ANSWERS & EXPLANATION

1 (a)

Option (a) is correct as the passage mentions, "Sustainable Development Goals Index celebrates rich countries while turning a blind eye to the damage they are causing. It violates the principle of "strong sustainability," which holds that good performance on development indicators cannot legitimately substitute for destructive levels of ecological impact." Thus, even high scores don't necessarily ensure high levels of sustainability.

Option (b) is incorrect as the passage only mentions the "rich countries". So, to specifically assume them to be Nordic countries would be out of the scope of the passage.

Option (c) is incorrect. The opening lines of the passage, "*In effect, the Sustainable Development Goals Index celebrates rich countries while turning a blind eye to the damage they are causing*" clearly highlights the issue with SDG indicators. It implies that a country can score well in SDG development indicators even when it causes environmental damage. However, this is not the crux of the passage.

Option (d) is incorrect as the passage merely talks about the issues with SDG indicators and stops short of suggesting measures to address the problem. This option could have been a good practical suggestion, but it is not the central message.

2 (b)

Statement 1 is correct. The passage mentions, *"There is a need for the sensitization of students, teachers, and staff in all educational institutions, from primary schools to universities, on understanding and accepting queer and transgender folks."* It clearly implies that every stakeholder i.e. students, teachers and staff is not adequately sensitized about transgender persons, which is why the author mentioned the need for sensitization of all stakeholders. So this is a correct statement.

Statement 2 is incorrect. The passage nowhere talks about any Act before the said Act. So we cannot assume whether there was any law before the said Act or not. The passage also nowhere compares the said Act with any other Act in force. So this is an incorrect statement.

Statement 3 is incorrect. The passage mentions, *"India has taken a step in the right direction by enacting the Transgender Persons Act, which speaks of a trans-inclusive education system wherein transgender students learn with other students without fear of discrimination, neglect, or harassment."* It implies the removal of difficulties in the education sector. The passage is silent on other sectors like employment, reservation, marriage, etc. So here we cannot assume about other sectors. So, this is an incorrect statement.

3 (b)

Option (a) is incorrect. The passage mentions, *"We cannot underplay the importance of changing mindsets."* It highlights the role of overall attitude and mindset in empowering transgender persons. The passage also mentions, *"India has taken a step in the right direction by enacting the Transgender Persons Act, which speaks of a trans-inclusive education system wherein transgender students learn with other students without fear of discrimination, neglect, or harassment."* It implies with proper implementation of said Act, we can improve the conditions of transgender persons. But the answer option talks about ensuring a better world for the transgender even without good infrastructure. The very first line of the

passage says, *"While infrastructure is essential for creating safe and inclusive places...."* Hence, this answer option goes against the fact stated in the passage. Therefore, this option is incorrect.

Option (b) is correct. The passage mentions, *"While infrastructure is essential for creating safe and inclusive places, we cannot underplay the importance of changing mindsets."* This implies while infrastructure is needed, attitudinal change is also a must. Here, infrastructure can include legal infrastructure as well. So this option aptly captures the crux of the passage.

Option (c) is incorrect. The passage mentions, *"India has taken a step in the right direction by enacting the Transgender Persons Act, which speaks of a trans-inclusive education system wherein transgender students learn with other students without fear of discrimination, neglect, or harassment."* It implies that the Act will help transgender in their empowerment. There is nothing wrong with this part. But the option does not mention people's mindsets, which is duly emphasised upon by the author. So this is not the best crux. Therefore, this is an incorrect option.

Option (d) is incorrect. The passage mentions, *"There is a need for the sensitization of students, teachers, and staff in all educational institutions, from primary schools to universities, on understanding and accepting queer and transgender folks."* It implies that the stakeholders in the education sector need to be better sensitized about transgender persons. However, the statement talks about India in general. Therefore, this is an incorrect option.

4 (b)

Let's do these two things to 100. Multiplying 100 by 6 yields 600; moving the decimal point three places to the left changes 600, or 600.0, to 0.60.

This means that the new number is 0.60% , or 3/5 %, of the original number.

5 (a)

N is 20% of P

So, N = P × (20/100)

Or, P = 5N

6 (c)

This is simply a matter of breaking down the problem. 10 percent of x is 0.1x.

25 percent of half of y is 25 percent of 0.5y, which is $0.25 \times 0.5y = y/8$.

Now, as per the question,

x/10 = y/8

or y/x = 4/5

7 (d)

Decreasing a price by 10%, then by 20%, and then by 30% is equivalent to taking 90% of a price, then taking 80% of the remaining price, and then taking 70% of that. That, in turn, is equivalent to multiplying the price by 0.90, then by 0.80, and then by 0.70.

For simplicity's sake, assume the initial price was Rs. 100. Then we can calculate the final price as follows:

Final price = 100 × 0.9 × 0.8 × 0.7 = Rs. 50.40

So, we essentially discounted the original price by Rs.49.60, which is 49.6%.

8 (c)

The best way to do this is to start with 100 and calculate the result.

The final number will be as follows:

$[(100 \times 1/6) \div 1/7] \times 7/10$

$= (100/1) \times (1/6) \times (7/1) \times (7/10)$

$= 245 /3 = 81 \frac{2}{3} \%$

So, the final number will be $81 \frac{2}{3} \%$ of the original number.

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9 (b)

M is 35% of N, and L is 25% of N

So, M = 0.35N, and L = 0.25N.

To find out what percent L is of M, we need to evaluate:

$(L/M) \times 100\% = (0.25N/0.35N) \times 100\% = (25/35) \times 100\% = 500/7\ \% = 71\frac{3}{7}\%$

10 (a)

N is 75% of Y

So, N = (3/4) Y

X is 40% of N

So, X = (2/5) N = (2/5) (3/4) Y = (3/10) Y

Statement 1:

N is a multiple of 5, and X = (2/5) N. It means that X must be an integer, positive or negative.

Statement 2:

Y is a multiple of 4, and X = (3/10) Y. It means that X may or may not be an integer.

Using both statements together:

X must be an integer, positive or negative. So, we cannot tell for sure whether X is a positive integer or not.

11 (c)

Option (a) is incorrect as the passage mentions, *"There is much lather about political empowerment of women – one facet being reservation of seats in Parliament. Whether that alone will change the stranglehold of circumstance is an open question."* So, the author himself is not sure whether reservation of seat will help in improving economic conditions of the women. Hence, this answer option is not correct.

Option (b) is incorrect as the passage mentions, *"Female Labour Force Participation Rate in the G7 countries ranges between 42 and 61 per cent. India trails all its peers among the BRICS nations on female workforce participation rate."* India is surely behind G7 and other BRICS nations, but we cannot say so for the South Asian region as the data is inadequate.

Option (c) is correct as the passage mentions, *"The history of economic development is explicit about necessary and sufficient conditions for prosperity. No large economy has attained its level without the participation of women in the workforce."* There is a clear implication that in order to become a large economy, participation of women in the workforce is a necessity. Thus, this statement is directly implied in the passage. Als,o the passage mentions*, "There is merit in the argument that economic empowerment enables and propels political empowerment."* Thus, economic participation becomes important for political empowerment too.

Option (d) is incorrect. Refer to the line: *"Yet barely 19 per cent of Indian women of working age participated in the labour force in 2021 as per the World Bank."* The passage mentions only the percentage terms about female labour force participation. There is no indication towards whether or not it has the largest number of women in working-age population. Also, even if true, this statement is not the best implied statement of the passage, as the passage is centered around the need of economic empowerment of women and their poor levels in India, not their relative numbers in working age population.

12 (d)

Option (a) is incorrect as the passage does not mention these steps (provision of longer maternity leave, crèche facilities and equal remuneration) for improving female labour participation. It is completely beyond the scope of this passage.

Option (b) is incorrect as the passage is clearly centered on female labour participation. To infer a generic statement on demographic dividend (includes both male and female) would be out of the scope of the passage. Also, there's no discussion on rural-urban parameters.

Option (c) is incorrect as the passage only mentions that G7 have higher female labour participation; but it does not reveal much about political representation of women. Also, the line in the passage - *"There is merit in the argument that economic empowerment enables and propels political empowerment"*, could

mean that higher levels of political representation of women is due to economic empowerment. However, we cannot generalise it to ALL countries as mentioned in this answer option. Hence, this answer option is incorrect.

Option (d) is correct as the passage mentions," *There is much lather about political empowerment of women – one facet being reservation of seats in Parliament….. There is no disputing that social and economic conditions are a contributory factor."* Thus, both social and economic factors are responsible for poor levels of political empowerment of women. Also, the demand of reservation of seats in Parliament shows that their representation is low. Hence, both arguments of this answer option are correct.

13 (d)

Option (a) is incorrect. The passage mentions, *"Even after she has passed the Class XII examination with distinction, a student may not be equipped to critically examine the claims made by a scholar, propose alternative hypotheses and initiate a new line of rational enquiry."* It implies we must also focus on proficiency tests along with achievement tests. There is no mention about whether it is possible to focus on proficiency tests or not. Furthermore, there is no indication towards the subjectivity involved in a proficiency test. Hence, this answer option is incorrect.

Option (b) is incorrect. There is a catch in this answer option. You might miss the word "not" written before "rational enquiry" in this answer statement. The passage nowhere mentions whether critical thinking and/or rational enquiry make a student more intelligent. It just focuses on the importance of proficiency tests (not just achievement tests). Factually, it is probable that both critical thinking and rational enquiry account for intelligence, but this is not touched upon in this passage. So this option is incorrect.

Option (c) is incorrect. This answer option is close. The passage mentions, *"Even after she has passed the Class XII examination with distinction, a student may not be equipped to critically examine the claims made by a scholar."* It implies textbook knowledge does not make a student capable to handle claims made by a scholar. So the statement is correct but it is not the best suggestion in comparison to option (d). Option (d) also mentions the relevance of proficiency tests in comparison to achievement tests.

Option (d) is correct. The passage mentions, *"Even after she has passed the Class XII examination with distinction, a student may not be equipped to critically examine the claims made by a scholar, propose alternative hypotheses and initiate a new line of rational enquiry."* The overall theme or suggestion of the passage hovers around the crucial role of knowledge and critical thinking, compared to achieving only distinction in examination. So this statement best reflects the suggestion implied by the passage. So this is the correct option.

14 (a)

Statement 1 is correct. The passage mentions, *"However, the structure of social media has facilitated a perception of engagement without organization, action without consequence."* This means that after the arrival of social media, the local organization, discussion and negotiation (components of meaningful politics) have been disturbed as the engagement takes place without organizing people and actions are committed without any consequences. So this statement is correct.

Statement 2 is incorrect. The passage mentions the role of offline organizations and the shortcomings of social media in the organization. But the passage nowhere mentions that physical organization is better in comparison to a virtual organization, leave alone best. So this is an incorrect statement.

15 (c)

Let the price of 1 litre of petrol be Rs. x and the initial amount bought by Raj be 'y' litres of petrol.
Therefore, he would have spent Rs. xy on petrol.
When the price of petrol increases by 25%, the new price per litre of petrol will be Rs. 1.25x.
Raj intends to increase the amount he spends on petrol by 15%. i.e., he is willing to spend xy + 15% of xy = Rs. 1.15xy
Let the new quantity of petrol that he can get be 'q' litres.
Then, $1.25x \times q = 1.15xy$
Or $q = 1.15xy/1.25x$
Or $q = (1.15/1.25)y = 0.92y$

As the new quantity that he can buy is 0.92y, he gets 0.08y lesser than what he used to get earlier.

Required percentage = (0.08y/y) × 100 = 8%

Thus, Raj has to reduce the quantity of petrol being purchased by 8%.

Hence, option (c) is correct.

16 (a)

Number of sheep at the beginning of the year 2000 and at the end of 2001 is same, i.e. 1 million.

"x" is the percentage of sheep increase in the year 2000, and "y" is the percentage decrease of sheep in the yearr 2001.

Let us assume the value of x to be 10%.

Therefore, the number of sheep at the beginning of the year 2001 (end of 2000) will be 1 million + 10% of 1 million = 1.1 million

In 2001, the number of sheep decreases by y% and at the end of the year, the number of sheep in the herd is 1 million. i.e. 0.1 million sheep have died in 2001.

So, Percentage decrease of sheep in the year 2001, y = (0.1/1.1) × 100 % = 9.09%

So, x = 10% and y = 9.09% From the above illustration, it is clear that x > y is correct.

Hence, option (a) is correct.

17 (c)

Let the percentage of the total votes secured by Party D be x%, then the percentage of total votes secured by Party R will be (x - 12)%.

As there are only two parties contesting in the election, the sum total of the votes secured by the two parties should sum up to 100% as there are no invalid votes.

So, x + (x - 12) = 100

or 2x - 12 = 100

or 2x = 112

or x = 56%

Thus, Party D got 56% of the total votes.

So, Party R will get (56 - 12)%, i.e. 44% of the total votes.

According to the question,

44% of the total votes = 132,000

Or (44/100) of the total votes = 132,000

So, Total votes = 132000 × (100/44) = 300,000

The margin by which Party R lost the election = 12% of the total votes = 12% of 300,000 = (12/100) × 300,000 = 36,000

Hence, option (c) is correct.

18 (b)

Let the maximum marks be "x".

Candidate who gets 42% marks, gets 12% of the maximum marks more than the passing marks.

So, Pass percentage = (42 - 12)% of x = 30% of x

Candidate who gets 20% marks, fails by 10 marks.

So, Pass percentage = 20% of x + 10

So, 30% of x = 20% of x + 10

Or 30% of x - 20% of x = 10

Or 10% of x = 10

Or x = (10/10) × 100 = 100

Therefore, maximum marks = 100

Hence, option (b) is correct.

19 (b)

Let the amount of flower-nectar needed be x kg.

Flower-nectar contains 50% water. So, flower-nectar contains 50% of non-watery part.

Honey contains 15% water. So, amount of non-watery part in the honey will be 85%.

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When processing flower-nectar into honeybees' extract, only the water is lost during processing. Hence, the non-watery part in flower-nectar should be equal to the non-watery part in honey.

∴ 50% of the Amount of flower-nectar needed = 85% of the Amount of honey

Or $0.5 \times x = 0.85 \times 1$ kg

Or $x = (0.85/0.5) \times 1$ kg = 1.7 kg

Therefore, the amount of flower-nectar needed is 1.7 kg.

Hence, option (b) is correct.

20 (c)

80% of the men are less than or equal to 50 years old. So, 20% of the men are above the age of 50 years. 20% of these men play football.

Therefore, 20% of 20%, i.e. 4% of the total men are football players above the age of 50 years.

20% of the men are football players.

Therefore, 16% of the men are football players below or equal to the age of 50 years.

Therefore, the percentage of football players below or equal to the age of 50 years = $(16/20) \times 100 = 80\%$

Hence, option (c) is correct.

21 (a)

Assumption 1 is correct. The given option is correct because of the lines *"Bacterial infections can be harmful to the cow and can also infect the milk and meat consumed by people. Antibiotics are spliced into the DNA of feed corn to prevent such infection. Antibiotics have been used since the 1950s to stimulate cattle growth. Over time, this practice has led to the development of antibiotic-resistant bacteria in cattle and people"*. These lines show that the use of antibiotics is harmful and therefore its use should be reduced. So, this assumption is correct.

Assumption 2 is incorrect. This given option is not correct and is beyond the scope of the passage. Although this seems to be a correct inference, it is not based on the information in the passage. There is no direct relationship established in the passage between the reduction in the use of antibiotics and reduction in milk production. So, this option is not correct.

22 (a)

Option (a) is correct. The lines *"Bacterial infections can be harmful to the cow and can also infect the milk and meat consumed by people. Antibiotics are spliced into the DNA of feed corn to prevent such infection. Antibiotics have been used since the 1950s to stimulate cattle growth. Over time, this practice has led to the development of antibiotic-resistant bacteria in cattle and people"*, imply that over time the continued use of antibiotics can lead to creation of antibiotic-resistant microorganisms, and therefore it would be wise to reduce the use of antibiotics. So, this option is the correct suggestion made by the author.

Option (b) is incorrect. There is no discussion concerning research for the development of any kind of alternative to antibiotics. The main suggestion of the author is related to the increasing threat of antibiotic resistance converting to superbugs. Therefore, this option is not correct.

Option (c) is incorrect. The given option states that biotechnology has some negative side effects, but it is not the main theme of the passage. The core discussion of the passage is about the use of antibiotics and their resistance among cattle and the population. The given statement is more in the nature of a fact/opinion, rather than a suggestion. So, this option is not the correct suggestion.

Option (d) is incorrect. This option in general is correct. However, this is not the main discussion of the passage. It could be a fair assumption or an inference, but the suggestion given here is that antibiotic resistance is increasing due to increased use of antibiotics, which can lead to the creation of superbugs. So, this could be a good generic suggestion but not the best suggestion as per the passage. Also, the main focus of the passage is on animals, not people.

23 (a)

Inference 1 is correct. This inference is based on the discussion in the passage as seen in the lines *"Avoiding disability and death from these causes depends a great deal more on individual understanding and action than did the prevention of the infectious diseases"*. This premise establishes that individual understanding plays a critical role in preventing the spread of disease. Therefore, this inference is correct.

Inference 2 is incorrect. This option is not correct because as per the passage *"The immunization of even a few children in a community affords some protection to the others, for each immune child in a population reduces the chance of transmission of the disease"*, showing that there is no need for immunizing every person because immunization of even a few also offers protection to others. So, this inference is not correct.

24 (c)

Option (a) is incorrect. This option is not correct because there is no discussion on the role of the government to accelerate the pace of vaccination for different diseases. So, this statement is not the crux.

Option (b) is incorrect. The given option is contrary to the information given in the passage. The lines *"Not every person needs to take specific preventive action to be protected from a communicable disease"*, mean that not every person needs to take preventive steps. So, this is not the crux of the passage.

Option (c) is correct. The lines *"Avoiding disability and death from these causes depends a great deal more on individual understanding and action than did the prevention of the infectious diseases"* and *"The immunization of even a few children in a community affords some protection to the others, for each immune child in a population reduces the chance of transmission of the disease"*, establish that knowledge is a necessary but not sufficient condition for the protection of community from infectious diseases. Awareness should be complemented by immunization to arrest the spread of infectious diseases. So, this option best reflects the crux of the passage.

Option (d) is incorrect. This option compares the immunization of children with that of adults and concludes that immunizing children is more important than adults. However, such a comparison is not discussed in the passage. So, this is not the crux of the passage.

25 (c)

Statement 1 is incorrect as the passage does not given any reference to the introduction of new plants by Europeans in Asia. So, it is entirely out of the ambit of this passage.

Statement 2 is incorrect as the passage does not mention the irrigation as a method of improvement in agriculture. The author only talks about measures like improving crop varieties through genetics, crop rotation, Norfolk four-field system, etc. So, it is an invalid assumption.

Statement 3 is correct as the passage clearly mentions, *"the Norfolk four-field system, developed in England, proved quite successful. It involved the yearly rotation of several crops. This added nutrients to the soil."* Thus, new agricultural methods like Norfolk four-field system helped in increasing the soil fertility and thus the production of crops. So, it is a valid assumption.

26 (d)

Let each sum be Rs. X, then
Difference of S.I. = Rs. 31.50
According to the question,
$[(X \times 4.5 \times 7)/100] - [(X \times 4 \times 7)/100] = 31.50$
Or $(31.5X - 28X)/100 = 31.50$
Or $3.5X = 31.5 \times 100$
Or $X = 3150/3.5 = $ Rs. 900
Thus, each sum was Rs. 900.
Thus, option (d) is correct.

27 (b)

Seats in executive class = 10% of 500 = 50
So, seats in chair car = 500 – 50 = 450
Total booked seats = 85% of 500 = 425
Seats booked in executive class = 96% of 50 = 48

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Therefore, seats booked in chair car = 425 – 48 = 377
Empty seats in chair car = 450 – 377 = 73
Thus, option (b) is correct.

28 (a)

It is given that, P + R = 210
We will check each option one by one.
Starting with option (a):
P = 110 and R = 100
So, P + R = 210
Thus, option (a) is correct.

29 (d)

Quantity of boric acid in 100 cc solution = 80% of 100 cc = 80 cc
Quantity of water in 100 cc solution = 100 cc – 80 cc = 20 cc
Let x cc of water be added to get the concentration of 50%.
So, $(80)/(100 + x) = 50/100$
or $(80)/(100 + x) = 1/2$
or $80 \times 2 = (100 + x)$
or $x = 160 – 100 = 60$ cc
Thus, 60 cc of water must be added.
Hence, option (d) is correct.

Alternate method:
Concentration of boric acid in 100 cc solution = 80% of 100 cc = 80 cc
Quantity of water in 100 cc solution = 100 cc – 80 cc = 20 cc
Here we are adding water. So, amount of boric acid is fixed.
When water is added to the solution, boric acid reduces to 50% of the solution.
Thus, 50% of the solution contains 80 cc.
So, 100% of the solution contains 160 cc.
Amount of water to be added in the solution = 160 cc – 100 cc = 60 cc
Hence, option (d) is correct.

30 (b)

Let B's salary be Rs. 100.
Then A's salary = Rs. 125
Required percentage = $[(125 – 100)/125] \times 100 = (25 /125) \times 100 = 20\%$
Thus, B's salary is lower than A's salary by 20%.
Hence, option (b) is correct.

31 (d)

Principal (P) = Rs. 5000, Rate (r) = 12% per annum, Time (n) = 2 years
Compound Interest (C.I.) = $[P \{1 + (r/100)\}^n – P]$
Simple Interest (S.I.) = $(P \times r \times n)/100$
Required difference = $[P \{1 + (r/100)\}^n – P] - (P \times r \times n)/100$
= $[5000 \{1 + (12/100)\}^2 – 5000] – (5000 \times 12 \times 2)/100$
= $5000 [(28/25) \times (28/25) – 1] - 1200$
= $5000 [(784 – 625)/625] - 1200 = 1272 – 1200 =$ Rs. 72
Thus, difference between simple interest and the compound interest for 2 years will be Rs. 72.
Hence, option (d) is correct.

32 (b)

It is given that, a% of X is equal to b% of Y.
$(a \times X)/100 = (b \times Y)/100$
or $aX = bY$
or $Y = aX/b$
Let c% of Y = d% of X

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On putting Y = aX/b in the above equation, we get:

(c/100) × (aX/b) = (d/100) X

Therefore, d = ac/b

Thus, Y is (ac/b)% of X.

33 (d)

Option (a) is incorrect. The option states that separating the transport and tourism policy is not suitable for the society and the environment. However, the main discussion in the passage is not about separating these two policies, but about how to integrate them for reducing pollution. Also, to say that separating them will be detrimental will not be correct as the passage does not mention anything related to it. So, this is not the crucial message in the passage.

Option (b) is incorrect. This option talks about the indispensability of the transport sector for the tourism sector. However, the passage does not mention any information of this nature. There is no mandatory dependence of the tourism industry on the transport sector. Therefore, this is not the correct crucial message of the passage.

Option (c) is incorrect. This option mentions that poor public transport infrastructure is the cause of pollution and economic issues of rural inhabitants. However, this is a mere inference/assumption not based on any information in the passage. There is no discussion of public transport or economic issues faced by rural folks in the passage. Therefore, this is not the correct crucial message of the passage.

Option (d) is correct. This option captures the real essence of the passage. The lines "*Transport planning and tourism policy have to be integrated to achieve joint environmental and social objectives"*, reflect the crucial message conveyed by the passage.

34 (a)

Option (a) is correct. This is the correct option because it mentions the core idea of the passage. The lines "To fight pesticide resistance ..., *several principles must be adhered to for delaying the emergence of resistance or avoiding it entirely. These principles include pesticide rotation or switching, avoiding unnecessary pesticide applications, using non-chemical control techniques, and leaving untreated refuges where susceptible pests can survive"* properly captures the essence of the given option.

Option (b) is incorrect. The option states one of the probable consequences of long-term pesticide resistance, namely food insecurity. However, this is not the main theme of the passage as food insecurity is not discussed in the passage. So, to say that this is the central idea is not correct.

Option (c) is incorrect. This option is beyond the scope of the passage, because the lines *"To fight pesticide resistance and based on a knowledge of the genetics of the development of pesticide resistance, several principles must be adhered to for delaying the emergence of resistance or avoiding it entirely"* only mention about knowledge of genetics to fight pesticide resistance. However, it would be incorrect to infer that it is impossible to develop pesticides without the knowledge of the genetics of pests. Therefore, this is not the central idea of the passage.

Option (d) is incorrect. This option is beyond the scope of the passage because there is no discussion of bio-pesticides in the passage. This option is a practical policy implication, but not the central idea of the passage.

35 (b)

Inference 1 is incorrect. This option is not correct because the option mentions the cost of packaging. However, there is no discussion in the passage about the cost implications of nano packaging. So, this option is beyond the scope of the passage and hence is not a correct inference.

Inference 2 is correct. This assumption is correct as can be seen in the lines *"There is a need to undertake further toxicological and migration studies to ensure safe development of nanotechnologies in the food packaging industry"*. It shows that the current understanding of the impact of nanotechnology on the packaging is limited. So there is a need for further studies. Therefore, this assumption statement is correct.

36 (a)

Statements 1, 2 and 4 are correct. The lines "*Plants provide the raw material for industries producing pharmaceuticals, cosmetics, perfumes, and fragrance flavour imparting biochemical*. Therefore, there is an urgent need for conservation, sustainable utilization, and management of plant genetic resources of the region to meet the *growing requirements of food, fodder, fibre, health, water, and other needs*" show that plants are used in these processes. So, option (a) is correct.

Statements 3 and 5 are incorrect. The options for the prevention of soil erosion and air pollution are correct in general. However, they are not covered in the passage and the answer has to be based on the information given in the passage. Hence, these statements are not correct.

37 (d)

Assumption 1 is incorrect. The lines "*World Health Organization (WHO) estimated that about 80% of the developing country's population still relies on traditional medicines, mostly plant drugs, to help meet their health care needs*" merely talks about developing countries. Assuming that developed nations are mainly dependent on chemical-based medicines would not be correct. So, this assumption is not correct.

Assumption 2 is incorrect. The lines, "*Therefore, there is an urgent need for conservation, sustainable utilization, and management of plant genetic resources of the region to meet the growing requirements of food, fodder, fibre, health, water, and other needs*" show that conservation of plant genetic resources is required. However, we cannot assume from this that many plant genetic resources are getting extinct. So, this is an incorrect assumption.

38 (c)

From the graph, the maximum production occurs when the farmer applies 20 kg in two acres and the remaining in three acres.

39 (d)

The minimum angle made is 0° right at the top of the graph, just before it starts falling.

40 (b)

Let the number of boys and girls be x and y, respectively.
Then, the total score of boys = 71x
And total score of girls = 73y
Now, average score = 71.8
Therefore, $(71x + 73y)/(x + y) = 71.8$
or $71x + 73y = 71.8x + 71.8y$
or $0.8x = 1.2y$
or $x/y = 1.2/0.8 = 3/2$
So, Percentage of girls in the class = $[2/ (2 + 3)] \times 100 = (2/5) \times 100 = 40\%$
Thus, option (b) is correct.

41 (a)

Assumption 1 is correct. The passage indicates that modern methods (chemicals) have proven to be more effective than traditional methods, in these lines- "*Now, almost all farmers, especially in developed countries, rely on chemicals to control pests*" and "*With the use of chemicals, crop losses and prices have declined dramatically*". So, this assumption is correct.

Assumption 2 is incorrect. There is no mention of developing countries in the passage. It only talks about developed countries in the lines, "*Now, almost all farmers, especially in developed countries, rely on chemicals to control pests*". So, the option is beyond the scope of the passage. Therefore, this assumption is incorrect.

42 (c)

Option (a) is incorrect. This option is beyond the scope of the passage as the opening lines of the passage talks about restoring only 'at least' one-third of what has been lost in the past 30 years. The word 'completely' makes the statement sound extreme, and hence does not reflect the crux of the passage.

Option (b) is incorrect. This option presents a comparison between man-made and natural solutions for climate emergencies. However, the passage does not compare these two. Also, there is no mention of the better method; technology or wild nature. So, this is not the crux of the passage.

Option (c) is correct. This option best captures the essence because it covers both aspects, man-made as well as natural, as indicated in the lines *"Unlike technological and engineered solutions that are expensive and must be scaled-up to be effective, wild nature is already in place and working for free (as it has done for 500 million years) to produce everything life needs most to survive"* – it implies that humans (by scaling up technologies) should work in tandem with nature for mitigating climate emergency. So, this option is the crux of the passage.

Option (d) is incorrect. There is no discussion on the aspect of the role of governments in scaling up technologies. This option could be a fair suggestion but not the crux.

43 (c)

Statement 1 is correct. As the passage mentions, *"When physical activity is used as a break from academic learning time, post engagement effects include better attention, increased on-task behaviours, and improved academic performance."* The closing lines, *"Further, after-school physical activity programs……. shown to mediate improvements in academic performance, as well as the allocation of neural resources underlying performance on a working memory task"* also reinforce the author's stand. Thus, the author assumes that frequent physical activity breaks help in academic performance.

Statement 2 is correct. The opening lines clearly mention that post engagement (engagement in a physical activity) effects include better attention, increased on-task behaviours, and improved academic performance. Hence the assumption given in this statement is correct.

44 (c)

Option (a) is incorrect. The passage doesn't mention the monotonicity of the student's life. It is beyond the scope of the passage.

Option (b) is incorrect. The passage doesn't mention the benefits of physical activity concerning physical development. It is centred on the cognitive benefits of physical activity.

Option (c) is correct. The passage mentions, *"When physical activity is used as a break from academic learning time, post engagement effects include better attention, increased on-task behaviours, and improved academic performance."* Thus, physical activity improves attention and as well as the allocation of neural resources underlying performance on a working memory task.

Option (d) is incorrect. The passage doesn't mention the relation between physical activity and social skills and is thus beyond the scope of the passage.

45 (a)

Number of characters in one line = 65
Number of characters in one sheet = Number of lines × Number of characters per line = 55 × 65
Total number of characters in the report = Number of sheets × Number of characters in one sheet = 20 × 55 × 65 = 71500
If the report is retyped, then new sheets have 65 lines, with 70 characters per line.
Number of characters in one sheet = 65 × 70
Number of sheets required = (Total number of characters)/(Number of characters in one sheet if retyped) = 71500/(65 × 70) = 15.71
Hence, 16 sheets will be required if report is retyped.
Reduction in number of sheets = (20 – 16) = 4
Percentage reduction = (4/20) × 100 = 20%
Hence, option (a) is correct.

46 (d)

The person can buy 50 oranges or 40 mangoes.
Let the price of one orange be Rs. x.
Total amount the person has = 50 × x = Rs. 50x
Cost of 40 mangoes = 50x
So, cost of one mango = 50x/40 = Rs. 1.25x
Amount retained for taxi fare = 10% of 50x = Rs. 5x
20 mangoes bought for 20 × 1.25x = Rs. 25x
Money left with the person = 50 x – (Taxi fare) – (Cost of 20 Mangoes) = 50x – 5x – 25x = Rs. 20x
One orange costs Rs. x. Therefore, 20 oranges can be bought with Rs. 20x.
Thus, the person purchased 20 oranges.
Hence, option (d) is correct.

47 (d)

Let the total number of employees in the company be x. Then the number of men and women will be 0.4x and 0.6x respectively.
75% of men earn more than Rs. 425,000.
Number of men earning more than Rs. 425,000 = 0.75 x 0.4x = 0.30x
Total number of employees earning more than Rs. 425,000 = 45% of x = 0.45x
So, Number of women earning more than Rs. 425,000 = Total employees earning more than Rs. 425,000 – Total number of men earning more than Rs. 425,000 = 0.45x – 0.30x = 0.15x
Number of the women earning Rs. 425,000 or less = Total number of women employees - Number of women employee earning more than Rs. 425,000 = 0.60x – 0.15x = 0.45x
Fraction of the women employed by the company who earn Rs. 425,000 or less = (0.45x/0.60x) = 45/60 = 3/4

Alternate Method:
Forty per cent of the employees of a certain company are men.
Let there be 40 men and 60 women in the company.
Now out of 40 men, 75% i.e.30 men earn more than Rs 425,000.
Also, 45% of the total employees, i.e. 45 employees earn more than Rs. 425,000.
Hence, there are 45 – 30 = 15 women who earn more than Rs. 425,000.
So, 60 – 15 = 45 women earn less than Rs. 425,000.
Hence, the required fraction = 45/60 = 3/4
Hence, option (d) is correct.

48 (a)

Let the amount of money received by Ashwini, Bhavna and Charulata be A, B and C respectively.
Sum of money with the three of them, A + B + C = 1105
After removing Rs. 10, Rs. 20 and Rs. 15 from A, B and C respectively the sum of money they have will be (A – 10), (B - 20) and (C - 15).
It's given that, (A – 10) : (B - 20) : (C - 15) = 11 : 18 : 24
Let A − 10 = 11k, B − 20 = 18k and C − 15 = 24k
Adding the money left with the three of them after removing Rs. 10, Rs. 20 and Rs. 15 respectively, we get:
A – 10 + B – 20 + C – 15 = 11k + 18k + 24k
or A + B + C – 10 – 20 – 15 = 53k
or A + B + C – 45 = 53k
From the question, we know that A + B + C = 1105
So, 1105 – 45 = 53k
or 1060 = 53k
or k = 1060/53 = 20

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Substituting value of k in the equation, C - 15 = 24k,

C − 15 = 24 × 20 = 480

or C = 480 + 15 = Rs. 495

Thus, Charulata received Rs. 495.

Hence, option (a) is correct.

49 (b)

Cost price of the house = Rs. C

Profit = 25% of C = Rs. C/4

Capitals gains tax = 50% of C/4 = Rs. C/8

Hence, option (b) is correct.

50 (b)

From Statement I:

Let the sum be Rs. x.

Time = 5 years, Rate = 16.67% = (50/3)%

Simple Interest = [x × (50/3) × 5]/100 = 5x/6

Amount = x + 5x/6 = 11x/6

Thus, money does not get doubled in 5 years if the rate of interest is 16.67%.

Hence, Statement I is not correct.

From Statement II:

Let the sum be Rs. x.

Time = 5 years, Rate = 20%

Simple Interest = [x × 20× 5]/100 = x

Amount = x + x = 2x

Thus, money gets doubled in 5 years if the rate of interest is 20%.

Hence, Statement II is correct.

From Statement III:

Money gets doubled in 5 years.

Let the sum be Rs. x.

Amount = 2x, Time = 5 years

Simple Interest = Amount – Principal = 2x – x = x

Rate = [Simple Interest × 100]/[Principal × Time] = (x × 100)/(x × 5) = 20%

Now, Principal = x, Rate = 20%, Time = 10 years

Simple Interest = [x × 20 × 10]/100 = 2x

Amount = x + 2x = 3x

Thus, money does not become 4 times.

Hence, Statement III is not correct.

Thus, Only Statement II is correct.

Hence, option (b) is correct.

51 (a)

Option (a) is correct. The passage mentions, *"Suicides which happen due to coercion and threat of violence are not truly suicides, they are murders committed by all of us."* It implies that in many cases all of us, i.e. society provokes someone to such an extent that the person commits suicide. Not every suicide is provoked by society, but those involving coercion and threat of violence are provoked by society. Therefore, this is the correct option.

Option (b) is incorrect. The passage nowhere mentions that society is the only reason behind suicides. So this is an incorrect statement.

Option (c) is incorrect. The passage nowhere mentions that society promotes suicide in order to maintain its supremacy over individuals. This is entirely beyond the scope of this passage. So this is an incorrect statement.

Option (d) is incorrect. This option is incorrect because options (b) and (c) are already incorrect as explained above.

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52 (b)

Statement 1 does not display insensitivity. It is in fact a display of sensitivity when people raise voice whenever there is an act of injustice.

Statement 2 displays insensitivity. The passage mentions, *"We love the talk of death as a means of retribution."* It implies we enjoy the suicides as a means of retribution instead of showing empathetic behaviour and sensitivity to the victims. So this is the most insensitive act of us according to the passage. So this is the correct option.

Hence, option (b) is the correct answer.

53 (c)

Inference 1 is correct. The given option is correct as it is based on the lines *"But importantly, this association was **true only when the adults in those neighbourhoods also did not have strong shared norms** about preventing crime and violence"*. This shows that increase in children's brain activity in response to viewing emotional faces on screen occurs only when adults in the neighbourhood also had weak attitudes towards preventing violence. This shows a correlation between adult behavior and children's brain activity. Hence, this statement is correct.

Inference 2 is correct. The lines *"But **neighbours may help protect children from these effects** on the brain when they can **build positive social norms** about looking out for one another and preventing violence"*, show that neighbour also plays a critical role in the socialization of children besides family. They too could help in building positive values in children. So, this inference is correct.

54 (a)

Option (a) is correct. This option best captures the essence. The lines *"Children growing up in more **disadvantaged neighbourhoods** – meaning those with poor housing quality, more poverty and lower levels of employment and education – **show observable increases in brain activity** when viewing emotional faces on a screen. But importantly, this association was **true only when the adults in those neighbourhoods also did not have strong shared norms about preventing crime and violence**"*. All these lines show that neighbourhood and their sense of shared values can impact the brain development of the child. So, this is the best crux of the passage.

Option (b) is incorrect. This option seems to be correct. However, this is not based on the information in the passage. As per the passage, poverty in the neighbourhood negatively impacts children only when the adults are also inclined to commit crime and violence. So, this option is not the crux.

Option (c) is incorrect. This option in general seems to be correct but there is no discussion in the passage about how education can be a tool for imparting positive values to children. The passage is about the importance of neighbourhood and its impact on the brain development of the child. So, this option is not correct.

Option (d) is incorrect. This option is beyond the scope of the passage as it does not delve into suggesting policy measures for children living in disadvantaged neighbourhoods. So, this option is not the crux.

55 (b)

40% of the boys is same as half of the girls, and there are 20 girls.
So, 40% of boys = 20/2 = 10
Therefore, 100% of boys = (10/40%) × 100% = 25
Therefore, total number of boys = 25
Thus, total number of students = 25 + 20 = 45
Hence, option (b) is correct.

56 (d)

Total income can be divided as:
Rs. 1,70,000 = 50,000 + 10,000 + 90,000 + 20,000
Tax payable = 50,000 × 0% + 10000 × 10% + 90,000 × 20% + 20,000 × 30%
= 1000 + 18000 + 6000 = Rs. 25000
Hence, option (d) is correct.

57 (b)

Let X, Y and Z have their own funds of Rs x, Rs. y and Rs. z respectively.

Then Y received 10% of its fund from X.

So, Y's total fund = y + (10/100)y = 1.1y

Donation given by company Z = Rs. 10000

It means that, z × 5/100 = 10000

Or z = Rs. 2,00,000

Now as per the question, after receiving the loan, Y has funds which are 2 times the funds of Z.

So, 1.1y = 2z

Or 1.1y = 2 × 200000

Or y = 400000/1.1 = Rs. 363636.36

Donation given by Y to trust P = y × 5/100 = 363636.36 × 5/100 = Rs. 18000 (approximately)

58 (a)

The pre-paid recharge of a certain telecom company X gives 21% less talktime than that given by pre-paid recharge of telecom company Y at the same price.

Let, Talktime given by Prepaid recharge of company Y = 100

Talktime given by Prepaid recharge of company X = 100 – 21 = 79

Talktime given by Postpaid recharge of company Y = 100 – 15 = 85

Talktime given by Postpaid recharge of company X = 79 × (100 + 12)/100 = 88.48

Required percentage = [(88.48 – 85)/85] × 100 = [3.48/85] × 100 = 4% more (approximately)

59 (c)

If any two transactions SP is the same, and also gain% and loss% are the same then there is always a loss.

Loss% = (common gain or loss% /10)^2 = (10/10)^2 = 1%

Hence, in the whole transaction there is a loss of 1%.

Alternate Method:

S.P. of first bicycle = Rs. Rs. 9900, Gain% = 10%

So, C.P. of first bicycle = 9900 × (100/110) = Rs. 9000

S.P. of second bicycle = Rs. Rs. 9900, Loss% = 10%

So, C.P. of second bicycle = 9900 × (100/90) = Rs. 11000

Total C.P. = 9000 + 11000 = Rs. 20000

Total S.P. = 9900 + 9900 = Rs. 19800

Loss = 20000 – 19800 = Rs. 200

Loss% = (200/20000) × 100 = 1%

60 (b)

Let the CP of a pen and a book be Rs. x and Rs. y respectively.

CP of a pen and a book = Rs. (x + y)

On selling a pen at 5% loss and a book at 15% gain, Karan gains Rs. 7.

So, 0.95x + 1.15y = (x + y) +7

or 0.15y - 0.05x = 7   ……………….. (i)

If he sells the pen at 5% gain, and a book at 10% gain, then he gains Rs. 13.

So, 1.05x + 1.1y = (x + y) + 13

or 0.05x + 0.1y = 13   ………………. (ii)

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

y = Rs. 80

So, actual price of the book is Rs. 80.

61 (b)

Let the quantity of milk purchased be x litres and quantity of water added to it be y litres. Then ratio of water to milk will be y:x.

Now, CP of x litres milk = Rs. 6.4x and

S.P of the mixture when y litres of water is added to x litres of milk = Rs. 8(x + y)

And profit percent = 37.5%

Now, SP = CP × (100 + Profit%)

So, 8 (x + y) = 6.4x × (100 + 37.5)/100

Or 8x + 8y = 8.8x
Or 8y = 0.8x
Or x/y = 80/8 = 10/1
Or y:x = 1:10
Hence, option (b) is correct.

62 (b)

Interest earned on Rs. 13200 at a rate of 14% = Rs. 1848
Number of shares purchased = 13200/110 = 120
Dividend earned by him on 120 shares which pays a dividend of 15% per share = 120 × [(15/100) × 100]
= Rs. 1800
Therefore, net profit = 1848 – 1800 = Rs. 48

63 (c)

Let the C.P for the manufacturer be Rs. 100.
Then C.P for the wholesaler = Rs. 118
C.P for the retailer = 118 × (120/100) = Rs. 141.60
C.P for the customer = 141.60 × (125/100) = Rs. 177
If the C.P for the customer is Rs. 177, then the C.P for the manufacturer is 100.
Therefore, if the C.P for the customer is Rs. 30.09, then the C.P for the manufacturer = (100/177) × 30.09
= Rs. 17
Hence, option (c) is correct.

64 (d)

Cost price of 1,000 shirts = Rs. 900000
So, Cost price of one shirt = 900000/1000 = Rs. 900
The store sells 750 shirts in the first month at a price 80 per cent above the cost price, and 50 per cent of the remaining shirts, i.e. 125 shirts, afterwards at 20 per cent above the cost price.
Gross income generated by selling the shirts = 750 × (180% of Rs. 900) + 125 × (120% of Rs. 900)
= 750 × 1620 + 125 × 1080
= 1215000 + 135000 = Rs. 1350000

65 (c)

Let Ajit's and Lalit's investment be 3x and 2x respectively (∵ their investment ratio is 60:40 i.e. 3:2)
Profit after 5 years of investment = 30% of 5x = (30/100) 5x = 1.5x
Profit share of Ajit in ratio (60:40) of their investment = 3/5th of 1.5x = 0.9x
Profit share of Lalit = 1.5x - 0.9x = 0.6x
Interest paid by Lalit for one year of borrowing = 5% of 2x = 0.1x
Hence, actual profit of Lalit = 0.6x - 0.1x = 0.5x
Hence, ratio of their profits = (0.9x) : (0.5x) = 9 : 5

66 (d)

Statement 1 is correct. The passage mentions, "*Education provides a person with endless opportunities for growth and advancement. People who have had an education tend to be calmer and more self-assured. People who have been educated are disciplined and understand the importance of time.*" Thus, education helps in embedding the virtues of Discipline, Confidence and Punctuality.
Statement 2 is incorrect. The passage only mentions that education provides opportunities for growth and advancement in general. But we cannot infer that it leads to an increase in economic participation of women. Even though the statement is otherwise logical, answers should be found within the ambit of the passage.

Statement 3 is correct. The passage mentions, *"Education brings one up to speed on technological advancements as well. A well-educated person can easily adjust to technological developments."* Thus, education not only helps in technological advancements but also in an easy adjustment to it.

Statement 4 is correct. The passage mentions, *"Education allows a person to be more expressive and opinionated. He was able to readily communicate his viewpoints, which were supported by a clear aim and rationale."* Thus, education helps in developing communication skills by enabling a person to be more expressive and rational.

67 (b)

Statement 1 is incorrect. as the passage mentions, "*Education is a valuable tool for gaining learning and wisdom........ notion encompasses more than just books and bookish knowledge."* Thus, it is wisdom which is the ultimate desired result of education. Also, reading and writing help one in deciphering bookish knowledge. Though it is important, the passage mentions, "*It isn't required for education to be only based on books."*

Statement 2 is correct. The passage mentions, *"Education benefits not just the individual but also the community. The most important aspect of education is that it goes from one individual to another, then throughout society, and eventually throughout the country."* Thus, it is valid to assume that the benefits of education do not remain limited to one person alone.

68 (d)

Option (a) is incorrect. The passage mentions that education is an important tool for learning. It means that there could be other tools too. It does not anywhere say that it is a necessary condition for economic growth. So, the statement seems extreme.

Option (b) is incorrect. The passage doesn't mention that success can only be acquired by education. So, it is not the crux of the passage. It's pretty extreme statement.

Option (c) is incorrect. The passage mentions, *"Education, more than anything else, is a source of hope. The desire for a better life; the desire for a wealthy and poverty-free existence."* This suggests that education is a tool for poverty-alleviation. However, it cannot be inferred that an educated society is a precondition for poverty-free existence. Also, the focus of the passage seems to be more on an individual (and the benefits that an educated person may provide to its surroundings), rather than the society at large.

Option (d) is correct. The passage mentions*, "Education benefits not just the individual but also the community... Education brings one up to speed on technological advancements as well."* Thus, a well-educated person is a valuable asset to the society.

69 (a)

Option (a) is correct. This option captures the essence of the passage as the complete passage is about the effects of IoT on different aspects of human life. The lines *"One such development of IoT is the concept of Smart Home Systems (SHS) and appliances that consist of internet-based devices, automation system for homes and reliable energy management system. Besides, another important achievement of IoT is the Smart Health Sensing system (SHSS)"*, which reflects that IoT has positively impacted the lives of humans in the domain of health, home, and energy management systems. So, this is the correct answer.

Option (b) is incorrect. The given option talks about online security due to the increased use of IoT. However, there is no mention of the security aspect of IoT. The passage merely focuses on how IoT has affected the lives of people. Therefore, this option is beyond the scope of the passage and is not correct.

Option (c) is incorrect. This option also talks about the positives and negatives of IoT in the medical domain, but there is no discussion on the negatives of IoT in the medical domain in the passage. Therefore, this statement is also beyond the scope of the passage.

Option (d) is incorrect. There is no discussion in the passage on the increased cost of living due to the use of IoT. It does not represent the crux of the passage as the crux is about the summary of the passage. So, this option is not correct.
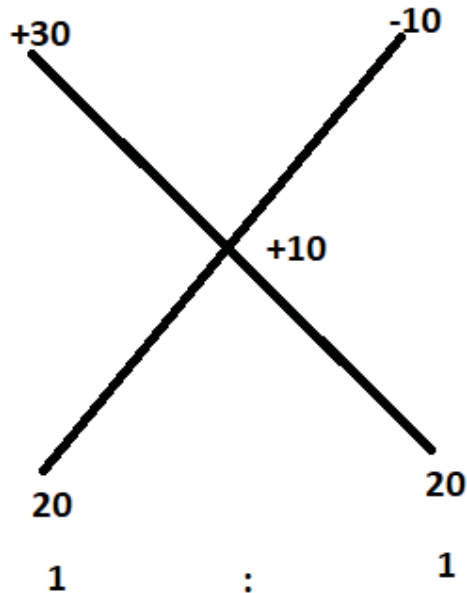
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70 (b)

Cost of 1 day to maintain the machine = Rs. m

Therefore 7 day's cost for maintenance = Rs. 7m

Similarly, cost of 1 unit = n paise (for 1 day) = Rs. n/100

Therefore, cost of r units = Rs. rn/100

Hence, Total cost = 7m +(rn/100) = (700m + nr) /100

71 (a)

A shopkeeper sells a part of the packet of 50 pens at a profit of 30% and remaining part of the pens are sold at a loss of 10%. His overall profit on the whole packet is 10%.

By Allegation Method:

Ratio of pens sold at 30% profit and 10% loss = 1:1

So, Number of pens sold at profit = [1/(1+1)] × 50 = (1/2) × 50 = 25

Hence, option (a) is correct.

72 (c)

Discount percent = 15%

Price of garments after getting discount = Cost price of garments for Mr. Sachdev = Rs. 25000

So, Original company price = (25000/85) × 100

∴ Selling price of garments = (25000/85) × 100 × 108/100 = Rs. 31764.7

73 (d)

Let the cost price of the articles be Rs. 100.

Shopkeeper labeled the price 30% higher than the cost price.

So, Marked price = 100 + 30% of 100 = 100 + 30 = Rs. 130

After giving a discount of 10%, the selling price of the articles = 0.9 × 130 = Rs. 117

So, actual profit percent = [(117 - 100)/100] × 100 = 17%

Hence, option (d) is correct.

74 (b)

Let number of apples and oranges that Rani brought be A and O respectively.

Now, 23A + 10O = 653

Since 653 has last digit as 3 which can come by multiplying 23 with 1, 11, 21, 31 and so on. Here, number of apples bought is greater than number of oranges. So, A > O

We can see that A = 21 and O = 17 is the only solution.

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So, number of Apples bought = 21 and number of Oranges bought = 17.
Cost of an Apple = 23/1.15 and
Cost of an Orange = 10/1.25
Overall cost = (23/1.15) × 21 + (10/1.25) × 17 = 483/1.15 + 170/1.25 = 420 + 136 = 556
Profit = 653 – 556 = 97
Profit percentage = (97/556) x 100 = 17.4%
Hence, option (b) is correct.

75 (a)

Let SP of each article be Rs. 100.
Thus, C.P of article sold at 13% loss = [100/(100 - 13)] × 100 = (100/87) × 100 = Rs. 115 (approx)
C.P of article sold at 23% profit = [100/(100 + 23)] × 100 = (100/123) × 100 = Rs. 81.3
C.P of article sold at 26% loss = [100/(100 - 26)] × 100 = (100/74) × 100 = Rs. 135.1
Total CP of articles = 115 + 81.3 + 135.1 = Rs. 331.4
Required percentage = [(331.4 – 300)/300] × 100 = 10.5% (Approx)
Average cost price is higher than the average selling price by 10.5% approximately.
Hence, option (a) is correct.

76 (b)

The number of accountants at the end of last year = 10000 × 0.1 = 1000
The number of accountants at the end of this year = 9500 × 0.06 = 570
The approximate percent change in the number of accountants from the end of last year to the end of this year = [(570 − 1000)/1000] × 100 = −43%
There was a 43% decrease in the number of accountants over this period.

77 (a)

Y is 40% of Z. So, Y = 0.40Z = (2/5) Z.
X is 20% of Y. So, X = 0.20Y = (1/5) Y = (1/5) × (2/5) Z = (2/25) Z.
For X to be an integer, Z must be a multiple of 25. Therefore, the smallest positive integer value of Z is 25 itself.
Y is 40% of 25 = 0.40 × 25 = 10
X is 20% of 10 = 0.20 × 10 = 2.
So, X + Y + Z = 2 + 10 + 25 = 37
The correct response is thus "From 31 to 40."

78 (c)

Let the cost price of each candle be Re. 1. Then the cost price of n candles is Rs. n
Now, the selling price of n candles is equal to the cost price of 10 candles = Rs. 10.
Loss = CP – SP = n - 10.
Loss of 40% means that:
(Loss/CP) × 100 = 40
Therefore, [(n - 10)/n] × 100 = 40
Or n = 17 (approx.)

79 (a)

Let us assume CP = Rs. 100.
Then, Profit = Rs. 80 and selling price = Rs. 180.
The cost increases by 20%, therefore new CP = Rs. 120, SP = Rs. 180.
So, new profit percentage = (60/120) × 100 = 50%.

80 (c)

Currently, 10% of the employees have a college degree; that is 80 out of the 800 employees.
To double this number, we need to hire 80 more such employees, i.e. 80 out of 100.
That is 80%.