

**HRRL
Jr Executive
Previous Year Paper
(Chemical)
15 Apr, 2025 Shift 1**

Test

Prime

By Adda247

ALL EXAMS, ONE SUBSCRIPTION



Test. Analyze. Improve. Repeat.



Don't just *prepare*. *Perform*.

Test Prime — built only for mock tests.



1,50,000+

Mock Tests



25,000+

Previous Year Papers



800+

Exam Covered



500% Refund

on Selection



5 lakh+

Free Quizzes



Daily

Free PDFs



Job Alerts

Stay Updated

- Multilingual
- Detailed Solution
- Strong and Weak Areas



**All India
Rankings**

Compete with lakhs.
Rank. Improve. Repeat.



Adda247 test prime

Rating ▾

Editors' choice

New



Adda247 Test Prime

Adda Education • Education

📖 Installed



DOWNLOAD THE APP





HPCL RAJASTHAN REFINERY LIMITED
Joint Venture between Hindustan Petroleum Corporation Limited (HPCL)
and Government of Rajasthan.
Site Office - Village Sajiyali Roopji Kanthwada & Sambhara,
Tehsil - Pachpadra, Dist - Balotra, Rajasthan, India - 344032
Reg. Office : Tel Bhavan, Sahkar Marg, Lal Kothi Vistar, Jyoti Nagar,
Jaipur, Rajasthan, India 302005
CIN No.U23201RJ2013GOI043865

Participant ID	
Participant Name	
Test Center Name	
Test Date	15/04/2025
Test Time	9:00 AM - 11:00 AM
Subject	Junior Executive (Chemical)

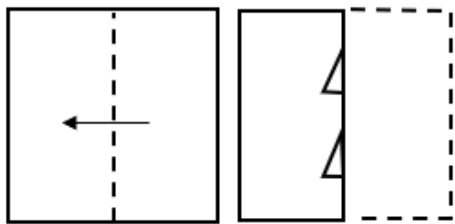
Section : Intellectual Potential Test

Q.1 Udit starts from Point A and drives 5 km towards the south. He then takes a right turn, drives 7 km, turns right and drives 8 km. He then takes a right turn and drives 9 km. He takes a final right turn, drives 3 km and stops at Point P. How far (shortest distance) and towards which direction should he drive in order to reach Point A again? (All turns are 90 degrees turns only unless specified.)

- Ans ☒ 1. 2 km to the west
- ☐ 2. 3 km to the east
- ☐ 3. 1 km to the west
- ☐ 4. 4 km to the east

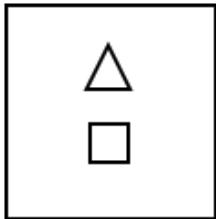
Question ID : 44100952524
Option 1 ID : 441009209185
Option 2 ID : 441009209186
Option 3 ID : 441009209184
Option 4 ID : 441009209187
Status : Answered
Chosen Option : 1

Q.2 A paper is folded and cut as shown below. How will it appear when unfolded?

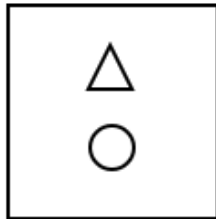


Ans

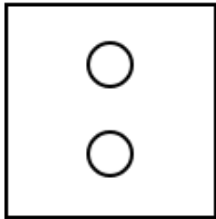
✗ 1.



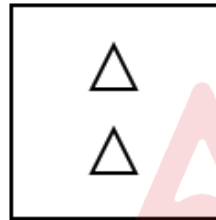
✗ 2.



✗ 3.



✓ 4.



Question ID : 44100953315
Option 1 ID : 441009227826
Option 2 ID : 441009227825
Option 3 ID : 441009227824
Option 4 ID : 441009227823
Status : Answered
Chosen Option : 4

Q.3 ROYU is related to XUEA in a certain way based on the English alphabetical order. In the same way, PMWS is related to VSCY. To which of the following options is HEOK related, following the same logic?

- Ans
- ☒ 1. NQIO
 - ☒ 2. NQWE
 - ☒ 3. NIOP
 - ☒ 4. NKUQ

Question ID : 44100952612
Option 1 ID : 441009209529
Option 2 ID : 441009209531
Option 3 ID : 441009209530
Option 4 ID : 441009209528
Status : Answered
Chosen Option : 4

Q.4 In this question, a statement is given followed by two conclusions numbered I and II. You have to assume everything in the statement to be true and decide which of them logically follow(s) beyond a reasonable doubt from the information given in the statement.

Statements:
Some trimmers are sims.
No sim is a ball.

Conclusions:
(I): Some trimmers are balls.
(II): Some sims are trimmers.

- Ans
- ☒ 1. Neither conclusion (I) nor (II) follows
 - ☒ 2. Only conclusion (I) follows
 - ☒ 3. Only conclusion (II) follows
 - ☒ 4. Both conclusions (I) and (II) follow

Question ID : 44100952539
Option 1 ID : 441009209242
Option 2 ID : 441009209240
Option 3 ID : 441009209241
Option 4 ID : 441009209243
Status : Answered
Chosen Option : 3

Q.5 Refer to the following letter series and answer the question that follows.

(Left) L I G R V C Q R A M V B Z G P N B N N (Right)

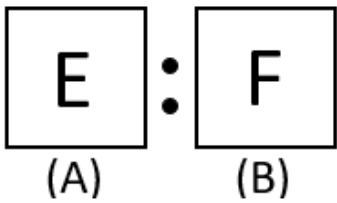
How many such vowels are there that are immediately preceded by a consonant and also immediately followed by a consonant?

- Ans
- ☒ 1. Four
 - ☒ 2. Three
 - ☒ 3. Two
 - ☒ 4. One

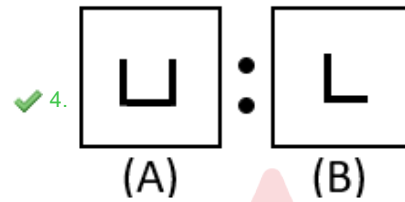
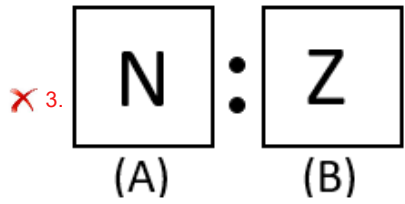
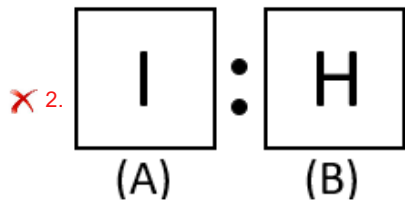
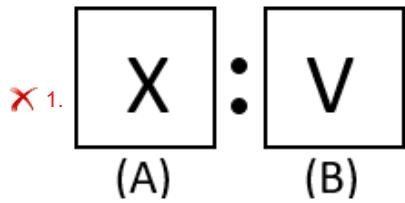
Question ID : 44100952576
Option 1 ID : 441009209387
Option 2 ID : 441009209386
Option 3 ID : 441009209385
Option 4 ID : 441009209384
Status : Answered
Chosen Option : 3



Q.6 Figure A is related to figure B following a certain pattern. Select the pair from the options, in which the two figures are related following the same pattern.



Ans



Question ID : 44100958883
Option 1 ID : 441009243303
Option 2 ID : 441009243305
Option 3 ID : 441009243302
Option 4 ID : 441009243304
Status : Answered
Chosen Option : 2

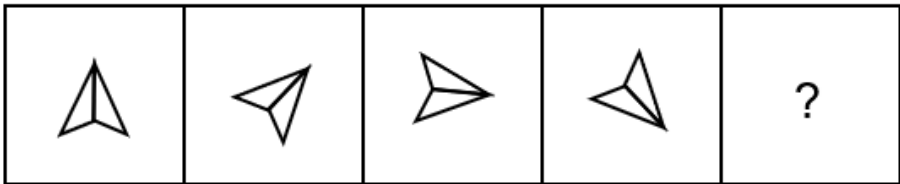
Q.7 Based on the English alphabetical order, three of the following four letter-cluster pairs are alike in a certain way and thus form a group. Which letter-cluster pair DOES NOT belong to that group?
(Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster pair.)

- Ans
- ✗ 1. OX-SX
 - ✗ 2. SB-WB
 - ✓ 3. XD-BD
 - ✗ 4. YH-CH

Question ID : 44100952585
Option 1 ID : 441009209423
Option 2 ID : 441009209422
Option 3 ID : 441009209421
Option 4 ID : 441009209420
Status : Marked For Review
Chosen Option : 1



Q.8 Identify the figure from the given options, which when put in place of the question mark (?) will logically complete the series?



Ans

✗ 1.



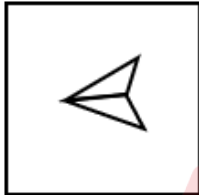
✓ 2.



✗ 3.

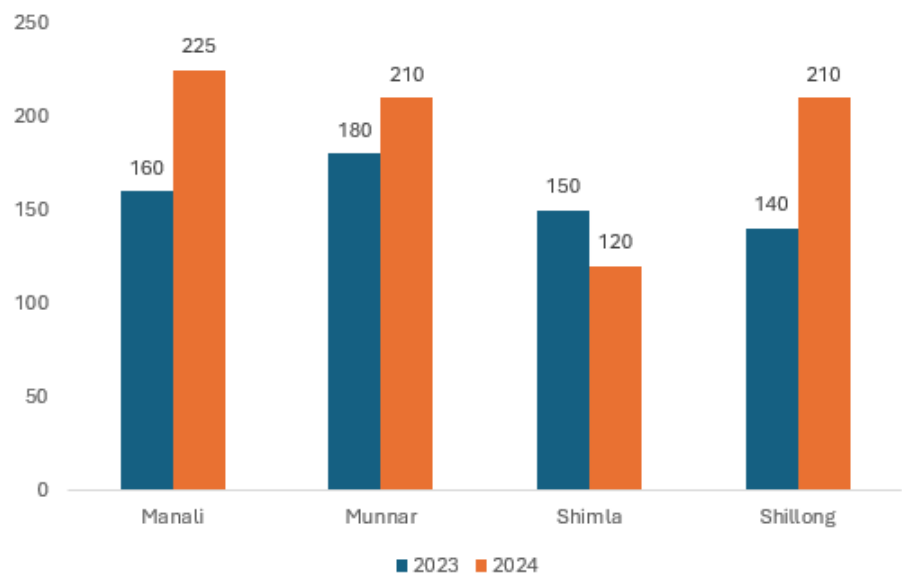


✗ 4.



Question ID : 44100957336
Option 1 ID : 441009228549
Option 2 ID : 441009228551
Option 3 ID : 441009228550
Option 4 ID : 441009228552
Status : Answered
Chosen Option : 2

Q.1 The given bar graph shows the number of people who visited four different hill stations in two different years. Study the bar graph and answer the question that follows.



What is the ratio of the total number of people who visited Munnar and Shimla together in 2024 to the total number of people who visited Shillong and Manali together in 2023?

- Ans
- ☒ 1. 9 : 10
 - ☒ 2. 7 : 10
 - ☒ 3. 11 : 10
 - ☒ 4. 11 : 13

Question ID : 44100970873
Option 1 ID : 441009282106
Option 2 ID : 441009282105
Option 3 ID : 441009282104
Option 4 ID : 441009282103
Status : Answered
Chosen Option : 3

Q.2 K, L, M, N, A, B and C are sitting around a circular table facing the centre of the table. Only two people sit between B and N when counted from the left of N. C sits third to the left of A. K sits to the immediate right of A. K sits second to the left of B. M is not an immediate neighbour of C. Who sits third to the right of L?

- Ans
- ☒ 1. K
 - ☒ 2. A
 - ☒ 3. C
 - ☒ 4. N

Question ID : 44100952549
Option 1 ID : 441009209280
Option 2 ID : 441009209282
Option 3 ID : 441009209283
Option 4 ID : 441009209281
Status : Answered
Chosen Option : 1

Q.3 In a certain code language,
A + B means 'A is the daughter of B',
A @ B means 'A is the brother of B',
A # B means 'A is the wife of B',
A ÷ B means 'A is the father of B'.

Based on the above, how is A related to U if 'A + F # H @ K ÷ U'?

- Ans ☒ 1. Father's brother's daughter
- ☐ 2. Father's brother's wife
- ☐ 3. Brother's daughter
- ☐ 4. Mother's brother's daughter

Question ID : 44100952560
Option 1 ID : 441009209324
Option 2 ID : 441009209325
Option 3 ID : 441009209327
Option 4 ID : 441009209326
Status : Answered
Chosen Option : 1

Q.4 Based on the English alphabetical order, three of the following four letter-clusters are alike in a certain way and thus form a group. Which letter-cluster 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 ☒ 1. IOU
- ☐ 2. NGZ
- ☐ 3. GZS
- ☐ 4. MFY

Question ID : 44100952591
Option 1 ID : 441009209445
Option 2 ID : 441009209446
Option 3 ID : 441009209447
Option 4 ID : 441009209444
Status : Answered
Chosen Option : 1

Q.5 Which of the following letter-number clusters will replace the question mark (?) in the given series to make it logically complete?

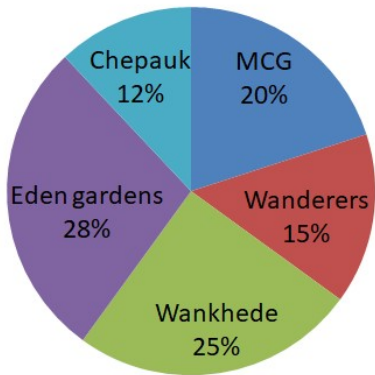
MON99, RTS96, WYX93, BDC90, ?

- Ans ☐ 1. HIH87
- ☒ 2. GIH87
- ☐ 3. GII87
- ☐ 4. GOH87

Question ID : 44100952597
Option 1 ID : 441009209469
Option 2 ID : 441009209468
Option 3 ID : 441009209470
Option 4 ID : 441009209471
Status : Answered
Chosen Option : 2

Q.6 The pie chart given below shows the number of cricket matches played by team India at five different cricket stadiums around the world. The ratio of ODI and T20 matches played by team India at Eden Gardens is 4 : 3. Study the pie chart and answer the question that follows.

Total number of matches
played by team india= 300

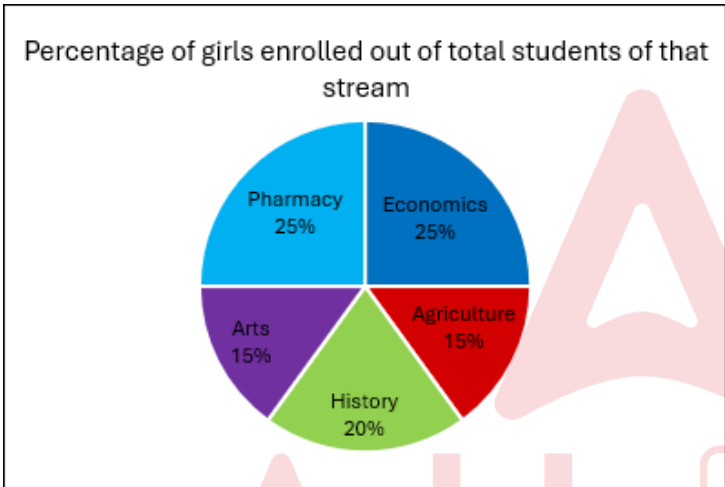
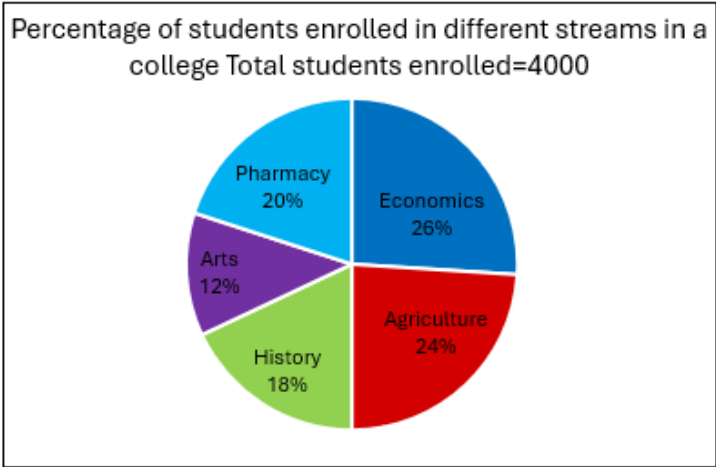


Find the number of ODI matches played by team India at Eden Gardens.

- Ans ☒ 1. 36
☒ 2. 42
☒ 3. 60
☒ 4. 48

Question ID : 44100970899
Option 1 ID : 441009282189
Option 2 ID : 441009282190
Option 3 ID : 441009282188
Option 4 ID : 441009282187
Status : Answered
Chosen Option : 4

Q.7 The two pie charts given below provide information on student enrollment across various graduation streams. Pie Chart 1 represents the total number of students enrolled in different streams, while Pie Chart 2 depicts the number of girls enrolled out of total students of that stream. The total number of enrolled students is 4,000. Study the pie charts and answer the question that follows.



Pie chart-1 Pie chart-2

The numbers of girls enrolled in Arts and Agriculture together is what percentage of the number of boys enrolled in History and Pharmacy together (rounded off to two decimal places)?

- Ans ☒ 1. 18.79%
☒ 2. 18.37%
☒ 3. 18.03%
☒ 4. 18.91%

Question ID : 44100972333
Option 1 ID : 441009287677
Option 2 ID : 441009287678
Option 3 ID : 441009287679
Option 4 ID : 441009287680
Status : Not Answered
Chosen Option : --

Q.8 The given table shows the percentage of marks obtained by five students in five different subjects.

Subjects→ (Maximum Marks) Students ↓	Agriculture (120)	Economics (150)	History (75)	Statistics (80)	Hindi (120)
A	65	72	65	85	88
B	58	68	70	74	78
C	75	63	57	60	85
D	65	56	61	77	75
E	55	75	70	85	60

What is the difference between the total marks obtained by A in History and Statistics together and the total marks obtained by D in Hindi and Agriculture together?

- Ans  1. 51.25
-  2. 58.25
-  3. 41.45
-  4. 62.25

Question ID : 44100972578
Option 1 ID : 441009288630
Option 2 ID : 441009288629
Option 3 ID : 441009288631
Option 4 ID : 441009288632
Status : Not Answered
Chosen Option : --

Section : Quantitative Aptitude

Q.1 A person covers a certain distance by driving his bike at a speed of 60 km/hr and returns by walking at a speed of 5 km/hr. If the total time taken for the round trip is 13 hours, what is the one-way distance?

- Ans  1. 70 km
-  2. 60 km
-  3. 54 km
-  4. 68 km

Question ID : 44100970819
Option 1 ID : 441009281893
Option 2 ID : 441009281892
Option 3 ID : 441009281894
Option 4 ID : 441009281891
Status : Answered
Chosen Option : 3

Q.2 Simplify the following expression.

$$(6 + \frac{6^2}{36})(\frac{36 \div 3}{3}) + 2 \text{ of } 3$$

Ans ☒ 1. 29

☒ 2. 37

☒ 3. 34

☒ 4. 41

Question ID : 44100970728

Option 1 ID : 441009281526

Option 2 ID : 441009281524

Option 3 ID : 441009281523

Option 4 ID : 441009281525

Status : Answered

Chosen Option : 3

Q.3 If the numbers 7, 10 and 14 are in proportion, what is the fourth proportional?

Ans ☒ 1. 28

☒ 2. 18

☒ 3. 20

☒ 4. 24

Question ID : 44100970786

Option 1 ID : 441009281751

Option 2 ID : 441009281754

Option 3 ID : 441009281752

Option 4 ID : 441009281753

Status : Answered

Chosen Option : 3

Q.4 Ramesh receives an 8% salary increase in the first year, followed by an additional 14% increase in the second year. If his initial salary was ₹25,600, find his salary at the end of the second year.

Ans ☒ 1. ₹31,518.72

☒ 2. ₹31,988.48

☒ 3. ₹31,588.32

☒ 4. ₹31,216.92

Question ID : 44100944777

Option 1 ID : 441009178332

Option 2 ID : 441009178335

Option 3 ID : 441009178333

Option 4 ID : 441009178334

Status : Answered

Chosen Option : 1

Q.5 A chemist has two acid solutions: Solution A contains 30% acid, and Solution B contains 60% acid. How many litres of each solution should the chemist mix to obtain 100 litres of a solution containing 45% acid?

- Ans ☒ 1. 42 litres and 58 litres
- ☒ 2. 30 litres and 70 litres
- ☒ 3. 37 litres and 63 litres
- ☒ 4. 50 litres and 50 litres

Question ID : 44100970672
Option 1 ID : 441009281301
Option 2 ID : 441009281300
Option 3 ID : 441009281302
Option 4 ID : 441009281299
Status : Answered
Chosen Option : 4

Q.6 A shopkeeper allows a discount of 20% on the marked price but still makes a profit of 8% on the cost price. If the cost price is ₹2,500, what is the marked price?

- Ans ☒ 1. ₹3,565
- ☒ 2. ₹3,615
- ☒ 3. ₹3,375
- ☒ 4. ₹3,075

Question ID : 44100970775
Option 1 ID : 441009281709
Option 2 ID : 441009281710
Option 3 ID : 441009281708
Option 4 ID : 441009281707
Status : Answered
Chosen Option : 4

Section : English Language

Q.1 Select the most appropriate option to fill in the blank.

The new radio announcer speaks _____ too fast.

- Ans ☒ 1. more
- ☒ 2. much
- ☒ 3. most
- ☒ 4. many

Question ID : 44100947239
Option 1 ID : 441009188058
Option 2 ID : 441009188056
Option 3 ID : 441009188059
Option 4 ID : 441009188057
Status : Answered
Chosen Option : 3

Q.2 Select the most appropriate proverb that can substitute the underlined segment in the given sentence. If there is no need to substitute it, select 'No substitution required'.

In order to save thousands of lives, we must repair the dam before water seeps in. A scratch in time saves fine.

- Ans
- ☒ 1. A scratch for dime saves fine.
 - ☒ 2. No substitution required
 - ☒ 3. A stitch in time saves nine.
 - ☒ 4. A score in time saves ten.

Question ID : 44100947337
Option 1 ID : 441009188439
Option 2 ID : 441009188442
Option 3 ID : 441009188441
Option 4 ID : 441009188440
Status : Answered
Chosen Option : 3

Q.3 Select the option that can be used as a one-word substitute for the given group of words.

A place where money is coined

- Ans
- ☒ 1. Press
 - ☒ 2. Bank
 - ☒ 3. Treasury
 - ☒ 4. Mint

Question ID : 44100947314
Option 1 ID : 441009188347
Option 2 ID : 441009188350
Option 3 ID : 441009188348
Option 4 ID : 441009188349
Status : Answered
Chosen Option : 3

Q.4 Select the most appropriate ANTONYM of the given word.

Tame

- Ans
- ☒ 1. Dull
 - ☒ 2. Familiar
 - ☒ 3. Savage
 - ☒ 4. Docile

Question ID : 44100947797
Option 1 ID : 441009190262
Option 2 ID : 441009190260
Option 3 ID : 441009190259
Option 4 ID : 441009190261
Status : Answered
Chosen Option : 1

Q.5 Parts of a sentence are given below in jumbled order. Arrange the parts in the correct order to form a meaningful sentence.
P) for small traders because they have to now register for GST
Q) the Goods and Services Tax regime in India
R) has created a lot of problems
S) and also apply for credit refunds in various cases though their turnover is not very much

- Ans ☒ 1. QRPS
☒ 2. RQSP
☒ 3. RPSQ
☒ 4. QSRP

Question ID : 44100947301
Option 1 ID : 441009188287
Option 2 ID : 441009188288
Option 3 ID : 441009188290
Option 4 ID : 441009188289
Status : Answered
Chosen Option : 1

Comprehension:

Read the given passage and answer the questions that follow.

As the rulers of the planet, human beings like to think that it is the large creatures who will emerge victorious in the struggle for survival. However, nature teaches us the opposite. It is often the smallest species which are the toughest and most adaptable. A perfect example is the hummingbird, which is found in the American countries. One species of hummingbird is known as the bee hummingbird, which ranks as the world's smallest and lightest bird and it is barely visible when it is in flight. Hummingbirds are the only birds that can fly backward. They feed mainly on the nectar of flowers, a liquid that is rich in energy. Nectar is an ideal food source, for hummingbirds need an incredible amount of energy to sustain their body metabolism. A hummingbird's wings flap at a rate of about 80 times per second, and its tiny heart beats more than 1000 times per minute. This is why they must consume relatively large quantities of food. In the course of a day, a hummingbird consumes nectar as much as half its body weight. The beauty of Nature is the uniqueness of her creation to adapt in any condition.

SubQuestion No : 6

Q.6 Select the most appropriate ANTONYM of the given word.

Adaptable

- Ans ☒ 1. Adept
☒ 2. Traditional
☒ 3. Dubitable
☒ 4. Fixed

Question ID : 44100948343
Option 1 ID : 441009192575
Option 2 ID : 441009192573
Option 3 ID : 441009192572
Option 4 ID : 441009192574
Status : Answered
Chosen Option : 3

Comprehension:

Read the given passage and answer the questions that follow.

As the rulers of the planet, human beings like to think that it is the large creatures who will emerge victorious in the struggle for survival. However, nature teaches us the opposite. It is often the smallest species which are the toughest and most adaptable. A perfect example is the hummingbird, which is found in the American countries. One species of hummingbird is known as the bee hummingbird, which ranks as the world's smallest and lightest bird and it is barely visible when it is in flight. Hummingbirds are the only birds that can fly backward. They feed mainly on the nectar of flowers, a liquid that is rich in energy. Nectar is an ideal food source, for hummingbirds need an incredible amount of energy to sustain their body metabolism. A hummingbird's wings flap at a rate of about 80 times per second, and its tiny heart beats more than 1000 times per minute. This is why they must consume relatively large quantities of food. In the course of a day, a hummingbird consumes nectar as much as half its body weight. The beauty of Nature is the uniqueness of her creation to adapt in any condition.

SubQuestion No : 7

Q.7 What important lesson has Nature taught us?

Ans  1. With their strong adaptability and natural survival instinct, the smallest creatures are the toughest.

-  2. The large creatures emerge victorious in the struggle for survival
-  3. The largest species survive because they are strong.
-  4. Humans who rule the planet are the most powerful beings on Earth

Question ID : 44100948342

Option 1 ID : 441009192569

Option 2 ID : 441009192571

Option 3 ID : 441009192568

Option 4 ID : 441009192570

Status : Answered

Chosen Option : 1

Comprehension:

Read the given passage and answer the questions that follow.

As the rulers of the planet, human beings like to think that it is the large creatures who will emerge victorious in the struggle for survival. However, nature teaches us the opposite. It is often the smallest species which are the toughest and most adaptable. A perfect example is the hummingbird, which is found in the American countries. One species of hummingbird is known as the bee hummingbird, which ranks as the world's smallest and lightest bird and it is barely visible when it is in flight. Hummingbirds are the only birds that can fly backward. They feed mainly on the nectar of flowers, a liquid that is rich in energy. Nectar is an ideal food source, for hummingbirds need an incredible amount of energy to sustain their body metabolism. A hummingbird's wings flap at a rate of about 80 times per second, and its tiny heart beats more than 1000 times per minute. This is why they must consume relatively large quantities of food. In the course of a day, a hummingbird consumes nectar as much as half its body weight. The beauty of Nature is the uniqueness of her creation to adapt in any condition.

SubQuestion No : 8

Q.8 Select the correct statement about the hummingbird.

- Ans ☒ 1. The hummingbird can consume nectar in a day that is equal to its body weight.
- ☒ 2. The hummingbird is obviously visible when it flies.
- ☒ 3. The hummingbird can cross the oceans while flying.
- ☒ 4. The hummingbird escapes our sight when it is in flight.

Question ID : 44100948341
Option 1 ID : 441009192565
Option 2 ID : 441009192566
Option 3 ID : 441009192564
Option 4 ID : 441009192567
Status : Answered
Chosen Option : 4

Section : Technical Knowledge

Q.1 In nuclear reactors, why is water used as both, a coolant and a moderator?

- Ans ☒ 1. It undergoes radioactive decay to produce energy
- ☒ 2. It absorbs neutrons effectively
- ☒ 3. It prevents corrosion of reactor components
- ☒ 4. It slows down fast-moving neutrons for sustained fission

Question ID : 44100946160
Option 1 ID : 441009183862
Option 2 ID : 441009183859
Option 3 ID : 441009183860
Option 4 ID : 441009183861
Status : Answered
Chosen Option : 4

Q.2 What is the primary characteristic of the dynamic response of a second-order undamped system?

- Ans ☒ 1. Instantaneous response to input
- ☒ 2. Oscillations with constant amplitude
- ☒ 3. No oscillations and a slow response
- ☒ 4. Oscillations with increasing amplitude

Question ID : 44100963890
Option 1 ID : 441009254572
Option 2 ID : 441009254569
Option 3 ID : 441009254571
Option 4 ID : 441009254570
Status : Answered
Chosen Option : 4

Q.3 Which of the following is NOT a type of tray used in distillation columns?

- Ans ☒ 1. Bubble Cap Tray
- ☒ 2. Valve Tray
- ☒ 3. Sieve Tray
- ☒ 4. Spiral Tray

Question ID : 44100963837
Option 1 ID : 441009254361
Option 2 ID : 441009254363
Option 3 ID : 441009254362
Option 4 ID : 441009254364
Status : Answered
Chosen Option : 4

Q.4 What is the primary purpose of hazard identification in chemical process industries?

- Ans ☒ 1. To identify and mitigate potential risks
- ☒ 2. To improve employee productivity
- ☒ 3. To reduce process efficiency
- ☒ 4. To comply with general industry standards

Question ID : 44100952372
Option 1 ID : 441009208586
Option 2 ID : 441009208585
Option 3 ID : 441009208584
Option 4 ID : 441009208587
Status : Answered
Chosen Option : 1

Q.5 A composite wall has three layers with thermal conductivities k_1 , k_2 and k_3 and thicknesses L_1 , L_2 and L_3 . If the system is in a steady-state condition of heat conduction with no heat generation, what is the expression for total thermal resistance (R_{total})?

- Ans
- ☒ 1. $R_{\text{total}} = L_1 k_1 + L_2 k_2 + L_3 k_3$
 - ☒ 2. $R_{\text{total}} = k_1 + k_2 + k_3$
 - ☒ 3. $R_{\text{total}} = L_1/k_1 + L_2/k_2 + L_3/k_3$
 - ☒ 4. $R_{\text{total}} = k_1/L_1 + k_2/L_2 + k_3/L_3$

Question ID : 44100946038

Option 1 ID : 441009183336

Option 2 ID : 441009183335

Option 3 ID : 441009183337

Option 4 ID : 441009183338

Status : Answered

Chosen Option : 3

Q.6 Which of the following is the first step during Job Safety Analysis?

- Ans
- ☒ 1. Break the job into its component parts
 - ☒ 2. Review safe systems of job
 - ☒ 3. Develop control measures to eliminate or reduce the risk of accident
 - ☒ 4. Examine each part of the job

Question ID : 44100939789

Option 1 ID : 441009158688

Option 2 ID : 441009158686

Option 3 ID : 441009158685

Option 4 ID : 441009158687

Status : Answered

Chosen Option : 3

Q.7 A gas mixture contains Hydrogen (H_2), Oxygen (O_2) and Carbon Monoxide (CO) flowing through a pipeline. The molar concentration of Hydrogen is 3 mol/m^3 , Oxygen is 4 mol/m^3 and Carbon Monoxide is 5 mol/m^3 . The corresponding molar velocities are 8 m/s for Hydrogen, 3 m/s for Oxygen and 5 m/s for Carbon Monoxide. Calculate the molar average velocity of the mixture.

- Ans
- ☒ 1. 5.08 m/s
 - ☒ 2. 4.50 m/s
 - ☒ 3. 7.71 m/s
 - ☒ 4. 6.35 m/s

Question ID : 44100947079

Option 1 ID : 441009187431

Option 2 ID : 441009187430

Option 3 ID : 441009187433

Option 4 ID : 441009187432

Status : Answered

Chosen Option : 1

Q.8 The time-weighted average (TWA) for benzene exposure over an 8-hour workday is _____.

- Ans
- ☒ 1. 100 ppm
 - ☒ 2. 5 ppm
 - ☒ 3. 1 ppm
 - ☒ 4. 10 ppm

Question ID : 44100956345
Option 1 ID : 441009224272
Option 2 ID : 441009224270
Option 3 ID : 441009224269
Option 4 ID : 441009224271
Status : Answered
Chosen Option : 3

Q.9 What is the effect on thermal boundary layer thickness when a fluid moves along a heated surface in laminar flow?

- Ans
- ☒ 1. It becomes insignificant at high temperatures.
 - ☒ 2. It increases in the direction of flow.
 - ☒ 3. It gets thinner along the direction of the flow.
 - ☒ 4. It is constant throughout the flow.

Question ID : 44100946045
Option 1 ID : 441009183374
Option 2 ID : 441009183373
Option 3 ID : 441009183371
Option 4 ID : 441009183372
Status : Answered
Chosen Option : 1

Q.10 What is the IUPAC name for Acetylene?

- Ans
- ☒ 1. Ethanol
 - ☒ 2. Ethyne
 - ☒ 3. Ethylene
 - ☒ 4. Ethene

Question ID : 44100956255
Option 1 ID : 441009223920
Option 2 ID : 441009223917
Option 3 ID : 441009223918
Option 4 ID : 441009223919
Status : Answered
Chosen Option : 3

Q.11 What is the primary function of a weir in a tray distillation column?

- Ans ☒ 1. To maintain the liquid level on the tray
- ☒ 2. To enhance mass transfer by breaking bubbles
- ☒ 3. To increase the vapour flow rate
- ☒ 4. To reduce column pressure

Question ID : 44100949084
Option 1 ID : 441009195633
Option 2 ID : 441009195634
Option 3 ID : 441009195632
Option 4 ID : 441009195635
Status : Answered
Chosen Option : 1

Q.12 Why is compressed air dried before being used in pneumatic control systems as instrument air?

- Ans ☒ 1. To prevent condensation in the control mechanism
- ☒ 2. To prevent dust contamination
- ☒ 3. To lower the viscosity of air and improve the efficiency of the control
- ☒ 4. To increase the volume of the air used in the control mechanism

Question ID : 44100947324
Option 1 ID : 441009188388
Option 2 ID : 441009188390
Option 3 ID : 441009188389
Option 4 ID : 441009188387
Status : Answered
Chosen Option : 1

Q.13 Which of the following correctly expresses Newton's Law of Cooling for convective heat transfer?

- Ans ☒ 1. $q = \rho C_p V (T_2 - T_1)$
- ☒ 2. $q = kA (dT/dx)$
- ☒ 3. $q = \sigma A \epsilon (T_s^4 - T_\infty^4)$
- ☒ 4. $q = hA (T_s - T_\infty)$

Question ID : 44100948980
Option 1 ID : 441009195218
Option 2 ID : 441009195216
Option 3 ID : 441009195219
Option 4 ID : 441009195217
Status : Answered
Chosen Option : 4

Q.14 What is the primary function of tray in a tray distillation column?

- Ans ☒ 1. To facilitate vapour-liquid contact
- ☐ 2. To reduce the moisture content of vapour
- ☐ 3. To separate components based on density
- ☐ 4. To provide structural support

Question ID : 44100946195
Option 1 ID : 441009184005
Option 2 ID : 441009184006
Option 3 ID : 441009184003
Option 4 ID : 441009184004
Status : Answered
Chosen Option : 1

Q.15 How does a system with inverse response behave?

- Ans ☒ 1. It moves opposite first.
- ☐ 2. It oscillates randomly.
- ☐ 3. It reaches steady state fast.
- ☐ 4. It reacts instantly.

Question ID : 44100951929
Option 1 ID : 441009206848
Option 2 ID : 441009206850
Option 3 ID : 441009206851
Option 4 ID : 441009206849
Status : Answered
Chosen Option : 2

Q.16 A water tender is primarily used in firefighting to transport _____ to areas where a continuous supply is unavailable.

- Ans ☒ 1. water
- ☐ 2. fire hoses
- ☐ 3. firefighters
- ☐ 4. fire suppression foam

Question ID : 44100952712
Option 1 ID : 441009209930
Option 2 ID : 441009209931
Option 3 ID : 441009209928
Option 4 ID : 441009209929
Status : Answered
Chosen Option : 1

Q.17 Given below are two statements.

Statement A: Fire prevention strategies aim to eliminate or control heat sources, fuel sources, or ignition behaviour, whereas fire protection strategies focus on minimising fire damage once a fire has started.

Statement B: Installing automatic fire sprinklers and fire-resistant building materials are examples of fire prevention measures rather than fire protection strategies.

Select the correct option.

- Ans ☒ 1. Both statements A and B are true.
- ☒ 2. Statement A is false, but Statement B is true.
- ☒ 3. Statement A is true, but Statement B is false.
- ☒ 4. Both statements A and B are false.

Question ID : 44100948693
Option 1 ID : 441009194082
Option 2 ID : 441009194081
Option 3 ID : 441009194080
Option 4 ID : 441009194083
Status : Answered
Chosen Option : 1

Q.18 If the partial pressure of a component A is higher at one point compared to another point in a system, then diffusion is due to _____.

- Ans ☒ 1. voltage gradient
- ☒ 2. difference in average molecular weight
- ☒ 3. pressure gradient
- ☒ 4. temperature gradient

Question ID : 44100958296
Option 1 ID : 441009232071
Option 2 ID : 441009232072
Option 3 ID : 441009232069
Option 4 ID : 441009232070
Status : Answered
Chosen Option : 3

Q.19 Given below are two statements.

Statement A: Synthetic polymers can only be classified as thermosetting polymers.

Statement B: Bakelite and melamine are examples of synthetic thermosetting polymers.

Select the correct option.

- Ans ☒ 1. Both statements A and B are incorrect.
- ☒ 2. Both statements A and B are correct.
- ☒ 3. Statement A is incorrect, but Statement B is correct.
- ☒ 4. Statement A is correct, but Statement B is incorrect.

Question ID : 44100948706
Option 1 ID : 441009194135
Option 2 ID : 441009194132
Option 3 ID : 441009194134
Option 4 ID : 441009194133
Status : Answered
Chosen Option : 3

Q.20 Which of the following involves utilising the results obtained from risk analysis for making decisions?

- Ans ☒ 1. Hazard Evaluation
- ☒ 2. Risk Assessment
- ☒ 3. Risk Identification
- ☒ 4. Risk Analysis

Question ID : 44100946083
Option 1 ID : 441009183530
Option 2 ID : 441009183528
Option 3 ID : 441009183529
Option 4 ID : 441009183527
Status : Answered
Chosen Option : 1

Q.21 Which of the following is NOT a feature of direct fired heaters?

- Ans ☒ 1. Heat transfer occurs through radiation and convection
- ☒ 2. Uses combustion to generate heat
- ☒ 3. Operates without any combustion process
- ☒ 4. Requires a fuel source like natural gas or oil

Question ID : 44100963815
Option 1 ID : 441009254275
Option 2 ID : 441009254273
Option 3 ID : 441009254276
Option 4 ID : 441009254274
Status : Answered
Chosen Option : 3

Q.22 Which of the following is commonly used as an inert gas to prevent explosions?

- Ans ☒ 1. Hydrogen
- ☒ 2. Oxygen
- ☒ 3. Methane
- ☒ 4. Carbon dioxide

Question ID : 44100945675
Option 1 ID : 441009181889
Option 2 ID : 441009181888
Option 3 ID : 441009181890
Option 4 ID : 441009181887
Status : Answered
Chosen Option : 4

Q.23 In a water relay system, _____ are used to transfer water over long distances when the primary water source is too far from the fire scene.

- Ans
- ☒ 1. nozzles
 - ☒ 2. hydrants
 - ☒ 3. pumps
 - ☒ 4. hoses

Question ID : 44100952696
Option 1 ID : 441009209867
Option 2 ID : 441009209866
Option 3 ID : 441009209864
Option 4 ID : 441009209865
Status : Answered
Chosen Option : 2

Q.24 Given below are two statements.

Statement A: Thermoplastics have linear or slightly branched structures, allowing them to soften upon heating and harden upon cooling.
Statement B: Thermoplastics undergo extensive cross-linking during heating, making them infusible and insoluble.

Select the correct option.

- Ans
- ☒ 1. Both statements A and B are incorrect.
 - ☒ 2. Statement A is incorrect, but Statement B is correct.
 - ☒ 3. Both statements A and B are correct.
 - ☒ 4. Statement A is correct, but Statement B is incorrect.

Question ID : 44100948735
Option 1 ID : 441009194251
Option 2 ID : 441009194250
Option 3 ID : 441009194248
Option 4 ID : 441009194249
Status : Answered
Chosen Option : 4

Q.25 Which of the following heat exchangers uses baffle for improving the heat transfer efficiency?

- Ans
- ☒ 1. Air cooled exchanger
 - ☒ 2. Plate and frame heat exchanger
 - ☒ 3. Shell and tube heat exchanger
 - ☒ 4. Scraped surface exchanger

Question ID : 44100946057
Option 1 ID : 441009183421
Option 2 ID : 441009183419
Option 3 ID : 441009183420
Option 4 ID : 441009183422
Status : Answered
Chosen Option : 3

Q.26 The derivative action in a PID controller provides which benefit?

- Ans
- ☒ 1. Increases system offset
 - ☒ 2. Reduces system gain
 - ☒ 3. Predicts future error to improve system stability
 - ☒ 4. Eliminates steady-state error

Question ID : 44100963905
Option 1 ID : 441009254632
Option 2 ID : 441009254630
Option 3 ID : 441009254631
Option 4 ID : 441009254629
Status : Answered
Chosen Option : 3

Q.27 Which factor can increase the possibility of a chemical dust explosion?

- Ans
- ☒ 1. Presence of fine particles between 10 and 50 microns
 - ☒ 2. Proper ventilation
 - ☒ 3. Low environmental temperature
 - ☒ 4. Presence of high moisture content

Question ID : 44100956353
Option 1 ID : 441009224302
Option 2 ID : 441009224304
Option 3 ID : 441009224303
Option 4 ID : 441009224301
Status : Answered
Chosen Option : 1

Q.28 In the context of boilers, what is the purpose of a water tender?

- Ans
- ☒ 1. Controlling the combustion efficiency of the boiler
 - ☒ 2. Ensuring the correct water level and quality
 - ☒ 3. Ensuring the water to steam conversion process
 - ☒ 4. Ensuring the water is at the correct temperature

Question ID : 44100961901
Option 1 ID : 441009246677
Option 2 ID : 441009246674
Option 3 ID : 441009246675
Option 4 ID : 441009246676
Status : Answered
Chosen Option : 2

Q.29 In a multiple effect evaporator, what happens to the boiling point?

- Ans ☒ 1. Fluctuates randomly depending on the feed solution
- ☒ 2. Boiling point increases in every subsequent effect
- ☒ 3. Boiling point decreases in every subsequent effect
- ☒ 4. Boiling point of solution remains constant

Question ID : 44100958270
Option 1 ID : 441009231972
Option 2 ID : 441009231969
Option 3 ID : 441009231970
Option 4 ID : 441009231971
Status : Answered
Chosen Option : 2

Q.30 Which factor primarily affects the internal energy of an ideal gas in a closed system?

- Ans ☒ 1. Temperature
- ☒ 2. Volume
- ☒ 3. Pressure
- ☒ 4. Density

Question ID : 44100952746
Option 1 ID : 441009210066
Option 2 ID : 441009210064
Option 3 ID : 441009210065
Option 4 ID : 441009210067
Status : Answered
Chosen Option : 1

Q.31 The limiting reactant refers to _____.

- Ans ☒ 1. the reactant which has the highest stoichiometric coefficient
- ☒ 2. the reactant which is consumed first
- ☒ 3. the reactant which has the lowest stoichiometric coefficient
- ☒ 4. the reactant which is present in the highest quantity

Question ID : 44100964726
Option 1 ID : 441009257854
Option 2 ID : 441009257853
Option 3 ID : 441009257851
Option 4 ID : 441009257852
Status : Answered
Chosen Option : 2

Q.32 Given below are two statements.

Statement A: The IUPAC name of $\text{CH}\equiv\text{C}-\text{CH}_2-\text{CH}_3$ is but-2-yne.

Statement B: While naming alkynes, the longest chain must include the triple bond, and numbering should start from the end nearest to it.

Select the correct option.

Ans ☒ 1. Statement A is correct, but Statement B is incorrect.

☒ 2. Both Statement A and Statement B are incorrect.

☒ 3. Both Statement A and Statement B are correct.

☒ 4. Statement A is incorrect, but Statement B is correct.

Question ID : 44100948080

Option 1 ID : 441009191450

Option 2 ID : 441009191452

Option 3 ID : 441009191449

Option 4 ID : 441009191451

Status : Answered

Chosen Option : 3

Q.33 Alkanes are sometime referred to as paraffins due to which of the following reasons?

Ans ☒ 1. They exhibit low chemical affinity for other substances.

☒ 2. They exhibit strong affinity for other chemical reagents.

☒ 3. They contain double or triple bonds.

☒ 4. They are highly reactive.

Question ID : 44100956249

Option 1 ID : 441009223895

Option 2 ID : 441009223894

Option 3 ID : 441009223896

Option 4 ID : 441009223893

Status : Answered

Chosen Option : 4

Q.34 Internal energy refers to which of the following?

Ans ☒ 1. The energy required to change from one phase to another

☒ 2. The energy stored in the surroundings of a system

☒ 3. The sum of kinetic and potential energy of all particles in the system

☒ 4. The energy required to break chemical bonds

Question ID : 44100961950

Option 1 ID : 441009246864

Option 2 ID : 441009246862

Option 3 ID : 441009246863

Option 4 ID : 441009246865

Status : Answered

Chosen Option : 3

Q.35 Which of the following measures should be followed while handling hazardous materials in any industry?

Ans ☒ 1. Proper use of Personal Protective Equipment (PPE)

☐ 2. Disposing chemicals in open area

☐ 3. Dumping of hazardous waste in residential area

☐ 4. Ignoring Material Safety Data Sheets (MSDS)

Question ID : 44100946087

Option 1 ID : 441009183543

Option 2 ID : 441009183545

Option 3 ID : 441009183546

Option 4 ID : 441009183544

Status : Answered

Chosen Option : 1

Q.36 Which of the following statements about flammability testing is correct?

Ans ☐ 1. The Smoke Density Chamber test is performed to analyse the thermal expansion properties of polymers

☐ 2. The NFPA 101 test measures the explosive limits of volatile substances.

☐ 3. The Cone Calorimeter test is used to determine the impact strength of materials under high temperature.

☒ 4. The Limiting Oxygen Index (LOI) test determines the minimum oxygen concentration required for combustion.

Question ID : 44100948212

Option 1 ID : 441009192000

Option 2 ID : 441009191999

Option 3 ID : 441009191998

Option 4 ID : 441009191997

Status : Answered

Chosen Option : 4

Q.37 Which of the following is NOT a common tower packing used in packed columns?

Ans ☐ 1. Intalox saddle

☒ 2. Trays

☐ 3. Pall ring

☐ 4. Raschig ring

Question ID : 44100946198

Option 1 ID : 441009184017

Option 2 ID : 441009184018

Option 3 ID : 441009184016

Option 4 ID : 441009184015

Status : Answered

Chosen Option : 2

Q.38 Read the given statements and select the correct option.

Statement A: Enthalpy is a thermodynamic property that represents the total heat content of a system, and it is defined as the sum of internal energy and pressure-volume work.

Statement B: Enthalpy remains constant in all thermodynamic processes regardless of pressure or temperature changes.

- Ans ☒ 1. Both Statements A and B are incorrect.
- ☒ 2. Statement A is incorrect, but Statement B is correct.
- ☒ 3. Statement A is correct, but Statement B is incorrect.
- ☒ 4. Both Statements A and B are correct.

Question ID : 44100952756
Option 1 ID : 441009210105
Option 2 ID : 441009210107
Option 3 ID : 441009210106
Option 4 ID : 441009210104
Status : Answered
Chosen Option : 3

Q.39 A stream of oxygen is heated from 320 K to 400 K at a flow rate of 120 kmol/h. Given the heat capacity equation for oxygen:

$$C_p = 30.250 - 4.800 \times 10^{-3}T + 9.750 \times 10^{-6}T^2 - 3.500 \times 10^{-9}T^3$$

Which of the following integral expressions correctly represents the total heat required for the heating process?

- Ans ☒ 1. $Q = 120 \times \int_{320}^{400} (C_p + T) dT$
- ☒ 2.
- $Q = 120 \times \int_{320}^{400} C_p dT$
- ☒ 3. $Q = 120 \times \int_{320}^{400} (T - C_p) dT$
- ☒ 4. $Q = 120 \times \int_{320}^{400} TC_p dT$

Question ID : 44100947250
Option 1 ID : 441009188099
Option 2 ID : 441009188096
Option 3 ID : 441009188098
Option 4 ID : 441009188097
Status : Answered
Chosen Option : 2

Q.40 Alkanes are also known as _____ hydrocarbons because they contain only _____ bonds between carbon atoms.

- Ans ☐ 1. unsaturated; double
☐ 2. reactive; triple
☒ 3. saturated; single
☐ 4. aromatic; delocalized

Question ID : 44100948058
 Option 1 ID : 441009191354
 Option 2 ID : 441009191356
 Option 3 ID : 441009191353
 Option 4 ID : 441009191355
 Status : Answered
 Chosen Option : 3

Q.41 What happens when air reaches its saturation point?

- Ans ☐ 1. Its temperature rises suddenly.
☒ 2. It cannot hold more moisture.
☐ 3. It loses all its humidity.
☐ 4. Its density decreases significantly.

Question ID : 44100953592
 Option 1 ID : 441009213360
 Option 2 ID : 441009213358
 Option 3 ID : 441009213361
 Option 4 ID : 441009213359
 Status : Answered
 Chosen Option : 2

Q.42 If the minimum controllable flow ($Q_{\min}$) of a valve is 0.02 and the rangeability is 50, what is the maximum flow ($Q_{\max}$)?

- Ans ☐ 1. 0.02
☐ 2. 0.5
☒ 3. 1
☐ 4. 1.5

Question ID : 44100960590
 Option 1 ID : 441009241322
 Option 2 ID : 441009241320
 Option 3 ID : 441009241319
 Option 4 ID : 441009241321
 Status : Answered
 Chosen Option : 3

Q.43 Which of the following is a significant environmental issue resulting from incomplete combustion of fuels?

- Ans ☒ 1. Ozone depletion
☒ 2. Acid rain
☒ 3. Emission of carbon monoxide
☒ 4. Greenhouse gas emissions

Question ID : 44100945692
Option 1 ID : 441009181959
Option 2 ID : 441009181958
Option 3 ID : 441009181960
Option 4 ID : 441009181957
Status : Answered
Chosen Option : 3

Q.44 Which of the given conditions can induce boiling heat transfer in a shell-and-tube heat exchanger with liquid employed as cooling medium?

- Ans ☒ 1. When, in order to prevent phase change, the temperature difference between the hot and cold fluids is minimised
☒ 2. When fluid on the tube side is at boiling point, vapour bubbles are formed and heat transfer gets enhanced
☒ 3. When the thermal conductivity of shell-side fluid is greater than the tube-side fluid
☒ 4. When the heat exchanger operates at pressures significantly greater than the working fluid's critical pressure

Question ID : 44100946053
Option 1 ID : 441009183405
Option 2 ID : 441009183403
Option 3 ID : 441009183404
Option 4 ID : 441009183406
Status : Answered
Chosen Option : 1

Q.45 Which of the following methods is commonly used for the laboratory preparation of ethyne (acetylene) from calcium carbide?

- Ans ☒ 1. Oxidation of ethene with potassium permanganate
☒ 2. Reacting calcium carbide with hydrochloric acid
☒ 3. Hydrolysis of calcium carbide with water
☒ 4. Heating calcium carbide with oxygen

Question ID : 44100948097
Option 1 ID : 441009191528
Option 2 ID : 441009191526
Option 3 ID : 441009191527
Option 4 ID : 441009191525
Status : Answered
Chosen Option : 3

Q.46 Which of the following fluids is generally considered incompressible under normal conditions?

- Ans ☒ 1. Air
☒ 2. Hydrogen gas
☒ 3. Steam
☒ 4. Water

Question ID : 44100947365
Option 1 ID : 441009188554
Option 2 ID : 441009188557
Option 3 ID : 441009188555
Option 4 ID : 441009188556

Status : Answered

Chosen Option : 1

Q.47 Which of the following clean agents has been developed as an alternative to Halon 1301 due to environmental concerns?

- Ans ☒ 1. CO₂
☒ 2. Monoammonium Phosphate
☒ 3. Halotron
☒ 4. Purple-K

Question ID : 44100952629
Option 1 ID : 441009209596
Option 2 ID : 441009209598
Option 3 ID : 441009209597
Option 4 ID : 441009209599

Status : Answered

Chosen Option : 3

Q.48 What is the conversion factor from atm to Pascal (Pa)?

- Ans ☒ 1. 1 atm = 1.013×10^5 Pa
☒ 2. 1 atm = 1.013×10^3 Pa
☒ 3. 1 atm = 1.013×10^4 Pa
☒ 4. 1 atm = 1.013×10^6 Pa

Question ID : 44100964721
Option 1 ID : 441009257833
Option 2 ID : 441009257834
Option 3 ID : 441009257832
Option 4 ID : 441009257831

Status : Answered

Chosen Option : 1

Q.49 Given below are two statements.

Statement A: Reciprocating compressors are best suited for applications requiring high pressure ratios but lower flow rates.

Statement B: Centrifugal compressors are commonly used for applications requiring high flow rates with relatively lower pressure ratios.

Select the correct option.

- Ans ☒ 1. Both statements A and B are false
- ☒ 2. Statement A is false, but Statement B is true
- ☒ 3. Statement A is true, but Statement B is false
- ☒ 4. Both statements A and B are true

Question ID : 44100949036
Option 1 ID : 441009195441
Option 2 ID : 441009195443
Option 3 ID : 441009195442
Option 4 ID : 441009195440
Status : Answered
Chosen Option : 4

Q.50 In a Newtonian fluid, the shear stress is proportional to the _____.

- Ans ☒ 1. density
- ☒ 2. shear rate
- ☒ 3. temperature gradient
- ☒ 4. pressure gradient

Question ID : 44100947364
Option 1 ID : 441009188553
Option 2 ID : 441009188551
Option 3 ID : 441009188552
Option 4 ID : 441009188550
Status : Answered
Chosen Option : 2

Q.51 Relative humidity is expressed:

- Ans ☒ 1. in g/kg
- ☒ 2. in atm
- ☒ 3. as a percentage (%)
- ☒ 4. as a fraction

Question ID : 44100947094
Option 1 ID : 441009187487
Option 2 ID : 441009187488
Option 3 ID : 441009187486
Option 4 ID : 441009187485
Status : Answered
Chosen Option : 3

Q.52 Read the given statements and select the correct option.

Statement A: Standpipe hose systems provide a fixed means for transporting water for firefighting from a reliable water supply to designated areas of a building.

Statement B: Class II standpipe hose systems are designed for use by trained fire department personnel only and are not intended for occupants or building staff.

- Ans ☒ 1. Both Statements A and B are true.
- ☒ 2. Statement A is true, but Statement B is false.
- ☒ 3. Both Statements A and B are false.
- ☒ 4. Statement A is false, but Statement B is true.

Question ID : 44100952636
Option 1 ID : 441009209624
Option 2 ID : 441009209626
Option 3 ID : 441009209625
Option 4 ID : 441009209627
Status : Answered
Chosen Option : 2

Q.53 What is the reason behind the fact that Crosslinked polymers CANNOT be dissolved in solvents?

- Ans ☒ 1. Two-dimensional structure
- ☒ 2. Linear structure
- ☒ 3. Branched structure
- ☒ 4. Network structure

Question ID : 44100945711
Option 1 ID : 441009182036
Option 2 ID : 441009182033
Option 3 ID : 441009182034
Option 4 ID : 441009182035
Status : Answered
Chosen Option : 4

Q.54 Enthalpy (H) is defined as the sum of which two thermodynamic properties?

- Ans ☒ 1. Internal energy and entropy
- ☒ 2. Heat and work
- ☒ 3. Internal energy and pressure-volume work
- ☒ 4. Temperature and entropy

Question ID : 44100961957
Option 1 ID : 441009246891
Option 2 ID : 441009246890
Option 3 ID : 441009246893
Option 4 ID : 441009246892
Status : Answered
Chosen Option : 3

Q.55 Read the given statements and select the correct option.

Statement A: The total pressure of a gas mixture is the sum of the partial pressures of its components, as described by Dalton's Law.

Statement B: The vapour pressure of a liquid decreases with an increase in temperature due to the reduction in intermolecular forces.

- Ans ☒ 1. Both statements A and B are incorrect.
- ☒ 2. Statement A is correct, but Statement B is incorrect.
- ☒ 3. Both statements A and B are correct.
- ☒ 4. Statement A is incorrect, but Statement B is correct.

Question ID : 44100953606
Option 1 ID : 441009213415
Option 2 ID : 441009213416
Option 3 ID : 441009213414
Option 4 ID : 441009213417
Status : Answered
Chosen Option : 3

Q.56 Why is linearisation used in process modeling?

- Ans ☒ 1. To eliminate the need for differential equations
- ☒ 2. To convert steady-state equations into dynamic equations
- ☒ 3. To remove system disturbances
- ☒ 4. To approximate a nonlinear system by a linear model for easier analysis

Question ID : 44100960558
Option 1 ID : 441009241191
Option 2 ID : 441009241193
Option 3 ID : 441009241194
Option 4 ID : 441009241192
Status : Answered
Chosen Option : 4

Q.57 Which of the following processes is NOT employed for treatment of water for special applications?

- Ans ☒ 1. Reverse Osmosis
- ☒ 2. Ion Exchange
- ☒ 3. Filtration
- ☒ 4. Grinding

Question ID : 44100961895
Option 1 ID : 441009246653
Option 2 ID : 441009246651
Option 3 ID : 441009246650
Option 4 ID : 441009246652
Status : Answered
Chosen Option : 4

Q.58 One mole of water corresponds to 18.06 grams of water. This value is based on:

- Ans ☒ 1. the density of water at room temperature
- ☒ 2. the atomic masses of hydrogen and oxygen
- ☒ 3. the molecular volume of water
- ☒ 4. the number of moles of hydrogen atoms in water

Question ID : 44100947144
 Option 1 ID : 441009187675
 Option 2 ID : 441009187673
 Option 3 ID : 441009187674
 Option 4 ID : 441009187676
 Status : Answered
 Chosen Option : 2

Q.59 What is the combination of dry bulb and wet bulb thermometer called?

- Ans ☒ 1. Hygrometer
- ☒ 2. Psychrometer
- ☒ 3. Barometer
- ☒ 4. Thermocouple

Question ID : 44100958324
 Option 1 ID : 441009232183
 Option 2 ID : 441009232182
 Option 3 ID : 441009232181
 Option 4 ID : 441009232184
 Status : Answered
 Chosen Option : 2

Q.60 Which of the following is an example for addition polymerisation?

- Ans ☒ 1. DNA polymerises to RNA
- ☒ 2. Vinyl chloride polymerises to polyvinyl chloride
- ☒ 3. Cellulose polymerises to starch
- ☒ 4. Chitin polymerises to keratin

Question ID : 44100945748
 Option 1 ID : 441009182184
 Option 2 ID : 441009182181
 Option 3 ID : 441009182182
 Option 4 ID : 441009182183
 Status : Answered
 Chosen Option : 2

Q.61 Which of the following steps should be taken immediately in the case of a fire emergency?

- Ans ☒ 1. Follow safety protocols and use the right firefighting equipment
- ☐ 2. Wait for help without any actions
- ☐ 3. Panic and shout for help
- ☐ 4. Throw water and sand on the fire

Question ID : 44100946098
Option 1 ID : 441009183587
Option 2 ID : 441009183589
Option 3 ID : 441009183590
Option 4 ID : 441009183588
Status : Answered
Chosen Option : 1

Q.62 Which of the following best describes the boundary layer in fluid flow?

- Ans ☐ 1. A zone where pressure variation is maximum
- ☐ 2. A layer where fluid velocity remains constant
- ☐ 3. A layer of inviscid flow near a solid surface
- ☒ 4. A region where viscosity effects are significant

Question ID : 44100953564
Option 1 ID : 441009213248
Option 2 ID : 441009213246
Option 3 ID : 441009213249
Option 4 ID : 441009213247
Status : Answered
Chosen Option : 3

Q.63 Which of the following ladders used in firefighting offers more strength in relation to weight?

- Ans ☐ 1. Baby ladder
- ☒ 2. Trussed ladder
- ☐ 3. Roof ladder
- ☐ 4. Solid beam ladder

Question ID : 44100946132
Option 1 ID : 441009183741
Option 2 ID : 441009183740
Option 3 ID : 441009183742
Option 4 ID : 441009183739
Status : Marked For Review
Chosen Option : 3

Q.64 Read the given statements and select the correct option.

Statement A: The kinematic viscosity of a fluid is defined as the ratio of dynamic viscosity to its density.

Statement B: The viscosity of gases increases with temperature, whereas the viscosity of liquids decreases with temperature.

Ans ☒ 1. Statement A is correct, but Statement B is incorrect.

☒ 2. Both Statement A and Statement B are correct.

☒ 3. Statement A is incorrect, but Statement B is correct.

☒ 4. Both Statement A and Statement B are incorrect.

Question ID : 44100953534
Option 1 ID : 441009213127
Option 2 ID : 441009213126
Option 3 ID : 441009213128
Option 4 ID : 441009213129

Status : Answered

Chosen Option : 2

Q.65 Read the given statements and select the correct option.

Statement A: An ideal fluid is incompressible and has zero viscosity.

Statement B: Actual fluids always exhibit some degree of viscosity and compressibility.

Ans ☒ 1. Both Statements A and B are false.

☒ 2. Both Statements A and B are true.

☒ 3. Statement A is true, but Statement B is false.

☒ 4. Statement A is false, but Statement B is true.

Question ID : 44100953543
Option 1 ID : 441009213163
Option 2 ID : 441009213162
Option 3 ID : 441009213164
Option 4 ID : 441009213165

Status : Answered

Chosen Option : 2

Q.66 Which of the following is a characteristic of saturated hydrocarbons?

Ans ☒ 1. They contain only single bonds between carbon atoms.

☒ 2. They have a lower boiling point than unsaturated hydrocarbons.

☒ 3. They contain a benzene ring.

☒ 4. They contain one or more double bonds.

Question ID : 44100947920
Option 1 ID : 441009190758
Option 2 ID : 441009190760
Option 3 ID : 441009190759
Option 4 ID : 441009190757

Status : Answered

Chosen Option : 1

Q.67 Which of the following is NOT a characteristic of an ideal plug flow reactor (PFR)?

- Ans ☒ 1. No back mixing
- ☒ 2. Complete mixing within the reactor
- ☒ 3. Concentration changes along the flow path
- ☒ 4. Uniform residence time for all fluid elements

Question ID : 44100951662

Option 1 ID : 441009205800

Option 2 ID : 441009205802

Option 3 ID : 441009205803

Option 4 ID : 441009205801

Status : Marked For Review

Chosen Option : 1

Q.68 A system undergoes a series of changes from state 1 to state 2 along path A and returns to state 1 along path B. If the surroundings remain unchanged, which of the following statements is correct regarding the change in internal energy (ΔU)?

- Ans ☒ 1. The sum of ΔU along both paths must be zero.
- ☒ 2. ΔU along path A is greater than along path B.
- ☒ 3. ΔU along path B is greater than along path A.
- ☒ 4. The total internal energy change depends on the heat and work interactions along each path.

Question ID : 44100947360

Option 1 ID : 441009188536

Option 2 ID : 441009188534

Option 3 ID : 441009188535

Option 4 ID : 441009188537

Status : Answered

Chosen Option : 4

Q.69 What happens to the absolute value of the offset in a proportional control system as the controller gain (K_c) is increased?

- Ans ☒ 1. The offset becomes zero immediately.
- ☒ 2. The offset increases.
- ☒ 3. The offset remains constant.
- ☒ 4. The offset decreases.

Question ID : 44100963902

Option 1 ID : 441009254620

Option 2 ID : 441009254618

Option 3 ID : 441009254619

Option 4 ID : 441009254617

Status : Answered

Chosen Option : 2

Test

Prime

By Adda247

Previous Year Papers PDF

PRACTICE MORE, SCORE HIGHER!



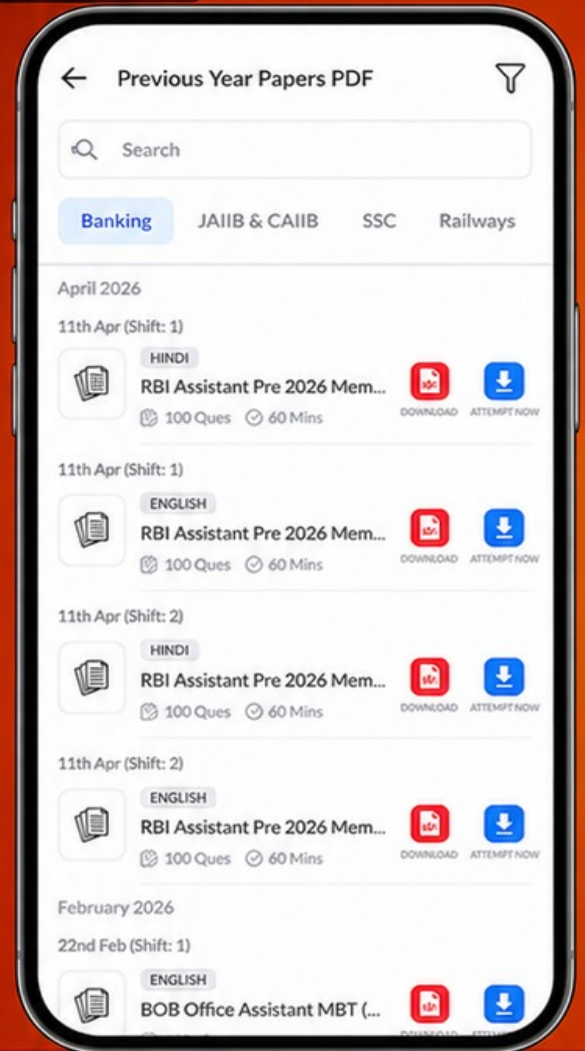
Free
25,000+
PDF's

High-Quality | Exam-Wise | Updated Regularly

ATTEMPT AS
MOCK



Turn PDFs into real exam experience.
Analyze. Improve. Succeed.



Topic-wise &
Exam-wise PDFs



Download &
Study Offline



Attempt as Mock
& Track Score



Smart Analysis
& Performance

AVAILABLE IN



Banking



SSC



Railway



Teaching



UGC



Agriculture



Nursing



Bihar



UP



Punjab



WB



Odisha



TN



AP & Telangana



Haryana



DOWNLOAD THE APP



Q.70 Which of the following is an example of a semi-synthetic polymer?

Ans  1. Cellulose acetate

 2. Nylon-6,6

 3. Polystyrene

 4. Polythene

Question ID : 44100948713

Option 1 ID : 441009194161

Option 2 ID : 441009194162

Option 3 ID : 441009194163

Option 4 ID : 441009194160

Status : Answered

Chosen Option : 1

