

Q.1) Solution (c)

Option (a) is incorrect because the passage is not about the ability to compete. It's about the total possessions. Option (b) is incorrect because it uses a superlative "biggest" while the passage makes no such claim. Further, the focus of passage is not on total possessions but relative possessions. Option (c) is correct because the passage discusses how a person can become dissatisfied if he finds a larger house in his vicinity i.e. relative social position shrinks. Option (d) is incorrect because the passage is not talking about egalitarianism.

Q.2) Solution (a)

The passage discusses why we should not let others know that we are trying to convince them. Thus, we should do that subtly. Option (a) is therefore the correct answer. Option (b) is incorrect because the passage is not about morality. Option (c) is incorrect because the origin of this ability is not discussed here. Option (d) is incorrect because the passage is not specific to wise person.

Q.3) Solution (c)

The passage explains how natural variability is also affecting climate. Thus, it can be assumed that climate change can have both natural as well as anthropogenic causes. Option (c) is therefore correct. Option (a) is incorrect because we can't say whose contribution towards climate change is more. Because of the same reason, Option (b) is also incorrect. Option (d) is incorrect because the passage is nowhere questioning climate change.

Q.4) Solution (b)

6, 15, 49, 201, 1011, X

6

$$6 * 2 + 3 = 15$$

$$15 * 3 + 4 = 49$$

$$49 * 4 + 5 = 201$$

$$201 * 5 + 6 = 1011$$

$$1011 * 6 + 7 = 6073$$

Q.5) Solution (c)

Let the two numbers be a and b respectively. As we know that the sum of the two numbers is 109 So, $a + b = 109$ (1)

Also, one fifth of a number is five more than one seventh of another number So, $a/5 = b/7 + 5$.
.....(2)

As second number is a perfect square and also divisible by 7. So, b should be equal to 49.

And $a = 109 - 49 = 60$.

Now, we examine all the given options: Option (a): False -> Difference of the two numbers is 11.

(Odd) Option (b): False -> HCF (60, 49) = 1. Option (c): True -> Difference of two numbers is 11 (prime). Hence, option (c) is the correct answer.

Q.6) Solution (d)

Ram travelled 4km before they meet each other.

Step-by-step explanation: In reference to the below image: Let's suppose, Ram and Shyam meet at a point that is x km away from Ram and as the total distance between them is 10 km, so they meet 10-x km away from Shyam.

Therefore, according to the formula:

Time = Distance/Speed

Since both Ram and Shyam meet at the same time, hence we equalize the time taken by both to meet.

$$x/8 = 10-x/12$$

On solving, $12x = 80 - 8x$

$$X=4 \text{ km}$$

Hence, the distance Ram travelled before meeting is 4km and the distance Shyam travelled before meeting is $10-4 = 6\text{km}$.

Q.7) Solution (a)

Explanation:

If 5th January 1991 was a Saturday, then 5th January 1992 will be a Sunday (because an year contains one odd day) number of odd days from 5th January 1992 up to 4th March 1992 is
= remaining days in January + days in February (Leap year February) + 4 days in March
= $26 + 29 + 4 = 59$

Total number of odd days = odd day representation for 5th January + odd days up to 4th March
= $0 + 59 \rightarrow 3 \text{ odd days}$

$\therefore 3 \text{ odd days} = \text{Wednesday} \rightarrow 4\text{th March}$

Q.8) Solution (d)

Let the coins with A, B and C after they have donated be $41x$, $34x$ and $46x$ respectively.

Total coins with A before donation = $41x + 40$

Total coins with B before donation = $34x + 20$

Total coins with C before donation = $46x + 30$.

Total coins with the father = 4325

So, $41x + 40 + 34x + 20 + 46x + 30 = 4325$ Or $121x = 4235$ Or $x = 35$.

Coins with A now = $41x = 1435$

Hence, option (d) is the correct answer.

Q.9) Solution (c)

The number of zeros at the end of $(5!)5! = 120$

($\because 5! = 120$ and thus 120^{120} will give 120 zeros)

Number of zeros at the end of $(10!)^{10!}$, $(50!)^{50!}$ and $(100!)^{100!}$ will be greater than 120.

Now since the number of zeros at the end of the whole expression will depend on the number which has least number of zeros at the end of the number among the other given numbers.

So, the number of zeros at the end of the given expression is 120.

Q.10) Solution (c)

Maximum number of such different groups

-> ABC, ABD, ABE, BCE, BDE, CEA, DEA = 7

or

Total number of way in which 3 boys can be selected out of 5 is 5C_3 Number of ways in which

CD comes together = 3 (CDA, CDB, CDE)

\therefore Required number of ways = ${}^5C_3 - 3 = 10 - 3 = 7$

Q.11) Solution (b)

Statement 1 is incorrect because due to regionalism, the loyalty of people is drifting down from national capitals to provinces and cities.

Statement 2 is correct because according to the passage, due to shrinking authority of central government regionalism in various forms is emerging.

Q.12) Solution (c)

The passage discusses how women, minority and transgender are more susceptible to violence.

Thus, Option (c) is the correct answer. Option (a) and Option (b) are incorrect because the

passage is not discussing merely the issue of women or transgender. It is talking about racism

as well. Option (d) is incorrect because though violence is condemned here, the main issue is race and gender based discrimination.

Q.13) Solution (a)

The passage discusses how widows are living ignored and ostracized life. Thus, Option (a) is the correct answer.

Option (b) is incorrect because according to the passage, the widows from upper caste are living even more miserable life.

Option (c) is incorrect because in the passage Indian widows are not compared with those of other developing nations.

Option (d) is incorrect because the passage is advocating a better life for the widows.

Q.14) Solution (c)

The passage discusses how contrary to the expectation, India didn't face much problem during the financial crisis. The mentioned reasons include the large domestic market and its limited external sector. Thus, the main idea of the passage is that domestic market oriented economy remains relatively insulated to global changes. Thus, Option (c) is the correct answer.

Option (a) is incorrect because here developing countries are not compared with other countries.

Option (b) is incorrect because though the contribution of RBI is mentioned here, it can't be said that it dictates the economic policies.

Option (d) is incorrect because from the facts available from the passage, we can't make a general statement on how government should work.

Q.15) Solution (b)

A beats B by 19 m in the 100 m race.

Thus when A completes 100 m, B only completes 81 m. again, A beats C by 10 m in 100 m race.

Thus when A completes 100 m, C only completes 90 m.

Time taken by A to complete 100 m = time taken by B to complete 81 m = time taken by C to complete 90 m.

Let the time taken by B to complete 81 m = 10 seconds then C will also complete 90 m in 10 seconds

Speed of C = distance covered by C time taken = $90/10 = 9$ m/s

Speed of B = distance covered by B time taken = $81/10 = 8.1$ m/s

Time taken by C to run 100 m = distance to cover speed = $100/9 = 100/9$ seconds

Distance covered by B in 10 seconds = speed of B x time taken = $8.1 \times (100/9) = 90$ m

∴ In the second race, C beats B by 10 m or When A covers 100 m, B can cover 81 m and C can cover 90 m.

When B covers 81 m, C can cover 90 m.

When B covers X m, C can cover 100 m ratio of distance covered by B and C in same time will be same

Thus, $81/90 = X/100 \rightarrow X = (81 \times 100)/90 = 90$ m

∴ In a hundred meter race, B beats C by 10 m.

Q.16) Solution (b)

The alphabets are coded as shown:

ROSECHAIR

682173456

Therefore, in SEARCH, S is coded as 2, E is coded as 1, A is coded as 8, R is coded as 6, C is coded as 7, H is coded as 3.

Thus, the code for SEARCH is 214673.

Q.17) Solution (b)

Required number of apples = (LCM of 5, 6, 8, 9) + 3 LCM of 5, 6, 8, 9 is

2	5, 6, 8, 9
3	5, 3, 4, 9
	5, 1, 4, 3

From above calculation, LCM = $2 \times 3 \times 5 \times 4 \times 3 = 360$ Hence, required numbers of apples in dozens = $360 + 3 = 363$ dozens.

Q.18) Solution (a)

Let the amounts received the two sons be Rs. x and (60 – x) respectively.

According to the question,

$$1/x + 1/(60-x) = 3/25$$

$$\text{Or } 25 \times 60 = 3x (60 - x)$$

$$\text{Or } 25 \times 20 = x (60 - x)$$

$$\text{Or } 50 \times 10 = x(60 - x)$$

This equation satisfies for the values 50 and 10. So, the son who got higher amount received Rs. 50.

Hence, option (a) is the correct answer.

Q.19) Solution (c)

Of the two-consecutive integer one will always be odd and one will be even

$$(3, 4) \rightarrow 3^2 \Rightarrow 9 \Rightarrow 8n + 1 (n = 1)$$

$$(4, 5) \rightarrow 5^2 \Rightarrow 25 \Rightarrow 8n + 1 (n = 3)$$

$$(6, 7) \rightarrow 7^2 \Rightarrow 49 \Rightarrow 8n + 1 (n = 6)$$

$$(8, 9) \rightarrow 9^2 \Rightarrow 81 \Rightarrow 8n + 1 (n = 10)$$

$$(10, 11) \rightarrow 11^2 \Rightarrow 121 \Rightarrow 8n + 1 (n = 15)$$

∴ Both the statements given here are correct.

Q.20) Solution (a)

Let total employees are 100 males = 40 and females = 60

75% of women earn 20000 or more in a month = $75/100 \times 60 = 45$

Thus, 45 women earns more than 20000

Total 60 employee earns more than 20000 per month

So number of males earns more than 20000 is = $60 - 45 = 15$

∴ number of male employees who earn less than 20000 per month = $40 - 15 = 25$

so fraction = $25/40 = 5/8$

Q.21) Solution (b)

Statement 1 is correct because the line 'these advances have yet to translate into greater equity in employment, politics and social relations' mean that the potential is yet to be ascertained.

Statement 2 is incorrect because it is against the idea of the passage.

Statement 3 is incorrect because it is far-fetched because there is no mention of women emancipation in the passage. It only talks about the lack of translation of education into equitable representation in other fields.

Q.22) Solution (c)

In second paragraph of the passage it is written that there is a continuous nature of the concept of political democracy and author is also giving the sense that it is difficult to compare political democracy standard of different countries. Thus, 1 and 3 are correct. Passage is showing us that dichotomy of political democracy is a difficult process not an insensitive one. Thus, 2 cannot be correct. Hence, (c) is the correct answer.

Q.23) Solution (d)

The passage discusses how women are most vulnerable during two periods of pregnancy and old age. Therefore, the keynote which seems to be emerging is that the vulnerabilities of old and pregnant women should be addressed. Thus, Option (d) is the correct answer.

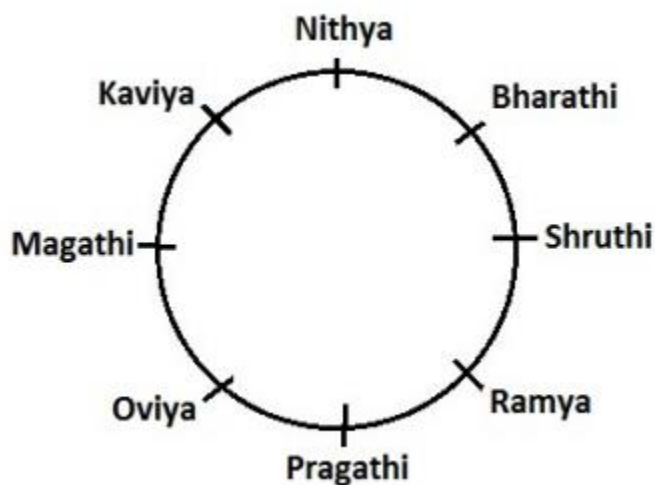
Option (a) is incorrect because the passage is more specific about pregnant and old women and not about women in general.

Option (b) is also incorrect due to the same reason.

Option (c) is incorrect because here old women are not compared with pregnant women.

Q.24) Solution (c)

According to the given information, we get the arrangement of eight girls as below:



∴ immediate neighbors of Pragathi are Oviya and Ramya

Q.25) Solution (d)

Explanation: Given: D is the brother of B.

From statement 1, we can detect that D is son of C (son of D is the grandson of C).

From statement 2, we can detect that B is 'Female' (sister of D). Therefore, B is daughter of C.

Q.26) Solution (b)

Speed of truck = Distance covered time = $376/8 = 47$ kmph

Now, speed of car = speed of truck + 18 = $47 + 18 = 65$ kmph

Distance travelled by car = $376 + 14 = 390$ km

Time taken by car = Distance covered speed = $390/65 = 6$ hours

Q.27) Solution (d)

5 routes from A to B and 3 routes from B to C.

To find: number of different routes from A to C via B.

Let E1 be the event : 5 routes from A to B

Let E2 be the event : 3 routes from B to C

Since going from A to C via B is only possible if both the events E1 and E2 occur simultaneously.

So there are $5 \times 3 = 15$ different routes from A to C via B.

Since, there are 5 different routes directly from A to C, we have to add 5 to 15 which makes it 20 ways in total

Q.28) Solution (c)

Given, four persons are A, B, C and D. Let A has X number of coins.

Then, A gave $(x/2 + 4)$ to B

B gave $1/2 (x/2 + 4) + 4 = (x/4 + 6)$ to C

C gave $1/2 (x/4 + 6) + 4 = x/8 + 7$ to D

Coins with B after giving $(x/4 + 6)$ to C = $(x/2 + 4) - (x/4 + 6) = (x/4 - 2)$

It is given that, B and D have same number of coins.

$$\therefore x/4 - 2 = x/8 + 7$$

$$x/4 - x/8 = 9$$

$$x/8 = 9$$

$$x = 72$$

Q.29) Solution (c)

In this series, it contains 1, 2, 3, 4,alphabets from beginning.

In this sequence up to 10, there will be 55 letters.

After that 11 letters of English alphabet will begin in which 5th letter which will make 60th (55 + 5th) from beginning will be E.

Q.30) Solution (d)

The advocate is to the right of the student, who is standing between the professor and the advocate. So, we have: Professor, Student. Advocate.

The author is to the left of businessman.

So, we have: Author, Businessman.

Since the professor and businessman are at the ends, the arrangement from left to right becomes: Professor, Student, Advocate, Author, Businessman.

Clearly, the advocate is third from the left.

Q.31) Solution (b)

The passage discusses elderly women help in the child health and care. Moreover, it also says that children's rights are advanced by creating programs which also include elderly women. Thus, Option (b) is the correct answer.

Option (d) is incorrect because it says the just opposite.

Option (a) is incorrect because the passage is not about prioritizing one over other. It is about the direct relationship which exist between child health and elderly care.

Option (c) is incorrect the passage is about child's progress and not nation's progress.

Q.32) Solution (c)

Option (a) is incorrect because based on one incident, we cannot generalise that one war will definitely lead to another.

Option (b) is incorrect because the passage does not say so, in fact it argues the contrary.

Option (d) is incorrect because the passage is not mentioning the prime reasons behind wars, and that too of most wars.

The passage discusses how the unfair treaty of Versailles led to the second world war. "Saddled with war guilt and heavy reparations and denied entrance into the League of Nations, Germany felt tricked...". Thus, Option (c) is the correct answer.

Q.33) Solution (a)

The passage discusses how the arguments of European settlers may be wrong that they obtained the land from local people through legitimate means. Thus, Option (a) is the correct answer. Other options are beyond the scope of the passage in some way.

Option (b) is incorrect because the passage is not making any recommendation regarding restoring the rights back.

Option (c) is incorrect because again the passage does not make any recommendation of compensating the local people.

Option (d) is incorrect because the whole passage is digging back into the history. So this is very much relevant.

Q.34) Solution (b)

The passage discusses how collective rights are more suited to the tribal communities.

Thus, Option (c) is the correct answer.

Option (a) is incorrect because the passage is not about the tribal communities of India. Option

(b) is incorrect because though the collective rights is more useful, we can't say from the passage if it is prerequisite to their survival or not.

Option (d) is incorrect because capitalism is not discussed here.

Q.35) Solution (b)

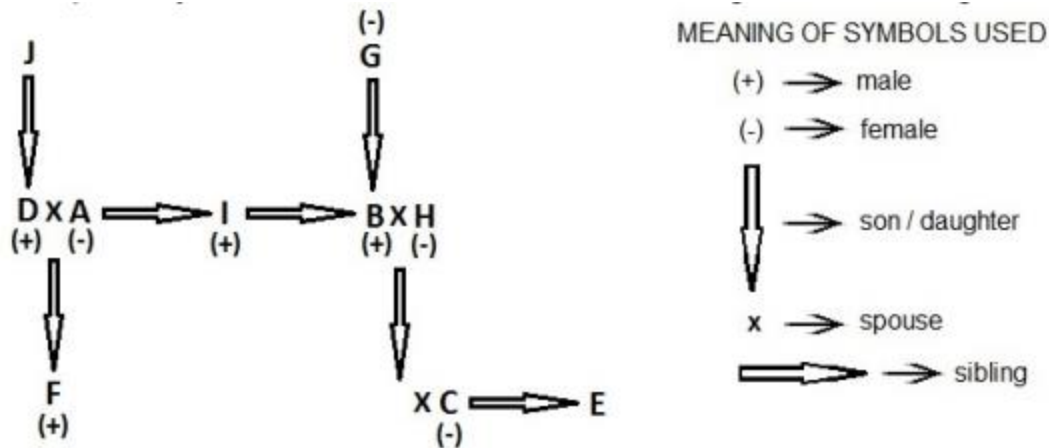
Time taken by the program to process all the inputs = x weeks = $7x$ days

Time taken by the program to compile the results = x days.

Total time taken by the program to give the final result = $7x + x = 8x$ days.

Hence, option (b) is the correct answer.

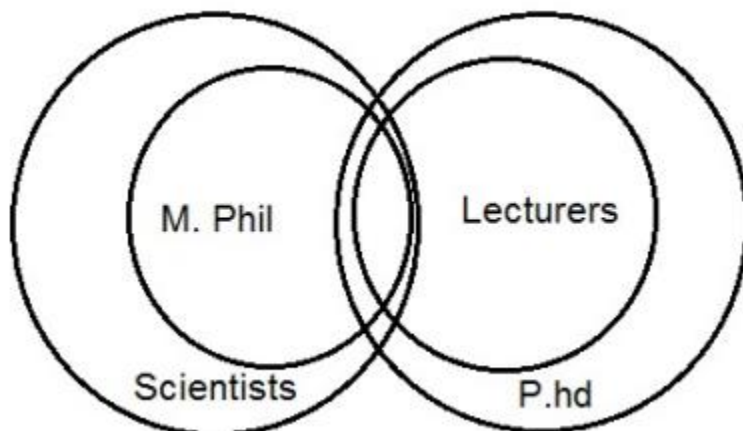
Q.36) Solution (b)



Explanation Here, if Y is the daughter of I, then Y will be the grand - daughter of G

Q.37) Solution (c)

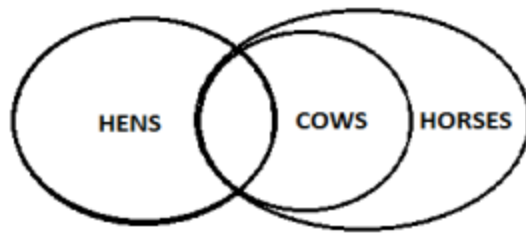
Explanation



Statements given in the question are arranged or shown as below. So, from the above diagram it is clear that all lecturers must have done P.hd. Hence, conclusion 3 only is a correct one.

Q.38) Solution (d)

From the given statements, the Venn diagram is as shown below:



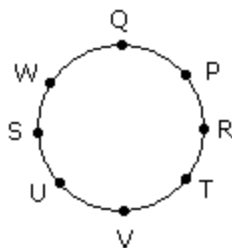
Hence, both Conclusions 1 and 2 follow.

Q.39) Solution (c)

The Government seeks to review the policy so as to determine whether the diesel price needs to be increased or it can be kept stable by adjusting certain other factors. So, either decision may be taken. Thus, either I or II follows and both cannot follow simultaneously.

Q.40) Solution (a)

From the details given above, The following diagram can be deduced.



From the diagram it is easily proven that R and V are not neighbours

Q.41) Solution (d)

Statement 1 is correct. The author, in the first para, says that a simple way to categorize governments is into democratic and authoritarian political systems. In the next para, the author says that some governments are more democratic than others. It is still clear that these democracies can be grouped in one common category.

Statement 2 is correct. The central theme of the passage itself is that democracies need to satisfy certain criteria. And if they do not satisfy these criteria, they cannot be called democracies even if they claim to be one.

Statement 3 is incorrect. The author begins by specifying the classification of governments into democratic and authoritarian systems, and discusses the democratic form in detail. But,

author's view about authoritarian system is not given in the passage. Thus, the author may or may not agree that all democratic governments are always better than authoritarian forms.

Statement 4 is correct. Third passage talks about certain criteria that the democracies should fulfil. These are nothing but various values. Thus, the author will agree that Democracy is a value laden concept. This is a confusing statement. But, going by options also, we can see that it is correct.

Hence, statements 1, 2 and 4 are correct.

Q.42) Solution (b)

Statement 1 is correct. The author says that many countries claiming to be democracies are democratic in name only, unless they fulfil certain criteria. And the first criterion that the author specifies is ensuring freedom of speech, the press and religion.

Statement 2 is incorrect. The passage says that a democratic country aims to avoid the "tyranny of the majority." Majority may rule but minority rights are protected. This does not mean that value of minority vote will be greater.

Statement 3 is correct. The final criteria to be satisfied by a democracy is responding to people's needs and citizen demands. If they contact government in other ways — writing, protesting, phoning — officials MUST respond.

Thus, the correct answer is option (B).

Q.43) Solution (c)

Option (A) is incorrect. According to the author, in the pre liberalized era, the job was seen as an unbreakable contract between employee and organization. The author does not talk about the friction arising due to violation of this contract. May be in post liberalized era, people willingly do not want to continue for long in any given office.

Option (B) is also incorrect. There is no mention of the skillsets of different employees in the passage. Thus, different skillsets as a reason behind rising friction cannot be the answer.

Option (C) is the correct answer. Author mentions three types of employees today. 1. Workers who grew up in a pre-liberalised country, but starting working in post-licensed environment. 2. Workers who grew up and began working in pre-liberalised era. 3. Generation that has grown up post-liberalisation. There is marked generation gap between these employees, which has led to friction in offices.

Option (D) is incorrect. Author says, longevity in given job led to getting ahead in the office hierarchy during pre-liberalized era. In the era of multinational companies, productivity determines hierarchy in office. The author simply mentions the difference and does not say which is/was more difficult.

Q.44) Solution (d)

Option (A) is incorrect. In the concluding line, the author says the new generation is more worried about entitlements than duties. This shows, previous generation paid more attention to duties. Also, present generation gives more attention to entitlements. Thus, we are not sure if there is a neglect of duties. Despite being factually incorrect, the statement is also not the central idea.

Option (B) is incorrect. The author only shows that there is definite change in work culture and work environment in the pre-liberalised and post liberalized era. The author does not say if the previous work environment was better or if it is better today.

Option (C) is also incorrect. Yes, the author talks about emergence of a new breed of workers in India. However, it is not clear whether they are tech-savvy or not.

Thus, correct answer is option (D). The central theme/main idea of the passage is about changes in work culture in liberalized era.

Q.45) Solution (c)

Profit = selling price - cost price

Loss = cost price - selling price

ATQ, Selling price in case of profit is 464

Selling price in case of loss is 436

And the loss % = profit %

So, cost price - selling price = selling price - cost price

Let cost price = x

$x - 436 = 464 - x$

$2x = 464 + 436$

$2x = 900$

$$x = 450$$

Q.46) Solution (c)

In 1 hour, the clock loses 8 minutes.

So, in 24 hours, the clock loses $24 \times 8 = 192$ minutes.

But, for the next 24 hours, 12 minutes are gained per 1 hour.

1 minute is gained in $1/12$ hour.

So, 192 minutes are gained in $1/12 \times 192 = 16$ hours.

So, after $(24 + 16) \text{ h} = 40$ hours, it will show the correct time again.

Q.47) Solution (d)

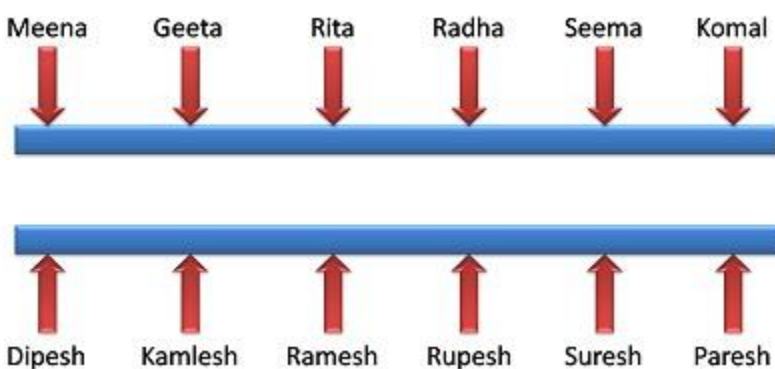
Let the price of the third variety = Rs x/kg .

Then, $100 \times 1 + 200 \times 2 + 3x/1+2+3 = 300$

or $x = 1300/3 = 433\frac{1}{3} = \text{Rs. } 433.33 \text{ per kg}$

Q.48) Solution (a)

By following the conditions given in the question, we get the following arrangement

**Q.49) Solution (a)**

Ramesh is 38 years old now. Let the age of son be x years today.

Age of Ramesh when the son was born = Age of the son today = x years.

Ramesh's age today = Ramesh's age when the son was born + Age of son

So, $38 = x + x = 2x$

Therefore, $x = 19$ years

Age of son today = 19 years.

Age of son five years ago = $19 - 5 = 14$ years

Hence, option (a) is the correct answer.

Q.50) Solution (c)

The person who boards the train at station G passes the stations of all the colors except orange.

Clearly, G is painted orange and the train is going from G to A. It is also given that E is painted indigo

Below is the diagram showing the traversed by train from station G to station A:

G → F → E → D → C → B → A

(orange) (indigo)

We know that a person who boards the train at E passes the stations painted violet and yellow but not the one painted red and a person who boards the train at D passes the stations painted green and blue but not the station painted violet.

Thus, the stations A, B, C and D are painted in violet, yellow, green and blue (not in the same order)

Therefore, station F is red in colour.

Hence, option (c) is the correct answer.

Q.51) Solution (c)

Option (A) is incorrect. Author says, technical education is producing resources who can help India become a leader among world democracies. But, it is not the focus of the passage. It is just one aspect where the author is describing present situation of education.

Option (B) is incorrect. The author says that educators have greater responsibility in present times. Again this is one aspect of the passage where author is contextualizing the importance of educators for technical education but it is not the main focus of the passage.

Option (C) is the correct answer. In the beginning, the author says that, stronger moral values are needed in present times to tackle personal and professional challenges. Towards conclusion also author says that technical education is producing skilled workforce which needs to be supported with value education.

Thus, the central theme is the need of balance between moral and technical education.

Option (D) is incorrect. The author has not discussed the reasons behind economic depression in countries. Thus, we cannot say that lack of moral education is leading to economic depression. Thus, this statement is neither factually correct nor the central theme of the passage.

Q.52) Solution (d)

In the last line of the first passage, the author says ethics is not like scientific reasoning which does produce knowledge which is both cumulative and more or less certain. As scientific knowledge is certain, it can come to definite conclusions and thus, inference given in statement 1 is correct.

In opposition to scientific knowledge, there is no universal answer about some ethical questions like 'what one ought to do'. Thus, in absence of universal agreement, the conclusions of ethical reasoning may not be agreed to by all. And, thus, inference in statement 2, that critical reasoning of ethical questions may be at times a futile exercise is correct.

According to the author, examined life is one which is actively engaged with the ethical dimensions of the choices we make every day. That is, each and every action is put to critical reasoning to find out about what we ought to do. Thus, statement 3 is also correct.

Q.53) Solution (b)

According to the author, one can lead a perfectly good and moral life, without living a particularly ethical life. In contrast, living an ethical life is difficult. It involves making certain hard choices, at times, choosing from actions both of which may have some undesirable consequences. That is why, author is attracted more to the question of ethics, beyond the good or moral life. Thus, statement 1 is incorrect as living ethical life is much broader. To live an ethical life one needs to keep in mind many more dimensions of actions and their consequences.

According to the passage, it is difficult to live an ethical life as it involves making certain hard choices. But, one can live a perfectly good and moral life, like most people do, by simply following commonly held views about ethics and morality. Thus, statement 2 is correct.

Q.54) Solution (b)**Method I**

The product of all integers from 1 to 200 = 200!

In case of 'n!' (n = a natural number): (number of 2's) \geq (number of 5's).

The number of zeros at the end = Lowest of the (number of 2's, number of 5's) = Number of 5's.

[As $10 = 2 \times 5$, so one 2 and one 5 is needed for a zero at the end].

So, we have to find only number of 5's in 'n!'.

Calculation of number of 5's in '200!':

Step 1: $200/5 = 40$

Step 2: $40/5 = 8$

Step 3: $8/5 = 1$ (ignore the fractional part)

Total number of 5's in '200!' = $40 + 8 + 1 = 49$.

Method II

Number of 2's in the product of all integers from 1 to 200 (i.e. 200!) = $*200/2 + *200/2^2 + [200/2^3] + [200/2^4] + [200/2^5] + [200/2^6] + [200/2^7] + [200/2^8]$

([.] denotes the greatest integer; i.e. take only integral part, ignore the fractional part if the number is non – negative, e.g. $[200/24] = [12.5] = 12$)

= $100 + 50 + 25 + 12 + 6 + 3 + 1 + 0 = 197$.

Number of 5's in the product of all integers from 1 to 200 (i.e. 200!) = $*200/5 + *200/5^2 + [200/5^3] + [200/5^4] = 40 + 8 + 1 + 0 = 49$.

Hence, the number of zeros at the end = Lowest of the (number of 2's, number of 5's) = 49.

Q.55) Solution (b)

Number of ways of selecting 3 consonants from a set of 4 consonants = $4C3 = 4$

Number of ways of selecting 2 vowels from a set of 3 vowels = $3C2 = 3$

Number of ways of selecting 3 consonants and 2 vowels = $4 \times 3 = 12$

So, number of ways of forming a five lettered word = $12 \times 5!$

Q.56) Solution (b)

For a rectangle, $d^2 = l^2 + b^2$

Where, l =length, b = breadth and d = diagonal of the rectangle

$$d = \sqrt{21}$$

$$d^2 = l^2 + b^2$$

$$(l^2 + b^2 = 21) \dots\dots\dots (1)$$

$$\text{Area} = l \times b = 50 \dots\dots\dots (2)$$

$$[(a + b)^2 = a^2 + b^2 + 2ab]$$

Using the above formula, we have

$$(l + b)^2 = l^2 + b^2 + 2lb$$

$$(l + b)^2 = 21 + 2 \times 50 \dots\dots\dots [\text{from (1) and (2)}]$$

$$(l + b)^2 = 121$$

$$(l+b) = 11$$

$$\text{Perimeter of rectangle} = 2(l+b)$$

$$= 2(11) = 22\text{cm}$$

Q.57) Solution (a)

$W = MDH$ (formula)

Where, W = work; M = man (number of persons); D = days (number of days); H = hours (hours per day)

$$\text{So, } 60 \times 9 \times 27 = 30 \times 162 \times X$$

(X = hours a day needed by each of the 30 men)

$$\Rightarrow X = 60 \times 9 \times 27 / 30 \times 162$$

= 3 hours.

Q.58) Solution (b)

Note that the difference between the divisors and the remainders is constant.

$$24 - 19 = 5; 32 - 27 = 5; 36 - 31 = 5$$

In such a case, the required number will always be [a multiple of LCM (24, 32, 36) – (The constant difference)], i.e. $[n \times \text{LCM} (24, 32, 36) - 5]$

(n = natural number)

$$\text{Now, } 24 = 2^3 \times 3; 32 = 2^5; 36 = 2^2 \times 3^2$$

$$\text{So, } \text{LCM} (24, 32, 36) = 2^5 \times 3^2 = 288.$$

$$\text{Hence, the required number} = n \times 288 - 5$$

$$\text{For } n=1, X_1 = 1 \times 288 - 5 = 283$$

$$\text{For } n=2, X_2 = 2 \times 288 - 5 = 571$$

$$\text{For } n=3, X_3 = 3 \times 288 - 5 = 859$$

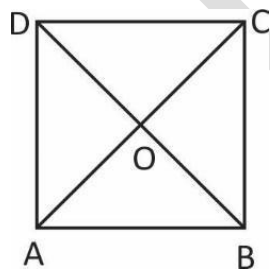
So, between 1 and 1000, there are three such numbers, viz. 283, 571 and 859.

Q.59) Solution (d)

On observing the structure carefully, we find that it consists of two cubes, one placed on top of the other.

The resulting structure is a cuboid. Also, we can see that diagonals have been drawn on external faces of both of these cubes.

Looking at one such external face of the structure, we find that 8 triangles are there:

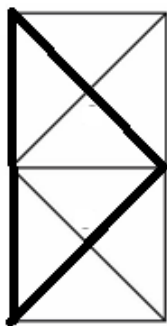


$\Delta AOB, \Delta COB, \Delta AOD, \Delta DOC, \Delta ABC, \Delta ADC, \Delta ABD, \Delta BDC$

Similarly, all the faces will have 8 triangles each. As the cubes are placed such that one is on top of the other, one of the faces of each cube will not be visible. Hence, 10 out of 12 faces would be visible.

Therefore, the individual will only be able to count 80 such triangles in total.

Moreover, on observing the longer faces of the cuboidal structure, we can see that every such face has 2 more triangles visible. One such triangle has been highlighted in the figure given below:



There will be 2 such triangles in each of the 4 elongated faces, i.e. a total of 8 such triangles in the structure.

So, total number of triangles = $80 + 8 = 88$

Q.60) Solution (a)

Percentage strength of the acid in the mixture = $\frac{\text{Quantity (volume) of the acid in the mixture}}{\text{Total volume}} \times 100$

$$= \frac{[(5 \times 20 / 100) + (7.5 \times 80 / 100)]}{(5 + 7.5)} \times 100$$

$$= \frac{(5 \times 20 + 7.5 \times 80)}{(5 + 7.5)} = 56\%$$

Q.61) Solution (b)

The passage mentions some steps that have been taken to resolve financing issues in infrastructure sector. New norms that provide more autonomy to IIFCL is one of them. Hence, low autonomy of IIFCL being a possible reason behind financing issues in infrastructure sector (Statement 1) is a valid assumption.

Setting up of NIIF would permanently solve NPA problem, is an extreme statement. NPA issue can be due to other factors as well. Hence, Statement 2 is incorrect.

New norms would allow IIFCL to invest in AAA rated bonds. From this it cannot be assumed that investment through AAA rated corporate bonds only, is allowed in infrastructure projects. Hence, statement 3 is not a valid assumption.

From above analysis, option (B) is the most appropriate answer.

Q.62) Solution (c)

The passage does not compare lending capacities of NIIF and IIFCL. Hence, option (A) is incorrect.

The passage limits its scope to financing of infrastructure projects. Rate of execution is beyond the scope of this passage. Hence, option (B) is incorrect.

Option (C) recommends solution to a financing issue mentioned in the passage – wider spread of revenue stream from an infrastructure project compared to debt repayment period of the same project. Hence, it can be a possible implication. Let's consider the next option.

The passage does not talk about implementation challenges of infrastructure projects. Hence, Option (D) is beyond the scope of this passage.

From above analysis, option (C) is the most appropriate answer.

Q.63) Solution (b)

The passage discusses government's approach to budget and emphasises that deficit can be increased during slowing of economy. Thus (b) is the correct option.

Option (a) is not correct as the passage mentions that the immediate thing is to expand public investment in infrastructure but does not tell that lack of public investment is the root cause of economic problems.

Option (c) is incorrect as the passage tells that India is facing a demand shortage but does not tell its impact on budget making process.

Option (d) is incorrect as passage specifically mentions that the deficit may be increased as economy slows down.

Q.64) Solution (d)

Number of students ahead of Minakshi = 15

Number of students behind Minakshi = 28

Total number of students who passed the test = $15 + 28 + 1 = 44$

Total number of students in the class = Students who passed the test + Students who failed the test +

Students who did not appear for the test = $44 + 6 + 5 = 55$

Q.65) Solution (b)

Number n_1 is divisible by 12, 15 and 20 so we find its LCM of these numbers

$$= 2 | \underline{12, 15, 20}$$

$$= 2 | \underline{6, 15, 10}$$

$$= 3 | \underline{3, 15, 5}$$

$$= 5 | \underline{1, 5, 5}$$

$$= | 1, 1, 1$$

So LCM of 12, 15 and 20 = $2 \times 2 \times 3 \times 5 = 60$

So lowest possible number divisible by 12, 15 and 20 = 60

So $n_1 = 60$

Nearest perfect square near 60 = $64 = n_2$

So $n_2 - n_1 = 64 - 60 = 4$.

Q.66) Solution (d)

The original number is 'pq'.

Arithmetic mean is more by 2.7, means the sum is more by $20 \times 2.7 = 54$.

So, $(10q+p) - (10p+q) = 54$ [Since $qp=10q+p$ and $pq=10p+q$]

$$\text{or } q-p = 6$$

$$\text{or } p-q = -6$$

Q.67) Solution (d)

In expression $(a^n + b^n) / (a + b)$, Remainder = 0, if n is odd.

[i.e. $(a^n + b^n)$ is divisible by $(a + b)$ if n is an odd number].

So, $(2^{2001} + 1)$ and $(2^{2003} + 1)$ both are divisible by $(2 + 1)$, i.e. 3.

Now, $2^{2002} + 1 = (2^2)^{1001} + 1 = 4^{1001} + 1$, which is divisible by $(4 + 1)$, i.e. 5.

Hence, none of the given numbers is a prime number.

Q.68) Solution (a)

Real Time + Mirror Time = 12: 00 or 11 hr: 60 minutes.

Mirror Time = 3: 45.

So, the real time = 11: 60 – 3: 45 = 8: 15.

Q.69) Solution (a)

Final quantity = Initial quantity

$(1 - \text{first replacement quantity} / \text{total quantity}) (1 - \text{second replacement quantity} / \text{total quantity})$

.....upto n times,

where n = number of process.

So, Final quantity of water in the mixture = $126 (1 - 9/126)(1 - 7/126) = 110.5$ litre.

Hence, the final quantity of spirit in the mixture = $126 - 110.5 = 15.5$ litre.

Q.70) Solution (c)

Total remittance received = $1000 + 400 + 300 + 200 + 100 + 50 = 2050$ crore.

Remittance received from Australia = 200 crore.

Now,

$$\therefore 2050 \text{ crore} = 360^\circ$$

$$\therefore 1 \text{ crore} = (360/2050)^\circ$$

$$\therefore 200 \text{ crore} = (360/2050 \times 200)^\circ$$

$$= 35.1^\circ$$

Q.71) Solution (d)

In the second half, the passage talks about two positive proceedings. One is increased resilience to extreme weather conditions. As a result, the fatalities from similar events have decreased (i.e. for a disaster of similar intensity, fatalities, today, are far fewer in number). The passage does not talk about total fatalities due to disasters. The total number of fatalities may have increased, decreased or may be the same. The total number of fatalities may have increased, say if the frequency of disasters has increased.

The second positive thing is the international community is coming together to manage climate change. Here also, we do not have sufficient data given in the passage about proper management of climate change by international community. The passage only says, international community has started coming together.

Thus, both the above inferences cannot be drawn.

Q.72) Solution (c)

Passage gives various negative consequences of Climate Change. Food supplies are being disrupted in Africa; more frequent droughts in Somalia; more heat waves in Iraq. Thus, consequences 1 and 2 are correct.

It also says, in future, the mass displacements will become more common. This suggests that mass displacements are present even today. Thus, consequence 4 is also correct.

Melting of ice and opening of new sea routes may be a general consequence of Climate Change. But, it is not mentioned in the passage. Hence, consequence 3 is incorrect.

Thus, consequences 1, 2 and 4 are correct.

Q.73) Solution (d)

The passage discusses the importance of body language in communication and most of people focus only on speech. So, option (d) is the keynote of the passage.

Option (a) is incorrect as the passage does not discuss on communication becoming easier because of speech.

Option (b) is incorrect as though the passage describes the importance of book body language on initiating discussion on this field, it is not the main theme of the passage.

Option (c) is incorrect as the passage does not discuss on the trustworthiness of speech as a means of communication.

Q.74) Solution (a)

The prime numbers from 1 to 100 are 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97.

Now by satisfying the conditions through substitution method:

We get $w = 29$, $x = 31$, $y = 37$, $z = 43$

Therefore, the required product, $w \times z = 29 \times 43 = 1247$

Q.75) Solution (c)

In the series, every term is multiplied by 3 to get the next term.

$$54 \times 3 = 162$$

Q.76) Solution (c)

Consonants in the word D, C, T, N = 4 consonants

Vowels in the word = E, U, A, I, O = 5 vowels

All the vowels should come in the beginning of the word.

Number of ways of rearranging 5 vowels = $5! = 120$

Number of ways of rearranging 4 consonants = $4! = 24$

Number of words in the list = $120 \times 24 = 2880$

Q.77) Solution (c)

5 identical pawns are to be placed in 5 different boxes.

The total number of black boxes on the chess board = $64/2 = 32$

Now, all these 32 black boxes are different. So, the problem reduces to choosing 5 different objects from

a set of 32 objects.

Number of ways of selecting 5 boxes out of 32 boxes = ${}^{32}C_5$

Q.78) Solution (c)

P (A wins in his first roll)

$$= 1/6$$

P (A does not win in his first roll

AND B does not win in his first roll

AND A wins in his second roll

$$= (5/6) * (5/6) * (1/6)$$

P (A does not win in his first roll

AND B does not win in his first roll

AND A does not win in his second roll

AND B does not win in his second roll

AND A wins in his third roll

$$= (5/6) * (5/6) * (5/6) * (5/6) * (1/6)$$

So, on

Required probability

$$(1/6 + 5/6 * 5/6 * 1/6 + 5/6 * 5/6 * 5/6 * 1/6 + \dots)$$

$$(1/6) / (1 - (5/6) * (5/6))$$

$$= 2/3$$

Q.79) Solution (c)

Let $X = pq = 10p + q$.

Using statement I:

Case 1:

$$p + q = 10 \text{ and } p = q + 4,$$

Solving, we get, $q = 3$ and $p = 7$, i.e. $X = 73$.

Case 2:

$$p + q = 10 \text{ and } q = p + 4,$$

Solving, we get, $p = 3$ and $q = 7$, i.e. $X = 37$.

So, 'X' is either 73 or 37.

Using statement II:

$X > 60$. We can see that obviously statement II alone is not sufficient.

Combining the information given in both the statements together, we get a unique value of 'X', i.e. $X = 73$.

Hence, by combining both statement I and statement II together, we can answer the question.

Q.80) Solution (b)

$$308700 = 2^2 \times 3^2 \times 5^2 \times 7^3$$

$$= (2 \times 3 \times 7) \times (2 \times 5 \times 7) \times (3 \times 5 \times 7)$$

(combination of distinct prime numbers)

$$= 42 \times 70 \times 105.$$

Therefore, the average of 42, 70 and 105 = $\frac{42+70+105}{3} = 72.33$.