Q.1)

Ans) b
Exp) Option $b$ is the correct answer.
Option a is incorrect- This statement is not the best reflection of the crux of the passage. While the passage does mention the religious diversity in India and its role in shaping the cultural fabric, it also emphasizes other factors such as historical influences and languages. Therefore, this option is too narrow in scope and does not capture the entirety of the passage's main focus.
Option b is correct- The passage highlights the various factors that contribute to India's cultural diversity. It mentions the historical influences, languages, and religious practices as key elements that shape the cultural fabric of India. While festivals and regional languages are also mentioned, they are part of the broader context of India's cultural diversity, which encompasses historical influences and religious practices as well.
Option c is incorrect- While festivals and traditions are mentioned as important aspects of India's cultural diversity in the passage, they are not the sole defining factors. The passage also highlights historical influences, languages, and religious practices as contributing elements to India's cultural diversity. Therefore, this option oversimplifies the complexity of India's cultural diversity and does not encompass the broader context presented in the passage.
Option d is incorrect- While regional languages and dialects are mentioned as part of India's cultural diversity in the passage, they are not the primary characteristic. The passage emphasizes a range of factors, including historical influences, religious practices, and festivals, which collectively shape India's cultural diversity. Therefore, this option narrows down the focus too much and does not encompass the broader context presented in the passage.
Q.2)

Ans) c

## Exp) Option c is the correct answer.

Option a is incorrect- This option is incorrect because the passage mentions that not only historical influences, but also linguistic diversity, religious diversity, and the shared celebration of festivals contribute to India's cultural diversity.
Option b is incorrect- This option is incorrect because the passage states that festivals in India, such as Diwali, Eid, Christmas, Navratri, Holi, and Pongal, bring people from different communities together and showcase cultural vibrancy and communal harmony.
Option c is correct- This option is correct as it most accurately summarizes the key points from the passage, indicating that India's rich heritage is an amalgamation of diverse historical influences, myriad languages, religious diversity, and the shared celebration of various festivals.
Option d is incorrect- This option is incorrect as the passage mentions that each language in India has its unique script, literature, and cultural nuances, highlighting the significant diversity and regional variation in Indian languages.
Q.3)

Ans) d

## Exp) Option d is the correct answer.

Option a is incorrect- Space exploration has indeed advanced our understanding of the universe, from the Big Bang Theory to the potential for life beyond Earth. However, this is not the only benefit of space exploration.
Option b is incorrect-Space exploration has led to numerous technological advancements, from the development of satellite technology to improvements in materials science. But again, this is only one aspect of the potential benefits of space exploration.
Option c is correct- The International Space Station is indeed a testament to the power of international collaboration in space exploration. But it's only one facet of the broader implications of space exploration.

Option d is correct- This option is the most comprehensive option. It encapsulates all the individual aspects mentioned in options $\mathrm{a}, \mathrm{b}$, and c , making it the most accurate answer to the question of which assumptions about space exploration are valid.

## Q.4)

Ans) c

## Exp) Option c is the correct answer.

In this series, each number is obtained by multiplying the previous number by 2 and then adding 1 .
$2 * 2+1=5$
$5 * 2+1=11$
11 * $2+1=23$
23 * $2+1=47$
To find the next number, we apply the same pattern:
$47 * 2+1=95$
Therefore, the next number in the series is 95 . Hence, option c is the correct answer.

## Q.5)

Ans) d

## Exp) Option d is the correct answer.

Let Zeeshan, Tikesh and Vikash can type $x$, $y$ and $z$ pages respectively in 1 h . Therefore, they together can type $4(x+y+z)$ pages in $4 h$.
According to the question,
$4(x+y+z)=216$
=> $x+y+z=54$---- (i)
According to the question,
$z-y=y-x$
=> $2 y=x+z$-----(ii)
According to the question,
$5 \mathrm{z}=7 \mathrm{x}$---(iii)
From Eqs. (i) and (ii), we get
$3 y=54$
=> $y=18$
Putting $\mathrm{y}=18$ in equation (i),
$\mathrm{x}+\mathrm{z}=54-18=36$. -----(iv)
Solving equation (iii) and (iv) by putting $\mathrm{z}=\left(7{ }^{*} \mathrm{x}\right) / 5$ in equation (iv),
$=>x+(7 * x) / 5=36$
$\Rightarrow x=15$.
Putting $x=15$ in equation (iii), we have, $z=21$.
Hence, Zeeshan, Tikesh and Vikash do the type 15, 18 and 21 pages, respectively in per hour.
Q.6)

Ans) c

## Exp) Option $\mathbf{c}$ is the correct answer.

Let's assume the distance between Vikas's house and college $=x \mathrm{~km}$.
When he walks at a speed of $20 \mathrm{~km} / \mathrm{hr}$,
The time taken to reach the college $=x / 20$ hours
When he increases his speed by $5 \mathrm{~km} / \mathrm{hr}$,
The time taken to reach the college $=\mathrm{x} / 25$ hours
The difference in time taken in the two cases is 1.5 hours ( 1 hour late in the first case and 0.5 hours early in the second case).
So, we can write the equation:

$$
\Rightarrow \quad x / 20-x / 25=1.5
$$

```
=> 5x-4x/100 = 1.5
A x = 150
```

So, the distance between Vikas's house and college is 150 km .

## Q.7)

Ans) b

## Exp) Option $b$ is the correct answer.

In an ordinary year, there are 365 days and on dividing 365 by 7 ,
We get remainder $=1$, so this extra one day is taken as an odd day.
Similarly, in a leap year, there are 366 days and on dividing 366 by 7 ,
We get remainder $=2$, so this extra two days are taken as odd days.
Thus, the remainder, which we get after dividing the number of days by 7 is considered as odd days. Given 15th November 2011 was a Tuesday.
The years 2011 and 2012 are relevant for this problem. Since 2011 is a non-leap year and 2012 is a leap year:
In 2011, from 15th November to 31st December, there are 46 days, so we have 46 divided by 7 giving remainder of 4 so $=4$ odd days.
In 2012, there are 366 days, so we have 2 odd days.
In 2013 , from 1st January to 15th November, there are 318 days, so we have 318 divided by 7 giving remainder of 4 so $=4$ odd days.
Total odd days from 15th November 2011 to 15th November $2013=(4+2+4)=10$ odd days.
Since 10 divided by $7=3$ odd days.
On 15th November 2011, it was Tuesday $+3=$ Friday.
Here, 'Friday' is the day of the week on 15th November 2013.

## Q.8)

Ans) b

## Exp) Option $\mathbf{b}$ is the correct answer.

```
If \(\mathrm{p}^{2} / \mathrm{q}^{2}=\frac{36}{49}\)
\(p / q=6 / 7\)
Let, \(\mathrm{p}=6 \mathrm{k}\), then \(\mathrm{q}=7 \mathrm{k}\)
```

putting the value of $p$ and $q$ in $\frac{3 q+4 p}{4 p-3 q}$

$$
\begin{aligned}
& \Rightarrow \quad(3 \times 7 \mathrm{k}+4 \times 6 \mathrm{k}) /(4 \times 6 \mathrm{k}-3 \times 7 \mathrm{k})=(21 \mathrm{k}+24 \mathrm{k}) /(24 \mathrm{k}-21 \mathrm{k}) \\
& \Rightarrow \quad 45 \mathrm{k} / 3 \mathrm{k}=45 / 3=15 \\
& \text { Thus, the value of } \frac{3 q+4 \mathrm{p}}{4 \mathrm{p}-3 \mathrm{q}} \text { would be } 15 .
\end{aligned}
$$

## Q.9)

Ans) c
Exp) Option c is the correct answer.
First, we will subtract the remainder from the respective numbers.
$50-1=49$
$58-2=56$
$69-6=63$
Taking H.C.F of three numbers 49,56 , and 63.
Factors of 49:1, 7, and 49
Factors of 56:1,2, 4, 7, 8, 14, 28, and 56
Factors of $63: 1,3,7,9,21$, and 63
H.C.F of 49,56 , and $63=7$

Thus 7 is the greatest number which on dividing 50,58 , and 69 leaves remainders of 1,2 , and 6 , respectively.

[^0]Q.10)

Ans) a
Exp) Option a is the correct answer.
Average of 50 sums $=\mathrm{D}$
Total of 50 sums $=50 \mathrm{D}$
Average of 60 sums $=\mathrm{E}$
Total of 60 sums $=60 \mathrm{E}$
Total of 50 sums $=$ Total of 60 sums
$\Rightarrow \quad 50 \mathrm{D}=60 \mathrm{E}$
$\Rightarrow \quad D / E=60 / 50$
$\Rightarrow \quad D / E=6 / 5$
Q.11)

Ans) c
Exp) Option $\mathbf{c}$ is the correct answer.
Option a is incorrect: While this statement is in line with the overall argument of the passage, it is not the most logical corollary because it does not capture the central idea of how the community and national interest are sidelined in favor of corporate interests in the privatisation process.
Option b is incorrect: While this may be true, the passage focuses more on the corrupting effect of privatisation on social fairness and opportunity, rather than unethical practices of corporations.
Option d is incorrect:. Although this statement may be true, it is not the most logical corollary because the passage does not directly discuss the motivation of political parties in supporting privatisation.
Option c is correct: It accurately reflects the central idea of the passage. The passage argues that the community and national interest are often sidelined in favor of corporate interests in the privatisation process. This statement captures the central argument of the passage, making option c) the most logical corollary.

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## Q.12)

Ans) c
Exp) Option c is the correct answer.
Statement 1 is correct: The passage states that bureaucracies around the world are expected to adhere to rules and procedures which are important for good governance. However, at times, these rules and procedures are ab-initio ill-conceived and cumbersome and, therefore, do not serve their purpose. This suggests that excessive focus on rules and procedures can lead to red tape and hinder citizen-centric governance.
Statement 2 is correct: The passage highlights that there is a lack of accountability within the government system, with disciplinary proceedings and imposition of penalties being rare. The safeguards provided to civil servants have often been misused and performance evaluation systems have not been effectively structured. This suggests that the government lacks adequate accountability mechanisms.
Statement 3 is incorrect: The passage does not explicitly mention a flawed incentive structure as a reason for low motivation of bureaucracy. Therefore, this statement is not supported by the information in the passage.
Statement 4 is incorrect: The passage does not mention explicitly lack of adaptability of administration as a reason for government not being citizen centric. Therefore, this statement is not supported by the information in the passage.
Statement 5 is correct: The passage highlights that the Civil Services and administration have become self-perpetuating and inward-looking, with an attitude of indifference and insensitivity to the needs of citizens. This suggests that the bureaucracy may have an orthodox or status-quoist mindset that is resistant to change and new ideas, hindering citizen-centric governance.

## Q.13)

Ans) d

## Exp) Option d is the correct answer.

Statement 1 is correct: The passage clearly states that laws made by the Legislature may be sound and relevant, but they are often not properly implemented by government functionaries due to deficiencies in institutional structures, lack of capacity building of personnel, and a callous approach to compliance to laws on the part of some citizens. This implies that low standards of governance result in poor implementation of laws.
Statement 2 is correct: While the passage does not explicitly mention corruption, it does state that the Civil Services and administration have become inflexible, self-perpetuating, and inward-looking, with officers perceiving themselves as dispensing favors rather than serving citizens. The passage also mentions inability within the system to hold the Civil Services accountable for their actions. Low accountability increases scope for corruption. This implies that low standards of governance increase the scope for corruption.
Statement 3 is correct: The passage states that policies and action plans are often far removed from the needs of citizens, resulting in a mismatch between what is required and what is being provided. The passage also highlights high levels of red tape and bureaucracy, which can lead to cumbersome and ill-conceived procedures that do not serve their purpose. This implies that low standards of governance can result in unsatisfactory outcomes of service delivery.
Statement 4 is correct: The passage notes that the poor image of government in the minds of large sections of society points towards inefficient and ineffective administration. This implies that low standards of governance can lead to a lack of public trust in government.
Q.14)

Ans) a
Exp) Option a is the correct answer.

Statement 1 is correct: The passage mentions that the current system suffers from problems of excessive centralization and policies and action plans are far removed from the needs of the citizens. Therefore, adopting a decentralized and more democratised governance structure could be a valid assumption for reforming the governance system.
Statement 2 is correct: The passage mentions that the inability within the system to hold the Civil Services accountable for their actions is a common reason for inefficiency in governance. Therefore, fixing the loopholes in accountability mechanisms could be a valid assumption for reforming the governance system.
Statement 3 is correct: The passage mentions that inadequate capacity building of personnel who are to implement the laws also results in policies and laws not being implemented properly. Therefore, improving the personnel administration could be a valid assumption for reforming the governance system.
Statement 4 is correct: Although the passage highlights various shortcomings in the existing governance system, it does not specifically mention the need for adopting a whole of government approach. Therefore, statement 4 cannot be considered as a valid assumption based on the information provided in the passage.

## Q.15)

Ans) b

## Exp) Option $b$ is the correct answer.

To solve this problem, we need to reverse the order of the letters in the English alphabet and replace each letter in the word 'CREATIVE' with the corresponding letter in the reversed alphabet. Here's the transformation:
C ( $3^{\text {rd }}$ letter from the start $) ~->X\left(3^{\text {rd }}\right.$ letter from the end $)$
$R$ ( $9^{\text {th }}$ letter from the end) $->$ I ( $9^{\text {th }}$ letter from the start)
$\mathrm{E}\left(5^{\text {th }}\right.$ letter from the start $)->\mathrm{V}\left(5^{\text {th }}\right.$ letter from the end $)$
A ( $1^{\text {st }}$ letter from the start) $->\mathrm{Z}$ ( $1^{\text {st }}$ letter from the end)
$\mathrm{T}\left(7^{\text {th }}\right.$ letter from the end $)->\mathrm{G}\left(7^{\text {th }}\right.$ letter from the start)
I ( $9^{\text {th }}$ letter from the start) $)>\mathrm{R}\left(9^{\text {th }}\right.$ letter from the end)
V ( $5^{\text {th }}$ letter from the end) $->\mathrm{E}\left(5^{\text {th }}\right.$ letter from the start)
$\mathrm{E}\left(5^{\text {th }}\right.$ letter from the start $)->\mathrm{V}\left(5^{\text {th }}\right.$ letter from the end)
So, 'CREATIVE' becomes 'XIVZGREV'. Hence, option b is the correct answer.
Q.16)

Ans) b
Exp) Option b is the correct answer.

| No. of <br> Matches | Bihar Wins | Haryana Wins | No. of Ways |
| :--- | :--- | :--- | :---: |
| 4 | 4 | 0 | ${ }_{4}^{4} C=1$ |
| 5 | 4 | 1 | $-1=4$ |
| 6 | 4 | 2 | ${ }_{4}^{6} C-5=10$ |
| 7 | 4 | 3 | ${ }_{4}^{7} C-15=20$ |

[^1]There can be a maximum of 7 matches as the series ends once a team wins 4 matches. So, Bihar can win the series in $1+4+10+20=35$ ways. Similarly, Haryana can win the series in 35 ways. Hence, the total number of ways in which the series can be won is $35+35=70$ way assuming there is no match ended in a draw. Hence, option b is the correct answer.

## Q.17)

Ans) a
Exp) Option a is the correct answer.
The required number of ways
(a) All the three black $=c_{3}^{4}=4$
(b) 2 black and 1 other $=c_{2}^{4} * c_{1}^{6}=6 \times 6=36$
(c) 1 black and 2 others $=c_{1}^{4} * c_{2}^{6}=4 \times 15=60$

Total number of ways in which three balls can be drawn from the box so that at least one of the marble is black $=60+36+4=100$.
Hence, Option a is the correct answer.

## Q.18)

Ans) c
Exp) Option $\mathbf{c}$ is the correct answer.
Let a be the even number.
Then next odd number is $\mathrm{a}+1$. so, on $\mathrm{a}+3, \mathrm{a}+5$. $\qquad$ $a+9$
According to question,
Sum of five consecutive odd numbers 575
$\Rightarrow a+1+a+3+a+5+a+7+a+9=575$
$\Rightarrow 5 \mathrm{a}+25=575$
$\Rightarrow \mathrm{a}=(575-25) / 5$
$\Rightarrow \mathrm{a}=(550) / 5$
$\Rightarrow \mathrm{a}=110$
First odd number $=\mathrm{a}+1=110+1=111$. The smallest number is 111 . Hence, statement 1 is incorrect. According to question,
Sum of the second largest (i.e $a+7$ ) and square of smallest one (i.e $a+1)=(a+7) \quad+(a+1)^{2}$
Sum of the second largest and square of smallest one $=(110+7)+(110+1)^{2}=117+111^{2}=12438$. Therefore, statement 2 is incorrect. Hence, option c is the correct answer.
Q.19)

Ans) d
Exp) Option d is the correct answer.
Comparison of $\mathrm{A}, \mathrm{B}$ and C in terms of x and z .
$A=B(1-x / 100)$-------- Eq (i)
$A=C(1-y / 100)------E q$ (ii)
A = C ( $1+\mathrm{z} / 100$ ) ------Eq (iii)
Substituting equations (i) and (iii) in (ii), we get
B * $(1+z / 100)$ * $(1-y / 100)=B *(1-x / 100)$
$1+z / 100-y / 100-z * y / 100^{2}=1-x / 100$
$z / 100(1-y / 100)=(y-x) / 100$
$z=(y-x) * 100 /(100-y)$
Hence, option $d$ is the correct answer.

## Q.20)

Ans) c
Exp) Option $\mathbf{c}$ is the correct answer.
Let the length of the train be x meters and its speed be $\mathrm{y} \mathrm{km} / \mathrm{hr}$.

[^2]Relative speed of $A$ and $B$ is $y-3 \mathrm{kmph}$ and $\mathrm{y}-5 \mathrm{kmph}$
Then, $x /(y-3)=6 /(60 \times 60)$ and
$x /(y-5)=7 /(60 \times 60)$
$=>3600 x=6 y-18$ and $3600 x=7 y-35$
Equating both
=> $y=17$
Equating $y$ in one of the equations
$\Rightarrow \mathrm{x}=84 / 3600 \mathrm{~km}$
=> x $=23.33$ meters
Therefore, the length of the train is approximately 23.33 meters.

## Q.21)

Ans) d
Exp) Option d is the correct answer.
Statement 1 is incorrect: The passage states that aggression is a reaction to the frustration of the life force within us, not driven by external factors. It is outlined in the line, "Aggression is not an innate drive that we are helpless to control, but rather a reaction to the frustration of the life force within us."
Statement 2 is incorrect: The passage clearly argues that aggression is not an innate drive that we are helpless to control. The passage has also suggested ways that aggression could be channelized.
Q.22)

Ans) b
Exp) Option $b$ is the correct answer.
Statement 1 is incorrect: The passage does not state that aggression is always a destructive force. It suggests that aggression can be channeled constructively, The passage suggests the same in the line, "The solution to the problem of human aggression is not to repress or deny it, but to find constructive ways to channel it."
Statement 2 is correct: The passage mentions that a person who cannot love or hate is abnormal, unable to experience the full range of human emotions. This implies that a normal human feels a variety of emotions.

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[^3]Q.23)

## Ans) b

## Exp) Option $b$ is the correct answer.

The passage discusses the paradox of human nature, which is characterized by a stronger drive to live and be productive than to destroy. Aggression is described as a reaction to the frustration of the life force within us, arising from feelings of powerlessness or inability to express creative potential. The author emphasizes that the solution to the problem of human aggression is not to repress or deny it but to find constructive ways to channel it. They assert that the life force within us demands expression, and if it cannot find an outlet in creative work or meaningful relationships, it will seek release in destructive ways.

## Q.24)

Ans) b

## Exp) Option b is the correct answer.

Each letter corresponds to its position in the English alphabet. Therefore:
$\mathrm{E}=5$ th position
A $=$ 1st position
$\mathrm{R}=18$ th position
$\mathrm{T}=20$ th position
$\mathrm{H}=8$ th position
So, EARTH $=5+1+18+20+8=52$
Now, using the same logic, we can calculate the code for "MOON":
$\mathrm{M}=13$ th position
$\mathrm{O}=15$ th position
$\mathrm{O}=15$ th position
$\mathrm{N}=14$ th position
So, $\mathrm{MOON}=13+15+15+14=57$
Therefore, in this language, MOON would be coded as 57 .
Q.25)

Ans) c

## Exp) Option $\mathbf{c}$ is the correct answer.

Average Age of 3 person 3 years ago $=42$ years
Average Age of 3 persons at present $=42+3=45$ years
Total Age of 3 persons at present $=45 \times 3=135$ years
Five years ago, Average Age ( $2^{\text {nd }}$ Person $+3^{\text {rd }}$ Person $)=25$
Presently, Average Age ( $2^{\text {nd }}$ Person $+3{ }^{\text {rd }}$ Person $)=25+5=30$ years
Presently the sum of Age of $\left(2^{\text {nd }}\right.$ Person $+3^{\text {rd }}$ Person $)=60$ years
We already know that presently the sum of Age of $\left(1^{\text {st }}\right.$ Person $+2^{\text {nd }}$ Person $+3^{\text {rd }}$ Person $)=135$ years
Thus, as per the given information:
$\Rightarrow\left(1^{\text {st }}\right.$ Person $+2^{\text {nd }}$ Person $+3^{\text {rd }}$ Person $)=135$ years
$\Rightarrow\left(1^{\text {st }}\right.$ Person +60 years $)=135$ years
$\Rightarrow 1^{\text {st }}$ Person age $=135-60=75$ years
Presently the age of $1^{\text {st }}$ Person would be 75 years.

## Q.26)

Ans) c
Exp) Option $\mathbf{c}$ is the correct answer.
Let speed of the car be $x \mathrm{kmph}$.
Then, speed of the train $=1.25 \times \mathrm{kmph}$
Based on the question, for traveling the same distance, train takes 15 minutes more, thus

[^4]```
\(\frac{100}{x}-\frac{100}{1.25 x}=\frac{15}{60}\)
Solving for x ,
\(\mathrm{x}=80 \mathrm{kmph}\)
Speed of train \(=1.25 \mathrm{x}=100 \mathrm{kmph}\)
```

Q.27)

Ans) a

## Exp) Option a is the correct answer.

Step 1: Select one eligible candidate for the Media Manager position.
The number of possible combinations of selecting 1 candidate out of 2 is:
C $(2,1)=2 \mathrm{C} 1=2$
Step 2: Select two eligible candidates for the Content Screener positions.
The number of possible combinations of selecting 2 candidates out of 4 is:
$C(4,2)=4 C 2=6$
Step 3: Select three eligible candidates for the Event Coordinator positions.
The number of possible combinations of selecting 3 candidates out of remaining 5 (out of 8 already three people have been selected and only 5 are remaining) is:
C $(5,3)=5 C 2=10$
To get the total number of possible combinations, we need to multiply the results of each step: $2 \times 6 \times$ $10=120$
Therefore, there are 120 possible combinations of selectees.
Q.28)

Ans) d

## Exp) Option d is the correct answer.

Akshays 2 days work $=\frac{1}{40} \quad$ x $2=\frac{1}{20}$
(Akshay + Rahul + Seema)'s 1 days's work $=\frac{1}{40}+\frac{1}{60}+\frac{1}{120}=\frac{1}{20}$
Work done in 3 days $=\frac{1}{20} \quad+\frac{1}{20} \quad=\frac{1}{10}$
Therefore $\frac{1}{10}$ work is done in 3 days.
Required days to complete the work $=3 \times 10=30$ days
Q.29)

Ans) b
Exp) Option $b$ is the correct answer.
$300 \times 2-30=570$
$570 \times 2-60=1080$
$1080 \times 2-90=2070$
$2070 \times 2-120=4020$
$4020 \times 2-150=7890$
$7890 \times 2-180=15600$
$15600 \times 2-210=30990$
The pattern in the given seauence involves multiolving each number bv 2 and then subtracting a decreasing multidle of 30 from the result to get the next number in the seauence.
Starting from the first number 300. we can see that the next number 570 is obtained bv multidlving 300 bv 2 and subtracting 30 . i.e.. $(300 \times 2)-30=570$.
Similarlv. the next number 1080 is obtained bv multiplving 570 bv 2 and subtracting 60 . i.e.. ( $570 \times 2$ ) $60=1080$.
The same process is followed to obtain the next numbers in the seauence. For example, the missing number can be obtained bv multiplving the previous number 1080 bv 2 and subtracting 90. i.e.. (1080 $\times 2)-90=2070$.
Hence, the missing number that completes the sequence is 2070, which corresponds to option (b).

[^5]
## Q.30)

Ans) c
Exp) Option c is the correct answer.
Let us start representing the statements based on the statements one by one:

Step 1: P
D E
Step 2: $\mathrm{N} \quad \mathrm{P}$
A DE

Step 3: $\mathrm{N} \quad \mathrm{PO}^{5^{\mathrm{th}}}$ CADE

Step 4: MN P ${ }^{5}$ CA DE

## Step 5: M N V P O <br> C A DEB

## From step 5 it is clear Neelam is sitting on immediate right of Vidya

## Q.31)

## Ans) c

## Exp) Option $\mathbf{c}$ is the correct answer.

Option a is incorrect- The passage does not argue for the elimination of cognitive dissonance, but rather suggests embracing it as a means of fostering self-examination and intellectual expansion.
Option b is incorrect- While the passage acknowledges that the strategies (such as confirmation bias, self-affirmation, and belief perseverance) can provide temporary relief from the unease caused by cognitive dissonance, it also highlights the pernicious consequences of relying on these strategies. These consequences include impeding receptivity to novel information, fostering entrenchment of erroneous beliefs, and hindering intellectual growth.
Option c is correct- The passage emphasizes the importance of embracing cognitive dissonance as a catalyst for self-examination and intellectual growth. Options a, b, and do not capture the essence of the passage as they either misrepresent the role of cognitive dissonance or the strategies employed to alleviate it.
Option d is incorrect- The passage does not claim that cognitive dissonance cannot be managed. Instead, it discusses the strategies employed to alleviate cognitive dissonance and encourages individuals to embrace the discomfort it engenders as a catalyst for self-examination and intellectual expansion.
Q.32)

## Ans) b

Exp) Option b is the correct answer.
Option a is incorrect- The passage does not establish a direct link between the town's recycling rate and its use of renewable energy. It discusses them as separate sustainable practices that the town has adopted.
Option b is correct- The passage illustrates how the residents of Greensville have come together to adopt sustainable practices and protect their environment. This suggests a strong sense of community and shared values. The other options make unwarranted assumptions or generalizations not supported by the passage.

[^6]Option c is incorrect- This option makes an unfair generalization about other towns and cities. The passage does not provide information or make any claims about the environmental efforts of other towns and cities. It solely focuses on Greensville's accomplishments and initiatives.
Option d is incorrect- The passage does not state that the residents of Greensville are against any form of non-renewable energy. Instead, it highlights their advocacy for renewable energy sources and the steps they have taken to integrate them into their town.
Q.33)

Ans) c
Exp) Option c is the correct answer.
Option a is incorrect-The passage contradicts this statement by emphasizing the continuing popularity and relevance of Indian pottery, both within the country and globally.
Option b is incorrect- Although the passage discusses terracotta and blue pottery as popular forms of Indian pottery, it also mentions glazed pottery, indicating that Indian pottery is not limited to just terracotta and blue pottery. The passage also implies that there may be other forms of pottery in India that are not discussed in detail.
Option c is correct- The passage highlights the historical and cultural significance of pottery in India and emphasizes its continuing popularity and relevance in the present. The other options either misrepresent the information provided or contradict the central message of the passage.
Option d is incorrect- The passage explains that Indian pottery has evolved through various stages and has been influenced by multiple cultures, including the Mauryan, Sunga, and Gupta periods. This indicates that Indian pottery has undergone changes and developments throughout history rather than remaining static.


[^7]Q.34)

Ans) c
Exp) Option c is the correct answer.
Option a is incorrect- Although the passage mentions some actions of the Manipur government that have contributed to the current conflict, it also discusses other factors such as the role of tribal communities, the influence of drug lords, illegal immigration, and ethnic tensions. Therefore, it is misleading to infer that the Manipur government is solely responsible for the conflicts.
Option b is incorrect- The tribal communities' resistance, as outlined in the passage, is not against development and progress in general. It is specifically against the state's efforts to reserve their traditionally inhabited forest lands and the eviction of tribal residents. They also oppose perceived attempts to reduce their share of reservation benefits. Thus, this statement simplifies and misrepresents the tribal communities' grievances.
Option c is correct- The passage emphasizes the multifaceted origins of the conflicts in Manipur, which revolve around land rights, resource allocation, and ethnic identities. Although the actions of the Manipur government and the Meitei community have contributed to the tension, the passage does not suggest that they are solely responsible (options a and d). Similarly, it doesn't indicate that tribal communities are resisting progress (option b). Instead, they are trying to protect their rights and traditions. Therefore, the most accurate inference is option c.
Option d is incorrect- While the passage describes some tensions between the Meitei community and other tribal communities, it does not provide evidence to suggest that the Meiteis are actively trying to overpower other tribes. The dispute is more about perceived threats to tribal rights and reservations due to possible changes in the legal status of the Meiteis, rather than a straightforward attempt by the Meiteis to dominate other tribes.
Q.35)

Ans) c

## Exp) Option $\mathbf{c}$ is the correct answer.

Since the ratio of the number of Rs. 1, Rs. 5 and Rs. 10 coins can be represented by 3 consecutive odd numbers that are prime numbers in ascending order, the only possibility for the ratio is $3: 5: 7$.
Let the number of Re 1, Rs. 5 and Rs. 10 coins are 3k, 5k and 7k respectively.
Hence, the total value of coins in paise

```
=> 100\times3k + 500\times5k + 1000\times7k
=> 9800k = 88200
k k=9.
```

If the number of coins of Re. 1, Rs. 5 and Rs. 10 is reversed, the total value of coins in the Bag (in paise) $\Rightarrow 100 \times 7 \mathrm{k}+500 \times 5 \mathrm{k}+1000 \times 3 \mathrm{k}=6200 \mathrm{k}$ (In above we find the value of k ). $\Rightarrow 55800 \mathrm{p}=\mathrm{Rs} .558$.
Q.36)

Ans) b
Exp) Option $b$ is the correct answer.
We can draw the following figure:


We can see that Tiya has one daughter Janvi and one son Dev. Tiya also has a sister named Charmi. Thus, Charmi is an aunt to Janvi or it can be said that Janvi is a niece to Charmi.

[^8]
## Q.37)

Ans) c

## Exp) Option $\mathbf{c}$ is the correct answer.

The statement shares a quote by an astronomer where he states that Humans are not special there are many other creatures that exist in the universe (space) and we need to explore them.
From the information that is supplied, we can conclude that there is a possibility of Extraterrestrial life (life beyond Earth).
Therefore, conclusion I follows.
Also from the statement, we can infer that we have not been successful in tracing the presence of life beyond Earth so far (since we yet have to discover them).
Therefore, conclusion Il follows.
Q.38)

Ans) b

## Exp) Option $b$ is the correct answer.

$\Rightarrow$ The corn was imported : It does not follow (because it cannot be concluded because there is no information about imports in the statement)
$\Rightarrow$ The corn was produced in a large amount: It follows (because it is mentioned the statement if there is excess production of corn then the price can go down in Statement 1 and price has gone down from statement 2 . We can conclusion that the corn was produced in large amount.

## Q.39)

Ans) a

## Exp) Option a is the correct answer.

The first statement establishes a condition that all professors who teach history are passionate about art. From the second statement, we know that Ms. Sarah does not like art. Thus, we can conclude that Ms. Sarah does not teach history because, if she did, she would be passionate about art as per the first statement. Therefore, Conclusion I follows.
However, the information about whether Ms. Sarah is a professor or not is not directly provided in the statements. The first statement only establishes a condition about professors who teach history. It does not imply that everyone who is passionate about art or everyone who is not passionate about art is a professor. There could be a scenario where Ms. Sarah is a professor but teaches a subject other than history. Therefore, we cannot definitively conclude that Ms. Sarah is not a professor. Hence, Conclusion II does not follow.

## Q.40)

Ans) d
Exp) option $d$ is the correct answer.
Jai is to the immediate right of Arya.


Deepak is between Arya and Ravi

[^9]

Gaurav is between Ravi and Shiva


So, the final arrangement on the table would be:


Thus, Jai would be on the immediate left of Bhanu.

## Q.41) <br> Ans) c <br> Exp) Option c is the correct answer.

Statement 1 is correct: Though the passage does not explicitly mention anything about AI enabling efficient route planning. The passage mentions the use of detailed maps and real-time analysis by AI to adapt to new circumstances. This implies that AI can help with route planning by taking into account traffic conditions, road closures, and other factors to optimize travel time.
Statement 2 is correct: The passage mentions that ride-sharing companies are interested in autonomous vehicles as they see advantages in terms of customer service. Therefore, this implication is valid.
Statement 3 is correct: The passage mentions that autonomous vehicles require high-performance computing, advanced algorithms, and deep learning systems to adapt to new scenarios. Therefore, this implication is valid.
Statement 4 is incorrect: The passage does not mention anything about AI improving supply chain management. Therefore, this implication is invalid.

[^10]
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Statement 5 is correct: The passage mentions that ride-sharing companies are interested in autonomous vehicles as they see advantages in terms of labor productivity. Therefore, this implication is valid.

## Q.42) <br> Ans) b <br> Exp) Option $b$ is the correct answer.

Statement 1 is correct: The passage mentions the fatal accident involving an autonomous vehicle in Arizona, which caused ride-sharing companies and auto manufacturers to suspend testing and launch investigations to understand what went wrong. This incident highlights the potential unreliability of safety features in autonomous vehicles and the need to ensure that they are safe and dependable.
Statement 2 is correct: The passage describes the various technological capabilities that autonomous vehicles use, including automated vehicle guidance and braking, lane-changing systems, collision avoidance sensors, and real-time AI analysis. However, the passage also suggests that these systems require advanced algorithms and deep learning to adapt to new scenarios. Moreover recently an accident took place. This indicates that there are still technical challenges that need to be addressed for the full-scale adoption of AI in the transportation sector.
Statement 3 is correct: The passage mentions the importance of reassurance to both industry and consumers that the technology is safe and able to deliver on its promises. The fatal accident involving an autonomous vehicle highlights the need to build public trust and acceptance of this technology, especially as ride-sharing companies are very interested in autonomous vehicles.
Statement 4 is incorrect: The passage does not mention the high costs associated with developing and implementing AI technologies in transportation. While it is possible that such costs exist, the passage does not provide any evidence to support this assumption.

# MGP 2023 MAINS GUIDANCE PROGRAM 

Mentor Supported, Test Series Based Self Study Program for Civil Services Examination



[^11]Q.43)

Ans) b
Exp) Option $b$ is the correct answer.
Statement 1 is incorrect: There is no mention of subaerial exposure due to low tides and sea-level drop as a cause of depletion of coral reefs in the given passage. Therefore, assumption 1 is not valid.
Statement 2 is correct: The passage mentions that severe or prolonged coral bleaching can leave corals more vulnerable to other threats such as infectious diseases. This suggests that the spread of coral diseases is a valid assumption.
Statement 3 is incorrect There is no mention of unsustainable and destructive fishing practices as a cause of depletion of coral reefs in the given passage. Therefore, assumption 3 is not valid.
Statement 4 is correct: Passage mentions that other climate impacts such as the increased frequency and intensity of tropical storms can affect coral reefs. This suggests that increasing instances of hurricanes, typhoons, and cyclones is a valid assumption.
Statement 5 is incorrect: It is not entirely accurate because it mentions "sedimentation," which is not explicitly discussed in the passage. Therefore, it cannot be assumed that increased sedimentation is a significant cause of coral reef depletion based on the given information in the passage.
Q.44)

Ans) d

## Exp) Option $d$ is the correct answer.

Statement 1 is correct: The passage explicitly states that increasing levels of carbon dioxide in seawater, caused by warmer atmospheric temperatures, are one of the greatest global threats to coral reef ecosystems and can cause coral bleaching. Therefore, assumption is valid.
Statement 2 is correct: The passage mentions that nutrient enrichment due to run-off from human activities on land can cause increased acidity in coastal waters, exacerbating the effects of ocean acidification. Therefore, implementing best practices for coastal agriculture would help to reduce nutrient run-off and mitigate the impacts of ocean acidification on coral reefs.
Statement 3 is correct: The passage mentions that coral growth and reef growth can be slowed due to ocean acidification, and severe or prolonged bleaching can kill coral colonies or leave them more vulnerable to other threats such as infectious disease. Supporting coral reef restoration can help rebuild damaged coral colonies and restore their resilience to these threats. Therefore, assumption 4 is valid.
Q.45)

Ans) c
Exp) Option $\mathbf{c}$ is the correct answer.
Option c is correct: The passage discusses the capitalist-consumerist ethic, which is presented as a new revolutionary ethical system that is different from traditional ethical systems. The author argues that traditional ethical systems demanded too much of people and that most people failed to live up to those ideals. In contrast, the capitalist-consumerist ethic promises paradise on the condition that individuals remain greedy and continue to pursue their selfish interests. Therefore, the most critical inference that can be made from the passage is that traditional ethical systems demanded too much of people, while the capitalist-consumerist ethic promises paradise in exchange for fulfilling materialistic desires. This is reflected in option C.
Option a is incorrect: It is because while the passage suggests that the capitalist-consumerist ethic has replaced traditional ethical systems, it does not suggest that it is an achievable ideal of materialistic paradise. In fact, the passage suggests that traditional ethical systems presented an unachievable ideal of paradise, while the capitalist-consumerist ethic promises paradise on the condition of materialistic pursuits.

Option b is incorrect: It is because while the passage suggests that the capitalist commandment of 'invest' and the consumerist commandment of 'buy' work together to create a new revolutionary ethic, it does not reflect the most critical inference that can be made from the passage.
Option dis incorrect: It is because it is a partial inference that ignores the author's argument that the capitalist-consumerist ethic promises paradise in exchange for fulfilling materialistic desires, rather than just being greedy and pursuing selfish interests.

## Q.46)

Ans) a

## Exp) Option a is the correct answer.

Let us assume Car of Akash (Car A) travels at a speed of a and Car of Binay (Car B) travels at a speed of b.

Further, let us assume that they meet after t minutes.
Distance traveled by car A before meeting car $\mathrm{B}=\mathrm{a} \times \mathrm{t}$.
Likewise distance traveled by car $B$ before meeting car $A=b \times t$.
Distance traveled by car A after meeting car $\mathrm{B}=\mathrm{a} \times 63$. Distance traveled by car B after meeting car A $=28 \times \mathrm{b}$.
Distance traveled by car A after crossing car B = distance traveled by car B before crossing car A (and vice versa).
=> at $=28 \mathrm{~b}$---------- (1)
and bt = 63a -------- (2)
Multiplying equations 1 and 2
we have $\mathrm{ab} \times \mathrm{t}^{2}=63 \times 28 \times \mathrm{ab}$
$\Rightarrow>\mathrm{t}^{2}=63 \times 28=1764$
$=>\mathrm{t}=42$
So, both cars would have traveled 42 minutes prior to crossing each other. Or, Binay would have taken $42+28=70$ minutes to travel the whole distance.

## Hence, the answer is 70 mins.

Q.47)

Ans) c

## Exp) Option c is the correct answer.

Budget spends on $10 \%$ of days $=12 \%$
So, in $1 \%$ of days $=\frac{12}{10}$
$35 \%$ remaining days in city $=\frac{12}{10} \times 35=42 \%$
Overall budget spent on $45 \%$ of days in city $=1.2 \times 45 \%=54 \%$
Days remaining $=55 \%$, budget remaining $=46 \%$
In $1 \%$ of day remaining, he can spend $=\frac{46}{55}$ of budget
Therefore, percentage decrease required $=\frac{\frac{12}{10}-\frac{46}{55}}{\frac{12}{10}} \times 100=30.3 \%$
Q.48)

Ans) b
Exp) Option $b$ is the correct answer.

STEP 1:


[^12]STEP 3:


Therefore, it is clear from the above representation that Ejaz is sitting second to the right of Harish
Q.49)

Ans) a
Exp) Option a is the correct answer.
Let the current age of the mother be $x$ and the current age of the son be $y$.
According to the problem, 6 years ago, the ratio of their ages was 9:5, so we can write:
$(x-6) /(y-6)=9 / 5$
$9 y-5 x=24---$ equation (1)
Again, after 8 years from now, the ratio of their ages will be 13:6, so we can write:
$(x+6) /(y+6)=11 / 7$
$7 x-11 y=24---$ equation (2)
Equating both equations
$9 y-5 x=7 x-11 y$
$12 \mathrm{x}=20 \mathrm{y}$
$x / y=20 / 12=5 / 3$
$\mathrm{x}=60$ and $\mathrm{y}=36$
Thus, ratio of their present ages is $5: 3$
Q.50)

Ans) d
Exp) Option d is the correct statement.
Let us represent the above statements one by one to get the complete arrangement:


Thus based on the above representation it is clear that $B$ is sitting between $E$ and $G$.
Q.51)

Ans) c
Exp) Option c is the correct answer.
Option a is incorrect- The passage does not state that all sectors were completely privatized.

[^13]
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Option b is incorrect- While this option is correct that the reforms were in response to an economic crisis, does not encapsulate the full breadth of the passage, which also discusses the specific reforms and their impacts on various sectors.
Option c is correct- The economic reforms of the 1990s, characterized by liberalization, privatization, and globalization, have significantly influenced the trajectory of the Indian economy, despite certain criticisms.
Option d is incorrect- It is explicitly mentioned in the passage that the agricultural sector lagged behind post-reforms.
Q.52)

Ans) c
Exp) Option c is the correct answer.
Option a is incorrect- This option is misleading as the passage explicitly criticizes India's cyber security, describing it as "porous as a sieve."
Option b is incorrect- While the passage discusses the northeastern region's issues, it also highlights problems in other areas, such as communal discord in the west and cyber threats nationwide.
Option c is correct- This option accurately encapsulates the passage's critical message, acknowledging India's potential while also highlighting its struggles with various internal security issues.
Option d is incorrect- This option contradicts the overall critical tone of the passage, which suggests that the government's efforts have been ineffective rather than promising imminent resolution.

## MGP 2024

Mentor Supported, Test Series Based Self Study Program for Civil Services Examination

## What Toppers say about <br> Mains Guidance Program



[^14]Q.53)

Ans) c
Exp) Option c is the correct answer.
Option a is incorrect- This option is is misleading as the passage suggests that peace remains elusive in the northeastern region despite the government's numerous accords and agreements.
Option b is incorrect- This option is incorrect as the passage indicates that communal discord in the western regions, instigated by malevolent forces exploiting religious and caste differences, is a significant issue that contributes to the cycle of violence.
Option c is correct- This option is correct because this option correctly encapsulates the information from the passage, stating that despite India's status as a significant IT powerhouse, its internal cybersecurity infrastructure appears alarmingly porous and vulnerable.
Option d is incorrect- This option is misleading because the passage articulates that internal security challenges in India are multifaceted, including cyber threats, ethnic and communal tensions, and insurgencies, without suggesting a primary or secondary role for any specific challenge.
Q.54)

Ans) b

## Exp) Option $\mathbf{b}$ is the correct answer.

The given word in the problem is "AFFILIATED".
Total number of words $=10$ with 2 A's , 2 F's, 2 I's, 1 L's, 1 T's, 1 D's and 1 E's
Here, we have 7 unique letters, with three repeating twice and 4 letters needs to be arranged by this word.

## Case 1:

When all four letters are different from each other, then the number of selection:
$\mathrm{S} 1=\mathrm{C}_{4}^{7}=\frac{7!}{(7-4)!* 4!}=\frac{7 * 6 * 5 * 4!}{3 * 2!* 4!}=7 * 5=35$

## Case 2:

When two letter are same and other two are also same:
Here, 3 pair of repeating letter where 2 letters can be selected in total $\mathrm{C}_{2}^{3}$ ways $=\mathrm{S} 2=3$

## Case 3:

When two letter are different and two are same:
Here, one pair of same letter can be selected in $C_{1}^{3}$ ways, whereas remaining 2 letters can be selected in total $\mathrm{C}_{2}^{6}$ ways .
$\Rightarrow$ Total number of ways $=S 3=C_{1}^{3} * C_{2}^{6}=3 * 15=45$
Combining all i.e. $\mathrm{S} 1+\mathrm{S} 2+\mathrm{S} 3=45+3+35=83$.
Hence, the total of selections of four alphabets taken from the word 'Affiliated' is 83 . Option b is the correct answer.
Q.55)

Ans) a
Exp) Option a is the correct answer.
Let us assume Anant buys n cups.
Total CP = 30n
Total SP $=5+10+15+20+\ldots .$. n terms
$5+10+15+20+\ldots . \mathrm{N}$ terms $\geq 1.6 \times 30 \mathrm{n}$
$5(1+2+3+4+\ldots . . n$ terms $) \geq 48 n$
$\frac{n}{2}[2+(n-1)]=\frac{48 n}{5} \quad$ (Sum of n terms $\left.=\frac{n}{2}[2 a+(n-1) d]\right)$
$\mathrm{n} \geq 18.2$
Anant should sell a minimum of 19 cups.

[^15]
## Q.56)

## Ans) d

## Exp) Option d is the correct answer.

From the table in every condition, the expenditure of the household per month is as follows:
Expenditure in the first condition $=16 \times 500=$ Rs 8000
Expenditure in the 2nd condition $=20 \times 400=$ Rs 8000
Expenditure in the 3rd condition $=25 \times 320=$ Rs 8000
Expenditure in the 4th condition $=32 \times 250=$ Rs 8000
We can see that the expenditure remains consistent at Rs 8000 for all conditions.
If the cost goes to 24 Rupees per kWh ,
we would expect the expenditure to remain the same.
Let the consumption of electricity be $x$.
So, $24 \mathrm{x}=8000$, which gives $\mathrm{x}=8000 / 24 \approx 333.33 \mathrm{kWh}$.
So, the expected electricity consumption would be approximately 333.33 kWh at a cost of 24 Rupees per kWh.
Q.57)

Ans) a

## Exp) Option a is the correct answer.

Let's denote the rate at which Rahul, Arjun, and Karan work as R, A, and K respectively. These rates are measured in "work units" per day.
So,
Rahul and Arjun can complete the work in 3 days, so $R+A=1 / 3$ (work/day).
Arjun and Karan can complete the work in 4 days, so $\mathrm{A}+\mathrm{K}=1 / 4$ (work/day).
Karan and Rahul can complete the work in 6 days, so $K+R=1 / 6$ (work/day).
Adding all the equations:
$2(\mathrm{R}+\mathrm{A}+\mathrm{K})=\frac{1}{3}+\frac{1}{4}+\frac{1}{6}$
$\Rightarrow 2(\mathrm{R}+\mathrm{A}+\mathrm{K})=\frac{3}{4}$
$\Rightarrow(R+A+K)=\frac{3}{8}$ ( work/day)
So together all three finish $3 / 8$ of work in a day
If we want to find out how long it will take them to complete the work working at this combined rate, we just take the reciprocal of this rate.
Time $=1 /$ rate
Thus, it would take $8 / 3$ days or $2 \frac{2}{3}$ Days for all three to finish the given work.

## Q.58)

Ans) b
Exp) Option $b$ is the correct answer.
$(a+b):(b+c):(c+a)=6: 7: 8$
Let the constant be k
$(\mathrm{a}+\mathrm{b})=6 \mathrm{k}$
$(\mathrm{b}+\mathrm{c})=7 \mathrm{k}$
$(\mathrm{c}+\mathrm{a})=8 \mathrm{k}$
By adding equation (1), (2) and (3)
$\Rightarrow 2(a+b+c)=21 k$
$\Rightarrow \mathrm{a}+\mathrm{b}+\mathrm{c}=21 \mathrm{k} / 2$.
We are also given,
$\Rightarrow \mathrm{a}+\mathrm{b}+\mathrm{c}=14$
From equation (4) and (5)
$\Rightarrow 14=21 \mathrm{k} / 2$
$\Rightarrow 28=21 \mathrm{k}$
$\Rightarrow 4 / 3=\mathrm{k}$
Putting the value of $k$ in equation (1), (2) and (3)
We can find,
$a+b=8$
and $\mathrm{a}+\mathrm{b}+\mathrm{c}=14$
$\Rightarrow c=14-8=6$
Similarly,
$\mathrm{b}+\mathrm{c}=28 / 3$ and $\mathrm{a}+\mathrm{b}+\mathrm{c}=14$
$\Rightarrow \mathrm{a}=14 / 3$
Similarly,
$\mathrm{c}+\mathrm{a}=8 * 4 / 3$ and $\mathrm{a}+\mathrm{b}+\mathrm{c}=14$
$\Rightarrow \mathrm{b}=10 / 3$
Thus,
$\Rightarrow \mathrm{a}: \mathrm{b}: \mathrm{c}=14 / 3: 10 / 3: 6$
$\Rightarrow \mathrm{a}: \mathrm{b}: \mathrm{c}=14 / 3: 10 / 3: 18 / 3$
$\Rightarrow \mathrm{a}: \mathrm{b}: \mathrm{c}=14: 10: 18$
$\Rightarrow \mathrm{a}: \mathrm{b}: \mathrm{c}=7: 5: 9$
Q.59)

Ans) b

## Exp) Option $b$ is the correct answer.

We can draw the following diagram from the given info:


The diagonal of the square is the diameter of the circle.
As the radius of the circle is 14 meters,
the diameter $=28$ meters.
We know that the diagonal of a square divides it into two congruent right-angled triangles.
The sides of the square are the legs of these triangles and the diagonal is the hypotenuse.
According to the Pythagorean theorem,
the length of each side of the square is $\sqrt{ }\left(\right.$ Diagonal $\left.^{2} / 2\right)$.
Substituting the given diagonal of 28 meters,
the side of the square is $\sqrt{ }\left(28^{2} / 2\right)=\sqrt{392}=14 \sqrt{2}$ meters.
The area of the square is the side length squared,
so the area is $(14 \sqrt{2})^{2}=392 \mathrm{~m}^{2}$.
Q.60)

Ans) b

## Exp) Option $b$ is the correct answer.

Let's assume that the original number was x .
The correct calculation would have been $\mathrm{x} *(6 / 5)$
But, Gaurav did the calculation as x * $(5 / 6)$
The error in the calculation is the difference between the correct calculation and Gaurav's calculation, which is $x *(6 / 5)-x *(5 / 6)$.

[^16]$=x * 11 / 30$
The percentage error is the error divided by the correct value, times $100 \%$, so the percentage error $\Rightarrow \frac{\mathrm{x} * 11 / 30}{\mathrm{x} * 6 / 5} * 100$
which is approximately $30.6 \%$
So, the approximate percentage error in Gaurav's calculation is around $31 \%$.

## Q.61)

## Ans) c

Exp) Option $\mathbf{c}$ is the correct answer.
Option a is incorrect- This option suggests that the economic relationship between India and China is the most significant aspect, and that the border disputes are minor, almost insignificant issues. This is not entirely accurate. While the passage acknowledges that trade between the two countries has grown significantly, it also emphasizes that the border disputes have kept tensions high and acted as 'thorns in the side'. The phrase 'small bumps in an otherwise smooth road' minimizes the importance of these disputes in the overall relationship between the two nations.
Option b is incorrect- This option seems to suggest that the primary nature of the relationship between India and China is hostile, with any economic collaboration being an exception rather than a rule. This is not a balanced representation of the passage's central idea. While the passage does mention several instances of conflict and tension, it also states that trade between the two nations has grown significantly, with China even becoming India's largest trading partner. This is more than just 'occasional economic collaboration'.
Option c is correct- The central idea of the passage encompasses both the economic and geopolitical aspects of the India-China relationship. This option accurately captures this complexity by acknowledging the blend of cooperation and rivalry.
Option d is incorrect- This option places undue emphasis on the historical friendship between India and China ('Hindi-Chini Bhai Bhai'), suggesting that this is the primary definition of their relationship. However, the passage makes it clear that the relationship is much more complex, characterized by a mix of economic collaboration and geopolitical struggles. The recent years haven't just witnessed 'an unfortunate deviation' - they have seen significant growth in trade along with heightened tensions over border disputes. This option does not capture this complexity, making it an incomplete reflection of the passage's central idea.


## GS \& CSAT Simulator Test

Solution \& Performance Analysis
Post Test Discussions

> Subject - Wise Sectional Test

[^17]Q.62)

Ans) b
Exp) Option $b$ is the correct answer.
Option a is incorrect- This statement is too deterministic and overlooks the complexities of the India-China relationship as described in the passage. While the passage acknowledges the ongoing border disputes, it also discusses the growth in trade and economic collaboration between the two countries. The passage doesn't make any definitive predictions about the future of India-China relations being solely problematic.
Option b is correct- The passage highlights the complexity of India-China relations, with both cooperation (evident in trade growth) and competition (seen in border disputes). Thus, statement B summarizes the most critical inference from the passage.
Option c is incorrect- The passage does not provide information to support this assumption. While it discusses moments of conflict and cooperation, it doesn't specifically indicate that India has frequently made compromises in its relationship with China.
Option d is incorrect- This statement isn't entirely accurate based on the information given in the passage. While the passage acknowledges that China is India's largest trading partner, it also emphasizes the continuing geopolitical tensions, particularly the border disputes. The passage does not suggest that economic relations overshadow these geopolitical issues; instead, it portrays both as significant factors in the complex relationship between India and China.
Q.63)

Ans) b
Exp) Option $b$ is the correct answer.
Option a is incorrect- This option is not correct because the passage does not provide any information to suggest that Bhabha and Sarabhai were contemporaries or that they worked together. Bhabha was the founder of India's nuclear program in the mid-20th century, while Sarabhai is referred to as his "intellectual heir," implying that Sarabhai took over the program after Bhabha.
Option b is correct- The passage implies that the fall of the USSR, a key ally of India, changed the international dynamic that India had to navigate in its nuclear journey. Therefore, it can be logically assumed that the USSR's collapse had a reverberating impact on India's nuclear progress.
Option c is incorrect- This option is not supported by the passage. The text refers to "political maelstrom" and "domestic upheavals," suggesting that there were differing opinions and potentially significant disagreement within the government about India's nuclear program.
Option d is incorrect- This statement is also incorrect. The passage mentions that Operation Shakti invoked "a few international sanctions," which indicates that there was not universal acceptance or endorsement of India's nuclear status following these tests.
Q.64)

Ans) d
Exp) Option $d$ is the correct answer.
Comparing the incomes:
Johns $=\frac{120}{100} *$ Mark $=\frac{6}{5} *$ Mark
Lucy $=\frac{120}{100} *$ John $=\frac{6}{5} *$ John
John $=\frac{110}{100} *$ Kate $=\frac{11}{10} *$ Kate
Mary $=\frac{110}{100} *$ John $=\frac{11}{10} *$ John
Expressing everyone's salary in term of John's
=> Lucy $=\frac{6}{5} *$ John
=> Mark $=\frac{5}{6} *$ John
$=>$ Kate $=\frac{10}{11} *$ John
=> Mary $=\frac{11}{10} *$ John
Now, in order for the amounts earned by John, Mark, Lucy, Kate and Mary to be integers, the amount earned by John should be a multiple of $5,6,11$, and 10 . Or, the amount earned by John should be a multiple of 330 . The only multiple of 330 that is a 3 -digit number is 330 .
So, if John earns 330, then Lucy will earn 396, Mark earns 275, Kate earns 300, and Mary earns 363.
$=>$ The total amount earns by them $=330+396+275+300+363=1664$.
Hence, option d is the correct answer.

## Q.65)

Ans) c

## Exp) Option $\mathbf{c}$ is the correct answer.

LCM of $5,10,15,20,25$ and $30=300$
So, the bell will toll together after every $300 \mathrm{sec}(5 \mathrm{~min})$.
Required number of times in 1 hour i.e $60 \mathrm{~min}=60 / 5=12$.
But we have to add 1 because at starting all bells will be rung once a time after that they ring 12 times.
Hence, In the span of a full hour, number of instances occur where all six bells ring at the same time will be $=12+1=13$ times.
Hence, option c is the correct answer.
Q.66)

Ans) a

## Exp) Option a is the correct answer.

The problem states that a number, when divided by 14 , leaves a remainder of 4 . Therefore, we know that the number can be expressed in the form $14 \mathrm{k}+4$, where k is any integer.
Putting $\mathrm{k}=0,1,2,3,4$, the numbers would be $4,18,32,46,60, \ldots$.
We are looking for the remainders when these numbers are divided by 7 .

1) 4 divided by 7 gives a remainder of 4 .
2) 18 divided by 7 gives a remainder of 4 .
3) 32 divided by 7 gives a remainder of 4 .
4) 46 divided by 7 gives a remainder of 4 .
5) If you continue the pattern, you'll see that the remainder when divided by 7 will always be 4 .

So, the number of values $x$ can take is 1 i.e 4.
Hence, option a is the correct answer.

## Q.67)

Ans) c
Exp) Option $\mathbf{c}$ is the correct answer.
Unit digit of $\left(77^{7}+33^{3}+22^{2}\right)=$ Unit digit of $\left(7^{7}+3^{3}+2^{2}\right)$
We know,
Cyclicity of 2:
$2^{1}=2$ - Last digit 2
$2^{2}=4$ - Last digit 4
$2^{3}=8$ - Last digit 8
$2^{4}=16$ - Last digit 6
$2^{5}=32$. - Last digit 2.
Hence, after $2^{4}$ the last digit keeps on repeating in order $2,4,8,6$. Hence the cyclicity of 2 is 4 .

## Cyclicity of 3 :

$3^{1}=3$ - Last digit 3
$3^{2}=9$ - Last digit 9
$3^{3}=27-$ Last digit 7
$3^{4}=81$-Last digit 1

[^18]$3^{5}=243 .-$ Last digit 3.
Hence, after $3^{4}$, the last digit of every number keeps on repeating in the order $3,9,7,1$. Hence the cyclicity of 3 is 4 .

## Cyclicity of 7:

$7^{1}=7$
$7^{2}=49$ - last digit 9
$7^{3}=343$ - last digit 3
$7^{4}=2401$ - last digit 1
$7^{5}=16807$ - last digit 7
Hence, after
$7^{4}$, the last digit of every number keeps on repeating in the order $7,9,3,1$. Hence the cyclicity of 7 is 4 . $\Rightarrow$ Unit digit of $\left(7^{7}+3^{3}+2^{2}\right)=(3+7+4)=14$ - Unit digit $=4$
Hence, option c is the correct answer.
Q.68)

Ans) a
Exp) Option a is the correct answer.
A clock is a circle, and a circle always contains 360 degrees. Since there are 60 minutes on a clock, each minute mark is 6 degrees.
$\frac{360^{\circ} \text { Total }}{60 \text { minutes total }}=6$ degrees per minutes
The minute hand on the clock will point at 45 minutes, allowing us to calculate it's position on the circle.
$(45 \mathrm{~min})(6)=270$ degree
Since there are 12 hours on the clock, each hour mark is 30 degrees.
$\frac{360^{\circ} \text { Total }}{12 \text { Hour total }}=30$ degrees per Hour
We can calculate where the hour hand will be at 6:00.
( 6 hr )(30)=180
However, the hour hand will actually be between the 6 and the 7 , since we are looking at 6:45 rather than an absolute hour mark. 45 minutes is equal to three-fourth of an hour. Use the same equation to find the additional position of the hour hand.
$=>180^{\circ}+(0.75 \times 30)$
=> 180+22.5
$=202.5^{\circ}$
We are looking for the angle between the two hands of the clock. The will be equal to the difference between the two angle measures.
$\angle=(270-202.5)=67.5$ Degrees
Q.69)

Ans) b
Exp) Option b is the correct answer.
Let quantity of liquid Base in the mixture be $x$ litres.
Then quantity of Acid in the mixture $=3 x$ litres
Quantity of Acid in 20 litres of mixture $=(3 / 4) \times 20=15$ litres
Quantity of Base in 20 litres of mixture $=20-15=5$ litres
So, the remaining quantity of Acid and Base in the mixture $3 x-15, x-5$ litres respectively.
After adding 20 litres of Base with the mixture the ratio of the quantity of Acid and Base
$=(3 x-15) /(x-5+20)=(3 x-15) /(x+15)=1 / 2$
$=>6 x-30=x+15$
$\Rightarrow 5 x=45=>x=9$
So, quantity of liquid $A$ in the mixture $=3 x=3 \times 9=27$ litres
Q.70)

## Ans) d

Exp) Option d is the correct answer.
Let number of girls in class $A=x$
Let number of boys in class $A=y$
Total number of students $=x+y$
Proportion of girls $=x /(x+y)$
Number of boys in class B = x
Total number of students in class $B=2(x+y)$
Proportion of girls $=1-\mathrm{x} /\{2(\mathrm{x}+\mathrm{y})\}$
Percentage of boys in the overall student community $=\frac{\text { Boys in class } A+\text { Boys in class } B}{\text { Total Students in Class A and B }} \times 100$
$\Rightarrow \frac{y+x}{y+x+2 \times(x+y)} \times 100$
$\Rightarrow 33.33 \%$
Percentage of girls in the overall student Community $=100 \%-33.33 \%=66.67 \%$

## Hence, the answer is 66.67\%

Q.71)

Ans) c

## Exp) Option c is the correct answer.

Option a is incorrect: While this statement is partly correct, it does not reflect the full critical message conveyed by the author. The author argues that we need to move beyond placing the burden of resolving psychological distress on individuals and look at stress as a societal problem that requires political intervention.
Option b is incorrect: This statement is partially correct, as the author does suggest a correlation between rising rates of mental distress and the neoliberal capitalist system. However, the critical message of the author is not simply to highlight the increase in mental health disorders, but to argue that these disorders are not simply individual problems but societal ones that require political attention and intervention.
Option c is correct: The critical message conveyed by the author is that stress and mental health issues should not be seen as individual problems but as societal ones that require political attention and intervention. The author argues that instead of accepting the privatization of stress and placing the burden on individuals to resolve their own psychological distress, we need to ask how it has become acceptable that so many people, especially young people, are ill. This implies that stress and mental health disorders are not natural or individual problems but are rather societal problems that require political intervention to address. Hence this statement is the correct option.
Option d is incorrect: This statement is partly correct, as the author does argue that the current capitalist system has led to the privatization of stress and mental health. However, the critical message of the author is not simply to highlight the negative consequences of this privatization but to argue that stress and mental health should not be seen as individual problems but as societal ones that require political attention and intervention.
Q.72)

Ans) b

## Exp) Option $b$ is the correct answer.

Statement 1 is incorrect: It is not explicitly stated in the passage. While the passage suggests that mental health problems are common in capitalist societies, it does not specifically link it to intense competitiveness and focus on individual success.
Statement 2 is correct: The passage argues that rising rates of mental distress are correlated with the neoliberal mode of capitalism practiced in countries like Britain, the USA, and Australia. The author suggests that instead of treating mental health as an individual problem, we need to politicize common disorders and address the impact of neoliberal capitalism on mental health. Thus, author

[^19]implicitly argues for policies and programs that promote social and economic justice to reduce mental stress. Therefore, assumption 2 is valid.
Q.73)

Ans) b
Exp) Option $b$ is the correct answer.
Option b is correct: The author argues that liberty is not just the ability to do whatever one wants without any constraints or consideration for others. Rather, true liberty lies in recognizing and respecting the interests and rights of others, and it requires individuals to be humble, open-minded, and empathetic towards one another. The author further suggests that liberty cannot be guaranteed by constitutions, laws, and courts alone, but rather it must be ingrained in the hearts of individuals who are willing to live in a society where everyone is heard and considered side-by-side. Hence option b is the correct answer.
Option a is incorrect: It is close to the main point of the passage, but it focuses too narrowly on the idea that liberty is not just about doing what one wants. It does not capture the author's emphasis on the importance of empathy and open-mindedness in fostering a spirit of liberty.
Option c is incorrect: It is a reasonable summary of the author's argument, but it does not fully capture the emphasis on humility, open-mindedness, and empathy that are central to the author's vision of liberty.
Option d is incorrect: It is also a part of the main point of the passage, but it is not comprehensive enough to capture the author's emphasis on the importance of empathy, open-mindedness, and humility in fostering a spirit of liberty.
Q.74)

Ans) a
Exp) Option a is the correct statement.
Let $3^{21}=x$. Then $\left(3^{21}+1\right)=(x+1)$
Let $(\mathrm{x}+1)$ be completely divisible by the natural number N . Then,
$\left(3^{63}+1\right)=\left[\left(3^{\wedge} 21\right)^{3}+1\right]=\left(x^{3}+1\right)=(x+1)\left(x^{2}-x+1\right)$, which is completely divisible by $N$, since $(x+1)$ is divisible by $N$.
Thus, Option a is the correct answer
Q.75)

Ans) c
Exp) Option c is the correct answer.
The given sequence follows a specific pattern in which each number is obtained by performing a sequence of mathematical operations on the previous number.
The first number in the sequence is 300 . To obtain the next number, we add 1 cubed ( 1 raised to the power of 3 ) to the previous number, giving us 301.
To obtain the third number, we subtract 2 squared ( 2 raised to the power of 2 ) from the second number, giving us 297.
We then add 3 cubed to the third number to obtain the fourth number, subtract 4 squared from the fourth number to obtain the fifth number, and so on.
Using this pattern, we can calculate the missing number by adding 7 cubed (7 raised to the power of 3 ) to the sixth number, giving us 740 . We can then subtract 8 squared ( 8 raised to the power of 2 ) from 740 to obtain the missing number, which is 676 .
So, the general pattern can be represented as:
$300+1^{3}=301$
$301-2^{2}=297$
$297+3^{3}=324$
$324-4^{2}=308$
$308+5^{3}=433$
$433-6^{2}=397$
$397+7^{3}=740$
$740-8^{2}=676$
Therefore, the correct answer is option $c$.
Q.76)

Ans) b

## Exp) Option $b$ is the correct answer.

$\Rightarrow$ Raj starts with Rs. 500 and pays Rs. 100 to Shyam, leaving Raj with Rs. 400.
$\Rightarrow$ Shyam starts with Rs.500, receives Rs. 100 from Raj, and pays Rs. 50 to Geeta. Therefore, Shyam has Rs. 500 + Rs. 100 - Rs. 50 = Rs. 550.
$\Rightarrow$ Geeta starts with Rs.500, receives Rs. 50 from Shyam, and Rs. 75 from Rani. Therefore, Geeta has Rs. 500 + Rs. 50 + Rs. 75 = Rs. 625.
$\Rightarrow$ Rani starts with Rs. 500 and gives Rs. 75 to Geeta, leaving Rani with Rs. 425.
Now, let's evaluate the statements:
Geeta is the richest. (True - Geeta has Rs.625, which is more than any other individual.)
Rani is the poorest. (False - Raj has less money (Rs.400) than Rani (Rs.425).)
Shyam has less than what Raj and Rani together have. (True - Shyam has Rs.550, while Raj and Rani together have Rs. 400 + Rs. 425 = Rs. 825 .)
Raj is poorer than Geeta. (True - Raj has Rs.400, which is less than Geeta's Rs.625.)
Q.77)

Ans) b

## Exp) Option $b$ is the correct answer.

Selling price $=16,000$
Discount on marked-up price $=20 \%$
Marked-up price $=16,000:(100-20) \times 100=20,000$
Marked-up price is $60 \%$ higher than the cost price.
Hence, cost price $=20,000:(100+60) \times 100=12,500$
Profit $=$ Selling price - Cost price $=16,000-12,500=3,500$
Therefore, Sharmila made a profit of $₹ 3,500$ from the sale of this painting.

## Q.78)

Ans) c

## Exp) Option $\mathbf{c}$ is the correct answer.

Let's assume that each bucket has a capacity of 4 units.
(we choose 4 because it is the LCM of 2 and 4)
Therefore,
The first bucket has 4 * $(1 / 2)=2$ units of water
And the second bucket has $4 *(1 / 4)=1$ unit of water.
Together, they contain $2+1=3$ units of water.
When filled up with juice,
The first bucket gets $4-2=2$ units of juice,
And the second bucket gets 4-1=3 units of juice.
Together, they contain $2+3=5$ units of juice.
So, the ratio of water to juice in the container is $3: 5$.
Q.79)

Ans) c
Exp) Option c is the correct answer.
$\Rightarrow 4.0 \times 0.4 \times 0.04 \times 0.004$

[^20]
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It can also be written as:
$\Rightarrow \quad 4 \times(4 / 10) \times(4 / 100) \times(4 / 1000)$
$\Rightarrow \quad 256 \times 10^{-1} \times 10^{-2} \times 10^{-3}$
$\Rightarrow \quad 256 \times 10^{-(1+2+3)}$
$\Rightarrow \quad 256 \times 10^{-6}$
$\Rightarrow 256 / 10 \times 10^{-5}$
$\Rightarrow \quad 25.6 \times 10^{-5}$
The correct answer would be $25.6 \times 10^{-5}$

## Q.80)

Ans) a

## Exp) Option a is the correct answer.

Let's denote the average expenditure as X .
Five friends spent Rs. 150 each,
so, their total expenditure is $5 * 150=$ Rs. 750.
The remaining seven friends spent $X+$ Rs. 10 each.
So, the total expenditure of these seven friends is $7 *(X+10)=7 \mathrm{X}+70$.
The total expenditure of all twelve friends $=750+7 \mathrm{X}+70$.
We also know that the total expenditure of all twelve friends is equal $=12$ * X
Setting these two expressions equal to each other, we get:
$\Rightarrow 750+7 \mathrm{X}+70=12 \mathrm{X}$,
$\Rightarrow 820+7 \mathrm{X}=12 \mathrm{X}$
$\Rightarrow 820=5 \mathrm{X}$,
$\Rightarrow \quad \mathrm{X}=820 / 5=$ Rs. 164 .
Therefore, the average money spent by each friend was Rs. 164.

[^21]
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