IPM Indore 2025 Question Paper

Quantitative Ability SA

Arpita and Nikita, working together, can complete an assigned job in 12 days. If Arpita works initially to complete 40% of the job, and the remaining job is completed by Nikita alone, it takes 24 days to complete the job. The possible number of days that Nikita requires to complete the entire job, working alone, is

Five teams - A, B, C, D, and E - each consisting of 15 members, are going on expeditions to ve different locations.Each team includes members from three different skill sets: biologists, geologists, and explorers. However, the number of members from each skill set varies by team, and each member has only one speciality. The total number of biologists, geologists, and explorers is equal.
The following additional information is available
Every team has at least 2 members from each skill set.
Teams C and D have 6 biologists each, and Team A has 6 geologists.
Every team except A has more biologists than explorers.
The number of explorers in each team is distinct and decreases in the order A, B, C, D, and E. The number of biologists in team E is_____

If a, b, c are three distinct natural numbers, all less than 100, such that $|a-b|+|b-c|=|c-a|$, then the maximum possible value of b is _____

Eight teams participate in a tournament where each team plays against every other team exactly once. In a particular year, one team got suspended after playing 3 matches, due to a disciplinary issue. The organisers decided to proceed, nonetheless, with the remaining matches. The total number of matches that were played in the tournament that year is

If the sum of the rst 21 terms of the sequence: $\ln \frac{a}{b}, \ln \frac{a}{b}, \ln \frac{a}{b^2}, \ln \frac{a}{b^2}, \ldots$ is $\ln a^m$, then the value of $m+n$ is $b \quad b \quad b \quad b \quad b^n$

The English and Math exams were conducted separately for a class of 120 students.The number of students who did not appear for the English exam is twice that of those who did not appear for the Math exam. The number of students who passed the Math exam is twice that of those who appeared but failed the English exam. If the number of students who passed the English exam is twice the number of students who appeared but failed the Math exam, then the number of students who appeared but failed the English exam is _____

If $A = \begin{bmatrix} 2 & n \\ 4 & 1 \end{bmatrix}$ such that $A^3 = 27 \begin{bmatrix} 4 & q \end{bmatrix}$, then $p+q+r$ equals _____

$p \quad r$

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If $\log_3(x^2 - 1)$, $\log_3(2x^2 + 1)$ and $\log_3(6x^2 + 3)$ are the rst three terms of an arithmetic progression, then the sum of the next three terms of the progression is

A circle of radius 13 cm touches the adjacent sides AB and BC of a square ABCD atM and N, respectively. If AB = 18 cm and the circle intersects the other two sides CD and DA at P and Q, respectively, then the area, in sq. cm, of triangle PMD is

Monica, who is 18 years old, is one-third the age of her father. The age at which shewill be half the age of her father is ____

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The number of explorers in each team is distinct and decreases in the order A, B, C, D, and E. The median number of biologists across 5 teams is_____

If m and n are two positive integers such that $7m + 11n = 200$, then the minimum possible value of m + n is

The number of factors of $3^5 \times 5^8 \times 7^2$ that are perfect squares is

If the polynomial $ax^2 + bx + 5$ leaves a remainder 3 when divided by $x - 1$, and a remainder 2 when divided by $x + 1$, then $2b - 4a$ equals

Quantitative Ability MCQ

Given that $1 + \frac{1}{2^2} + \frac{1}{3^2} + \frac{1}{4^2} + \ldots\ldots = \frac{\pi^2}{6}$, the value of $1 + \frac{1}{3^2} + \frac{1}{5^2} + \frac{1}{7^2} + \ldots$ is

A $\frac{\pi^2}{6} - 1$

π

B 6

π^2

C ——

12

π^2

D ——

8

If $y = a + b \log_e x$, which of the following is true?

$y-a$ is proportional to x^b

$y - a$ is proportional to x^b

e^y is proportional to x^b

$\log_e y$ is proportional to x

If $a_1, a_2, \ldots\ldots, a_8$ are the roots of the equation $x^8 + x^7 + \quad + x + 1 = 0$, them the value of $a^{2025} + a^{2025} + \quad + a^{2025}$ is

1

2 8

A 0

B 2

C 8

D 4

Suppose a, b and c are three real numbers such that Max(a, b, c) + Min(a, b, c) = 15, and Median(a, b, c) - Mean(a, b, c) = 2. Then the median of a, b and c is

11

10.5

10

9.5

If $\log_{25} [5 \log_3(1 + \log_3(1 + 2 \log_2 x))] = \frac{1}{2}$ then x is:

4

16

2

8

A natural number n lies between 100 and 400, and the sum of its digits is 10. The probability that n is divisible by 4, is

1

A

4

7
B
27
1
C
3
2
D
9

In triangle ABC, AB = AC = x, $\angle ABC = \theta$ and the circumradius is equal to y. Then $\frac{x}{y}$ equals

$\sin\theta$
$\cos\theta$
$2\cos\theta$
$2\sin\theta$

If $8x^2 - 2kx + k = 0$ is a quadratic equation in x, such that one of its roots is p times the other, and p, k are positive real numbers, then k equals

A $(p + \frac{1}{p})$

B $2(p + \frac{1}{p})$

2 $p + \frac{1}{p}$ $\left(\quad\right)^2$

1 $\left(p + \frac{1}{p}\right)$

Let A(1, 3) and B(5, 1) be two points. If a line with slope m intersects AB at anangle of 45°, then the possible values of m are

A $7, \frac{1}{7}$

B $3, \frac{1}{3}$

C $-3, -\frac{1}{3}$

D $5, -\frac{1}{5}$

Let P(x) be a quadratic polynomial such that $\begin{vmatrix} P(0) & P(1) \\ & P(2) \end{vmatrix} = 0$ Let P(0) = 2 and P(1) + P(2) + P(3) = 14.

Then P(4) equals

A -14

30

-6

16
A circle touches the y-axis at (0, 4) and passes through the point (-2, 0). Then theradius of the circle is

A 4

B 5

C 6

D 7
Consider a triangle with side lengths 4 meters, 6 meters, and 9 meters. A dog runsaround the triangle in such a way that the shortest distance of the dog from thetriangle is exactly 1 meter. The total distance covered (in meters) by the dog in oneround is

A $22 + 2\pi$
B $19 + 2\pi$

22
$22 - 2\pi$
Anindita invests a total of 1 lakh rupees distributed across three schemes, A, B and C, for a period of two years. These schemes offer an interest rate of 10%, 8% and 12% per annum, respectively, each compounded annually. If the initial investment amount in scheme A is 30000 rupees and the total interest earned from all three schemes during the rst year is 10600 rupees, then the total interest earned, in rupees, from all three schemes for the second year is

A 10308

B 11748

C 22348

D 19708
Let $f(x) = a^2x^2 + 2bx + c$ where, $a \neq 0$, b, c are real numbers and x is a real variable then

f(x) has a maximum and a minimum

f(x) has a minimum and no maximum

f(x) has a maximum and no minimum

f(x) has no minimum and no maximum
The area of the triangle, formed by the straight lines y = 0, 12x - 5y = 0, and $3x + 4y = 7$ is

35 A
27
14
9 B
28
9 C

35
54 D

Area of a regular octagon inscribed in a circle of radius 1 unit is:

2 2
2 + 2
9
2 2
D 10

Two swimmers, Ankit and Bipul, start swimming from the opposite ends of aswimming pool at the same time. Ankit can cover the length of the pool once in 10minutes. Bipul can cover the length of the pool once in 15 minutes. They swim backand forth for 80 minutes without stopping. The number of times they meet each other is

A 7

B 6

C 5

D 8

The sum of the rst 5 terms of a geometric progression is the same as the sum of the rst 7 terms of the same progression. If the sum of the rst 9 terms is 24, then the 4th term of the progression is

A -48

B -24

C 24

D 48

The set of all values of x satisfying the inequality $\log_{(x+\frac{1}{x})}[\log_2(\frac{x-1}{x+2})] > 0$ is

A (2, 5)

B (-5, -2)

C $(5, \infty)$

D Null set

Let $S_1 = \{100, 105, 110, 115, ...\}$ and $S_2 = \{100, 95, 90, 85, ...\}$ be two series in arithmetic progression. If a_k and b_k are the k^{th} terms of
S_1 and S_2, respectively, then $\sum_{k=1}^{20} a_k b_k$ equals _.

A 137275

B 138250

C 137225

D 135375

A and B take part in a ri e shooting match. The probability of A hitting the target is 0.4, while the probability of B hitting the target is 0.6. If A has the rst shot, post which both strike alternately, then the probability that A hits the target before B hits it is

1

A

2

10

B

19

2

C

3

9

D

19

Which of the following numbers is divisible by $3^{10} + 2$

A $3^{20} + 4$

B $3^{30} + 2$

C $3^{20} + 8$

$3^{30} + 8$

Let A and B be two nite sets such that $n(A - B)$, $n(A \cap B)$, $n(B - A)$ are in an arithmetic progression. Here n(X) denotes the number of elements in a nite set X. If $n(A \cup B) = 18$, then $n(A) + n(B)$ is _____

24

27

30

36

The number of integers greater than 5000 and divisible by 5 that can be formed withthe digits 1, 3, 5, 7, 8, 9 where no digit is repeated is

A 276

B 180

C 120

D 240

The remainder when $11^{1011} + 1011^{11}$ is divided by 9 is

A 0

B 8

C 9

D 7

Instructions [41 - 45]
The table given below provides the details of monthly sales (in lakhs of rupees) and the value of products returned by the customers (as a percentage of sales) of an e-commerce company for three product categories for the year 2024. Net sales (in lakhs of rupees) is de ned as the difference between sales (in lakhs of rupees) and the value of products returned (in lakhs of rupees).

Month	Sales (in lakhs of rupees)			Value of products returned (as a percentage of Sales)		
	Apparel	Footwear	Electronics	Apparel	Footwear	Electronics
January	262	104	289	13%	7%	2%
February	279	113	387	16%	9%	3%
March	236	121	283	20%	7%	2%
April	258	58	325	16%	8%	1%
May	249	69	359	12%	6%	4%
June	230	111	321	19%	5%	3%
July	244	119	341	17%	9%	4%
August	252	60	336	16%	6%	2%
September	288	118	355	10%	9%	5%
October	222	108	383	15%	8%	2%
November	228	93	282	14%	9%	4%
December	221	86	268	18%	10%	1%

Which month had highest percentage decline in monthly sales as compared to previous month for the Apparel category?

A June

B March

C December

D October

For which categories the value of the products returned (as a percentage of sales) increased for three consecutive months?

Only Electronics

Only Apparel

Both Apparel and Footwear

Only Footwear

By what percentage the net sales forJune increased as compared to May in the Footwear category?

62.58 percent

7.21 percent

18.97 percent

60.87 percent

Among the following four months, for which month the contribution of the Apparel category in the total monthly sales was the highest?

A January

B April

C December

D August

Among the following four months, for which month the value of the Footwear returned (in lakhs of rupees) was the highest?

A September

B July

C June

D March

Verbal Ability

Instructions [46 - 51]

Meta is recalibrating content on its social media platforms as the political tide has turned in Washington, with Mark Zuckerberg announcing last week that his company plans to re its US fact-checkers. Fact-checking evolved in response to allegations of misinformation and is being watered down in response to accusations of censorship. Social media does not have solutions to either. Community review -introduced by Elon Musk at X and planned by Zuckerberg for Facebook and Instagram - is not a signi cant improvement over fact-checking. Having Washington lean on foreign governments over content moderation does not bene t free speech. Yet, that is the nature of the social media beast, designed to amplify bias.

Information and misinformation continue to jostle on social media at the mercy of user discretion. Social media now has enough control over all other forms of media to broaden its reach. It is the connective tissue for mass consumption of entertainment, and alternative platforms are reworking their engagement with social media.Technologies are shaping up to drive this advantage further through synthetic content targeted precisely at its intended audience. Meta's algorithm will now play up politics because it is the avour of the season.

The Achilles' Heel of social media is informed choice which could turn against misinformation. Its move away from content moderation is driven by the need to be more inclusive, yet un ltered content can push users away from social media towards legacy forms that have better moderation systems in place. Lawmakers across the world are unlikely to give social media a free run, even if Donald Trump is working on their case. Protections have already been put in place across jurisdictions over misinformation. These may be di cult to dismantle, even if the Republicans pull US-owned social media companies further to the right.

Media consumption is, in essence, evidence-based judgement that mediums must adapt to. Content moderation, not free speech, is the adaptation mechanism. Musk and Zuckerberg are not exempt.

The writer implies that

uncensored content will always have more appeal than controlled content.

social media's innate strength is the user's inability to fact check.

social media can never be discarded by its users.

older forms of media will regain users because of its controls.

The writer argues that social media

remains unaffected by global debates amongst lawmakers on misinformation.

has become the preferred way to access entertainment.

ourishes because it can publish any material.

is in a di cult position because it cannot adapt to new policies.

The writer’s conclusion is that the information available on social media is linked to

the need for deregulation.

the individual's right to free speech.

the global legal systems' support of free speech.

the policies of the governments in power.

Social media has succeeded in

ignoring technology and arti cial content.

nding alternative means for fact-checking.

becoming independent of other media.

controlling other media that depend on it.

Technologies are enabling social media to

enlarge its sphere of in uence and persuasion.

understand that algorithms cannot control its content.

accept the current trends as emphasised by algorithms.

readjust its interaction with competitors.

The inherent downside associated with social media is that it

does not address the problem of the digital divide.

results in unremitting expansion of freedom of expression.

creates and spreads much innate and acquired prejudice.

reinforces existing objectivity among the users.

Instructions [52 - 57]

According to the French philosopher Jean Baudrillard, commodities available for consumption are not inherently negative things. Baudrillard tried to interpret consumption in modern societies by engaging with the 'cargo myth' prevalent among the indigenous Melanesian people living in the South Paci c. The Melanesians did not know what aeroplanes were. However, they saw that these winged entities descended from the air for white people and appeared to make them happy. They also noted that aeroplanes never descended for the Melanesian people.

The Melanesian natives noted that the white people had placed objects similar to the aeroplane on the ground. They concluded that these objects were attracting the aeroplanes in the air and bringing them to the ground.

Through a magical process, the aeroplanes were bringing plenty to the white people and making them happy.

The Melanesian people concluded that they would need to place objects that simulated the aeroplane on the ground and attract them from the air. Baudrillard believes that the cargo myth holds an important analogy for the ways in which consumers engage with objects of consumption.
According to Baudrillard, the modern consumer "sets in place a whole array of sham objects, of characteristic signs of happiness, and then waits for happiness to alight". For instance, modern consumers believe that they will get happiness if they buy the latest available version of a mobile phone or automobile. However, consumption does not usually lead to happiness. While consumers should ideally be blaming their heightened expectations for their lack of happiness, they blame the commodity instead.
They feel that they should have waited for the next version of a mobile phone or automobile before buying the one they did. The version they bought is somehow inferior and therefore cannot make them happy. Baudrillard argues that consumers have replaced 'real' happiness with 'signs' of happiness. This results in the endless deferment of the arrival of total happiness.
In Baudrillard's words, "in everyday practice, the blessings of consumption are not experienced as resulting from work or from a production process; they are experienced as a miracle". Modern consumers view consumption in the same magical way as the Melanesian people viewed the aeroplanes in the cargo myth. Television commercials also present objects of consumption as miracles. As a result, commodities appear to be distanced from the social processes which lead to their production. In effect, objects of consumption are divorced from the reality which produces them.
How can consumption be made more satisfying?

By banning television commercials that promise real happiness.

By understanding the connection between production and consumption.

By recognising that commodities produce miraculous change.

By rejecting colonialism and all other forms of economic oppression.
Which of the following is an argument made by Baudrillard?

Consumers value signs more than the real.

Television commercials are at the heart of unhappiness experienced by consumers.

Production and consumption are magical processes.

Melanesian people coped with the inequality of colonialism by creating myths.
How does Baudrillard engage with the cargo myth?

He uses it to show that consumption is a blessing.

He uses it as a metaphor to critique modern consumption.

He uses it to describe the suffering of Indigenous people.

He uses it to show that consumers should consume more serious objects.
Why are consumers unhappy with commodities that they have just bought?

Because they have exaggerated expectations of commodities.

Because television commercials do not create enough hype about commodities.

Because the Law of Diminishing Marginal Commodities comes into play.

Because they focus on improved functionality of commodities.
What is Baudrillard's position on total happiness?

It is perpetually delayed.

It comes with patience and waiting.

It prioritises production overconsumption.

It results from ethical consumption.
What is Baudrillard's position on consumption?

It is a utilitarian process.

It is a positive process.

It is an egalitarian process.

It is an irrational process.
Deepak is an unpleasant person, but we all because his sister is a close friend of ours.

put him down

put him aside

put up with him

put along with him
We hope that the government's new policies will a period of economic growth.

usher in

set in

turn up

set forth
When she inherited some jewellery from a distant relative, she had no idea of its worth and decided_.

to get an approval

to get it appreciated

to have it appraised

to have it apprised
There are so many instances of one or more deer crossing the road, or just standing in the middle of the road, or else ; it is like the deer cannot hear the noise of the engines or see the headlights.

jumping under the road

foraging beneath the road

staggering with the road

bounding across the road
Everyone wondered how the travel vlogger could go around the world all through the year and _.

manage his itinerant life style

manage his itinerary life style

manage his iterative life style

manage his itinerary in his life style
Without a doubt, the widespread use of renewable energy is a key solution to climate change. However, it is not a , as efforts in conservation are equally crucial.

dead ringer

silver lining

red herring

silver bullet
The labourers who were red broke into the o ce building and destroyed some ofthe machinery. Rather than nding a solution to their problems, they _____

exacerbated the situation

extended their troubles

exaggerated their hardships

extenuated the circumstance
Among scientists, the discovery of the double helix structure of DNA and the genetic code it incorporates is widely regarded to be one of the most signi cant scienti c discovery of the twentieth century.

regarded for being one of the most signi cant scienti c discoveries

regarded as one of the most signi cant scienti c discoveries

regarded like one of the most signi cant scienti c discovery

regarded being one of the most signi cant scienti c discoveries
Thank goodness, the damage to the car was neglectful.

was negligible

was neglecting

was neglectable

was negligent
Although the new policy aims to increase e ciency, reducing costs, and enhancing employee satisfaction , some employees feel that the changes are too abrupt and poorly communicated.

increase e ciency, reducing the costs and enhanced employee satisfaction

increasing e ciency, reducing of costs, and enhancing of employee satisfaction

increase the e ciency, reduce the costs and enhancing employee satisfaction

increase e ciency, reduce costs, and enhance employee satisfaction

If the President knew that his allies would let him down so suddenly, he would have handled them with the greatest care.

Had the President knowledge that his allies would let him down

Had the President known that his allies would let him down

If the President could know beforehand that his allies would let him down

If the President knew that his allies can let him down

When I had to leave town due to o ce work, I had my brother to give food to my dog twice a day.

had my brother feed my dog

had my brother giving food to my dog

had my brother who fed my dog

had my brother to feed my dog

A report published in Lancet Diabetes and Endocrinology has called for an overhaul of our understanding of obesity. An over-reliance on using Body Mass Index [BMI]as a metric has the peculiar effect of leading to both underdiagnosis and overdiagnosis of the condition _. BMI does not give accurate information about how fat is distributed in an individual's body. It frequently fails to capture the true state of health of an individual. A person's BMI may indicate they are "obese", but their organs and bodily functions may be absolutely normal. Every individual is a unique constellation — not only of genes and other biological variables, but also socio-economic conditions and habits.

Obesity is the end result of multiple factors, and BMI can pinpoint the cause of the problem.

Further, much of the information on diabetes, obesity or BMI available on social media is misleading.

BMI reading can help the doctor to accurately prescribe the appropriate dosage to reduce fat.

This is because BMI does not provide a reliable picture of health, nor any direct measure of fat.

An island in Japan boasts of numerous dairy farms that own nearly one million cows, and supplies 70% of the milk sold in the country. These dairy farms have now begun to use cow manure to produce hydrogen. The methane from cow manure mingles with steam in a high-temperature environment to produce hydrogen, which is used to electrify the local zoo _.

The Indian government too, should replicate this, and use such technology to produce hydrogen

It is a case study of a certain animal that is useful in providing energy for several other animals

This is an exemplary way of creating a sustainable source of energy using innovative technology

This shows how Japan has always used technology to help animals

As globalization held sway over the world, communities, which used to live in relative isolation, sought access to the wider world, and in the process, they parted with their own language and adopted a new lingua franca. The loss of language, however, does not merely mean the loss of a mode of communication or the loss of a few thousand words _. So, when a language dies, a way of
thinking dies with it.

A certain school of thought regrets the demise of local languages but in recent times revival movements have emerged across the world, especially in India

A potentially endangered language can sometimes appear to be thriving, or on the other hand, it can show signs of declining

Languages exist not only for the purposes of practical communication; they convey a linguistic community's entire mindset and its culture

Since evolution and change in languages is a part of history, most of the languages spoken today would be scarcely recognizable from what they were a few thousand or maybe even a few hundred years ago
On the rst day of January 2025, the Indian Meteorological Department [IMD] announced that 2024 was the hottest year on record. A study by the Council on Energy, Environment and Water shows that nearly eight out of ten Indians live in districts that are at risk of either a ood, a cyclone, or a drought. Nearly twenty- three States in India are heatwave-prone _. In the summer of 2024, India recorded
more than 44,000 cases of heatstroke and over 300 heat-related mortalities, as per the bulletin of the Ministry of Health and Family Welfare. Water reservoirs and the energy demand that keeps India powered are impacted too. During a ten-day-long heatwave in Delhi, peak power demand was 16% than the previous year.

According to the Council, more than 20% of the population is not affected by climate change

The record-breaking heat of the summer of 2024 resulted in an unpredictable and delayed monsoon

However, the people of these districts are given su cient compensation for loss of life and property

The increasing heat stress remains a major challenge, affecting public health and economic productivity
Art can be because it encourages individuals to express their emotions through a creative
outlet, allowing them to process complex feelings, reduce stress,and self-awareness.

pleasing; decrease

acceptable; disturb

avoidable; mitigate

therapeutic; enhance
Astronauts who stayed for an period of time at the International Space Station displayed a remarkable level of _____ endurance and mental _.

extensive; dysfunctional; agility

explicit; stoic; integrity

expanded; stern; acuity

extended; physical; resilience

While Curcumin, which is an _____ found in turmeric helps to reduce ,extremely high doses of it can _ headache and nausea.

enzyme; abrasion; infuse

alkali; infection; promote

alchemy; injury; cause

ingredient; in ammation; induce
The notion of personhood is on something more than a particular type of genetic material within human beings: it arises only with the larger-scale structural of that material, which permits capacities like , thought, and moral agency.

dependent; disorganisation; deconstruction

interdependent; division; differentiation

built; distribution; calibration

premised; organisation; consciousness
Since chronic stress can the immune system, making individuals more susceptible to illness and their overall well-being, healthcare practitioners often recommend mindfulness practices and proper sleep to these negative effects.

undermine; elevate; impede

compromise; impair; counter

paralyse; improve; diminish

endanger; preserve; decrease
Psychologists urge users to remember that social media rarely re ects the full complexity of real life. In uencers often _____ a carefully curated online persona, which can unrealistic standards and occasionally negative self-comparisons amongst their followers.

endorse; foster; provoke

maintain; generate; trigger

advocate; perpetuate; stimulate

profess; inspire; release Instructions [80 - 85]
CONVERSATION ANALYSIS: Read the following transcript and choose the answer that is closest to each of the questions that are based on the transcript.
Lucia Rahilly (Global Editorial Director, The McKinsey Podcast): Today we're talking about the next big arenas of competition, about the industries that will matter most in the global business landscape, which you describe as arenas of competition. What do we mean when we use this term?
Chris Bradley (Director, McKinsey Global Institute): If I go back and look at the top ten companies in 2005, they were in traditional industries such as oil and gas, retail, industrials, and pharmaceuticals. The average company was worth about 250 billion. If I advance the clock forward to 2020, nine in ten of those companies have been replaced, and by companies that are eight times bigger than the old guards.

And this new batch of companies comes from these new arenas or competitive sectors. In fact, they're so different that we have a nickname for them. If you're a fan of Harry Potter, it's wizards versus muggles.
Arena industries are wizard-ish; we found that there's a set of industries that play by very different set of economic rules and get very different results, while the rest, the muggles (even though they run the world,
nance the world, and energize the world), play by a more traditional set of economic rules.
Lucia Rahilly: Could we put a ner point on what is novel or different about the lens that you applied to determine what's a wizard and what's a muggle?
Chris Bradley: Wizards are de ned by growth and dynamism. We looked at where value is owing and the places where value is moving.
And where is the value owing? What we see is that this set of wizards, which represent about ten percent of industries, hog 45 percent of the growth in market cap. But there's another dimension or axis too, which is dynamism. That is measured by a new metric we've come up with called the "shu e rate." How much does the bottom move to the top? It turns out that in this set of wizard-ish industries, or arenas, the shu e rate is much higher than it is in the traditional industry.
Lucia Rahilly: So, where are we seeing the most pro t?
Chris Bradley: The economic pro t, which is the pro t you make minus the cost for the capital you employ is in the wizard industries. It's where R&D happens; they're two times more R&D intensive. They're big stars, the nebulae, where new business is born.
In the context of the conversation, "dynamism" most closely refers to

the slow, gradual growth and morphing of established companies.

the rapid and frequent changes in leadership and market position within an industry.

the never-changing reliance on established and unchanging business practices.

the stability and predictability of traditional industries.
In the context of the conversation, the term "arenas of competition" refers to

speci c companies that are considered to be powerful competitors.

government regulations that control business competition.

physical locations where businesses compete.

broad categories of industries where companies engage in competitive activities.
"Muggles" refers to industries that

are characterized by rapid and frequent changes.

exhibit high levels of market capitalization growth.

operate under traditional economic principles.

are primarily focused on technological innovation.
Which one of the following does "shu e rate" not measure?

Volatility of market leadership.

Churn within the arena of competition.

Overall pro tability of traditional industries.

Relative change within an industry.
"Wizard" industries are characterized by

a slower rate of market capitalization growth.

a higher concentration of economic pro t and research and development.

a reliance on traditional economic rules and practices.

lower research and development spending.
Which of the following best and correctly summarises the main idea of the conversation?

The global economy is shifting back towards traditional industries, as they offer more stable returns.

Newer, dynamic industries, termed "wizards," are experiencing signi cantly greater growth and pro t compared to traditional industries.

Traditional industries are consistently more pro table than newer, "wizard-ish" industries.

The terms "wizard" and "muggle" are used to describe the magical elements of business success.
The sentences given below, when properly sequenced, form a coherent paragraph.Each sentence is labelled with a number. Decide on the most logical order and enter the sequence of numbers in the space provided.
Among its major urban centres, Harappa and Mohenjo-Daro stand out as prime examples of this architectural prowess, revealing large public structures, residential areas, and sophisticated water management systems indicative of a complex societal structure.
Showing remarkable sophistication for its time, this ancient culture developed meticulously planned cities, complete with advanced sanitation systems and intricate grid layouts that underscore its profound understanding of urban design and engineering.
Economically, the civilisation thrived on a foundation of extensive trade networks, connecting them with distant lands, alongside a robust agricultural system that sustained its large populations and facilitated surplus production.
Despite its impressive achievements and longevity, the reasons behind the eventual decline of this remarkable civilisation remain largely enigmatic,prompting ongoing research and speculation among historians and archaeologists.
The Indus Valley Civilisation, ourishing in the Bronze Age, represents one of humanity's earliest urban societies, evidenced by archaeological discoveries dating back thousands of years.

The sentences given below, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a number. Decide on the most logical order and enter the sequence of numbers in the space provided.
Using the wonders of Arti cial Intelligence (AI), they quickly improved upon those skills to become far more dexterous.
Inside a robotics laboratory of the Toyota Research Institute, a group of robots is busy cooking. There is nothing special about that; robotic chefs have been around for a while.
Despite their extraordinary culinary capabilities, these robots are not destined for a career in catering.
But these robots are more pro cient than most: ipping pancakes, slicing vegetables, and making pizzas with ease.

The difference is that instead of being laboriously programmed to carry out their tasks, the Toyota robots have been taught only a basic set of skills.

The sentences given below, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a number. Decide on the most logical order and enter the sequence of numbers in the space provided.
Seven of the ten worst-affected countries (including India) are low- and middle-income countries.
Between 1993 and 2022, India was the sixth worst-affected country in terms of fatalities and damage sustained from extreme weather events wrought by the climate crisis.
High-income nations, whose economies are founded in the industrial era use of fossil fuels, meanwhile, insist that growing economies, especially India and China,shoulder greater responsibility.
This reinforces the developing world's contention that it has had to bear a disproportionate burden of climate a ictions despite having contributed little to the crisis.

The sentences given below, when properly sequenced, form a coherent paragraph.Each sentence is labelled with a number. Decide on the most logical order and enterthe sequence of numbers in the space provided.
When we take time to notice these moments, we discover hidden beauty thatsparks our creative thoughts because creativity isn't just about rare, amazingevents—it's also about nding the special in the ordinary.
Creativity is often seen as the ability to look at the world in a new way—to turneveryday sights, sounds, and experiences into art or ideas.
In fact, inspiration can come from small details of daily life: the gentle warmth ofmorning sunlight on a kitchen counter, the steady sound of tra c outside, or thebrief smile of a stranger on a busy street.
Many people wrongly think that true creativity only comes from big ideas orexciting adventures.

The sentences given below, when properly sequenced, form a coherent paragraph.Each sentence is labelled with a number. Decide on the most logical order and enterthe sequence of numbers in the space provided.
In drought conditions, water often depletes in the topsoil and remains accessibleonly in the deeper subsoil layers.
A new study gives new insights into how the acid changes root growth angles toenable plants to reach out deeper subsoils in search of water.
Plants rely on their root systems, the primary organs for interacting with soil, toactively seek water.
Abscisic acid plays an important role in helping plants adapt to these challengingconditions.

Answers

Quantitative Ability SA

1.20	2.4	3.98	4.24	5.147	6.40	7.12	8.2
9.15	10.153	11.36	12.6	13.20	14.30	15.11	

Quantitative Ability MCQ

16.D	17.C	18.C	19.B	20.B	21.B	22.D	23.C
24.C	25.C	26.B	27.B	28.B	29.B	30.B	31.A
32.A	33.B	34.D	35.B	36.B	37.D	38.A	39.A
40.B	41.D	42.C	43.A	44.B	45.B		

Verbal Ability

46.D	47.B	48.D	49.D	50.A	51.C	52.B	53.A
54.B	55.A	56.A	57.D	58.C	59.A	60.C	61.D
62.A	63.D	64.A	65.B	66.A	67.D	68.B	69.A
70.D	71.C	72.C	73.D	74.D	75.D	76.D	77.D
78.B	79.B	80.B	81.D	82.C	83.C	84.B	85.B
86.52134	87.24513	88.2143	89.2431	90.3142			

Explanations
Quantitative Ability SA
1.20
Let the total work done be 1 unit.
1
Now, let us assume the total number of days taken by Arpita is A, then her e ciency will be =
A
1
And the total number of days taken by Nikita is N, then her e ciency will be =
N
1
It is given that they complete the work together in 12 days. Thus => $+\frac{1}{N}=\frac{1}{12}\rightarrow 1$
A

Now, it is given that Arpita works initially to complete 40% of the job, which means she does 0.4 units of work. For 1 unit, she was taking A days; for 0.4 units of work, she will take 0.4 A days.
Then, Nikita completes the remaining job alone. Thus, Nikita will do 0.6 units of work, which will take 0.6N days. It is given that in this way, they take 24 days to complete the job.
$\Rightarrow 0.4A+0.6N=24\rightarrow 2$
$\Rightarrow 2A+3N=120$
$(120-3N)$
$\Rightarrow A=\frac{}{2}\rightarrow 3$
$(A+N)$ 1
From eq. 1, we can get => $=\frac{}{12}$
AN
$\Rightarrow 12A+12N=AN$

Substituting the value of A from eq. 3 -
$\Rightarrow 12\left(\frac{120-3N}{2}\right)+12N=\left(\frac{120-3N}{2}\right)N$
$\Rightarrow 1440-36N+24N=120N-3N^2$ (Dividing the entire equation by 3)
$\Rightarrow 480-4N=40N-N^2$
$\Rightarrow N^2-44N+480=0$

$\Rightarrow N^2-24N-20N+480=0$ (Splitting the middle term)
$\Rightarrow (N-24)(N-20)=0$
$\Rightarrow N=20$ or $N=24$

Thus, Nikita alone takes to complete that work is either 20 or 24 days.
2.4
There are ve teams, each with 15 members, for a total of 75 members.
Also, the number of biologists, geologists and explorers is equal, thus this will be equal to 25. It is given that Teams C and D have 6 biologists each, and Team A has 6 geologists.

Now, each team has at least 2 members from each skill set, and the number of explorers in each team is distinct and decreases in the order A, B, C, D, and E. Thus, if we assume there are 2 explorers in team E, then team D, C, B and A will have 3, 4, 5, and 6 explorers respectively. Thus, the total number of explorers will be (2 + 3 + 4 + 5 + 6 = 20), less than 25. Now, if we assume there are 3 explorers in team E, then team D, C, B and A will have 4, 5, 6, and 7 explorers respectively. Thus, the total number of explorers will be (3 + 4 + 5 + 6 + 7 = 25), equal to 25. This is the only case valid; in all the other cases, it will be either more than 25 or less than 25.

	TEAM A	TEAM B	TEAM C	TEAM D	TEAM E	TOTAL
BIOLOGISTS			6	6		25
GEOLOGISTS	6					25
EXPLORERS	7	6	5	4	3	25
TOTAL	15	15	15	15	15	75

In the diagram, we can see that team A has 2 biologists, and teams C and D will have 4 and 5 geologists, respectively.
Now, each team has more biologists than explorers except team A. Thus, the number of biologists in team B will be 7 (If it is 8, then the number of geologists will be 1, which is not possible, because there are 2 members of each kind in each team). Thus, our final table will look like this.

	TEAM A	TEAM B	TEAM C	TEAM D	TEAM E	TOTAL
BIOLOGISTS	2	7	6	6	4	25
GEOLOGISTS	6	2	4	5	8	25
EXPLORERS	7	6	5	4	3	25
TOTAL	15	15	15	15	15	75

Thus, the number of biologists in team E is 4.
3.98
$|a-b|+|b-c|=|c-a|$. This equation is only valid when b lies between a and c. Thus, there are two cases possible - $a<b<c$ or $c<b<a$
Case - 1 :- $a<b<c$
Now, we need to find the maximum value of b. All, a, b, and c are natural numbers is less than 100, and we $c>b$. Thus, if we assume the value of c = 99 and b = 98 (which are the two maximum possible values), then -
$|a-98|+|98-99|=|99-a|$, and we assumed that a < b, thus a < 98.
$\Rightarrow 98-a+1=99-a \Rightarrow 0=0$
Thus, any value of a < 98 is possible for this equation. Therefore, c = 99, b = 98 and a < 98
Case - 2 :- $c<b<a$
Now, we need to find the maximum value of b. All, a, b, and c are natural numbers is less than 100, and we $a>b$. Thus, if we assume the value of a = 99 and b = 98 (which are the two maximum possible values), then -
$|99-98|+|98-c|=|c-99|$, and we assumed that c < b, thus c < 98.
$\Rightarrow 1+98-c=99-c \Rightarrow 0=0$
Thus, any value of c < 98 is possible for this equation. Therefore, a = 99, b = 98 and c < 98
Thus, in both cases, the maximum value of b = 98.
4.24
The total number of matches played by all the teams will be $= {}^{8}C_{2} = 28$ matches.

Now, one of the team members has been suspended after playing three matches. If they had not been suspended, they would have played seven games in total. Thus, the four matches played by this team won't be happening in the tournament further.
Thus, if the team is suspended after three matches, the total number of matches will be = 28 − 4 = 24 matches.

5.147

$a_1 = \ln(\ ), a_2 = \ln(\ )$. Thus, the common difference will be = $a_2 - a_1$

$$\Rightarrow d = \ln\left(\frac{a^3}{b^2}\right) - \ln\left(\frac{b}{a}\right) = \ln\left(\frac{a^3 \times b}{b^2 \times a}\right) = \ln\left(\frac{a^2}{b}\right)$$

The, sum of rst n terms is given by = $\frac{n}{2}[2a + (n-1)d]$

Here, n = 21; thus, the sum of the rst 21 terms = $\frac{21}{2}[2a + 20d] = 21[a + 10d]$

$$\Rightarrow S_{21} = 21\left[\ln\left(\frac{a}{b}\right) + 10\left(-\frac{1}{2}\right)\ln b\right]$$
$$\Rightarrow S_{21} = 21[\ln a - \ln b - 5\ln b]$$
$$\Rightarrow S_{21} = 21[\ln a - 6\ln b]$$
$$\Rightarrow S_{21} = 21\ln\left(\frac{a}{b^6}\right)$$
$$\Rightarrow S_{21} = \ln\left(\frac{a^{21}}{b^{126}}\right)$$

It is given that the sum of rst 21 terms = $\ln\left(\frac{a^m}{b^n}\right)$, therefore m = 21 and n = 126. Thus, $m + n = 21 + 126 = 147$

6.40

	NOT AVAILABLE	AVAILABLE		
		PASSED	FAIL	
ENGLISH				120
MATHS				120

The number of students who did not appear for the English exam is twice that of those who did not appear for the Math exam. Let us assume that the number of students who did not appear for Math = X, then the number of students who did not appear for English = 2X

The number of students who passed the Math exam is twice that of those who appeared but failed the English exam. Let us assume the number of students who appeared but failed the English exam is Y, then the number of students who passed the Math exam = 2Y

The number of students who passed the English exam is twice that of those who appeared but failed the Math exam. Let us assume that the number of students who appeared but failed the Math exam = Z, then the number of students who passed the English exam = 2Z.

	NOT AVAILABLE	AVAILABLE		
		PASSED	FAIL	
ENGLISH	2X	2Z	Y	120
MATHS	X	2Y	Z	120

$2X + 2Z + Y = 120 \rightarrow 1$

$X + 2Y + Z = 120 \rightarrow 2$

Multiply eq. 2 by 2, and subtract eq. 1 from it.

$\Rightarrow (2X + 4Y + 2Z) - (2X + Y + 2Z) = 240 - 120$

$\Rightarrow 3Y = 120$

$\Rightarrow Y = 40$

7.12

$A = \begin{bmatrix} 2n & \\ 4 & 1 \end{bmatrix}$

$\Rightarrow A^2 = \begin{bmatrix} 2 & n \\ 4 & \end{bmatrix}\begin{bmatrix} 2 & n \\ & \end{bmatrix}$

$\Rightarrow A^2 = \begin{bmatrix} 4 + 4n & 3n \\ & 1 \end{bmatrix}$

And, $A^3 = \begin{bmatrix} & \\ 4n & 3n \end{bmatrix}\begin{bmatrix} 2 & n \\ 4 & 1 \end{bmatrix}$

$\Rightarrow A^3 = \begin{bmatrix} 8 + 20n & 4n^2 + 7n \\ 16n + 28 & 16n + 1 \end{bmatrix}$

And, it is given that $A^3 = 27\begin{bmatrix} & 4q \\ p & r \end{bmatrix}$

$\Rightarrow A^3 = \begin{bmatrix} 108 & 27q \\ 27p & \end{bmatrix}$

Comparing each cell value in eq. 1 and eq. 2 -

$\Rightarrow 8 + 20n = 108 \Rightarrow n = 5$

$\Rightarrow 4n^2 + 7n = 27q \Rightarrow 135 = 27q \Rightarrow q = 5$

$\Rightarrow 16n + 28 = 27p \Rightarrow 108 = 27p \Rightarrow p = 4$

$\Rightarrow 16n + 1 = 27r \Rightarrow 81 = 27r \Rightarrow r = 3$

Thus, the value of $p + q + r = 4 + 5 + 3 = 12$

8.2

There are ve teams, each with 15 members, for a total of 75 members.

Also, the number of biologists, geologists and explorers is equal, thus this will be equal to 25. It is given that Teams C and D have 6 biologists each, and Team A has 6 geologists.

	TEAM A	TEAM B	TEAM C	TEAM D	TEAM E	TOTAL
BIOLOGISTS			6	6		25
GEOLOGISTS	6					25
EXPLORERS						25
TOTAL	15	15	15	15	15	75

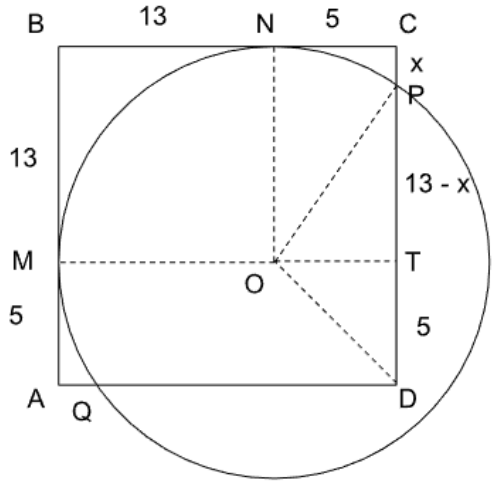
Now, each team has at least 2 members from each skill set, and the number of explorers in each team is distinct and decreases in the order A, B, C, D, and E. Thus, if we assume there are 2 explorers in team E, then team D, C, B and A will have 3, 4, 5, and 6 explorers respectively. Thus, the total number of explorers will be (2 + 3 + 4 + 5 + 6 = 20), less than 25. Now, if we assume there are 3 explorers in team E, then team D, C, B and A will have 4, 5, 6, and 7 explorers respectively. Thus, the total number of explorers will be (3 + 4 + 5 + 6 + 7 = 25), equal to 25. This is the only case valid; in all the other cases, it will be either more than 25 or less than 25.

	TEAM A	TEAM B	TEAM C	TEAM D	TEAM E	TOTAL
BIOLOGISTS			6	6		25
GEOLOGISTS	6					25
EXPLORERS	7	6	5	4	3	25
TOTAL	15	15	15	15	15	75

In the diagram, we can see that team A has 2 biologists, and teams C and D will have 4 and 5 geologists, respectively.
Now, each team has more biologists than explorers except team A. Thus, the number of biologists in team B will be 7 (If it is 8, then the number of geologists will be 1, which is not possible, because there are 2 members of each kind in each team). Thus, our nal table will look like this.

	TEAM A	TEAM B	TEAM C	TEAM D	TEAM E	TOTAL
BIOLOGISTS	2	7	6	6	4	25
GEOLOGISTS	6	2	4	5	8	25
EXPLORERS	7	6	5	4	3	25
TOTAL	15	15	15	15	15	75

Thus, the number of teams having more geologists than biologists is 2 {Team A and Team E}
9. 15
$\log_3(x^2-1), \log_3(2x^2+1)$ and $\log_3(6x^2+3)$ are the rst three terms of an arithmetic progression.
$\Rightarrow \log_3(2x^2+1) - \log_3(x^2-1) = \log_3(6x^2+3) - \log_3(2x^2+1)$
$\Rightarrow \log_3 \left[\frac{2x^2+1}{x^2-1}\right] = \left[\frac{6x^2+3}{2x^2+1}\right]$
$\Rightarrow \log_3 \left[\frac{2x^2+1}{x^2-1}\right] = \log_3 \frac{3}{2x^2+1}$
$\Rightarrow \frac{2x^2+1}{x^2-1} = 3$
$\Rightarrow 2x^2+1 = 3x^2-3$
$\Rightarrow x^2 = 4$
Thus, the rst three terms of the AP will be $\log_3(x^2-1) = 1, \log_3(2x^2+1) = 2, \log_3(6x^2+3) = 3$.
Therefore, the next three terms of the AP will be 4, 5, and 6, and their sum will be = 4 + 5 + 6 = 15.
10. 153



The radius of circle is 13 cm. Thus, BM = BN = 13 cm and MA = DT = CN = OT = 5 cm.

Let the length of CP be x cm. Since DT = 5 cm, thus PT = (13 - x) cm In triangle OTP, $OT^2 + TP^2 = OP^2$
$=> 5^2 + (13 - x)^2 = 13^2$
$=> 25 + 169 - 26x + x^2 = 169$
$=> x^2 - 26x + 25 = 0$
$=> x = 1$ or $x = 25$. But x cannot be 25 cm, because then the length of the side will be negative. Thus, $x = 1$
Thus, PD = 13 - x + 5 = 17 cm, and MT = 18 cm
Thus, area of triangle PMD $= \frac{1}{2} \times 17 \times 18 = 153\ cm^2$
11.36
Age of Monica = 18
Age of Monica's father = 3 * 18 = 54
Let us assume that after x years, Monica's age will be half that of her father's age.
$$=> 18 + x = \frac{1}{2}(54 + x)$$
$$=> 36 + 2x = 54 + x$$
$$=> x = 18$$
Thus, after 18 years, Monica's age will be half that of her father's age. At that time, Monica will be = 18 + 18 = 36.
12.6
There are five teams, each with 15 members, for a total of 75 members.
Also, the number of biologists, geologists and explorers is equal, thus this will be equal to 25. It is given that Teams C and D have 6 biologists each, and Team A has 6 geologists.

Now, each team has at least 2 members from each skill set, and the number of explorers in each team is distinct and decreases in the order A, B, C, D and E. Thus, if we assume there are 2 explorers in team E, then team D, C, B and A will have 3, 4, 5, and 6 explorers respectively. Thus, the total number of explorers will be (2 + 3 + 4 + 5 + 6 = 20), less than 25. Now, if we assume there are 3 explorers in team E, then team D, C, B and A will have 4, 5, 6, and 7 explorers respectively. Thus, the total number of explorers will be (3 + 4 + 5 + 6 + 7 = 25), equal to 25. This is the only case valid; in all the other cases, it will be either more than 25 or less than 25.

	TEAM A	TEAM B	TEAM C	TEAM D	TEAM E	TOTAL
BIOLOGISTS			6	6		25
GEOLOGISTS	6					25
EXPLORERS	7	6	5	4	3	25
TOTAL	15	15	15	15	15	75

In the diagram, we can see that team A has 2 biologists, and teams C and D will have 4 and 5 geologists, respectively.

Now, each team has more biologists than explorers except team A. Thus, the number of biologists in team B will be 7 (If it is 8, then the number of geologists will be 1, which is not possible, because there are 2 members of each kind in each team). Thus, our nal table will look like this.

	TEAM A	TEAM B	TEAM C	TEAM D	TEAM E	TOTAL
BIOLOGISTS	2	7	6	6	4	25
GEOLOGISTS	6	2	4	5	8	25
EXPLORERS	7	6	5	4	3	25
TOTAL	15	15	15	15	15	75

Thus, the number of biologists arranged in ascending order in each team is = (2, 4, 6, 6, 7). Thus, the median value is 6.

13. 20

$7m + 11n = 200$

It is given that both m and n are positive integers. We need to nd one integer pairs of (m,n) that satisfy the equation for these questions.

If we put the value of n = 1, then the value of m = 27. Thus, one solution will be (27,1).

Now, to nd the next solution of n, we need to add the coe cient of m in the original value of n, and to nd the next value of m, we need to subtract the coe cient of n in the original value of m. (One should be added, the other should be subtracted. Since we need the positive values of m and n, thus we are adding in n, and subtracting from m). We will continue this process till we get any value of m or n as negative.

Thus, the other solutions of these equations will be - (m,n) = (16,8), (5,15) If (m,n) = (27,1) => m+n = 28.

If (m,n) = (16,8) => m+n = 24.

If (m,n) = (5,15) => m+n = 20.

Thus, the minimum value of m + n = 20.

14. 30

If $N = p^a \times q^b \times r^c$, then the number of factors is given by $(a + 1)(b + 1)(c + 1)$

Now, we are given $N = 3^5 \times 5^8 \times 7^2$, and we need to nd the factors which are perfect squares.

A number is a perfect square if all exponents in its prime factorization are even. So, we need to nd the even exponent possible values for each prime number in N

Exponent of 3 in N is 5, thus, the even values which are possible = 0, 2, 4 {3 possibilities} Exponent of 5 in N is 8, thus, the even values which are possible = 0, 2, 4, 6, 8 {5 possibilities} Exponent of 7 in N is 2, thus, the even values which are possible = 0, 2 {2 possibilities}

Thus, the total number of even factors for N will be = 3 × 5 × 2 = 30

15. 11

$f(x) = ax^2 + bx + 5$

Polynomial $ax^2 + bx + 5$ leaves a remainder 3 when divided by $x - 1$. Thus, as per the remainder theorem, when x = 1, the remainder is 3.

f(1) = 3 => $a + b + 5 = 3 \Rightarrow a + b = -2 \rightarrow 1$

Polynomial $ax^2 + bx + 5$ leaves a remainder 2 when divided by $x + 1$. Thus, as per the remainder theorem, when x = -1, the remainder is 2.

f(-1) = 3 => $a - b + 5 = 2 \Rightarrow a - b = -3 \rightarrow 2$

Adding eq. 1 and eq. 2 -

$\Rightarrow 2a = -5 \Rightarrow a = -2.5$
Subtracting eq. 2 from eq. 1 -
$\Rightarrow 2b = 1 \Rightarrow b = 0.5$
Therefore the value of $2b - 4a = 2(0.5) - 4(-2.5) = 1 + 10 = 11$
Quantitative Ability MCQ
16. D
Given,

$$1 + \frac{1}{2^2} + \frac{1}{3^2} + \frac{1}{4^2} + \ldots\ldots = \frac{\pi^2}{6} \quad \ldots(1)$$

Multiplying all the terms by $\frac{1}{4}$ we get,

$$\frac{1}{4} + \frac{1}{2^2 \cdot 4} + \frac{1}{3^2 \cdot 4} + \frac{1}{4^2 \cdot 4} + \ldots\ldots = \frac{\pi^2}{6 \cdot 4} = \frac{\pi^2}{24}$$

or, $\frac{1}{2^2} + \frac{1}{2^2 \cdot 2^2} + \frac{1}{3^2 \cdot 2^2} + \frac{1}{4^2 \cdot 2^2} + \ldots\ldots = \frac{\pi^2}{6 \cdot 4} = \frac{\pi^2}{24}$

or, $\frac{1}{2^2} + \frac{1}{4^2} + \frac{1}{6^2} + \frac{1}{8^2} + \ldots\ldots = \frac{\pi^2}{6 \cdot 4} = \frac{\pi^2}{24} \quad \ldots(2)$

Subtracting (2) from (1),

$$1 + \frac{1}{3^2} + \frac{1}{5^2} + \frac{1}{7^2} + \ldots\ldots = \frac{\pi^2}{6} - \frac{\pi^2}{24} = \frac{3\pi^2}{24} = \frac{\pi^2}{8}$$

17. C

$y = a + b \log_e x$
$\Rightarrow b \log_e x = y - a$
$\Rightarrow \log_e x^b = y - a$
$\Rightarrow x^b = e^{(y-a)}$
$\Rightarrow x = \frac{e^y}{e^a}^{\frac{1}{b}}$
$\Rightarrow e^y = e^a x^b$
Thus, we can clearly see that e^y is directly proportional to x^b
18. C
$x^8 + x^7 + \ldots + x + 1 = 0$
Since $1, x, x^2, x^3, \ldots$ are in GP, thus we will apply the formula of sum of GP.

$$1\left[\frac{x^9 - 1}{x - 1}\right] = 0$$

$\Rightarrow x^9 - 1 = 0$
$\Rightarrow x^9 = 1$
Now, $a_1, a_2, \ldots, a_8$ are the roots of the equation thus -
$(a_1)^9 = (a_2)^9 = (a_3)^9 = \ldots = (a_8)^9 = 1$
We need to find the value of $a^{2025} + a^{2025} + \ldots + a^{2025}$.

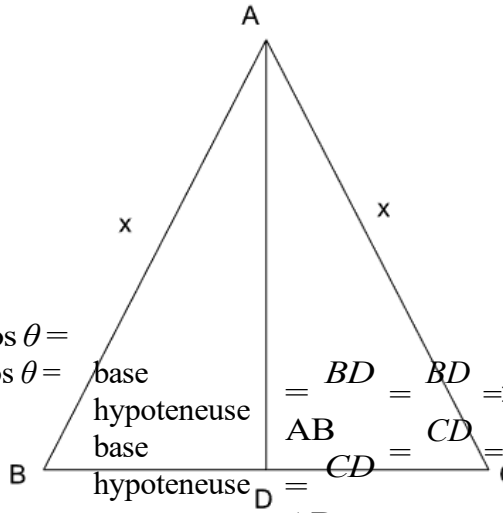
$$1 \quad 2 \quad 8$$
$$(a^9)^{225} + (a^9)^{225} + \quad + (a^9)^{225}$$
$$1 \quad 2 \quad 8$$
$$(1)^{225} + (1)^{225} + ... + (1)^{225} = 1 + 1 + \quad + 1 = 8$$

19. B
Let us assume $a < b < c$
Max(a, b, c) = c
Min(a, b, c) = a Median(a, b, c) = b
Mean(a, b, c) = (a+b+c)/3
Now, Max(a, b, c) + Min(a, b, c) = 15
$\Rightarrow c + a = 15 \longrightarrow 1$
Also, Median(a, b, c) - Mean(a, b, c) = 2
$\Rightarrow b - \frac{(a+b+c)}{3} = 2$
$\Rightarrow 2b - (a + c) = 6 \longrightarrow 2$
Adding eq. 1 and eq. 2 -
$\Rightarrow 2b = 21$
$\Rightarrow b = 10.5$
Thus, the median of a, b, and c = b = 10.5
20. B
$\log_{25}[5 \log_3(1 + \log_3(1 + 2 \log_2 x))] = 1$
$[5 \log_3(1 + \log_3(1 + 2 \log_2 x))] = (25)^{\frac{1}{2}}$ $[5 \log_3(1 + \log_3(1 + 2 \log_2 x))] = 5 \log_3(1 + \log_3(1 + 2 \log_2 x)) = 1$
$1 + \log_3(1 + 2 \log_2 x) = 3$ $\log_3(1 + 2 \log_2 x) = 2$
$(1 + 2 \log_2 x) = 9$ $2 \log_2 x = 8$
$\log_2 x = 4$
$x = 16$
21. B
Let us assume the number as *xyz*
Total outcomes = All the numbers between 100 and 400 for which the sum of digits = 10
Favourable outcomes = All the numbers between 100 and 400 for which the sum of digits = 10, and the number is divisible by 4.
Favourable Outcomes
$P =$
Total Outcomes
Now, for the total outcomes, we have 3 cases as per the hundredth place digit. Case-1: When the hundredth place digit = 1 (x = 1)
Since the sum of digits = 10, (y + z) = 9. Thus, there are 10 possible pairs for (y,z) = (0,9), (1,8), (2,7), ,(9,0)
=> 10 possibilities
Case-2: When the hundredth place digit = 2 (x = 2)

Since the sum of digits = 10, (y + z) = 8. Thus, there are 9 possible pairs for (y,z) = (0,8), (1,7), (2,6), ,(8,0)
=> 9 possibilities
Case-3: When the hundredth place digit = 3 (x = 3)
Since the sum of digits = 10, (y + z) = 7. Thus, there are 8 possible pairs for (y,z) = (0,7), (1,6), (2,5), ,(7,0)
=> 8 possibilities
For 400, the sum of the digits is 4; thus, we don't need to worry about 400. Thus, the total outcomes = 10 + 9 + 8 = 27
For the favourable outcomes, we need to check whether the number's last two digits are divisible by 4, that is, yz is divisible by 4 or not.
For Case-1 => the only possible values for yz = 36 and 72. Thus, 2 possibilities.
For Case-2 => the only possible values for yz = 08, 44, and 80. Thus, 3 possibilities. For Case-3 => the only possible values for yz = 16 and 52. Thus, 2 possibilities.
So, number of favourable outcomes = 2 + 3 + 2 = 7

$$\Rightarrow P = \frac{\text{Favourable Outcomes}}{\text{Total Outcomes}} = \frac{7}{27}$$

22. D
In triangle ABC, AB = AC = x, therefore $\angle ABC = \angle ACB = \theta$, since angles opposite to equal sides are equal.
Let AD be the perpendicular to BC.



$$\cos\theta = \frac{\text{base}}{\text{hypoteneuse}} = \frac{BD}{AB} = \frac{BD}{CD} \Rightarrow BD = x\cos\theta\, x$$

$$\frac{\text{base}}{\text{hypoteneuse}} = \frac{CD}{AB} \Rightarrow CD = x\cos\theta\, x$$

$$\Rightarrow BC = BD + DC = 2x\cos\theta$$

$$\sin\theta = \frac{\text{perpendicular}}{\text{hypoteneuse}} = \frac{AD}{AB} = \frac{AD}{} \Rightarrow AD = x\sin\theta\, x$$

It is given that the circumradius of the triangle is y.
We also know that $\Rightarrow Area\ of\ \triangle = \frac{abc}{4R}$, where R is the circumradius, and a, b, and c are the sides of the triangle.

$$\Rightarrow \frac{1}{2} \times 2x\cos\theta \times x\sin\theta = \frac{x \times x \times 2x\cos\theta}{4y}$$

$$\Rightarrow \frac{1}{2} \times 2\, x^2\cos\theta\sin\theta = \frac{2x^3\cos\theta}{4y}$$

$\Rightarrow \frac{1}{2} \times \sin\theta = \frac{x}{4y}$

$\Rightarrow \frac{x}{y} = 2\sin\theta$

23. C

$8x^2 - 2kx + k = 0$. Let us assume the two roots are a and ap

Now, $a + ap = \frac{2k}{8} \Rightarrow a(1+p) = \frac{k}{4} \Rightarrow a = \frac{k}{4(1+p)} \rightarrow 1$

And, $a^2p = \frac{k}{8}$

Substituting the value of a from eq. 1 -

$\Rightarrow p\left[\frac{k}{4(1+p)} = \frac{k}{8}\right]$

$\Rightarrow p \times \frac{k^2}{16(1+p)^2} = \frac{k}{8}$ $2(1+p)^2$

$\Rightarrow k = \frac{p}{\left[1+\sqrt{p}\right]^2}$

$\Rightarrow k = 2\left[\frac{\sqrt{p}}{p+\sqrt{p}}\right]^2$

p

24. C

Slope of line AB = $m_{AB} = \frac{1-3}{5-1} = -\frac{2}{4} = -\frac{1}{2}$. And, the slope of the other line is m. The angle between the two lines is 45 degrees, and we know the formula -

$$\tan\theta = \left|\frac{m_2 - m_1}{1 + m_1 m_2}\right|$$

$$\tan(45) = \left|\frac{m - (-\frac{1}{2})}{1 + m(-\frac{1}{2})}\right|$$

$$1 = \left|\frac{2m+1}{2-m}\right|$$

$$|2m+1| = |m-2|$$

There are two possible cases for this. Case-1: $2m + 1 = m - 2 \Rightarrow m = -3$

Case-2: $2m + 1 = -m + 2 \Rightarrow 3m = 1 \Rightarrow m = \frac{1}{3}$

Thus, the two possible values for m = -3 and m = 1/3.

25. C

Let $P(x) = ax^2 + bx + c$, and it is given that P(0) = 2.

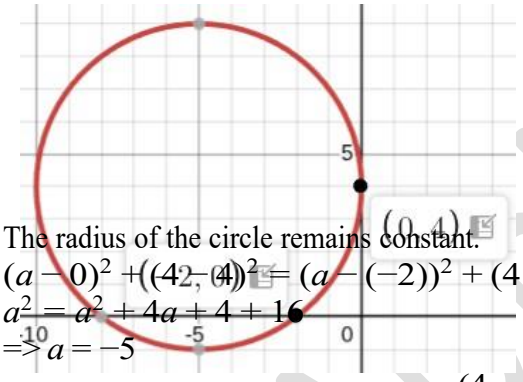
$\Rightarrow a(0) + b(0) + c = 2 \Rightarrow c = 2$

$$\begin{vmatrix} P(0) & P(1) \\ P(0) & P(2) \end{vmatrix} = 0$$

$$\Rightarrow P(0)P(2) - P(0)P(1) = 0$$

$\Rightarrow P(1) = P(2)$
$\Rightarrow a + b + 2 = 4a + 2b + 2$
$\Rightarrow b = -3a$
It is also given that -
$P(1) + P(2) + P(3) = 14$
$a + b + 2 + 4a + 2b + 2 + 9a + 3b + 2 = 14$
$14a + 6b = 8$ (Substituting the value of b = -3a)

$14a - 18a = 8 \Rightarrow a = -2$
Thus, $b = -3(-2) = 6$
Therefore, $P(x) = -2x^2 + 6x + 2$
$\Rightarrow P(4) = -2 * 4^2 + 6 * 4 + 2$
$\Rightarrow P(4) = -32 + 24 + 2$
$\Rightarrow P(4) = -6$
26. B
A circle touches the y-axis at (0, 4). Therefore, the centre of the circle is on the horizontal line whose y coordinate = 4. Thus, the coordinates of the center of the circle will be (a,4).
Now, the circle also passes through the point (-2,0)



The radius of the circle remains constant.
$(a - 0)^2 + (4 - 4)^2 = (a - (-2))^2 + (4 - 0)^2$
$a^2 = a^2 + 4a + 4 + 16$
$\Rightarrow a = -5$
Therefore, the radius of the circle = $\sqrt{(4-4)^2 + (0-(-5))^2} = 5\ cm$
28. B

The amount invested in Scheme A is 30,000. Let the amount invested in scheme B be X, and the amount invested in scheme C be 70000 - X. The interest rates in scheme A, scheme B, and scheme C are 10%, 8%, and 12%, compounded annually.
Now, since in the rst year, the amount of simple interest is the same as the amount of compound interest, we will use the formulas of simple interest for the rst year for calculations.
It is given that the total interest earned from all three schemes during the rst year is 10600.
$\Rightarrow \frac{30000 \times 10 \times 1}{100} + \frac{X \times 8 \times 1}{100} + \frac{(70000 - X) \times 12 \times 1}{100} = 10600$
$\Rightarrow 3000 + \frac{8X}{100} + 8400 - \frac{12X}{100} = 10600$

$\frac{4X}{100} = 800$

$\Rightarrow X = 20000$

Thus, the amount invested in scheme B is 20,000, and the amount invested in scheme C is 50,000. The total amount at the end of 2 years will be = $30000\ (1.1)^2 + 20000\ (1.08)^2 + 50000\ (1.12)^2$ The total amount at the end of 2 years will be = 36300 + 23328 + 62720 = 122348

Thus, the interest earned in the 2 years will be = 122348 − 100000 = 22348

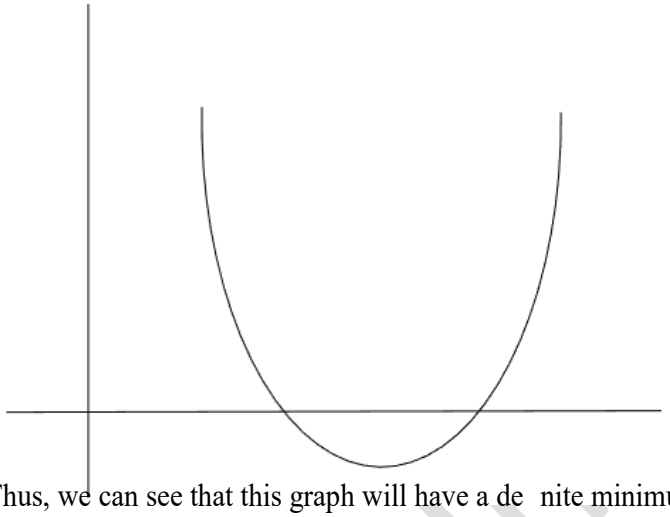
Now, the interest earned in the first year was 10600. Thus, the interest earned in the second year will be equal to the total interest earned over the two years minus the interest earned in the first year.

Thus, the interest earned in the second year will be = 22348 − 10600 = 11748 Rupees.

29. B

$f(x) = a^2x^2 + 2bx + c$

a^2 is a positive number. This means the coefficient of x^2 is a positive number. Whenever the coefficient of x^2 is positive, the graph will look something like this -



Thus, we can see that this graph will have a definite minimum, but no definite maximum value.

33. B

Sum of first n terms of a G.P. is given by the formula, $S = \frac{a \cdot (r^n - 1)}{r - 1}$ where a is the first term and r is the common ratio.

So according to question,

$\frac{a.(r^5 - 1)}{r - 1} = a \cdot \frac{(r^7 - 1)}{r - 1}$

or, $r^5 = r^7$

or, $r^5(1 - r^2) = 0$

or, $r = 0, 1, -1$

But r can't be 1 as then sum of terms will be not defined (in denominator $r - 1$ is there so for $r = 1$, sum will be not defined)

Also, r can't be 0 as then all the other terms except the first term will be zero. So, $r = -1$

Now, sum of first 9 terms=24

or, $\frac{a.(r^9 - 1)}{r - 1} = \frac{a\,(-1 - 1)}{(-1 - 1)} = 24$

or, $a = 24$
So, fourth term $= a \cdot r^{4-1} = a \cdot r^3 = 24\,(-1)^3 = -24$
34. D
Given, $\log_{\left(x+\frac{1}{x}\right)}\left[\log_2\left(\frac{x-1}{x+2}\right)\right] > 0$

The first constraint for this inequality is:
i.) $x + \frac{1}{x} > 0$
or, $\frac{x^2+1}{x} > 0$
Now, $x^2 + 1$ is always positive
So, for $\frac{x^2+1}{x}$ to be positive, x has to be positive i.e. $x > 0$ >(1)
ii.) $\log_2\left(\frac{x-1}{x+2}\right) > 1$
or, $\frac{x-1}{x+2} > 2^1$
or, $\frac{x-1}{x+2} - 2 > 0$
or, $\frac{x-1-2x-4}{x+2} > 0$
or, $\frac{-x-5}{x+2} > 0$
or, $(x+5)(x+2) < 0$
or, $-5 < x < -2$ >(2)
and (2) are contradictory to each other
So, there is no value of x possible satisfying this inequality So, solution set is null set
35. B
Since a_k is the k^{th} term of S_1
So, $a_k = 100 + 5(k-1) = 95 + 5k$
Similarly, $b_k = 100 - 5(k-1) = 105 - 5k$
So, $\sum_{k=1}^{20} a_k b_k = \sum_{k=1}^{20} (105 - 5k)(95 + 5k)$
$= 5 \times 5 \sum_{k=1}^{20} (21 - k)(19 + k)$
$= 25 \sum_{k=1}^{20} (399 + 21k - 19k - k^2)$
$= 25 \left(\sum_{k=1}^{20} (399 + 2k - k^2)\right)$
$= 25 \left(\sum_{k=1}^{20} 399 + 2\sum_{k=1}^{20} k - \sum_{k=1}^{20} k^2\right)$

Now, we know $\sum_{k=1}^{n} k = \frac{n(n+1)}{2}$ and $\sum_{k=1}^{n} k^2 = \frac{n(n+1)(2n+1)}{6}$ and here $n = 20$

$= 25 \left(399 \times 20 + 2 \times \frac{20 \times 21}{2} - \frac{20 \times 21 \times 41}{6}\right)$

$=25\,(399\times\ 20+420-2870)$
$=25\times\ 5530$
$=138250$
36. B
According to question, probability of A hitting the target$=P\,(A)=0.4$
probability of B hitting the target$=P\,(B)=0.6$
So, probability of A missing the target$=P\,(A^c)=0.6$ probability of B missing the target$=P\,(B^c)=0.4$ Let, E denote the event of A hitting the target rst.
The event E can occur in the following ways:
A hits the target in the rst shot
A and B both miss the target in rst shot and after that A hits in the second shot
A and B both miss the target in rst and second shot and after that A hits in the third shot and so on....
So basically, $P\,(E)=P\,(A)+P\,(A^c\cap\ B^c\cap\ A)+P\,(A^c\cap\ B^c\cap\ A^c\ \cap\ B^c\cap\ A)+\ldots\ldots$
or, $P\,(E)=P\,(A)+P\,(A^c)\cdot P\ (B^c)\cdot P\,(A)+P\,(A^c)\cdot P\,(B^c)\cdot P\,(A^c)\cdot P\,(B^c)\cdot P\ (A)+\ldots\ldots$
or, $P\,(E)=0.4+0.6\times\ 0.4\times\ 0.4+0.6\times\ 0.4\times\ 0.6\times\ 0.4\times\ 0.4+\ldots..$
or, $P\,(E)=0.4\,(1+0.6\times\ 0.4+0.6\times\ 0.4\times\ 0.6\times\ 0.4+\quad\ )$
or, $P\,(E)=0.4\,(1+0.24+0.24^2+\ )$
Now, the term in bracket is an in nite G.P. series with common ratio 0.24
or, $P\,(E)=\dfrac{0.4}{1-0.24}=\dfrac{0.4}{0.76}=\dfrac{40}{76}=\dfrac{10}{19}$
37. D
The given expression, $3^{10}+2$, when cubed, gives us $(3^{10}+2)^3=3^{30}+8+(6\times 3^{20})+(12\times 3^{10})$

This expansion can be rewritten as $(3^{10}+2)^3\ =\ (3^{30}+8)+(6\times 3^{10})(3^{10}+2)$

Since the two underlined parts are both divisible by $(3^{10}+2)$, we can conclude that the remaining non-underlined part, $(3^{30}+8)$ should also be divisible by $(3^{10}+2)$. Therefore option D, is correct. We can do the same for other options.

We can try $(3^{10}+2)^2$ to verify option A, the expansion will be $(3^{20}+4+4*3^{10})$. Thus, after dividing this by $(3^{10}+2)$ the remainder will clearly be $4*3^{10}$, since this is de nitely not divisible by $(3^{10}+2)$, as 3^{10} is not divisible by $(3^{10}+2)$, which is an odd number, we can conclude option A is incorrect.
Option B is also incorrect because if $3^{30}+8$ is divisible after the cubic expansion, a number 6 less than it cannot be.

Finally, if we assume option C to be divisible, then the difference between option C and option D should also be divisible by $(3^{10}+2)$, this difference is nothing but $(3^{30}-3^{20})=3^{20}(3^{10}-1)$, since none of the two parts in this difference are divisible, the difference itself is not divisible, and option C will not be divisible either.
Alternate Explanation:
Let $3^{10}=a$ and $2=b$
Then the given expression is of form $a+b$
So, option A is of form a^2+b^2

option B is of form $a^3 + b$ option C is of form $a^2 + b^3$ option D is of form $a^3 + b^3$
Among all these polynomials, we know only $a^3 + b^3$ has a factor $a + b$
So, option D is the correct answer.
38. A
Given, $n(A - B), n(A \cap B), n(B - A)$ are in A.P. Now, $n(A - B) = n(A) - n(A \cap B)$
$n(B - A) = n(B) - n(A \cap B)$
Now, adding these two equations, $n(A - B) + n(B - A) = n(A) + n(B) - 2 \cdot n(A \cap B)$--->(1) Since, $n(A - B), n(A \cap B), n(B - A)$ are in A.P.
So, $n(A - B) + n(B - A) = 2 \cdot n(A \cap B)$ >(2)
From (1) and (2), $n(A) + n(B) - 2 \cdot n(A \cap B) = 2 \cdot n(A \cap B)$
So, $n(A) + n(B) = 4 \cdot n(A \cap B)$ >(3)
Now we know, $n(A \cup B) = n(A) + n(B) - n(A \cap B)$
or, $18 = 4n(A \cap B) - n(A \cap B) = 3.n(A \cap B)$ (From (3))
18
So, $n(A \cap B) = \frac{18}{3} = 6$
From (3), $n(A) + n(B) = 4 \times 6 = 24$

39. A
We are being given with six digits- 1,3,5,7,8,9
So for a number formed by these digits to be greater than 5000, the number can be either 4-digit,5-digit or 6- digit
4-digit number:
Since the number is divisible by 5, so last digit has to be 5
Also, the number is greater than 5000 so rst digit has to be 7,8 or 9 So, the rst digit can be selected in ${}^3C_1$ ways
For the remaining 2-places, we can select 2 digits from the remaining 4 digits in ${}^4C_2$ ways and arrange them in 2! ways
So, number of ways of forming the 4-digit number=${}^3C_1 \times {}^4C_2 \times 2! = 36$ ways
5-digit number:
The last digit has to be 5 as the number is divisible by 5

Now, for the remaining 4 places we have to select 4 digits from 5 digits which can be done in ${}^5C_4$ ways and rearrange them in 4! ways
So, number of ways of forming the 5-digit number=${}^5C_4 \times 4! = 120$ ways
6-digit number:
The last digit has to be 5 as the number is divisible by 5

So, the remaining 5 places can be lled by remaining 5 digits in 5! = 120 ways So, number of ways of forming the 6-digit number=5! = 120 ways

So, number of integers=36 + 120 + 120 = 276
40. B
11 when divided by 9 remainder is 2
1011 when divided by 9 remainder is 3
Now, $11 \equiv 2\ mod(9)$
so, $11^{1011} \equiv 2^{1011}\ mod(9)$ >(1)
Now $2^{1011} = (2^3)^{337} = 8^{337}$
Also, $8 \equiv -1 mod(9)$
So, $8^{337} \equiv -1 mod(9)$
So, we can say $2^{1011} \equiv 8^{337} mod(9) \equiv -1\ mod(9)$
So, $11^{1011} \equiv -1\ mod(9)$ (From (1))
Now, −1 is a negative remainder, so positive remainder will be 8 >(2)
Similarly, $1011 \equiv 3\ mod(9)$
So, $1011^{11} \equiv 3^{11}\ mod(9)$
Now, $3^{11} = 3^2 \cdot 3^9 = 9 \cdot 3^9$,so it is de nitely divisible by 9 So, in this part remainder will be 0 >(3)
From (2) and (3) we can say, remainder=8 + 0 = 8
44. B
In January, the contribution of the Apparel category $= \frac{262}{262 + 104 + 289} = \frac{262}{655} = 40\%$
In April, the contribution of the Apparel category $= \frac{258}{258 + 58 + 325} = \frac{258}{641} = 40.25\%$
In December, the contribution of the Apparel category $= \frac{221}{221 + 86 + 268} = \frac{221}{575} = 38.43\%$
In August, the contribution of the Apparel category $= \frac{252}{252 + 60 + 336} = \frac{252}{648} = 38.89\%$
So, for April the contribution is highest.
45. B

For September, the value of footwear returned $= \frac{9}{100} \times 118$ (lakhs of rupees)

For July, the value of footwear returned $= \frac{9}{100} \times 119$ (lakhs of rupees)

For June, the value of footwear returned $= \frac{5}{100} \times 111$ (lakhs of rupees)

For March, the value of footwear returned $= \frac{7}{100} \times 121$ (lakhs of rupees)

Clearly the biggest number is $9 \times 119 = 1071$ out of all of these So, option (b) July is the correct answer.

Verbal Ability

46. D

We can infer from the sentence "Meta's algorithm will now play up politics because it is the avour of the season" that the kind of content moderation preferred by people depends on the period or the season, and option A cannot be inferred. While the author mentions fact-checking, he does not claim that the failure to do so is social media's innate strength; therefore, option B is incorrect. Option C is contrary to what the author says in the passage, "un ltered content can push users away from social media" , and is also incorrect. The author continues by saying that "Its move away from content moderation is driven by the need to be more inclusive, yet un ltered content can push users away from social media towards legacy forms that have better moderation systems in place", from which we can infer option D, which is the correct answer.

47. B

From the section "Social media now has enough control over all other forms of media to broaden its reach. It is the connective tissue for mass consumption of entertainment," we can infer that option B is true, and is likely the correct answer. Option A is incorrect since the author discusses throughout the passage how current debates on content moderation can in uence the social media ecosystem. Option D is also incorrect, as the author has not mentioned that social media is incapable of adapting ('cannot adapt') to new policies. Option C mentions that social media can publish any material, which is itself discussed in the context of content moderation, and also states that it ' ourishes' due to this, which is incorrect, as the author underlines the struggles social media faces.

48. D

The author says: "Having Washington lean on foreign governments over content moderation does not bene t free speech. Yet, that is the nature of the social media beast, designed to amplify bias," and also that "Meta's algorithm will now play up politics because it is the avour of the season." From these sections, we can infer that the information available on social media does not necessarily relate to the individual right to free speech or the global concerns surrounding free speech. The author also argues in favour of regulation, and option A is incorrect. Option D is the only reasonable choice available.

49. D

The passage makes it clear that social media is the connective tissue of mass consumption of entertainment, and technologies are shaping up to drive their advantage further. From this, we can infer that option A is incorrect. Option B implies that social media has succeeded in nding alternative means of fact-checking, which is contradicted by "social media does not have solutions to either." Option C is also incorrect because it states that other platforms are reworking their engagement with social media. Yet, the aspect of social media's independence from them has not been addressed. Option D is likely the correct answer as the author writes, "Information and misinformation continue to jostle on social media at the mercy of user discretion. Social media now has enough control over all other forms of media to broaden its reach."

50. A

The passage reads, "Technologies are shaping up to drive this advantage further through synthetic content targeted precisely at its intended audience." Only option A can be inferred from this section. To push the content further through precision targeting resonates with enlarging the sphere of in uence. All other options, are irrelevant to this point.

51. C

In the rst paragraph, the author writes, "Yet, that is the nature of the social media beast, designed to amplify bias." From this, we can infer that the author considers the inherent nature of social media to amplify bias its biggest negative. This argument about 'bias' is best expressed in option C, 'prejudice' is spread by social media due to its inherent nature.

52. B

The author writes: "However, consumption does not usually lead to happiness. While consumers should ideally be blaming their heightened expectations for their lack of happiness, they blame the commodity instead. They feel that they should have waited for the next version of a mobile phone or automobile before buying the one they did. The version they bought is somehow inferior and therefore cannot make them happy. Baudrillard argues that consumers have replaced 'real' happiness with 'signs' of happiness. This results in the endless deferment of the arrival of total happiness."

From this we can infer that the consumer is usually confused with the commodities (or the signs of happiness) being the same as real happiness. If a person is to realise this distinction, he will come to understand how can consumption be made more satisfying. This is captured in option B, therefore, it is the correct answer.

53. A

From "Baudrillard argues that consumers have replaced 'real' happiness with 'signs' of happiness," we can infer option A to be true. Option B is way too narrow in the context of the arguments presented in the passage.
Option C borrow the word 'magical' from what the Melanesian people considered planes to be as adjectives to describe production and consumption, and is incorrect. Option D is not talked about in the passage and can also be eliminated.

54. B

Baudrillard discusses the cargo myth of the Melanesian people because he believes it is "an important analogy for the ways in which consumers engage with objects of consumption." Option B captures this and is the correct answer. Options A, C, and D, are not said to be the reasons why Baudrillard uses this analogy and are all not the correct answer.

55. A

The author says that the consumers view commodities as signs of happiness and buy them for this very reason, he mentions that ".. as a result, commodities appear to be distanced from the social processes which lead to their production. In effect, objects of consumption are divorced from the reality which produces them." Option B is narrow and can be eliminated. Option C is not discussed in the passage and can also be eliminated. Option D is a distortion to the 'real vs signs of happiness' aspect of commodities. Option A is the only option which captures the arguments made in the passage, and is, therefore, the correct answer.

56. A

The passage clari es that "Baudrillard argues that consumers have replaced 'real' happiness with 'signs' of happiness. This results in the endless deferment of the arrival of total happiness." We can thus infer that, according to Baudrillard, at least when it comes to consumption, happiness is perpetually delayed. Option A is likely the correct answer. Option B emphasises on patience and waiting, which have not been discussed in the passage. Option C implies that happiness prioritises product overconsumption, which is not true as it's the want of happiness that might lead to overconsumption, happiness itself is free from 'signs' of happiness. Option D has also not been discussed in the passage.

57. D

Baudrillard argues that consumption can never cause happiness. He puts forward arguments that support his proposition. For him, therefore, consumption is not a reasonable process as it inhibits the pursuit of happiness. Therefore, option D, 'consumption is an irrational process' is the likely answer.

58. C

The phrases given in the options have the following meanings them:
put him down: the phrase simply means to put someone down
put him aside: it might imply ignoring, but it does not have an indirect meaning usually
put up with him: the phrase means to tolerate someone (or their actions, despite them being bad)
put along with him: although it might not have a meaning in particular, it can be close to the meaning of 'go along with'
In the given sentence, Deepak is described as an unpleasant person. It makes sense that people are tolerating him because they have a friend who is a close relative of his; therefore, option C is the correct answer.

59. A

"Usher in" means to mark the beginning of something; it ts perfectly in this context, as the people are hoping that the new government will bring economic growth; "set in" is also used to mark beginnings, but it is primarily used in a negative context, which is not the tone here. Hence, usher in is a better choice here.
"Turn up" means to increase, and "set forth " means to present ideas, neither of which aligns with the semantic demands of the context.
Hence, the correct option here is (A) usher in

60. C

When the woman inherited jewellery from a distant relative, she didn't know its value and needed to take action to determine its worth. The correct phrase to complete the sentence is "to have it appraised" (Option C) because this speci cally means getting a professional valuation of the jewellery's monetary worth. This is exactly what someone would do when they inherit valuable items and need to understand their nancial value.

The other options don't t the context correctly. "To get an approval" (Option A) would mean seeking permission rather than determining value. "To get it appreciated" (Option B)suggests making the jewellery more valued emotionally, not assessing its price. "To have it apprised" (Option D) is incorrect because "apprise" means to inform someone about something, which has nothing to do with valuation. Only "appraised" correctly describes the process of professionally evaluating the jewellery's worth.
Option C is the correct choice here.
61. D
The sentence talks about the frequent and almost oblivious behaviour of deer on or near roads, and how they seem unaffected by cars or danger—the blank calls for a phrase that continues this idea of natural, perhaps sudden or carefree movement.
The best answer is "bounding across the road" (Option D) because "bounding" accurately captures the leaping, energetic motion typical of deer. "Bounding across the road" is a natural continuation of actions like crossing or standing in the road.
The other options do not t either contextually or grammatically. "Jumping under the road" (Option A) is physically illogical and awkward. "Foraging beneath the road"(Option B) is biologically implausible and disrupts the ow. "Staggering with the road" (Option C) is unclear and doesn't convey natural animal behaviour. Only "bounding across the road" aligns with how deer move and completes the sentence logically and vividly.
Option D is the best choice.
62. A
The sentence expresses curiosity about how a travel vlogger manages to sustain constant worldwide travel.The blank needs a phrase that accurately captures the essence of his perpetual movement and how he handles it.
The best answer is "manage his itinerant lifestyle" because "itinerant" precisely describes a travelling way of life. This ts perfectly as it's the correct grammatical form (adjective + noun) and matches the travel context. Other options fail because: "itinerary" is a noun (not an adjective), "iterative" means repetitive (unrelated to travel), and "itinerary in his lifestyle" is grammatically awkward. Only "itinerant" properly conveys the vlogger's mobile existence.
63. D
The four choices given to us are phrases. We look at the meaning of each phrase individually
Dead ringer: This means an "exact lookalike",; which is irrelevant to the implied meaning here.
Silver lining: This refers to a positive aspect of a bad situation , which also doesn't t the context.
Red herring: This phrase is use dto refer to a distraction from a real issue, which is not the intended meaning in the sentence, and hence cant be used here.
Silver bullet: This refers to a simple solution to a complex problem. The sentence argues that renewable energy alone cannot solve climate change—it's not a one-step x. Hence, Silver bullet ts perfectly to the context here, and is the most appropriate choice.
Correct answer (D).
64. A
The sentence describes labourers who, after being red, reacted destructively by breaking into the o ce and damaging machinery. Instead of addressing their grievances through constructive means, they chose a violent approach that worsened their circumstances. The blank requires a phrase that captures how their actions negatively intensi ed the original problem rather than resolving it.
The correct answer is "exacerbated the situation" (Option A) because it means they made their problems worse through destructive actions, exactly what happened when they broke equipment instead of solving issues constructively.
The other options don't t: "extended troubles" (Option B) is vague, "exaggerated hardships" (Option C) implies overstating problems rather than worsening them, and "extenuated" (Option D) means making circumstances seem less serious (the opposite of what occurred). Only "exacerbated" accurately describes how their violent response intensi ed the original con ict.
65. B

In the given sentence, the verb is "regard", which takes the proposition "as". So the correct construction should follow " ... to be regarded as..." ; secondly, the phrase "one of the" always takes a plural noun, as it essentially implies one of the many.
So the correct sentence should be "Among scientists, the discovery of the double helix structure of DNA and the genetic code it incorporates is widely regarded as one of the most signi cant scienti c discoveries of the twentieth century. ", making option B the correct choice.
66. A
The speaker in th sentence is expressing relief (*"Thank goodness"*) that the car's damage was presumably minor or insigni cant.
The correct answer is "was negligible" (Option A) because it means the car damage was so minor it didn't matter- matching the relieved tone. The other options are wrong: "neglecting" (Option B) is grammatically incorrect here, "neglectable" (Option C) isn't a real word, and "negligent" (Option D) refers to careless behaviour rather than damage severity. Only "negligible" properly describes trivial damage worth ignoring, making Option A the correct choice here.
67. D
The sentence uses "parallel structure". To be grammatically correct, all the verbs mentioned in the sentence [increase, reducing , and enhancing] should follow the same verb form. Each verb is in the in nitive form without "to" (the in nitive structure is to + V1). The correct structure here is therefore the base form of the verb(V1): "increase," "reduce," and "enhance.", which makes Option D the correct answer.
The other options break this parallelism. Option A uses "reducing" and "enhanced," which are inconsistent. Option B introduces incorrect phrases like "reducing of costs" and "enhancing of." Option C starts well but ends with "enhancing," disrupting the verb pattern.
68. B
The sentence in the second clause uses "would have handled", which is a would have + past participle structure. The sentence is a conditional, and since the change is only in the rst clause, the correct structure should follow the conditional type 3 structure [if + past perfect, ... would have + past participle].
The correct statement should be " If the President had known that his allies would let him down so suddenly, he would have handled them with the greatest care" or "Had the President had known that his allies would let him down so suddenly, he would have handled them with the greatest care ", making option B the correct choice.
69. A
The proper grammar structure is "have someone do something". The causative "have + person + base verb" is the standard way to indicate that someone was asked or instructed to perform a task on another's behalf. The correct answer is therefore option A:" had my brother feed my dog"
The other options contain grammatical errors that make them incorrect. Option A: "had my brother to give food" incorrectly inserts "to," which disrupts the standard causative form. Option B: "had my brother giving" uses the - ing form, which suggests an ongoing action rather than the intended meaning of arranged responsibility. Option C: "had my brother who fed" incorrectly turns the phrase into a description rather than an instruction, changing the meaning entirely.
70. D
The passage given critiques the use of BMI as a reliable metric for diagnosing obesity and emphasises its limitations. We therefore need a sentence in the blank that directly explains why BMI is problematic, while also logically linking the critique to the details about fat distribution and health that follow in the subsequent lines.
Option A contradicts the paragraph's central claim by suggesting BMI can *pinpoint* the cause of obesity. Option B shifts the focus to social media, which is unrelated to the current discussion. Option C implies that BMI is used to prescribe treatment, which the paragraph does not suggest. Option D correctly extends the idea and supports the critique of BMI's effectiveness. It connects the idea of misdiagnosis to the root issue with BMI, setting up the explanation that follows about how BMI fails to accurately re ect fat distribution and overall health, thereby maintaining the argumentative ow.
The correct answer in this case is therefore option D.

71. C
The passage talks about how a Japanese island uses cow manure from its farms to produce hydrogen, which powers the local zoo. The blank needs a concluding statement that summarises the signi cance of this innovative and sustainable method for energy production.
Option A suggests a recommendation for India, which is unrelated to the paragraph's focus. Option B is vague and doesn't clearly convey the energy context. Option C, however, appropriately concludes the paragraph with a positive, relevant statement about sustainability and technology. Option D misrepresents the information by implying Japan uses technology speci cally to help animals, which isn't the main point.
So the correct answer is option C.
72. C
The passage talks about how globalisation results in people adopting a common language (lingua franca), thereby abandoning their native languages. It also emphasises that losing a language means more than losing words or communication—it involves losing a way of thinking.
Of the choices given, the best statement to t here is "Languages exist not only for the purposes of practical communication; they convey a linguistic community's entire mindset and its culture" (Option C) because it directly supports the idea that language loss impacts culture and thought, reinforcing the sentence that follows about the death of a way of thinking.
The other options, while related to language, do not directly explain the deeper signi cance of language loss. Option A discusses revival movements, Option B talks about endangered languages' status, and Option D focuses on language evolution over time. Option C clearly ties language to mindset and culture, tting the paragraph's argument perfectly.
The correct answer is therefore Option C.
73. D
The given passage talks about India's rising temperatures and related climate risks, highlighting the serious effects on health, water, and energy demand. The blank requires a sentence that sums up the ongoing challenge posed by this increasing heat. Option D [The increasing heat stress remains a major challenge, affecting public health and economic productivity] perfectly captures this. It directly connects the risks mentioned earlier to their broader impacts, setting the stage for the statistics and consequences described next.
Option A incorrectly minimises the impact of climate change. Option B introduces a detail about the monsoon that is unrelated to the paragraph's main focus. Option C suggests compensation, which isn't mentioned or relevant here. Only option d captures the serious, widespread challenge of heat stress in line with the paragraph's tone and content.
The correct answer is therefore Option D.
74. D
The sentence examines the psychological and emotional advantages of art, highlighting how it aids in self-awareness and the management of di cult emotions. The blanks should be lled with terms that support the therapeutic bene ts of art and its role in personal development.
For the rst blank, therapeutic (option D) is the best choice, because it conveys the healing and calming nature of art, aligning with ideas like stress reduction and emotional processing. The second blank should have a word that implies "art helps *increase* self-awareness", so "enhance" is the only option here. Thus, option D is the correct choice.
The other options are off in meaning or tone. "Pleasing; decrease" downplays the deeper emotional value of art and contradicts the goal of increasing self-awareness. "Acceptable; disturb" introduces a jarring and inappropriate contrast. "Avoidable; mitigate" doesn't make sense in this context—art isn't something to be avoided, and "mitigate self-awareness" is illogical. Only "therapeutic; enhance" clearly and accurately completes the sentence in a meaningful way.
75. D

The sentence describes astronauts who spent *a long time* in space and demonstrated notable strength both physically and mentally. The blanks need to convey the duration of their stay and their impressive endurance and mental *strength*.

Of the choices given, "extended" correctly describes a long period of time, "physical endurance" re ects the astronauts' bodily strength in space, and "mental resilience" captures their psychological strength. All three words t naturally and accurately with the sentence's meaning.

Option A:[Extensive; dysfunctional; agility] is contradictory—"dysfunctional" implies weakness, which clashes with the idea of impressive endurance. Option B:[Explicit; stoic; integrity] is awkward (explicit period of time). Option C:[Expanded; stern; acuity] sounds forced and unnatural, and "acuity" refers to sharpness of perception, not endurance. Only Option D:[extended; physical; resilience] completes the sentence smoothly and meaningfully. This makes D the best choice.

76. D

The sentence discusses curcumin, a substance in turmeric, noting its health bene ts and potential side effects. The blanks require words that describe what curcumin is, what it helps with, and what it may negatively lead to in excess.

Of the choices given, "ingredient" correctly identi es curcumin as a component of turmeric, and "induce" accurately describes how excessive intake can *bring about* symptoms like headache and nausea. The middle word "in ammation" ts the narrative, as curcumin might be anti-in ammatory in nature.

Option A: [Enzyme; abrasion; infuse] doesn't t—as "abrasion" (which refers to the process of scraping something) is unrelated. Option B:[Alkali; infection; promote] is inaccurate because using "promote" in the case of describing something negative is awkward. (Also, curcumin is not an alkali.) Option C:[Alchemy; injury; cause] is also incorrect, as "alchemy" is not a substance. Only Option D:[ingredient; in ammation; induce] matches both scienti c accuracy and sentence ow.

Hence, option D is the correct choice.

77. D

The sentence talks about the philosophical notion that personhood is determined by the structure of human genetic material, which permits higher functions like consciousness and moral cognition, rather than just by genetics alone. The blanks must re ect a logical and precise progression from biological structure to complex human capacities.

The logical ow is best maintained by the words in option D:[premised; organisation; consciousness] because "premised" appropriately means "based on," "organisation" refers to the structured arrangement of genetic material, and "consciousness" aligns with the advanced capacities that personhood implies. This combination is both philosophically accurate and grammatically sound.

Option A:[Dependent; disorganisation; deconstruction] contradicts the intended meaning, suggesting chaos instead of structure. Option B:[Interdependent; division; differentiation] is vague and doesn't clearly support the emergence of consciousness. Option C:[Built; distribution; calibration] lacks conceptual clarity and doesn't align with the philosophical context. Only option D:[premised; organisation; consciousness] fully captures the intended meaning and logical ow of the sentence.

The correct answer is therefore option D.

78. B

The sentence explains how chronic stress harms health and why certain remedies like mindfulness and sleep are suggested. The blanks must describe how stress negatively affects the immune system and overall well- being, and how these effects can be reversed or managed.

The rst blank should use a word that implies the meaning that chronic stress has a negative effect on health. This part tells us what chronic stress does to the immune system, so we need a verb that means to *weaken or damage*.

For the second blank, we're continuing the negative effects of stress — it harms overall well-being, so the word should again re ect harm or reduction. For the third blank, we shift to solutions. The sentence talks about what mindfulness and sleep do — so this blank needs a verb that means to ght back or lessen the negative effects.

Of the choices given, the best choice is Option B:[compromise; impair; counter], because "compromise" means to weaken, which ts perfectly with how stress affects the immune system. "Impair" means to damage or reduce, which suits the idea of declining well-being. "Counter" is the right word to describe how mindfulness and sleep help ght back against those negative effects.
Option A:[Undermine; elevate; impede] is contradictory, as "elevate" means to improve, which doesn't t with the idea of harm. Option C:[Paralyse; improve; diminish] makes no sense since "improve" is a positive word where a negative one is needed.Option D:[Endanger; preserve; decrease] also con icts because "preserve" doesn't match the context of harm. Only option A logically and clearly completes the sentence.
The correct choice is therefore Option A.
79. B
The sentence explains how social media, especially the actions of in uencers, can distort reality and have negative psychological effects on users. The sentence progresses from what in uencers do to the consequences for followers.
Blank 1 needs a verb describing what in uencers do with their online persona. Since it's "carefully curated," the word should re ect intentional upkeep or display. Blank 2 must describe the result of this curation — it leads to *unrealistic standards*, so a verb that means to "cause" or "create" is appropriate.Blank 3 deals with the impact on followers — it needs a verb meaning to *cause* or *initiate* negative self-comparisons.
Of the choices given, the only word t for the blank 1 is "maintain" (option B). "Maintain" is a perfect t — it means to uphold or keep up, which aligns with the curated persona. The other choices don't t here; "Endorse" (option A) means to support or approve of, "advocate" (Option C) means to argue for or support publicly, not about presenting oneself, and "profess" (option D) means to declare or claim openly.
The other two word choices in option B also t the blanks perfectly. Generate ts well in blank 2— it means to create or bring about (unrealistic standards), and trigger is ideal for blank 3 — it commonly describes initiating emotional or psychological responses.
Hence, the correct choice here is Option B.
80. B
In the conversation, Bradley explains, "But there's another dimension or axis too, which is dynamism. That is measured by a new metric we've come up with called the "shu e rate." How much does the bottom move to the top? It turns out that in this set of wizard-ish industries, or arenas, the shu e rate is much higher than it is in the traditional industry."

Based on this we can infer that dynamism refers to how much the bottom move to the top, he then explains this to be measured for an industry. Option B captures this and is therefore the correct answer.
81. D
At the beginning of the conversation Rahilly mentions "Today we're talking about the next big arenas of competition, about the industries that will matter most in the global business landscape, which you describe as arenas of competition", we can infer from this that 'arenas of competition' refers to the global business landscape and the industries that compete within it. Option A focuses on some speci c companies, and is incorrect. Option B talks about government regulations and option C, physical locations, and are also incorrect. Option D captured the essence of Rahilly's description and is the correct answer.
82. C
From Bradley's description that "Wizards are de ned by growth and dynamism," we can infer that muggles, as opposed to wizards, are industries that are relatively sluggish and non- dynamic. Bradley also points out that "the muggles (even though they run the world, nance the world, and energize the world), play by a more traditional set of economic rules."

Based on these statements, we can conclude that option C is the correct answer. Option A is more characteristic of wizards than muggles. Option B is similar to option A, and option D has not been discussed in the passage.
83. C

From Bradley's quote "But there's another dimension or axis too, which is dynamism. That is measured by a new metric we've come up with called the "shu e rate." How much does the bottom move to the top? It turns out that in this set of wizard-ish industries, or arenas, the shu e rate is much higher than it is in the traditional industry," we can understand that only options A (volatility), B (competition), and D (relative change) are relevant to 'shu e rate.' The correct answer is therefore, option C, pro tability is not relevant to shu e rate.

84. B

In the context of " wizard industries, we nd Chris Bradley explicitly stating: [*The economic pro t, which is the pro t you make minus the cost for the capital you employ, is in the wizard industries. It's where R&D happens; they're two times more R&D intensive. They're big stars, the nebulae, where new business is born.*] This essentially tells that wizards don't just make money—they make *extra* money after covering all costs, and they invest twice as much in R&D. This is effectively what is stated in option B.

Option A contradicts the data as wizards capture 45% of market-cap growth (high, not slow). Option C is the opposite of the intended de nition, which is that Wizards *"play by very different economic rules"* than traditional industries. Option D is directly disproven by the 2x higher R&D intensity cited.

The correct answer is therefore Option B.

85. B

The conversation is about a small group of fast-moving, innovative industries ("wizards" like tech/AI), who now dominate the economy—generating 45% of growth and outsized pro ts—while traditional sectors ("muggles" like oil/retail) lag behind. Wizards win by outspending on R&D and constantly reinventing the game. The business world is splitting into these two tiers. The conversation's central thesis is unmistakable: wizard industries are outpacing traditional ones in growth, pro tability, and innovation . Option B directly addresses this.

The conversation's core is about *disruption* and *unequal growth,* not stability (as highlighted in option a), traditional dominance (as highlighted in option c), or fantasy (as highlighted in option d). Only b captures the data-driven reality that wizards are eclipsing old industries.

The correct choice is therefore option B.

86. 52134

The passage discusses the Indus Valley civilisation, which is introduced in Statement 5 as an early urban society, providing necessary context. 5 introduces us to the civilisation as a civilisation from the Bronze Age (old period); and 2 continues on that old period narrative, by stating "...sophistication for its time, this ancient culture ..." . This creates a clear lexical tie, so 5 should be followed by 2. Statement 2 elaborates on its urban sophistication (planned cities, sanitation, grid layouts). Statement 1 serves as an example of the "architectural prowess", which is mentioned in statement 2. So 21 forms a logical pair. The order 521 therefore goes: General → Speci c (civilisation → urban design → examples). Statement 3 then shifts to economic aspects (trade, agriculture), a natural progression from discussing physical cities to how they were sustained. Statement 4 concludes with the civilisation's decline, a tting end as it contrasts its achievements with its mysterious downfall, thereby ending with a thought-provoking note on its decline.

The correct order is therefore 52134.

87. 24513

The passage talks about Toyota's AI-powered robots, which can learn cooking skills (like ipping pancakes) from scratch, improving rapidly through AI—but they're not meant for kitchens. This demonstrates how AI is creating adaptable robots for future unknown uses.

Statement 2 introduces the setting and subject - robots cooking in Toyota's lab. This is the natural starting point as it establishes the basic scenario ("robots... cooking"). Statement 4 follows naturally by adding detail about these particular robots' capabilities ("more pro cient than most..."), building on the initial introduction. The transition works with "But these robots..." contrasting with generic robotic chefs. Statement 5 then explains what makes these robots different from conventional ones - they weren't laboriously programmed but started with basic skills. This follows logically after establishing their pro ciency. Statement 1 provides the next piece of information: how they progressed from basic skills to high pro ciency through the use of AI. This directly