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ANSWERS & EXPLANATION

APTITUDE TEST–Test (4296) – 2024

1 (d)

The number is in the form of $9x + 1$, where x is the quotient.
If $x = 1$, $p = 10$. It's an even number.
If $x = 2$, $p = 19$. It's an odd number.
Hence, option (d) is correct.

2 (d)

The number of people who remembered at least one dream in Group Y = $11 + 68 = 79$
Required probability = $79/200$
Hence, option (d) is correct.

3 (d)

Given:

Samples	Quantity (in litre)
A	261
B	377
C	435

Least number of bottles of equal size will be possible, when the size of the bottles is maximum.
Maximum bottle size can be found by finding HCF of 261, 377 and 435.
$261 = 9 \times 29$; $377 = 13 \times 29$; $435 = 15 \times 29$
So, the HCF = 29, i.e. size of each bottle should be 29 litres.
So, the total number of bottles required = $9 + 13 + 15 = 37$.
Hence 37 bottles of 29 litres each are required.
Hence, option (d) is correct.

4 (a)

Assumption 1 is incorrect: The passage discusses the relationship between religion and political development. The line, *"Religion has assumed not only positive but also neutral and negative roles in shaping a political system"* clearly mentions that the role of religion can be neutral also. In such scenarios, it is possible that religion and politics function independent of each other. So, it would be incorrect to say that religion and politics can never function independent of each other.
Assumption 2 is correct: The given assumption is correct because of the lines "*Since the effects of religion are deeply embedded in the patterns of specific societies, **the impact of religion on the development of the political system varies from one nation to another**."* These lines clearly validate the statement that the impact of religion on politics is not consistent across societies.

5 (d)

Option (a) is incorrect: The core theme of the passage is how religion impacts the arena of politics. However, the passage does not mention how they both shape the moral compass of a nation. So, this option is not the most rational inference.
Option (b) is incorrect: "Politics as a secular activity" is not mentioned in the passage. Also, it is not clear whether or not this is the reason for not mixing religion with politics. So, this option is not the most rational inference of the passage.

Option (c) is incorrect: The passage is on the impact of religion on politics and how it varies with societies. However, the passage does not say that religion in politics can cause divisive tendencies in the society, or that it may even cause public unrest and anarchy.

Option (d) is correct: The statement is supported by the lines "*Religion has assumed not only positive but also neutral and negative roles in shaping a political system. Religion has also reacted to or counteracted political changes either as a full supporter or a partial partner or at other times as a chief rival or an avowed foe. Consequently, **a systematic assessment of this positively supplementing role and negatively undermining the role of religion in politics is an extremely difficult one**, if not an impossible one. Since the effects of religion are deeply embedded in the patterns of specific societies, the **impact of religion on the development of the political system varies from one nation to another**..*" Therefore, to state that the role of religion in politics is debatable and full of complexities would be correct.

6 (b)

Option (a) is incorrect: The context of humans becoming lazy due to technology is not covered in the passage. So, this option is beyond the scope of the passage and is not correct.

Option (b) is correct: The passage shows that humans have evolved but still, there is an urge to engage oneself in some work or the other. It can be seen in the lines "*At some point, **we feel the urge to get busy**, and we know we need to act on it. **Work may not make us free, however, it is an integral part of who we are.***" Hence, this is the most rational inference of the passage.

Option (c) is incorrect: The passage is about how humans engage in some work or the other, making work essential for humans. However, this option mentions that work helped in human evolution, which is not correct as per the passage. So, this option is not the correct inference.

Option (d) is incorrect: The context of huge workload has not been discussed in the passage. Also, the passage mentions that even retired people find it hard not to engage in some activity – "*Even when we do have free time, or when indeed we retire, we find hobbies to keep us busy.*" So, the passage is about work, not workload.

7 (b)

Inference 1 is incorrect: The passage has not stated or hinted that India can or should learn from developed countries in this respect. So, this inference is incorrect.

Inference 2 is correct: The given inference is correct as it is based on the lines "***Unleashing the true potential** of such a strong workforce **demands the employment capacity** of the industry. Therefore, **rigidities and administrative burdens in the labour regime were required to be addressed** through substantive reforms.*" These lines reflect that labour reforms would help in utilizing the increasing labour force in the country, without which India may not be able to increase productivity.

8 (d)

Option (a) is incorrect: The passage does not mention the expectations of the workers, that too in respect of the emerging economies in general. The passage focuses on labour reforms for increasing productivity and growth. So, this option is beyond the scope of the passage and is not correct.

Option (b) is incorrect: The case of emerging economies is mentioned to show that their labour reforms have helped them grow. The context of supplying labour to other emerging economies is not mentioned in the passage.

Option (c) is incorrect: The impact of the increasing labour force on the complexity of reforms or their implementation is not discussed in the passage. Rather, increasing force demands labour reforms as seen in the lines, "*India is projected to have the **largest working population in the world between 2022 and 2034**, with 10 million youth entering the workforce every year. **Unleashing the true potential of such a strong workforce demands the employment capacity** of the industry.*" Therefore, this answer option is incorrect.

Option (d) is correct: The passage is about labour reforms and how they would help in employment and growth. This can be inferred from the lines, *"Therefore, rigidities and administrative burdens in the labour regime were **required to be addressed through substantive reforms** ... Successful emerging economies on a development path have **leveraged their labour supply for accelerating growth**; however, India's labour laws applied to around 80 million workers in the formal sector, **leaving the rest of the 500 million-strong workforce out of these benefits**.*" Hence, this is the best answer.

9 (d)

As per the question, Anjali (70%) > Anika > Alka

Now, Anamika scored fewer marks than only Anshika.

So, Anshika > Anamika > Anjali (70%) > Anika > Alka

The one who scored the minimum marks secured 65%, and the one who scored the highest achieved 87%.

Anshika (87%) > Anamika > Anjali (70%) > Anika > Alka (65%)

Hence, option (d) is correct.

Explanation for Questions 10 to 12:

A went to Q by car and B went to R by aeroplane. C travelled by boat, whereas D travelled by train.

Name	Destination	Mode of transport
A	Q	Car
B	R	Aeroplane
C		Boat
D		Train
E		

The modes of transport used by A, B, C and D are already known. So, E must be the one who travelled by bus. It is also given in the question that the city from which the friends started is not connected by bus to S and T. So, P must be the city that is connected by bus.

Name	Destination	Mode of transport
A	Q	Car
B	R	Aeroplane
C		Boat
D		Train
E	P	Bus

10 (a)

As we have determined above, P travelled by bus.

Hence, option (a) is the correct answer.

11 (c)

A, B and E travelled to Q, R and P respectively. C may have travelled to either S or T.
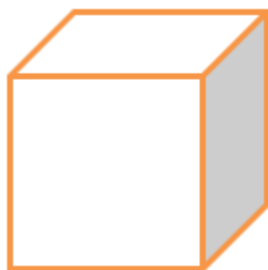
Hence, option (c) is the correct answer.

12 (a)

A went to Q in a car. So, Q is connected by means of car.

Hence, option (a) is the correct answer.

13 (d)

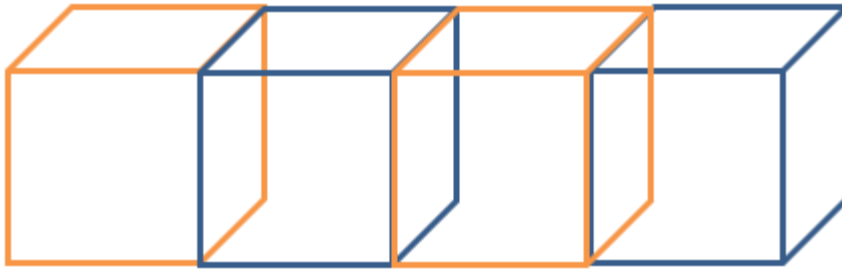Volume of the cube = a^3

Where, a = side of the cube.

So, $a^3 = 64 = 4^3$

$\Rightarrow a = 4$ cm.

So, side of the original cube = 4 cm.

When the four cubes are joined end to end, the length of the resulting figure (a cuboid) will be the sum of the lengths of all the four cubes, however the width and height will be the same as the original cube.

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So, the total surface area = 2(lb + bh + hl),

Where l = length = 4+4+4+4 = 16 cm; b = breadth = 4 cm and h = height = 4 cm.

Hence, the total surface area = 2(16×4 + 4×4 + 4×16) = 2×144 = 288 cm².

Hence, option (d) is the correct answer.

14 (c)

I. $(x+1)/(y+1) > x/y$

or $(x+1)y > x(y+1)$

or $xy+y > xy+x$

or $y > x$

So, it is not true.

II. $(x+1)/(y+1) = x/y$

or $xy+x = xy+y$

or $x = y$

So, it is not true.

III. $(x+1)/(y+1) > 1$:

or $x+1 > y+1$

or $x > y$

It is true.

Hence, option (c) is the correct answer.

15 (b)

2 is the greatest common divisor (GCD) of x and y.

Let's find 2 numbers that have a GCD of 2. How about x = 2 and y = 2

If x = 2 and y = 2, then 5x = (5)(2) = 10, and 5y = (5)(2) = 10

The GCD of 10 and 10 is 10.

Hence, option (b) is the correct answer.

16 (b)

We're told:

Blue chips = 1 point each

Green chips = 5 points each

Purple chips = x points each (more than Green, less than Red, so x = 6, 7, 8, 9 or 10)

Red chips = 11 points each

Now, 88,000 = (11)(5)(5)(5)(64)

Now, we know that there's a mystery number that is between 6 and 10 (inclusive) and must account for 64.

We know that, 64 = (8)(8)

This gives us 2 purple chips.

Hence, option (b) is the correct answer.

17 (b)

Statement 1 is incorrect: In the beginning, the passage says, after the Second World War, due to the extreme abuses, the idea of natural rights was reinvigorated. That means, the idea was invented before the world war. The concept (of natural rights) was simply revitalized or it was brought to the center stage.

Statement 2 is correct: The passage reads, post-World War world order believes that individual has primacy over the state. Further, citizens do not need to justify these rights to the state. Thus, the correct inference is, citizens are bearers of human rights merely by virtue of being human.

18 (b)

Option (a) is incorrect: The passage specifically mentions about post-liberal economy and the social issues around that period. However, the option states that society and the economy have always been connected (not mentioned in the passage). But this is not the main theme of the passage, which is rather how the post-liberal economy has left an indelible mark on ethnic identity and communal dynamics.

Option (b) is correct: The passage is about the post-liberal economy and how it has impacted society as seen in the lines "*Also, it has witnessed heightened competition for resources, exacerbating pre-existing ethnic tensions. The impact is palpable in the rise of communalism, where economic disparities intersect with ethnic fault lines, leading to social fragmentation.*" These lines show the post-liberal economy has impacted society gravely in the context of ethnic identity and communal dynamics.

Option (c) is incorrect: The passage nowhere states that economic reforms were done as a solution to social tensions and ethnic fault lines in the society. The main idea in the passage is to show that along with economic reforms, there were issues in the society related to the reforms' outcomes. So, this is not the best crux of the passage.

Option (d) is incorrect: The given option is contradictory to the passage as seen in the lines "*The impact is palpable in the rise of communalism, where economic disparities intersect with ethnic fault lines, leading to social fragmentation.*" This line shows that there was social fragmentation as an impact of reforms, and not unity. So, this option is not the best crux.

19 (c)

Statement 1 is correct: The given way is correct as per the lines "*The **production of biohydrogen through microbial processes** represents another avenue with the potential to alleviate the fuel crisis.*"

Statement 2 is correct: The given way is correct as per the lines "*Microbial biofuels, such as biodiesel and bioethanol, leverage the metabolic capabilities of microorganisms to **convert organic matter into energy-rich compounds.**"

Statement 3 is incorrect: Though this option seems to be correct, the passage does not mention anything related to increasing species richness or hotspots to solve fuel shortage.

20 (c)

Option (a) is incorrect: The passage highlights that in the quest for freedom, people shun discipline. It nowhere reflects that discipline and freedom are incompatible with each other. So, this option does not reflect the most logical and rational inference.

Option (b) is incorrect: The passage is about discipline and freedom. The lines *"They **opine it as a negative element in the way of freedom in their lives and others too**. Having discipline is a way **to handle the situation positively**. It **enriches the life of every day even in the hardest situation**"*, show that discipline is not a barrier to freedom. At the same time, we cannot say that only discipline (and nothing else) brings freedom. So, this is an incorrect answer.

Option (c) is correct: Refer to the line: *"People want to get freedom in a shortcut way, or they hack it."* It might be easier to be free than to be disciplined, if long-term time frame is not considered. Therefore, this answer option is the most logical inference among all given alternatives.

Option (d) is incorrect as both options (a) and (b) are incorrect.

21 (b)

Option (a) is incorrect: The given option focuses on the creation of effective policies, but the core theme in the passage is not limited to the creation of policies. The passage does not mention that until there is a middle-income trap, the policies will not be effective. In fact, effective policies might even be put in place to prevent the very occurrence of such an event. Further, to state that effective policies can be created only after a country faces it would be an extreme inference, not based on the passage. So, this is not the best crux of the passage.

Option (b) is correct: The given option is based on the lines "*In recent years, **policymakers in slower-growing middle-income countries (not all) have become preoccupied** with the **notion** that they are stuck in a "middle-income trap." Much has been debated about this **so-called trap**—from how it occurs to the types of **policies that might help countries escape it.**"* The passage is about policymaking in order to transition from poor/low-income to developed. This whole essence is reflected in the option. So, this is the correct answer.

Option (c) is incorrect: The given option reflects a necessary outcome that every country faces the middle-income trap while growing from a poor to a developed status. This reflection is not correct as it is not based on the passage. As per the passage, only some countries face this issue. Consider the lines, "*In recent years, policymakers in **slower-growing middle-income countries** have become preoccupied with the notion that they are stuck in a "middle-income trap."* So, this option is not the best crux of the passage.

Option (d) is incorrect: The option has linked escaping the middle-income trap with poverty alleviation in low-income countries, which is not seen in the passage. Also, the middle-income trap is a phenomena used to describe the experience of slow-growing middle-income countries rather than low-income countries. So, the given option is not the best crux of the passage.

22 (b)

If abc is the original number, then cba is the other number.
abc = 100a + 10b + c
cba = 100c + 10b + a
Difference = 99 (a ~ c)
This would always be divisible by 9 & 11
Hence, option (b) is the correct answer.

23 (d)

2890 is a multiple of 17, and the next 10 numbers will leave remainders of 1, 2, 3 ….. 10.
So, required remainder = $1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7 \times 8 \times 9 \times 10 = (6 \times 3) \times (10 \times 5) \times (2 \times 8) \times (4 \times 9) \times (1 \times 7) = 18 \times 50 \times 16 \times 36 \times 7 = 1 \times (-1) \times (-1) \times 2 \times 7 = 14$
Hence, option (d) is the correct answer.

24 (d)

Two consecutive integers cannot be divisible by the same integer greater than 1.
So, if we can prove that h(100) is divisible by every number smaller than or equal to 50, it would mean that h(100)+1 is NOT divisible by any number smaller than 50 (besides 1).
$h(100) = 2 \times 4 \times 6 \times ... \times 98 \times 100 = 2 \times (1 \times 2 \times 3 \times ... \times 50) = 2 \times (50!)$
Hence, h(100) is divisible by every number smaller than 51. So, the smallest prime factor of h(100)+1 is at least 53.
Hence, option (d) is the correct answer.

25 (c)

Let the integers be
x, x+1, x+2, x+3, x+4 .... x+9
Thus, A = 5x+10
Sum of last 5 terms = 5x + 35 = 5x + 10 + 25 = A + 25.
Hence, option (c) is the correct answer.

26 (a)

Volume of water collected in the rectangular water tank in 12 hours (it will be like a cuboid), V = lbh
where l = length, b = breadth and h = height.
So, V = 60 m × 40 m × 1 m.
So, Volume of water collected in the tank in 1 hour, $V_1 = (60 \times 40 \times 1)/12 = 200 \text{ m}^3$.
Water comes through a pipe of cross section = 10 cm × 10 cm = 0.1 m × 0.1 m = 0.01 m².
So, The speed of water = Distance travelled by the water in the pipe in one hour = 200/0.01 m = 20000 m = 20 km.
So, The speed of water = 20 km/h.
Hence, option (a) is the correct answer.

27 (d)

Let the present ages of Dennis and his father be x and y respectively.

Then, x = y/3

And (x-5) = (y-5)/4

From equations (i) and (ii), we get:

(x-5) = (y-5)/4

Or [(y/3)-5] = (y-5)/4

Or (y-15)/3 = (y-5)/4

Or 4y – 60 = 3y – 15

Or y = 45

y = 45 years, and x = 15 years

So, required age = (y+5) = 50 years

Hence, option (d) is the correct answer.

28 (a)

The original folded piece of paper is as follows:

On unfolding its layers it will look as shown below:

Hence, option (a) is the correct answer.

29 (c)

Letters are written in reverse order and moved +2 alphabetically.

Reverse of CUTTER is RETTUC.

Now, add 2 to each letter. R+2=T, E+2=G, T+2=V, and so on.

So, code of CUTTER is TGVVWE.

Hence, option (c) is the correct answer.

30 (d)

The small letters are b, d, f, h, j, l, n, p, r, t, v, x, z.

The third day from Tuesday would be Friday and it would be written as frIdAY.

Hence, option (d) is the correct answer.

31 (b)

For the letters, there are 26 possibilities for each of the 3 slots, and for the numbers, there are 10 possibilities for each of the 3 slots.

The total possible number of combinations = 26 x 26 x 26 x 10 x 10 x 10 = 17,576,000 ≈ 18 million.

Hence, option (b) is the correct answer.

32 (d)

Option (a) is incorrect: Though true, this is not the main inference of the passage. The passage reflects how economic capital and natural and human capital are important for growth, and so all of them should be taken in account to measure and achieve sustainable development.

Option (b) is incorrect: The passage does not include the context of the role of government per se. It only mentions that GDP has certain limitations, but that does not mean giving up GDP completely as suggested in the option. So, this option is not the logical inference from the passage.

Option (c) is incorrect: Though true, this statement covers only a part of the argument presented in the passage.

Option (d) is correct: The following lines in the passage - "*It is a multipurpose indicator capable of measuring **not only traditional stocks of wealth** but also those less tangible and unseen—such as **educational levels, skill sets, health care, as well as environmental assets** and the functioning of key ecosystem services that form the backbone of human well-being and **ultimately set the parameters for sustainable development***", show that economic capital, human capital and natural capital determine sustainable growth/development. So, it is correct to infer that economic, human and natural capital should be the parameters of growth.

33 (d)

Inference 1 is incorrect: The passage specifies that despite infrastructure, people avoid using it and practice open defecation as seen in the lines, "*… and economic factors may impair people from using or avoiding infrastructure considered safe and hygienic by environmental and health standards.*" Also, the passage does not exclusively mention that there is a lack of infrastructure. So, the inference that there is a need to build infrastructure is not correct as per the passage.

Inference 2 is incorrect: The passage mentions the issues of open defecation in developing countries as seen in the lines, "***Open defecation is a serious sanitation issue most developing countries** are battling with.*" But to extrapolate it and conclusively state that developed countries do not face this issue would not be based on the information contained in the passage. So, this inference is not valid.

34 (a)

Option (a) is correct: The passage is about open defecation, how it continues due to the lack of cultural acceptance in society, and how inclusive policies would be needed to solve this. It is seen in the lines, "*Understanding the sociocultural and economic factors underlying open defecation is therefore **crucial for any policy aimed at eradicating** the practice. Finally, **community-led initiatives** that draw on the creativity and capacity of local people to take control of their change processes **must be integrated into open defecation intervention programmes***." These lines validate the given option.

Option (b) is incorrect: The given option is generic and not specific to the core theme of the passage. The core theme is to understand the reasons for continued open defecation and suggest measures to eradicate it as captured in option (a). This option merely states that sanitation is needed for eradication. So, this is not the best crux of the passage.

Option (c) is incorrect: The passage clearly mentions community participation as a tool for the eradication of open defecation. It is reflected in the last line of the passage, "*Finally, community-led initiatives that draw on the creativity and capacity of local people to take control of their change processes must be integrated into open defecation intervention programmes.*" Therefore, it would be incorrect to say that policies alone (without community participation) would be sufficient to eradicate open defecation.

Option (d) is incorrect: The given option does not cover the core theme of the passage which is the reason for open defecation and the solution suggested. This option only mentions that it is a normal act, which does not signify anything related to the core theme of the passage. So, this is not the best crux of the passage.

35 (b)

Inference 1 is incorrect: The given inference seems to be based on the lines "***All societies** evolved their modes of dividing their history into periods: dynastic and regnal was the one prevalent in India, Iran, the Turko-Mongol regions, besides Europe.*" These lines show that all societies divide history in different ways, but it does not mean that every society has a religious history. In the context of this passage, the religious history is specific to European society. So, this inference is not correct.

Inference 2 is correct: It can be inferred from the lines – "*The all-too-familiar **triad of historical periodisation — ancient, medieval, modern** — now universal, has rather specific provincial and temporal origins. … **The triad took birth in Europe** around the 16th and 17th centuries, first in the history of theology and steadily in society's history, finding its largely evolved form in 1688 at the hands of Cellarius, a German.*"

36 (b)

30 megabits/sec = 30 x 3600 megabits per hour = 108000 megabits/hour

Now, 108000 megabits/hour = 108000 / (8 x 1024) gigabytes/hour = 13.184 gigabytes/hour

In a 6 hour period, the total number of gigabytes that can be downloaded = 13.184 x 6 = 79.10 gigabytes

Since, 79.104/4.2 ~ 18.8, a maximum of 18 video files can be downloaded.

Hence, option (b) is the correct answer.

37 (a)

To start, the first player makes 6 high-fives. The second player needs to make only 5 new high-fives because he doesn't need to re high-five the first player. The third player needs to only make 4 high-fives and so on.

This adds up to 6 + 5 + 4 + 3 + 2 + 1 = 21

Hence, option (a) is the correct answer.

38 (a)

The number in the circles are given by the sum of first n natural numbers. So, $S_n = n(n+1)/2$

$S_1 = 1$; $S_2 = 3$; $S_3 = 6$; **$S_4 = 10$;** $S_5 = 15$; $S_6 = 21$; $S_7 = 28$; $S_8 = 36$; $S_9 = 45$

Note: You may also solve it considering it to be a question of series, wherein the difference between the terms is continuously increasing by 1.

Hence, option (a) is the correct answer

39 (a)

Total number of students from Bihar = 50+30 = 80

Total number of students who were selected for the interstate program = 20

Total number of students of Bihar who were selected for the program = 10% of 20 = 2

So, Percentage of students of Bihar who were selected for the program = $(2/80) \times 100 = 2.5\%$

Hence, option (a) is the correct answer.

40 (c)

Total number of students from Maharashtra = 30 + 20 = 50

Number of students from Maharashtra who were selected for the program = 20% of 20 = 4

All the four students who were selected were girls.

So, Number of girls of Maharashtra who were not selected = 20 -4 =16

Percentage of girls of Maharashtra who were not selected = $(16/20) \times 100 = 80\%$

Hence, option (c) is the correct answer.

41 (a)

Total number of girls who were selected for the interstate team = 50% of 20 = 10

Total number of selected students who were from Bihar = 10% of 20 = 2

Total number of selected students who were from Punjab = 30% of 20 = 6

Total number of selected students who were from Haryana, Tamil Nadu and Maharashtra = 20% of 20 = 4 each

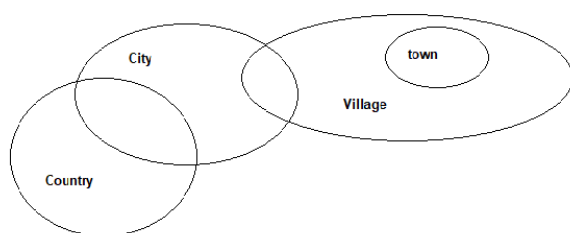Now, it is given in the question that all the ten girls were only from two states.

This is possible only when the six girls of Punjab are selected and the other 4 girls can befrom any one of the states – Haryana, Tamil Nadu or Maharashtra

In all these cases, the girls from Bihar are not selected.

Hence, option (a) is the correct answer.

42 (a)

Venn diagram:

So, only conclusion I follows.

Hence, option (a) is the correct answer.

43 (d)

Assumption 1 is incorrect: The passage clearly says that agrarian and indigenous lifestyles attract over half of Indian travellers. This clearly means that there is a preference for destinations too. The last line of the passage does talk about experience, however, it would be incorrect to say that it is the sole criterion for planning holidays. Therefore, this answer option is incorrect.

Assumption 2 is incorrect: Refer to the last line of the passage: *"From thrilling adventures in a **new destination** to feeling the pulse of a **new culture** and every experience in between, travel allows us to become the best version of ourselves."* The author does talk about new destinations and new experiences, however, it does not mean that tourists hate (abhor) visiting the same place again. It is possible that they experience something new every time they visit the same place. Hence, this is not the correct assumption based on the passage.

44 (b)

Option (a) is incorrect: The given option is very generic and broad, and does not cover the main theme of the passage. The different purposes of tourists for travel can be seen in the lines "*59% of Indian travellers carve out time for **matchmaking holidays** (to find a spark with a new partner), 53% opt for **heartbreak holidays** (providing the healing space needed to overcome past relationships), ...*" So, we can keep this option on hold and consider other options. Also, to say that tourism is linked to "every" aspect of our lives would be a bit of an exaggeration.

Option (b) is correct: The passage, in various instances, discusses that the purpose for travelling is different for different people. This is visible in the lines "*59% of Indian travellers carve out time for matchmaking holidays (to find a spark with a new partner), 53% opt for heartbreak holidays (providing the healing space needed to overcome past relationships), and 79% plan to travel solo for personal rejuvenation. Agrarian and indigenous lifestyles attract over half of Indian travellers — reflecting a desire for self-sufficiency and harmony with nature.*" So, this answer option better captures the different dimensions of the passage.

Option (c) is incorrect: Travel helps us understand ourselves as per the lines "*The 2024 travel predictions reflect the idea that travel is not a means to escape life, but instead, a catalyst to live our best lives.*" However, the option states the contradiction. The passage covers different purposes of travel which help us in living our best lives. So, this is not the correct inference from the passage.

Option (d) is incorrect: The context of government role and what they should do as regards the growth of the tourism industry is not discussed in the passage. Hence, this option is completely beyond the scope of the passage.

45 (b)

Assumption 1 is incorrect: The link between open communication and healthy relationships with modern society is not explained in the passage. The main theme of the passage is the importance of difficult conversations for healthy relationships. Hence, this is not the correct assumption as per the passage.

Assumption 2 is correct: The given assumption is based on the lines "*Many times, in relationships, we tend to avoid difficult conversations, thinking that it can lead to either disagreements or fights. But what we forget is that **these unresolved and undiscussed conversations result in misunderstandings and conflicts.***" These lines show that the non-discussion of unresolved and undiscussed things would lead to conflicts, hence this assumption that a person should know how to discuss them is correct.

46 (a)

Option (a) is correct: The passage is about the importance of having difficult conversations for building healthy relationships, which is perfectly reflected in the given option. The lines "*Unlike the traditional cold plunges that involve immersing oneself in freezing waters to improve our health, 'relationship cold plunges' are the difficult conversations and choices we need to make while coming out of our comfort zone to ensure the health of our relationships*" show the importance of difficult conversations in building healthy relationships. Therefore, this is the best inference of the passage.

Option (b) is incorrect: The passage discusses the importance of difficult conversations for building healthy relationships. However, the context of narrow-minded societies has not been discussed. Hence, this option is not the correct inference of the passage.

Option (c) is incorrect: The passage does not mention about the lack of patience and quality time in modern times. So, this option is beyond the scope of the passage.

Option (d) is incorrect: The passage does not touch upon the nuances of comfort zone. The author mainly discusses the importance of difficult conversations for building healthy relationships, which is not a part of this answer option. Moreover, relationship cold plunges can only be achieved once a person comes out of his/her comfort zone a bit. So, in a way, this statement is contrary to what the passage says. So, this is not the correct inference as per the passage.

47 (d)

Inference 1 is incorrect: The passage talks about collaborative efforts as a way forward. So, it would be incorrect to say that inclusive approach increases the challenge of regulation of gene and cell therapy. Therefore, this is not the correct inference as per the passage.

Inference 2 is incorrect: The given inference seems to be based on the following lines "*Investing in research and development, **creating regulatory frameworks that balance innovation with ethical considerations,** and fostering a supportive ecosystem for biotechnology are crucial steps.*" However, these lines mean that the regulatory framework would help balance the innovation and ethical consideration for gene and cell therapy. This does not mean that ethical considerations compromise innovations. Hence, this inference is not correct as per the passage.

48 (d)

Option (a) is incorrect: The main theme of the passage is the challenges faced by gene and cell therapy. The passage only says that it has immense potential. Whether or not it is the most promising future course for healthcare is not specifically discussed in the passage. So, this option is not correct as per the passage.

Option (b) is incorrect: The passage nowhere mentions that future healthcare would be incomplete without biotechnology integration. So, this is not the correct answer as per the passage.

Option (c) is incorrect: The passage does not weight the concerns and benefits of gene and cell therapy. Hence, it would not be correct to conclude that there are more concerns than benefits. So, this is not the correct option as per the passage.

Option (d) is correct: The central theme of the passage is the concerns related to gene and cell therapy. The different stakeholders mentioned in the passage need to play a critical role. These are mentioned in the lines - "*Despite the **immense potential**, the integration of gene and cell therapy into mainstream healthcare in India comes with its own set of challenges. From infrastructure limitations to ethical considerations, ... **collaborative efforts - bringing together scientific communities, industries, policymakers, and healthcare providers**.*" For the success of gene and cell therapy, there is a need of collaborative efforts of different stakeholders.

49 (b)

For M to earn 50% more votes than T, she will need to earn 1.5 times his amount of votes. If we call T's amount of votes x, and the total number of votes is 250, we can set up the equation:

x + 1.5x = 250

Or 2.5x = 250

Or x = 100

This means that T will get 100 votes. Since there are 250 votes in total, we can figure out that M will end up with 150 votes.

M already has 88 votes.

So, M needs to earn 150 − 88 = 62 more votes.

Hence, option (b) is the correct answer.

50 (d)

Let x be the speed of the freight train.
Speed   Time   Distance
x   3 hrs   3x
x+20   3 hrs   3(x+20)
The total distance the two trains traveled in 3 hours = 500 - 80 = 420 miles.
Hence, 3x + 3(x+20) = 420
Or 3x+3x+60 = 420
Or 6x = 360
Or x = 360/6 = 60 miles per hour
Hence, option (d) is the correct answer.

51 (d)

Time = Distance/Speed
In the above question, Distance = 120 miles
Let the speed for outgoing trip be x mph
So, Speed for incoming trip = x+5 mph
Time for outgoing trip = 120/x hours
Time for incoming trip = 120/(x+5) hours
Now, as per the question:
(120/x) – (1/3) = 120/(x+5)
Or 120/x = [120/(x+5)] + 1/3
Hence, option (d) is the correct answer.

52 (d)

A, B and C are siblings. A and B both are males, but we don't know about the gender of C. So, we cannot say that C is the brother of A.
Hence, option (d) is the correct answer.

53 (d)
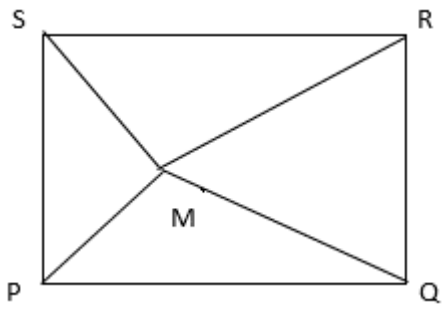
If M is any point inside a rectangle PQRS, then
$MP^2 + MR^2 = MS^2 + MQ^2$ (Formula)
Given, MS = 5 cm, MQ = 6 cm and MR = 7 cm
So, $MP^2 + 7^2 = 5^2 + 6^2$
$\Rightarrow MP^2 = 25 + 36 - 49$
$\Rightarrow MP^2 = 12$
$\Rightarrow MP = \sqrt{12}$
$\therefore MP = 2\sqrt{3}$ cm.
Hence, option (d) is the correct answer.

54 (c)

The term in the middle row is the product of the numbers in the first and the third column.
So, the required number = 63/7 = 9
Hence, option (c) is the correct answer.

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55 (c)

Using the given options:
1. A B B C C → A B C **A / A B** C C **/** A B **B** C**/ C** B **C** C
2. C A B B A → A B C **C / A A** C C **/** A B **B** C**/ B** B **A** C
3. C B C A C → A B C **C** /A **B** C C/A B **C** C/ **A** B C C
4. A C C B A → A B C **A**/ A **C** C C/ A B **C** C/ **B** B **A** C

Using option (c), we can see that ABCC is getting repeated.
Hence, option (c) is the correct answer.

56 (d)

The prime factorization of $16 \rightarrow 2^4$
If the GCF (16, n) = 4 (where n is a positive integer), then we know that there are at least two 2's in n's prime factorization.
If the GCF (45, n) = 3, then we know two additional pieces of information:
1) Given that the prime factorization of 45 is 3^2 x 5, we know that 5 isn't a factor of n.
2) At least one 3 is in n's prime factorization.
So, now we have at least two 2's and at least one 3 in n's prime factorization.
The question is asking for possible values for GCF (n, 210).
210's prime factorization = 7 x 3 x 2 x 5
n's (partial) prime factorization = 2 x 2 x 3
Since 210 and n at least share one 2 and one 3, we can eliminate (a) as a possible choice. Option (c) can be eliminated because we know that 5 is not in n's prime factorization. Option (b) can also be eliminated because we already know that 210 and n share one 2 and one 3 and the prime factorization of 14 (2 x 7) does not contain a 3.
Hence, option (d) is the correct answer.

57 (a)

1- digit numbers: 9 digits (9 numbers)
2- digit numbers: 180 digits (90 numbers)
3-digit numbers: 2700 digits (900 numbers)
4-digit numbers: 3189 – (9 + 180 + 2700) = 300 digits (75 numbers)
Therefore, total number of pages = 9 + 90 + 900 + 75 = 1074
Hence, option (a) is the correct answer.

58 (c)

1/8 part of a pencil is black, half of the remaining, i.e. (1/2) x 7/8 = 7/16 is yellow.
Now the part left = 7/16, which is equal to 3.5 cm.
Therefore, the total length of the pencil = 3.5/(7/16) = 8 cm.
Hence, option (c) is the correct answer.

59 (a)

We may write the right side as y(y+1).
If y decreases, then both y and y+1 decrease. Since they are both negative, their magnitude (without negative sign) increases, and this makes the product increase in value. Thus, x increases in value as y decreases.
Hence, option (a) is the correct answer.

60 (a)

Since the supermarket sells apples in bundles of 4, we can represent the number of apples that Susie buys from the supermarket as 4x, where x can be any integer $\geq$ 0.
If the number of apples that Susie buys from the convenience store is simply y, the total number of apples she buys is (4x + y).
We are asked to find the smallest possible value of y such that (4x + y) can be a multiple of 5.
If y = 0, (4x + y) can still be a multiple of 5.
The value of (4×5 + 0) is 20, which is a multiple of 5.
Hence, option (a) is the correct answer.

61 (c)

The next term of the sequence is half of the previous term.
So, the term after 1 will be ½
Hence, option (c) is the correct answer.

62 (c)

Option (a) is incorrect: The passage states the impact of culture on women, but how women affect the culture is not discussed in the passage. So, the context that culture and women moulding each other is not a part of the passage. Hence, this option is not the best crux of the passage.

Option (b) is incorrect: The passage does talk about the discrimination faced by girls, but the main theme of the passage is how culture impacts men and women. Inculcating the values of equality and respect for girls could be a peripheral argument. It is not the best crux of the passage. Therefore, this answer option is incorrect.

Option (c) is correct: The passage is about the impact of culture on men and women. This is visible in the lines "*However, many **Asian, Indian, Hispanic, and Latino cultures believe that girls** (even if the youngest) **should take care of the males in the family**. It's often acceptable for **boys to bend the rules whereas girls are expected to follow the rules.**"* These lines show that it is the culture which shapes the values of boys and girls, and hence, we can state that culture has a deep impact on men and women in society. So, this is the best crux of the passage.

63 (b)

Assumption 1 is incorrect: The passage does acknowledge the benefits of organic farming, but it nowhere states that only organic farming can solve the present issues. Also, the passage does not cover what the present issues of agriculture sector are. So, to assume that only organic farming can solve the issues would not be correct as per the passage.

Assumption 2 is correct: The passage clearly emphasizes that organic food is thought to be healthier and safer, indicating that consumer health is a significant concern and a driving factor behind the promotion of organic farming. It mentions that organic farming promotes the health of consumers, along with ecological and economic benefits. These arguments make this assumption valid.

64 (a)

Option (a) is correct: The passage mentions the benefits of organic farming in the context of health benefits and economic growth through leveraging world markets. This option also captures the essence of the passage that focuses on how organic farming would benefit India domestically (health) and internationally (exports). This is visible in the lines "*The organic farming process is more eco-friendly than conventional farming. Organic farming keeps **soil healthy and maintains environmental integrity** thereby, **promoting the health of consumers**. Moreover, the **organic produce market is now the fastest-growing market worldwide, including India**."* So, this is the best crux of the passage.

Option (b) is incorrect: The context of government investing in promoting organic farming is not covered in the passage. There is no mention of the role of the government in any context. So, this option is entirely beyond the scope of the passage.

Option (c) is incorrect: The passage mainly mentions the benefits of organic farming, and does not discuss the issue of lack of awareness among farmers. So, the context of this option as well is not mentioned in the passage.

Option (d) is incorrect: The given option overlooks the non-financial aspects of organic farming. The author also emphasizes other benefits like nutritional, health, ecological etc. So, this is not the best crux of the passage.

65 (c)

Option (a) is incorrect: The passage mainly focuses on how technology would aid in meeting future food requirements. However, GMO crops are not mentioned or indicated in the passage in any context. The use of technology could mean other interventions like farm mechanisation and food processing. Therefore, this option is beyond the scope of the passage, and is therefore incorrect.

Option (b) is incorrect: Refer to the line: *"...but the changing dietary patterns would mandate the ... able to meet the nutritional requirements of consumers..."* There is an indication towards the changing nutritional needs. However, this option states that there is a total absence of nutritional awareness, which is incorrect. So, this option does not quite capture the best rational inference from the passage.

Option (c) is correct: The passage is about the role of technology in addressing the changing food demands of the consumers, as seen in the lines - "*Significant disruptions would be required at the supply end to manage **evolving food demands**, to which **technology will serve as a key enabler**.*" The other context of food safety is also covered in the lines "*Additionally, **production systems need to be geared towards addressing food safety** and ensuring traceability of the product to meet evolved consumer demands.*" These lines validate that technology would help in addressing the changing food demands as well as ensure food safety for consumers. So, this is the logical inference from the passage.

Option (d) is incorrect: The context of food safety and limited agriculture resources is discussed in the passage, but the context of lack of awareness is not covered in the passage. Consumer awareness is not a part of the passage and does not reflect the best logical inference of the passage.

66 (c)

Let xy be the number (N)

So, $N = xy = 10x + y$. ……..(1)

If we add to it a two digit number A, it will become $yx = 10y + x = A + N$ ……..(2)

Again, if we add the same number, we will get $x0y = 100x + y = 2A + N$ ……..(3)

Now, $(2) - (1) = (3) - (2) = A$

$\therefore (10y + x) - (10x + y) = (100x + y) - (10y + x)$

Or $9y - 9x = 99x - 9y$

Or $y - x = 11x - y$

Or $2y = 12x$

Or $y = 6x$

Since x and y are single digits, only $x = 1$ and $y = 6$ will satisfy this.

$\therefore A = (2) - (1) = 9y - 9x = 45x = 45$

Hence, option (c) is the correct answer.

67 (d)

Notice that the difference between the numerator and the denominator in each fraction is equal to 3. Since all of the numbers are positive and less than 1, we know that the larger the denominator, the larger the fraction.

E.g. $1/4 < 2/5 < 3/6 < 4/7 < 5/8 < 6/9 < 7/10$

Using this logic, we can see that the largest fraction is $1883491/1883494$

Hence, option (d) is the correct answer.

68 (c)

$\log_{10} p - \log_{10} \sqrt{p} = 2\log_p 10$

$\Rightarrow \log_{10} [p/\sqrt{p}] = \log_p 10^2 = \log_p 100$

$\Rightarrow \log_{10} \sqrt{p} = \log_{10} 100/\log_{10} p$

$\Rightarrow 1/2 \log_{10} p = 2/\log_{10} p$

$\Rightarrow (\log_{10} p)^2 = 4$

$\Rightarrow \log_{10} p = \pm 2$

$\Rightarrow \log_{10} p = 2$ or $\log_{10} p = -2$

$\Rightarrow p = 10^2$ or $p = 10^{-2}$

$\therefore p = 100$ or $p = 1/100$.

Hence, option (c) is the correct answer.

69 (a)

Sum of all the internal angles = $[(n - 2) \times 180]°$

(where, n = number of sides).

Sum of all the corresponding external angles = 360°.

So, Sum of all the internal angles and all the external angles = $(180n - 360) + 360 = (180n)°$.

So, $180n = 1440$

$\Rightarrow n = 8$.

Now, Number of diagonals = $^nC_2 - n = n(n-1)/2 - n = n(n-3)/2$

[Joining any two points (vertices) will yield a line, but this will include the sides and diagonals both, i.e.

Number of sides + Number of diagonals = $^nC_2$

$\Rightarrow n + $ Number of diagonals = $^nC_2$

⇒ Number of diagonals = $^nC_2 - n$

Hence, the required number of diagonals = $(8×5)/2 = 20$.

Hence, option (a) is the correct answer.

70 (c)

Let there be 'n' rows and 'a' students in the first row.

So, the number of students in the second row = $(a - 4)$.

The number of students in the third row = $(a - 8)$ and so on.

So, the number of students in each row form an arithmetic progression with common difference, d = -4.

Sum of 'n' terms in A.P. (arithmetic progression), $S_n = n/2[2a + (n - 1) d]$,

where, n = number of terms, a = first term and d = common difference.

Now, consider the options.

Option (a): n = 6,

$6/2[2a + (6 - 1) (-4)] = 1260$

∴ a = 220.

Option (b): n = 5,

$5/2[2a + (5 - 1) (-4)] = 1260$

∴ a = 260.

Option (c): n = 8,

$8/2[2a + (8 - 1) (-4)] = 1260$

∴ a = 343/2.

Option (d): n = 7,

$7/2[2a + (7 - 1) (-4)] = 1260$

So, a = 192.

As 'a' is an integer, so 'n = 8' is **not** possible.

Hence, option (c) is the correct answer.

71 (b)
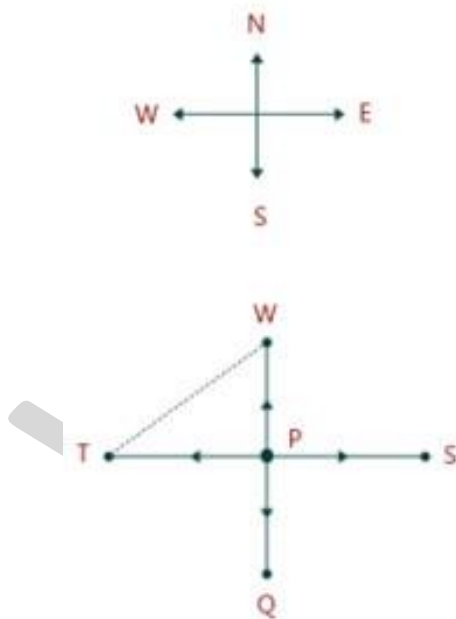
W is in the North-East direction with respect to T.

Hence, option (b) is the correct answer.

72 (a)

Let xyz be the three-digit number divisible by 5. So, z can only be 0 or 5.

We are also given that x = 2y. This means x+y (i.e. 2y+y) must be a multiple of 3.

CASE 1:

x+y+0 = 11

or x+y = 11

This can't be the case, because 11 is not a multiple of 3.

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CASE 2:
x+y+5 = 11
or x+y = 6
On solving we get, x=4 & y=2
So, the 3-digit number is 425.
The product of the digits = 4 x 2 x 5 = 40
Hence, option (a) is the correct answer.

73 (b)

Let there be 'x' Amoeba in the first generation, i.e. $n_1 = x$.
So, $n_2 = 10x$, but only 50% survive,
So, $n_{2, survived} = 10x/2 = 5x$.
$n_3 = 10(5x)$, but only 50% survive,
So, $n_{3, survived} = 10(5x)/2 = 25x = 5^2x$.
Similarly, $n_{6, survived} = 5^{6-1} x = 5^5x$
Now, it's given that: $5^5x = 3125$
$\Rightarrow 3125x = 3125$
$\therefore x = 1$.
Hence, option (b) is the correct answer.

74 (c)

HZ = PK = 9 m
$\therefore$ BZ = HZ – BH = 9 – 4 = 5 m
Hence, option (c) is the correct answer.

75 (c)

Option (a) is incorrect: The passage nowhere compares democracy with authoritarianism. It only states the situation of various countries presently and historically. However, the option prefers democracy which is not based on the information given in the passage. So, this is not the best crux of the passage.
Option (b) is incorrect: The given option is not correct because it underlines the reason to value democracy. However, the passage nowhere shows that democracy can only be valued if it's seen in context of the experience of authoritarianism. So, this option is not the best crux of the passage.
Option (c) is correct: The passage merely presents the situation of democracy and authoritarianism in the lines *"**Many countries are not democracies**, and most countries that are democratic are younger than a lifetime. This means that for **most people, life under authoritarianism is either their current experience, or they remember a time when it was.**"* These lines show that presently some countries practice democracy and others practice authoritarianism. So, this option best reflects the crux of the passage.
Option (d) is incorrect: The given option seems to be correct in general, but it is not what is implied in the passage. The passage nowhere reflects that authoritarianism should be overthrown to establish democracy. It only states the situation of different countries concerning democracy and authoritarianism. So, this option does not reflect the best crux of the passage.

76 (b)

Option (a) is incorrect: The passage does not discuss anything about charismatic leaders and their qualities. It only mentions social intelligence and its relevance. So, this option is beyond the scope of the passage and is not the best crux of the passage.

Option (b) is correct: The passage is about the importance of social skills/intelligence. However, it also discusses that social intelligence has been neglected and only the hard skills have been focussed upon. This is visible in the lines *"But when it comes to the so-called "soft" skills ... **we rarely see them as part of an intelligence questionnaire. And while the hard skills are very important**, it's the soft ones that help us maintain friendships, be satisfied at work, or simply find happiness in life."* and "*these skills, which we also call social intelligence, are so often **neglected in schools**"* These lines show that social skills are important, but they are less valued than hard skills. So, this is the best crux of the passage.

Option (c) is incorrect: The main theme of the passage is not the role of schools in shaping social intelligence. The context of the school is used as a passing reference to show that social intelligence has been ignored in various fields. So, this is not the best crux of the passage.

Option (d) is incorrect: The given option states the role of social intelligence in the context of effective communication which is not the main theme of the passage. The passage is primarily about the importance of social intelligence. So, this option is not the correct crux of the passage.

77 (d)

Inference 1 is incorrect: There is no mention of Digital India programme anywhere and in any context in the passage. The passage talks about consumer trust, market penetration, future prospects and impact of technology in insurance sector. Therefore, this answer option is incorrect.

Inference 2 is incorrect: High GST rates and lack of trust are covered in the passage, but awareness of products is not mentioned as a reason for poor insurance penetration in the country. Furthermore, we cannot conclusively say that they are the 'only' reasons. So, this option is not the correct inference based on the passage.

78 (d)

Option (a) is incorrect: The passage is about the role of digitalization and technologies in improving insurance penetration. However, this option does not reflect it. The option states the importance of insurance for every citizen which is not the main theme of the passage. So, this is not the correct option.

Option (b) is incorrect: The passage is not about the issue of digital connectivity as the reason for poor insurance penetration. The passage is on the role of digitalization and technologies in improving insurance penetration. So, this option does not reflect the core theme of the passage, and hence does not present the best-implied meaning of the passage.

Option (c) is incorrect: The given option would be correct in general, but this is not the main theme of the passage. It misses the main context of the role of technology in insurance penetration as covered in option (d). Also, health expenditure of the government has not been discussed in the passage. The passage is about insurance in general, and not health insurance specifically.

Option (d) is correct: The passage is on the use of technology in promoting insurance coverage. There are multiple factors at play in insurance market - the trust in the company, and GST rates - as seen in the lines "***Beyond technology**, there is a **need for insurance companies to work towards building greater customer trust** in the industry and improving access to insurance by rethinking various processes and rules, such as the **GST rate for insurance products** to boost insurance penetration for the next billion Indian online users."* These lines show that only technology (though important) is not sufficient to improve insurance penetration. So, this is the best-implied meaning of the passage.

79 (b)

Option (a) is incorrect: The passage is not about the consequences of valuing destiny over free will. It discusses the debate around free will and destiny without any bias. So, to state that valuing destiny causes complacency and laziness is not correct as per the passage.

Option (b) is correct: The passage discusses the views on free will and destiny. It states the two aspects of the historical debate, one with coexistence and the other with clashes as seen in the lines "***Some also argue that the two concepts are incompatible, while others believe they can coexist*.**" However, it does not support any. This option also does not support any one aspect, and states that it is difficult to choose as this debate is still ongoing. So, this is the most logical inference of the passage.

Option (c) is incorrect: The passage discusses the debate on free will and destiny, but that does not mean that passage prefers coexistence to clashes between both. The passage simply states the views without any bias. So, this option does not reflect the core theme of the passage.

Option (d) is incorrect: The given option is not based on the passage. The passage nowhere states what people should do considering the debate around free will and destiny. Therefore, this option is beyond the scope of the passage.

80 (d)

Option (a) is incorrect. As per the passage, climate change may amplify inequalities. However, we cannot deduce from this that limiting climate change will remove inequalities. Hence, this option is not the best crucial message of the author.

Option (b) is incorrect. The given option seems to be correct as climate change is one of the factors behind rising inequalities and poverty in general, but the passage does not mention any other factors in this context. Hence, this option is not the best crucial message of the author.

Option (c) is incorrect. The option mentions how economic development helps in the issues of poverty eradication, reducing inequalities, etc. which is not correct as per the information provided in the passage. Hence, this option is not the best crucial message conveyed by the author of the passage.

Option (d) is correct. The given option is the best crucial message of the passage because of the following lines - "***Without action to limit and adapt to climate change***, *its environmental impact will continue to **amplify inequalities** and **could undermine development and poverty eradication***." These lines validate the assertion made in the given option.