Narsee Monjee Institute of Management Studies

Notations :

1.Options shown in green color and with ✔ icon are correct.

2.Options shown in red color and with ✖ icon are incorrect.

Question Paper Name :	NMIMS CET ENGG 2021 27th June 2021 Shift 2
Subject Name :	NMIMS CET ENGG 2021
Creation Date :	2021-06-25 17:01:55
Duration :	126
Total Marks :	122
Display Marks:	Yes
Calculator :	Normal
Magnifying Glass Required? :	No
Ruler Required? :	No
Eraser Required? :	Yes
Scratch Pad Required? :	Yes
Rough Sketch/Notepad Required? :	Yes
Protractor Required? :	No
Show Watermark on Console? :	Yes
Highlighter :	No
Auto Save on Console? (SA type of questions will be always auto saved) :	No

Display Notepad Pre Exam

Group Number : 1

Group Id :	9046841576
Group Maximum Duration :	3
Group Minimum Duration :	3
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	1
Is this Group for Examiner? :	No

Display Notepad Pre Exam

Section Id :	9046841669
Section Number :	1
Section type :	Offline
Mandatory or Optional :	Mandatory
Number of Questions :	1
Number of Questions to be attempted :	1
Section Marks :	1
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Sub-Section Number :	1
Sub-Section Id :	9046842586
Question Shuffling Allowed :	No

Question Number : 1 Question Id : 90468414195 Question Type : SUBJECTIVE

Correct Marks : 1

Kindly display your Notepad (Rough Sheet) for 3 minutes before the webcam. Also show both pages both sides numbered 1,2,3 and 4. This is a mandatory step if you are using rough sheets.

Language Proficiency

Group Number :	2
Group Id :	9046841577
Group Maximum Duration :	0
Group Minimum Duration :	0
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	10
Is this Group for Examiner? :	No

Language Proficiency

Section Id :	9046841670
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	7
Number of Questions to be attempted :	7
Section Marks :	10
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Sub-Section Number :	1
Sub-Section Id :	9046842587
Question Shuffling Allowed :	Yes

Question Number : 2 Question Id : 90468414196 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Parts of the given sentence have been underlined. One of them contains an error. Select the

option that correctly rectifies the error.

So many 500 children a week use the computers, whether it is to play educational games or to connect with the rest of the world.

Options :

1. ✔ As many as

2. ✖ are using the

3. ✖ whether for

4. ✖ in connecting with the

Question Number : 3 Question Id : 90468414197 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Parts of the given sentence have been underlined. One of them contains an error. Select the option that correctly rectifies the error.

The drivers are not making enough money because there are so many of them with the city, while millions of people outside the city need transportation.

Options :

1. ✖ will not be making

2. ✖ of many

3. ✔ in the city

4. ✖ needing transportation

Question Number : 4 Question Id : 90468414198 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Select the most appropriate option to fill in the blank.

They could not find the map because it had fallen _____ the large bookcase.

Options :

1. ✖ within

2. ✔ behind

3. ✖ beyond

4. ✖ further than

Question Number : 5 Question Id : 90468414199 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Select the most appropriate option to fill in the blank.

Some glaciers are just a few centuries old, _____ others have been in existence for hundreds of thousands of years.

Options :

1. ✔ whereas

2. ✖ insofar as

3. ✖ furthermore

4. ✖ nevertheless

Question Number : 6 Question Id : 90468414200 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Select the most appropriate option to fill in the blanks.

They realise _____ not liable for the payment, so _____ is nothing that can be done to force them to do so.

Options :

1. ✖ their, there

2. ✖ there, they're

3. ✔ they're, there

4. ✖ there, their

Question Number : 7 Question Id : 90468414201 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Sentences of a paragraph are given below in jumbled order. Arrange the sentences in the right order to form a meaningful and coherent paragraph.

A. Secondary compounds help tea plants in many different respects.

B. The distinctive taste of tea comes from essential oils that impart flavour and caffeine into a cup of hot water.

C. These include defending them against pests and helping them fight for survival.

D. These compounds are not necessary for the survival of the tea plant's cells; they are what is known as secondary compounds.

Options :

1. ✔ B, D, A, C

2. ✖ A, B, D, C

3. ✖ A, B, C, D

4. ✖ B, C, A, D

Sub-Section Number :	2
Sub-Section Id :	9046842588
Question Shuffling Allowed :	Yes

Question Id : 90468414202 Question Type : COMPREHENSION Sub Question Shuffling Allowed : Yes Group Comprehension Questions : No

Question Numbers : (8 to 11)

Question Label : Comprehension

Read the given passage and answer the following questions.

Let's remind ourselves of what green plants do for us. They shower oxygen and clear up carbon-dioxide meant to suffocate us. They pump up and purify water from the earth's depths — and make rain, too. Most importantly, they provide every calorie of energy — in different forms — that every living (and non-living) thing uses. They convert sunlight into sugars and starch, and dare I say, steaks and smoked ham and petrol! Even when long dead and buried deep, they provide the

fuel required to run our factories, cars and planes...

Plants also run the world's best juice factory, producing, through their fruit, juices of bewildering variety, natural sweetness and flavour. ...One of the main reasons put forward by people as to why it's okay to rip out plants from their roots and plunge them into boiling water or sizzling oil is that, unlike animals, they are not sentient. Perhaps, not in the way we understand, but maybe they are sentient in their own way. They are sensitive to light... When under attack, plants produce (at great cost) poisons and stomach irritants — like tannins — to protect themselves (the reason why tea is bitter and is used by the poor to suppress appetite). They even warn their neighbours that an elephant or human with a sickle is coming around. Deep underground, their roots spread far and wide, and, with the help of fungi, barter with other plants for nutrients they may lack...

I think our attitude would change if we could all see exactly what goes on in a plant as it lives, grows and matures — as if it were transparent. The miracle machinery of the leaves working with chlorophyll, the marvellous channels up and down the stem and trunk through which water and food are transported, the delicate manner a flower unfolds and how a fruit ripens and sweetens just until it is perfect. How its systems shut down as winter — or the blazing hot summer — approaches and then rev up again when the season changes. How it might go to war with a neighbouring plant claiming territory and resources, often when it is an intruder (we call these weeds).

Sub questions

Question Number : 8 Question Id : 90468414203 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Which of the following best describes the central theme of the passage?

Options :

1. � The role of plants in the food chain.

2. ✔ The importance of plants in our everyday lives.

3. ✖ The role of plant-based foods in our everyday diet.

4. ✖ The importance of shifting to a plant-based diet.

Question Number : 9 Question Id : 90468414204 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The author lists all of the following as benefits from plants, EXCEPT:

Options :

1. ✖ their actions have positive environmental outcomes

2. ✖ they provide fuel for machinery

3. ✖ they provide the variety of nutrition our bodies need

4. ✔ their sensitivity protects us from attacks

Question Number : 10 Question Id : 90468414205 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

According to the author, people believe that it is alright to cook plants because:

Options :

1. ✖ of essential nutrients contained in plant-based foods.

2. ✔ unlike animals they are not conscious of the harm being done to them.

3. ✖ they provide us with important energy our bodies need.

4. ✖ they proliferate faster than animals and can be easily replaced.

Question Number : 11 Question Id : 90468414206 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

In the last paragraph, which of the following best describes the emotion the author suggests we should adopt towards plants?

Options :

1. ✔ Appreciation

2. ✖ Bewilderment

3. ✖ Pride

4. ✖ Empathy

Logical Intelligence

Group Number :	3
Group Id :	9046841578
Group Maximum Duration :	0
Group Minimum Duration :	0
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	20
Is this Group for Examiner? :	No

Logical Intelligence

Section Id :	9046841671
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	20
Number of Questions to be attempted :	20
Section Marks :	20
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Sub-Section Number :	1
Sub-Section Id :	9046842589
Question Shuffling Allowed :	Yes

Question Number : 12 Question Id : 90468414207 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Six friends L, M, N, O, P and Q are sitting in a circle, facing away from the centre.

a) L is the neighbour to M.

b) N is not between L and Q.

c) O is sitting to the immediate right of M and third to the right of N.

Who is sitting to the immediate right of O?

Options :

1. ✖ M

2. ✖ N

3. ✖ L

4. ✔ Q

Question Number : 13 Question Id : 90468414208 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Five friends, U, V, W, X and Y, are sitting in a row and all of them are facing south.

a) U is not the neighbour to V.

b) W is between U and V.

c) X is fourth to the right of U.

Who is sitting second to the right of V?

Options :

1. ✖ W

2. ✖ U

3. ✔ X

4. ✖ Y

Question Number : 14 Question Id : 90468414209 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Study the given information carefully and answer the question that follows.

Following are the criteria to recruit a lab technician in a college.

The candidate must:

A. have minimum 75% marks in 12th class in the Science stream.

B. have minimum 65% marks in the entrance exam.

C. have good practical knowledge of lab experiments.

D. have at least one-year experience as a lab technician.

E. be ready to be on one-year probation.

F. be aged not more than 34 years as on 2 March 2021.

However, if the candidate fulfils the aforementioned criteria, EXCEPT:

1. at (A) above, but he/she is a graduate in Biology discipline with minimum 70% marks, then the case is to be referred to the Principal.

Details of a candidate are given. Based on the information and criteria provided, select one of the courses of action from the following options. You should not assume anything other than the information provided.

Ankit has scored 76% marks in 12th class and 66% marks in the entrance exam. He has good practical knowledge of lab experiments and is ready to be on one-year probation. He has three years of experience as a lab technician. His date of birth is 4 January 1993.

Options :

1. ✖ The candidate is to be selected.

2. ✖ The candidate is not to be selected.

3. ✔ Data is inadequate to provide the answer.

4. ✖ Case is to be referred to the Principal.

Question Number : 15 Question Id : 90468414210 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Ten students, G, H, I, J, K, L, M, N, O and P, go for a competition in two batches of five each. G and

H do not go together. M and O have to go together with their best friend H. K and O never go together. G and P go together. If I and J go in one batch, then which option represents the five students who can be in the other batch?

Options :

1. ✖ GKPLM

2. ✔ GKPLN

3. ✖ GKPLO

4. ✖ GKPLH

Question Number : 16 Question Id : 90468414211 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Study the given information carefully and answer the question that follows.

Following are the criteria to recruit an employee for an IT company.

The candidate must:

A. be a graduate in any discipline with minimum 75% marks.

B. be aged not more than 60 years as on 1 January 2021.

C. have a postgraduate degree with minimum 60% marks.

D. have completed Business Analyst certification.

E. have minimum 21 years' experience in an IT company.

F. be ready to be on probation for five years.

However, if the candidate fulfils the aforementioned criteria, EXCEPT:

1. at (C) above, but is a graduate in Economics discipline with minimum 80% marks, his/her case is to be referred to the Vice-President of the company.

2. at (D) above, but has a 25 years' experience in an IT company, his/her case is to be referred to the CEO of the company.

Details of a candidate are given. Based on the information and criteria provided, select one of the courses of action from the following options. You should not assume anything other than the information provided.

Sandeep is 58 years old and a B.A. Economics graduate with 89% marks. He has completed his M.B.A. degree with 65%, and has 26 years' experience in an IT company. He is ready to join with the five years' probation period.

Options :

1. ✖ The employee is not to be selected.

2. ✔ Case is to be referred to the CEO of the company.

3. ✖ Case is to be referred to the Vice-President of the company.

4. ✖ The employee is to be selected.

Question Number : 17 Question Id : 90468414212 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

1. No debit is money.
2. All money is credit.

Conclusions:

I. No credit is debit.
II. Some credit is debit.

Options :

1. ✖ Both the conclusions follow

2. ✖ Only conclusion I follows

3. ✔ Either conclusion I or II follows

4. ✖ Only conclusion II follows

Question Number : 18 Question Id : 90468414213 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions is/are true with respect to the statements.

Statements:

In a football match played between Team A and Team B, the total goals made by the Team A were 5. Out of 5, 3 goals were made by LM.

Conclusions:

I. LM is the only good player in that team.

II. Players of Team A are much better than the players of Team B.

Options :

1. ✔ Neither conclusion is true

2. ✖ Only conclusion I is true

3. ✖ Only conclusion II is true

4. ✖ Both the conclusions are true

Question Number : 19 Question Id : 90468414214 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

A statement is given followed by two conclusions. Decide which of the conclusions is/are FALSE with respect to the statement.

Statement:

Riya's best friend Rahul scolded her in front of their friends.

Conclusions:

I. Rahul is not a good friend of Riya.

II. Riya is not a good girl.

Options :

1. ✖ Only conclusion II is false

2. ✖ Only conclusion I is false

3. ✖ Neither conclusion I nor II is false

4. ✔ Both conclusions I and II are false

Question Number : 20 Question Id : 90468414215 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions does NOT follow(s) logically from the statements.

Statements:

1. All walls are windows.

2. All windows are paints.

3. No paint is a building.

Conclusions:

I. No building is a wall.

II. No building is a window.

III. Some paints are walls.

IV. All paints are windows.

Options :

1. ✔ Only conclusion IV does not follow

2. ✖ Only conclusion II does not follow

3. ✖ Only conclusion I does not follow

4. ✖ Only conclusion III does not follow

Question Number : 21 Question Id : 90468414216 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

A question is given, followed by two arguments. Decide which of the arguments is/are weak with respect to the question.

Question:

Should celebrities who have raped girls be given special treatment?

Arguments:

I. Yes. Because they can never do this consciously, this has been done by mistake.

II. No. Everyone is equal in front of the law.

Options :

1. ✖ None of the arguments are weak

2. ✔ Only argument I is weak

3. ✖ Both arguments I and II are weak

4. ✖ Only argument II is weak

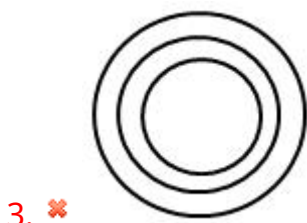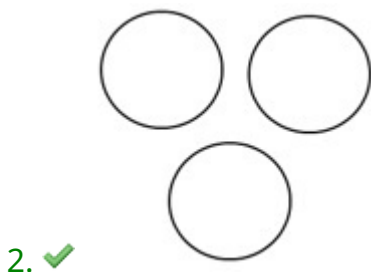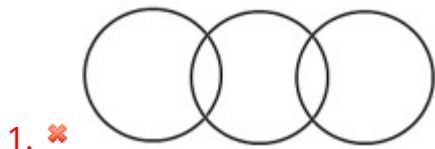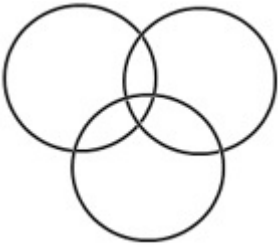**Question Number : 22 Question Id : 90468414217 Question Type : MCQ Option Shuffling : Yes**
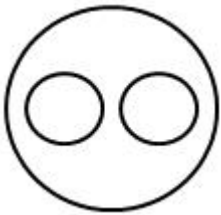
Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Select the Venn diagram that best represents the relationship between the following classes.

Almond, Cashew, Raisin

Options :

1. ✖

2. ✔

3. ✖

4. ✖

Question Number : 23 Question Id : 90468414218 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No
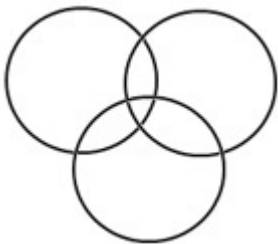
Correct Marks : 1 Wrong Marks : 0

Select the Venn diagram that best represents the relationship between the following classes.
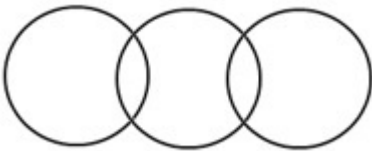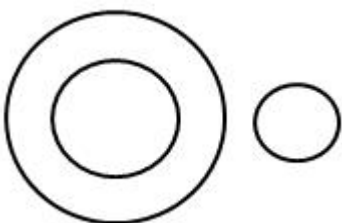
Gas, Helium, Hydrogen

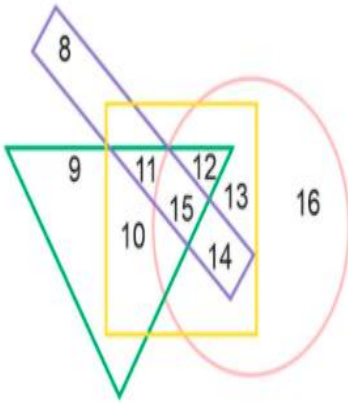**Options :**

1. ✔

2. ✖

3. ✖

4. ✖

Question Number : 24 Question Id : 90468414219 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

In the given diagram, the circle represents 'IT Company Employees', the rectangle represents 'BPO Employees', the square represents 'Hospital Staff', and the triangle represents 'School Teachers'.

As per the diagram, which of the following numbers represents IT Company Employees, School Teachers, Hospital Staff but NOT BPO Employees?

Options :

1. ✖ 13

2. ✖ 9

3. ✖ 10

4. ✔ 12

Question Number : 25 Question Id : 90468414220 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

In a village of 616 people, 250 can play Hockey, 150 can play Cricket, and 300 can play Badminton. Only 24 can play Hockey and Cricket, 34 can play Cricket and Badminton, and 36 can play Hockey and Badminton. Only 10 people can play all the three sports. What will be the sum of the people who can play any and only one of the mentioned sports?
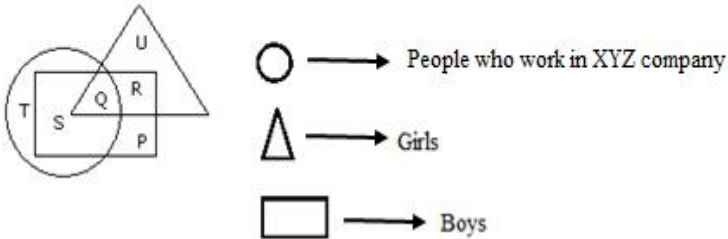
Options :

1. ✖ 400

2. ✔ 542

3. ✖ 502

4. ✳ 530

Question Number : 26 Question Id : 90468414221 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

As per the given diagram, which letter represents the boys who work in XYZ company?

Options :

1. ✳ T

2. ✔ S

3. ✳ P

4. ✳ R

Question Number : 27 Question Id : 90468414222 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The given column graph shows the production of aluminium (in kg) in different months, by three companies, A, B and C. Study the graph and answer the question that follows.
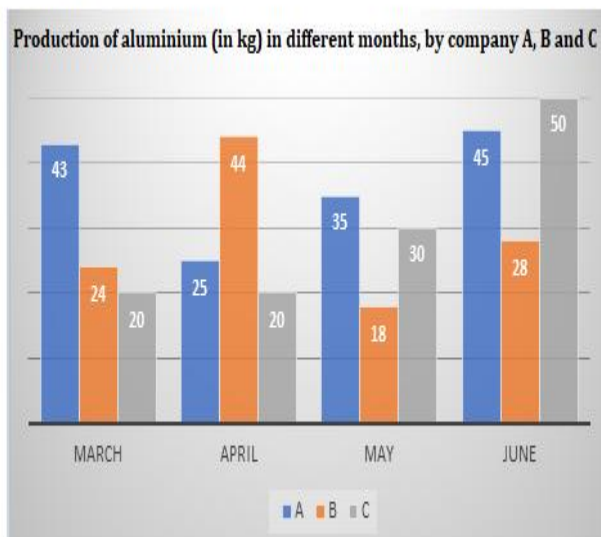
What will be the ratio of aluminium produced by company A in both, March and June, to the aluminium produced by both, company B and company C, in May?
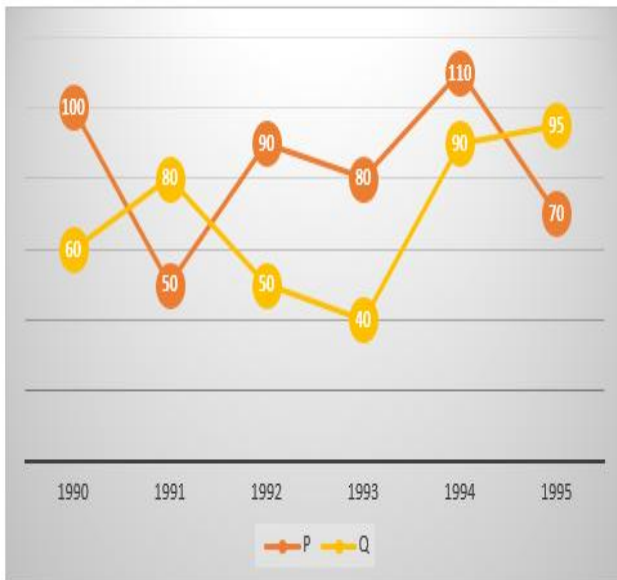
Options :

1. ✖ 11 : 5

2. ✖ 11 : 4

3. ✔ 11 : 6

4. ✖ 11 : 3

Question Number : 28 Question Id : 90468414223 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The given line graph shows the number of tyres manufactured by two companies, P and Q, during the period 1990-1995. Study the graph and answer the question that follows.

Number of Tyres Manufactured by Two companies over the Years (Number in Thousands)

What is the difference between the number of tyres manufactured by company P and company Q in 1994 and in 1995?

Options :

1. ✔ 35000

2. ✖ 37000

3. ✖ 36000

4. ✖ 34000

Question Number : 29 Question Id : 90468414224 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The given column graph shows the sales of shoes (in thousand numbers) by six companies during two consecutive years, 2019 and 2020. Study the graph and answer the question that follows.
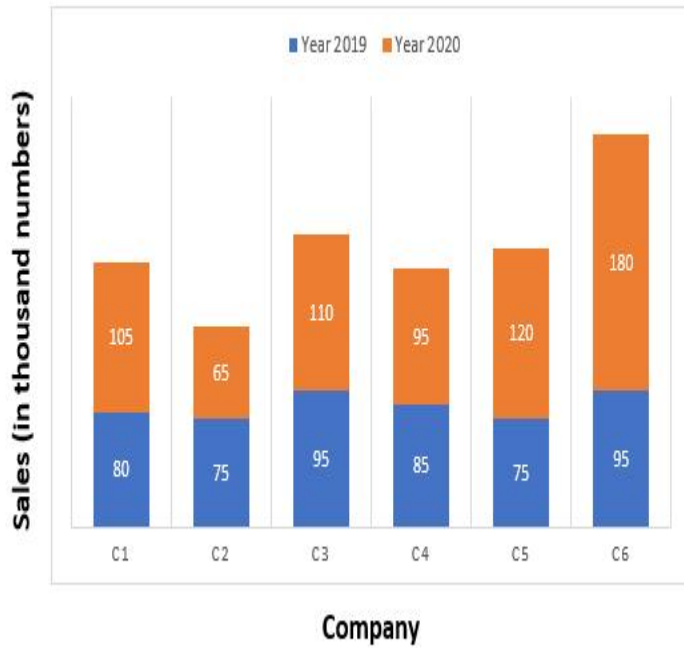
The total sales of shoes in the years 2019 and 2020 by company C3 was approximately how many times that of company C4?

Options :

1. ✷ 1.67

2. ✔ 1.13

3. ✷ 1.81

4. ✷ 1.33

The given pie chart shows the expenditure (in percentage) on education of a student. Study the pie chart and answer the question that follows.

Education expenditure of a student (% allocation)

- Others
- School Fees
- Transport
- Stationery
- Tuition Fees

9%   8%
6%
7%
70%

If ₹4,000 was spent on 'Others', then what will be the difference between the total education expenditure and the expenditure on 'Transport'?

Options :

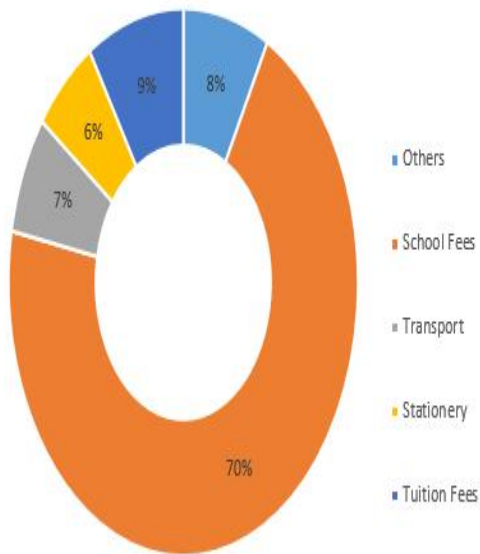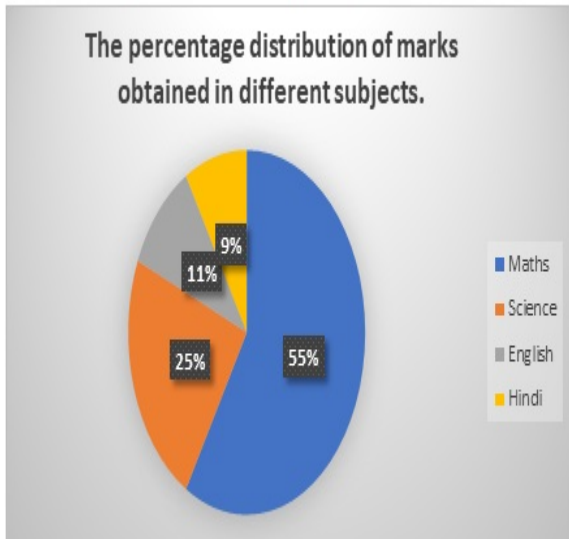1. ✖ ₹47,500

2. ✖ ₹44,500

3. ✔ ₹46,500

4. ✖ ₹45,500

Question Number : 31 Question Id : 90468414226 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The given pie chart shows the percentage of marks obtained by Rahul in different subjects. The sum of Rahul's marks of all the subjects is 100. Study the pie chart and answer the question that follows.

The percentage distribution of marks obtained in different subjects.

- Maths
- Science
- English
- Hindi

55% — Maths
25% — Science
11% — English
9% — Hindi

Riya is a friend of Rahul and she has scored 50% more marks in Maths as compared to that scored by Rahul. She has scored 10 marks less in English as compared to that in Maths. What will be the sum of the marks scored by both of them in English?

Options :

1. ✖ 81.2

2. ✖ 83.4

3. ✖ 82.3

4. ✔ 83.5

Physics

Group Number :	4
Group Id :	9046841579
Group Maximum Duration :	0
Group Minimum Duration :	0
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	30
Is this Group for Examiner? :	No

Physics

Section Id :	9046841672
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	30
Number of Questions to be attempted :	30
Section Marks :	30
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Sub-Section Number :	1
Sub-Section Id :	9046842590
Question Shuffling Allowed :	Yes

Question Number : 32 Question Id : 90468414227 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Which of the following quantities has the dimensional formula $[M^0L^0T^{-1}]$?

Options :

1. ✔ Frequency

2. ✖ Stress

3. ✖ Impulse

4. ✖ Force

Question Number : 33 Question Id : 90468414228 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The position of an object moving along the x-axis is given by $x = a + bt^2$, where a = 5.4 m, b = 3.5 m s^{-2} and t is measured in seconds. Find its velocity at t = 0 s and t = 2.0 s. Also calculate its average velocity between t = 2.0 s and t = 4.0 s.

Options :

1. ✔ $0 \text{ ms}^{-1}, 14 \text{ ms}^{-1}, 21.0 \text{ m s}^{-1}$

2. ✖ $0 \text{ ms}^{-1}, 3.5 \text{ m s}^{-1}, 6.0 \text{ m s}^{-1}$

3. ✖ $0 \text{ ms}^{-1}, 7 \text{ m s}^{-1}, 12 \text{ m s}^{-1}$

4. ✖ $0 \text{ ms}^{-1}, 3.5 \text{ m s}^{-1}, 42 \text{ m s}^{-1}$

Question Number : 34 Question Id : 90468414229 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

A 50 m long train is moving with a uniform velocity of 45km/h. Calculate the time taken by the train to cross a bridge that is 500m in length.

Options :

1. ✖ 28 s

2. ✖ 35 s

3. ✖ 38 s

4. ✔ 44 s

Question Number : 35 Question Id : 90468414230 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

A system gives out 60 J of heat and also does 120 J of work. What is the internal energy change?

Options :

1. ✖ 60 J

2. ✖ 180 J

3. ✖ –60 J

4. ✔ –180 J

Question Number : 36 Question Id : 90468414231 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

A geyser heats water, flowing at the rate of 4000 g/min, from 20°C to 70°C. If the geyser operates on a gas burner, what is the total heat used by water? (Heat of water, C = 4.2J/g°C)

Options :

1. ✔ $8.4 \times 10^5 \, \text{J/min}$

2. ✘ $7.4 \times 10^5 \, \text{J/min}$

3. ✘ $6.3 \times 10^5 \, \text{J/min}$

4. ✘ $5.3 \times 10^5 \, \text{J/min}$

Question Number : 37 Question Id : 90468414232 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The efficiency of a Carnot engine is 50%. If the temperature of the sink is 0°C, find the temperature of the source.

Options :

1. ✘ 165°C

2. ✘ 178°C

3. ✔ 273°C

4. ✘ 196°C

Question Number : 38 Question Id : 90468414233 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

A cyclist comes to a skidding stop in 7 m. During this process, the force on the cycle due to the road is 200 N and is directly opposed to the motion. How much work does the road do on the cycle?

Options :

1. ✖ 2800J

2. ✖ −2800J

3. ✔ −1400J

4. ✖ 200J

Question Number : 39 Question Id : 90468414234 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The decrease in potential energy of a ball of mass 20kg which falls from a height of 50 cm to the ground is _____. (Take g = 10 m/s^2)

Options :

1. ✖ 250J

2. ✖ 200J

3. ✖ 150J

4. ✔ 100J

Question Number : 40 Question Id : 90468414235 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The power of a pump which can pump 50 kg of water to a height of 100 m in 5 s is _____. (Take g = 10 m/s^2)

Options :

1. ✖ 5 kW

2. ✔ 10 kW

3. ✖ 25 kW

4. ✖ 50 kW

Question Number : 41 Question Id : 90468414236 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The angular momentum of a body about an axis is 10Js and its rotational kinetic energy is 5J. Find the moment of inertia of the body.

Options :

1. ✖ $50 \, \text{kg} \, \text{m}^2$

2. ✖ $40 \, \text{kg} \, \text{m}^2$

3. ✖ $30 \, \text{kg} \, \text{m}^2$

4. ✔ $10 \, \text{kg} \, \text{m}^2$

Question Number : 42 Question Id : 90468414237 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

If the distance between two masses is made 6 times, then the gravitational attraction between them will become _____.

Options :

1. ✖ 1/6 times

2. ✖ 1/12 times

3. ✖ 1/24 times

4. ✔ 1/36 times

Question Number : 43 Question Id : 90468414238 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

A constant retarding force of 70 N is applied on a particle of mass 20 kg moving with an initial velocity of 10m/s. After how much time will the particle stop?

Options :

1. ✷ 1.8 s

2. ✷ 2.2 s

3. ✷ 2.6 s

4. ✔ 2.8 s

Question Number : 44 Question Id : 90468414239 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

A batsman hits back a ball straight in the direction of the bowler without changing its initial speed of 24 m/s. If the mass of the ball is 0.20 kg, determine the impulse imparted to the ball. (Assume linear motion of the ball.)

Options :

1. ✷ 0 Ns

2. ✷ 3.0 Ns

3. ✷ 4.5 Ns

4. ✔ 9.6 Ns

Question Number : 45 Question Id : 90468414240 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The potential energy of atoms at an equilibrium distance is _____.

Options :

1. ✷ zero

2. ✔ minimum

3. ✷ maximum

4. ✷ infinity

Question Number : 46 Question Id : 90468414241 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

In a Zener regulated power supply, a Zener diode with $V_Z = 5.0$ V is used for regulation. The load current is to be 5.0 mA and the unregulated input is 10.0 V. What should be the value of the series resistor R_S? Let Zener current I_z be 25 mA.

Options :

1. ✖ $17 \, \Omega$

2. ✖ $121 \, \Omega$

3. ✔ $167 \, \Omega$

4. ✖ $320 \, \Omega$

Question Number : 47 Question Id : 90468414242 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

In a p-n junction diode, 0.15 V change in potential causes 5 mA change in current. Calculate the dynamic resistance.

Options :

1. ✖ 10Ω

2. ✖ 20Ω

3. ✔ 30Ω

4. ✖ 40Ω

Question Number : 48 Question Id : 90468414243 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Four molecules of gas have speeds 1, 3, 5, 7 km/s, respectively. Calculate the root mean square speed.

Options :

1. ✖ 3.5 km/s

2. ✔ 4.5 km/s

3. ✖ 5.5 km/s

4. ✖ 6.5 km/s

Question Number : 49 Question Id : 90468414244 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

If a simple pendulum is taken to a place where g decreases by 8%, then the time period _____.

Options :

1. ✖ decreases by about 2%

2. ✖ decreases by about 0.5%

3. ✖ increases by about 2%

4. ✔ increases by about 4%

Question Number : 50 Question Id : 90468414245 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

A sound source with 1160 Hz frequency moves at 50.0 m/s towards a listener who is at rest. The apparent frequency heard by the listener is _____. (Speed of sound = 340 m/s)

Options :

1. ✖ 680 Hz

2. ✖ 989 Hz

3. ✔ 1360 Hz

4. ✖ 1480 Hz

Question Number : 51 Question Id : 90468414246 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The specific resistance of the material of a wire is 1.33×10^{-8} Ω m. The resistance of the wire of area of cross-section 0.02 mm^2 is 2 ohm. Calculate the length of the wire.

Options :

1. ✖ 1.2m

2. ✖ 2m

3. ✖ 2.1m

4. ✔ 3m

Question Number : 52 Question Id : 90468414247 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

In a wire, 48 coulomb of charge is flowing per minute. Find the value of the current flowing through the wire.

Options :

1. ✖ 0.6 A

2. ✖ 0.7 A

3. ✔ 0.8 A

4. ✖ 0.9 A

Question Number : 53 Question Id : 90468414248 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Two resistors of 6 Ω and 12 Ω are connected in parallel. This combination, in turn, is connected in series to a 16 Ω resistor and a 6 V battery. The current in the 16 Ω resistor is _____.

Options :

1. ✔ 0.3 A

2. ✖ 0.6 A

3. ✳ 0.9 A

4. ✳ 1.2 A

Question Number : 54 Question Id : 90468414249 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The radius of a circular coil is 0.3 m. It has 100 turns. If 0.7 A current is flowing through it, then calculate the magnetic moment linked with the coil.

Options :

1. ✳ 1.98 Am^2

2. ✳ 6.60 Am^2

3. ✳ 13.2 Am^2

4. ✔ 19.8 Am^2

Question Number : 55 Question Id : 90468414250 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

A solenoid has a core of a material with relative permeability 600. The windings of the solenoid are insulated from the core and carry a current of 5 A. If the number of turns is 1000 per meter, the magnetic field at the centre of the coil is close to _____. ($\mu_o = 4\pi \times 10^{-7}$ N/A^2)

Options :

1. ✳ 1.2 T

2. ✳ 1.9 T

3. ✔ 3.8 T

4. ✳ 4.2 T

Question Number : 56 Question Id : 90468414251 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

If the RMS voltage is 70.72 V, what will be the peak voltage of AC supply?

Options :

1. ✖ 400V

2. ✖ 300V

3. ✖ 200V

4. ✔ 100V

Question Number : 57 Question Id : 90468414252 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

In a plane electromagnetic wave, the electric field oscillates sinusoidally with amplitude 48 V/m and frequency of

3.0×10^{10} Hz. What is the amplitude of the oscillating magnetic field?

Options :

1. ✖ 1.2×10^{-7} T

2. ✖ 1.4×10^{-7} T

3. ✔ 1.6×10^{-7} T

4. ✖ 1.8×10^{-7} T

Question Number : 58 Question Id : 90468414253 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

A concave mirror has a focal length of 10 cm. When an object is placed 12 cm in front of it, the

image formed is _____ and the magnification produced is _____.

Options :

1. ✖ erect; 0.5

2. ✶ inverted; 0.5

3. ✶ erect; 5

4. ✔ inverted; 5

Question Number : 59 Question Id : 90468414254 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The wavelength of light in air is 5320Å. Calculate the refractive index of a medium in which the wavelength of the same light is 4000Å.

Options :

1. ✶ 1.20

2. ✶ 1.25

3. ✶ 1.30

4. ✔ 1.33

Question Number : 60 Question Id : 90468414255 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

In Young's double slit experiment, the slit separation is 0.4cm and the distance between screen and slit is 1m. The wavelength of light used is 1000 Angstrom. The distance (in mm) between two consecutive dark fringes is _____.

Options :

1. ✔ 0.025

2. ✶ 0.125

3. ✶ 0.05

4. ✶ 0.01

Question Number : 61 Question Id : 90468414256 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Calculate the magnitude of the force acting on an electron placed in an electric field of intensity 6×10^3 N/C.

Options :

1. ✖ 4.8×10^{-16} N

2. ✔ 9.6×10^{-16} N

3. ✖ 4.8×10^{-14} N

4. ✖ 9.6×10^{-14} N

Chemistry

Group Number :	5
Group Id :	9046841580
Group Maximum Duration :	0
Group Minimum Duration :	0
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	30
Is this Group for Examiner? :	No

Chemistry

Section Id :	9046841673
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	30

Number of Questions to be attempted :	30
Section Marks :	30
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Sub-Section Number :	1
Sub-Section Id :	9046842591
Question Shuffling Allowed :	Yes

Question Number : 62 Question Id : 90468414257 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

In a reaction, 0.184 g of NaOH is required to be added for completing the reaction. How many mL of a 0.15 M NaOH solution should be added for this reaction?

Options :

1. ✖ 40 mL

2. ✔ 30.6 mL

3. ✖ 4.6 mL

4. ✖ 46 mL

Question Number : 63 Question Id : 90468414258 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Which of the following is the correct values of quantum numbers for the 22nd electron in vanadium?

Options :

1. ✖ $n = 3, l = 1, m_l = +1$

2. ✖ $n = 3, l = 0, m_l = +1/0/-1$

3. ✖ $n = 4, l = 2, m_l = 0$

4. ✔ $n = 3, l = 2, m_s = +\frac{1}{2}$ or $-\frac{1}{2}$

Question Number : 64 Question Id : 90468414259 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The correct sequence of energies of 2s orbitals is:

Options :

1. ✖ $E_{2s}(Li) < E_{2s}(Be) < E_{2s}(B) < E_{2s}(C) < E_{2s}(N)$

2. ✖ $E_{2s}(Li) < E_{2s}(Be) < E_{2s}(B) > E_{2s}(C) < E_{2s}(N)$

3. ✔ $E_{2s}(Li) > E_{2s}(Be) > E_{2s}(B) > E_{2s}(C) > E_{2s}(N)$

4. ✖ $E_{2s}(Li) > E_{2s}(Be) = E_{2s}(B) > E_{2s}(C) < E_{2s}(N)$

Question Number : 65 Question Id : 90468414260 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Which of the following statement is correct?

Options :

1. ✖ BF_3 and NH_3 have the same hybridisation but different dipole moment.

2. ✖ BF_3 and NH_3 have the same dipole moment but different hybridisation.

3. ✖ BF_3 and NH_3 have the same dipole moment but different shape.

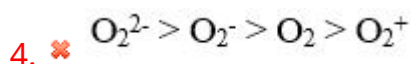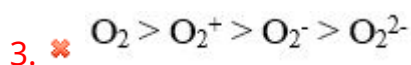4. ✔ BF_3 and NH_3 have different shape and different dipole moment.

Question Number : 66 Question Id : 90468414261 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Which of the following is the correct order of bond length?

Options :

1. ✖ $O_2^+ > O_2 > O_2^- > O_2^{2-}$

2. ✔ $O_2^+ < O_2 < O_2^{2-} < O_2^-$

3. ✖ $O_2 > O_2^+ > O_2^- > O_2^{2-}$
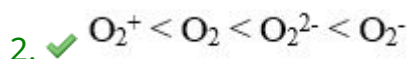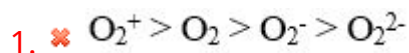
4. ✖ $O_2^{2-} > O_2^- > O_2 > O_2^+$

Question Number : 67 Question Id : 90468414262 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The enthalpy of combustion of $C_{(s)}$ is -393.5 kJmol. What is the amount of heat released on formation of 35.2 g of CO_2 from $C_{(s)}$ and $O_{2(g)}$?

Options :

1. ✔ 314.8 kJ

2. ✖ 346 kJ

3. ✖ 364.5 kJ

4. ✖ 495 kJ

Question Number : 68 Question Id : 90468414263 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

A patient, admitted in the hospital, is given a medicine by an intravenous injection in a solution which is hypertonic to normal saline solution. Which of the following will occur?

Options :

1. ✖ Blood will start flowing more rapidly

2. ✔ Blood cells will shrink

3. ✖ Blood cells will burst

4. ✖ Blood cells will remain unchanged

Question Number : 69 Question Id : 90468414264 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

For a reaction $A(g) + B(g) \Leftrightarrow C(g)$, if the value of Kc is 9.1×10^{-5} at 300 K and 7.6×10^{-6} at 380 K, then which of the following is true for this reaction?

Options :

1. ✖ $\Delta H = +ve$

2. ✔ $\Delta H = -ve$

3. ✖ $\Delta H = 0$

4. ✖ Reaction is not feasible

Question Number : 70 Question Id : 90468414265 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The standard electrode potential of two redox couples is given as follows:

$E^\circ\,(Sn^{2+}/Sn) = -0.14$ V; $E^\circ\,(Ni^{2+}/Ni) = -0.25$ V

Which of the following statements are true about these elements?

(i) Tin and nickel are stronger oxidising agents than hydrogen.

(ii) Tin and nickel are weaker oxidising agents than hydrogen.

(iii) Nickel is a stronger reducing agent than tin.

(iv) Tin is a weaker oxidising agent than nickel.

Options :

1. ✖ (i) and (iii)

2. ✔ (ii) and (iii)

3. ✖ (ii) and (iv)

4. ✖ (i) and (iv)

Question Number : 71 Question Id : 90468414266 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Which of the following is a zero order reaction?

Options :

1. ✖ Radioactive disintegration of Sr-90

2. ✖ Hydrolysis of an ester

3. ✔ Decomposition of $NH_3(g)$ on hot surface of Pt at high pressure

4. ✖ Decomposition of $HI_{(g)}$ on hot surface of Au at low pressure

Question Number : 72 Question Id : 90468414267 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

0.25 g of an organic compound, on heating with sodium peroxide in a Carius tube, followed by reaction with $BaCl_{2(aq)}$, produced 0.942 g of $BaSO_4$. What was the percentage of sulphur in the organic compound?

Options :

1. ✼ 64%

2. ✔ 51.7%

3. ✼ 3.64%

4. ✼ 36.4%

Question Number : 73 Question Id : 90468414268 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Which type of isomerism exists in the following pair of organic compounds?

$CH_3CH_2CH_2COCH_3$ and $CH_3CH_2CH_2CH_2CHO$

Options :

1. ✼ Position

2. ✔ Functional

3. ✼ Metamerism

4. ✼ Tautomerism

Question Number : 74 Question Id : 90468414269 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

An aliphatic organic compound 'A', having molecular formula C_7H_{16}, is heated at 773 K under 10-20 atm pressure in the presence of Cr_2O_3 catalyst. The product of this reaction is treated with acetic anhydride in presence of anhydrous $AlCl_3$ to give compound 'B'. Compound 'B' is:

Options :

1. ✼ 3-methyl acetophenone

2. ✼ 1-phenyl propan-1-one

3. ✼ 4-ethyl benzaldehyde

4. ✔ 4-methyl acetophenone

Question Number : 75 Question Id : 90468414270 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

What type of drug is chloramphenicol?

Options :

1. ✖ Antidepressant

2. ✖ Bactericidal, broad spectrum antibiotic

3. ✔ Bacteriostatic, broad spectrum antibiotic

4. ✖ Antifertility drug

Question Number : 76 Question Id : 90468414271 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

If some sweet food is to be cooked for a diabetic person, which of the following sweeteners is most suitable?

Options :

1. ✖ Sucrose

2. ✔ Ortho-sulphobenzimide

3. ✖ Methyl ester of phenylalanine and aspartic acid

4. ✖ Alitame

Question Number : 77 Question Id : 90468414272 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

In oxalic acid vs. $KMnO_4$ titration, if oxalic acid is allowed to be heated to boiling, the volume of $KMnO_4$ used for attaining the end point will be:

Options :

1. ✔ less than expected

2. ✖ more than expected

3. ✖ the same as expected

4. ✱ infinite

Question Number : 78 Question Id : 90468414273 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

0.9 mL of a solution of NaOH is used up to completely neutralise 2 mL of 0.1 M oxalic acid solution. How many moles of NaOH are present in 0.9 mL of NaOH solution?

Options :

1. ✱ 198×10^{-6}

2. ✱ 99×10^{-6}

3. ✔ 396×10^{-6}

4. ✱ 45×10^{-4}

Question Number : 79 Question Id : 90468414274 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Given are some organic compounds:

(i) p-chloronitrobenzene (ii) m-chlorotoluene (iii) m-chloronitrobenzene (iv) p-chlorotoluene (v) p-chloroaniline

Which of the following is the correct order of their reactivity towards nucleophilic substitution?

Options :

1. ✱ (i) < (ii) < (iii) < (iv) < (v)

2. ✔ (v) < (ii) < (iv) < (iii) < (i)

3. ✱ (i) < (iii) < (iv) < (ii) < (v)

4. ✱ (iv) < (ii) < (v) < (iii) < (i)

Question Number : 80 Question Id : 90468414275 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

To prepare phenetole, which of the following combinations of reactants is most suitable?

Options :

1. ✔ Sodium phenoxide and chloroethane

2. ✖ Sodium phenoxide and chloromethane

3. ✖ Sodium ethoxide and chlorobenzene

4. ✖ Sodium methoxide and chlorotoluene

Question Number : 81 Question Id : 90468414276 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Nylon 6 is a/an:

Options :

1. ✖ addition homopolymer

2. ✔ condensation homopolymer

3. ✖ condensation copolymer

4. ✖ addition copolymer

Question Number : 82 Question Id : 90468414277 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

What is the oxidation state and covalency, respectively, of aluminium in $[AlCl_4]^-$?

Options :

1. ✖ $-1, 4$

2. ✖ $+3, 3$

3. ✖ $+4, 3$

4. ✔ +3, 4

Question Number : 83 Question Id : 90468414278 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Which of the following is the correct order of $\Delta_i H_1$ of the given elements?

Options :

1. ✖ Be > B > C > N > O > F

2. ✖ Be < B < C < N < O < F

3. ✔ Be > B < C < N > O < F

4. ✖ Be < B > C > N < O > F

Question Number : 84 Question Id : 90468414279 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Which of the following is the correct order of covalent character of the given molecules?

Options :

1. ✔ $LiF < LiCl < LiBr < LiI$

2. ✖ $LiCl < NaCl < KCl < RbCl$

3. ✖ $NaCl > MgCl_2 > AlCl_3 > CCl_4$

4. ✖ $NCl_3 > PCl_3 > AsCl_3 > PCl_5$

Question Number : 85 Question Id : 90468414280 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Which of the following is the correct order of hydration enthalpies of the given species?

Options :

1. ✖ $Be^{2+} < Mg^{2+} < Ca^{2+} < Sr^{2+} < Ba^{2+}$

2. ✖ $Li^{+} > Be^{2+} > Mg^{2+} > B^{3+} > Al^{3+}$

3. ✔ $Be^{2+} > Mg^{2+} > Ca^{2+} > Sr^{2+} > Ba^{2+}$

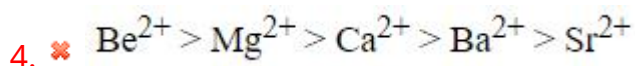4. ✖ $Be^{2+} > Mg^{2+} > Ca^{2+} > Ba^{2+} > Sr^{2+}$

Question Number : 86 Question Id : 90468414281 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

What are the products formed on the reaction of zinc with dilute nitric acid?

Options :

1. ✖ Zinc nitrate, water and nitric oxide

2. ✖ Zinc nitrate, water and nitrogen dioxide

3. ✖ Zinc oxide, water and nitrogen dioxide

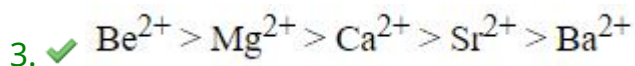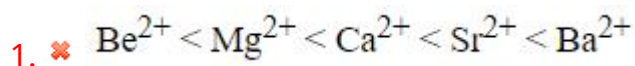4. ✔ Zinc nitrate, water and nitrous oxide

Question Number : 87 Question Id : 90468414282 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Which of the following are true for $\Delta_a H$ of transition elements?

(i) $\Delta_a H$ increases across a transition series, reaches maximum in the middle of the series and then decreases.

(ii) $\Delta_a H$ of transition elements is smaller than s-block elements.

(iii) $\Delta_a H$ of transition elements increases down the group.

(iv) $\Delta_a H$ of transition elements decreases down the group.

Options :

1. ✖ (i) and (ii)

2. ✔ (i) and (iii)

3. ✖ (i) and (iv)

4. ✖ (i), (ii) and (iv)

Question Number : 88 Question Id : 90468414283 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Which of the following is the correct formula of the coordination compound whose IUPAC name is given below?

triamminechlorido(ethane-1,2-diamine)chromium(III)hexacyanidocobaltate(III)

Options :

1. ✖ $[Cr(NH_3)_3Cl(en)][Co(CN)_6]$

2. ✖ $[Cr(NH_3)_3Cl(en)][Co(CN)_6]_2$

3. ✔ $[Cr(NH_3)_3Cl(en)]_3[Co(CN)_6]_2$

4. ✖ $[Cr(NH_3)_3Cl(en)]_2[Co(CN)_6]_3$

Question Number : 89 Question Id : 90468414284 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Which of the following statements is/are true?

(i) BOD for clean water is less than 5 ppm.

(ii) BOD increases as water becomes cleaner.

(iii) BOD increases as water becomes more polluted.

(iv) BOD for clean water is more than 17 ppm.

Options :

1. ✔ (i) and (iii)

2. ✖ (i) and (ii)

3. ✖ (ii) and (iv)

4. ✖ Only (iii)

Question Number : 90 Question Id : 90468414285 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

In the extraction of copper from copper pyrites, heating of ore in a reverberatory furnace produces copper matte. The chemical composition of copper matte is:

Options :

1. ✖ $CuSiO_3$

2. ✖ $Cu_2O + Cu_2S$

3. ✔ $Cu_2S + FeS$

4. ✖ $Cu_2S + FeO$

Question Number : 91 Question Id : 90468414286 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

In an Ellingham diagram, the C, CO line is below the Fe, FeO line at a temperature above 1073 K. What does this imply?

Options :

1. ✖ Coke will reduce FeO at a temperature below 1073 K

2. ✔ Coke will reduce FeO at a temperature above 1073 K

3. ✖ Coke will not reduce FeO at any temperature

4. ✖ Fe will reduce CO at a temperature above 1073 K

Maths

Group Number :	6
Group Id :	9046841581
Group Maximum Duration :	0
Group Minimum Duration :	0
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	30
Is this Group for Examiner? :	No

Maths

Section Id :	9046841674
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	30
Number of Questions to be attempted :	30
Section Marks :	30
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Sub-Section Number :	1
Sub-Section Id :	9046842592
Question Shuffling Allowed :	Yes

Question Number : 92 Question Id : 90468414287 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

If $f(x) = x - [x], 2 < x < 3$, then $f^{-1}(x)$ is equal to:

Options :

1. ✖ X - 1

2. ✔ X + 2

3. ✖ X - 2

4. ✖ X + 3

Question Number : 93 Question Id : 90468414288 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

If $f(x) = x + 2$ and $g(x) = \sqrt[3]{x}$, then $(f^{-1}og^{-1})(-2)$ is equal to:

Options :

1. ✔ -10

2. ✖ 10

3. ✖ -6

4. ✖ 6

Question Number : 94 Question Id : 90468414289 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Among 60 students taking examinations in subjects A, B and C, each of them has passed in at least one of the subjects, 42 students passed in A, 29 students passed in B and 48 students passed in C. At most 32 students passed in both A and C, at most 23 students passed in both A and B and at most 21 students passed in both B and C. The largest number of students who could have passed in all the three subjects is:

Options :

1. ✖ 16

2. ✔ 17

3. ✖ 18

4. ✖ 21

Question Number : 95 Question Id : 90468414290 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

If z_1 and z_2 are two complex numbers such that $|z_2| = 1$, then $\left|\dfrac{z_2 - z_1}{1 - \bar{z}_1 z_2}\right|$ is equal to:

Options :

1. ✖ 0

2. ✖ $\dfrac{1}{2}$

3. ✔ 1

4. ✖ 2

Question Number : 96 Question Id : 90468414291 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The radius of the circle $\left|\dfrac{z-i}{z+3i}\right| = 7$, where $z = x + iy$, is:

Options :

1. ✖ $\dfrac{7}{18}$

2. ✖ $\dfrac{7}{24}$

3. ✖ $\dfrac{7}{16}$

4. ✔ $\dfrac{7}{12}$

Question Number : 97 Question Id : 90468414292 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The number of real roots of the equation $x^4 + \sqrt{x^4 + 9} = 21$ is:

Options :

1. ✖ 0

2. ✖ 1

3. ✔ 2

4. ✖ 4

Question Number : 98 Question Id : 90468414293 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

If $\begin{vmatrix} \sqrt{17} + \sqrt{3} & 2\sqrt{5} & \sqrt{5} \\ \sqrt{15} + \sqrt{34} & 5 & \sqrt{10} \\ 3 + \sqrt{85} & \sqrt{15} & 5 \end{vmatrix} = A\sqrt{2} + B\sqrt{3}$, then what is the value of $(3A + 2B)$?

Options :

1. ✖ -10

2. ✔ -5

3. ✖ 1

4. ✖ 15

Question Number : 99 Question Id : 90468414294 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Let $A = \begin{bmatrix} 2 & 3 & 1 \\ 1 & 2 & 2 \\ -3 & 1 & -1 \end{bmatrix}$. If $adj\ A = \begin{bmatrix} -4 & \alpha & 4 \\ \beta & 1 & \gamma \\ 7 & \delta & 1 \end{bmatrix}$, then what is the value of $(\alpha + \beta) - (\gamma + \delta)$?

Options :

1. ✖ 1

2. � 9

3. ✖ 10

4. ✔ 13

Question Number : 100 Question Id : 90468414295 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

How many 4-digit numbers which are multiples of 4 can be formed using the digits 0, 1, 2, 3, 4 and 5, if no digit is repeated in the number?

Options :

1. ✖ 36

2. ✖ 42

3. ✔ 72

4. ✖ 84

Question Number : 101 Question Id : 90468414296 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

In how many ways can a cricket team of 11 players be selected from 20 players, in which only 7 players can bowl and each team must have exactly 5 bowlers?

Options :

1. ✖ 1737

2. ✖ 5148

3. ✖ 9009

4. ✔ 36036

Question Number : 102 Question Id : 90468414297 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

What is the area of the parallelogram whose diagonals are given by $\vec{a} = 2\hat{\imath} - \hat{\jmath} + k$ and $\vec{b} = \hat{\imath} + 3\hat{\jmath} - \hat{k}$?

Options :

1. ✖ $\sqrt{62}$

2. ✖ $\frac{1}{2}\sqrt{31}$

3. ✔ $\frac{1}{2}\sqrt{62}$

4. ✖ $2\sqrt{31}$

Question Number : 103 Question Id : 90468414298 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

$\{a_n\}$ is a sequence given by $a_1 = 1, a_2 = 2 + a_1$ and $a_n = 2a_{n-1} + 3$ for $n > 2$. What is the sum of a_5 and a_8 ?

Options :

1. ✖ 234

2. ✖ 360

3. ✖ 381

4. ✔ 426

Question Number : 104 Question Id : 90468414299 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

What is the coefficient of the 13th term in the expansion of $\left(9x - \frac{1}{3\sqrt{x}}\right)^{16}$?

Options :

1. ✖ $^{16}C_{12} \times \frac{x^2}{27}$

2. ✔ $^{16}C_{12} \times \frac{x^{-2}}{81}$

3. ✖ $^{16}C_{13} \times \dfrac{x^2}{81}$

4. ✖ $^{16}C_{13} \times \dfrac{x^{-2}}{27}$

Question Number : 105 Question Id : 90468414300 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The greatest term in the expansion of $(2 + 3x)^9$, when $x = \dfrac{1}{2}$, is:

Options :

1. ✖ $^9C_5 \dfrac{3^5}{2}$

2. ✖ $^9C_5 \dfrac{3^6}{2}$

3. ✔ $^9C_4 \, 2 \times 3^4$

4. ✖ $^9C_4 \, 2 \times 3^5$

Question Number : 106 Question Id : 90468414301 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

What is the sum of the first 12 terms of the series $2 \times 4 + 4 \times 6 + 6 \times 8 + \cdots$?

Options :

1. ✖ 2612

2. ✔ 2912

3. ✖ 2742

4. ✖ 2932

Question Number : 107 Question Id : 90468414302 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

If $\lim\limits_{x \to 10} \dfrac{\cos ax - \cos bx}{x^2} = \dfrac{a+b}{k}$, then $k = ?$

Options :

1. ✖ $\dfrac{1}{a-b}$

2. ✔ $\dfrac{2}{b-a}$

3. ✖ $\dfrac{1}{b-a}$

4. ✖ $\dfrac{2}{a-b}$

Question Number : 108 Question Id : 90468414303 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

$f(x) \begin{cases} \dfrac{x-k}{|x-k|} + m & , \quad x < k \\ m + n & , \quad x = k \\ \dfrac{x-k}{|x-k|} + n & , \quad x > k \end{cases}$ is continuous at $x = k, k > 0$, when:

Options :

1. ✔ $m = 1, n = -1$

2. ✖ $m = n = 1$

3. ✗ $m = -1, n = 1$

4. ✗ $m = n = -1$

Question Number : 109 Question Id : 90468414304 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

If $y = \sqrt{k^{sin^{-1}x}}$, $k > 0$, and $-1 < x < 1$, then $\frac{dy}{dx}$ at $x = \frac{1}{2}$ is equal to:

Options :

1. ✗ $k^{\frac{\pi}{6}} \log_e k$

2. ✗ $\frac{3}{\sqrt{3}} k^{\frac{\pi}{6}} \log_e k$

3. ✔ $\frac{\sqrt{3}}{3} k^{\frac{\pi}{12}} \log_e k$

4. ✗ $k^{\frac{\pi}{12}} \log_e k$

Question Number : 110 Question Id : 90468414305 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

If $f(x) = \int_1^x \frac{\log_e t}{1+t} dt$, then $f(x) + f\left(\frac{1}{x}\right) = ?$

Options :

1. ✗ $\frac{1}{2} \log_e x$

2. ✔

$$\frac{1}{2}(\log_e x)^2$$

3. ✖ $\log_e x$

4. ✖ $(\log_e x)^2$

Question Number : 111 Question Id : 90468414306 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

If $I = \int_2^5 |x - 3| dx$, then value of I is:

Options :

1. ✖ $9\frac{1}{2}$

2. ✖ 10

3. ✔ $\frac{5}{2}$

4. ✖ 11

Question Number : 112 Question Id : 90468414307 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Points $A(-1, 2)$, $B(2, -2)$ and $C(\alpha, \beta)$, in this order, are collinear and $|AC| = 15$ units. What is the value of $(2\alpha + \beta)$?

Options :

1. ✔ 6

2. ✖ 8

3. ✻ 9

4. ✻ 10

Question Number : 113 Question Id : 90468414308 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The equation of a circle that has the portion of the line $3x + 4y = 14$ intercepted by the lines $x - y = 0$ and $11x - 4y = 0$ as a diameter is $\alpha(x^2 + y^2) - 12x - 19y + \beta = 0$. What is the value of $(\alpha + \beta)$?

Options :

1. ✻ 26

2. ✔ 34

3. ✻ 37

4. ✻ 42

Question Number : 114 Question Id : 90468414309 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The foci of a hyperbola coincide with the foci of the ellipse $9x^2 + 25y^2 = 225$. The equation of the hyperbola, if its eccentricity is 2, is:

Options :

1. ✻ $3x^2 - 2y^2 = 12$

2. ✔ $3x^2 - y^2 = 12$

3. ✻ $3x^2 - 4y^2 = 24$

4. ✻ $4x^2 - 3y^2 = 24$

Question Number : 115 Question Id : 90468414310 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

If the image of the point P(1, 2, 3) in the plane $x + 2y + 4z = 59$ is $Q(\alpha, \beta, \gamma)$, then the value of $(2\alpha + \beta - \gamma)$ is:

Options :

1. ✖ 0

2. ✔ 1

3. ✖ -1

4. ✖ 4

Question Number : 116 Question Id : 90468414311 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The equation of the plane passing through the line $(\hat{\imath} + \hat{\jmath} + 2\hat{k}) + \lambda(3\hat{\imath} - 2\hat{\jmath} + \hat{k})$ and perpendicular to the plane $\vec{r}$.

$(3\hat{\imath} + \hat{\jmath} + 3\hat{k}) = 8$ is:

Options :

1. ✖ $\vec{r}.(7\hat{\imath} - 6\hat{\jmath} - 9\hat{k}) = -5$

2. ✖ $\vec{r}.(7\hat{\imath} + 6\hat{\jmath} - 9\hat{k}) = 5$

3. ✔ $\vec{r}.(7\hat{\imath} + 6\hat{\jmath} - 9\hat{k}) = -5$

4. ✖ $\vec{r}.(7\hat{\imath} - 6\hat{\jmath} + 9\hat{k}) = 5$

Question Number : 117 Question Id : 90468414312 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

16 cards numbered 1 to 16, are placed in a box, mixed up thoroughly. Then, a card is drawn at random from the box. It is known that the number on the card drawn is more than 4. What is the probability that it is an even number?

Options :

1. ✖ $\dfrac{5}{8}$

2. ✔ $\dfrac{1}{2}$

3. ✖ $\dfrac{1}{4}$

4. ✖ $\dfrac{3}{8}$

Question Number : 118 Question Id : 90468414313 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

What is the mean deviation about the median of the following distribution?

Marks	8	15	10	12	14
No. of students	12	11	8	4	5

Options :

1. ✖ 2.2

2. ✖ 2.455

3. ✔ 2.675

4. ✖ 3.2

Question Number : 119 Question Id : 90468414314 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The value of x that satisfies $cot^{-1}2 = cot^{-1}x + cot^{-1}7$ is:

Options :

1. ✖ 1

2. ✖ 2

3. ✔ 3

4. ✖ 4

Question Number : 120 Question Id : 90468414315 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

If $15 sin^4 x + 10 cos^4 x = 6$, then $cos 2x$ is equal to:

Options :

1. ✖ $\dfrac{7}{12}$

2. ✔ $\dfrac{1}{5}$

3. ✖ $\dfrac{4}{5}$

4. ✖ $\dfrac{8}{15}$

Question Number : 121 Question Id : 90468414316 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

If $2 tan \beta + cot \beta = tan \alpha$, then $2 tan(\alpha - \beta)$ is equal to:

Options :

1. ✖ $sec \beta$

2. ✖ $cot \alpha$

3. ✖ $sec \alpha$

4. ✔ $\cot\beta$

Display Notepad Post Exam

Group Number :	7
Group Id :	9046841582
Group Maximum Duration :	3
Group Minimum Duration :	3
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	1
Is this Group for Examiner? :	No

Display Notepad Post Exam

Section Id :	9046841675
Section Number :	1
Section type :	Offline
Mandatory or Optional :	Mandatory
Number of Questions :	1
Number of Questions to be attempted :	1
Section Marks :	1
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Sub-Section Number :	1
Sub-Section Id :	9046842593

Question Number : 122 Question Id : 90468414317 Question Type : SUBJECTIVE

Correct Marks : 1

Kindly display your Notepad (Rough Sheet) for 3 minutes before the webcam. Also show both pages both sides numbered 1,2,3 and 4. This is a mandatory step if you are using rough sheets.