एक-पाँचवें भाग का योगदान करता है और शेष योगदान 'D' करता है। वे चारों इस बात पर सहमत होते हैं कि वे अपनी पूंजी के अनुपात में ही लाभ लेंगे। यदि कुल लाभ ₹.6,000 है तो इसमें 'D' का भाग कितना है?

- | | |
|-------------|-------------|
| (1) ₹ 2,000 | (2) ₹ 1,600 |
| (3) ₹ 1,200 | (4) ₹ 1,300 |

Options :

92090664889. 1
92090664890. 2
92090664891. 3
92090664892. 4

Question Number : 23 Question Id : 92090616423 Question Type : MCQ Option Shuffling : No 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, B, C and D entered into a partnership. 'A' contributed one-third of the capital, 'B' contributed one-fourth, 'C' contributed one-fifth and 'D' contributed the rest. All four of them agreed to share profit in the ratio of their capital. What is the share of 'D' when total profit is ₹ 6000?

- | | |
|-------------|-------------|
| (1) ₹ 2,000 | (2) ₹ 1,600 |
| (3) ₹ 1,200 | (4) ₹ 1,300 |

A, B, C और D एक साझेदारी शुरू करते हैं। 'A' कुल पूंजी के एक तिहाई भाग का योगदान करता है, 'B' एक चौथाई भाग का योगदान करता है, 'C' एक-पाँचवें भाग का योगदान करता है और शेष योगदान 'D' करता है। वे चारों इस बात पर सहमत होते हैं कि वे अपनी पूंजी के अनुपात में ही लाभ लेंगे। यदि कुल लाभ ₹ 6,000 है तो इसमें 'D' का भाग कितना है?

- | | |
|-------------|-------------|
| (1) ₹ 2,000 | (2) ₹ 1,600 |
| (3) ₹ 1,200 | (4) ₹ 1,300 |

Options :

- 92090664889. 1
- 92090664890. 2
- 92090664891. 3
- 92090664892. 4

Question Number : 24 Question Id : 92090616424 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Aman travels from P to Q at a speed of 40 km/hour and returns to P by increasing his speed by 50%. What is his average speed for the entire journey?

- | | |
|----------------|----------------|
| (1) 36 km/hour | (2) 45 km/hour |
| (3) 48 km/hour | (4) 50 km/hour |

Options :

- 92090664893. 1
- 92090664894. 2
- 92090664895. 3
- 92090664896. 4

Question Number : 24 Question Id : 92090616424 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Aman travels from P to Q at a speed of 40 km/hour and returns to P by increasing his speed by 50%. What is his average speed for the entire journey?

- | | |
|----------------|----------------|
| (1) 36 km/hour | (2) 45 km/hour |
| (3) 48 km/hour | (4) 50 km/hour |

Options :

92090664893. 1
92090664894. 2
92090664895. 3
92090664896. 4

Question Number : 25 Question Id : 92090616425 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Two pipes 'A' and 'B' can fill a cistern in 4 minutes and 6 minutes, respectively. If these pipes are turned on alternately for 1 minute each (pipe 'A' is opened first), then how long will it take for the cistern to fill?

- | | |
|--------------------------|--------------------------|
| (1) 4 minutes 48 seconds | (2) 3 minutes 20 seconds |
| (3) 4 minutes 50 seconds | (4) 3 minutes 30 seconds |

Options :

92090664897. 1
92090664898. 2
92090664899. 3
92090664900. 4

Question Number : 25 Question Id : 92090616425 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Two pipes 'A' and 'B' can fill a cistern in 4 minutes and 6 minutes, respectively. If these pipes are turned on alternately for 1 minute each (pipe 'A' is opened first), then how long will it take for the cistern to fill?

- | | |
|--------------------------|--------------------------|
| (1) 4 minutes 48 seconds | (2) 3 minutes 20 seconds |
| (3) 4 minutes 50 seconds | (4) 3 minutes 30 seconds |

Options :

92090664897. 1
92090664898. 2
92090664899. 3
92090664900. 4

Part B: Mechanical Engineering

Section Id :	920906326
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 :	920906531
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 26 Question Id : 92090616426 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

If $A = \begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{bmatrix}$ and I = unit matrix, then the value of $A^2 - 4A$ is :

- | | |
|---------|---------|
| (1) 3 I | (2) 4 I |
| (3) 5 I | (4) 6 I |

Options :

92090664901. 1
92090664902. 2
92090664903. 3
92090664904. 4

Question Number : 26 Question Id : 92090616426 Question Type : MCQ Option Shuffling : No Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

यदि $A = \begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{bmatrix}$ एवं $I =$ इकाई आव्यूह हो तो $A^2 - 4A$ का मान है:

- | | |
|----------|----------|
| (1) $3I$ | (2) $4I$ |
| (3) $5I$ | (4) $6I$ |

Options :

92090664901. 1
92090664902. 2
92090664903. 3
92090664904. 4

Question Number : 27 Question Id : 92090616427 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Head lost due to friction is 7 m in a pipe flow. The total head at the inlet of the pipe to be maintained for maximum power transmission through the pipe is:

- | | |
|----------|----------|
| (1) 30 m | (2) 24 m |
| (3) 21 m | (4) 36 m |

Options :

92090664905. 1
92090664906. 2
92090664907. 3
92090664908. 4

Question Number : 27 Question Id : 92090616427 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

किसी पाइप प्रवाह में घर्षण के कारण शीर्ष क्षय 7 m है। पाइप से अधिकतम पारगमित क्षमता जारी रखने के लिए पाइप के प्रवेश द्वार पर कुल शीर्ष है :

- | | |
|----------|----------|
| (1) 30 m | (2) 24 m |
| (3) 21 m | (4) 36 m |

Options :

92090664905. 1
92090664906. 2
92090664907. 3
92090664908. 4

Question Number : 28 Question Id : 92090616428 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

In an open tank, water is present to a depth of 3 m and above it oil is present to a depth of 2 m. The intensity of pressure at the interface of the two fluid layers will be:

(Given specific gravity of oil = 0.7)

- | | |
|----------------------------|----------------------------|
| (1) 13.7 kN/m ² | (2) 14.7 kN/m ² |
| (3) 12.7 kN/m ² | (4) 15.7 kN/m ² |

Options :

- 92090664909. 1
- 92090664910. 2
- 92090664911. 3
- 92090664912. 4

Question Number : 28 Question Id : 92090616428 Question Type : MCQ Option Shuffling : No 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 खुले टैंक में 3 m गहराई तक पानी तथा इसके ऊपर 2 m गहराई तक तेल भरा है। द्रवों की संपर्क सतह पर दाब की तीव्रता होगी। (दिया है, तेल का विशिष्ट गुरुत्व = 0.7):

- | | |
|----------------------------|----------------------------|
| (1) 13.7 kN/m ² | (2) 14.7 kN/m ² |
| (3) 12.7 kN/m ² | (4) 15.7 kN/m ² |

Options :

- 92090664909. 1
- 92090664910. 2
- 92090664911. 3
- 92090664912. 4

Question Number : 29 Question Id : 92090616429 Question Type : MCQ Option Shuffling : No 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 evaporator of a vapour compression refrigerator the refrigerant leaves at 205 KJ/kg and leaves condenser at 75 KJ/kg. The cooling load in kW for supply of refrigerant per kg per second is:

- | | |
|------------|------------|
| (1) 140 kW | (2) 120 kW |
| (3) 100 kW | (4) 130 kW |

Options :

- 92090664913. 1
- 92090664914. 2
- 92090664915. 3
- 92090664916. 4

Question Number : 29 Question Id : 92090616429 Question Type : MCQ Option Shuffling : No 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 वाष्प संपीड़न रेफ्रिजरेटर के वाष्पित्र से अववर्तक 205 KJ/kg एवं द्रवणित्र 75 KJ/kg त्यागता है। अपवर्तक के स्रोत के लिए प्रति किलोग्राम प्रति सेकंड शीतलन भार है:

- | | |
|------------|------------|
| (1) 140 kW | (2) 120 kW |
| (3) 100 kW | (4) 130 kW |

Options :

- 92090664913. 1
- 92090664914. 2
- 92090664915. 3
- 92090664916. 4

Question Number : 30 Question Id : 92090616430 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

In an air standard dual combustion cycle, the heat addition process takes place at:

- (1) Constant pressure
- (2) Constant volume
- (3) Constant pressure and constant volume
- (4) Constant temperature

Options :

- 92090664917. 1
- 92090664918. 2
- 92090664919. 3
- 92090664920. 4

Question Number : 30 Question Id : 92090616430 Question Type : MCQ Option Shuffling : No 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 वायु मानक द्विदहन चक्र में, ऊष्मा योग प्रक्रम घटित होता है:

- | | |
|-------------------------------|--------------------|
| (1) नियत दाब पर | (2) नियत आयतन पर |
| (3) नियत दाब तथा नियत आयतन पर | (4) नियत तापमान पर |

Options :

- 92090664917. 1
- 92090664918. 2
- 92090664919. 3
- 92090664920. 4

Question Number : 31 Question Id : 92090616431 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

In an actual regenerative Rankine cycle, the net work out put will be _____ as compared to simple Ranking cycle.

- | | |
|----------|----------------|
| (1) more | (2) less |
| (3) same | (4) uneffected |

Options :

- 92090664921. 1
- 92090664922. 2
- 92090664923. 3
- 92090664924. 4

Question Number : 31 Question Id : 92090616431 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

एक वास्तविक पुनर्योजी रैंकिन चक्र में, साधारण रैंकिन चक्र की तुलना में कुल कार्य (net work out put) निर्गत _____ होगा।

- | | |
|----------|---------------|
| (1) अधिक | (2) कम |
| (3) समान | (4) अप्रभावित |

Options :

- 92090664921. 1
- 92090664922. 2
- 92090664923. 3
- 92090664924. 4

Question Number : 32 Question Id : 92090616432 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

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

Assertion (A) : The numeric differences in the forecast of demand and actual demand is known as forecast error (e).

Reasons (R) : Mean Absolute Deviation (MAD) = $\frac{\sum |e|}{n}$.

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 :

- 92090664925. 1
- 92090664926. 2
- 92090664927. 3
- 92090664928. 4

Question Number : 32 Question Id : 92090616432 Question Type : MCQ Option Shuffling : No 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 को अभिकथन (Assertion (A)) तथा दूसरे को कारण (Reasons (R)) से वर्णित किया गया है।

अभिकथन (A) : पूर्वानुमानित माँग तथा वास्तविक माँग का आंकिक अन्तर पूर्वानुमान त्रुटि कहलाती है।

कारण (R) : माध्य परम विचलन (MAD) = $\frac{\sum |e|}{n}$.

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

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

Options :

92090664925. 1
92090664926. 2
92090664927. 3
92090664928. 4

Question Number : 33 Question Id : 92090616433 Question Type : MCQ Option Shuffling : No 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 mathematical statement regarding Divergence theorem which is true :

- | | |
|---|--|
| (1) $\oint_S \vec{A} \cdot d\vec{s} = \int_V \left(\vec{\nabla} \times \vec{A} \right) dv$ | (2) $\oint_S \vec{A} \cdot d\vec{s} = \int_V \left(\vec{\nabla} \cdot \vec{A} \right) dv$ |
| (3) $\int_V \vec{A} \cdot d\vec{s} = \oint_S \left(\vec{\nabla} \times \vec{A} \right) \cdot d\vec{s}$ | (4) $\oint_V \vec{A} \cdot dv = \int_S \left(\vec{\nabla} \cdot \vec{A} \right) ds$ |

Options :

92090664929. 1
92090664930. 2
92090664931. 3
92090664932. 4

Question Number : 33 Question Id : 92090616433 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

अपसरण प्रमेय से संबंधित कौन सा गणितीय कथन सत्य है :

$$(1) \quad \oint_S \vec{A} \cdot d\vec{s} = \int_V \left(\vec{\nabla} \times \vec{A} \right) \cdot d\vec{v}$$

$$(2) \quad \oint_S \vec{A} \cdot d\vec{s} = \int_V \left(\vec{\nabla} \cdot \vec{A} \right) \cdot d\vec{v}$$

$$(3) \quad \int_V \vec{A} \cdot d\vec{s} = \oint_S \left(\vec{\nabla} \times \vec{A} \right) \cdot d\vec{s}$$

$$(4) \quad \oint_V \vec{A} \cdot d\vec{v} = \int_S \left(\vec{\nabla} \cdot \vec{A} \right) \cdot d\vec{s}$$

Options :

92090664929. 1

92090664930. 2

92090664931. 3

92090664932. 4

Question Number : 34 Question Id : 92090616434 Question Type : MCQ Option Shuffling : No 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 : Hardness of green sand mold increases with increase in permeability.

Statement II : Increase in permeability of the green sand will make the mold denser and harder.

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 :

92090664933. 1

92090664934. 2

92090664935. 3

92090664936. 4

Question Number : 34 Question Id : 92090616434 Question Type : MCQ Option Shuffling : No 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 : चुंबकशीलता में वृद्धि के साथ हरे बालू के सांचा की कठोरता बढ़ती है।

कथन II : हरे बालू की चुम्बकशीलता वृद्धि सांचा को सघन एवं कठोर बना देगी।

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

- (1) कथन I और II दोनों सही हैं
- (2) कथन I और II दोनों गलत हैं
- (3) कथन I सही है, लेकिन कथन II गलत है
- (4) कथन I गलत है, लेकिन कथन II सही है

Options :

- 92090664933. 1
- 92090664934. 2
- 92090664935. 3
- 92090664936. 4

Question Number : 35 Question Id : 92090616435 Question Type : MCQ Option Shuffling : No 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 CAD tool's purpose is:

- (A) 3-D modelling
- (B) CAPP techniques
- (C) NC programming
- (D) NC machining
- (E) Drafting

Choose the correct answer from the options given below :

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

Options :

- 92090664937. 1

92090664938. 2

92090664939. 3

92090664940. 4

Question Number : 35 Question Id : 92090616435 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

किसी कैड (CAD) यंत्र का उद्देश्य है :

- (A) 3-D प्रतिरूपण
- (B) कैप (CAPP) तकनीकियां
- (C) NC प्रोग्रामन
- (D) NC यंत्रण
- (E) ड्राफ्टिंग

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

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

Options :

92090664937. 1

92090664938. 2

92090664939. 3

92090664940. 4

Question Number : 36 Question Id : 92090616436 Question Type : MCQ Option Shuffling : No 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) Auto collimator	(I) Angular dimension
(B) Bevel Protractor	(II) Small angular displacement
(C) Optical micrometre	(III) Linear dimensions
(D) Vernier Callipers	(IV) Surface roughness

Choose the correct answer from the options given below:

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

Options :

92090664941. 1
92090664942. 2
92090664943. 3
92090664944. 4

Question Number : 36 Question Id : 92090616436 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

सूची-I के साथ सूची-II का मिलान कीजिए :

सूची-I	सूची-II
(A) स्वसमान्तरित	(I) कोणीय विस्तार
(B) प्रवण कोण अपाकुंचन	(II) सूक्ष्म कोणीय विस्थापन
(C) प्रकाशिक सूक्ष्ममापी	(III) रेखीय विस्तार
(D) वर्नियर कैलीपर्स	(IV) पृष्ठ का खुरदरापन

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

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

Options :

92090664941. 1

92090664942. 2

92090664943. 3

92090664944. 4

Question Number : 37 Question Id : 92090616437 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The value of $\int_0^{2\pi} \sin^2 nx \, dx$, where $n \in I$, is :

(1) 0

(2) $\frac{\pi}{2}$

(3) π

(4) 2π

Options :

92090664945. 1

92090664946. 2

92090664947. 3

92090664948. 4

Question Number : 37 Question Id : 92090616437 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

$\int_0^{2\pi} \sin^2 nx \, dx$ का मान, जहाँ $n \in I$, है:

(1) 0

(2) $\frac{\pi}{2}$

(3) π

(4) 2π

Options :

92090664945. 1

92090664946. 2

92090664947. 3

92090664948. 4

Question Number : 38 Question Id : 92090616438 Question Type : MCQ Option Shuffling : No 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 hollow cylindrical pipe is insulated using asbestos insulation ($k = 0.15 \text{ W/mK}$). If outside heat transfer coefficient is $75 \text{ W/m}^2\text{K}$, then critical radius of insulation is:

- | | |
|------------|-------------|
| (1) 0.5 cm | (2) 0.4 cm |
| (3) 0.2 cm | (4) 0.45 cm |

Options :

92090664949. 1
92090664950. 2
92090664951. 3
92090664952. 4

Question Number : 38 Question Id : 92090616438 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

ऐस्बेस्टस रोधन ($k = 0.15 \text{ W/mK}$) का उपयोग करके एक खोखले बेलन का कुचालक (अच्छूता) बनाया जाता है। यदि बाह्य ऊष्मा स्थानान्तरण नियतांक $75 \text{ W/m}^2\text{K}$ हो तब रोधन इन्सुलेसन की क्रान्तिक त्रिज्या है:

- | | |
|------------|-------------|
| (1) 0.5 cm | (2) 0.4 cm |
| (3) 0.2 cm | (4) 0.45 cm |

Options :

92090664949. 1
92090664950. 2
92090664951. 3
92090664952. 4

Question Number : 39 Question Id : 92090616439 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Biot number and Nusselt numbers are given by (Here L_C is characteristic length, K_S = Thermal conductivity for solid, K_f = Thermal conductivity of fluid)

- | | |
|--|--|
| (1) $\frac{hL_C}{K_f}$ and $\frac{hL_C}{K_S}$ respectively | (2) $\frac{hK_f}{L_C}$ and $\frac{hK_S}{L_C}$ respectively |
| (3) $\frac{hL_C}{K_S}$ and $\frac{hL_C}{K_f}$ respectively | (4) $\frac{hK_S}{L_C}$ and $\frac{hK_f}{L_C}$ respectively |

Options :

92090664953. 1
92090664954. 2
92090664955. 3

Question Number : 39 Question Id : 92090616439 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

बायोट संख्या एवं नुसेन्ट संख्याएं हैं :

(यहाँ L_C = अभिलाक्षणिक लम्बाई, K_S = ठोस के लिए ऊष्मा चालकता, K_f = द्रव के लिए ऊष्मा चालकता)

(1) क्रमशः $\frac{hL_C}{K_f}$ एवं $\frac{hL_C}{K_S}$

(2) क्रमशः $\frac{hK_f}{L_C}$ एवं $\frac{hK_S}{L_C}$

(3) क्रमशः $\frac{hL_C}{K_S}$ एवं $\frac{hL_C}{K_f}$

(4) क्रमशः $\frac{hK_S}{L_C}$ एवं $\frac{hK_f}{L_C}$

Options :

92090664953. 1

92090664954. 2

92090664955. 3

92090664956. 4

Question Number : 40 Question Id : 92090616440 Question Type : MCQ Option Shuffling : No 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 temperature distribution along a fin with insulated tip is:w

(1) $\frac{\theta}{\theta_S} = e^{-mx}$

(2) $\frac{\theta}{\theta_S} = e^{mx}$

(3) $\frac{\theta}{\theta_S} = \frac{\cosh m(l-x)}{\cosh ml}$

(4) $\frac{\theta}{\theta_S} = \frac{\tanh m(l-x)}{ml}$

Options :

92090664957. 1

92090664958. 2

92090664959. 3

92090664960. 4

Question Number : 40 Question Id : 92090616440 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

किसी कुचालक पंख टिप के साथ मोन पक्ष के अनुदिश ताप का वितरण है:

$$(1) \quad \frac{\theta}{\theta_s} = e^{-mx}$$

$$(2) \quad \frac{\theta}{\theta_s} = e^{mx}$$

$$(3) \quad \frac{\theta}{\theta_s} = \frac{\cosh m(l-x)}{\cosh ml}$$

$$(4) \quad \frac{\theta}{\theta_s} = \frac{\tanh m(l-x)}{ml}$$

Options :

- 92090664957. 1
- 92090664958. 2
- 92090664959. 3
- 92090664960. 4

Question Number : 41 Question Id : 92090616441 Question Type : MCQ Option Shuffling : No 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 COP of a heat pump is 40% of a reversible heat pump. The operating temperatures limits are 2 °C and 25 °C. If 2.5 kW of heat is pumped by the heat pump in a room to be heated, then the power input to the heat pump is:

$$(1) \quad 0.48 \text{ kW}$$

$$(2) \quad 0.52 \text{ kW}$$

$$(3) \quad 0.32 \text{ kW}$$

$$(4) \quad 0.61 \text{ kW}$$

Options :

- 92090664961. 1
- 92090664962. 2
- 92090664963. 3
- 92090664964. 4

Question Number : 41 Question Id : 92090616441 Question Type : MCQ Option Shuffling : No 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 ऊष्मा पम्प का प्रदर्शन गुणांक किसी उत्क्रमणीय ऊष्मा पम्प का 40% है। आपरेटिंग तापमान सीमाएं 2 °C व 25 °C हैं। यदि किसी ऊष्मा पंप से कमरे को गर्म करने लिए इसमें 2.5 kW ऊष्मा पम्प की जाती हो तो ऊष्मा पंप को दी गयी शक्ति है :

$$(1) \quad 0.48 \text{ kW}$$

$$(2) \quad 0.52 \text{ kW}$$

$$(3) \quad 0.32 \text{ kW}$$

$$(4) \quad 0.61 \text{ kW}$$

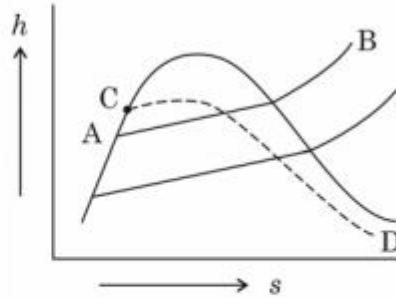
Options :

- 92090664961. 1
- 92090664962. 2
- 92090664963. 3

Question Number : 42 Question Id : 92090616442 Question Type : MCQ Option Shuffling : No 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 two lines AB and CD shown in h - s curve are, respectively:



- (1) Constant temperature and constant volume lines respectively.
- (2) Constant pressure and constant temperature lines respectively.
- (3) Constant pressure and constant dryness fraction lines.
- (4) Constant temperature and constant dryness fraction lines.

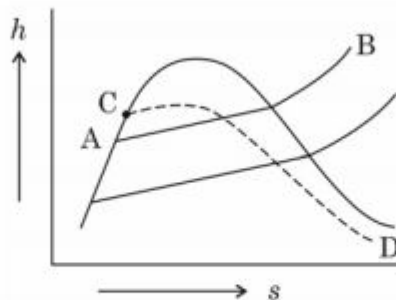
Options :

92090664965. 1
92090664966. 2
92090664967. 3
92090664968. 4

Question Number : 42 Question Id : 92090616442 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

h - s चक्र में दो रेखाएं क्रमशः AB तथा CD प्रदर्शित की गयी हैं: यह रेखाएं :



- (1) क्रमशः नियत ताप एवं नियत आयतन रेखाएं हैं।
- (2) क्रमशः नियत दाब एवं नियत ताप रेखाएं हैं।
- (3) नियत दाब एवं नियत सूखापन अंश रेखाएं हैं।
- (4) नियत ताप एवं नियत सूखापन अंश रेखाएं हैं।

Options :

92090664965. 1
92090664966. 2
92090664967. 3
92090664968. 4

Question Number : 43 Question Id : 92090616443 Question Type : MCQ Option Shuffling : No 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 radius of Mohr's circle of stress of a stressed element is 30 N/mm^2 and minor principal tensile stress is 15 N/mm^2 . The major principal stress is:

- | | |
|-------------------------|-------------------------|
| (1) 45 N/mm^2 | (2) 15 N/mm^2 |
| (3) 60 N/mm^2 | (4) 75 N/mm^2 |

Options :

92090664969. 1
92090664970. 2
92090664971. 3
92090664972. 4

Question Number : 43 Question Id : 92090616443 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

मोहर वृत्त की त्रिज्या किसी खिंचे हुए अवयव का प्रतिबल पर 30 N/mm^2 है एवं लघु मुख्य लचीला प्रतिबल 15 N/mm^2 है। दीर्घ मुख्य प्रतिबल है:

- | | |
|-------------------------|-------------------------|
| (1) 45 N/mm^2 | (2) 15 N/mm^2 |
| (3) 60 N/mm^2 | (4) 75 N/mm^2 |

Options :

92090664969. 1
92090664970. 2
92090664971. 3
92090664972. 4

Question Number : 44 Question Id : 92090616444 Question Type : MCQ Option Shuffling : No 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) : Image processing is one of the most important technique used in robot vision system.

Reasons (R) : Image processing techniques are used to enhance, improve or alter an image and to prepare it for image analysis.

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

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

Options :

- 92090664973. 1
- 92090664974. 2
- 92090664975. 3
- 92090664976. 4

Question Number : 44 Question Id : 92090616444 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

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

अभिकथन (A) : छवि प्रसंस्करण, रोबोट विजन सिस्टम में प्रयुक्त एक महत्वपूर्ण तकनीक है।

कारण (R) : छवि प्रसंस्करण तकनीकों का उपयोग किसी छवि को बढ़ाने, सुधारने या बदलने और छवि विश्लेषण के लिए तैयार करने के लिए किया जाता है।

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

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

Options :

- 92090664973. 1
- 92090664974. 2
- 92090664975. 3

92090664976. 4

Question Number : 45 Question Id : 92090616445 Question Type : MCQ Option Shuffling : No 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 Laurent series expansion of $f(z) = \frac{2}{(z-1)(z-2)}$ valid for $|z-1| > 1$

- (1) $\frac{1}{z-1} + \frac{2}{(z-1)^3} + \frac{3}{(z-1)^5} + \dots$ (2) $\frac{1}{z-1} + \frac{2}{(z-1)^2} + \frac{3}{(z-1)^3} + \dots$
- (3) $\frac{1}{z-2} + \frac{2}{(z-2)^2} + \frac{3}{(z-2)^3} + \dots$ (4) $\frac{1}{z-1} + \frac{2}{(z-2)^2} + \frac{3}{(z-1)^3} + \frac{4}{(z-2)^4} + \dots$

Options :

92090664977. 1
92090664978. 2
92090664979. 3
92090664980. 4

Question Number : 45 Question Id : 92090616445 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

$|z-1| > 1$ के लिए $f(z) = \frac{2}{(z-1)(z-2)}$ का लॉरेंट श्रेणी प्रसार है:

- (1) $\frac{1}{z-1} + \frac{2}{(z-1)^3} + \frac{3}{(z-1)^5} + \dots$ (2) $\frac{1}{z-1} + \frac{2}{(z-1)^2} + \frac{3}{(z-1)^3} + \dots$
- (3) $\frac{1}{z-2} + \frac{2}{(z-2)^2} + \frac{3}{(z-2)^3} + \dots$ (4) $\frac{1}{z-1} + \frac{2}{(z-2)^2} + \frac{3}{(z-1)^3} + \frac{4}{(z-2)^4} + \dots$

Options :

92090664977. 1
92090664978. 2
92090664979. 3
92090664980. 4

Question Number : 46 Question Id : 92090616446 Question Type : MCQ Option Shuffling : No 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 CNC part program block is given as :
 $N100\ G03\ \times 35\ Y15\ R2.5$
The tool motion in the above block is circular interpolation - counter clockwise direction.
- Statement II : The CNC part program block is given as.
 $N100\ G00\ \times 10\ Y20$
The tool motion in the above block is rapid feed.

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 :

- 92090664981. 1
- 92090664982. 2
- 92090664983. 3
- 92090664984. 4

Question Number : 46 Question Id : 92090616446 Question Type : MCQ Option Shuffling : No 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 : CNC भाग प्रोग्राम ब्लॉक इस प्रकार दिया है। $N100\ G03\ \times 35\ Y15\ R2.5$ उपरोक्त ब्लॉक में उपकरण गति वृत्ताकार प्रक्षेप-काउंटर दक्षिणवर्त दिशा में है।

कथन II : CNC भाग प्रोग्राम ब्लॉक इस प्रकार दिया है। $N100\ G00\ \times 10\ Y20$ उपरोक्त ब्लॉक में उपकरण गति त्वरित फीड है।

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

- (1) कथन I और II दोनों सही हैं
- (2) कथन I और II दोनों गलत हैं
- (3) कथन I सही है, लेकिन कथन II गलत है
- (4) कथन I गलत है, लेकिन कथन II सही है

Options :

- 92090664981. 1

92090664982. 2

92090664983. 3

92090664984. 4

Question Number : 47 Question Id : 92090616447 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Which of the following statements is / an false?

- (A) Solder is an alloy of tin and lead.
- (B) Ductile materials result in continuous chip with Built up edge.
- (C) Stellites are alloys of cobalt, chromium and vanadium.
- (D) Electron beam machining does not require vacuum.
- (E) In Plasma arc machining, MRR [Material Removal Rate] is higher than EDM and laser machining.

Choose the correct answer from the options given below :

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

Options :

92090664985. 1

92090664986. 2

92090664987. 3

92090664988. 4

Question Number : 47 Question Id : 92090616447 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्न में से कौन से कथन असत्य हैं :

- (A) टांका टिन एवं लैड की एक मिश्र धातु है।
- (B) तन्य पदार्थ किनारों के साथ बना अनवरत टुकड़ों का परिणाम है।
- (C) स्टेलाइट्स कोबाल्ट क्रोमियम एवं यूरेडियम की मिश्र धातुएं हैं।
- (D) इलैक्ट्रान पुंज मशीनिंग को निर्बात की आवश्यकता नहीं होती है।
- (E) प्लाज्मा चाप मशीनिंग में सामग्री हटाने की दर EDM तथा लेज़र मशीनिंग से अधिक होता है।

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

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

Options :

- 92090664985. 1
- 92090664986. 2
- 92090664987. 3
- 92090664988. 4

Question Number : 48 Question Id : 92090616448 Question Type : MCQ Option Shuffling : No 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) Crystal Structure	(I) Line defect
(B) Cyniding	(II) Liquid carbonizing
(C) Screw Dislocation	(III) Unit cell
(D) Normalising	(IV) Heating upto austenitizing temperature and then cooling

Choose the correct answer from the options given below:

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

Options :

- 92090664989. 1

92090664990. 2

92090664991. 3

92090664992. 4

Question Number : 48 Question Id : 92090616448 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

सूची-I के साथ सूची-II का मिलान कीजिए :

सूची-I	सूची-II
(A) क्रिस्टल संरचना	(I) रेखा दोष
(B) सायनाइडिंग	(II) तरल कार्बराइजिंग
(C) पेंच अव्यवस्था	(III) यूनिट सेल
(D) नार्मलाइजिंग	(IV) ऑस्टेनिटाइजिंग तापमान तक गर्म करना एवं फिर ठंडा करना

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

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

Options :

92090664989. 1

92090664990. 2

92090664991. 3

92090664992. 4

Question Number : 49 Question Id : 92090616449 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

If three forces acting on a rigid body are in equilibrium, then they must:

- | | |
|-------------------------------|---------------------|
| (1) be all parallel | (2) meet at a point |
| (3) meet at a different point | (4) never meet |

Options :

92090664993. 1

92090664994. 2

92090664995. 3

92090664996. 4

Question Number : 49 Question Id : 92090616449 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

यदि दृढ़ वस्तु पर लगे तीन बल साम्यावस्था में हो तब वे होने चाहिए:

- | | |
|---------------------------------|----------------------------|
| (1) सभी समान्तर | (2) एक बिन्दु पर मिलते हुए |
| (3) अलग-अलग बिन्दु पर मिलते हुए | (4) कभी न मिलते हुए |

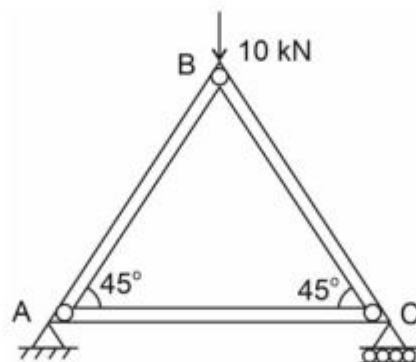
Options :

92090664993. 1
92090664994. 2
92090664995. 3
92090664996. 4

Question Number : 50 Question Id : 92090616450 Question Type : MCQ Option Shuffling : No 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 truss ABC loaded at B with a force of 10 kN as shown in the figure. The force in the member AC is :



- | | |
|------------|------------|
| (1) 5 kN | (2) 10 kN |
| (3) 7.5 kN | (4) 2.5 kN |

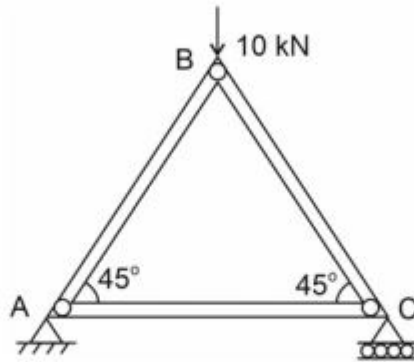
Options :

92090664997. 1
92090664998. 2
92090664999. 3
92090665000. 4

Question Number : 50 Question Id : 92090616450 Question Type : MCQ Option Shuffling : No 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 गुट्रस ABC 10 kN के बल से भारित है जैसा कि चित्र में दिखाया गया है। सदस्य AC में बल का मान है:



- (1) 5 kN
(3) 7.5 kN

- (2) 10 kN
(4) 2.5 kN

Options :

92090664997. 1
92090664998. 2
92090664999. 3
92090665000. 4

Question Number : 51 Question Id : 92090616451 Question Type : MCQ Option Shuffling : No 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 truck moving at a constant speed of 72 km/h enters a curved path of radius of curvature measuring 120 m. It's total acceleration is :

- (1) 3.33 m/s²
(2) 2.64 m/s²
(3) 4.71 m/s²
(4) 3.82 m/s²

Options :

92090665001. 1
92090665002. 2
92090665003. 3
92090665004. 4

Question Number : 51 Question Id : 92090616451 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

72 km/h की एक समान चाल से गतिमान एक ट्रक 120 m की वक्रता त्रिज्या के वक्राकार पथ पर प्रवेश करता है। इसका कुल त्वरण है :

- | | |
|---------------------------|---------------------------|
| (1) 3.33 m/s ² | (2) 2.64 m/s ² |
| (3) 4.71 m/s ² | (4) 3.82 m/s ² |

Options :

92090665001. 1
92090665002. 2
92090665003. 3
92090665004. 4

Question Number : 52 Question Id : 92090616452 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The maximum efficiency in a Screw Jack is given as:

- | | |
|---|---|
| (1) $\frac{1 + \cos \phi_s}{1 - \cos \phi_s}$ | (2) $\frac{1 - \cos \phi_s}{1 + \cos \phi_s}$ |
| (3) $\frac{1 + \sin \phi_s}{1 - \sin \phi_s}$ | (4) $\frac{1 - \sin \phi_s}{1 + \sin \phi_s}$ |

Options :

92090665005. 1
92090665006. 2
92090665007. 3
92090665008. 4

Question Number : 52 Question Id : 92090616452 Question Type : MCQ Option Shuffling : No 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 पेंच जैक की अधिकतम दक्षता है:

- | | |
|---|---|
| (1) $\frac{1 + \cos \phi_s}{1 - \cos \phi_s}$ | (2) $\frac{1 - \cos \phi_s}{1 + \cos \phi_s}$ |
| (3) $\frac{1 + \sin \phi_s}{1 - \sin \phi_s}$ | (4) $\frac{1 - \sin \phi_s}{1 + \sin \phi_s}$ |

Options :

92090665005. 1
92090665006. 2
92090665007. 3

Question Number : 53 Question Id : 92090616453 Question Type : MCQ Option Shuffling : No 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 band brake having a band width of 90 mm, drum diameter of 300 mm, coefficient of friction of 0.3 and an angle of wrap of 270° is required to create a friction torque of 1000 Nm. The maximum tension (in kN) developed in the band is:

- | | |
|-------------|------------|
| (1) 10.2 kN | (2) 8.8 kN |
| (3) 3.2 kN | (4) 5.8 kN |

Options :

92090665009. 1
92090665010. 2
92090665011. 3
92090665012. 4

Question Number : 53 Question Id : 92090616453 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

90 mm की बैंड चौड़ाई के एक बैंड ब्रेक में 1000 Nm का एक घर्षण बल आघूर्ण उत्पन्न करने के लिए 300 mm का ड्रम व्यास, 0.3 का घर्षण गुणांक एवं 270° का रैप कोण आवश्यक है। बैंड में उत्पन्न अधिकतम तनाव (kN में) है:

- | | |
|-------------|------------|
| (1) 10.2 kN | (2) 8.8 kN |
| (3) 3.2 kN | (4) 5.8 kN |

Options :

92090665009. 1
92090665010. 2
92090665011. 3
92090665012. 4

Question Number : 54 Question Id : 92090616454 Question Type : MCQ Option Shuffling : No 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 solid circular shaft is required to transmit a torque of 100 Nm. If the permissible shear stress for the material is 180 MPa, the diameter of a shaft in mm is:

(Assume FOS as 2)

- | | |
|--------|--------|
| (1) 18 | (2) 22 |
| (3) 26 | (4) 28 |

Options :

- 92090665013. 1
- 92090665014. 2
- 92090665015. 3
- 92090665016. 4

Question Number : 54 Question Id : 92090616454 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

100 Nm का एक बल आघूर्ण संचारित करने के लिए एक ठोस वृत्ताकार शाफ्ट की आवश्यकता होती है। यदि पदार्थ का अनुमेय अपरूपण प्रतिबल 180 MPa हो तो शाफ्ट का व्यास (mm में) है: (सुरक्षा का गणक = 2)

- | | |
|--------|--------|
| (1) 18 | (2) 22 |
| (3) 26 | (4) 28 |

Options :

- 92090665013. 1
- 92090665014. 2
- 92090665015. 3
- 92090665016. 4

Question Number : 55 Question Id : 92090616455 Question Type : MCQ Option Shuffling : No 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) : Dexterous workspace of manipulator robot is either smaller or same as the reachable workspace.

Reasons (R) : Dexterous workspace is made by increasing the degree of freedom of manipulator robot.

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

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

Options :

- 92090665017. 1
- 92090665018. 2
- 92090665019. 3
- 92090665020. 4

Question Number : 55 Question Id : 92090616455 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

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

अभिकथन (A) : मैनीपुलेटर रोबोट का निपुण कार्यक्षेत्र या तो छोटा है या पहुँच योग्य कार्यक्षेत्र के समान है।

कारण (R) : मैनीपुलेटर रोबोट की स्वतंत्रता की कोटि को बढ़ाकर निपुण कार्यक्षेत्र बनाया गया है।

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

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

Options :

- 92090665017. 1
- 92090665018. 2
- 92090665019. 3
- 92090665020. 4

Question Number : 56 Question Id : 92090616456 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The value of $\int_0^{\pi/2} \int_0^{\cos \theta} r \sin \theta \, dr \, d\theta$ is

- | | |
|-------------------|-------------------|
| (1) 0 | (2) $\frac{1}{6}$ |
| (3) $\frac{4}{3}$ | (4) π |

Options :

- 92090665021. 1
- 92090665022. 2
- 92090665023. 3
- 92090665024. 4

Question Number : 56 Question Id : 92090616456 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

$\int_0^{\pi/2} \int_0^{\cos \theta} r \sin \theta \, dr \, d\theta$ का मान है:

- | | |
|-------------------|-------------------|
| (1) 0 | (2) $\frac{1}{6}$ |
| (3) $\frac{4}{3}$ | (4) π |

Options :

- 92090665021. 1
- 92090665022. 2
- 92090665023. 3
- 92090665024. 4

Question Number : 57 Question Id : 92090616457 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Given below are two statements:

Statement I : In an automated production line, a storage buffer is required to reduce the effect of station breakdowns.

Statement II : In an automated production line, a storage buffer is required to smooth the cycle time variation.

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 :

- 92090665025. 1
- 92090665026. 2
- 92090665027. 3
- 92090665028. 4

Question Number : 57 Question Id : 92090616457 Question Type : MCQ Option Shuffling : No 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 स्वचालित उत्पादन लाइन में, स्टेशन टूटने के प्रभाव को कम करने के लिए एक भंडारण बफर की आवश्यकता होती है।

कथन II : एक स्वचालित उत्पादन लाइन में, चक्र समय भिन्नता को सुगम बनाने के लिए एक भंडारण बफर की आवश्यकता होती है।

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

- (1) कथन I और II दोनों सही हैं
- (2) कथन I और II दोनों गलत हैं
- (3) कथन I सही है, लेकिन कथन II गलत है
- (4) कथन I गलत है, लेकिन कथन II सही है

Options :

92090665025. 1
92090665026. 2
92090665027. 3
92090665028. 4

Question Number : 58 Question Id : 92090616458 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Charge amplifier is used to amplify the output signal of

- (A) Piezoelectric Transducer
- (B) Photo emissive Transducer
- (C) Photo conductive Transducer
- (D) Photo Voltaic Transducer
- (E) LVDT

Choose the correct answer from the options given below :

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

Options :

92090665029. 1
92090665030. 2
92090665031. 3
92090665032. 4

Question Number : 58 Question Id : 92090616458 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

आवेश प्रवर्धक का उपयोग किसके निर्गत सिग्नल का प्रवर्धन करने में किया जाता है ?

- (A) पीजो इलेक्ट्रिक ट्रांसड्यूसर
- (B) प्रकाश उत्सर्जक ट्रांसड्यूसर
- (C) प्रकाश प्रवाहकीय ट्रांसड्यूसर
- (D) प्रकाश वोल्टाइक ट्रांसड्यूसर
- (E) एल वी डी टी

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

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

Options :

- 92090665029. 1
- 92090665030. 2
- 92090665031. 3
- 92090665032. 4

Question Number : 59 Question Id : 92090616459 Question Type : MCQ Option Shuffling : No 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) Cartesian configuration	(I) RRP
(B) Cylindrical configuration	(II) RRR
(C) Polar configuration	(III) PPP
(D) Articulated configuration	(IV) PRP

Choose the correct answer from the options given below:

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

Options :

- 92090665033. 1
- 92090665034. 2
- 92090665035. 3
- 92090665036. 4

Question Number : 59 Question Id : 92090616459 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

सूची-I के साथ सूची-II का मिलान कीजिए :

सूची-I	सूची-II
(A) कार्तीय विन्यास	(I) आर आर पी
(B) बेलनाकार विन्यास	(II) आर आर आर
(C) ध्रुवीय विन्यास	(III) पी पी पी
(D) जोड़ा हुआ (आर्टिकुलेटिड) विन्यास	(IV) पी आर पी

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

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

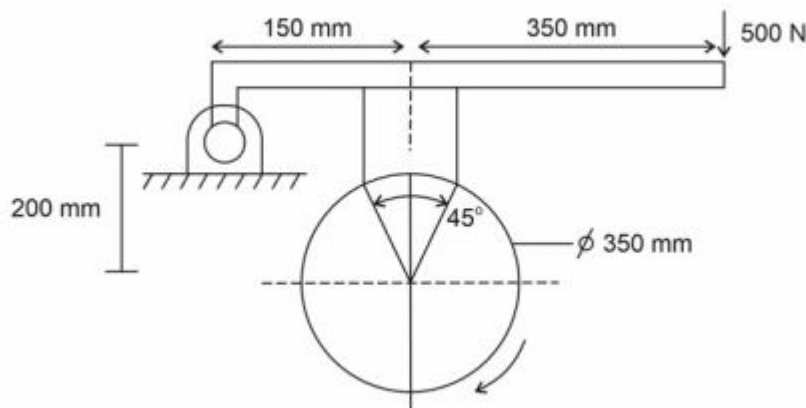
Options :

92090665033. 1
92090665034. 2
92090665035. 3
92090665036. 4

Question Number : 60 Question Id : 92090616460 Question Type : MCQ Option Shuffling : No 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 block brake as shown has a face width of 500 mm and mean coefficient of friction as 0.35. For a force of 500 N, the breaking torque (in Nm) is given as



- | | |
|------------|------------|
| (1) 102.08 | (2) 110.06 |
| (3) 106.07 | (4) 100.08 |

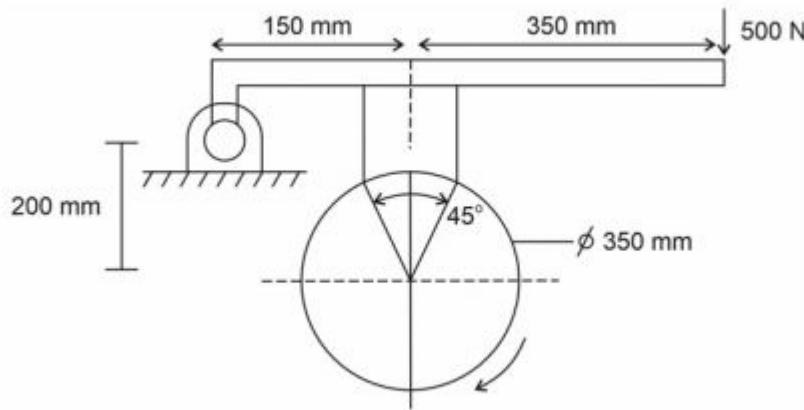
Options :

- 92090665037. 1
- 92090665038. 2
- 92090665039. 3
- 92090665040. 4

Question Number : 60 Question Id : 92090616460 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

500 mm की तल चौड़ाई तथा 0.35 औसत घर्षण गुणांक का एक ब्लैक ब्रेक प्रदर्शित है। बल के लिए, विघात बल आघूर्ण (Nm में) दिया गया है:



- | | |
|------------|------------|
| (1) 102.08 | (2) 110.06 |
| (3) 106.07 | (4) 100.08 |

Options :

- 92090665037. 1
- 92090665038. 2
- 92090665039. 3
- 92090665040. 4

Question Number : 61 Question Id : 92090616461 Question Type : MCQ Option Shuffling : No 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 solid circular shaft of diameter 'd' is subjected to a combined bending moment 'M' and torque 'T'. The material property to be used for designing the shaft using the relation $\frac{16}{\pi d^3} \times \sqrt{M^2 + T^2}$ is :

- | | |
|--|--|
| (1) Ultimate tensile strength (σ_x) | (2) Torsional yield strength (σ_{sy}) |
| (3) Endurance strength (σ_e) | (4) Tensile yield strength (σ_y) |

Options :

- 92090665041. 1
- 92090665042. 2
- 92090665043. 3
- 92090665044. 4

Question Number : 61 Question Id : 92090616461 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

d व्यास की एक ठोरे वृत्ताकार शाफ्ट संयुक्त बंकन आघूर्ण M तथा बल आघूर्ण T के अधीन है। संबंध

$\frac{16}{\pi d^3} \times \sqrt{M^2 + T^2}$ का उपयोग करके शाफ्ट बनाने में प्रयुक्त पदार्थ गुण है:

- | | |
|-------------------------------------|--|
| (1) परम तन्यता शक्ति (σ_x) | (2) मरोड पराभव शक्ति (σ_{sy}) |
| (3) सहन शक्ति (σ_e) | (4) लचीला पराभव शक्ति (σ_y) |

Options :

- 92090665041. 1
- 92090665042. 2
- 92090665043. 3
- 92090665044. 4

Question Number : 62 Question Id : 92090616462 Question Type : MCQ Option Shuffling : No 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 ball bearing operating at a load F has 10,000 hours of life. When the load is doubled, the life of the bearing, (in hours) is:

- | | |
|----------|----------|
| (1) 1350 | (2) 1500 |
| (3) 1250 | (4) 2000 |

Options :

- 92090665045. 1
- 92090665046. 2
- 92090665047. 3
- 92090665048. 4

Question Number : 62 Question Id : 92090616462 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

किसी F भार पर चलने वाले बॉल बेयरिंग का जीवन काल 10,000 घंटे है। जब भार दोगुना कर दिया जाये तो बेयरिंग का जीवन काल (घंटों में) है:

- | | |
|----------|----------|
| (1) 1350 | (2) 1500 |
| (3) 1250 | (4) 2000 |

Options :

92090665045. 1
92090665046. 2
92090665047. 3
92090665048. 4

Question Number : 63 Question Id : 92090616463 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Sensor used to measure the speed of rotating shaft is called:

- | | |
|--------------------|--------------------|
| (1) Tactile sensor | (2) Tachogenerator |
| (3) Rotameter | (4) Photodiodes |

Options :

92090665049. 1
92090665050. 2
92090665051. 3
92090665052. 4

Question Number : 63 Question Id : 92090616463 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

घूर्णन शाफ्ट की गति के मापन में प्रयुक्त सेंसर कहलाता है:

- | | |
|---------------------|------------------|
| (1) स्पर्शनीय सेंसर | (2) टैक्नोजनरेटर |
| (3) रोटामीटर | (4) प्रकाश डायोड |

Options :

92090665049. 1
92090665050. 2
92090665051. 3
92090665052. 4

Question Number : 64 Question Id : 92090616464 Question Type : MCQ Option Shuffling : No 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 250 V shunt motor has an armature current of 50 A. If armature resistance is 0.4Ω , the back emf is

- | | |
|-----------|-----------|
| (1) 205 V | (2) 235 V |
| (3) 230 V | (4) 225 V |

Options :

92090665053. 1
92090665054. 2
92090665055. 3
92090665056. 4

Question Number : 64 Question Id : 92090616464 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

किसी 250 V शन्ट मोटर की आर्मेचर धारा 50 A है। यदि आर्मेचर प्रतिरोध 0.4Ω से तो पिछला वि.वा. बल है:

- | | |
|-----------|-----------|
| (1) 205 V | (2) 235 V |
| (3) 230 V | (4) 225 V |

Options :

92090665053. 1
92090665054. 2
92090665055. 3
92090665056. 4

Question Number : 65 Question Id : 92090616465 Question Type : MCQ Option Shuffling : No 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 $\frac{4}{2}$ direction control valve used in pneumatic system is:

- | | |
|-------------|-------------|
| (1) 2 ports | (2) 4 ports |
| (3) 6 ports | (4) 8 ports |

Options :

92090665057. 1
92090665058. 2
92090665059. 3
92090665060. 4

Question Number : 65 Question Id : 92090616465 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

वायवीय प्रणाली में प्रयुक्त एक $\frac{4}{2}$ दिशा नियंत्रण वाल्व है :

- | | |
|---------------|---------------|
| (1) 2 पोर्ट्स | (2) 4 पोर्ट्स |
| (3) 6 पोर्ट्स | (4) 8 पोर्ट्स |

Options :

92090665057. 1
92090665058. 2
92090665059. 3
92090665060. 4

Question Number : 66 Question Id : 92090616466 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

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

Assertion (A) : The hydraulic actuating system operates more slowly in comparison to pneumatic system.

Reasons (R) : The viscosity of the oil used in the hydraulic actuating system is higher.

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 :

92090665061. 1
92090665062. 2
92090665063. 3
92090665064. 4

Question Number : 66 Question Id : 92090616466 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

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

अभिकथन (A) : द्रव चालित सक्रीय निकाय वायवीय निकाय की तुलना में धीरे काम करता है।

कारण (R) : द्रव चालित सक्रीय निकाय में उपयोग होने वाले तेल की श्यानता अधिक होती है।

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

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

Options :

92090665061. 1
92090665062. 2
92090665063. 3
92090665064. 4

Question Number : 67 Question Id : 92090616467 Question Type : MCQ Option Shuffling : No 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 order for assigning frame (i) to link (i) from the given options:

- (A) Z_i - axis is aligned with axis i , its direction being arbitrary.
- (B) Y_i - axis completes right-hand orthonormal co ordinate frame (i).
- (C) Origin of i^{th} coordinate frame is located at the intersection of axis of joint (i+1) and the common normal between axis (i-1) and (i).
- (D) X_i - axis is perpendicular to axis Z_{i-1} and Z_i .
- (E) X_i points away from axis Z_{i-1} .

Choose the correct answer from the options given below :

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

Options :

- 92090665065. 1
- 92090665066. 2
- 92090665067. 3
- 92090665068. 4

Question Number : 67 Question Id : 92090616467 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

दिये गये विकल्पों से फ्रेम (i) को लिंक (i) से जोड़ने वाला सही क्रम चुनिए:

- (A) Z_i अक्ष i अक्ष के साथ व्यवस्थित हो जाता है, जबकि इसकी दिशा एक पक्षीय (arbitrary) है।
- (B) Y_i अक्ष दाहिने हाथ के आर्थोनॉर्मल निर्देश फ्रेम को पूरा करता है।
- (C) i वें निर्देश फ्रेम का मूल बिन्दु $(i-1)$ अक्ष व i अक्ष के बीच उभयनिष्ठ अभिलम्ब तथा $(i+1)$ सन्धि की अक्षों के प्रतिच्छेदन पर स्थित है।
- (D) X_i अक्ष Z_{i-1} तथा Z_i अक्ष के लम्बवत होता है।
- (E) X_i अक्ष Z_{i-1} से दूर निर्देशित करता है।

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

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

Options :

92090665065. 1
92090665066. 2
92090665067. 3
92090665068. 4

Question Number : 68 Question Id : 92090616468 Question Type : MCQ Option Shuffling : No 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 : Thin film lubrication is a state of lubrication in which two surfaces are completely separated by a thick film of lubricant.

Statement II : Hydrostatic lubrication is achieved by creating the load supporting film by an external source like a pump.

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 :

92090665069. 1
92090665070. 2
92090665071. 3
92090665072. 4

Question Number : 68 Question Id : 92090616468 Question Type : MCQ Option Shuffling : No 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 : पतली फिल्म का स्नेहन, स्नेहन की वह अवस्था है जिसमें स्नेहक की पतली फिल्म द्वारा दो सतहों को पूरी तरह पृथक् किया जाता है।

कथन II : पंप जैसे बाहरी स्रोत द्वारा भार समर्थन फिल्म बनाकर द्रवस्थैतिक स्नेहन प्राप्त किया जाता है।

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

- (1) कथन I और II दोनों सही हैं
- (2) कथन I और II दोनों गलत हैं
- (3) कथन I सही है, लेकिन कथन II गलत है
- (4) कथन I गलत है, लेकिन कथन II सही है

Options :

92090665069. 1
92090665070. 2
92090665071. 3
92090665072. 4

Question Number : 69 Question Id : 92090616469 Question Type : MCQ Option Shuffling : No 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 statement, which is true, is/are?

- (A) Elastic body has infinite degrees of freedom.
- (B) A universal joint can be used to connect two parallel shaft only.
- (C) Pantograph is an inversion of four bar kinematic chain.
- (D) A rigid body does not suffers any distaction under the action of external forces.
- (E) A structure transmits forces resulting in finite amount of work.

Choose the correct answer from the options given below :

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

Options :

92090665073. 1

92090665074. 2

92090665075. 3

92090665076. 4

Question Number : 69 Question Id : 92090616469 Question Type : MCQ Option Shuffling : No 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 सत्य कथन हैं:

- (A) प्रत्यास्थ वस्तु में अनन्त स्वतन्त्रता की कोटि होती हैं।
- (B) सार्वर्तिक संधि का उपयोग केवल दो समान्तर शाफ्ट जोड़ने में किया जा सकता है।
- (C) पेंटाग्राफ चार गतिक छड़ की श्रृंखला का आविस्कार है।
- (D) एक दृढ़ वस्तु बाहरी बल की क्रिया के तहत किसी भी विकृति का सामना नहीं करती है।
- (E) एक संरचना बलों को प्रसारित करती है जिसके परिणाम स्वरूप एक कार्य प्राप्त होता है।

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

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

Options :

92090665073. 1

92090665074. 2

92090665075. 3

92090665076. 4

Question Number : 70 Question Id : 92090616470 Question Type : MCQ Option Shuffling : No 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) Displacement Sensor	(I) Tactile Sensor
(B) Velocity Sensor	(II) Potentiometer Sensor
(C) Force Sensor	(III) Incremental encoder
(D) Fluid Pressure Sensor	(IV) Strain gauge load cell

Choose the correct answer from the options given below :

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

Options :

92090665077. 1
92090665078. 2
92090665079. 3
92090665080. 4

Question Number : 70 Question Id : 92090616470 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

सूची-I के साथ सूची-II का मिलान कीजिए :

सूची-I	सूची-II
(A) विस्थापन सेंसर	(I) सेंसर (Tactile)
(B) वेग सेंसर	(II) विभवमापी सेंसर
(C) बल सेंसर	(III) वृद्धि (एनक्रिमेंटल) कूट लेखक
(D) तरल दाब सेंसर	(IV) विकृति प्रमाणक भार कक्ष

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

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

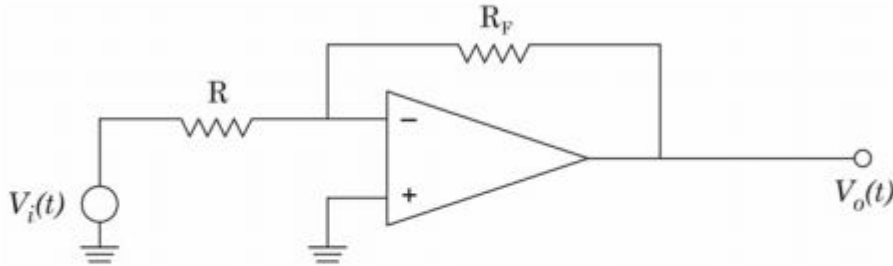
Options :

92090665077. 1
92090665078. 2
92090665079. 3

Question Number : 71 Question Id : 92090616471 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The value of $V_o(t)$ for given $V_i(t)$ in the inverting amplifier is :



(1) $V_o(t) = -V_i(t) \frac{R_F}{R}$

(2) $V_o(t) = +V_i(t) \frac{R_F}{R}$

(3) $V_o(t) = -V_i(t) \frac{R}{R_F}$

(4) $V_o(t) = +V_i(t) \frac{R}{R_F}$

Options :

92090665081. 1

92090665082. 2

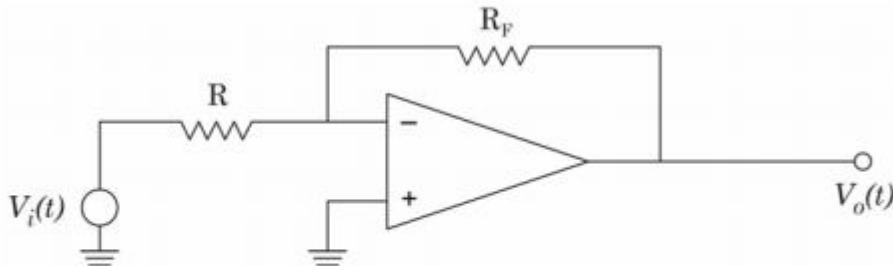
92090665083. 3

92090665084. 4

Question Number : 71 Question Id : 92090616471 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

व्युत्क्रम प्रवर्धक में दिये गये $V_i(t)$ के लिए $V_o(t)$ का मान है:



(1) $V_o(t) = -V_i(t) \frac{R_F}{R}$

(2) $V_o(t) = +V_i(t) \frac{R_F}{R}$

(3) $V_o(t) = -V_i(t) \frac{R}{R_F}$

(4) $V_o(t) = +V_i(t) \frac{R}{R_F}$

Options :

92090665081. 1

92090665082. 2

92090665083. 3

92090665084. 4

Question Number : 72 Question Id : 92090616472 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

In the specific band of frequencies there is no need to change the components in the circuit. It is known as:

- | | |
|----------------------|----------------------|
| (1) high pass filter | (2) low pass filter |
| (3) notch filter | (4) band pass filter |

Options :

92090665085. 1

92090665086. 2

92090665087. 3

92090665088. 4

Question Number : 72 Question Id : 92090616472 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

आवृत्तियों के विशिष्ट बैंड के लिए परिपथ में घटकों को बदलने की आवश्यकता नहीं होती है। इसे कहते हैं :

- | | |
|---------------------|----------------------|
| (1) उच्च पॉस फिल्टर | (2) निम्न पॉस फिल्टर |
| (3) नोच फिल्टर | (4) बैंड पॉस फिल्टर |

Options :

92090665085. 1

92090665086. 2

92090665087. 3

92090665088. 4

Question Number : 73 Question Id : 92090616473 Question Type : MCQ Option Shuffling : No 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 objective of robot vision:

- | | |
|------------------------------|---------------------------|
| (1) Architecture advancement | (2) Object identification |
| (3) Visual guidance | (4) Pick and place |

Options :

92090665089. 1

92090665090. 2

92090665091. 3

92090665092. 4

Question Number : 73 Question Id : 92090616473 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

रोबोट दृष्टि के लिए निम्न में से कौन सा लक्ष्य नहीं है:

- | | |
|---------------------------|---------------------------|
| (1) निर्माण कला में विकास | (2) वस्तु को चिह्नित करना |
| (3) दृष्टिगत निर्देशन | (4) उठाना एवं रखना |

Options :

92090665089. 1

92090665090. 2

92090665091. 3

92090665092. 4

Question Number : 74 Question Id : 92090616474 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Parameters to be calculate using forward kinematics are:

- (1) Position of end-effector
- (2) Orientation of end-effector
- (3) Joint angles
- (4) Both position and orientation of end-effector

Options :

92090665093. 1

92090665094. 2

92090665095. 3

92090665096. 4

Question Number : 74 Question Id : 92090616474 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

अग्र गतिकी का उपयोग करके गणना किये जाने वाले प्राचल हैं:

- | | |
|---------------------------|---|
| (1) अन्त प्रेरक की स्थिति | (2) अन्त प्रेरक का विन्यास |
| (3) संयुक्त कोण | (4) अन्त प्रेरक की दोनों स्थिति एवं विन्यास |

Options :

92090665093. 1
92090665094. 2
92090665095. 3
92090665096. 4

Question Number : 75 Question Id : 92090616475 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The relation which is applicable for rotation of frame in fixed angle representation is :

- | | |
|---|---|
| (1) $R_{xyz}(\theta_3 \theta_2 \theta_1) = R_{zyx}(\theta_1 \theta_2 \theta_3)$ | (2) $R_{zyx}(\theta_3 \theta_2 \theta_1) = R_{xyz}(\theta_1 \theta_2 \theta_3)$ |
| (3) $R_{xyz}(\theta_1 \theta_2 \theta_3) = R_{zyx}(\theta_1 \theta_2 \theta_3)$ | (4) $R_{xyz}(\theta_1 \theta_2 \theta_3) = R_{yxz}(\theta_1 \theta_2 \theta_3)$ |

Options :

92090665097. 1
92090665098. 2
92090665099. 3
92090665100. 4

Question Number : 75 Question Id : 92090616475 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निश्चि कोण निरूपण में क्रम के घूर्णन के लिए प्रयोग होने वाला संबन्ध है:

- | | |
|---|---|
| (1) $R_{xyz}(\theta_3 \theta_2 \theta_1) = R_{zyx}(\theta_1 \theta_2 \theta_3)$ | (2) $R_{zyx}(\theta_3 \theta_2 \theta_1) = R_{xyz}(\theta_1 \theta_2 \theta_3)$ |
| (3) $R_{xyz}(\theta_1 \theta_2 \theta_3) = R_{zyx}(\theta_1 \theta_2 \theta_3)$ | (4) $R_{xyz}(\theta_1 \theta_2 \theta_3) = R_{yxz}(\theta_1 \theta_2 \theta_3)$ |

Options :

92090665097. 1
92090665098. 2
92090665099. 3
92090665100. 4

Question Number : 76 Question Id : 92090616476 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

According to the Association Francaise de Robotique (AFR), the type of robots which are programmable and servo controlled but not having the capability to acquire information from its environment are:

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

Options :

- 92090665101. 1
- 92090665102. 2
- 92090665103. 3
- 92090665104. 4

Question Number : 76 Question Id : 92090616476 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

फ्रेन्साइस डी रोबोटिक संगठन (AFR) के अनुसार, प्रोग्राम किया जाने वाला तथा सहायक (सर्वो) नियंत्रित रोबोट, परन्तु जिनका परिवेश से सूचना संग्रह करने की क्षमता न रखने वाला हैं:

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

Options :

- 92090665101. 1
- 92090665102. 2
- 92090665103. 3
- 92090665104. 4

Question Number : 77 Question Id : 92090616477 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

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

Assertion (A) : The torque transmitting capacity of a cone clutch is 4.62 times that single plate clutch for given dimensions.

Reasons (R) : When the semi-cone angle of a cone clutch decreases, it results in mass wedging action and the force required to disengage increases.

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

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

Options :

92090665105. 1

92090665106. 2

92090665107. 3

92090665108. 4

Question Number : 77 Question Id : 92090616477 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

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

अभिकथन (A) : दी गई विमाओं के लिए, कोन क्लच की बल आघूर्ण पारगमित क्षमता एकल प्लेट क्लच की तुलना में 4.62 गुना होती है।

कारण (R) : किसी कोन क्लच के अर्द्ध केन कोण के घटने पर, द्रव्यमान वेजिंग क्रिया एवं पृथक करने वाले आवश्यक बल में वृद्धि हो जाती है।

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

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

Options :

92090665105. 1

92090665106. 2

92090665107. 3

92090665108. 4

Question Number : 78 Question Id : 92090616478 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Provide the correct sequence of processes for the following in a four stroke Diesel engine cycle.

- (A) Diesel injection
- (B) Compression
- (C) Suction
- (D) Expansion
- (E) Exhaust

Choose the correct answer from the options given below :

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

Options :

92090665109. 1

92090665110. 2

92090665111. 3

92090665112. 4

Question Number : 78 Question Id : 92090616478 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

किसी चार स्ट्रोक डीजल इंजन चक्र में दिये गये प्रक्रमों का सही क्रम है:

- (A) डीजल भरना
- (B) सपीड़न
- (C) खींचना
- (D) वृद्धि
- (E) निष्कासन

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

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

Options :

92090665109. 1

92090665110. 2

92090665111. 3

92090665112. 4

Question Number : 79 Question Id : 92090616479 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Given below are two statements :

Statement I : If axial load is less than crippling load, the column is in stable equilibrium in the straight position.

Statement II : The equilibrium of the column does not depend upon the crippling load.

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 :

- 92090665113. 1
- 92090665114. 2
- 92090665115. 3
- 92090665116. 4

Question Number : 79 Question Id : 92090616479 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं :

कथन I : यदि अक्षीय भार गम्भीर (क्रिपलिंग) भार से कम हो तब स्तम्भ स्थाई साम्यावस्था तथा सीधी अवस्था में रहता है।

कथन II : स्तम्भ की साम्यावस्था गम्भीर भार पर निर्भर नहीं करती है।

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

- (1) कथन I और II दोनों सही हैं
- (2) कथन I और II दोनों गलत हैं
- (3) कथन I सही है, लेकिन कथन II गलत है
- (4) कथन I गलत है, लेकिन कथन II सही है

Options :

- 92090665113. 1
- 92090665114. 2

92090665115. 3

92090665116. 4

Question Number : 80 Question Id : 92090616480 Question Type : MCQ Option Shuffling : No 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 cylinder of 20 kg mass and 15 cm radius rolls without slipping on a horizontal surface. If it moves with a velocity of 3 m/s then:

- (A) Kinetic energy of translation is 90 J.
- (B) Kinetic energy of translation is 45 J.
- (C) Kinetic energy of centroidal rotation is 45 J.
- (D) Kinetic energy of centroidal rotation is 90 J.
- (E) Potential energy is 45 J.

Choose the correct answer from the options given below :

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

Options :

92090665117. 1

92090665118. 2

92090665119. 3

92090665120. 4

Question Number : 80 Question Id : 92090616480 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

20 kg द्रव्यमान तथा 15 cm त्रिज्या वाला एक बेलन क्षैतिज सतह पर बिना फिसले लुढ़कता है। यदि यह 3 m/s के वेग से गति करता है तो:

- (A) स्थानान्तरण की गतिज ऊर्जा 90 J है।
- (B) स्थानान्तरण की गतिज ऊर्जा 45 J है।
- (C) केन्द्रकीय घूर्णन की गतिज 45 J ऊर्जा है।
- (D) केन्द्रकीय घूर्णन की गतिज 90 J ऊर्जा है।
- (E) स्थितिज ऊर्जा 45 J है।

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

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

Options :

- 92090665117. 1
- 92090665118. 2
- 92090665119. 3
- 92090665120. 4

Question Number : 81 Question Id : 92090616481 Question Type : MCQ Option Shuffling : No 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) Double, slides cranks Mechanism	(I) Pantograph
(B) Four bar chain	(II) Elliptical Trammel
(C) Single slider crank Mechanism	(III) Hip Joint
(D) Spherical Joint	(IV) White worth quick returns Mechanism

Choose the correct answer from the options given below:

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

Options :

92090665121. 1

92090665122. 2

92090665123. 3

92090665124. 4

Question Number : 81 Question Id : 92090616481 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

सूची-I के साथ सूची-II का मिलान कीजिए :

सूची-I	सूची-II
(A) द्वि स्लाइडर क्रैंक तंत्र	(I) पेन्टाग्राफ
(B) चार छड़ चैन	(II) दीर्घ वृत्ताकार जाला
(C) एकल स्लाइडर क्रैंक तंत्र	(III) कूल्हों का जोड़
(D) गोलीय सन्धि	(IV) व्हाइट वोर्थ त्वरित वापसी तंत्र

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

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

Options :

92090665121. 1

92090665122. 2

92090665123. 3

92090665124. 4

Question Number : 82 Question Id : 92090616482 Question Type : MCQ Option Shuffling : No 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 2-DOF (RP) manipulator, the joint link parameters are given as

Link i	a_i	α_i	d_i	θ_i
1	0	90°	0	θ_1
2	0	0	d_2	0

The final transformation matrix for this manipulator is

$$(1) \begin{bmatrix} C_1 & 0 & S_1 & 0 \\ S_1 & 0 & -C_1 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$(2) \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & d_2 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$(3) \begin{bmatrix} C_1 & 0 & S_1 & 0 \\ S_1 & 0 & -C_1 & 0 \\ 0 & 1 & 0 & d_2 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$(4) \begin{bmatrix} C_1 & 0 & S_1 & d_2 S_1 \\ S_1 & 0 & -C_1 & -d_2 C_1 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

Options :

- 92090665125. 1
- 92090665126. 2
- 92090665127. 3
- 92090665128. 4

Question Number : 82 Question Id : 92090616482 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

RP परिचालक के 2-DOF में सन्धि-लिंग प्राचल नीचे दिये गये हैं :

Link i	a_i	α_i	d_i	θ_i
1	0	90°	0	θ_1
2	0	0	d_2	0

इस परिचालक के लिए अन्तिम रूपान्तरण आव्यूह है:

$$(1) \begin{bmatrix} C_1 & 0 & S_1 & 0 \\ S_1 & 0 & -C_1 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$(2) \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & d_2 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$(3) \begin{bmatrix} C_1 & 0 & S_1 & 0 \\ S_1 & 0 & -C_1 & 0 \\ 0 & 1 & 0 & d_2 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$(4) \begin{bmatrix} C_1 & 0 & S_1 & d_2 S_1 \\ S_1 & 0 & -C_1 & -d_2 C_1 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

Options :

- 92090665125. 1
- 92090665126. 2
- 92090665127. 3
- 92090665128. 4

Question Number : 83 Question Id : 92090616483 Question Type : MCQ Option Shuffling : No 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 point $P(7, 9)$ is reflected about line $x = y$. The new point P^1 after reflection is :

$$(1) P^1(9, 7)$$

$$(2) P^1(7, 9)$$

$$(3) P^1(18, 14)$$

$$(4) P^1(14, 18)$$

Options :

92090665129. 1
92090665130. 2
92090665131. 3
92090665132. 4

Question Number : 83 Question Id : 92090616483 Question Type : MCQ Option Shuffling : No 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 बिन्दु $P(7, 9)$ रेखा $x = y$ से परावर्तित होता है। परावर्तन के पश्चात् नया बिन्दु P^1 है :

- | | |
|-------------------|-------------------|
| (1) $P^1(9, 7)$ | (2) $P^1(7, 9)$ |
| (3) $P^1(18, 14)$ | (4) $P^1(14, 18)$ |

Options :

92090665129. 1
92090665130. 2
92090665131. 3
92090665132. 4

Question Number : 84 Question Id : 92090616484 Question Type : MCQ Option Shuffling : No 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 casting defect formed, when two stream of liquid metal meet without complete fusion is known as:

- | | |
|---------------|--------------|
| (1) Cold shut | (2) Mismatch |
| (3) Flash | (4) Scab |

Options :

92090665133. 1
92090665134. 2
92090665135. 3
92090665136. 4

Question Number : 84 Question Id : 92090616484 Question Type : MCQ Option Shuffling : No 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 कास्टिंग दोष, जब तरल धातु की दो धारा बिना पूर्ण संलयन के मिलती हैं, किसके रूप में जाना जाता है:

- | | |
|--------------|-------------|
| (1) ठंडा शंट | (2) असंतुलन |
| (3) चमक | (4) पपड़ी |

Options :

- 92090665133. 1
- 92090665134. 2
- 92090665135. 3
- 92090665136. 4

Question Number : 85 Question Id : 92090616485 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Car sales in four consecutive months are given as 70, 68, 82, 95. Exponentially smoothing average method with a smoothing factor of 0.4 is used in forecasting. The expected no. of forecasted car sales in the next month is

- | | |
|--------|---------|
| (1) 74 | (2) 84 |
| (3) 94 | (4) 106 |

Options :

- 92090665137. 1
- 92090665138. 2
- 92090665139. 3
- 92090665140. 4

Question Number : 85 Question Id : 92090616485 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

लगातार चार महीने में कार की बिक्री 70, 68, 82, 95 है। पूर्वानुमान के लिए 0.4 का चौरसाई कारक युक्त चरघातो की चौर साई औसत विधि उपयोग हुई है। अगले महीने में अनुमानित कार बिक्री की संख्या है:

- | | |
|--------|---------|
| (1) 74 | (2) 84 |
| (3) 94 | (4) 106 |

Options :

- 92090665137. 1
- 92090665138. 2
- 92090665139. 3
- 92090665140. 4

Question Number : 86 Question Id : 92090616486 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Which one of the following divisions is not part of aggregate production planning?

- | | |
|--------------------------------------|-----------------------------|
| (1) Amount of labour to be committed | (2) Rate of production |
| (3) Inventory to be carried forward | (4) Scheduling of machines. |

Options :

- 92090665141. 1
- 92090665142. 2
- 92090665143. 3
- 92090665144. 4

Question Number : 86 Question Id : 92090616486 Question Type : MCQ Option Shuffling : No 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 एक विवेचना कुल उत्पादन योजना का हिस्सा नहीं है:

- | | |
|-----------------------------------|-----------------------------|
| (1) किये जाने वाले श्रम की मात्रा | (2) उत्पादन की दर |
| (3) उत्पाद को आगे बढ़ाना | (4) मशीनों की अनुसूची बनाना |

Options :

- 92090665141. 1
- 92090665142. 2
- 92090665143. 3
- 92090665144. 4

Question Number : 87 Question Id : 92090616487 Question Type : MCQ Option Shuffling : No 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 set of 5 jobs is to be planned on a single machine. The processing time (in days) is given in the table below. The holding cost for each job is Rs.2 per day.

Job	Processing Time
P	5
Q	2
R	2
S	2
T	1

Schedule that minimizes total inventory cost is:

- (1) T – S – Q – R – P (2) P – Q – R – S – T
 (3) T – R – S – Q – P (4) T – S – R – Q – P

Options :

92090665145. 1
 92090665146. 2
 92090665147. 3
 92090665148. 4

Question Number : 87 Question Id : 92090616487 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

किसी एकल मशीन में पाँच कार्य समूह की योजना बनानी है। नीचे दी गई सारणी में योजना का समय दिनों में दिया गया है। प्रत्येक कार्य के लिए होल्डिंग लागत 2 रुपये प्रतिदिन है।

कार्य	योजना समय
P	5
Q	2
R	2
S	2
T	1

अनुसूची के अनुसार सबसे कम भंडार खर्च है:

- (1) T – S – Q – R – P (2) P – Q – R – S – T
 (3) T – R – S – Q – P (4) T – S – R – Q – P

Options :

92090665145. 1
 92090665146. 2
 92090665147. 3
 92090665148. 4

Question Number : 88 Question Id : 92090616488 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

Given below are two statements : One is labelled as Assertion (A) and the other is labelled as Reason (R).

Assertion (A) : The cross-sections of the shaft which are plane before twist, remain plane during and after twist.

Reasons (R) : The twisting moment does not vary with the radius of the shaft.

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

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

Options :

- 92090665149. 1
- 92090665150. 2
- 92090665151. 3
- 92090665152. 4

Question Number : 88 Question Id : 92090616488 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 4 Wrong Marks : 1

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

अभिकथन (A) : मरोड़ से पूर्व जिन शॉफ्ट का अनुप्रस्थ परिच्छेद समतल होते है वह मरोड़ के दौरान एवं उसके बाद समतल बने रहते हैं।

कारण (R) : मरोड़ आघूर्ण शॉफ्ट की त्रिज्या के साथ अपरिवर्तित रहता है।

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

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

Options :

92090665149. 1

92090665150. 2

92090665151. 3

92090665152. 4

Question Number : 89 Question Id : 92090616489 Question Type : MCQ Option Shuffling : No 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 shape factor of a concave surface with itself is not zero.

Statement II : The shape factor of a flat plane surface with itself is zero.

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

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

Options :

92090665153. 1

92090665154. 2

92090665155. 3

92090665156. 4

Question Number : 89 Question Id : 92090616489 Question Type : MCQ Option Shuffling : No 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 अवतल सतह का स्वयं के साथ आकृति कारक शून्य नहीं होता है।

कथन II : एक समतल तक का स्वयं के साथ आकृति कारक शून्य होता है।

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

- (1) कथन I और II दोनों सही हैं
- (2) कथन I और II दोनों गलत हैं
- (3) कथन I सही है, लेकिन कथन II गलत है
- (4) कथन I गलत है, लेकिन कथन II सही है

Options :

92090665153. 1

92090665154. 2

92090665155. 3

92090665156. 4

Question Number : 90 Question Id : 92090616490 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Read the following statements for some properties:

- (A) Pressure is an extensive property.
- (B) Specific internal energy is intensive property.
- (C) Enthalpy is extensive property.
- (D) Temperature is intensive property.
- (E) Specific heat is intensive property.

Choose the correct answer from the options given below :

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

Options :

- 92090665157. 1
- 92090665158. 2
- 92090665159. 3
- 92090665160. 4

Question Number : 90 Question Id : 92090616490 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

कुछ गुणों के लिए निम्नलिखित कथन पढ़िए:

- (A) दाब एक विस्तारात्मक गुण है।
- (B) विशिष्ट आन्तरिक ऊर्जा अविस्तारात्मक गुण है।
- (C) ऐन्थॉल्पी विस्तारात्मक गुण है।
- (D) तापमान अविस्तारात्मक गुण है।
- (E) विशिष्ट ऊष्मा अविस्तारात्मक गुण है।

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

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

Options :

- 92090665157. 1
- 92090665158. 2
- 92090665159. 3
- 92090665160. 4

Question Number : 91 Question Id : 92090616491 Question Type : MCQ Option Shuffling : No 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) Line of action lying on the same line.	(I) Parallel forces
(B) Lines of action parallel to each other.	(II) Concurrent
(C) Lines of action intersecting at a point.	(III) Non-Coplanar forces
(D) Lines of action lying on different planes or in space.	(IV) Collinear forces

Choose the correct answer from the options given below:

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

Options :

92090665161. 1
92090665162. 2
92090665163. 3
92090665164. 4

Question Number : 91 Question Id : 92090616491 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

सूची-I के साथ सूची-II का मिलान कीजिए :

सूची-I	सूची-II
(A) समान रेखा में रहने वाली कार्रवाई की रेखा	(I) समान्तर बल
(B) एक दूसरे के समान्तर रहनेवाली कार्रवाई की रेखा	(II) समवर्ती बल
(C) एक बिन्दु पर प्रतिष्ठेदित करने वाली कार्रवाई की रेखा	(III) असमतली बल
(D) स्पेस में या अलग-अलग समतलों पर पायी जाने वाली कार्रवाई की रेखा	(IV) समरेखी बल

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

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

Options :

- 92090665161. 1
- 92090665162. 2
- 92090665163. 3
- 92090665164. 4

Question Number : 92 Question Id : 92090616492 Question Type : MCQ Option Shuffling : No 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 hole of size $30.000 \begin{smallmatrix} +0.060 \\ 0.000 \end{smallmatrix}$ mm match with the shaft of size $30.000 \begin{smallmatrix} +0.010 \\ 0.000 \end{smallmatrix}$ mm is on interchangeable arrangement. The assembly's maximum allowable clearance will be:

- | | |
|-----------|-----------|
| (1) 0.060 | (2) 0.050 |
| (3) 0.040 | (4) 0.030 |

Options :

- 92090665165. 1
- 92090665166. 2
- 92090665167. 3
- 92090665168. 4

Question Number : 92 Question Id : 92090616492 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

पारस्परिक परिवर्तित व्यवस्था में $30.000 \begin{smallmatrix} +0.060 \\ 0.000 \end{smallmatrix}$ mm आकार का छिद्र $30.000 \begin{smallmatrix} +0.010 \\ 0.000 \end{smallmatrix}$ mm आकार की शाफ्ट के साथ मिलान होता है। संयोग के लिए सर्वाधिक अनुमोदित निकासी है:

- | | |
|-----------|-----------|
| (1) 0.060 | (2) 0.050 |
| (3) 0.040 | (4) 0.030 |

Options :

- 92090665165. 1
- 92090665166. 2
- 92090665167. 3
- 92090665168. 4

Question Number : 93 Question Id : 92090616493 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Strength of the tool cutting edge in orthogonal cutting in comparison to that of the oblique cutting is:

- | | |
|--------------|------------------------------------|
| (1) the same | (2) more |
| (3) less | (4) dependent on the tool material |

Options :

92090665169. 1
92090665170. 2
92090665171. 3
92090665172. 4

Question Number : 93 Question Id : 92090616493 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

कर्टिंग में उपयोग होने वाले यंत्र की कर्टिंग धार की क्षमता तिरछी कर्टिंग में उपयोगी यंत्र की धार की तुलना में है:

- | | |
|----------|----------------------------|
| (1) समान | (2) अधिक |
| (3) कम | (4) यंत्र पदार्थ पर निर्भर |

Options :

92090665169. 1
92090665170. 2
92090665171. 3
92090665172. 4

Question Number : 94 Question Id : 92090616494 Question Type : MCQ Option Shuffling : No 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 company is required to process 3 items A, B and C. The prices quoted for these items (in DNA) by suppliers S1, S2 and S3 are given in table.

Item	Supplier		
	S1	S2	S3
A	150	175	115
B	207	185	170
C	315	380	390

The company decides that each item has to be supplied by only one supplier and one supplier will supply one item. The minimum total cost of procurement to the firm in INR is

- (1) 600 (2) 740
(3) 675 (4) 672

Options :

92090665173. 1
92090665174. 2
92090665175. 3
92090665176. 4

Question Number : 94 Question Id : 92090616494 Question Type : MCQ Option Shuffling : No 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 कम्पनी को A, B तथा C तीन वस्तुएं खरीदनी हैं। इन वस्तुओं का मूल्य (रुपये में) विक्रेताओं के द्वारा S1, S2 तथा S3 नीचे सारणी में दिया है :

वस्तु	विक्रेता		
	S1	S2	S3
A	150	175	115
B	207	185	170
C	315	380	390

कम्पनी ने निर्णय लिया कि प्रत्येक वस्तु को सिर्फ एक ही विक्रेता बेचेगा तथा एक विक्रेता केवल एक ही वस्तु बेचेगा। कम्पनी का खरीदने के लिए न्यूनतम खर्च (रुपये में) होगा:

- (1) 600 (2) 740
(3) 675 (4) 672

Options :

92090665173. 1
92090665174. 2

92090665175. 3

92090665176. 4

Question Number : 95 Question Id : 92090616495 Question Type : MCQ Option Shuffling : No 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) : First law of thermodynamics is the law of conservation of energy.

Reasons (R) : First law of thermodynamics is related to irreversibility in a system.

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

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

Options :

92090665177. 1

92090665178. 2

92090665179. 3

92090665180. 4

Question Number : 95 Question Id : 92090616495 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

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

अभिकथन (A) : ऊष्मागतिकी का प्रथम नियम ऊर्जा के संरक्षण का नियम है।

कारण (R) : ऊष्मागतिकी का प्रथम नियम किसी निकाय में अनउत्क्रमणीयता (irreversibility) से संबन्धित है।

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

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

Options :

92090665177. 1

92090665178. 2

92090665179. 3

92090665180. 4

Question Number : 96 Question Id : 92090616496 Question Type : MCQ Option Shuffling : No 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 flow over immersed bodies, drag can be created without lift.

Reasons (R) : In flow over immersed bodies, lift cannot be created without drag.

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

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

Options :

92090665181. 1

92090665182. 2

92090665183. 3

92090665184. 4

Question Number : 96 Question Id : 92090616496 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

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

अभिकथन (A) : डूबे हुए पिण्डों के प्रवाह में, लिफ्ट के बिना खिचाव उत्पन्न किया जा सकता है।

कारण (R) : डूबे हुए पिण्डों पर प्रवाह में, बिना खींचे लिफ्ट नहीं बनाई जा सकती है।

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

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

Options :

92090665181. 1

92090665182. 2

92090665183. 3

92090665184. 4

Question Number : 97 Question Id : 92090616497 Question Type : MCQ Option Shuffling : No 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 : Viscosity of liquids decreases with increase in temperature.

Statement II : Viscosity of liquids is appreciably affected by change in pressure.

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 :

- 92090665185. 1
- 92090665186. 2
- 92090665187. 3
- 92090665188. 4

Question Number : 97 Question Id : 92090616497 Question Type : MCQ Option Shuffling : No 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 : द्रवों की श्यानता तापमान की वृद्धि के साथ घटती है।

कथन II : द्रवों की श्यानता दाब में परिवर्तन से काफी प्रभावित होती है।

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

- (1) कथन I और II दोनों सही हैं
- (2) कथन I और II दोनों गलत हैं
- (3) कथन I सही है, लेकिन कथन II गलत है
- (4) कथन I गलत है, लेकिन कथन II सही है

Options :

- 92090665185. 1
- 92090665186. 2
- 92090665187. 3
- 92090665188. 4

Question Number : 98 Question Id : 92090616498 Question Type : MCQ Option Shuffling : No 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 following statements are related to I.C. engine and gas turbines.

- (A) Gas turbines are compact and light weight.
- (B) Complete expansion of working substance is possible in I.C. engines and not in gas turbines.
- (C) As different processes take place in different components in gas turbines, there is complete flexibility in design.
- (D) The operating temperature is constant in gas turbine in comparison to I.C. engine.
- (E) Low grade fuels can be burnt in gas turbines.

Choose the most appropriate answer from the options given below :

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

Options :

92090665189. 1

92090665190. 2

92090665191. 3

92090665192. 4

Question Number : 98 Question Id : 92090616498 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्नलिखित कथन आई.सी. इंजनों एवं गैस टर्बाइनों से संबन्धित हैं।

- (A) गैस टर्बाइन सुगठित एवं हल्के वजन के होते हैं।
- (B) कार्यकारी पदार्थ का पूर्ण विस्तार आई.सी. इंजन में संभव है न कि गैस टर्बाइन में।
- (C) चूंकि गैस टर्बाइन के विभिन्न घटकों में अलग-अलग प्रक्रियाएं होती हैं, इसलिए डिजाइन में पूरी तरह से लचीलापन होता है।
- (D) गैस टर्बाइन में आई.सी. इंजन के संपीड़न में ऑपरेटिंग तापमान स्थिर है।
- (E) निम्न श्रेणी के ईंधन को गैस टर्बाइन में जलाया जा सकता है।

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

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

Options :

- 92090665189. 1
- 92090665190. 2
- 92090665191. 3
- 92090665192. 4

Question Number : 99 Question Id : 92090616499 Question Type : MCQ Option Shuffling : No 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) Number of transfer units	(I) Boiler
(B) Periodic flow of heat exchanger	(II) Deposition on heat exchanger
(C) Phase change	(III) A measure of size of heat exchanger
(D) Fouling factor	(IV) Regenerators

Choose the correct answer from the options given below:

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

Options :

92090665193. 1
92090665194. 2
92090665195. 3
92090665196. 4

Question Number : 99 Question Id : 92090616499 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

सूची-I के साथ सूची-II का मिलान कीजिए :

सूची-I	सूची-II
(A) स्थानांतरण इकाईयों की संख्या	(I) बायलर
(B) ऊष्मा एक्सचेंजर का आवर्ती प्रवाह	(II) ऊष्मा एक्सचेंजर पर निक्षेप
(C) अवस्था परिवर्तन	(III) ऊष्मा एक्सचेंजर के आकार का मापन
(D) प्रदूषक कारक	(IV) पुनः जनित

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

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

Options :

92090665193. 1
92090665194. 2
92090665195. 3
92090665196. 4

Question Number : 100 Question Id : 92090616500 Question Type : MCQ Option Shuffling : No 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) Propeller turbine	(I) Impulse turbine
(B) Tangential turbine	(II) Kaplan turbine
(C) Reaction is zero	(III) Gas turbine
(D) Reaction turbine	(IV) Pelton turbine

Choose the correct answer from the options given below:

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

Options :

92090665197. 1
92090665198. 2
92090665199. 3
92090665200. 4

Question Number : 100 Question Id : 92090616500 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

सूची-I के साथ सूची-II का मिलान कीजिए :

सूची-I	सूची-II
(A) नोदक टरबाइन	(I) आवेश टरबाइन
(B) स्पर्श रेखीय टरबाइन	(II) केप्लान टरबाइन
(C) शून्य प्रतिक्रिया	(III) गैस टरबाइन
(D) प्रतिक्रिया टरबाइन	(IV) पेल्टन टरबाइन

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

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

Options :

92090665197. 1
92090665198. 2

92090665199. 3

92090665200. 4