HPCL
Jr Executive

Previous Year Paper
(Chemical Engineering)
16 Aug, 2025

हिन्दुस्तान पेट्रोलियम कॉर्पोरेशन लिमिटेड
Hindustan Petroleum Corporation Limited
(A Maharatna Company)

Participant ID	
Participant Name	
Test Center Name	
Test Date	16/08/2025
Test Time	9:00 AM - 11:30 AM
Subject	Jr Executive Chemical Engineer Ref

Section : **English Language**

Q.1 **Select the most appropriate conjunction to fill in the blank.**

_____ she did not know the person, she very generously lent her umbrella to the old woman.

Ans ✗ A. Unless

✗ B. Because

✗ C. And

✓ D. Although

Question ID : **441009305776**
Option 1 ID : **4410091189847**
Option 2 ID : **4410091189848**
Option 3 ID : **4410091189849**
Option 4 ID : **4410091189846**
Status : **Answered**
Chosen Option : **A**

Q.2 **Select the most appropriate option to fill in the blanks. If no article is required, select the option with 'No article required'.**

_____ Ramesh has left _____ office for _____ day.

Ans ✗ A. The ; No article required ; the

✗ B. The ; the ; the

✗ C. The ; the ; No article required

✓ D. No article required ; the ; the

Question ID : **441009305675**
Option 1 ID : **4410091189440**
Option 2 ID : **4410091189438**
Option 3 ID : **4410091189441**
Option 4 ID : **4410091189439**
Status : **Answered**
Chosen Option : **D**

Q.3 **Select the most appropriate adjective to fill in the blank.**

She is a very _____ young girl who believes in smart work.

Ans ✅ A. studious

❌ B. pitiful

❌ C. empathic

❌ D. pathetic

Question ID : **441009305741**
Option 1 ID : **4410091189706**
Option 2 ID : **4410091189708**
Option 3 ID : **4410091189707**
Option 4 ID : **4410091189709**
Status : **Answered**
Chosen Option : **A**

Q.4 **Sentences of a paragraph are given below in jumbled order. Arrange the sentences in the correct order to form a meaningful and coherent paragraph.**

P) Children born in 2020 are expected to encounter unparalleled climate extremes during their lives, the research showed.
Q) With current climate scenarios likely leading to a 2.7°C increase in global temperatures above pre-industrial levels, around 100 million of the estimated 120 million children born in 2020, or 83 per cent, will be exposed to extreme heat throughout their lifetimes, the analysts found.
R) The report was published by Save the Children, a global non-governmental organisation, along with Vrije Universiteit Brussel, a research university located in Brussels, Belgium.
S) Around 62.11 million children, or 51.70 per cent of those born in 2020, are expected to experience an unparalleled lifetime exposure to heatwaves, even with global warming restricted to a 1.5-degree Celsius rise, a new study indicated.

Ans ✅ A. SRPQ

❌ B. RQSP

❌ C. QPSR

❌ D. PQSR

Question ID : **441009305496**
Option 1 ID : **4410091188722**
Option 2 ID : **4410091188725**
Option 3 ID : **4410091188724**
Option 4 ID : **4410091188723**
Status : **Answered**
Chosen Option : **B**

Q.5 **Select the option that can be used as a one-word substitute for the underlined group of words.**

By considering the old woman's situation, she displayed her <u>capability to mentally identify with others</u>.

Ans ✅ A. empathy

❌ B. pity

❌ C. sympathy

❌ D. understanding

Question ID : **441009305521**
Option 1 ID : **4410091188830**
Option 2 ID : **4410091188832**
Option 3 ID : **4410091188831**
Option 4 ID : **4410091188833**
Status : **Answered**
Chosen Option : **C**

Q.6 Select the most appropriate option to fill in the blanks. If no article is required, select the option with 'No article required'.

_____ laptop belongs to _____ boy next door.

Ans ✗ A. The ; No article required

✗ B. No article required ; the

✓ C. The ; the

✗ D. No article required ; No article required

Question ID : **441009305689**
Option 1 ID : **4410091189502**
Option 2 ID : **4410091189504**
Option 3 ID : **4410091189503**
Option 4 ID : **4410091189505**
Status : **Answered**
Chosen Option : **C**

Q.7 Select the most appropriate adverb to fill in the blank.

Rita drank the water _____ cautiously considering it was from a stranger.

Ans ✓ A. somewhat

✗ B. never

✗ C. ever

✗ D. also

Question ID : **441009305759**
Option 1 ID : **4410091189778**
Option 2 ID : **4410091189781**
Option 3 ID : **4410091189780**
Option 4 ID : **4410091189779**
Status : **Answered**
Chosen Option : **A**

Q.8 Select the most appropriate option to fill in the blanks. If no article is required, select the option with 'No article required'.

_____ boy had come to our _____ home today looking for you.

Ans ✗ A. An ; a

✗ B. No article required ; an

✗ C. A ; an

✓ D. A ; No article required

Question ID : **441009305703**
Option 1 ID : **4410091189561**
Option 2 ID : **4410091189560**
Option 3 ID : **4410091189559**
Option 4 ID : **4410091189558**
Status : **Answered**
Chosen Option : **D**

Q.9 Select the option that can be used as a one-word substitute for the underlined group of words.

Kindly use some <u>informal and more generally used</u> English in order for the class to understand your context.

Ans   ✗ A. banal

      ✗ B. easy

      ✔ C. colloquial

      ✗ D. archaic

Question ID : **441009305534**
Option 1 ID : **4410091188882**
Option 2 ID : **4410091188884**
Option 3 ID : **4410091188883**
Option 4 ID : **4410091188885**
Status : **Answered**
Chosen Option : **C**

Q.10 Select the most appropriate adverb to fill in the blank.

Seema had _____ finished her paper when the invigilator snatched away her answer script.

Ans   ✔ A. almost

      ✗ B. very

      ✗ C. also

      ✗ D. exceptionally

Question ID : **441009305751**
Option 1 ID : **4410091189746**
Option 2 ID : **4410091189748**
Option 3 ID : **4410091189749**
Option 4 ID : **4410091189747**
Status : **Answered**
Chosen Option : **A**

Q.11 Select the most appropriate option to fill in the blanks. If no article is required, select the option with 'No article required'.

She is _____ actress who is known for being _____ honest human.

Ans   ✗ A. an ; a

      ✗ B. No article required ; a

      ✔ C. an ; an

      ✗ D. a ; an

Question ID : **441009305709**
Option 1 ID : **4410091189584**
Option 2 ID : **4410091189585**
Option 3 ID : **4410091189583**
Option 4 ID : **4410091189582**
Status : **Answered**
Chosen Option : **A**

Q.12 Select the option that can be used as a one-word substitute for the underlined group of words.

Although, in <u>understanding the situation now that it has already happened</u>, I think, most of it was my own fault.

Ans ✗ A. reflection

✗ B. speculation

✓ C. hindsight

✗ D. foresight

> Question ID : **441009305567**
> Option 1 ID : **4410091189016**
> Option 2 ID : **4410091189017**
> Option 3 ID : **4410091189014**
> Option 4 ID : **4410091189015**
> Status : **Answered**
> Chosen Option : **A**

Comprehension:

Read the given passage and answer the questions that follow.

There was a time when a woman's voice over the aircraft speaker was almost certainly delivering a safety demonstration or meal announcement. Today, it is just as likely to be your captain from the flight deck.

India's aviation sector has quietly achieved what many industries are still struggling to envision − a workforce where women are not only present but are increasingly thriving. With women making up 14% of India's pilots, more than double the global average of 6%, the sector has emerged as a global leader in gender inclusion.
Beyond pilots, women constitute 39% of India's aviation workforce, far surpassing representation in sectors like infra, energy and logistics. This progress was not accidental − it was built on decades of proactive policies, industry-wide commitment and a willingness to rethink traditional hiring and retention models.

But while India's aviation sector is far ahead of many others, challenges remain. Women still make up just 5% of roles in Maintenance, Repair and Overhaul (MRO), and leadership positions in airlines remain largely male-dominated. The sector has shown what's possible, but there is more work to be done in ensuring women's representation that goes beyond pilots and cabin crew.

SubQuestion No : 13

Q.13 Identify the tone of the passage.

Ans ✗ A. Bitter

✗ B. Informative

✓ C. Nostalgic

✗ D. Jocular

> Question ID : **441009306943**
> Option 1 ID : **4410091194466**
> Option 2 ID : **4410091194465**
> Option 3 ID : **4410091194464**
> Option 4 ID : **4410091194463**
> Status : **Answered**
> Chosen Option : **B**

Comprehension:

Read the given passage and answer the questions that follow.

There was a time when a woman's voice over the aircraft speaker was almost certainly delivering a safety demonstration or meal announcement. Today, it is just as likely to be your captain from the flight deck.

India's aviation sector has quietly achieved what many industries are still struggling to envision − a workforce where women are not only present but are increasingly thriving. With women making up 14% of India's pilots, more than double the global average of 6%, the sector has emerged as a global leader in gender inclusion.
Beyond pilots, women constitute 39% of India's aviation workforce, far surpassing representation in sectors like infra, energy and logistics. This progress was not accidental − it was built on decades of proactive policies, industry-wide commitment and a willingness to rethink traditional hiring and retention models.

But while India's aviation sector is far ahead of many others, challenges remain. Women still make up just 5% of roles in Maintenance, Repair and Overhaul (MRO), and leadership positions in airlines remain largely male-dominated. The sector has shown what's possible, but there is more work to be done in ensuring women's representation that goes beyond pilots and cabin crew.

SubQuestion No : 14

Q.14 Select the most appropriate ANTONYM of the word 'proactive' as used in the passage.

Ans ✗ A. Energetic

✗ B. Myopic

✓ C. Considerate

✗ D. Diligent

Question ID :	**441009306944**
Option 1 ID :	**4410091194467**
Option 2 ID :	**4410091194468**
Option 3 ID :	**4410091194470**
Option 4 ID :	**4410091194469**
Status :	**Answered**
Chosen Option :	**A**

Comprehension:

Read the given passage and answer the questions that follow.

There was a time when a woman's voice over the aircraft speaker was almost certainly delivering a safety demonstration or meal announcement. Today, it is just as likely to be your captain from the flight deck.

India's aviation sector has quietly achieved what many industries are still struggling to envision − a workforce where women are not only present but are increasingly thriving. With women making up 14% of India's pilots, more than double the global average of 6%, the sector has emerged as a global leader in gender inclusion.
Beyond pilots, women constitute 39% of India's aviation workforce, far surpassing representation in sectors like infra, energy and logistics. This progress was not accidental − it was built on decades of proactive policies, industry-wide commitment and a willingness to rethink traditional hiring and retention models.

But while India's aviation sector is far ahead of many others, challenges remain. Women still make up just 5% of roles in Maintenance, Repair and Overhaul (MRO), and leadership positions in airlines remain largely male-dominated. The sector has shown what's possible, but there is more work to be done in ensuring women's representation that goes beyond pilots and cabin crew.

SubQuestion No : 15

Q.15 Select the most suitable title for the passage from the following options.

Ans ✗ A. The Miseries of the Indian Workforce

✔ B. Soaring High: Women Pilots in India

✗ C. The Rise and Fall of the Aviation Industry

✗ D. A Guide to Aircraft Maintenance and Development

Question ID : **441009306945**
Option 1 ID : **4410091194473**
Option 2 ID : **4410091194471**
Option 3 ID : **4410091194472**
Option 4 ID : **4410091194474**
Status : **Answered**
Chosen Option : **D**

Comprehension:

Read the given passage and answer the questions that follow.

There was a time when a woman's voice over the aircraft speaker was almost certainly delivering a safety demonstration or meal announcement. Today, it is just as likely to be your captain from the flight deck.

India's aviation sector has quietly achieved what many industries are still struggling to envision − a workforce where women are not only present but are increasingly thriving. With women making up 14% of India's pilots, more than double the global average of 6%, the sector has emerged as a global leader in gender inclusion.
Beyond pilots, women constitute 39% of India's aviation workforce, far surpassing representation in sectors like infra, energy and logistics. This progress was not accidental − it was built on decades of proactive policies, industry-wide commitment and a willingness to rethink traditional hiring and retention models.

But while India's aviation sector is far ahead of many others, challenges remain. Women still make up just 5% of roles in Maintenance, Repair and Overhaul (MRO), and leadership positions in airlines remain largely male-dominated. The sector has shown what's possible, but there is more work to be done in ensuring women's representation that goes beyond pilots and cabin crew.

SubQuestion No : 16

Q.16 From the following options, highlight the achievement of the India's aviation sector.

Ans   ✗ A. It has completely eliminated gender disparity in all roles, including leadership and MRO.

✔ B. The focus is on employing women only in cabin crew roles.

✗ C. There is significantly higher percentage of female pilots in the aviation workforce.

✗ D. The idea of gender inclusion is forth which requires detailed research and development.

Question ID :	**441009306946**
Option 1 ID :	**4410091194478**
Option 2 ID :	**4410091194475**
Option 3 ID :	**4410091194476**
Option 4 ID :	**4410091194477**
Status :	**Answered**
Chosen Option :	**D**

Comprehension:

Read the given passage and answer the questions that follow.

There was a time when a woman's voice over the aircraft speaker was almost certainly delivering a safety demonstration or meal announcement. Today, it is just as likely to be your captain from the flight deck.

India's aviation sector has quietly achieved what many industries are still struggling to envision − a workforce where women are not only present but are increasingly thriving. With women making up 14% of India's pilots, more than double the global average of 6%, the sector has emerged as a global leader in gender inclusion.
Beyond pilots, women constitute 39% of India's aviation workforce, far surpassing representation in sectors like infra, energy and logistics. This progress was not accidental − it was built on decades of proactive policies, industry-wide commitment and a willingness to rethink traditional hiring and retention models.

But while India's aviation sector is far ahead of many others, challenges remain. Women still make up just 5% of roles in Maintenance, Repair and Overhaul (MRO), and leadership positions in airlines remain largely male-dominated. The sector has shown what's possible, but there is more work to be done in ensuring women's representation that goes beyond pilots and cabin crew.

SubQuestion No : 17

Q.17 What percentage of India's pilots are women?

Ans ✗ A. 5%

　　 ✔ B. 6%

　　 ✗ C. 39%

　　 ✗ D. 14%

Question ID : **441009306947**
Option 1 ID : **4410091194479**
Option 2 ID : **4410091194481**
Option 3 ID : **4410091194480**
Option 4 ID : **4410091194482**
Status : **Answered**
Chosen Option : **D**

Section : **Quantitative Aptitude**

Q.1 The value of $\dfrac{\cos 1^\circ \cos 2^\circ \cos 3^\circ \ldots\ldots\ldots \cos 99^\circ \cos 100^\circ}{5\cosec 10^\circ \cos 80^\circ + 2\cos 59^\circ \cosec 31^\circ}$ is:485

Ans ✔ A. 0

　　 ✗ B. -1

　　 ✗ C. $\dfrac{1}{7}$

　　 ✗ D. $\dfrac{1}{5}$

Question ID : **4410091117042**
Option 1 ID : **4410094404059**
Option 2 ID : **4410094404057**
Option 3 ID : **4410094404058**
Option 4 ID : **4410094404056**
Status : **Answered**
Chosen Option : **B**

Q.2 A car covers half of a certain distance at the speed of 42 km/hr. If the average speed for the entire journey is 48 km/hr, then what speed must the car maintain for the second half of the distance?

Ans ✗ A. 53 km/hr

✗ B. 58 km/hr

✓ C. 56 km/hr

✗ D. 50 km/hr

Question ID : **441009334187**
Option 1 ID : **4410091305493**
Option 2 ID : **4410091305491**
Option 3 ID : **4410091305492**
Option 4 ID : **4410091305490**
Status : **Answered**
Chosen Option : **B**

Q.3 If the marks scored by the students in a class test out of 100 are as given in the table below, then what is 45% of the median marks?

Marks	0-20	20-40	40-60	60-80
Number of Students	10	14	18	8

Ans ✗ A. 18

✗ B. 20

✗ C. 19

✓ D. 21

Question ID : **441009359545**
Option 1 ID : **4410091404171**
Option 2 ID : **4410091404173**
Option 3 ID : **4410091404172**
Option 4 ID : **4410091404174**
Status : **Answered**
Chosen Option : **A**

Q.4 The average marks of 50 students of a class were calculated as 72.15. It was later discovered that the marks of one student were taken as 63 instead of 95. Find the true average marks of the class.

Ans ✗ A. 77.29

✗ B. 79.46

✓ C. 72.79

✗ D. 71.35

Question ID : **441009355228**
Option 1 ID : **4410091387011**
Option 2 ID : **4410091387013**
Option 3 ID : **4410091387010**
Option 4 ID : **4410091387012**
Status : **Answered**
Chosen Option : **C**

Q.5 If a and b, where a > b, are the roots of the equation $6x^2 - 7x - 3 = 0$, then what is the value of (a − 2b)?

Ans

✓ A. $\dfrac{13}{6}$

✗ B. $\dfrac{23}{6}$

✗ C. $\dfrac{18}{13}$

✗ D. $\dfrac{13}{8}$

Question ID : **4410091124028**
Option 1 ID : **4410094431673**
Option 2 ID : **4410094431674**
Option 3 ID : **4410094431676**
Option 4 ID : **4410094431675**
Status : **Answered**
Chosen Option : **C**

Q.6 Find the fourth proportional to the numbers $\dfrac{1}{3}$ of 24, $\dfrac{4}{5}$ of 55 and $\dfrac{3}{7}$ of 42.

Ans ✗ A. 111

✗ B. 93

✓ C. 99

✗ D. 89

Question ID : **441009358929**
Option 1 ID : **4410091401719**
Option 2 ID : **4410091401721**
Option 3 ID : **4410091401718**
Option 4 ID : **4410091401720**
Status : **Answered**
Chosen Option : **B**

Q.7 If 5 times the son's age is added to the father's age, the sum is 65 years. If 2.2 times the father's age is added to the son's age, the sum is 67 years. What is the father's age (in years)?

Ans ✗ A. 22

✓ B. 27

✗ C. 31

✗ D. 23

Question ID : **4410091123961**
Option 1 ID : **4410094431406**
Option 2 ID : **4410094431405**
Option 3 ID : **4410094431407**
Option 4 ID : **4410094431408**
Status : **Answered**
Chosen Option : **A**

Q.8 Find the greatest value of (a + b) such that an 8-digit number 2453a06b is divisible by 15.

Ans ✓ A. 13

✗ B. 14

✗ C. 11

✗ D. 12

Question ID : **441009293679**
Option 1 ID : **4410091141588**
Option 2 ID : **4410091141586**
Option 3 ID : **4410091141587**
Option 4 ID : **4410091141589**
Status : **Answered**
Chosen Option : **C**

Q.9 What is the total surface area of a cone whose perimeter of the base is 44 cm and height is 24 cm?

$$\left(\text{Use } \pi = \frac{22}{7} \right)$$

Ans ✗ A. 168 cm^2

✗ B. 336 cm^2

✗ C. 224 cm^2

✓ D. 704 cm^2

Question ID : **4410091117073**
Option 1 ID : **4410094404180**
Option 2 ID : **4410094404182**
Option 3 ID : **4410094404181**
Option 4 ID : **4410094404183**
Status : **Answered**
Chosen Option : **B**

Q.10 A water storage tank has a leak at its base that can completely drain a full tank in 18 hours. Meanwhile, a water supply pipe can fill the tank at a constant rate of 6 litres per minute. If the pipe is left open and the leak is active, the tank becomes completely full in exactly 9 hours. What is the capacity of the tank in litres?

Ans ✗ A. 2530 litres

✗ B. 2130 litres

✗ C. 3130 litres

✓ D. 2160 litres

Question ID : **441009330521**
Option 1 ID : **4410091288573**
Option 2 ID : **4410091288570**
Option 3 ID : **4410091288571**
Option 4 ID : **4410091288572**
Status : **Answered**
Chosen Option : **B**

Q.11 The value of $14^3 - 11^3$ is: 104

Ans ✅ A. 1413

✖ B. 1371

✖ C. 1352

✖ D. 1170

Question ID : **4410091123998**
Option 1 ID : **4410094431553**
Option 2 ID : **4410094431555**
Option 3 ID : **4410094431556**
Option 4 ID : **4410094431554**
Status : **Answered**
Chosen Option : **A**

Q.12 A company purchased the following units of a certain product:
100 units at ₹10 each
150 units at ₹k each
250 units at ₹12 each
The average cost per unit of all 500 units is ₹11. Find the value of k.

Ans ✖ A. 9

✅ B. 10

✖ C. 15

✖ D. 13

Question ID : **441009286983**
Option 1 ID : **4410091114895**
Option 2 ID : **4410091114893**
Option 3 ID : **4410091114894**
Option 4 ID : **4410091114892**
Status : **Answered**
Chosen Option : **B**

Q.13 A farmer bought a horse and a carriage for total of ₹25,000. He sold the horse at a gain of 38% and the carriage at a loss of 12%. If he gains 6% on the whole, then find the cost price (in ₹) of the carriage.

Ans ✅ A. 16,000

✖ B. 20,000

✖ C. 14,000

✖ D. 21,000

Question ID : **441009358694**
Option 1 ID : **4410091400784**
Option 2 ID : **4410091400782**
Option 3 ID : **4410091400783**
Option 4 ID : **4410091400785**
Status : **Answered**
Chosen Option : **B**

Q.14 If $5^{(3x - 1)} = 125^{(x-1)} + 3000$, then find $7^{(x + 1)}$.

Ans ✗ A. 289

✓ B. 343

✗ C. 729

✗ D. 243

Question ID : **441009358147**
Option 1 ID : **4410091398585**
Option 2 ID : **4410091398583**
Option 3 ID : **4410091398584**
Option 4 ID : **4410091398582**
Status : **Answered**
Chosen Option : **B**

Q.15 Savitri buys a sofa set at a 20% discount. At what percentage above her cost price should she sell it to earn a profit equal to 20% of the marked price?

Ans ✓ A. 25%

✗ B. 12.5%

✗ C. 50%

✗ D. 20%

Question ID : **441009310954**
Option 1 ID : **4410091210309**
Option 2 ID : **4410091210310**
Option 3 ID : **4410091210308**
Option 4 ID : **4410091210311**
Status : **Answered**
Chosen Option : **D**

Q.16 Let C be a circle with centre O and radius 21 cm. Let OAB be a sector of C whose area is 231 cm^2. Find the angle made by the sector at the centre O. (Use π = $\frac{22}{7}$)

Ans ✓ A. 60°

✗ B. 110°

✗ C. 70°

✗ D. 80°

Question ID : **4410091117055**
Option 1 ID : **4410094404109**
Option 2 ID : **4410094404111**
Option 3 ID : **4410094404108**
Option 4 ID : **4410094404110**
Status : **Answered**
Chosen Option : **B**

Q.17 A man travels the first part of his journey at 80 km/hr and the second part at 120 km/hr and covers the total distance of 850 km to his destination in 9 hours. The time taken by him to cover the second part of his journey is what percentage of the time taken by him to cover the first part of his journey (correct to 2 decimal places)?

Ans   ✗ A. 54.38%

       ✗ B. 55.62%

       ✓ C. 56.52%

       ✗ D. 52.56%

Question ID : **441009360063**
Option 1 ID : **4410091406261**
Option 2 ID : **4410091406260**
Option 3 ID : **4410091406258**
Option 4 ID : **4410091406259**
Status : **Answered**
Chosen Option : **A**

Q.18 Ojaswita spends 15% of her monthly income on the rent of her house and 30% of the remaining on grocery items. If she saves ₹38,675 every month, then what is her monthly income?

Ans   ✗ A. ₹56,000

       ✓ B. ₹65,000

       ✗ C. ₹68,000

       ✗ D. ₹70,000

Question ID : **441009303131**
Option 1 ID : **4410091179097**
Option 2 ID : **4410091179098**
Option 3 ID : **4410091179099**
Option 4 ID : **4410091179096**
Status : **Answered**
Chosen Option : **B**

Q.19 The milk sold by a milkman contains 8% water. How much pure milk should be added to 20 litres of this mixture being sold by the milkman so that the water content is reduced to 5%?

Ans   ✗ A. 17 litres

       ✓ B. 12 litres

       ✗ C. 15 litres

       ✗ D. 11 litres

Question ID : **441009288295**
Option 1 ID : **4410091120096**
Option 2 ID : **4410091120097**
Option 3 ID : **4410091120095**
Option 4 ID : **4410091120098**
Status : **Answered**
Chosen Option : **B**

Q.20 What amount will Sumit receive for a sum of ₹1,28,000 after one and a half years at 5% per annum compound interest, compounded half-yearly?

Ans ✅ A. ₹1,37,842

❌ B. ₹1,34,742

❌ C. ₹1,36,742

❌ D. ₹1,38,742

Question ID : **441009290185**
Option 1 ID : **4410091127672**
Option 2 ID : **4410091127675**
Option 3 ID : **4410091127674**
Option 4 ID : **4410091127673**
Status : **Answered**
Chosen Option : **B**

Q.21 A is thrice as good a workman as B and is therefore able to finish a piece of work in 96 days less than B. If both work together, in how many days can they do 75% of the work?

Ans ❌ A. 30

❌ B. 25

❌ C. 36

✅ D. 27

Question ID : **441009360036**
Option 1 ID : **4410091406143**
Option 2 ID : **4410091406144**
Option 3 ID : **4410091406145**
Option 4 ID : **4410091406142**
Status : **Answered**
Chosen Option : **B**

Q.22 A TV is marked at ₹50,000. A showroom offers a 10% festival discount and 5% loyalty discount to frequent customers. A customer got ₹2,000 cashback because of making payment through a particular credit card. Find the effective discount percentage?

Ans ❌ A. 17%

❌ B. 19.5%

✅ C. 18.5%

❌ D. 20%

Question ID : **441009312076**
Option 1 ID : **4410091214767**
Option 2 ID : **4410091214765**
Option 3 ID : **4410091214766**
Option 4 ID : **4410091214764**
Status : **Answered**
Chosen Option : **B**

Q.23 The length of a rectangular plot is 34 m more than its breadth. If its area is 26,607 m^2, then calculate its breadth (in m).

Ans ✗ A. 156

✓ B. 147

✗ C. 138

✗ D. 129

Question ID : **4410091123988**
Option 1 ID : **4410094431516**
Option 2 ID : **4410094431513**
Option 3 ID : **4410094431515**
Option 4 ID : **4410094431514**
Status : **Answered**
Chosen Option : **D**

Q.24 The sides of a triangle are 61 cm, 60 cm, and 11 cm. What is its area? (in cm^2)

Ans ✗ A. 341

✗ B. 314

✓ C. 330

✗ D. 302

Question ID : **4410091117010**
Option 1 ID : **4410094403929**
Option 2 ID : **4410094403930**
Option 3 ID : **4410094403928**
Option 4 ID : **4410094403931**
Status : **Answered**
Chosen Option : **A**

Q.25 The circumference of the base of a solid right circular cylinder is 132 cm and its height is 10 cm. What is the volume (in cm^3) of the cylinder?

$$\left(\text{Take } \pi = \frac{22}{7} \right)$$

Ans ✗ A. 13,531

✗ B. 14,783

✓ C. 13,860

✗ D. 14,668

Question ID : **4410091117002**
Option 1 ID : **4410094403898**
Option 2 ID : **4410094403897**
Option 3 ID : **4410094403896**
Option 4 ID : **4410094403899**
Status : **Answered**
Chosen Option : **B**

Q.26 A number is first decreased by 20% and then increased by 32%. The number so obtained is 84 more than the original number. What is 52% of the original number?

Ans   ✗ A. 950

   ✓ B. 780

   ✗ C. 840

   ✗ D. 750

Question ID : **441009358616**
Option 1 ID : **4410091400466**
Option 2 ID : **4410091400469**
Option 3 ID : **4410091400467**
Option 4 ID : **4410091400468**
Status : **Answered**
Chosen Option : **A**

Q.27 The bacteria in a culture grow by 10% in an hour. If the count of bacteria in the sample is 56,23,00,000, what will the count of bacteria be after 3 hours?

Ans   ✗ A. 74,84,21,600

   ✓ B. 74,84,21,300

   ✗ C. 84,84,21,300

   ✗ D. 75,94,21,300

Question ID : **441009293460**
Option 1 ID : **4410091140718**
Option 2 ID : **4410091140716**
Option 3 ID : **4410091140719**
Option 4 ID : **4410091140717**
Status : **Answered**
Chosen Option : **B**

Q.28 Two trains, measuring 190 m and 151 m in length, are running in opposite directions on parallel tracks. Their speeds are 81 km/hr and 117 km/hr, respectively. How much time will they take to cross each other?

Ans   ✗ A. 8.5 seconds

   ✗ B. 8 seconds

   ✓ C. 6.2 seconds

   ✗ D. 7.5 seconds

Question ID : **441009336704**
Option 1 ID : **4410091312843**
Option 2 ID : **4410091312842**
Option 3 ID : **4410091312840**
Option 4 ID : **4410091312841**
Status : **Answered**
Chosen Option : **B**

Q.29 For a distribution, it is given that the median = 29 and the mean = 32. Find the mode of the distribution using empirical relation.

Ans ✗ A. 21

✗ B. 20

✔ C. 23

✗ D. 25

Question ID : **441009359439**
Option 1 ID : **4410091403742**
Option 2 ID : **4410091403740**
Option 3 ID : **4410091403739**
Option 4 ID : **4410091403741**
Status : **Answered**
Chosen Option : **B**

Q.30 Numbers A and B are in the ratio 5 : 7. If 5 is added to each of them, then the ratio becomes 10 : 13. Find the number A.

Ans ✗ A. 10

✔ B. 15

✗ C. 25

✗ D. 35

Question ID : **441009319093**
Option 1 ID : **4410091256191**
Option 2 ID : **4410091256190**
Option 3 ID : **4410091256192**
Option 4 ID : **4410091256193**
Status : **Answered**
Chosen Option : **B**

Q.31 Rajeev buys 100 articles at ₹80 each. He sells 50 of them at ₹100 each, 30 of them at ₹120 each, and the remaining 20 articles at ₹140 each. Find his profit percentage.

Ans ✗ A. 40.5%

✗ B. 36.5%

✗ C. 22.5%

✔ D. 42.5%

Question ID : **441009305308**
Option 1 ID : **4410091188749**
Option 2 ID : **4410091188748**
Option 3 ID : **4410091188746**
Option 4 ID : **4410091188747**
Status : **Answered**
Chosen Option : **C**

Q.32 Kavita pays ₹34,560 for 135 gift items of the same cost. Find the cost of 426 such items.

Ans ✔ A. ₹1,09,056

✗ B. ₹1,00,426

✗ C. ₹1,32,216

✗ D. ₹1,00,216

Question ID : **441009294368**
Option 1 ID : **4410091144498**
Option 2 ID : **4410091144499**
Option 3 ID : **4410091144497**
Option 4 ID : **4410091144496**
Status : **Answered**
Chosen Option : **A**

Q.33 Find the smallest and greatest four-digit numbers that are exactly divisible by 7, 10, and 12.

Ans   ✅ A. 1260 and 9660

     ❌ B. 1080 and 9640

     ❌ C. 1260 and 9860

     ❌ D. 1250 and 9660

Question ID : **441009298260**
Option 1 ID : **4410091160120**
Option 2 ID : **4410091160118**
Option 3 ID : **4410091160121**
Option 4 ID : **4410091160119**
Status : **Answered**
Chosen Option : **D**

Q.34 The ratio between two numbers is 9 : 5. If 60% of the first number is 24, then find the ratio of 55% of the first to 81% of the second number.

Ans   ❌ A. 13 : 6

     ❌ B. 12 : 7

     ❌ C. 15 : 8

     ✅ D. 11 : 9

Question ID : **441009359178**
Option 1 ID : **4410091402695**
Option 2 ID : **4410091402693**
Option 3 ID : **4410091402694**
Option 4 ID : **4410091402692**
Status : **Answered**
Chosen Option : **A**

Section : **Intellectual Potential Test**

Q.1 In a certain code language, 'FACE' is coded as '4268' and 'COST' is coded as '3457'. What is the code for 'C' in the given code language? 1496

Ans   ❌ A. 6

     ❌ B. 7

     ❌ C. 3

     ✅ D. 4

Question ID : **4410091146291**
Option 1 ID : **4410094520122**
Option 2 ID : **4410094520123**
Option 3 ID : **4410094520121**
Option 4 ID : **4410094520120**
Status : **Answered**
Chosen Option : **D**

Q.2 If 1 is added to each odd digit and 1 is subtracted from each even digit in the number 763542, then what will be the difference between the first and last digit in the number thus formed?

Ans   ✗ A. 3

  ✗ B. 5

  ✗ C. 2

  ✔ D. 7

Question ID : **4410091126258**

Option 1 ID : **4410094440577**

Option 2 ID : **4410094440576**

Option 3 ID : **4410094440578**

Option 4 ID : **4410094440575**

Status : **Answered**

Chosen Option : **D**

Q.3 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:
All computers are phones.
No phone is a laptop.

Conclusions:
I. No phone is a computer.
II. All phones are computers.

Ans   ✗ A. Both conclusions I and II follow.

  ✗ B. Only conclusions I follows.

  ✔ C. Neither conclusion I nor II follows.

  ✗ D. Only conclusion II follows.

Question ID : **4410091146651**

Option 1 ID : **4410094521563**

Option 2 ID : **4410094521562**

Option 3 ID : **4410094521560**

Option 4 ID : **4410094521561**

Status : **Answered**

Chosen Option : **D**

Q.4 This question is based on the following words.

(Left) COM TEN SAP LOT (Right)

If in each of the words, each letter is changed to the next letter in the English alphabetical order, how many letter clusters thus formed will have no vowel? 918

Ans   ✗ A. One

  ✔ B. Two

  ✗ C. Three

  ✗ D. None

Question ID : **4410091145713**

Option 1 ID : **4410094517809**

Option 2 ID : **4410094517810**

Option 3 ID : **4410094517811**

Option 4 ID : **4410094517808**

Status : **Answered**

Chosen Option : **B**

Q.5 In the following number-pairs, the second number is obtained by applying certain mathematical operation(s) to the first number. Select the number-pair in which the numbers are related in the same way as are the numbers of the following pairs.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into their constituent digits. E.g. 13 – Operations on 13 such as adding to/subtracting from/multiplying with 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

156, 52
183, 61

Ans ✗ A. (274, 58)

✔ B. (168, 56)

✗ C. (176, 62)

✗ D. (122, 74)

Question ID : **4410091125713**
Option 1 ID : **4410094438398**
Option 2 ID : **4410094438395**
Option 3 ID : **4410094438397**
Option 4 ID : **4410094438396**
Status : **Answered**
Chosen Option : **C**

Q.6 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:
Some cups are forks.
No fork is a pan.

Conclusions:
I. No pan is a fork.
II. Some forks are cups.

Ans ✗ A. Only conclusion I follows.

✗ B. Only conclusion II follows.

✗ C. Neither conclusion I nor II follows.

✔ D. Both conclusions I and II follow.

Question ID : **4410091146653**
Option 1 ID : **4410094521568**
Option 2 ID : **4410094521569**
Option 3 ID : **4410094521571**
Option 4 ID : **4410094521570**
Status : **Answered**
Chosen Option : **D**

Q.7 This question is based on three-digit numbers given below.

(Left) 413 393 687 296 186 (Right)

If 3 is added to the first digit of every number, in how many numbers will the first digit be exactly divisible by the third digit?

Ans ✗ A. 4

✗ B. 2

✓ C. 1

✗ D. 3

Question ID : **4410091146928**
Option 1 ID : **4410094522671**
Option 2 ID : **4410094522668**
Option 3 ID : **4410094522669**
Option 4 ID : **4410094522670**
Status : **Answered**
Chosen Option : **B**

Q.8 DINS is related to XCHM in a certain way based on the English alphabetical order. In the same way, XCHM is related to RWBG. To which of the given options is RWBG related, following the same logic?967

Ans ✗ A. LQLP

✗ B. LQSD

✓ C. LQVA

✗ D. LQNJ

Question ID : **4410091145762**
Option 1 ID : **4410094518005**
Option 2 ID : **4410094518006**
Option 3 ID : **4410094518004**
Option 4 ID : **4410094518007**
Status : **Answered**
Chosen Option : **B**

Q.9 What should come in place of the question mark (?) in the given series based on the English alphabetical order?

NDL JAJ FXH BUF ?

Ans ✗ A. HYU

✓ B. XRD

✗ C. TQX

✗ D. ABJ

Question ID : **4410091146831**
Option 1 ID : **4410094522283**
Option 2 ID : **4410094522282**
Option 3 ID : **4410094522280**
Option 4 ID : **4410094522281**
Status : **Answered**
Chosen Option : **B**

Q.10 What should come in place of the question mark (?) in the given series?

15 18 12 21 9 24 ?

Ans   ✗ A. 28

     ✓ B. 6

     ✗ C. 24

     ✗ D. 16

Question ID : **4410091126014**
Option 1 ID : **4410094439599**
Option 2 ID : **4410094439602**
Option 3 ID : **4410094439601**
Option 4 ID : **4410094439600**
Status : **Answered**
Chosen Option : **D**

Q.11 This question is based on the five, three-digit numbers given below.

(Left) 256 394 574 787 698 (Right)

If 2 is added to the first digit of every number, then in how many numbers will the first digit be exactly divisible by the third digit? 2142

Ans   ✗ A. None

     ✗ B. Three

     ✓ C. One

     ✗ D. Two

Question ID : **4410091146937**
Option 1 ID : **4410094522706**
Option 2 ID : **4410094522707**
Option 3 ID : **4410094522705**
Option 4 ID : **4410094522704**
Status : **Answered**
Chosen Option : **C**

Q.12 Two sets of numbers are given below. In each set of numbers, certain mathematical operation(s) on the first number result(s) in the second number. Similarly, certain mathematical operation(s) on the second number result(s) in the third number and so on. Which of the given options follows the same set of operations as in the given sets?

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into their constituent digits. E.g. 13 – Operations on 13 such as adding to/subtracting from/multiplying with 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

13 - 26 - 30 - 35 ; 2 - 4 - 8 - 13

Ans   ✗ A. 10 - 20 - 24 - 30

     ✗ B. 12 - 24 - 30 - 35

     ✗ C. 40 - 80 - 85 - 90

     ✓ D. 5 - 10 - 14 - 19

Question ID : **4410091125656**
Option 1 ID : **4410094438167**
Option 2 ID : **4410094438169**
Option 3 ID : **4410094438168**
Option 4 ID : **4410094438170**
Status : **Answered**
Chosen Option : **D**

Q.13 Seven people, A, B, C, D, E, F and G, are sitting in a row, facing north. Only B sits to the left of G. Only four people sit between B and D. Only F sits between C and A, and C is not an immediate neighbour of D. How many people sit between G and F?1179

Ans ✗ A. 2

✗ B. 3

✗ C. 4

✓ D. 1

Question ID : **4410091145974**

Option 1 ID : **4410094518853**

Option 2 ID : **4410094518854**

Option 3 ID : **4410094518855**

Option 4 ID : **4410094518852**

Status : **Answered**

Chosen Option : **D**

Q.14 VZDH is related to LPTX in a certain way based on the English alphabetical order. In the same way, PTXB is related to FJNR. To which of the given options is JNRV related, following the same logic?966

Ans ✗ A. ZDMK

✓ B. ZDHL

✗ C. ZDNJ

✗ D. ZDLP

Question ID : **4410091145761**

Option 1 ID : **4410094518003**

Option 2 ID : **4410094518000**

Option 3 ID : **4410094518002**

Option 4 ID : **4410094518001**

Status : **Answered**

Chosen Option : **A**

Q.15 In the following triads, each group of letters is related to the subsequent one following a certain logic. Select from the given options, the one which follows the same logic.

SUED - DUSE - UESD
NEAM - MENA - EANM

Ans ✗ A. RACK - RCAK - KCAR

✓ B. GIRD - DIGR - IRGD

✗ C. OPEN - NPOE - EPON

✗ D. PING - IPNG - GINP

Question ID : **4410091145922**

Option 1 ID : **4410094518645**

Option 2 ID : **4410094518644**

Option 3 ID : **4410094518647**

Option 4 ID : **4410094518646**

Status : **Answered**

Chosen Option : **B**

Q.16 Refer to the following letter, number and symbol series and answer the question that follows.

(Left) S * Y H F R & 4 G (T 3 5 @ P 9 ^ 6 H # E (Right)

If all the symbols are dropped from the series, which of the following would be 10th from the left?2113

Ans ✗ A. 3

✗ B. P

✓ C. 5

✗ D. T

Question ID : **4410091146908**
Option 1 ID : **4410094522589**
Option 2 ID : **4410094522591**
Option 3 ID : **4410094522590**
Option 4 ID : **4410094522588**
Status : **Answered**
Chosen Option : **C**

Q.17 A, B, C, D, E, F and G are sitting around a circular table, facing the centre. Only one person sits between C and A when counted from the right of C. Only one person sits between A and F. Only one person sits between C and B. Only two people sit between G and F. Only one person sits between E and B. Who sits fourth to the left of B?1158

Ans ✗ A. E

✗ B. A

✗ C. F

✓ D. G

Question ID : **4410091145953**
Option 1 ID : **4410094518770**
Option 2 ID : **4410094518769**
Option 3 ID : **4410094518771**
Option 4 ID : **4410094518768**
Status : **Answered**
Chosen Option : **B**

Q.18 Each of the digits in the number 2976814 is arranged in descending order from left to right. Which of the following digits will be fifth from the right in the new number thus formed?

Ans ✗ A. 6

✗ B. 4

✓ C. 7

✗ D. 8

Question ID : **4410091126259**
Option 1 ID : **4410094440581**
Option 2 ID : **4410094440582**
Option 3 ID : **4410094440580**
Option 4 ID : **4410094440579**
Status : **Answered**
Chosen Option : **B**

Q.19 Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into their constituent digits. E.g. 13 – Operations on 13 such as adding to/subtracting from/multiplying with 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

(8, 5, 169)
(9, 5, 196)

Ans ✗ A. (9, 6, 125)

✗ B. (7, 7, 169)

✗ C. (11, 2, 144)

✔ D. (10, 5, 225)

Question ID : **4410091125714**
Option 1 ID : **4410094438401**
Option 2 ID : **4410094438399**
Option 3 ID : **4410094438402**
Option 4 ID : **4410094438400**
Status : **Answered**
Chosen Option : **C**

Q.20 What should come in place of the question mark (?) in the given series?

11 13 17 23 31 ?

Ans ✗ A. 28

✗ B. 48

✗ C. 45

✔ D. 41

Question ID : **4410091126015**
Option 1 ID : **4410094439604**
Option 2 ID : **4410094439606**
Option 3 ID : **4410094439605**
Option 4 ID : **4410094439603**
Status : **Answered**
Chosen Option : **D**

Q.21 Forest U is to the west of Forest Y. Forest W is to the south of Forest U. Forest X is to the east of Forest V. X is to the west of U. What is the direction of Forest Y with respect to Forest X?

1169

Ans ✗ A. South

✔ B. East

✗ C. North

✗ D. West

Question ID : **4410091145964**
Option 1 ID : **4410094518812**
Option 2 ID : **4410094518814**
Option 3 ID : **4410094518815**
Option 4 ID : **4410094518813**
Status : **Answered**
Chosen Option : **D**

Q.22 Which of the given letter-number clusters will replace the question mark (?) in the following series to make it logically complete?

ROM 31 TQO 42 VSQ 53 XUS 64 ?

Ans ✗ A. ZXT 75

✗ B. ZVT 74

✗ C. ZIS 74

✓ D. ZWU 75

Question ID : **4410091145799**
Option 1 ID : **4410094518153**
Option 2 ID : **4410094518154**
Option 3 ID : **4410094518155**
Option 4 ID : **4410094518152**
Status : **Answered**
Chosen Option : **B**

Q.23 A, B, C, D, E, F and G are sitting around a circular table, facing the centre. Only three people sit between C and A when counted from the left of C. Only three people sit between B and D when counted from the right of D. E sits to the immediate right of B. F is an immediate neighbour of D as well as A. How many people sit between A and B when counted from the right of A?1154

Ans ✓ A. 1

✗ B. 4

✗ C. 2

✗ D. 3

Question ID : **4410091145949**
Option 1 ID : **4410094518752**
Option 2 ID : **4410094518755**
Option 3 ID : **4410094518753**
Option 4 ID : **4410094518754**
Status : **Answered**
Chosen Option : **C**

Q.24 In a certain code language,
A + B means 'A is the father of B'
A − B means 'A is the mother of B'
A × B means 'A is the son of B'
A ÷ B means 'A is the sister of B'
Based on the above, how is P related to T if 'P × Q + R − S ÷ T'?1213

Ans ✗ A. Mother's father

✗ B. Daughter's son

✗ C. Father's son

✓ D. Mother's brother

Question ID : **4410091146008**
Option 1 ID : **4410094518988**
Option 2 ID : **4410094518989**
Option 3 ID : **4410094518991**
Option 4 ID : **4410094518990**
Status : **Answered**
Chosen Option : **C**

Q.25 If 1 is added to each even digit and 1 is added to each odd digit in the number 2184567, then what will be the sum of all odd digits in the new number thus formed?

Ans   ✅ A. 24

     ❌ B. 21

     ❌ C. 28

     ❌ D. 20

Question ID : **4410091126262**
Option 1 ID : **4410094440591**
Option 2 ID : **4410094440592**
Option 3 ID : **4410094440594**
Option 4 ID : **4410094440593**
Status : **Answered**
Chosen Option : **A**

Q.26 Four word-pairs have been given, out of which three are alike in some manner and one is different. Select the one that is different.

(Note: The words must be considered as meaningful English words and must not be related to each other based on the number of letters/consonants/vowels in the word.)

Ans   ❌ A. Book-Page

     ❌ B. Magazine-Article

     ✅ C. Website-Search

     ❌ D. Newspaper-Headline

Question ID : **4410091145723**
Option 1 ID : **4410094517848**
Option 2 ID : **4410094517849**
Option 3 ID : **4410094517851**
Option 4 ID : **4410094517850**
Status : **Answered**
Chosen Option : **D**

Q.27 Four word-pairs have been given, out of which three are alike in some manner and one is different. Select the one that is different.

(Note: The words must be considered as meaningful English words and must not be related to each other based on the number of letters/consonants/vowels in the word.)

Ans   ✅ A. Fork-Knife

     ❌ B. Cup-Tea

     ❌ C. Bowl-Soup

     ❌ D. Plate-Food

Question ID : **4410091145722**
Option 1 ID : **4410094517847**
Option 2 ID : **4410094517844**
Option 3 ID : **4410094517845**
Option 4 ID : **4410094517846**
Status : **Answered**
Chosen Option : **A**

Q.28 Based on the English alphabetical order, three of the following four letter-cluster pairs are alike in a certain way and thus form a group. Which letter-cluster pair DOES NOT belong to that group?
(Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster.)

Ans ✗ A. UK - YI

✗ B. EK - II

✓ C. HP - LT

✗ D. KD - OB

Question ID : **4410091145718**
Option 1 ID : **4410094517829**
Option 2 ID : **4410094517830**
Option 3 ID : **4410094517831**
Option 4 ID : **4410094517828**
Status : **Answered**
Chosen Option : **B**

Q.29 Each of P, Q, R, S, T, U and V has an exam on a different day of a week, starting from Monday and ending on Sunday of the same week. P has an exam on Wednesday. Exactly 3 people have an exam between P and R. V has an exam immediately after Q and S has an exam immediately before Q. Only 3 people have an exam between T and Q. Who has an exam on Monday?1492

Ans ✓ A. T

✗ B. Q

✗ C. S

✗ D. R

Question ID : **4410091146287**
Option 1 ID : **4410094520104**
Option 2 ID : **4410094520106**
Option 3 ID : **4410094520107**
Option 4 ID : **4410094520105**
Status : **Answered**
Chosen Option : **A**

Q.30 Aditya ranked 34th from the top and 24th from the bottom in his class. How many students are there in his class?
1199

Ans ✗ A. 59

✓ B. 57

✗ C. 56

✗ D. 58

Question ID : **4410091145994**
Option 1 ID : **4410094518935**
Option 2 ID : **4410094518932**
Option 3 ID : **4410094518933**
Option 4 ID : **4410094518934**
Status : **Answered**
Chosen Option : **D**

Q.31 If 1 is added to each odd digit and 1 is subtracted from each even digit in the number 465231, then what will be the sum of all even digits in the new number thus formed?

Ans ✗ A. 14

✓ B. 12

✗ C. 18

✗ D. 10

Question ID : **4410091126256**
Option 1 ID : **4410094440570**
Option 2 ID : **4410094440569**
Option 3 ID : **4410094440567**
Option 4 ID : **4410094440568**
Status : **Answered**
Chosen Option : **B**

Q.32 In a certain code language,
A + B means 'A is the father of B'
A − B means 'A is the mother of B'
A × B means 'A is the wife of B'
A ÷ B means 'A is the brother of B'
Based on the above, how is A related to E if 'A − B ÷ C × D + E'?1212

Ans ✗ A. Daughter's son

✗ B. Daughter's husband

✓ C. Mother's mother

✗ D. Mother's brother

Question ID : **4410091146007**
Option 1 ID : **4410094518986**
Option 2 ID : **4410094518987**
Option 3 ID : **4410094518985**
Option 4 ID : **4410094518984**
Status : **Answered**
Chosen Option : **B**

Q.33 Seven boxes, A, B, C, D, E, F and G, are kept one over the other but not necessarily in the same order. G is kept second from the bottom. Only three boxes are kept between G and C. D is kept at one of the positions below G. Only E is kept between C and F. B is kept at one of the positions above C. How many boxes are kept between E and G?

Ans ✗ A. 1

✗ B. 3

✗ C. 4

✓ D. 2

Question ID : **4410091146486**
Option 1 ID : **4410094520900**
Option 2 ID : **4410094520902**
Option 3 ID : **4410094520903**
Option 4 ID : **4410094520901**
Status : **Answered**
Chosen Option : **B**

Q.34 In a certain code language,
    'hide the cat' is coded as 'je nw cu',
    'bell the cat' is coded as 'nw gi je' and
    'cat bell hide' is coded as 'gi cu nw'.

    What does the code 'cu' stand for?889

Ans ✗ A. the

    ✓ B. hide

    ✗ C. bell

    ✗ D. cat

Question ID : **4410091145684**
Option 1 ID : **4410094517692**
Option 2 ID : **4410094517695**
Option 3 ID : **4410094517694**
Option 4 ID : **4410094517693**
Status : **Answered**
Chosen Option : **D**

Section : **Domain Knowledge**

Q.1 A Venturi meter operates based on which fundamental principle of fluid flow?

Ans ✗ A. Continuity equation

    ✓ B. Bernoulli's principle

    ✗ C. Fourier's law

    ✗ D. Momentum conservation

Question ID : **441009576415**
Option 1 ID : **4410092260782**
Option 2 ID : **4410092260784**
Option 3 ID : **4410092260785**
Option 4 ID : **4410092260783**
Status : **Answered**
Chosen Option : **B**

Q.2 The time value of money principle states that:

Ans ✗ A. all cash flows have equal value regardless of time

    ✗ B. inflation does not affect money's value

    ✗ C. money has no value in the future

    ✓ D. a rupee today is worth more than a rupee in the future

Question ID : **441009750041**
Option 1 ID : **4410092954040**
Option 2 ID : **4410092954041**
Option 3 ID : **4410092954038**
Option 4 ID : **4410092954039**
Status : **Answered**
Chosen Option : **B**

Q.3 Which of the following is NOT a fundamental SI unit?

Ans ✗ A. Metre (m)

✓ B. Litre (L)

✗ C. Kelvin (K)

✗ D. Mole (mol)

Question ID : **441009512390**
Option 1 ID : **4410092004710**
Option 2 ID : **4410092004713**
Option 3 ID : **4410092004711**
Option 4 ID : **4410092004712**
Status : **Answered**
Chosen Option : **B**

Q.4 What is the composition of Type I- Regular Portland Cement?

Ans ✗ A. C_3S (20 – 30%) , Ca_2S (10 – 60%), Ca_3A (2-13 %)

✗ B. C_3S (5 – 10%) , Ca_2S (10 – 90%), Ca_3A (0-5 %)

✓ C. C_3S (40 – 60%) , Ca_2S (10 – 30%), Ca_3A (7-13 %)

✗ D. C_3S (10 – 20%) , Ca_2S (70 – 80%), Ca_3A (0-13 %)

Question ID : **441009339775**
Option 1 ID : **4410091325135**
Option 2 ID : **4410091325136**
Option 3 ID : **4410091325134**
Option 4 ID : **4410091325137**
Status : **Answered**
Chosen Option : **B**

Q.5 A Venturi meter is used to measure fluid flow in a pipe. It works based on the principle that as fluid passes through the throat:

Ans ✗ A. both velocity and pressure decrease

✓ B. the fluid velocity increases, and its pressure decreases

✗ C. both velocity and pressure increase

✗ D. the fluid velocity decreases, and its pressure increases

Question ID : **441009328344**
Option 1 ID : **4410091279849**
Option 2 ID : **4410091279847**
Option 3 ID : **4410091279848**
Option 4 ID : **4410091279846**
Status : **Answered**
Chosen Option : **D**

Q.6 Which of the following mass transfer theories proposes that mass transfer occurs by a series of random, short-duration surface renewals, with fresh fluid elements from the bulk replacing those at the interface?

Ans ✗ A. Film theory

✗ B. Penetration theory

✓ C. Surface renewal theory

✗ D. Boundary layer theory

Question ID : **441009332364**
Option 1 ID : **4410091295497**
Option 2 ID : **4410091295498**
Option 3 ID : **4410091295499**
Option 4 ID : **4410091295500**
Status : **Answered**
Chosen Option : **B**

Q.7 **A chemical reactor operating under conditions where no heat is exchanged with the surroundings is referred to as which reactor?**

Ans ✗ A. Isobaric

✓ B. Adiabatic

✗ C. Isothermal

✗ D. Isochoric

Question ID : **441009334512**
Option 1 ID : **4410091304007**
Option 2 ID : **4410091304008**
Option 3 ID : **4410091304006**
Option 4 ID : **4410091304009**
Status : **Answered**
Chosen Option : **C**

Q.8 **In the context of flow reactors, what does 'space-time (τ)' represent?**

Ans ✗ A. Actual residence time of fluid

✓ B. Inverse of space-velocity

✗ C. Catalyst weight per flow rate

✗ D. Reactor length per unit velocity

Question ID : **441009334235**
Option 1 ID : **4410091302869**
Option 2 ID : **4410091302870**
Option 3 ID : **4410091302872**
Option 4 ID : **4410091302871**
Status : **Answered**
Chosen Option : **A**

Q.9 **Which of the following laws govern Penetration Theory in mass transfer?**

Ans ✗ A. Boundary Layer Theory

✓ B. Fick's Second Law

✗ C. Film Theory

✗ D. Fick's First Law

Question ID : **441009311472**
Option 1 ID : **4410091212306**
Option 2 ID : **4410091212305**
Option 3 ID : **4410091212307**
Option 4 ID : **4410091212304**
Status : **Answered**
Chosen Option : **B**

Q.10 **Which factor does NOT significantly affect the rate of leaching?**

Ans ✗ A. Temperature of the solvent

✓ B. Colour of the solid

✗ C. Particle size of the solid

✗ D. Solvent flow rate

Question ID : **441009749827**
Option 1 ID : **4410092953171**
Option 2 ID : **4410092953173**
Option 3 ID : **4410092953170**
Option 4 ID : **4410092953172**
Status : **Answered**
Chosen Option : **B**

Q.11 What is the fundamental principle upon which the separation process of distillation is based?

Ans ✓ A. Volatility difference

✗ B. Density variation

✗ C. Adsorption capacity

✗ D. Freezing point range

Question ID : **441009334117**
Option 1 ID : **4410091302408**
Option 2 ID : **4410091302405**
Option 3 ID : **4410091302407**
Option 4 ID : **4410091302406**
Status : **Answered**
Chosen Option : **A**

Q.12 Which material typically has the highest thermal conductivity at room temperature?

Ans ✗ A. Concrete

✗ B. Water

✗ C. Air

✓ D. Copper

Question ID : **441009589777**
Option 1 ID : **4410092314225**
Option 2 ID : **4410092314222**
Option 3 ID : **4410092314224**
Option 4 ID : **4410092314223**
Status : **Answered**
Chosen Option : **A**

Q.13 The unit of heat flux is _____.

Ans ✗ A. W

✗ B. J/s

✓ C. W/m^2

✗ D. $kg.s/m^2$

Question ID : **441009311692**
Option 1 ID : **4410091213186**
Option 2 ID : **4410091213189**
Option 3 ID : **4410091213187**
Option 4 ID : **4410091213188**
Status : **Answered**
Chosen Option : **D**

Q.14 In a distillation column, the purpose of reflux is to:

Ans ✓ A. improve separation efficiency by returning some condensed vapour back to the column

✗ B. remove impurities from the bottom product

✗ C. increase vapour velocity

✗ D. provide heat to the column

Question ID : **441009749796**
Option 1 ID : **4410092953048**
Option 2 ID : **4410092953046**
Option 3 ID : **4410092953049**
Option 4 ID : **4410092953047**
Status : **Answered**
Chosen Option : **A**

Q.15 Azeotropes are _____.

Ans ✗ A. constant pressure mixtures

✓ B. constant boiling mixtures

✗ C. mixtures of solids and liquids

✗ D. mixtures of solids only

Question ID : **441009311674**
Option 1 ID : **4410091213116**
Option 2 ID : **4410091213115**
Option 3 ID : **4410091213118**
Option 4 ID : **4410091213117**
Status : **Answered**
Chosen Option : **B**

Q.16 Gibbs' Phase Rule is expressed as F = C − P + 2. In this equation, what does 'P' represent?

Ans ✗ A. Partial pressure

✗ B. Pressure

✗ C. Product quantity

✓ D. Number of phases

Question ID : **441009339519**
Option 1 ID : **4410091324129**
Option 2 ID : **4410091324126**
Option 3 ID : **4410091324127**
Option 4 ID : **4410091324128**
Status : **Answered**
Chosen Option : **B**

Q.17 The concept of internal energy is introduced in which law of thermodynamics?

Ans ✗ A. Third law

✓ B. First law

✗ C. Second law

✗ D. Zeroth law

Question ID : **441009328181**
Option 1 ID : **4410091279194**
Option 2 ID : **4410091279191**
Option 3 ID : **4410091279193**
Option 4 ID : **4410091279192**
Status : **Answered**
Chosen Option : **A**

Q.18 A common type of crystalliser that achieves supersaturation primarily by cooling the solution, often with slow agitation to promote crystal growth, is known as a:

Ans ✓ A. cooling crystalliser

✗ B. reaction crystalliser

✗ C. salting-out unit

✗ D. evaporative crystalliser

Question ID : **441009339651**
Option 1 ID : **4410091324648**
Option 2 ID : **4410091324649**
Option 3 ID : **4410091324647**
Option 4 ID : **4410091324646**
Status : **Answered**
Chosen Option : **B**

Q.19 A wet solid material has 10 kg of water and 60 kg of dry solid. How much water must be removed to reduce the moisture content to 5 kg of water per 60 kg of dry solid?

Ans ✗ A. 15 kg

✗ B. 10 kg

✗ C. 6 kg

✓ D. 5 kg

Question ID : **441009339803**
Option 1 ID : **4410091325249**
Option 2 ID : **4410091325247**
Option 3 ID : **4410091325248**
Option 4 ID : **4410091325246**
Status : **Answered**
Chosen Option : **D**

Q.20 In the design and operation of a forced circulation (FC) crystalliser, what is the primary purpose of the external circulation loop and pump?

Ans ✗ A. To filter out mother liquor from crystals

✓ B. To maintain high slurry velocity and reduce fouling

✗ C. To decrease crystal size uniformly

✗ D. To induce supersaturation solely by evaporation

Question ID : **441009339661**
Option 1 ID : **4410091324689**
Option 2 ID : **4410091324688**
Option 3 ID : **4410091324686**
Option 4 ID : **4410091324687**
Status : **Answered**
Chosen Option : **B**

Q.21 The relationship between mass (m), molecular weight (MW), and number of moles (n) is given by:

Ans ✗ A. $n = MW / m$

✗ B. $n = m \times$ Avogadro's number

✓ C. $n = m / MW$

✗ D. $n = m \times MW$

Question ID : **4410095500**
Option 1 ID : **44100921796**
Option 2 ID : **44100921797**
Option 3 ID : **44100921795**
Option 4 ID : **44100921794**
Status : **Answered**
Chosen Option : **C**

Q.22 Which of the following modes of heat transfer takes place in solids?

Ans ✓ A. Conduction

✗ B. Radiation

✗ C. Evaporation

✗ D. Convection

Question ID : **441009330242**
Option 1 ID : **4410091287491**
Option 2 ID : **4410091287492**
Option 3 ID : **4410091287493**
Option 4 ID : **4410091287490**
Status : **Answered**
Chosen Option : **A**

Q.23 Which type of conveyor is best suited for horizontal transport of granular solids over a long distance?

Ans ✗ A. Bucket elevator

✗ B. Pneumatic conveyor

✓ C. Belt conveyor

✗ D. Screw conveyor

Question ID : **441009576878**
Option 1 ID : **4410092262638**
Option 2 ID : **4410092262641**
Option 3 ID : **4410092262639**
Option 4 ID : **4410092262640**
Status : **Answered**
Chosen Option : **C**

Q.24 The fundamental accounting equation that forms the basis of a balance sheet is:

Ans ✗ A. Liabilities = Assets + Equity

✗ B. Revenue − Costs = Net Income

✗ C. Assets = Profits − Expenses

✓ D. Assets = Liabilities + Equity

Question ID : **441009338943**
Option 1 ID : **4410091321783**
Option 2 ID : **4410091321781**
Option 3 ID : **4410091321780**
Option 4 ID : **4410091321782**
Status : **Answered**
Chosen Option : **D**

Q.25 The process by which one or more component(s) of a gas mixture is/are selectively transferred into a liquid solvent is known as:

Ans ✓ A. absorption

✗ B. adsorption

✗ C. distillation

✗ D. stripping

Question ID : **441009332462**
Option 1 ID : **4410091295882**
Option 2 ID : **4410091295880**
Option 3 ID : **4410091295881**
Option 4 ID : **4410091295883**
Status : **Answered**
Chosen Option : **D**

Q.26 How is a jacketed vessel typically represented in chemical engineering drawings?

Ans ✗ A. A vessel symbol with internal coils

✗ B. A rectangle with diagonal hatching

✗ C. A simple circle only

✓ D. A vessel symbol with an additional outer layer or double line indicating the jacket

Question ID : **441009753684**
Option 1 ID : **4410092968724**
Option 2 ID : **4410092968723**
Option 3 ID : **4410092968722**
Option 4 ID : **4410092968721**
Status : **Answered**
Chosen Option : **D**

Q.27 Which of the following is NOT a functional group commonly used in classifying organic compounds?

Ans ✅ A. Nitrate

❌ B. Ketone

❌ C. Ether

❌ D. Alcohol

Question ID : **441009753492**
Option 1 ID : **4410092967935**
Option 2 ID : **4410092967934**
Option 3 ID : **4410092967936**
Option 4 ID : **4410092967933**
Status : **Answered**
Chosen Option : **D**

Q.28 Calculate the heat gained by a process liquid heated from 30°C to 200°C. Given the specific heat of liquid is 2.5 kJ/kg·K, which is flowing at a rate of 100 kg/h.

Ans ❌ A. 40,000 kJ/h

❌ B. 37,500 kJ/h

✅ C. 42,500 kJ/h

❌ D. 25,000 kJ/h

Question ID : **441009311741**
Option 1 ID : **4410091213379**
Option 2 ID : **4410091213381**
Option 3 ID : **4410091213378**
Option 4 ID : **4410091213380**
Status : **Answered**
Chosen Option : **B**

Q.29 Which of the following statements about density is correct?

Ans ✅ A. It is defined as mass per unit volume

❌ B. It depends on viscosity

❌ C. It is the same as specific weight

❌ D. It increases with temperature for all fluids

Question ID : **441009576347**
Option 1 ID : **4410092260511**
Option 2 ID : **4410092260513**
Option 3 ID : **4410092260512**
Option 4 ID : **4410092260510**
Status : **Answered**
Chosen Option : **A**

Q.30 In parallel reactions, which reactor gives the best selectivity for the desired product?

Ans ❌ A. Batch Reactor

✅ B. Plug Flow Reactor

❌ C. Continuous Stirred Tank Reactor

❌ D. Fixed Bed Reactor

Question ID : **441009330153**
Option 1 ID : **4410091287117**
Option 2 ID : **4410091287115**
Option 3 ID : **4410091287114**
Option 4 ID : **4410091287116**
Status : **Answered**
Chosen Option : **B**

Q.31 Which of the following operations use a solvent for removing solute from a solid mixture?

Ans ✗ A. Distillation

✓ B. Leaching

✗ C. Absorption

✗ D. Extraction

Question ID : **441009311593**
Option 1 ID : **4410091212792**
Option 2 ID : **4410091212794**
Option 3 ID : **4410091212793**
Option 4 ID : **4410091212795**
Status : **Answered**
Chosen Option : **C**

Q.32 A gas stream with a mass flow rate of 5 kg/min is cooled from 150°C to 50°C. If the specific heat of the gas is 1.0 kJ/kg·°C, what is the rate of heat removal?

Ans ✗ A. 600 kJ/min

✗ B. 250 kJ/min

✗ C. 100 kJ/min

✓ D. 500 kJ/min

Question ID : **441009576341**
Option 1 ID : **4410092260489**
Option 2 ID : **4410092260487**
Option 3 ID : **4410092260486**
Option 4 ID : **4410092260488**
Status : **Answered**
Chosen Option : **B**

Q.33 The IUPAC name for isobutane is _____.

Ans ✓ A. 2-methylpropane

✗ B. isopentane

✗ C. methylpropane

✗ D. butane

Question ID : **441009330903**
Option 1 ID : **4410091290122**
Option 2 ID : **4410091290124**
Option 3 ID : **4410091290123**
Option 4 ID : **4410091290125**
Status : **Answered**
Chosen Option : **A**

Q.34 Identify the primary driving forces for heat transfer by conduction, convection and radiation, respectively.

Ans ✗ A. Pressure difference, density variation and infrared absorption

✗ B. Entropy change, kinetic energy and Stefan-Boltzmann constant

✓ C. Temperature gradient, fluid motion and electromagnetic waves

✗ D. Molecular collisions, bulk fluid movement and thermal vibration

Question ID : **441009329723**
Option 1 ID : **4410091285328**
Option 2 ID : **4410091285329**
Option 3 ID : **4410091285326**
Option 4 ID : **4410091285327**
Status : **Answered**
Chosen Option : **C**

Q.35 What material is typically used to construct heating coils inside vessels?

Ans ✗ A. Plastic

✓ B. Stainless steel or copper

✗ C. Wood

✗ D. Glass

Question ID : **441009753698**
Option 1 ID : **4410092968777**
Option 2 ID : **4410092968778**
Option 3 ID : **4410092968779**
Option 4 ID : **4410092968780**
Status : **Answered**
Chosen Option : **B**

Q.36 For a system at equilibrium, the rate of forward reaction is _____.

Ans ✗ A. less than the rate of backward reaction

✓ B. equal to the rate of backward reaction

✗ C. greater than the rate of backward reaction

✗ D. zero

Question ID : **441009330837**
Option 1 ID : **4410091289860**
Option 2 ID : **4410091289858**
Option 3 ID : **4410091289859**
Option 4 ID : **4410091289861**
Status : **Answered**
Chosen Option : **A**

Q.37 In an air-standard Otto cycle, which is an idealised cycle for spark-ignition internal combustion engines, the heat addition process occurs at:

Ans ✗ A. constant pressure

✓ B. constant volume

✗ C. constant entropy (isentropic)

✗ D. constant temperature (isothermal)

Question ID : **441009329614**
Option 1 ID : **4410091284894**
Option 2 ID : **4410091284895**
Option 3 ID : **4410091284897**
Option 4 ID : **4410091284896**
Status : **Answered**
Chosen Option : **A**

Q.38 The study of chemical engineering primarily involves the application of physical sciences (like physics and chemistry) and life sciences along with mathematics and economics to:

Ans ✗ A. develop abstract math models

✓ B. convert materials to useful forms

✗ C. synthesise novel compounds only

✗ D. discover new elements mainly

Question ID : **441009339050**
Option 1 ID : **4410091322213**
Option 2 ID : **4410091322215**
Option 3 ID : **4410091322214**
Option 4 ID : **4410091322212**
Status : **Answered**
Chosen Option : **B**

Q.39 Which symbol is used for the thickener in a P&ID diagram?

Ans ✗ A. A cylindrical vessel with an agitator

✗ B. A vertical cylindrical tank with flat bottom

✗ C. A horizontal cylinder with conical bottom

✔ D. A vertical tank with conical bottom

Question ID : **441009311881**
Option 1 ID : **4410091213945**
Option 2 ID : **4410091213944**
Option 3 ID : **4410091213942**
Option 4 ID : **4410091213943**
Status : **Answered**
Chosen Option : **A**

Q.40 Consider a first-order reaction with a half time of 10 minutes. The time required for 75% conversion is _____.

Ans ✗ A. 5 minutes

✔ B. 20 minutes

✗ C. 10 minutes

✗ D. 40 minutes

Question ID : **441009330191**
Option 1 ID : **4410091287287**
Option 2 ID : **4410091287286**
Option 3 ID : **4410091287288**
Option 4 ID : **4410091287289**
Status : **Answered**
Chosen Option : **C**

Q.41 Which of the following best defines absolute humidity?

Ans ✗ A. The temperature at which condensation begins

✔ B. The mass of water vapour per unit volume of air

✗ C. The ratio of the partial pressure of water vapour to total pressure

✗ D. The mass of water vapour per unit mass of dry air

Question ID : **441009512467**
Option 1 ID : **4410092005018**
Option 2 ID : **4410092005017**
Option 3 ID : **4410092005015**
Option 4 ID : **4410092005016**
Status : **Answered**
Chosen Option : **B**

Q.42 The term 'angle of repose' for a pile of granular material primarily gives an indication of the material's:

Ans ✗ A. average size of its particles

✗ B. capacity to conduct heat

✔ C. internal friction or cohesion

✗ D. overall moisture percentage

Question ID : **441009328615**
Option 1 ID : **4410091280918**
Option 2 ID : **4410091280920**
Option 3 ID : **4410091280919**
Option 4 ID : **4410091280921**
Status : **Answered**
Chosen Option : **A**

Q.43 The angle of repose of a particulate solid indicates:

Ans ✅ A. flowability of the material

❌ B. the melting point of particles

❌ C. particle density

❌ D. surface tension of particles

Question ID : **441009576891**
Option 1 ID : **4410092262688**
Option 2 ID : **4410092262686**
Option 3 ID : **4410092262687**
Option 4 ID : **4410092262689**
Status : **Answered**
Chosen Option : **D**

Q.44 When compared to the ideal Carnot cycle, the actual refrigeration cycles are generally _____.

Ans ❌ A. having an efficiency that cannot be determined

❌ B. equally efficient

✅ C. less efficient

❌ D. more efficient

Question ID : **441009330818**
Option 1 ID : **4410091289785**
Option 2 ID : **4410091289784**
Option 3 ID : **4410091289783**
Option 4 ID : **4410091289782**
Status : **Answered**
Chosen Option : **C**

Q.45 Which of the following factors is NOT a correct choice of solvent used in absorption?

Ans ❌ A. Less corrosiveness

✅ B. Highly volatility

❌ C. Non-toxic

❌ D. Low cost

Question ID : **441009311507**
Option 1 ID : **4410091212446**
Option 2 ID : **4410091212444**
Option 3 ID : **4410091212447**
Option 4 ID : **4410091212445**
Status : **Answered**
Chosen Option : **B**

Q.46 Mass Transfer Coefficient (k) is defined based on which flow assumption?

Ans ✅ A. Equal molal flow rate

❌ B. Unequal volumetric flow rate

❌ C. Unequal molal flow rate

❌ D. Equal volumetric flow rate

Question ID : **441009311480**
Option 1 ID : **4410091212336**
Option 2 ID : **4410091212339**
Option 3 ID : **4410091212338**
Option 4 ID : **4410091212337**
Status : **Answered**
Chosen Option : **D**

Q.47 Which statement directly formulates a key aspect of the Second Law of Thermodynamics?

Ans ✅ A. Isolated system entropy tends to increase.

❌ B. Total system energy remains constant always.

❌ C. Ideal gas enthalpy depends on temperature only.

❌ D. Pure substance entropy is zero at 0 K.

Question ID : **441009328833**
Option 1 ID : **4410091281743**
Option 2 ID : **4410091281742**
Option 3 ID : **4410091281744**
Option 4 ID : **4410091281745**
Status : **Answered**
Chosen Option : **A**

Q.48 Which of the following is NOT an example of unit operation?

Ans ❌ A. Drying

❌ B. Distillation

❌ C. Cooling

✅ D. Chemical reaction

Question ID : **441009311600**
Option 1 ID : **4410091212823**
Option 2 ID : **4410091212820**
Option 3 ID : **4410091212821**
Option 4 ID : **4410091212822**
Status : **Answered**
Chosen Option : **D**

Q.49 Which of the following is NOT true about ball mills?

Ans ❌ A. Suitable for wide range of materials

❌ B. Cheap grinding medium

✅ C. Cannot be operated continuously

❌ D. Low installation cost

Question ID : **441009330792**
Option 1 ID : **4410091289687**
Option 2 ID : **4410091289688**
Option 3 ID : **4410091289689**
Option 4 ID : **4410091289686**
Status : **Answered**
Chosen Option : **A**

Q.50 What is meant by steady state diffusion?

Ans ❌ A. Pressure does not change with time

❌ B. Temperature does not change with time

❌ C. Composition does not change with time

✅ D. Concentration does not change with time

Question ID : **441009311462**
Option 1 ID : **4410091212268**
Option 2 ID : **4410091212269**
Option 3 ID : **4410091212270**
Option 4 ID : **4410091212267**
Status : **Answered**
Chosen Option : **A**

Q.51 Which of the following types of cement primarily contains a mixture of calcium aluminates and silicates?

Ans ✅ A. Portland cement

❌ B. High alumina cement

❌ C. Hydraulic lime cement

❌ D. Pozzolana cement

Question ID : **441009311553**
Option 1 ID : **4410091212632**
Option 2 ID : **4410091212635**
Option 3 ID : **4410091212634**
Option 4 ID : **4410091212633**
Status : **Answered**
Chosen Option : **A**

Q.52 Traditional chemical engineering primarily focuses on:

Ans ❌ A. biotechnology and nanotechnology

✅ B. designing and operating large-scale chemical processes based on unit operations and processes

❌ C. software development

❌ D. artificial intelligence and machine learning

Question ID : **441009750157**
Option 1 ID : **4410092954497**
Option 2 ID : **4410092954498**
Option 3 ID : **4410092954500**
Option 4 ID : **4410092954499**
Status : **Answered**
Chosen Option : **B**

Q.53 The reaction quotient Q for a reaction in equilibrium is _____.

Ans ✅ A. equal to equilibrium constant

❌ B. equal to zero

❌ C. equal to one

❌ D. equal to rate constant

Question ID : **441009329975**
Option 1 ID : **4410091286361**
Option 2 ID : **4410091286359**
Option 3 ID : **4410091286358**
Option 4 ID : **4410091286360**
Status : **Answered**
Chosen Option : **D**

Q.54 The key feature of a CSTR is:

Ans ❌ A. operation only in batch mode

✅ B. perfect mixing, resulting in uniform concentration throughout the reactor

❌ C. it can only handle gas-phase reactions

❌ D. no mixing and plug flow behaviour

Question ID : **441009749899**
Option 1 ID : **4410092953464**
Option 2 ID : **4410092953463**
Option 3 ID : **4410092953465**
Option 4 ID : **4410092953462**
Status : **Answered**
Chosen Option : **B**

Q.55 For a first-order, irreversible liquid-phase reaction A → B occurring in an ideal Continuous Stirred Tank Reactor (CSTR/MFR) at steady state, the design equation relating space-time (τ), initial concentration (C_{A0}), exit concentration (C_A), and rate constant (k) is:

Ans ✗ A. $τ = -\ln(C_A/C_{A0})/k$

✓ B. $τ = (C_{A0} - C_A)/(kC_A)$

✗ C. $τ = (C_{A0} - C_A)/k$

✗ D. $τ = (C_{A0}X_A)/(kC_{A0}(1 - X_A))$

Question ID : **441009334362**
Option 1 ID : **4410091303395**
Option 2 ID : **4410091303394**
Option 3 ID : **4410091303397**
Option 4 ID : **4410091303396**
Status : **Answered**
Chosen Option : **B**

Q.56 What is the Laplace transform of a unit step function, u(t), where u(t) = 0 for t < 0 and u(t) = 1 for t ≥ 0?

Ans ✗ A. 1

✗ B. $1/s^2$

✓ C. $1/s$

✗ D. s

Question ID : **441009334551**
Option 1 ID : **4410091304158**
Option 2 ID : **4410091304160**
Option 3 ID : **4410091304161**
Option 4 ID : **4410091304159**
Status : **Answered**
Chosen Option : **A**

Q.57 The condition in a packed bed where the upward fluid flow suspends the solid particles, causing the bed to behave like a fluid, is called _____.

Ans ✗ A. filtration

✗ B. sedimentation

✓ C. fluidization

✗ D. agitation

Question ID : **441009327526**
Option 1 ID : **4410091276455**
Option 2 ID : **4410091276454**
Option 3 ID : **4410091276456**
Option 4 ID : **4410091276457**
Status : **Answered**
Chosen Option : **B**

Q.58 Which of the following converts mechanical energy into kinetic energy?

Ans ✗ A. Refrigerator

✗ B. Turbine

✗ C. Ejector

✓ D. Nozzle

Question ID : **441009330825**
Option 1 ID : **4410091289810**
Option 2 ID : **4410091289813**
Option 3 ID : **4410091289812**
Option 4 ID : **4410091289811**
Status : **Answered**
Chosen Option : **C**

Q.59 Which type of reaction is most commonly associated with aromatic compounds?

Ans ✗ A. Nucleophilic addition

✗ B. Free radical substitution

✗ C. Radical polymerisation

✓ D. Electrophilic substitution

Question ID : **441009753521**
Option 1 ID : **4410092968045**
Option 2 ID : **4410092968048**
Option 3 ID : **4410092968047**
Option 4 ID : **4410092968046**
Status : **Answered**
Chosen Option : **A**

Q.60 For a first-order system responding to a step input, what percentage of its total change in output is achieved after one time constant (τ)?

Ans ✓ A. 63.2%

✗ B. 100.0%

✗ C. 50.0%

✗ D. 99.3%

Question ID : **441009334623**
Option 1 ID : **4410091304440**
Option 2 ID : **4410091304441**
Option 3 ID : **4410091304438**
Option 4 ID : **4410091304439**
Status : **Answered**
Chosen Option : **B**

Q.61 Which factor is a primary consideration when selecting a suitable location for a new chemical plant?

Ans ✗ A. Local scenic beauty

✗ B. Availability of library

✗ C. Number of local parks

✓ D. Proximity to markets

Question ID : **441009338873**
Option 1 ID : **4410091321488**
Option 2 ID : **4410091321490**
Option 3 ID : **4410091321491**
Option 4 ID : **4410091321489**
Status : **Answered**
Chosen Option : **D**

Q.62 Give the IUPAC name of the compound CH$_3$-CH$_2$-CH$_2$-CH$_3$.

Ans ✗ A. Methane

✗ B. Pentane

✗ C. Hexane

✓ D. Butane

Question ID : **441009311628**
Option 1 ID : **4410091212933**
Option 2 ID : **4410091212931**
Option 3 ID : **4410091212932**
Option 4 ID : **4410091212934**
Status : **Answered**
Chosen Option : **C**

Q.63 Which equipment is used for heat transfer between two liquids without mixing?

Ans ✗ A. Boiler

✗ B. Evaporator

✗ C. Condenser

✓ D. Heat exchanger

Question ID : **441009311447**
Option 1 ID : **4410091212199**
Option 2 ID : **4410091212200**
Option 3 ID : **4410091212202**
Option 4 ID : **4410091212201**
Status : **Answered**
Chosen Option : **D**

Q.64 A linear system whose dynamic behaviour is described by a first-order ordinary differential equation is known as a/an:

Ans ✗ A. second-order system

✗ B. zero-order system

✓ C. first-order system

✗ D. integrating system

Question ID : **441009334561**
Option 1 ID : **4410091304199**
Option 2 ID : **4410091304198**
Option 3 ID : **4410091304200**
Option 4 ID : **4410091304201**
Status : **Answered**
Chosen Option : **C**

Q.65 For a first-order system, the time constant (τ) is the time required for the system's response to reach nearly what percentage of its final value?

Ans ✓ A. 63%

✗ B. 100%

✗ C. 50%

✗ D. 37%

Question ID : **441009343846**
Option 1 ID : **4410091341363**
Option 2 ID : **4410091341365**
Option 3 ID : **4410091341364**
Option 4 ID : **4410091341362**
Status : **Answered**
Chosen Option : **A**

Q.66 Which of the following is NOT a unit of pressure?

Ans ✗ A. atm (atmosphere)

✗ B. Pa (Pascal)

✓ C. Btu (British thermal unit)

✗ D. N/m^2 (Newton per square metre)

Question ID : **441009311686**
Option 1 ID : **4410091213163**
Option 2 ID : **4410091213162**
Option 3 ID : **4410091213165**
Option 4 ID : **4410091213164**
Status : **Answered**
Chosen Option : **C**

Q.67 The equilibrium constant (K) for a chemical reaction is a function of:

Ans ✗ A. pressure only

✓ B. temperature only

✗ C. temperature, pressure, and initial concentrations of reactants

✗ D. temperature and pressure only

Question ID : **441009330949**
Option 1 ID : **4410091290305**
Option 2 ID : **4410091290304**
Option 3 ID : **4410091290302**
Option 4 ID : **4410091290303**
Status : **Answered**
Chosen Option : **D**

Q.68 Which statement correctly distinguishes bulk density from particle density?

Ans ✗ A. Both are equal for all materials

✗ B. Bulk density is independent of particle shape

✓ C. Bulk density includes the volume of voids between particles

✗ D. Particle density is always less than bulk density

Question ID : **441009576869**
Option 1 ID : **4410092262604**
Option 2 ID : **4410092262605**
Option 3 ID : **4410092262602**
Option 4 ID : **4410092262603**
Status : **Answered**
Chosen Option : **D**

Q.69 Which gas is a major component of the exhaust gases from a cement kiln, primarily resulting from the calcination of limestone and the combustion of fuel?

Ans ✓ A. Carbon dioxide (CO_2)

✗ B. Sulphur dioxide (SO_2)

✗ C. Hydrogen sulphide (H_2S)

✗ D. Methane (CH_4)

Question ID : **441009333898**
Option 1 ID : **4410091301538**
Option 2 ID : **4410091301537**
Option 3 ID : **4410091301539**
Option 4 ID : **4410091301540**
Status : **Answered**
Chosen Option : **A**

Q.70 Which of the following are related using the Clapeyron equation?

Ans ✗ A. Internal energy and heat

✗ B. Volume and pressure

✗ C. Work and entropy

✓ D. Enthalpy and temperature during phase change

Question ID : **441009329955**
Option 1 ID : **4410091286269**
Option 2 ID : **4410091286266**
Option 3 ID : **4410091286267**
Option 4 ID : **4410091286268**
Status : **Answered**
Chosen Option : **A**

Q.71 Which of the following best describes a piping isometric drawing?

Ans ✗ A. A 3D model used only for decoration

✓ B. A drawing that represents the 3D layout of pipes in a 2D format with dimensions

✗ C. A schematic showing electrical connections in a plant

✗ D. A graphical chart showing project deadlines

Question ID : **441009750031**
Option 1 ID : **4410092953998**
Option 2 ID : **4410092954000**
Option 3 ID : **4410092953999**
Option 4 ID : **4410092954001**
Status : **Answered**
Chosen Option : **B**

Q.72 Which of the following mechanical forces is primarily used in a ball mill?

Ans ✗ A. Compression

✓ B. Impact and attrition

✗ C. Shearing

✗ D. Cutting

Question ID : **441009576622**
Option 1 ID : **4410092261611**
Option 2 ID : **4410092261612**
Option 3 ID : **4410092261613**
Option 4 ID : **4410092261610**
Status : **Answered**
Chosen Option : **B**

Q.73 Which of the following is a fundamental component or subject area within chemical engineering?

Ans ✗ A. Circuit theory

✗ B. Quantum physics

✗ C. Organic synthesis

✓ D. Fluid mechanics

Question ID : **441009339011**
Option 1 ID : **4410091322063**
Option 2 ID : **4410091322060**
Option 3 ID : **4410091322061**
Option 4 ID : **4410091322062**
Status : **Answered**
Chosen Option : **D**

Q.74 Darcy's law for flow through porous media assumes which of the following flow types?

Ans ✓ A. Laminar

✗ B. Turbulent

✗ C. Compressible

✗ D. Supersonic

Question ID : **441009343810**
Option 1 ID : **4410091341223**
Option 2 ID : **4410091341222**
Option 3 ID : **4410091341224**
Option 4 ID : **4410091341225**
Status : **Answered**
Chosen Option : **B**

Q.75 In process flow diagrams, what is the standard symbol for a spherical storage tank?

Ans ✗ A. A simple rectangle

✓ B. A circle with a horizontal line through the centre

✗ C. A rectangle with diagonal lines

✗ D. A circle with a vertical line through the centre

Question ID : **441009753598**
Option 1 ID : **4410092968373**
Option 2 ID : **4410092968374**
Option 3 ID : **4410092968375**
Option 4 ID : **4410092968376**
Status : **Answered**
Chosen Option : **B**

Q.76 Which of the following common temperature-measuring devices operates based on the principle of the Seebeck effect, where a voltage is generated due to a temperature difference between two dissimilar metallic junctions?

Ans ✓ A. Thermocouple

✗ B. Thermistor

✗ C. Resistance Temperature Detector (RTD)

✗ D. Bimetallic thermometer

Question ID : **441009338863**
Option 1 ID : **4410091321450**
Option 2 ID : **4410091321449**
Option 3 ID : **4410091321448**
Option 4 ID : **4410091321451**
Status : **Answered**
Chosen Option : **A**

Q.77 The primary goal of interpreting batch reactor data.

Ans ✗ A. Measure the pressure inside the reactor

✗ B. Control the temperature of the reactor

✗ C. Determine the reactor volume required for continuous operation

✓ D. Establish the reaction rate expression and kinetic parameters

Question ID : **441009749875**
Option 1 ID : **4410092953364**
Option 2 ID : **4410092953365**
Option 3 ID : **4410092953362**
Option 4 ID : **4410092953363**
Status : **Answered**
Chosen Option : **D**

Q.78 How is a crystallizer usually represented in chemical engineering drawings?

Ans   ✗ A. A circle with small dots inside representing crystals

     ✗ B. A rectangle with diagonal lines indicating solid formation

     ✓ C. A vessel symbol with an agitator symbol inside

     ✗ D. A triangle with arrows pointing inward

Question ID : **441009753656**
Option 1 ID : **4410092968610**
Option 2 ID : **4410092968609**
Option 3 ID : **4410092968611**
Option 4 ID : **4410092968612**
Status : **Answered**
Chosen Option : **B**

Q.79 Newton's second law of motion, which forms the basis for momentum balances, states that the rate of change of momentum of a body is directly proportional to the _____ acting on the body.

Ans   ✓ A. force

     ✗ B. acceleration

     ✗ C. mass

     ✗ D. velocity

Question ID : **441009326918**
Option 1 ID : **4410091274038**
Option 2 ID : **4410091274037**
Option 3 ID : **4410091274039**
Option 4 ID : **4410091274036**
Status : **Answered**
Chosen Option : **A**

Q.80 The lever rule in liquid-liquid equilibrium is used to determine the:

Ans   ✗ A. pressure of vaporization

     ✗ B. solubility limit of solids

     ✗ C. temperature of phase change

     ✓ D. amount (relative proportions) of each liquid phase in equilibrium

Question ID : **441009749810**
Option 1 ID : **4410092953104**
Option 2 ID : **4410092953105**
Option 3 ID : **4410092953102**
Option 4 ID : **4410092953103**
Status : **Answered**
Chosen Option : **D**

Q.81 How is digitalisation expected to impact chemical engineering in the future?

Ans   ✗ A. By slowing down process improvements

     ✗ B. By removing all human decision-making

     ✓ C. Through enhanced process optimisation, data analytics, and smart manufacturing

     ✗ D. By eliminating the need for engineers

Question ID : **441009750169**
Option 1 ID : **4410092954548**
Option 2 ID : **4410092954547**
Option 3 ID : **4410092954546**
Option 4 ID : **4410092954545**
Status : **Answered**
Chosen Option : **C**

Q.82 What is the measure of effectiveness for a refrigeration cycle, defined as the ratio of the heat absorbed at the lower temperature to the net work input known as?

Ans ✅ A. Coefficient of performance

❌ B. Carnot factor

❌ C. Isentropic efficiency

❌ D. Thermal efficiency

Question ID : **441009329668**

Option 1 ID : **4410091285108**

Option 2 ID : **4410091285109**

Option 3 ID : **4410091285107**

Option 4 ID : **4410091285106**

Status : **Answered**

Chosen Option : **B**

Q.83 Newton's Law of Cooling, which defines convective heat transfer, states that the rate of heat transfer between a surface and a moving fluid is proportional to the surface area and the temperature difference between the surface and the fluid. The constant of proportionality in this law is the:

Ans ❌ A. specific heat capacity (c_p)

✅ B. convective heat transfer coefficient (h)

❌ C. emissivity (ϵ)

❌ D. thermal conductivity (k)

Question ID : **441009329778**

Option 1 ID : **4410091285545**

Option 2 ID : **4410091285543**

Option 3 ID : **4410091285544**

Option 4 ID : **4410091285542**

Status : **Answered**

Chosen Option : **C**

Q.84 The manufacturing of paints generally does NOT involve _____.

Ans ❌ A. unit operations

❌ B. usage of pigments

❌ C. usage of heat

✅ D. unit processes

Question ID : **441009339781**

Option 1 ID : **4410091325158**

Option 2 ID : **4410091325161**

Option 3 ID : **4410091325160**

Option 4 ID : **4410091325159**

Status : **Answered**

Chosen Option : **B**

Q.85 Which property of the porous solid determines how easily fluid can flow through it?

Ans   ✔ A. Permeability

✘ B. Porosity

✘ C. Compressibility

✘ D. Density

Question ID : **441009576407**
Option 1 ID : **4410092260752**
Option 2 ID : **4410092260751**
Option 3 ID : **4410092260753**
Option 4 ID : **4410092260750**
Status : **Answered**
Chosen Option : **A**