Question Booklet Version

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CIVIL SERVICES PRELIMINARY EXAMINATION (CSE) 2021
GS (Paper-II) (CSAT) - Explanation

Question & Explanation Paper - Set - B

Directions for the following 4 (four) items:

Read the following **four passages** and answer the items that follow the passages. Your answers to these items should be based on the passage only.

Passage - 1

With respect to what are called denominations of religion, if everyone is left to be a judge of his own religion, there is no such thing as religion that is wrong; but if they are to be a judge of each other's religion, there is no such thing as a religion that is right, and therefore all the world is right or all the world is wrong in the matter of religion.

1. What is the ***most logical assumption*** that can be made from the passage given above?
   - (a) No man can live without adhering to some religious denomination.
   - (b) It is the duty of everyone to propagate one's religious denomination.
   - (c) Religious denominations tend to ignore the unity of man.
   - (d) Men do not understand their own religious denomination.

   Answer : (c)

   Explanation :

   Options (a), (b) and (d) are not correct because they are not the focus of the arguments of the passage. But option (c) is correct because the passage says, "but if they are to be a judge of each other's religion, there is no such thing as a religion that is right" It indicates that these religious denominations have not paid attention to common element in other religions. Thus, option (c) is correct answer.

Passage - 2

It is certain, that seditions, wars, and contempt or breach of the laws are not so much to be imputed to the wickedness of the subjects, as to the bad state of a dominion. For men are not born fit for citizenship, but must be made so. Besides, men's natural passions are everywhere the same; and if wickedness more prevails, and more offences are committed in one commonwealth than in another, it is certain that the former has neither enough pursued the end of unity, not framed its laws with sufficient forethought; and that, therefore, it has failed in making quite good its right as a commonwealth.

2. Which among the following is ***the most logical and rational inference*** that can be made from the passage given above?
   - (a) Seditions, wars and breach of the laws are inevitable in every dominion.
   - (b) It is not the people, but the sovereign who is responsible for all the problems of any dominion.

(c)   That dominion is the best which pursues the aim of unity and has laws for good citizenship.

(d)   It is impossible for men to establish a good dominion.

Answer : (c)

Explanation :

Option (a) is incorrect because nowhere the passage talks about the inevitability of seditions, wars and breach of the laws. Option (b) is too sweeping to be correct because it holds sovereign for 'all' the problems of 'any dominion'. Option (d) is incorrect because such a pessimism is not supported by the passage. Option (c) is correct because in the last four line of the passage it is supported. Thus, option (c) is correct answer.

Passage - 3

Inequality violates a basic democratic norm : the equal standing of citizens. Equality is a relation that obtains between persons in respect of some fundamental characteristic that they share in common. Equality is, morally speaking, a default principle. Therefore, persons should not be discriminated on grounds such as race, caste, gender, ethnicity, disability, or class. These features of human condition are morally irrelevant. The idea that one should treat persons with respect not only because some of these persons possess some special features or talent, for example skilled cricketers, gifted musicians, or literary giants, but because persons are human beings, is by now part of commonsense morality.

3.   With reference to the above passage, the following assumptions have been made :

1.   Equality is a prerequisite for people to participate in the multiple transactions of society from a position of confidence.

2.   Occurrence of inequality is detrimental to the survival of democracy.

3.   Equal standing of all citizens is an idea that cannot actually be realised even in a democracy.

4.   Right to equality should be incorporated into our values and day-to-day political vocabulary.

Which of the above assumptions are valid?

(a)   1 and 2 only

(b)   2 and 3 only

(c)   1 and 4 only

(d)   3 and 4 only

Answer : (c)

Explanation :

Since treating people with respect implies giving them some confidence in the society, statement 1 is correct. Statement 2 is not correct because nowhere passage says that the survival of democracy is at stake. Statement 3 is incorrect because no such argument is made in the passage. Statement 4 is correct because it gives support to the argument made in the fourth statement of the passage.

Passage - 4

Aristocratic government ruins itself by limiting too narrowly the circle within which power is confined; oligarchic government ruins itself by the incautious scramble for immediate wealth. But even democracy ruins itself by excess of democracy. Its basic priniciple is the equal right of all to hold office and determine public policy. This is, at first glance, a delightful arrangement; it becomes disastrous because the people are not properly equipped by education to select the best rulers and the wisest courses. The people have no understanding and only repeat what their rulers are pleased to tell them. Such a democracy is tyranny or autocracy. - Plato

4. Which one of the following statements **best reflects the crux** of the passage given above?
   (a) Human societies experiment with different forms of governments.
   (b) Any form of government tends to deteriorate by excess of its basic principle.
   (c) Education of all citizens ensures a perfect, functional and sustainable democracy.
   (d) Having a government is a necessary evil because tyranny is inherent in any form of government.

   Answer : (b)

   Explanation :

   Option (a) is incorrect because the passage does not mention experimentation of various forms of government. Option (c) is incorrect because it is related with only democratic form of government and is not inclusive of the passage. Option (d) is incorrect because such a cause and effect relationship indicated by the word 'because' is not supported by the passage. Option (b) is correct answer because the example of Aristocratic, Oligarchic and Democratic governments and their excesses prove the main point or crux. Thus, option (d) is correct answer.

5. In a group of 120 persons, 80 are Indians and rest are foreigners. Further, 70 persons in the group can speak English. The number of Indians who can speak English is
   (a) 20   (b) 30
   (c) 30 or less   (d) 30 or more

   Answer : (d)

   Explanation :

   Let x be the number of foreigners.

   $\therefore x = 120 - 80$

   $\therefore x = 40$

   1st possibility : As 70 out of 120 persons speak English, then all 40 foreigners can speak English.

   Thus, Number of Indian who speak English = 70 – 40 = 30

   2nd possibility : It is possible that no foreigner speaks English

   Thus, Number of Indians who speak English = 70 – 0 = 70

   Thus, option (d) i.e. 30 or more is the correct answer.

6. Consider all 3-digit numbers (without repetition of digits) obtained using three non-zero digits which are multiples of 3. Let S be their sum.
   Which of the following is/are correct?
   1. S is always divisible by 74.
   2. S is always divisible by 9
   Select the correct answer using the code given below :
   (a) 1 only   (b) 2 only
   (c) Both 1 and 2   (d) Neither 1 nor 2

   Answer : (c)

   Explanation :

   3, 6 and 9 are the digits which are multiple of 3.

   Following are the 3-digit number obtained using above digits are 369, 396, 639, 693, 936, 963

   Thus, 369 + 396 + 639 + 693 + 936 + 963 = 3996,

   3996 is completely divisible by 74 and 9

   Thus, option (c) is the correct answer.

7. There are two classes A and B having 25 and 30 students respectively. In Class-A the highest score is 21 and lowest score is 17. In Class-B the highest score is 30 and lowest score is 22. Four students are shifted from Class-A to Class-B.

Consider the following statements :

1. The average score of Class-B will definitely decrease.
2. The average score of Class-A will definitely increase.

Which of the above statements is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

Answer : (b)

Explanation :

Any Number between 21 and 17, is lower than the lowest score of the class B. i.e. 22. Thus if any of 4 students shifted from class B to class, will result into decrease in the average score of class B than it's previous average. Thus statement 2 is correct.

But, we cannot determine the average score of class A after removing 4 students from the class.

Thus, statement (1) is incorrect.

Thus, option (b) is the correct answer.

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8. Consider two statements and a Question :

Statement-1 :

Priya is 4 ranks below Seema and is 31st from the bottom.

Statement-2 :

Ena is 2 ranks above Seema and is 37th from the bottom.

Question :

What is Seema's rank from the top in the class of 40 students?

Which one of the following is correct in respect of the Statements and the Question?

(a) Statement-1 alone is not sufficient to answer the Question.
(b) Statement-2 alone is not sufficient to answer the Question.
(c) Either Statement-1 alone or Statement-2 alone is sufficient to answer the Question.
(d) Both Statement-1 and Statement-2 are required to answer the Question.

Answer : (c)

Explanation :

From statement 1 :

Thus, statement (1) alone is sufficient to answer the question.

From statement 2 :

Thus, statement (2) alone is sufficient to answer the question.

Hence, option (c) is the correct answer.

9. Consider two Statements and a Question :
    Statement-1 :
    Each of A and D is heavier than each of B, E and F, but none of them is the heaviest.
    Statement-2 :
    A is heavier than D, but is lighter than C.
    Question : Who is the heaviest among A, B, C, D and E?
    Which one of the following is correct in respect of the Statements and the Question?
    (a) Statement-1 alone is sufficient to answer the Question.
    (b) Statement-2 alone is sufficient to answer the Question.
    (c) Both Statement-1 and Statement-2 are required to answer the Question.
    (d) Neither Statement-1 alone nor Statement-2 alone is sufficient to answer the Question

    Answer : (c)

    Explanation :

    From statement 1 :

    $\left.\begin{array}{l} A > \\ D > \end{array}\right\}$ B, E, F

    From statement 2 : C > A > D

    From statement 1, it is not clear that whether, C > A and D or C = A and D. Thus statement 1 alone is not sufficient to answer the question.

    From statement 2, it is clear that C is heaviest, but no. the relation with B and E is not clear in the statement 2. Thus statement (2) alone is not sufficient to answer the question.

    Hence, option (c) i.e. both statement 1 and statement 2 are required to answer the question.

10. In the English alphabet, the first 4 letters are written in opposite order; and the next 4 letters are written in opposite order and so on; and at the end Y and Z are interchanged. Which will be the fourth letter to the right of the 13th letter?
    (a) N   (b) T
    (c) H   (d) I

    Answer : (b)

    Explanation :

    As per given condition,

    A B C D, E F G H, I J K L, M N O P, Q R S T, U V W X, Y Z

    After interchanging their position we get,

    D C B A, H G F E, L K J I, $\underset{\text{13th}}{\underline{P}}$ O N M, [T] S R Q, X W V U, Z Y

    Thus, option (b) i.e. 'T' is the correct answer.

Directions for the following 4 (four) items:

Read the following **four** passages and answer the items that follow the passages. Your answers to these items should be based on the passage only.

Passage - 1

India faces a challenging immediate future in energy and climate policy-making. The problems are multiple : sputtering fossil fuel production capabilities; limited access to electricity and modern cooking fuel for the poorest; rising fuel imports in an unstable global energy context; continued electricity pricing and governance challenges leading to its costly deficits or surplus supply; and not least, growing environmental contestation around land, water and air. But all is not bleak; growing energy efficiency programmes; integrated urbanisation and transport policy discussions; inroads to enhancing energy access and security; and bold renewable energy initiatives, even if not fully conceptualised, suggest the promise of transformation.

11.   Which one of the following statments bets *reflects the critical message* conveyed by the passage given above?
        (a)   India's energy decision-making process is ever more complex and interconnected.
        (b)   India's energy and climate policy is heavily tuned to sustainable development goals.
        (c)   India's energy and climate actions are not compatible with its broader social, economic and environmental goals.
        (d)   India's energy decision-making process is straightforward supply-oriented and ignores the demand side.

        Answer : (a)
        Explanation :
        Option (b) is incorrect because of the phrase 'heavily tuned to'. Option (c) is not correct because it does not sit well with the arguments in the last part of the passage. Option (d) is incorrect because there is no support to say that it ignores demand side. Option (a) is correct because the passage especially first part of it talks about the multiple problems and their interconnections. Thus, option (a) is correct answer.

Passage - 2

There are reports that some of the antibiotics sold in the market are fed to poultry and other livestock as growth promoters. Overusing these substances can create superbugs, pathogens that are resistant to multiple drugs and could be passed along humans. Mindful of that, some farming companies have stopped using the drugs to make chickens gain weight faster. Since Denmark banned antibiotic growth promoters in the 1990S, the major pork exporter says it is producing more pigs-and the animals get fewer diseases.

12.   Which one of the following statements *best reflects the critical message* conveyed by the passage given above?
        (a)   People should avoid consuming the products of animal farming.
        (b)   Foods of animal origin should be replaced with foods of plant origin.
        (c)   Using antibiotics on animals should be banned.
        (d)   Antibiotics should only be used to treat diseases.

        Answer : (d)
        Explanation :
        Options (a), (b) and (c) all they take extreme positions that are not supported by the passage. Since the passage talks about diversion of the antibiotics meant for other purposes. Thus, option (d) is correct message as it talks about using antibiotics for their intended purposes. Thus, option (d) is correct

answer.

Passage - 3

Policy makers and media have placed the blame for skyrocketing food prices on a variety of factors, including high fuel prices, bad weather in key food producing countries, and the diversion of land to non-food production. Increased emphasis, however, has been placed on a surge in demand for food from the most populous emerging economies. It seems highly probable that mass consumption in these countries could be well poised to create a food crisis.

13.   With reference to the above passage, the following assumptions have been made :
1.   Oil producing countries are one of the reasons for high food prices.
2.   If there is a food crisis in the world in the near future, it will be in the emerging economies.
Which of the above assumption is/are valid?
(a)   1 only   (b)   2 only
(c)   Both 1 and 2   (d)   Neither 1 nor 2

Answer : (c)

Explanation :
Statement 1 is correct assumption because the passage talks about 'high fuel price' being blamed. Statement 2 is correct assumption because it supports the last line of the passage. Thus, option (c) is correct answer.

Passage - 4

A central message of modern development economics is the importance of income growth, by which is meant growth in Gross Domestic Product (GDP). In theory, rising GDP creates employment and investment opportunities. As incomes grow in a country where the level of GDP was once low, households, communities, and governments are increasingly able to set aside some funds for the production of things that make for a good life. Today GDP has assumed such a significant place in the development lexicon, that if someone mentions "economic growth", we know they mean growth in GDP.

14.   With reference to the above passage, the following assumptions have been made :
1.   Rising GDP is essential for a country to be a developed country.
2.   Rising GDP guarantees a reasonable distribution of income to all households.
Which of the above assuptions is/are valid?
(a)   1 only   (b)   2 only
(c)   Both 1 and 2   (d)   Neither 1 nor 2

Answer : (c)

Explanation :
Statement 1 is correct because the passage mentions that rising GDP creates employment and investment opportunities. Statement 2 is correct too because the passage talks about the connection between rising GDP and production things that make for a good life. Thus option (c) is correct answer.

15.   Seven books P, Q, R, S, T, U and V are placed side by side. R, Q and T have blue covers and other books have red covers. Only S and U are new books and the rest are old. P, R and S are law reports; the rest are gazetteers. Books of old Gazetteers with blue covers are
(a)   Q and R   (b)   Q and U
(c)   Q and T   (d)   T and U

Explanation

	P	Q	R	S	T	U	V
New / old	Old	Old	Old	New	Old	New	Old
Red / Blue	Red	Blue	Blue	Red	Blue	Red	Red
L. R./ Gazetter	L.R.	G	L.R.	L.R.	G	G	G

Thus, option (c) i.e. Q and T is the correct answer.

We can solve this problem by using elimination method. i.e. option (b) and (d) can be eliminated as U is new book. Option (a) is incorrect as R is law report. Thus option (c) is correct answer.

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16. Replace the incorrect term by the correct term in the given sequence

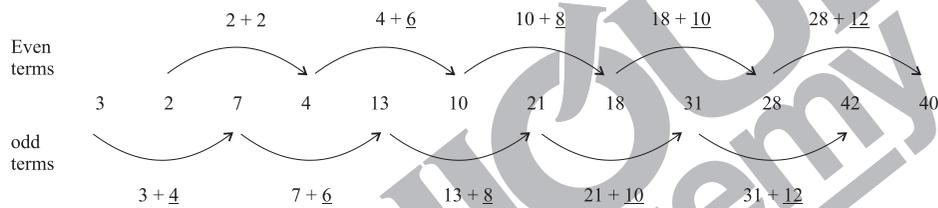3, 2, 7, 4, 13, 10, 21, 18, 31, 28, 43, 40

Where odd terms and even terms follow the same pattern.

(a) 0   (b) 1

(c) 3   (d) 6

Answer : (a)

Explanation :

Given series,

From above it is clear that Even term '2' is incorrect.

First term should increase by 4 to get next term\

So, option (a) i.e. 'O' is the correct answer.

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17. Following is a matrix of certain entries. The entries follow a certain trend row-wise. Choose the missing entry (?) accordingly.

7B	10A	3C
3C	9B	6A
10A	13C	?

(a) 9B   (b) 3A

(c) 3B   (d) 3C

Answer : (c)

Explanation :

According to the matrix, numbers in the rows shows following pattern

i.e. 1st Row = 7 + 3 + 10

2nd Row = 3 + 6 = 9

3rd Row = 10 + 3 = 13

For alphabets, we can see that A, B, C are constant in all row's and 'B' is missing in the third row.

Thus, option (c) i.e. 3B is the correct answer.

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18. You are given two identical sequences in two rows :

Sequence-I	8	4	6	15	52.5	236.25
Sequence-II	5	A	B	C	D	E

What is the entry in the place of C for the Sequence-II?

(a) 2.5 (b) 5

(c) 9.375 (d) 32.8125

Answer : (c)

Explanation :

Ratio of succeeding number to the preceding number in sequence I		$\frac{4}{8} = 0.5$	$\frac{6}{4} = 1.5$	$\frac{15}{6} = 2.5$	$\frac{52.5}{15} = 3.5$	$\frac{236.25}{52.5} = 4.5$
Sequence I	8	4	6	15	52.5	236.25
Sequence II	5	A	B	C	D	E
Answer		$5 \times 0.5 = 2.5$	$2.5 \times 1.5 = 3.75$	$3.75 \times 2.5 = 9.375$	$9.375 \times 3.5 = 32.8125$	$32.8125 \times 4.5 = 147.65$

From above table C = 9.375, Thus option (c) is correct answer.

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19. A person X from a place A and another person Y from a place B set out at the same time to walk towards each other. The places are separated by a distance of 15 km. X walks with a uniform speed of 1.5 km/hr. and Y walks with a uniform speed of 1 km/hr. in the first hour, with a uniform speed of 1.25 km/hr. in the second hour and with a uniform speed of 1.5 km/hr. in the third hour and so on.
Which of the following is/are correct?

1. They take 5 hours to meet.
2. They meet midway between A and B.

Select the correct answer using the code given below :

(a) 1 only (b) 2 only

(c) Both 1 and 2 (d) Neither 1 nor 2

Answer : (c)

Explanation :

As given,
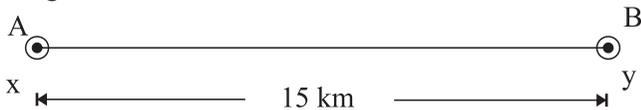
Following table shows, the distance covered by x and y at their given speed.

hour	1st	2nd	3rd	4th	5th
X	1.5 km	3 km	4.5 km	6 km	7.5 km
Y	1 km	2.25 km	3.75 km	5.5 km	7.5 km

From above for table, both the statement (1) and (2) are correct. Thus option (c) is correct answer.

20. A student appeared in 6 papers. The maximum marks are the same for each paper. His marks in these papers are in the proportion of 5 : 6 : 7 : 8 : 9 : 10. Overall he scored 60%. In how many number of papers did he score less than 60% of the maximum marks?

(a)   2   (b)   3
(c)   4   (d)   5

Answer : (b)

Explanation :

Let y be the maximum marks for each papers.

Thus, $\dfrac{5x + 6x + 7x + 8x + 9x + 10x}{6y} \times 100 = 60$

$\therefore \dfrac{45x}{6y} = 0.6$

$\therefore \dfrac{x}{y} = \dfrac{3.6}{45} = 0.08$

Let y = 1, Thus, x = 0.08

Thus, % marks scored in each paper $5 \times 0.08 = 0.4$, $6 \times 0.08 = 0.48$, $7 \times 0.08 = 0.56$, $8 \times 0.08 = 0.64$, $9 \times 0.08 = 0.72$ and $10 \times 0.08 = 0.80$

Hence, it is clear that, in 3 papers he scored less than 60% of the maximum marks.

Thus, option (b) is correct answer.

Directions for the following 4 (four) items:

Read the following **four** passages and answer the items that follow the passages. Your answers to these items should be based on the passage only.

Passage - 1

Fig trees (genus Ficus) are considered sacred in India. East Asia and Africa and are common in agricultural and urban landscapes where other large trees are absent. In natural forests, fig trees provide food for wildlife when other resources are scarce and support a high density and diversity of frugivores (fruit-eating animals). If frugivorous birds and bats continue to visit fig trees located in sites with high human disturbance, sacred fig trees may promote frugivore abundance. Under favourable microclimate, plenty of seedlings of other tree species would grow around fig trees.

21. On the basis of the passage given above, the following assumptions have been made :

1.   Fig trees can often be keystone species in natural forests.
2.   Fig trees can grow where other large woody species cannot grow.
3.   Sacred trees can have a role in biodiversity conservation.
4.   Fig trees have a role in the seed dispersal of other tree species.

Which of the above assumptions is/are valid?

(a)   1 and 2 only   (b)   3 only
(c)   2 and 4 only   (d)   1, 3 and 4 only

Answer : (d)

Explanation :   Statement 1 is correct because the influence of fig trees wildlife indicates that it is a keystone species. Statement 2 is incorrect because there is a difference between tree being absent or trees cannot grow. Trees might be absent for multiple reasons. Since the fig tree is considered as sacred,

we can safely assume that they have a role in biodiversity conservation. Thus, assumption 3 is correct. Statement 4 is correct because it supports the last statement of the passage. Thus, option (d) is correct answer.

Passage - 2

At the heart of agroecology is the idea that agroecosystems should mimic the biodiversity levels and functioning of natural ecosystems. Such agricultural mimics, like their natural models, can be productive, pest-resistant, nutrient conserving, and resilient to shocks and stresses. In ecosystems there is no 'waste', nutrients are recycled indefinitely. Agroecology aims at closing nutrient loops, i.e., returning all nutrients that come out of the soil back to the soil such as through application of farmyard manure. It also harnesses natural processes to control pests and build soil fertility i.e., through intercropping. Agroecological practices include integrating trees with livestock and crops.

22. Consider the following :
    1. Cover crops
    2. Fertigation
    3. Hydroponics
    4. Mixed farming
    5. Polyculture
    6. Vertical farming

    Which of the above farming practices can be compatible with agroecology, as implied by the passage?
    (a) 1, 4 and 5 only
    (b) 2, 3, 4 and 5 only
    (c) 1, 2, 3 and 6 only
    (d) 4 and 6 only

    Answer : (a)

    Explanation :
    Statement 1, 4 and 5 are correct because they are natural methods of farming practices. Thus, option (a) is correct answer.

Passage - 3

Computers increasingly deal not just with abstract data like credit card details and databases, but also with the real world of physical objects and vulnerable human bodies. A modern car is a computer on wheels; an aeroplane is a computer on wings. The arrival of the "Internet of Things" will see computers baked into everything from road signs and MRI scanners to prosthetics and insulin pumps. There is little evidence that these gadgets will be any more trustworthy than their desktop counterparts. Hackers have already proved that they can take remote control of internet connected cars and pacemakers.

23. Which one of the following statements *best reflects the most critical inference* that can be made from the passage given above?
    (a) Computers are not completely safe.
    (b) Companies producing the software do not take cyber security seriously.
    (c) Stringent data security laws are needed.
    (d) The present trend of communication technologies will affect our lives in future.

    Answer : (a)

    Explanation :
    Option (b) is incorrect because there is no support o it. Option (c) is incorrect because there is no discussion of the need of stringent security laws to contain the problems of cyber security. Option (d) is incorrect because it too narrow while talking about communication technologies. Option (a) is correct because the passage talks about lack of trustworthiness of gadgets that use computers. Thus, it is safe to conclude that computers are not completely safe. Thus, option (a) is correct answer.

Passage - 4

A social and physical environment riddled with poverty, inequities, unhygienic and insanitary conditions generates the risk of infectious diseases. Hygiene has different levels : personal, domestic and community hygiene. There is no doubt that personal cleanliness brings down the rate of infectious diseases. But the entry of the market into this domain has created a false sense of security that gets conditioned and reinforced by the onslaught of advertisements. Experience in Western Europe shows that along with personal hygiene, general improvements in environmental conditions and components like clean water, sanitation and food security have brought down infant/child death/infection rates considerably. The obsession with hand hygiene also brings in the persisting influence of the market on personal health, overriding or marginalising the negative impact on ecology and the emergence of resistant germs.

24.   On the basis of the passage given above, the following assumptions have been made :
      1.   People who are obsessed with personal hygiene tend to ignore the community hygiene.
      2.   Emergence of multi-drug resistant germs can be prevented by personal cleanliness.
      3.   Entry of the market in the domain of hygiene increases the risk of infectious diseases.
      4.   Scientific and micro-level interventions are not sufficient to bring down the burden of infectious diseases.
      5.   It is community hygiene implemented through public health measures that is really effective in the battle against infectious diseases.
      Which of the above assumptions are valid?
      (a)   1 and 2 only   (b)   3 and 4 only
      (c)   4 and 5 only   (d)   1, 2 and 4 only

Answer : (c)

Explanation :
Statement 1 is incorrect because obsession with personal hygiene is linked with negative impact on ecology and not with people ignoring community hygiene. Statement 2 has no basis and moreover it need not be checked as the options containing it are already eliminated due to 1 being incorrect. Statement 3 is incorrect as it is a sweeping statement. On the other hand statement 4 and 5 are correct because they have support in the last two statements of the passage. Thus, option (c) is correct answer.

25.   A Statement followed by Conclusion-I and Conclusion-II is given below. You have to take the Statement to be true even if it seems to be at variance from the commonly known facts. Read all Conclusions and then decide which of the given Conclusion(s) logically follows/follow from the Statement, disregarding the commonly known facts.
      Statement :
      Some cats are almirahs. Some almirahs are chairs. All chairs are tables.
      Conclusion-I :
      Certainly some almirahs are tables.
      Conclusion-II :
      Some cats may not be chairs.
      Which one of the following is correct?
      (a)   Only Conclusion-I   (b)   Only Conclusion-II
      (c)   Both Conclusion-I and Conclusion-II   (d)   Neither Conclusion-I nor Conclusion-II

Answer : (c)
Explanation :

From above diagram, conclusion I is logical neccessity and so it it correct. Conclusion II is logical possibility, Thus, conclusion II is also correct.

Thus, option (c) is correct answer.

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26. A boy plays with a ball and he drops it from a height of 1.5m. Every time the ball hits the ground, it bounces back to attain a height 4/5th of the previous height. The ball does not bounce further if the previous height is less than 50 cm. What is the number of times the ball hits the ground before the ball stops bouncing?

(a) 4
(b) 5
(c) 6
(d) 7

Answer : (b)

Explanation :

Number of hit	Height of the drop
1	1.5 m
2	$1.5 \times \dfrac{4}{5} = 1.2m$
3	$1.2 \times \dfrac{4}{5} = 0.96$ m
4	$0.96 \times \dfrac{4}{5} = 0.768$
5	$0.768 \times \dfrac{4}{5} = 0.614$
6	$0.614 \times \dfrac{4}{5} = 0.48$
	No bounce

Thus, there are 6 hits to the ground before the ball stops bouncing. Hence, option (c) is correct answer.

27. Images of consonants of the English alphabet (Capitals) are observed in a mirror. What is the number of images of these which do not look like their original shapes?

(a) 13   (b) 14

(c) 15   (d) 16

Answer : (b)

Explanation :

As given,

B C D F G H J K L M N P Q R S T V W X Y Z

ᙠ Ɔ ᗡ Ⅎ Ɠ H ꞁ ꓘ ⅃ M И ꟼ Ọ Я ꙅ T V W X Y Ƶ

Thus, option (b) i.e. 14 is the correct answer.

---

28. A bank employee drives 10 km towards South from her house and turns to her left and drives another 20 km. She again turns left and drives 40km, then she turns to her right and drives for another 5 km. She again turns to her right and drives another 30 km to reach her bank where she works. What is the shortest distance between her bank and her house?

(a) 20 km   (b) 25 km

(c) 30 km   (d) 35 km

Answer : (b)

Explanation :

As given,
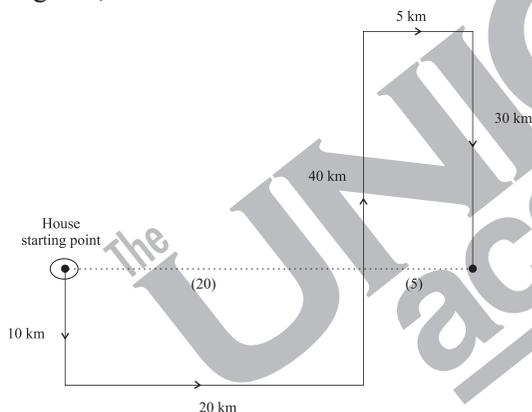
From above diagram, shortest distance between her house and bank

= 20 + 5 = 25 km

Hence, option (b) is correct answer.

---

29. Integers are listed from 700 to 1000. In how many integers is the sum of the digits 10?

(a) 6   (b) 7

(c) 8   (d) 9

Answer : (d)

Explanation :

Following are the integers from 700 to 1000. Where sum of their digits is 10.

703, 712, 721, 730   =   4

802, 811, 820   =   3

901, 910   =   2
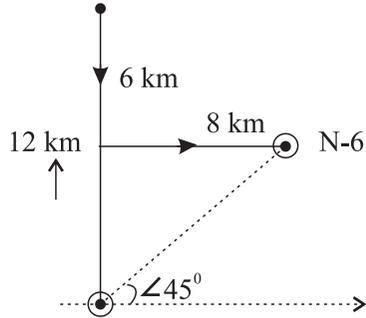
                        9

Hence, option (d) is the correct answer.

30. A woman runs 12 km towards her North, then 6 km towards her South and then 8 km towards her East. In which direction is she from her starting point?
   (a) An angle less than 45^0 South of East.   (b) An angle less than 45^0 North of East.
   (c) An angle more than 45^0 South of East.   (d) An angle more than 45^0 North of East.

   Answer :   (b)

   Explanation :

   As given,

   From above diagram, option (b) i.e. an angle less than 45^0 North of East is the correct answer.

Directions for the following 4 (four) items:

Read the following **four** passages and answer the items that follow the passages. Your answers to these items should be based on the passage only.

Passage - 1

Researchers simulated street lighting on artificial grassland plots containing pea-aphids, sap-sucking insects, at night. These were exposed to two different types of light - a white light similar to newer commercial LED lights and an amber light similar to sodium street lamps. The low intensity amber light was shown to inhibit, rather than induce, flowering in a wild plant of the pea family which is a source of food for the pea-aphids in grasslands. The number of aphids was also significantly suppressed under the light treatment due to the limited amount of food available.

31. Which one of the following statements *best reflects the most critical inference* that can be made from the passage given above?
   (a) Low intensity light has more adverse effect on the plants as compared to high intensity light.
   (b) Light pollution can have a permanent adverse impact on an ecosystem.
   (c) White light is better for the flowering of plants as compared to the light of other colours.
   (d) Proper intensity of light in an ecosystem is important not only for plants but for animals too.

   Answer :   (b)

   Explanation :
   Options (a) and (c) are incorrect because no such comparison is given in the passage. Option (d) too is incorrect because there is no mention of proper intensity of light. Option (b) is correct because the passage talks about the negative impact of low intensity amber light on inhibiting flowering in a wild plant of pea family and its impact on aphids. Thus, option (b) is correct answer.

Passage - 2

Approximately 80 percent of all flowering plant species are pollinated by animals, including birds and mammals, but the main pollinator are insects. Pollination is responsible for providing us with a wide variety of food, as well as many plant-derived medicines. At least one-third of the world's agricultural crops depend upon pollination. Bees are the most dominant taxa when it comes to pollination and they are crucial to more than four hundred crops. Pollination is an essential service that is the result of intricate relationships between plants and animals, and the reduction or loss of either affects the survival of both. Effective pollination requires resources, such as refuges of pristine natural vegetation.

32. On the basis of the passage given above, the following assumptions have been made :
    1. Sustainable production of India's cereal food grains is impossible without the diversity of pollinating animals.
    2. Monoculture of horticultural crops hampers the survival of insects.
    3. Pollinators become scarce in cultivated areas devoid of natural vegetation.
    4. Diversity in insects induces diversity of plants.
    Which of the above assumptions is/are valid?
    (a) 1 only
    (b) 2, 3 and 4 only
    (c) 1 and 2 only
    (d) 3 and 4 only

    Answer :   (b)

    Explanation :

    Statement 1 is incorrect because the passage does not talk about Indian situation particularly. This eliminates the options (a) and (c). We need to check only statement 2 now because 3 and 4 are common in the remaining options. Statement 2 is correct because second last statement underscore the mutually beneficial relationship between plants and animals and loss or reduction of either affects the survival of both. Thus, monoculture points to the loss of plant diversity. Thus it affects survival of insects. Statements 3 and 4 are correct because they are supported by the last two statements of the passage. Thus, option (b) is correct answer.

Passage - 3

A study conducted on the impacts of climate change over the Cauvery basin of Tamil Nadu using regional climate models showed an increasing trend for maximum and minimum temperatures, and a decrease in the number of rainy days. These climatic shifts will have an impact on the hydrological cycles in the region, lead to more run-off and less recharge, and affect the groundwater tables. Further, there has been an increase in the frequency of droughts in the State. This has driven farmers to increase dependency on groundwater resources to secure their crops.

33. Which one of the following statements **best reflects the crux** of the passage given above?
    (a) Development of regional climate models helps in choosing climate-smart agricultural practices.
    (b) Heavy dependence on groundwater resources can be reduced by adopting dry-land cropping systems.
    (c) Climate changes increase the criticality of water resources while simultaneously threatening it.
    (d) Climate changes cause the farmers to adopt unsustainable livelihoods and risky coping strategies.

    Answer : (c)

    Explanation :

    Options (a) has no basis. Thus, it is incorrect. Same is the case with the option (b) Option (d) is too specific to be the main idea. Option (c) is inclusive and is supported by the passage. Thus, option (c) is correct answer.

Passage - 4

Researchers were able to use stem cells to gauge the neurotoxic effects of the environmental pollutant Bisphenol A (BPA). They used a combination of biochemical and cell-based assays to examine the gene expression profile during the differentiation of mouse embryonic stem cells upon treatment with BPA, a compound known to cause heart diseases, diabetes, and developmental abnormalities in humans. They were able to detect and measure BPA toxicity towards the proper specification of primary germ layers, such as endoderm and ectoderm, and the establishment of neural progenitor cells.

34. On the basis of the passage given above, the following assumptions have been made :
    1. BPA may alter embryonic development in vivo.
    2. Biochemical and cell-based assays are useful in finding out treatments for pollution-induced diseases.
    3. Embryonic stem cells could serve as a model to evaluate the physiological effects of environmental pollutants.

    Which of the above assumptions are valid?

    (a) 1 and 2 only   (b) 2 and 3 only

    (c) 1 and 3 only   (d) 1, 2 and 3

    Answer : (c)

    Explanation :

    Statement 1 is correct because the passage talks about experiment on mouse embryonic stem cells which is nothing but 'in vivo' means in living organisms. Statement 2 is incorrect because the passage is not about finding out treatment but measuring neurotoxic effects. Statement 3 has to be correct because by elimination option (c) is correct.

---

35. If 3^{2019} is divided by 10, then what is the remainder?

    (a) 1   (b) 3

    (c) 7   (d) 9

    Answer : (c)

    Explanation :

    $(3)^{2019} = (3^3)^{673}$

    $= (27)^{673}$

    $= (27)^{672} \times (27)^1$

    $= (27^4)^{168} \times (27)$

    Now, 7^4 gives unit digit 1 and unit digit of 27 is 7

    $\therefore$ Unit digit in $(3)2019$ = Unit digit in $[(27^4)^{168} \times 27]$

    $= 1 \times 7$

    $= 7$

    Now, when 7 is divided by 10 gives 7 as remainder.

    Hence, option (c) is correct answer.

---

36. The number 3798125P369 is divisible by 7. What is the value of the digit P?

    (a) 1   (b) 6

    (c) 7   (d) 9

    Answer : (b)

    Explanation :

    Let's try to divide 3798125 of the given number. We get

    $= 7 \times 542589 + 2$

Thus, remaining number is 2P369.

Taking P = 1   does not give complete divisibility

Taking P = 6   We get $\dfrac{26369}{7} = 3767$

Thus,   P = 6.

Thus, option (b) is correct answer.

---

37.   From January 1, 2021, the price of petrol (in Rupees per litre) on m^{th} day of the year is $80 + 0.1m$, where m = 1, 2, 3 ....., 100 and thereafter remains constant. On the other hand, the price of diesel (in Rupees per litre) on nth day of 2021 is $69 + 0.15n$ for any n. On which date in the year 2021 are the prices of these two fuels equal?

(a) 21st May   (b) 20th May

(c) 19th May   (d) 18th May

Answer : (b)

Explanation :

Let's caleulate maximum value of petrol price

$= 80 + 0.1 \times 100 = 90$

Now, equate it with the price of diesel

$\therefore 90 = 69 + 0.15 \times n$

$\therefore n = \dfrac{90 - 69}{0.15} = \dfrac{21}{0.15} = \dfrac{2100}{15} = 140$

2021 is non-leap year.

$\therefore 31 + 28 + 31 + 30 + 20 = 140$ days.

Thus, 20th May is the required date.

Thus, option (b) is correct answer.

---

38.   A biology class at high school predicted that a local population of animals will double in size every 12 years. The population at the beginning of the year 2021 was estimated to be 50 animals. If P represents the population after n years, then which one of the following equations represents the model of the class for the population?

(a) $P = 12 + 50n$ (b) $P = 50 + 12n$

(c) $P = 50 (2)^{12n}$ (d) $P = 50 (2)^{n/12}$

Answer : (d)

Explanation :

We can calculate the population of animals after 12 years.

$P = 50 \times 2 = 50 \times (2)^1 = 50 \times (2)^{12/12}$

After 24 years

$P = 50 \times 2 \times 2 = 50 \times (2)^2 = 50 \times (2)^{24/12}$

Thus, we can write the equation as

$P = 50 \times (2)^{n/12}$

Thus, option (d) is correct answer.

---

39.   In a class, 60% of students are from India and 50% of the students are girls. If 30% of the Indian students are girls, then what percentage of foreign students are boys?

(a)   45%   (b)   40%

(c)   30%   (d)   20%

Answer : (d)

Explanation :

Let x be total number of students.

	Boys	Girls	Total
Indian	0.42x	0.18x	0.6x
Foreign Student	0.08x	0.32x	0.4x
Total	0.5x	0.5x	x

Therefore, the required percentage

$$= \frac{0.08}{0.4} \times 100 = 20\%$$

Thus, option (d) is correct answer.

---

40. A Statement followed by Conclusion-I and Conclusion-II is given below. You have to take the Statement to be true even if it seems to be at variance from the commonly known facts. Read all Conclusions and then decide which of the given Conclusion(s) logically follows/follow from the Statement, disregarding the commonly known facts.

    Statement :

    Some radios are mobiles. All mobiles are computers Some computers are watches.

    Conclusion-I :

    Certainly some radios are watches.

    Conclusion-II :

    Certainly some mobiles are watches.

    Which one of the following is correct?

    (a) Only Conclusion-I

    (b) Only Conclusion-II

    (c) Both Conclusion-I and Conclusion-II

    (d) Neither Conclusion-I nor Conclusion-II

    Answer : (d)

    Explanation :

    As given,
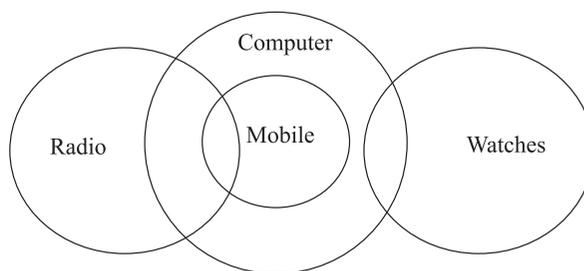
    From above diagram, both the given conclusion are logical possibilities. Hence option (d) is the correct answer.

Directions for the following 3 (three) items:

Read the following **two** passages and answer the items that follow the passages. Your answers to these items should be based on the passages only.

Passage - 1

Medieval merchants risked the hazards of the Silk Road to reach the markets of China; Portuguese caravels in the 15th century sailed beyond the bounds of the known world, searching less for knowledge than for gold and spices. Historically, the driver for opening frontiers has always been the search for resources. Science and curiosity are weaker drivers. The only way to open up space, whether the space of solar system or interstellar space is to create an economic engine and that engine is resource extraction.

41.   Which one of the following statements ***best sums up*** the passage given above?
(a)   Wealth generation is the primary motive for any human edneavour.
(b)   Space, whether space in solar system or interstellar space, will govern our future economy.
(c)   Human beings are motivated to explore new frontiers principally by economic considerations.
(d)   Wealth generation is based on the risk-taking behaviour of some men.

Answer : (c)

Explanation :

Option (a) is too sweeping because it talks about any human endeavour. Option (b) has no basis. Option (d) is incorrect because the focus is not on the basis of wealth generation but on the drivers of opening the frontiers. Option (c) is correct because the passage talks about gold and spices as drivers rather than knowledge. This is true in other similar cases too. Thus economic considerations are principal. Thus, option (c) is correct answer.

Passage - 2

"......most people would agree that telling deliberate lies is wrong, except perhaps in certain special situations where more harm will be done by telling the truth. Even the most truthful people probably tell a good many more lies that might be regarded as semantic lies; their use of words contains some measure of falsehood, more or less deliberate."

42.   The idea which the first part of the passage mentions is
(a)   agreement about telling lies.
(b)   disagreement about telling lies.
(c)   disagreement about telling the truth.
(d)   disagreement about the harm in telling the truth.

Answer : (a)

Explanation :

The first part highlights agreement among people about when we can tell lies and what those exceptions. Thus, option (a) is correct answer.

43.   Which one of the following habits is found more often in good people?
(a)   Mixing up the true and false
(b)   Intentional mixing up of truth with the false
(c)   Falsification of facts.
(d)   Complete concealment of truth

Answer : (b)

Explanation : Option (b) is correct because the passage mentions most truthful people telling semantic lies where words contain some measure of falsehood, more or less deliberate. Option (b) is correct answer.

---

44. A pie diagram shows the percentage distribution of proteins, water and other dry elements in the human body. Given that proteins correspond to 16% and water corresponds to 70%. If both proteins and the other dry elements correspond to P%, then what is the central angle of the sector representing P on the pie diagram?

(a) 54^0
(b) 96^0
(c) 108^0
(d) 120^0

Answer : (c)

Explanation :

Let x be the percentage correspond to other dry element.

$x = 100\% - (70\% + 16\%)$

$\therefore x = 14\%$

Hence, central angle of the sector 'P' $= (16\% + 14\%) \times 3.6^0$

$= 30 \times 3.6$

$= 108^0$

Thus, option (c) is the correct answer.

---

45. Joseph visits the club on every 5th day, Harsh visits on every 9th day. If all three of them met at the club on a Sunday, then on which day will all three of them meet again?

(a) Monday
(b) Wednesday
(c) Thursday
(d) Sunday

Answer : (b)

Explanation :

Let's take LCM (5, 24, 9)

5	5	24	9
8	1	24	9
3	1	3	9
3	1	1	3
1	1	1	1

$\therefore$ LCM (5, 24, 9) = 360

All three of them met at the club on Sunday,

Now, $\dfrac{360}{7} = 51 \times 7 + 3$

They will meet again after 51 weeks and 3 days

Hence answer is Wednesday i.e. 3rd day after Sunday.

Option (b) is the correct answer.

---

46. The difference between a 2-digit number and the number obtained by interchanging the positions of the digits is 54.

Consider the following statements :

1. The sum of the two digits of the number can be determined only if the product of the two digits is known.
2. The difference between the two digits of the number can be determined.

Which of the above statements is/are correct?

(a) 1 only (b) 2 only

(c) Both 1 and 2 (d) Neither 1 nor 2

Answer : (c)

Explanation :

As given,

$(10x + y) - (10y + x) = 54$

$\therefore 9(x - y) = 54$

$\therefore x - y = 6$ .... (1)

From eqn (1) we can have following values of x and y

x	7	9	8	10
y	1	3	2	4

Thus, statement (2) is correct.

Now, statement (1) is also correct as for above values of x and y. Product is different so. Sum of the digit will be different. Hence only if product of the digit is given then we can find the sum of the two digits of the number.

Hence option (c) is correct answer.

---

47. X said to Y, "At the time of your birth I was twice as old as you are at present." If the present age of X is 42 years, then consider the following statements :

1. 8 years ago, the age of X was five times the age of Y.
2. After 14 years, the age of X would be two times the age of Y.

Which of the above statements is/are correct?

(a) 1 only (b) 2 only

(c) Both 1 and 2 (d) Neither 1 nor 2

Answer : (b)

Explanation :

Let a be the present age of y.

When $y = 0$, $x = 2a$

Present age $y = a$, $x = 3a$

As we know present age of $x = 42$ year.

$\therefore a = \dfrac{42}{3} = 14$

So, we van validate statement 1 and 2 using following tables.

	Present age	8 year ago	After 14 years
x	42	34	56
y	14	6	28

Thus, statement 1 is incorrect as $x \neq 5a$ (8 year ago)

But statement 2 is correct as after 14 years, $x = 2a$

Thus, option (b) is correct answer.

---

48. If the price of an article is decreased by 20% and then the new price is increased by 25%, then what is the net change in the price?

(a) 0%

(b) 5% increase

(c) 5% decrease

(d) Cannot be determined due to insufficient data

Answer : (a)

Explanation :

Net % change in the price $= (-20) + (25) + \dfrac{(-20) \times (25)}{100}$

$$= \dfrac{500 - 500}{100} = 0\%$$

Thus, option (a) is correct answer.

---

49. When a certain number is multiplied by 7, the product entirely comprises ones only (1111.....). What is the smallest such number?

(a) 15713　　　　　　　　　　(b) 15723

(c) 15783　　　　　　　　　　(d) 15873

Answer : (d)

Explanation :

From last 2-digit we can find the answer.

for option (a), $13 \times 7 = 91$ .... ($\neq 11$)

for option (b), $23 \times 7 = 161$ .... ($\neq 11$)

for option (c), $83 \times 7 = 181$ .... ($\neq 11$)

for option (d), $73 \times 7 = 511$ .... Now lets try for

Option (d) i.e.

$$\begin{array}{r} 15873 \\ \times \quad 7 \\ \hline 111111 \end{array}$$

Thus, option (d) is correct answer.

---

50. A man completes 7/8 of a job in 21 days. How many more days will it take him to finish the job if quantum of work is further increased by 50%?

(a) 24　　　　　　　　　　(b) 21

(c) 18　　　　　　　　　　(d) 15

Answer : (d)

Explanation :

Let x be number of day to complete 1.5 work. Thus,

$$\frac{7/8}{21} = \frac{1.5}{x}$$

$$\therefore \frac{21 \times 1.5 \times 8}{7} = x$$

$\therefore x = 36.0$

Therefore, additional days required to complete the 1.5 work

= 36 – 21 = 15 days

Thus, option (d) is the correct answer.

Directions for the following 2 (two) items:

Read the following **two** passages and answer the items that follow. Your answers to these items should be based on the passage only.

Passage - 1

Can a democracy avoid being a welfare state for long? Why cannot mass welfare be left entirely to the markets? There is a built in tension between markets and democracy. Markets do not work on a one-person-one-vote principle as democracies do. What one gets out of the market place depends on one's endowments, skills, purchasing power and the forces of demand and supply. Markets reward individual initiative and skill, and may also lift many from the bottom rungs of society, but some people never get the opportunity to develop skills that markets demand; they are simply too poor and too handicapped; or skill formation takes too long. By creating jobs, markets may be able to help even unskilled people, but capitalism has always witnessed bursts of unemployment.

51.   With reference to the above passage, the following assumptions have been made :

1.   Modern democracies rely on the market forces to enable them to be welfare states.
2.   Markets ensure sufficient economic growth necessary for democracies to be effective.
3.   Government programmes are needed for those left behind in economic growth.

Which of the above assumptions is/are valid?

(a) 1 and 3 only   (b) 3 only

(c) 2 and 3 only   (d) 1, 2 and 3

Answer : (b)

Explanation :

Statements 1 and 2 are incorrect because they go against arguments made in the passage. Thus by elimination option (b) has to be correct. Moreover, statement 3 has support in the last line of the passage. Thus, option (b) is correct answer.

Passage - 2

In our schools, we teach our children all that is there to know about physics, maths and history and what-have-you. But do we teach them about the bitter caste divide that plagues the country, about the spectre of famine that stalks large parts of our land, about gender sensitivity, about the possibility of atheism as a choice, etc.? Equally important, do we teach them to ask questions, or do we teach them only to passively receive our wisdom? From the cocooned world of school, suddenly, the adolescent finds himself/herself in the unfettered world of university. Here he/she is swept up in a turmoil of ideas, influences and ideologies. For someone who

has been discouraged from asking questions and forming an opinion, this transition can be painful.

52.   Which one of the following statements **best reflects the central idea of** the passage given above?
    (a)   School curriculum is not compatible with the expectations of children and parents.
    (b)   Emphasis on academic achievments does give time for development of personality and skills.
    (c)   Preparing the children to be better citizens should be the responsibility of the education system.
    (d)   To be a better citizen, the present world order demands societal and life-coping skills in addition to academic content.

Answer : (d)

Explanation :

Option (a) is not correct because the passage does not talk about expectations of children. Option (b) is not correct because the focus is not on problems due to emphasis on academic achievements. Option (c) incorrect because universities too are part of education system and the comment is more about what is done in school and not universities. Option (d) is correct because the passage talks about painful transition from cocooned world of school to the unfettered world of university where the child is exposed turmoil of ideas, influences and ideologies. Thus, societal and life coping skills are important too. Thus, option (d) is correct answer.

---

53.   There are three points P, Q and R on a straight line such that PQ : QR = 3 : 5. If n is the number of possible values of PQ : PR, then what is n equal to?
    (a)   1   (b)   2
    (c)   3   (d)   4

Answer : (b)

Explanation :

Following are the ways in which we can represent the given condition.

1st way :

P   3   Q   5   R

$\therefore$ PQ : PR = 3 : 8

2nd way :

Q   3   P   2   R
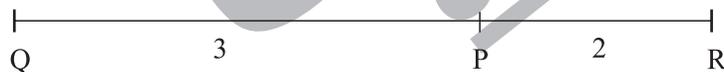
$\therefore$ PQ : PR = 3 : 5

Hence possible values of PQ : PR = n

                = 2

Thus option (b) is the correct answer.

---

54. On a chess board, in how many different ways can 6 consecutive squares be chosen on the diagonals along a straight path?

(a) 4   (b) 6

(c) 8   (d) 12

Answer : (b)

Explanation :

Chess Board
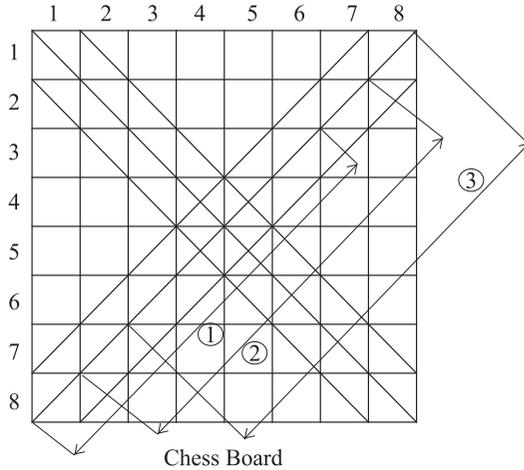
As shown in the above figure, there are 6 (i.e. 6 = 3 + 3) ways in which 6 consecutive squares be chosen on the diagonals along a straight path. Thus, option is correct answer.

---

55. In the series _b_a_ba_b_abab_aab; fill in the six blanks (_) using one of the following given four choices such that the series follows a specific order.

(a) bababa   (b) baabba

(c) bbaabb   (d) ababab

Answer : (d)

Explanation :

Let's start with option (d) and put the given terms in the series.

a b b a a b, a b b a ab, a b b aab

From above series, we can clearly say that 6 terms of the series follow same pattern. i.e. abbaab

Thus option (d) is the correct answer.

---

56. Using 2, 2, 3, 3, 3 as digits, how many distinct numbers greater than 30,000 can be formed?

(a) 3   (b) 6

(c) 9   (d) 12

Answer : (b)

Explanation :

Following are the distinct numbers can be formed by using digits. 2, 2, 3, 3, 3 which are greater than 30000,

(1) 32233   (2) 32323

(3) 32332   (4) 33223

(5) 33232   (6) 33322

Thus, option (b) is the correct answer.

57. Consider the following statements :
1. The sum of 5 consecutive integers can be 100.
2. The product of three consecutive natural numbers can be equal to their sum.
Which of the above statements is/are correct?
(a) 1 only   (b) 2 only
(c) Both 1 and 2   (d) Neither 1 nor 2
Answer : (c)
Explanation :
Let's validate statement (1) :
As, there are 5 consecutive integers, $\dfrac{100}{5} = 20$
Now we can check for consecutive integers. Preceeding and succeding 20 for sum 100.
∴ 18 + 19 + 20 + 21 + 22 = 100
Thus, statement (1) is correct.
Now for statement (2) :
Let's try for 1, 2, 3 consecutive natural number
∴ $1 \times 2 \times 3 = 6$ and $1 + 2 + 3 = 6$
Thus, statement (2) is also correct.
Thus, option (c) is the correct answer.

58. A cubical vessel of side 1 m is filled completely with water. How many millilitres of water is contained in it (neglect thickness of the vessel)?
(a) 1000   (b) 10000
(c) 100000   (d) 1000000
Answer : (d)
Explanation :
Volume fo the cubical vessel = 1m × 1m × 1m = 1m^3
Now, 1m^3 = 1000000 ml .... (water contained in the vessel)
Thus, option (d) is the correct answer.

59. There are 6 persons arranged in a row. Another person has to shake hands with 3 of them so that he should not shake hands with two consecutive persons. In how many distinct possible combinations can the handshakes take place?
(a) 3   (b) 4
(c) 5   (d) 6
Answer : (b)
Explanation :   According to given condition,

1	2	3	4	5	6
√		√		√	
	√		√		√
√		√			√
√			√		√

Thus, from above table it is clear that there are 4 different way's in which a person can do handshakes with another 3 persons but are not consecutive in the row.
Thus option (b) is the correct answer.

60. An amount of money was distributed among A, B and C in the ratio p : q : r.
    1. A gets the maximum share if p is greater than (q + r)
    2. C gets the minimum share if r is less than (p + q)

    Which of the above statements is/are correct?

    (a) 1 only   (b) 2 only
    (c) Both 1 and 2   (d) Neither 1 nor 2

    Answer : (a)

    Explanation :

    From statement (1), P 7 (q + r) i.e. A's amount is more than individual amount recived by B and C. Thus, A gets the maximum share. Hence statement (1) is correct.

    From statement (2), r < (p + q) i.e. C's amount is less than the sum of amount of A and B. But Individual amount recived by A or B may be greater than the amount received by C. Thus C may not get minimum share. Hence statement (2) is not correct. Thus, option (a) is correct answer.

Directions for the following 2 (two) items:

Read the following **two** passages and answer the items that follow the passages. Your answers to these items should be based on the passage only.

Passage - 1

The best universities like Harvard and MIT, despite having the luxury of having some truly excellent teachers on their payroll, are increasingly embracing the "flipped classroom" format, where students listen to video lectures at home, and spend class time applying their knowledge, solving problems, discussing and fill in wherever necessary, explaining those bits that seem to be eluding the students and throwing in advanced ideas that happen to be topical. These universities have made their video lectures available free for anyone in the world. They are also encouraging colleges and universities all over the world to integrate these online courses into their own pedagogy, picking the pieces that are appropriate for their needs and building a package around them.

61. Which one of the following statements *best reflects the central idea of* the passage given above?

    (a) Efficacy of universities would be better in online mode of conducting classroom tuition as compared to conventional method.
    (b) Availability of higher education can be made easier and cheaper without diluting the content.
    (c) We need not invest much in infrastructure related to higher education and yet develop better human and social capital.
    (d) Private sector institutions in higher education as well as coaching institutes can take advantage of this opportunity and thrive well.

    Answer : (b)

    Explanation :

    Option (a) is incorrect because online mode is discussed as complementary means and not as substitutes. Option (c) is not correct because such an argument is not made in the passage. Option (d) is too narrow to be the central idea. Option (b) is correct answer because in the final part of the passage the examples act as supports to the main idea. Thus, option (b) is correct answer.

Passage - 2

Our cities are extremely vulnerable to climate change because of large concentrations of populations and poor infrastructure. Moreover, populations densities are increasing in them but we have not yet developed the systems to address climate change impacts. Our cities contribute to 65 percent of the GDP, but there are not enough facilities to cater to the needs of the people. It is important to address the issues of air quality, transport, etc., that are vital to identifying susbainable solutions. We need to involve citizens in city planning and create and ecosystem that meets the needs of the people.

62. Which among the following is the ***most logical and rational inference*** that can be made from the passage given above?
    (a) Our cities need to have well-defined administrative set-up with sufficient autonomy.
    (b) Ever increasing population densities is a hindrance in our efforts to achieve sustainable development.
    (c) To maintain and develop our cities we need to adopt sustainability related interventions.
    (d) Public-Privats Partnership mode of development is the viable long-term solution for the infrastructure and sustainability problems of India.

    Answer : (c)

    Explanation :

    Option (a) is vague because why aspect is not clear in the passage. Option (c) is not correct because increasing population densities is not mentioned as hindrance in our efforts to achieve sustainable development. The passage does not mention the specific term Public Private Partnership Mode as a solution directly or indirectly. Option (c) is correct because cities are mentioned to be vulnerable to climate change. Thus, sustainability related interventions are important. Thus, option (c) is correct answer.

---

63. Jay and Vijay spent an equal amount of money to buy some pens and special pencils of the same quality from the same store. If Jay bought 3 pens and 5 pencils, and Vijay bought 2 pens and 7 pencils, then which one of the following is correct?
    (a) A pencil costs more than a pen.
    (b) The price of a pencil is equal to that of a pen.
    (c) The price of a pen is two times the price of a pencil.
    (d) The price of a pen is three times the price of a pencil.

    Answer : (c)

    Explanation :

    Let x and y be the price of pen and pencil respectively.

    Now, according to given condition.

    $3x + 5y = 2x + 7y$

    $\therefore x = 2y$

    Thus, The price of a pen is two times the price of a pencil. Hence, option (c) is the correct answer.

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64. P scored 40 marks more than Q in an examination. If Q scored 10% less marks than P, then how much did Q score?

(a) 360 (b) 380

(c) 400 (d) 420

Answer : (a)

Explanation :

According to given condition,

P – Q = 40 ....eqn (1)

Q = 0.90 P

Thus by putting value of Q in eqn (1)

P – Q = 40

∴ P – 0.90P = 40

∴ 0.1P = 40

∴ P = 400

Thus, 400 – Q = 40

∴ Q = 360

Hence, option (a) is the correct answer.

65. A person P asks one of his three friends X as to how much money he had. X replied, "If Y gives me ₹40, then Y will have half of as much as Z, but if Z gives me ₹ 40, then three of us will have equal amount." What is the total amount of money that X, Y and Z have?

(a) ₹ 420 (b) ₹ 360

(c) ₹ 300 (d) ₹270

Answer : (b)

Explanation :

According to the first condition

$Y - 40 = \frac{1}{2}Z$ .... (1)

According to the second condition

X + 40 = Z – 40 = Y .... (2)

From (1) we get

2Y – 80 = Z .... (3)

from (2) we get

Y + 40 = Z .... (4)

∴ 2Y – 80 = Y + 40

∴ Y = 120

∴ Z = 120 + 140 = 160 .... from (4)

∴ X + 40 = 120 .... from (2)

∴ X = 80

∴ Total amount is

= X + Y + Z = 80 + 120 + 160 = 360

Thus, option (b) is correct answer.

66. In a code language 'MATHEMATICS' is written as 'LBSIDNZUHDR' How is 'CHEMISTRY' written in that code language?

(a) DIDLHRSSX   (b) BIDNHTSSX

(c) BIDLHTSSX   (d) DGFLIRUQZ

Answer : (b)

Explanation : The pattern is, the code is obtained by taking preceding letter of the alphabets at odd positions in the given word and succeeding letter of the alphabets at even possitions in the given word.

C   H   E   M   I   S   T   R   Y

B   I   D   N   H   T   S   S   X

— Preceding letter

— Succeeding letter
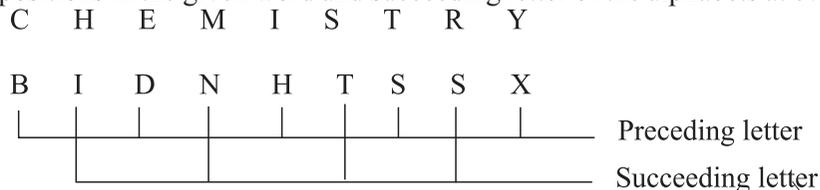
Thus, option (b) is correct answer.

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67. At which one of the following times, do the hour hand and the minute hand of the clock make an angle of 180^0 with each other?

(a) At 7:00 hours   (b) Between 7:00 hours and 7:05 hours

(c) At 7:05 hours   (d) Between 7:05 hours and 7:10 hours

Answer : (d)

Explanation :

At 6 : 00 home both the hands of the clock are 180^0 apart.

Now to be 180^0 apart again, the minute band will have to more 60 minute ahead of the hour hand.

Now, it mores 55 minutes ahead of the hour hand in 60 minutes, Thus, time taken say T to move 60 minutes ahead can be

$$\frac{55}{60} = \frac{60}{T}$$

$$\therefore T = \frac{60 \times 60}{55} = \frac{12 \times 60}{11} = \frac{720}{11} = 65\frac{5}{11} \text{ min.}$$

Thus, Time will be $65\frac{5}{11}$ min. after 6 : 00 hour

$$\therefore 7 : 05\frac{5}{11} \text{ min.}$$

Thus, the option (d) is correct answer.

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68. In an objective type test 90 questions, 5 marks are allotted for every correct answer and 2 marks are deducted for every wrong answer. After attempting all the 90 questions, a student got a total of 387 marks. What is the number of incorrect responses?

(a) 9   (b) 13

(c) 27   (d) 43

Answer : (a)

Explanation :

Let x and y be the number of correct and incorrect questions respectively.

$\therefore$ x + y = 90 .... (1)

$\therefore$ $5x - 2y = 387$ .... (2)

By (2) + [2 × (1)] we get

7x = 567

∴ x = 81 .... (3)

∴ y = 90 − 81 = 9 .... [from (1) and (3)]

Thus, option (a) is correct answer.

---

69. Consider the following addition problem :

3P + 4P + PP + PP = RQ2; where P, Q and R are different digits.

What is the arithmetic mean of all such possible sums?

(a)   102   (b)   120

(c)   202   (d)   220

Answer : (c)

Explanation :

The equation is

$\quad$ 3P

+ 4P

+ PP

+ PP

$\overline{\text{RQ2}}$

Thus, when P is taken 4 times we should get 2 at units place

At P = 3 We get 4P = 12

Thus, the sum we get is

33 + 43 + 33 + 33 = 142 .... (1)

Similarly, at P = 8 we get 4P = 4 × 8 = 32

Thus the sum we get is

38 + 48 + 88 + 88 = 262 .... (2)

Thus, arithmetic mean of (1) and (2) is

$= \dfrac{142 + 262}{2} = \dfrac{404}{2} = 202$

Thus, option (c) is correct answer.

---

70. Consider the following multiplication problem :

(PQ) × 3 = RQQ, where P, Q and R are different digits and R ≠ 0.

What is the value of (P + R) ÷ Q?

(a)   1   (b)   2

(c)   5   (d)   Cannot be determined due to insufficient data.

Answer : (b)

Explanation :

The given equation is

PQ

× 3

$\overline{\text{RQQ}}$

It means we have to multiply 3 by such digit that we get same digit at unit's place in the product. This numbers is → 5

$\quad$ P5

∴ $\quad$ × 3

$\overline{\text{R55}}$

Now to get another 5 at ten's place we need such a digit at P's place that will give 5 at ten's place. This number is → 8

∵ 8 × 3 + 1 = 25

$$\begin{array}{r} 85 \\ \times 3 \\ \hline 255 \end{array}$$

∴ P = 8

Q = 5

R = 2

(P + R) ÷ Q = (8 + 2) ÷ 5 = 2

Thus, option (b) is correct answer.

Directions for the following 4 (four) items:

Read the following **four passages** and answer the items that follow the passages. Your answers to these items should be based on the passage only.

Passage - 1

Nothing can exist in a natural state which can be called good or bad by common assent, since every man who is in a natural state consults only his own advantage, and determines what is good or bad according to his own fancy and insofar as he has regard for his own advantage alone, and holds himself by any law; and therefore sin cannot be conceived in a natural state, but only in a civil state, which is decreed by common consent what is good or bad, and each one holds himself responsible to the state.

71. Which one of the following statements best reflects the central idea of the passage given above?
   (a) The conceptions of what is right or wrong exist due to the formation of a state.
   (b) Unless a ruling authority decides as to what is right or wrong, no man would be morally right.
   (c) Man is inherently immoral and selfish in a natural state.
   (d) The idea of what is right or wrong is necessary for the survival of human species.

   Answer : (a)

   Explanation :

   Option (b) is incorrect because saying 'no man would be morally right' is too extreme. Option (c) is incorrect because no such assertion is made in the passage. Option (d) is incorrect because the passage does not tie the survival of human species to the idea of what is right and wrong. Option (a) is correct because the passage talks about conceiving (i.e. creating concept) sin can happen only in a civil state decreed by common consent. Thus, option (a) is correct answer.

Passage - 2

In the immediate future, we will see the increasing commodification of many new technologies - artificial intelligence and robotics, 3D manufacturing, custom made biological and pharmaceutical products, lethal autonomous weapons and driverless cars. This will pose conundrums. The moral question of how a driverless car will decide between hitting a jaywalker and swerving and damaging the car has often been debated. The answer is both simple - save the human life - and complex. At which angle should the car swerve - just enough to save the jaywalker or more than enough? If the driverless car is in Dublin, who would take the decision? The Irish Government, or the car's original code writer in California, or a software programmer in Hyderabad to whom maintenance is outsourced? If different national jurisdictions have different fine print on prioritising

a human life, how will it affect insurance and investment decisions, including transnational ones?

72. Which of the following statements best reflect the rational, plausible and practical implications that can be derived from the passage given above?
1. Too much globalization is not in the best interests of any country.
2. Modern technologies are increasingly blurring the economic borders.
3. Innovation and capital have impinged on the domain of the State.
4. Public policy of every country should focus on developing its own supply chains.
5. Geopolitics will have to reconcile to many ambiguities and uncertainties.

Select the correct answer using the code given below :

(a) 1, 4 and 5 only
(b) 1, 2, 3 and 4 only
(c) 2, 3 and 5 only
(d) 1, 2, 3, 4 and 5

Answer : (c)

Explanation :

Statement 1 is incorrect because it is a sweeping statement about globalization. Thus, by elimination options (a), (b) and (d) are incorrect. Thus, option (c) has to be correct.

Passage - 3

The resolution of bankruptcy cases of Indian banks under the Insolvency and Bankruptcy Code should help bring non-performing assets (NPA) situation under some control, Despite the slow pace of resolutions by the National Company Law Tribunal, the Code can be helpful in cleaning up bank books in future credit cycles. The recapitalisation of public sector banks too can help increase the capital cushion of banks and induce them to lend more and boost economic activity. But bad debt resolution and recapitalisation are only a part of the solution as they, by themselves, can do very little to rein in reckless lending that has pushed the Indian banking system to its current sorry state. Unless there are systemic reforms that address the problem of unsustainable lending, future credit cycles will continue to stress the banking system.

73. Which one of the following statements *best reflects the most logical, rational and practical suggestion implied* by the passage given above?
(a) Lending by the banks should be closely monitored and regulated by the Central Government.
(b) Interest rates should be kept low so as to induce banks to lend more, promote credit growth and thereby boost economic activity.
(c) Merger of many banks into a few large banks alone is the long-term solution to make them viable and prevent their bad performance.
(d) Indian banking system requires structural reforms as a long-term solution for bad loans problem.

Answer : (d)

Explanation :

Option (a) is incorrect because the passage talks about systemic reforms and not close monitoring by the Central Government. Option (b) is incorrect because it has no support in the passage. Option (c) is incorrect because it is out of the scope of the passage. Option (d) is correct because it is mentioned as a solution in the last line of the passage.

Passage - 4

In India, the objective of macroeconomic policy is to enhances the economic welfare of the people, and any one wing of such macro policy, monetary or fiscal, cannot independently work without active support of another.

74.   Which one of the following statements ***best reflects the corollary*** to the passage given above?
    (a)   The central bank cannot work independently of the Government.
    (b)   Government should regulate financial markets and institutions closely.
    (c)   Market economy is not compatible with the socialist policies of the Government.
    (d)   Financial sector reforms are required for enhancing the economic welfare of the people.

Answer : (a)

Explanation :

Option (a) is correct because the passage says that monetary wing of macro policy and fiscal policy wing cannot work without each other that implies Central Bank responsible for monetary policy and the Government responsible for fiscal policy should work together. Options don't have support in the passage. Thus, they are incorrect.

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75.   Consider the following Table :

Player	Runs scored in the First Innings	Balls faced in the First Innings	Runs scored in the Second Innings	Balls faced in the Second Innings
A	61	99	14	76
B	05	12	50	85
C	15	75	20	50
D	13	55	12	50

Who is the fastest run scorer in the Test Match?

(a)   A   (b)   B
(c)   C   (d)   D

Answer : (b)

Explanation :

The fastest run scorer can be decided by taking ratio of total no. of runs to that os balls.

$\therefore$ For A $= \dfrac{61 + 14}{99 + 76} = \dfrac{75}{175}$

$\therefore$ For B $= \dfrac{5 + 55}{12 + 85} = \dfrac{55}{97}$

$\therefore$ For C $= \dfrac{15 + 20}{75 + 50} = \dfrac{35}{125}$

$\therefore$ For D $= \dfrac{13 + 12}{55 + 50} = \dfrac{25}{105}$

Since value of ratio for B is higher, option (b) is correct.

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76. Half of the villagers of a certain village have their own houses. One-fifth of the villagers cultivate paddy. One-third of the villagers are literate. Four-fifth of the villagers are under 25 years of age. Which one of the following statements is certainly correct?
(a) All the villagers who have their own houses are literate.
(b) Some villagers under 25 years of age are literate.
(c) Only half of the villagers who cultivate paddy are literate.
(d) No villager under 25 years of age has his own house.

Answer : (b)

Explanation :

Let x be the number of total villager

No. of villagers with houses = $\frac{x}{2}$ = 0.5x

No. of villagers that are cultivators of paddy = $\frac{1}{5}x$ = 0.2x

No. of villagers that are literate = $\frac{x}{3}$

No. of villagers illiterate = $x - \frac{x}{3} = \frac{2}{3}x$

No. of villagers under 25 years = $\frac{4}{5}x$ = 0.8x

Since $\frac{x}{2} > \frac{1}{3}x$, option (a) is impossible.

Option (c) has no definite basis. Same is the case with option (d).

But, as $\frac{4}{5}x > \frac{1}{3}x$, (b) is definitely true.

Thus, option (b) is correct answer.

77. Consider two Statements and a Question :
Statement-1 :
The last day of the month is a Wednesday.
Statement-2 :
The third Saturday of the month was the seventeenth day.
Question :
What day is the fourteenth of the given month?
(a) Statement-1 alone is sufficient to answer the Question.
(b) Statement-2 alone is sufficient to answer the Question.
(c) Both Statement-1 and Statement-2 are required to answer the Question.
(d) Neither Statement-1 alone nor Statement-2 alone is sufficient to answer the Question.

Answer : (b)

Explanation :
Since we do not know which month exactly are we talking about, statement 1 alone cannot alone answer the question.
But as we know 17th day of the month i.e. Saturday we can easily decide 14th day of the same month i.e. 3rd before saturday i.e. Wednesday.
Thus, statement 2 alone is sufficient.

Thus, option (b) is correct answer.

78. Which day is 10th October, 2027?
   (a) Sunday
   (b) Monday
   (c) Tuesday
   (d) Saturday

Answer : (a)

Explanation :

Now to find the day on the given date we have to find number of odd days in the given period.

We can break up the given period as 2000 years + 26 years + number of days upto 10th Oct.

We know that there are 0 odd days in 400 years.

$\therefore$ No. of odd days in 2000 years = $0 \times 5 = 0$

Now in 26 years there are 6 leap years.

$\therefore$ No. of odd days = $6 \times 2 + 20 \times 1 = 32$

$\therefore$ No. of odd day = $7 \times 4 + \boxed{4}$ days. .... (1)

Now no. of days till 10th October

= 31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + 30 + 10 = 283

= $40 \times 7 + \boxed{3}$ .... (2)

$\therefore$ Total no. of odd days = 4 + 3 = 7 days .... [$\because$ (1) and (2)]

   Thus, total no. of odd day = $7 \times 1 + 0$

   Thus, O odd days indicates Sunday.

   Thus, option (a) is correct answer.

79. Consider two Statements and four Conclusions given below. You have to take the Statements to be true even if they seem to be at variance from the commonly known facts. Read all Conclusions and then decide which of the given Conclusion(s) logically follows/follow from the Statements, disregarding the commonly known facts.

Statement-1 : Some greens are blues.

Statement-2 : Some blues are blacks.

Conclusion-1 : Some greens are blacks.

Conclusion-2 : No green is black.

Conclusion-3 : All greens are blacks.

Conclusion-4 : All blacks are greens.
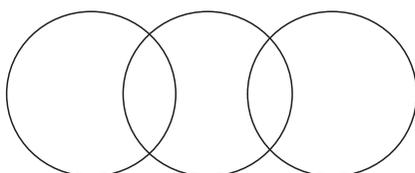
Which one of the following is correct?

   (a) Conclusion-1 and Conclusion-2 only
   (b) Conclusion-2 and Conclusion-3 only
   (c) Conclusion-3 and Conclusion-4 only
   (d) Neither Conclusion 1 nor 2 nor 3 nor 4

Answer : (d)

Explanation :

The venn diagrams representing the given statements can be drawn as
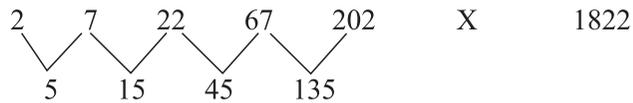
Green   Blue   Black

In the above diagram none of the give conclusion is correct.

Thus, option (d) is correct answer.

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80.   What is the value of 'X' in the sequence 2, 7, 22, 67, 202, X, 1822?

(a)   603   (b)   605

(c)   607   (d)   608

Answer : (c)

Explanation :

Taking difference between the consecutive number of the given sequence

2   7   22   67   202   X   1822

    5   15   45   135

From the observation of above numbers it is clear that either the difference is trippled in the next step or next number is equal to

= (3 × Previous number) + 1

∴ X = 202 × 3 + 1 = 607

Thus, option (c) is correct answer.

ANSWER KEY
GENERAL STUDIES - Paper - II
(CSAT) - Set - B

Ans	1	2	3	4	5	6	7	8	9	10
1	c	c	c	b	d	c	b	c	c	b
11	a	d	c	c	c	a	c	c	c	b
21	d	a	a	c	c	b	b	b	d	b
31	b	b	c	c	c	b	b	d	d	d
41	c	a	b	c	b	c	b	a	d	d
51	b	d	b	b	d	b	c	d	b	a
61	b	c	c	a	b	b	d	a	c	b
71	a	c	d	a	b	b	b	a	d	c