TCS NQT

Verbal ability

Reading comprehension

(1-6) Directions: Read the following passage carefully and answer the questions.

The English language in education today is all-pervasive. “Hear more English, speak more English and become more successful” has become a self-fulfilling prophecy. Some say it’s already a universal language, ahead of other mother tongues such as Arabic, Chinese, Russian, Spanish or French. In reality, of course, this has been centuries in the making. Colonial conquest and global trade routes won the hearts and minds of foreign education systems. These days, the power of English has become accepted wisdom, used to justify the globalisation of education at the cost of existing systems in non-English-speaking countries. The British Council exemplifies this, with its global presence and approving references to the “English effect” on educational and employment prospects.

In non-English countries the packaging of English and its promise of success takes many forms. Instead of being integrated into (or added to) national teaching curricula, English language learning institutes, language courses and international education standards can dominate whole systems. Schools in non-English-speaking countries attract globally ambitious parents and their children with a mix of national and international curricula. The love of all things English begins at a young age in non-English-speaking countries, promoted by pop culture, Hollywood movies, fast-food brands, sports events and TV shows. Later, with English skills and international education qualifications from high school, the path is laid to prestigious international universities in the English-speaking world and employment opportunities at home and abroad. But those opportunities aren’t distributed equally across socioeconomic groups. Global education in English is largely reserved for middle-class students. This is creating a divide between those inside the global English proficiency ecosystem and those relegated to parts of the education system where such opportunities don’t exist. For the latter there is only the national education curriculum and the lesson that social mobility is a largely unattainable goal.

Indonesia presents a good case study. With a population of 268 million, access to English language curricula has mostly been limited to urban areas and middle-class parents who can afford to pay for private schools. At the turn of

this century, all Indonesian districts were mandated to have at least one public school offering a globally recognised curriculum in English to an international standard. But in 2013 this was deemed unconstitutional because equal educational opportunity should exist across all public schools. Nevertheless, today there are 219 private schools offering at least some part of the curriculum through Cambridge International, and 38 that identify as Muslim private schools. Western international curricula remain influential in setting the standard for what constitutes quality education.

Academic performance measured by knowledge and skill is, of course, still important and a source of personal fulfilment. But without that cultural balance and the nurturing of positive character traits, it lacks deeper meaning. A regulation issued by the Indonesian minister of education in 2018 underlined this. It listed a set of values and virtues that school education should foster: faith, honesty, tolerance, discipline, hard work, creativity, independence, democracy, curiosity, nationalism, patriotism, appreciation, communication, peace, a love of reading, environmental awareness, social awareness and responsibility.These have been simplified to five basic elements of character education: religion, nationalism, Gotong Royong (collective voluntary work), independence and integrity. These are not necessarily measurable by conventional, Western, English-speaking and empirical means.

1.Refer to the sentence: *These days, the power of English has become accepted wisdom, used to justify the globalisation of education at the cost of existing systems in non-English-speaking countries.* What does the author seek to convey through the sentence?

A –
Although diversity is a major goal of global education, the prevalence of English has led to the degradation of education systems in non-English-speaking countries.

B –
The English language has become a unifying force for various countries.

C –
The significance of English is widely accepted and it has undermined existing education systems in non-English-speaking countries.

D –
The dominance of English in global education has led to deterioration of quality.

Solution

(c) is the right answer. The author has talked about the “power of English”. By this phrase he aims to highlight that English holds a lot of significance in today’s day and age. He has explained it by highlighting its prevalence in global education and the opportunities that it brings. He has also pointed out that in many countries, English has been able to expand its footprint at the expense of non-English education systems. Thus, C is the right answer as it captures the central idea.

A is incorrect as the statement does not talk about diversity in academics.

B is incorrect as the statement does not seek to highlight the role of English in bringing countries together.

D is incorrect because the statement is not concerned with the quality of global education

2. What is the primary purpose of the author in the second paragraph of the passage?

A –
to highlight how unequal access to English may be associated with the class divide

B –
to highlight the difference in quality of private and government schools

C –
to highlight the need to provide access to English language to every socio-economic class

D –
to highlight the overwhelming focus on English instead of local languages

Solution

(a) is the right answer. In the second paragraph the author has highlighted that the global education in English and the opportunities it brings is limited to the middle class. Those students who are not proficient in English do not get

enough opportunities to move ahead as they are part of the non-English education systems. Refer to the lines: *Global education in English is largely reserved for middle-class students. This is creating a divide between those inside the global English proficiency ecosystem and those relegated to parts of the education system where such opportunities don't exist. For the latter there is only the national education curriculum and the lesson that social mobility is a largely unattainable goal.* Thus, the unequal access to English is associated with the class divide.

B is incorrect as the second paragraph does not talk about private and government schools.

C is incorrect because the author does not advocate that every socio-economic group should be provided access

D is incorrect because it is not the central idea of the second paragraph.

E is incorrect because the paragraph does not talk about the Western curricula.

3. Based on the information given in the passage, it is clear that _____.

A -
English language should be accepted as the global medium of education as European countries have fared better in terms of education.

B -
If English becomes the global language, we may end up losing better ways of learning.

C -
English is often seen as a passport to success in many non-English-speaking countries.

D -
There is a need to focus on other education systems that only use English in a limited way.

Solution

(c) is the right answer. The author has highlighted the significance of English language and its dominance in global education. He has also highlighted that it brings in greater opportunities in academics as well as in terms of jobs.

A is incorrect as the passage does not state that European countries have fared better in terms of education.

B is incorrect because the passage does not state that other ways of learning are under threat because of the English language.

D is incorrect as the passage does not talk about the degree to which English should be used in other education systems.

4. As per the passage, which of the following statements is TRUE?

A -
The inability to communicate coherently in the mother tongue limits the chances of success.

B -
The English language may dominate the education system but pop culture is still dominated by regional languages.

C -
Education systems of different countries are based on different values and they understand success in different ways.

D -
Access to English language may be uniform but the access to global education is not.

Solution

(c) is the right answer. Refer to the lines: *A regulation issued by the Indonesian minister of education in 2018 underlined this. It listed a set of values and virtues that school education should foster:..... These are not necessarily measurable by conventional, Western, English-speaking and empirical means.* The author seeks to highlight that not all education systems measure success in the same way as the Western, English-sepaking education system does. Thus, C is true.

A is incorrect as the passage is not concerned with any language other than English.

B is incorrect. Refer to the lines: *The love of all things English begins at a young age in non-English-speaking countries, promoted by pop culture, Hollywood movies, fast-food brands, sports events and TV shows.*

D is incorrect. Refer to the lines: *But those opportunities aren't distributed equally across socioeconomic groups. Global education in English is largely reserved for middle-class students.*

5. Which of the following factors have contributed to the rise of English as a global language?

1. Colonialism and dominance of trade routes by English-speaking countries

2. Dominance of the English language in the pop culture

3. Better academic and employment opportunities are available to those proficient in English

A -
Only 1

B -
Only 2 and 3

C -
Only 1 and 3

D -
All 1, 2 and 3

Solution

(d) is the right answer. Refer to the lines: *Colonial conquest and global trade routes won the hearts and minds of foreign education systems……The love of all things English begins at a young age in non-English-speaking countries, promoted by pop culture, Hollywood movies, fast-food brands, sports events and TV shows. Later, with English skills and international education qualifications from high school, the path is laid to prestigious international universities in the English-speaking world and employment opportunities at home and abroad.* All the three factors have been explicitly mentioned in the passage.

6. Which of the following is the opposite in meaning to the word '*unattainable*' as used in the passage?

A -

convivial

B -
exuberant

C -
esoteric

D -
feasible

Solution

(d) is the right answer. If you say that something is unattainable, you mean that it cannot be achieved or is not available. FEASIBLE is the antonym.

Convivial (adj.)- pleasant, friendly, and relaxed.

Exuberant (adj.)- full of energy, excitement, and cheerfulness.

Esoteric (adj.)- intended for or likely to be understood by only a small number of people with a specialized knowledge or interest.

Diligent (adj.)- having or showing care and conscientiousness in one's work or duties.

Error location

7. In the following question, one part of the sentence may have an error. Find out which part of the sentence has an error and select the appropriate option. If a sentence is free from error, select 'No Error'.

A -
The successful conservation of

B -
the earth’s species in a way that keeps

C -
biodiversity functional and healthy

D -
will likely depend at collaboration.

Solution

In D, replace the preposition AT with ON, as the verb DEPEND will take the preposition ON after it. Thus, (d) is the right answer.

Error location

8. In the following question, one part of the sentence may have an error. Find out which part of the sentence has an error and select the appropriate option. If a sentence is free from error, select 'No Error'.

A -
While sport fishermen are excited about red snapper fish

B -
moving down the East Coast of Australia,

C -
if they eat juvenile lobsters in Tasmania they could harmed

D -
this environmentally and economically important crustacean.

Solution

In C, replace the second form verb HARMED with HARM as the modal verb COULD will take the base form of the main verb that follows it. Thus, (c) is the right answer.

Error location

9. In the following question, one part of the sentence may have an error. Find out which part of the sentence has an error and select the appropriate option. If a sentence is free from error, select 'No Error'.

A -
Large birds of prey are more acutely

B -
affected by dramatic climate changes

C -
because they have fewer offspring and

D -

No error

Solution

The sentence is grammatically correct and free of error. Thus, (d) is the right answer.

Phrase replacement

10. Which of the following phrases (1), (2), and (3) given below each sentence should replace the phrase printed in bold letters to make the sentence grammatically correct? Choose the best option among the five given alternatives that reflect the correct use of the phrase in the context of the grammatically correct sentence. If the sentence is correct as it is, mark 'No Improvement' as the answer.

To minimise the impacted on the endangered turtles, authorities supervise and limit the number of visitors each night.

1. For minimum impact on

2. For the purpose of minimally impactful

3. So that there is minimal impact on

A -
No Improvement

B -
Only 1 and 2

C -
Only 1 and 3

D -
Only 2 and 3

Solution

The sentence tells us how the authorities have limited the number of tourists each night so that there is minimum impact on the endangered turtles. Both 1 and 3 can replace the highlighted phrase to convey the requisite meaning. Thus, (c) is the right answer.

2 is incorrect as it ends with the adjective IMPACTFUL, which does not link with the remaining sentence grammatically. The highlighted phrase is incorrect as the noun IMPACT should have been used in place of the verb IMPACTED as it is being modified by the definite article THE.

Phrase replacement

11. Which of the following phrases (1), (2), and (3) given below each sentence should replace the phrase printed in bold letters to make the sentence grammatically correct? Choose the best option among the five given alternatives that reflect the correct use of the phrase in the context of the grammatically correct sentence. If the sentence is correct as it is, mark 'No Improvement' as the answer.

New evidence has also failed **to brought a support fo**r his ideas, but this is not to say that we should ignore what he wrote.

1. To throw support to

2. To support

3. To have supported

A -
No Improvement

B -
Only 1 and 2

C -
Only 1 and 3

D -
Only 2 and 3

Solution

The sentence tells us how new evidence does not support his ideas, but one must not ignore his writings. Both 1 and 2 can replace the highlighted phrase to convey the requisite meaning. Thus, (b) is the right answer.

3 is incorrect as it introduces the helping verb HAVE which will be redundant since the helping verb HAS has already been used in the sentence. The

highlighted phrase is incorrect as the infinitive construction TO + VERB will take the base form of the verb BRING instead of the second form verb BROUGHT.

Phrase replacement

12. Which of the following phrases (1), (2), and (3) given below each sentence should replace the phrase printed in bold letters to make the sentence grammatically correct? Choose the best option among the five given alternatives that reflect the correct use of the phrase in the context of the grammatically correct sentence. If the sentence is correct as it is, mark 'No Improvement' as the answer.

In compare with Norway, Sweden had substantially higher actual and projected unemployment numbers as a result of the recession.

1. Compared to

2. As opposed to

3. In contrast to

A -
No Improvement

B -
Only 1 and 2

C -
Only 1 and 3

D -
All 1, 2 and 3

Solution

The sentence tells us how Sweden had higher unemployment when compared to Norway. All 1, 2 and 3 can replace the highlighted phrase to convey the requisite meaning. Thus, (D) is the right answer.

The highlighted phrase is incorrect as the noun COMPARISON should have been used in place of the verb COMPARE.

Jumbled sentences

13. In the question given below, rearrange the parts of the sentence in the correct order, and choose the correct option.

attempts to cut spending (A)/ during her first months in office (B)/ as a result of the administration's (C)/ she attracted public attention (D)

A -
ADCB

B -
ABDC

C -
DBAC

D -
DBCA

Solution

DBCA is the final order. D begins the sentence by establishing the subject - SHE, and tells us that she attracted attention from the public. B follows by telling us when - during the first few months when she was in office. CA follows as a pair, telling us the reason behind this - the administration tried to cut spending. Thus, (d) is the right answer.

Jumbled sentences

14. In the question given below, rearrange the parts of the sentence in the correct order, and choose the correct option.

large sections of the fans began to (A)/ question the coach's ability and (B)/ as a result, crowds began to dwindle (C)/ and morale was beginning to suffer (D)

A -
ACBD

B -
BCDA

C -
BADC

D -
No rearrangement required

Solution

ABCD is the final order. A begins the sentence by establishing the subject - large sections of the fans. B follows by telling us that they began to question the ability of the coach. CD follow as a pair, giving the effects of this - crowds began to reduce in number, and morale of the team was suffering. Thus, (d) is the right answer.

Jumbled sentences

15. In the question given below, rearrange the parts of the sentence in the correct order, and choose the correct option.

the Hindu cultural influence found (A)/ many of the surviving examples of (B)/ today throughout Southeast Asia (C)/ are the result of the Chola expeditions (D)

A -
BDAC

B -
BACD

C -
BCAD

D -
ADBC

Solution

BACD is the final order. BA begins the sentence as a pair, by establishing the subject - the surviving examples of Hindu cultural influence. C follows by telling us where these examples have been found - throughout Southeast Asia. D concludes by telling us that they are the result of Chola expeditions. Thus, (b) is the right answer.

Jumbled sentences

16. In the question given below, rearrange the parts of the sentence in the correct order, and choose the correct option.

as a result of famine and forced labour (A)/ people died in Indonesia (B)/ a UN report stated that four million (C)/ during the Japanese occupation (D)

A -
DCAB

B -
DBAC

C -
CABD

D -
CBAD

Solution

CBAD is the final order. C begins the sentence by establishing the subject - a UN report. B follows by telling us the statement made by this report - four million deaths in Indonesia. A gives the causes behind these deaths - famine and forced labour. D concludes by telling us when this took place - during the Japanese occupation. Thus, (d) is the right answer.

Antonyms

17. In the following question, choose the word opposite in meaning to the given word.

Indigent

A -
Wealthy

B -
Suffered

C -
Subject

D -
Opportunity

Solution

(a) is the correct answer. INDIGENT means poor or needy. WEALTHY is its antonym.

Suffered- Undergone, Subject- Issue, Opportunity- Chance.

Synonyms

18. In the following question, out of the four alternatives, choose the one which best expresses the meaning of the given word.

Overjoyed

A -
Guarantee

B -
Respectable

C -
Ecstatic

D -
Objective

Solution

(c) is the correct answer. OVERJOYED means ‘extremely happy’. ECSTATIC is its synonym.

Guarantee- Assurance, Respectable- regarded to be good, Objective- Aim.

Phrasal verbs/idioms

19. In the question below, a sentence is given with an idiom in brackets, followed by four options. Select the option that gives the correct meaning of the idiom.

The scientists **(have blazed the trail)** when it comes to gene therapy.

A -
have condemned the violence

B -
have defied the rules

C -
have done something new

D -
have surrendered

Solution

(c) is the correct answer. ‘To blaze the trail’ means ‘to do something never done before’. (c) conveys the requisite meaning of the phrase.

Phrasal verbs/idioms

20. In the following question, a sentence is given with a phrase or idiom in brackets. Select the option given below that can replace the bracketed phrase.

The fight between the party members (has break out) due to disagreement over the bill.

A -
has broken out

B -
have broken out

C -
has broke out

D -
No improvement

Solution

(a) is the correct answer. The sentence tells us about why a fight has erupted between the party members. (a) conveys the requisite meaning of the phrase.

The present perfect tense construction HAS + VERB will take the past participle form of the verb BROKEN. This makes C and the highlighted phrase incorrect as they use the second form and the base form of the verb respectively. B is incorrect as it uses the plural verb HAVE in place of the singular HAS while the subject FIGHT is singular.

Phrasal verbs/idioms

21. In the following question, a sentence is given with a phrase or idiom in brackets. Select the option given below that can replace the bracketed phrase.

The prime minister went to the state (to calling on) the victims of the cyclone.

A -
to call out

B -
to call on

C -

to call off

D -
No improvement

Solution

(b) is the correct answer. The sentence tells us how the prime minister went to visit the victims of the cyclone. CALL ON means to visit. (b) conveys the requisite meaning of the phrase.

A is incorrect as CALL OUT means to shout. C is incorrect as CALL OFF means to cancel. The highlighted phrase is incorrect as infinitive construction TO + VERB will take the base form of the verb CALL instead of the continuous form verb CALLING.

Para jumbled sentences

22. In the question given below, rearrange the fragments in the correct order, and choose the correct option.

P. Disability is an 'umbrella term for impairments, activity limitations and participation restrictions.

Q. These limitations are caused by an interaction between the health conditions of an individual and the contextual factors reflected in the social-economic environment of the day.

R. The understanding about disability has moved away from a biological perspective to questions of accessibility, inclusion and empowerment.

S. Civil Society activists and policymakers have started thinking about the issue of disability in terms of a rights-based and inclusive paradigm.

A -
PQRS

B -
PSQR

C -
PRQP

D -
SQRP

Solution

(a) is the correct answer. The correct sequence is PQRS. P begins the sentence by introducing the subject- DISABILITY. Q follows P as it talks about the reasons for these limitations (mentioned in P) related to disability and how they are caused. R follows Q by stating how the understanding of disability has changed over the years. S concludes by further showing the work of social activists and activists to accommodate the change in understanding of disability.

Active voice/passive voice

23. In the following question, a sentence has been given in Active/ Passive Voice. Out of the four alternatives suggested, select the one which best expresses the same sentence in Passive/Active Voice.

The keynote speech was delivered by the head of the alumni committee.

A -
The head of the alumni committee delivered the keynote speech.

B -
The head of the alumni committee had delivered the keynote speech.

C -
The head of the alumni committee has delivered the keynote speech.

D -
The head of the alumni committee will deliver the keynote speech.

Solution

The sentence is in the indicative mood and passive voice. Follow the rules below to convert a sentence in the indicative mood to active voice:

1. The subject clause will become the object clause. Here, the subject THE KEYNOTE SPEECH will change to the object, and the object THE HEAD OF THE ALUMNI COMMITTEE will change into the subject and begin the sentence.

2. Replace WAS DELIVERED with DELIVERED.

3. Remove the conjunction BY before THE HEAD OF THE ALUMNI COMMITTEE.

Option (a) is the right answer.

Direct / indirect speech

24. In the following question, a sentence has been given in Direct/ Indirect speech. Out of the four alternatives suggested, select the one which best expresses the same sentence in Direct/ Indirect speech.

The man said, “The train is late.”

A -
The man said that the train was late.

B -
The man said that the train has been late.

C -
The man said that the train will be late.

D -
The man said that the train is late.

Solution

Option (a) is the right answer.

The sentence is in direct speech and in the indicative mood. To convert this sentence to the indirect speech, follow these rules:

1. Remove the comma and the inverted commas.

2. Begin the indirect speech sentence with the reporting speech clause THE MAN SAID.

3. Put THAT between the reporting and reported speeches.

4. Change the simple present tense IS LATE to the past tense WAS LATE.

Reasoning ability

Counting the figures

25. How many polygons are there in the following figure?

A -
7

B -
5

C -
6

D -
More than 7

Solution

There are more than 7 polygons present in the figure.

Hence, option d.

Missing number series

26. In the given question, select the missing numbers from the given series.

1, 3, 7, 13, 21, 31, 43, 57, ?, ?

A -
73, 91

B -
73, 93

C -
71, 91

D -
72, 92

Solution

Given series

1, 3, 7, 13, 21, 31, 43, 57

So, 1+2=3, 3+4=7, 7+6=13, 13+8=21 which means series follows the +2 rule in every step to get the next number.

Similarly, 57+16=73, 73+18=91

Hence, option a.

Distance & direction

27. Ramu moves towards the east direction from point P and covers 30m to reach point Q and then takes right and covers 40m to reach point R. Find the direction and the distance from the initial point to the final point.

A -
50m east

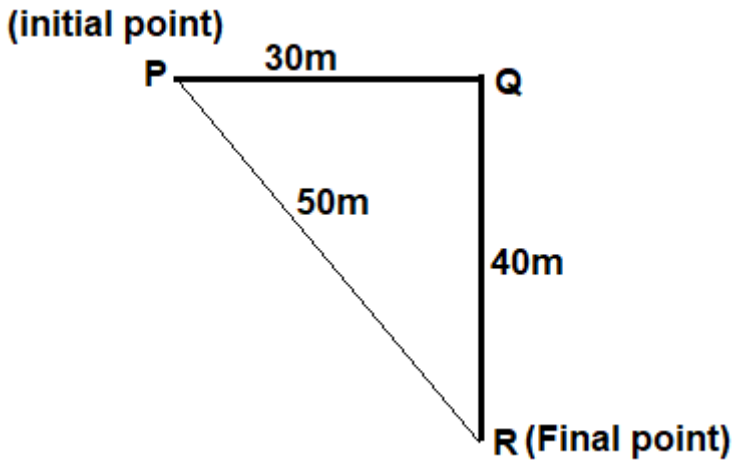
B -
50m south east

C -
40m north east

D -
40m north west

Solution

From figure below, it is clear that Ramu is 50m towards the southeast from the



initial point.

By using Pythagoras Theorem, we get the distance i.e. 50m.

Hence, option b.

Matrix coding

28. A word is represented by only one set of number as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabets as in two matrices given below. The columns and rows of Matrix I are numbered from 0 to 4 and that of Matrix II are numbered from 5 to 9. A letter from these matrices can be represented first by its column and next by its row, e.g., K can be represented by 00, 13, 23 etc. and L can be represented by 30,14 etc.

Similarly, you have to identify the code of given word “ATRIBUTE”?

Matrix I:

	0	1	2	3	4
0	K	N	T	L	B
1	N	T	A	B	N
2	T	U	N	T	D
3	U	K	K	P	T
4	S	L	O	K	U

Matrix II:

	5	6	7	8	9
5	M	O	L	M	E
6	V	U	Z	D	V
7	Z	A	I	V	A
8	U	D	Q	M	L

9	E	M	R	O	M

A -
21, 44, 78, 67, 13, 43, 60, 95

B -
67, 02, 79, 77, 40, 03, 20, 59

C -
97, 32, 78, 12, 18, 87, 56, 23

D -
97, 32, 78, 12, 12, 19, 45, 11

Solution

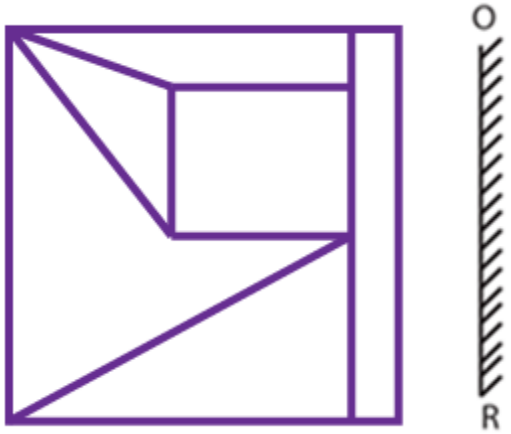
Given word “ATRIBUTE”

A	T	R	I	B	U	T	E
21, 67, 97	11, 20, 32, 43, 02	79	77	31, 40	12,03, 66, 58	11, 20, 32, 43, 02	95, 59

Hence, option b.

Mirror image

29. If a mirror is placed on the line OR, then which of the answer figures is the right image of the given figure?



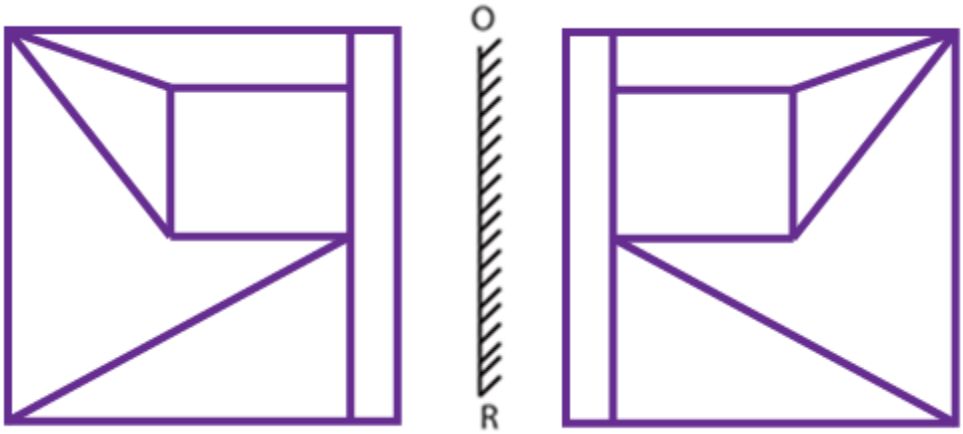
A -

B -

C -

D -

Solution



Hence, option c.

Calendars

30. Mintu's birthday is on Wednesday 8th May. On what day of the week will be Anku's birthday in the same year if Anku was born on 10th August?

A -
Sunday

B -
Thursday

C -
Friday

D -
Saturday

Solution

8th May – Wednesday.

Number of days between 8th May to 10th August

= 23+30+31+10=94

Number of odd days = 94÷7= 3(remainder)

Anku's birthday = Wednesday + 3 = Saturday.

Hence, option d.

Mathematical operations (interchange of signs and numbers)

31. In a certain code language, '+' represents '×', '- 'represents '+', '×' represents '÷' and '÷' represents '-'. What is the answer to the following question?

54 × 9 + 5 – 8 ÷ 12 = ?

A -
26

B -
21

C -
24

D -
23

Solution

So, after changing the signs of the given equation

54 ÷ 9 × 5 + 8 – 12

= 6 × 5 + 8 – 12 = 26

Hence, option a.

Syllogisms

32. In the question below are given two statements followed by two conclusions i.e. I and II. Taking the given statements to be true even if they seem to be variance from commonly known facts, read all the conclusions and then decide which of the given conclusion logically follows the given statements.

Statements:

At least some balls are bats

All bats are caps

Conclusions:

I. All caps are balls

II. Some balls are not bats

A -
Only conclusion I follows

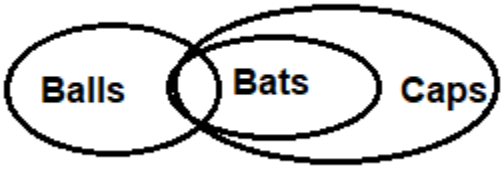
B -
Both conclusions I and II follow

C -
Neither conclusion I nor II follows

D -
Only conclusions II follows

Solution

Following figure can be formed from the above statements.



From the above figure it is clear that all caps are not balls so conclusion I does not follow.

Similarly, all bats can be balls so conclusion II does not follow.

Hence, option c.

Inserting the missing number

33. Select the missing number from the given responses:

79	?	113
25	56	93
54	33	20

A -
56

B -
89

C -
81

D -
43

Solution

Given that:

79	?	113
25	56	93
54	33	20

So, 79 – 25 = 54, 113 – 93 = 20 similarly 89 – 56 = 33

Hence, option b.

Alphabet series

34. In the given question, which one set of letters when sequentially placed at the gaps in the given letter series shall complete it?

pqr_ _pqq_ rssp_ pqq_rrrs_s

A -
pqssqp

B -
sprpqs

C -
spprpq

D -
srpqrp

Solution

Given series follows the following pattern

pqrs/ppqqrrss/pppqqqrrrsss

Hence, option b.

Floors based puzzle

(35-39) Directions: Answer the questions based on the information given below.

Eleven persons, A, B, C, D, E, F, G, H, I, J and K live on different floors of a 11 storeyed building, where the bottommost floor is 1 and the floor above it is 2 and so on.

Four persons live above K. Three persons live between K and G, who lives just above D. A lives 3 floors above B, who lives just above H. H lives on a prime numbered floor. J lives on an odd numbered floor below B. One person lives between J and I. Neither F nor E lives adjacent to J. More than three persons live between C and E.

35.____ lives on 2^{nd} floor.

A - H

B - C

C - I

D - H

Solution

Starting point: Start with the direct hints, four persons live above K, who lives either above or below G.

Clues: A lives 3 floors above B, who lives just above H. H lives on a prime numbered floor. J lives on an odd numbered floor below B.

Inference: H either lives on 2^{nd} or 5^{th} floor.

Case 1: When G lives below K. One person lives between J and I, so this case is not possible.

Floors	Persons
11	
10	
9	A
8	
7	K
6	B
5	H
4	
3	G
2	D
1	J

Case 2: When G lives above K. One person lives between J and I, so case 2(a) is not possible.

Floors	Case 2(a)	Case 2(b)
11	G	G
10	D	D
9		A
8		

7	K	K
6	A	B
5		H
4		
3	B	I/J
2	H	
1	J	J/I

Clues: Neither F nor E lives adjacent to J. More than three persons live between C and E.

Inference: So, J lives on the bottommost floor. E lives on 8th floor.

The final arrangement is as follows:

Floors	Persons
11	G
10	D
9	A
8	E
7	K
6	B
5	H

4	F
3	I
2	C
1	J

C lives on 2nd floor.

Hence, option b.

36. How many persons live above G?

A -
2

B -
3

C -
None

D -
5

Solution

Starting point: Start with the direct hints, four persons live above K, who lives either above or below G.

Clues: A lives 3 floors above B, who lives just above H. H lives on a prime numbered floor. J lives on an odd numbered floor below B.

Inference: H either lives on 2nd or 5th floor.

Case 1: When G lives below K. One person lives between J and I, so this case is not possible.

Floors	Persons

11	
10	
9	A
8	
7	K
6	B
5	H
4	
3	G
2	D
1	J

Case 2: When G lives above K. One person lives between J and I, so case 2(a) is not possible.

Floors	Case 2(a)	Case 2(b)
11	G	G
10	D	D
9		A
8		
7	K	K

6	A	B
5		H
4		
3	B	I/J
2	H	
1	J	J/I

Clues: Neither F nor E lives adjacent to J. More than three persons live between C and E.

Inference: So, J lives on the bottommost floor. E lives on 8th floor.

The final arrangement is as follows:

Floors	Persons
11	G
10	D
9	A
8	E
7	K
6	B
5	H
4	F

3	I
2	C
1	J

No one lives above G.

Hence, option c.

37. How many persons live between I and A?

A - 4

B - 2

C - 1

D - 5

Solution

Starting point: Start with the direct hints, four persons live above K, who lives either above or below G.

Clues: A lives 3 floors above B, who lives just above H. H lives on a prime numbered floor. J lives on an odd numbered floor below B.

Inference: H either lives on 2nd or 5th floor.

Case 1: When G lives below K. One person lives between J and I, so this case is not possible.

Floors	Persons
11	

10	
9	A
8	
7	K
6	B
5	H
4	
3	G
2	D
1	J

Case 2: When G lives above K. One person lives between J and I, so case 2(a) is not possible.

Floors	Case 2(a)	Case 2(b)
11	G	G
10	D	D
9		A
8		
7	K	K
6	A	B

5		H
4		
3	B	I/J
2	H	
1	J	J/I

Clues: Neither F nor E lives adjacent to J. More than three persons live between C and E.

Inference: So, J lives on the bottommost floor. E lives on 8th floor.

The final arrangement is as follows:

Floors	Persons
11	G
10	D
9	A
8	E
7	K
6	B
5	H
4	F
3	I

2	C
1	J

5 persons live between I and A.

Hence, option d.

38. How many persons live below D?

A -
9

B -
4

C -
7

D -
1

E -
None

Solution

Starting point: Start with the direct hints, four persons live above K, who lives either above or below G.

Clues: A lives 3 floors above B, who lives just above H. H lives on a prime numbered floor. J lives on an odd numbered floor below B.

Inference: H either lives on 2nd or 5th floor.

Case 1: When G lives below K. One person lives between J and I, so this case is not possible.

Floors	Persons
11	

10	
9	A
8	
7	K
6	B
5	H
4	
3	G
2	D
1	J

Case 2: When G lives above K. One person lives between J and I, so case 2(a) is not possible.

Floors	Case 2(a)	Case 2(b)
11	G	G
10	D	D
9		A
8		
7	K	K
6	A	B

5		H
4		
3	B	I/J
2	H	
1	J	J/I

Clues: Neither F nor E lives adjacent to J. More than three persons live between C and E.

Inference: So, J lives on the bottommost floor. E lives on 8th floor.

The final arrangement is as follows:

Floors	Persons
11	G
10	D
9	A
8	E
7	K
6	B
5	H
4	F
3	I

2	C
1	J

9 persons live below D.

Hence, option a.

39. Who lives on the 8th floor?

A -
E

B -
H

C -
D

D -
Cannot be determined

Solution

Starting point: Start with the direct hints, four persons live above K, who lives either above or below G.

Clues: A lives 3 floors above B, who lives just above H. H lives on a prime numbered floor. J lives on an odd numbered floor below B.

Inference: H either lives on 2nd or 5th floor.

Case 1: When G lives below K. One person lives between J and I, so this case is not possible.

Floors	Persons
11	
10	

9	A
8	
7	K
6	B
5	H
4	
3	G
2	D
1	J

Case 2: When G lives above K. One person lives between J and I, so case 2(a) is not possible.

Floors	Case 2(a)	Case 2(b)
11	G	G
10	D	D
9		A
8		
7	K	K
6	A	B
5		H

4		
3	B	I/J
2	H	
1	J	J/I

Clues: Neither F nor E lives adjacent to J. More than three persons live between C and E.

Inference: So, J lives on the bottommost floor. E lives on 8th floor.

The final arrangement is as follows:

Floors	Persons
11	G
10	D
9	A
8	E
7	K
6	B
5	H
4	F
3	I
2	C

1	J

E lives on the 8th floor.

Hence, option a.

North-south facing sitting arrangement

(40-43) Directions: Answer the questions based on the information given below.

Fourteen persons are sitting at an equal distance in parallel rows, such that, A, B, C, D, E, F and G are sitting in row 1 facing north and S, T, U, V, W, X, and Y are sitting in row 2 facing south. Both the rows are facing each other.

D is sitting 3rd to the left of A, who is sitting opposite to the person, who is sitting adjacent to X. W is sitting 2nd to the right of V. X is sitting 3rd from one of the ends. W is sitting opposite to B. Three persons are sitting between B and C. One person is sitting between C and E, who is not sitting in the left of A. G is not sitting adjacent to B. U is sitting immediately right of Y. S is not sitting opposite to F.

40. Find the odd one out.

A - W

B - D

C - E

D - Y

Solution

Starting point: Start placing A, D and X. And X is sitting 3rd from one of the end.

Clues: W is sitting 2nd to the right of V. W is sitting opposite to B. Three persons are sitting between B and C. One person is sitting between C and E, who is not sitting in the left of A.

Inference: X is sitting 3rd from the left or right end. E must be sitting in the right of A.

There are two possible cases:

Case 1: When X is sitting 3rd from the left end (considering all are facing north). V cannot be placed in this case, so this case is not possible.

		X				W
D		C	A	E		B

Case 2(a): When X is sitting 3rd from the right end (considering all are facing north). V cannot be placed in this arrangement, so this case is not possible.

				X		W
D		C	A	E		B

Case 2(b): When X is sitting 3rd from the right end (considering all are facing north).

W		V		X		
B		D		C	A	E

Clues: G is not sitting adjacent to B. U is sitting immediately right of Y. S is not sitting opposite to F.

Inference: G is sitting adjacent to C. S is sitting opposite to G. Y is sitting at the extreme end.

The final arrangement is as follows:

W	T	V	S	X	U	Y
B	F	D	G	C	A	E

All of them are sitting at the extreme ends, except D.

Hence, option b.

41. ____ is sitting opposite to V.

A - D

B - F

C - E

D - G

Solution

Starting point: Start placing A, D and X. And X is sitting 3rd from one of the end.

Clues: W is sitting 2nd to the right of V. W is sitting opposite to B. Three persons are sitting between B and C. One person is sitting between C and E, who is not sitting in the left of A.

Inference: X is sitting 3rd from the left or right end. E must be sitting in the right of A.

There are two possible cases:

Case 1: When X is sitting 3rd from the left end (considering all are facing north). V cannot be placed in this case, so this case is not possible.

		X				W
D		C	A	E		B

Case 2(a): When X is sitting 3rd from the right end (considering all are facing north). V cannot be placed in this arrangement, so this case is not possible.

				X		W
D		C	A	E		B

Case 2(b): When X is sitting 3rd from the right end (considering all are facing north).

W		V		X		
B		D		C	A	E

Clues: G is not sitting adjacent to B. U is sitting immediately right of Y. S is not sitting opposite to F.

Inference: G is sitting adjacent to C. S is sitting opposite to G. Y is sitting at the extreme end.

The final arrangement is as follows:

W	T	V	S	X	U	Y
B	F	D	G	C	A	E

D is sitting opposite to V.

Hence, option a.

42. What is the position of T with respect to U?

A -
4th to the left

B -
2nd to the right

C -
4th to the right

D -
3rd to the left

E -
5th to the right

Solution

Starting point: Start placing A, D and X. And X is sitting 3rd from one of the end.

Clues: W is sitting 2nd to the right of V. W is sitting opposite to B. Three persons are sitting between B and C. One person is sitting between C and E, who is not sitting in the left of A.

Inference: X is sitting 3rd from the left or right end. E must be sitting in the right of A.

There are two possible cases:

Case 1: When X is sitting 3rd from the left end (considering all are facing north). V cannot be placed in this case, so this case is not possible.

		X				W
D		C	A	E		B

Case 2(a): When X is sitting 3rd from the right end (considering all are facing north). V cannot be placed in this arrangement, so this case is not possible.

				X		W
D		C	A	E		B

Case 2(b): When X is sitting 3rd from the right end (considering all are facing north).

W		V		X		
B		D		C	A	E

Clues: G is not sitting adjacent to B. U is sitting immediately right of Y. S is not sitting opposite to F.

Inference: G is sitting adjacent to C. S is sitting opposite to G. Y is sitting at the extreme end.

The final arrangement is as follows:

W	T	V	S	X	U	Y
B	F	D	G	C	A	E

T is sitting 4th to the right of U.

Hence, option c.

43. ____ is sitting adjacent to X.

A - S

B - Y

C - T

D - W

E - V

Solution

Starting point: Start placing A, D and X. And X is sitting 3rd from one of the end.

Clues: W is sitting 2nd to the right of V. W is sitting opposite to B. Three persons are sitting between B and C. One person is sitting between C and E, who is not sitting in the left of A.

Inference: X is sitting 3rd from the left or right end. E must be sitting in the right of A.

There are two possible cases:

Case 1: When X is sitting 3rd from the left end (considering all are facing north). V cannot be placed in this case, so this case is not possible.

		X				W
D		C	A	E		B

Case 2(a): When X is sitting 3rd from the right end (considering all are facing north). V cannot be placed in this arrangement, so this case is not possible.

				X		W
D		C	A	E		B

Case 2(b): When X is sitting 3rd from the right end (considering all are facing north).

W		V		X		
B		D		C	A	E

Clues: G is not sitting adjacent to B. U is sitting immediately right of Y. S is not sitting opposite to F.

Inference: G is sitting adjacent to C. S is sitting opposite to G. Y is sitting at the extreme end.

The final arrangement is as follows:

W	T	V	S	X	U	Y
B	F	D	G	C	A	E

S is sitting adjacent to X.

Hence, option a.

Hexagonal sitting arrangement

(44-47) Directions: Answer the questions based on the information given below.

Six persons, L, M, N, O, P and Q are sitting at the corners of a hexagonal table. Some of them are facing the centre, while others are facing away from the centre. Each of them like different colors, Green, Red, Yellow, Blue, Pink and Black.

Q is sitting 2nd to the right of the person, who likes Green and both of them are facing the same direction. O is sitting to the immediate right of Q. One person is sitting between P and L, who likes Red. Neither M nor N is sitting adjacent to O, who is facing the opposite direction of M. Person, who likes Black, is sitting opposite to the one, who likes Blue. M doesn't sit immediately left of P.

Person, who likes Pink, is not sitting 2nd to the right of M. Person sitting adjacent to P likes Yellow. Person, who likes Yellow is not facing away from the centre.

44.Find the odd one out.

A -
NP

B -
LO

C -
OQ

D -
QL

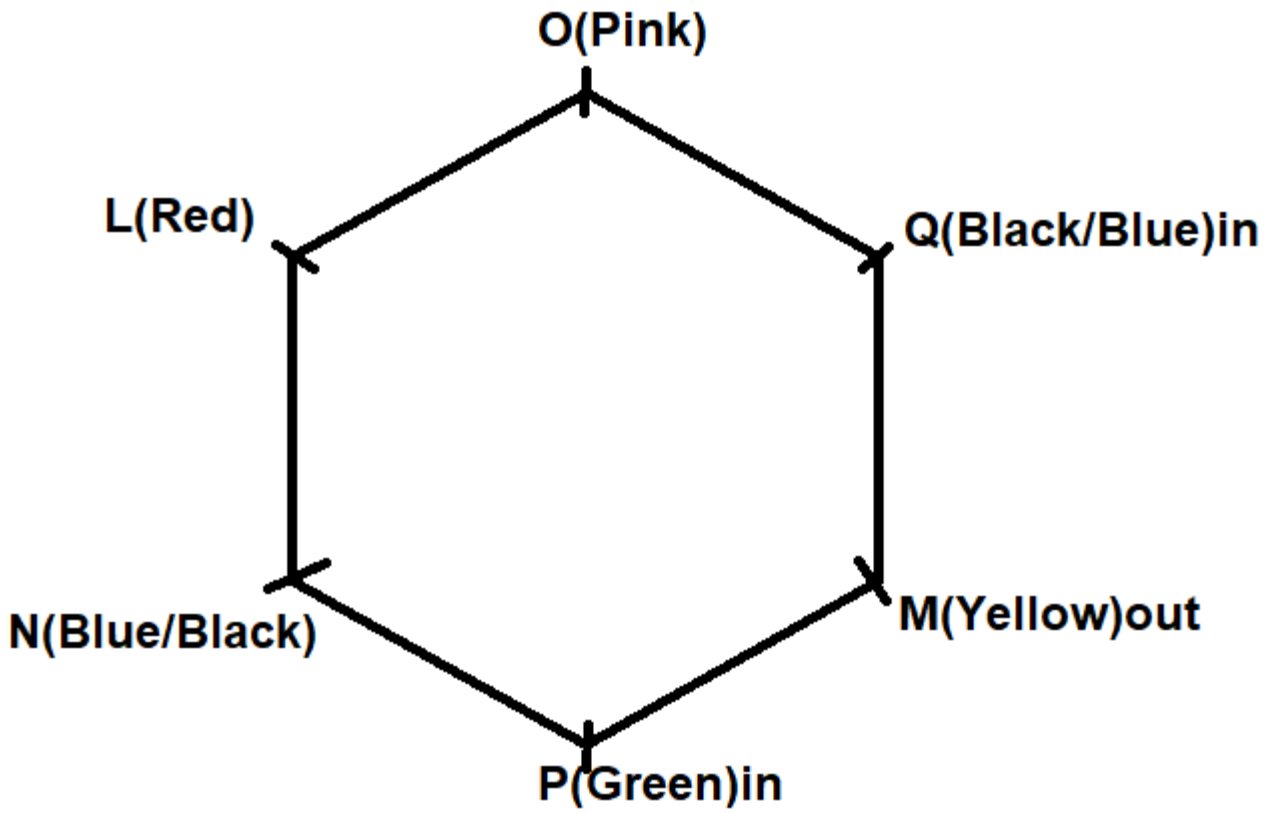
Solution

Starting point: Start placing Q and the person, who likes Green. They are either facing towards or away from the centre. O is sitting immediate right of Q.

Clues: One person is sitting between P and L, who likes Red. Neither M nor N is sitting adjacent to O, who is facing the opposite direction of M. Person, who likes Black is sitting opposite to the one, who likes Blue. M doesn't sit immediately left of P. Person sitting adjacent to P likes Yellow. Person, who likes Yellow is not facing away from the centre.

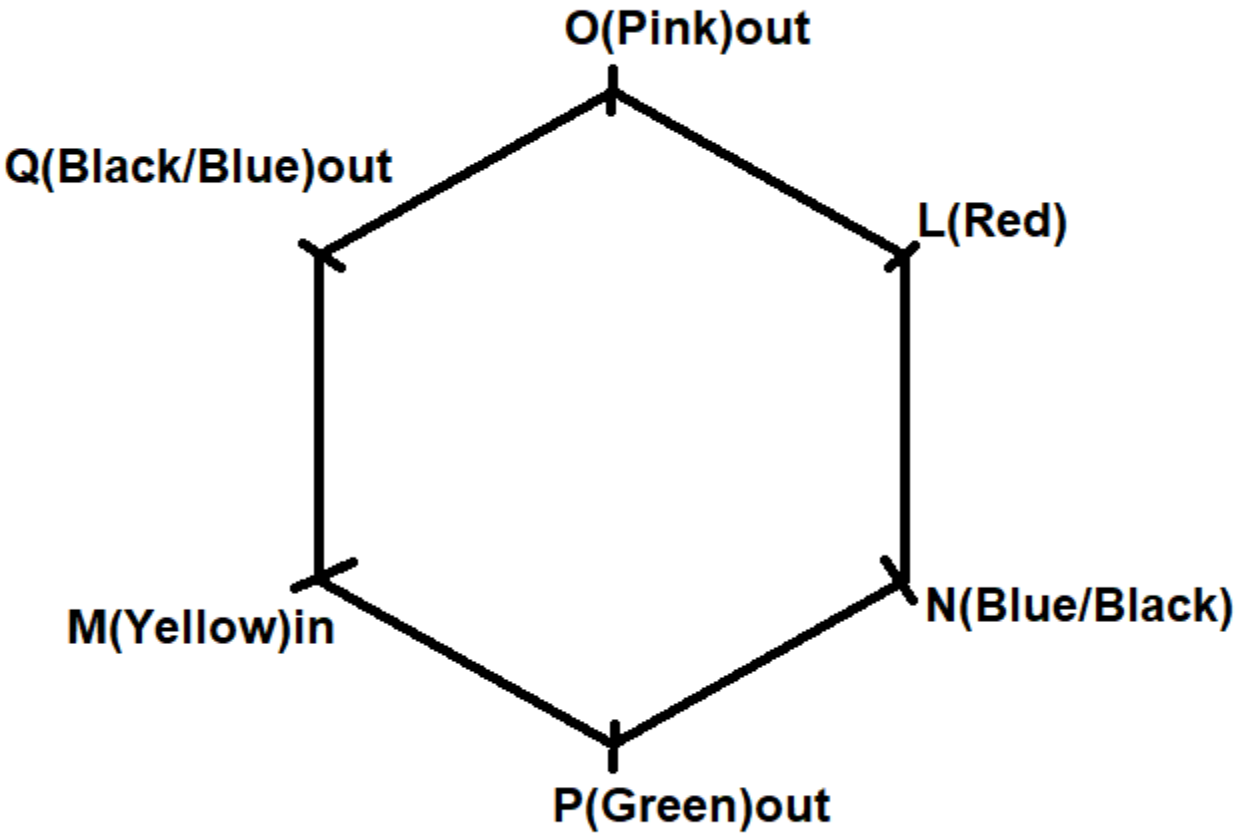
Inference: If L and P are sitting opposite to Q and adjacent to Q, then M and N cannot be placed in the arrangement, so P likes Green. So, M likes Yellow.

Case 1: When Q is facing the centre. Person, who likes Yellow is not facing away from the centre, so this case is not possible.



Case 2: When Q is facing away from the centre.

The final arrangement is as follows:



All of them are sitting adjacent to each other, except Q and L.

Hence, option d.

45. How many persons are sitting between L and Q, when counted from the left of L?

A -
2

B -
3

C -
1

D -
cannot be determined

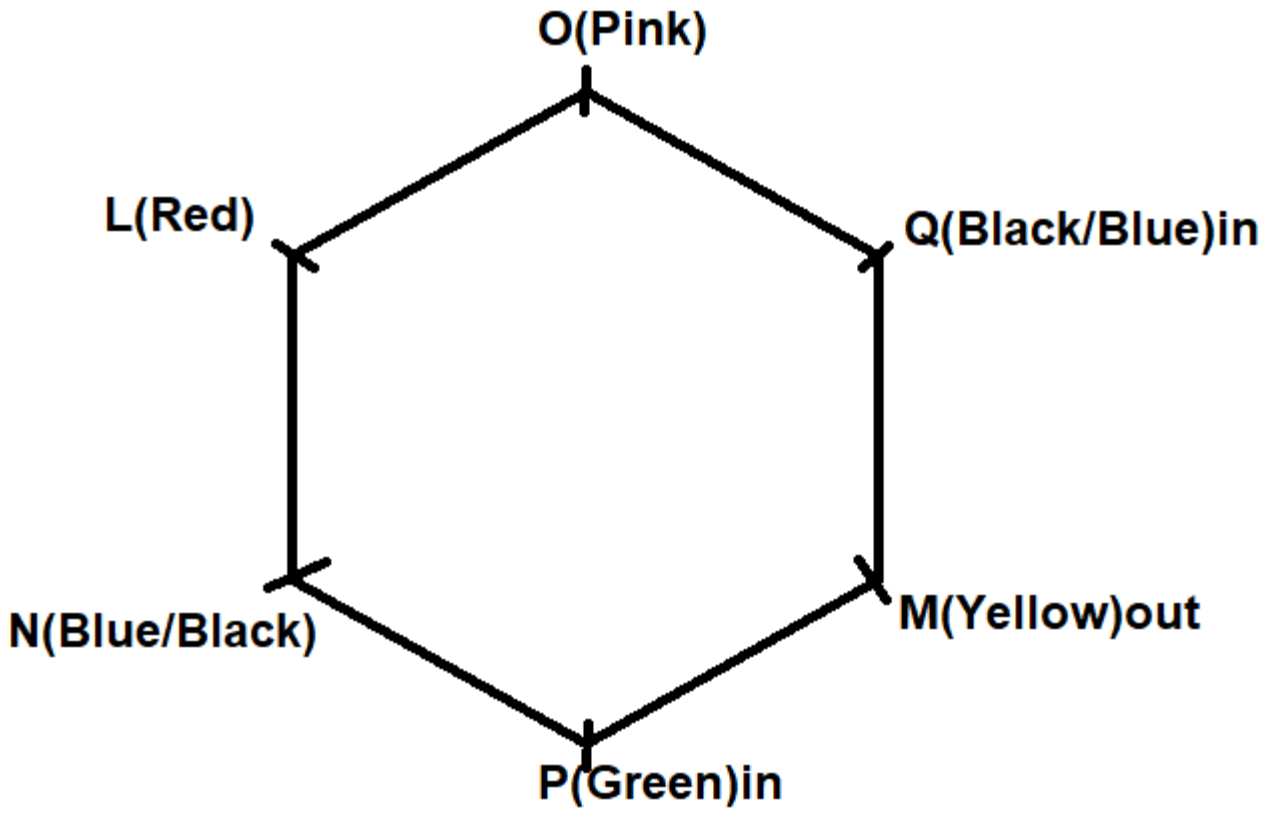
Solution

Starting point: Start placing Q and the person, who likes Green. They are either facing towards or away from the centre. O is sitting immediate right of Q.

Clues: One person is sitting between P and L, who likes Red. Neither M nor N is sitting adjacent to O, who is facing the opposite direction of M. Person, who likes Black is sitting opposite to the one, who likes Blue. M doesn't sit immediately left of P. Person sitting adjacent to P likes Yellow. Person, who likes Yellow is not facing away from the centre.

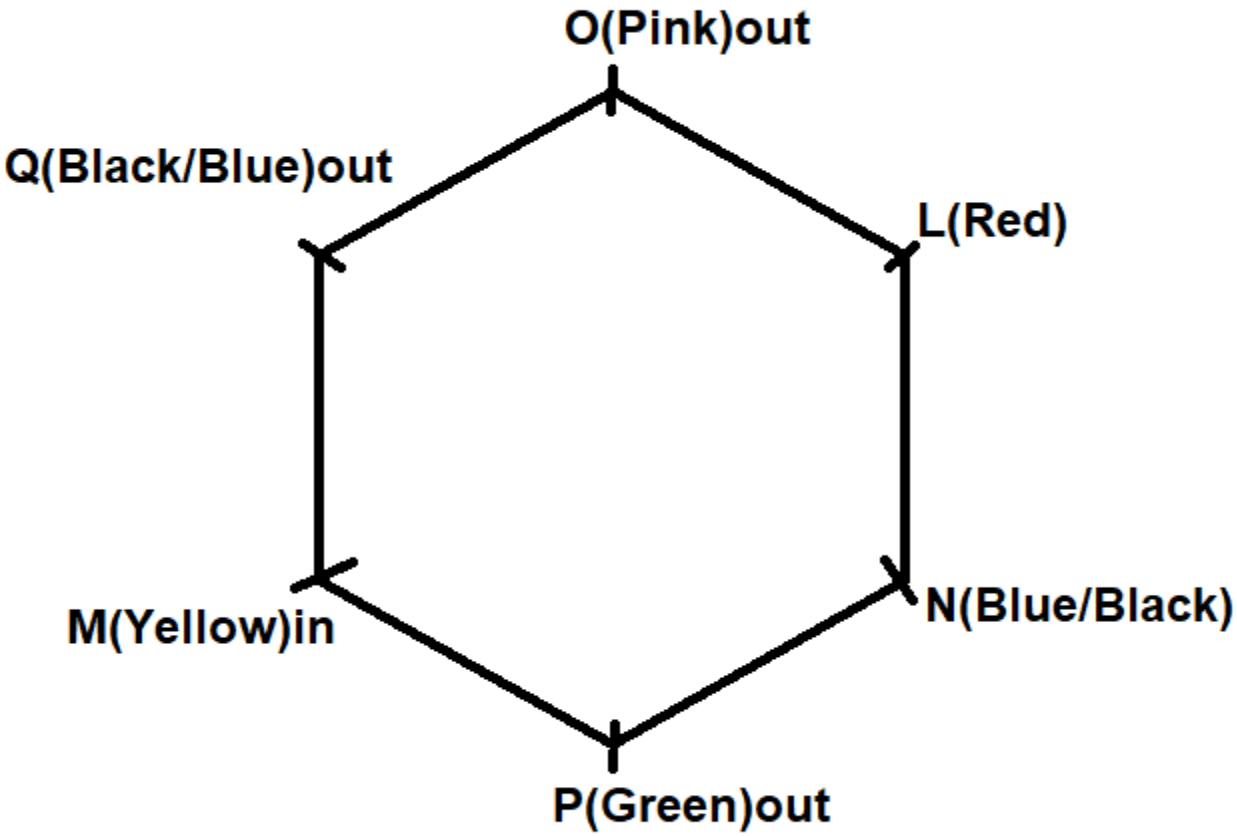
Inference: If L and P are sitting opposite to Q and adjacent to Q, then M and N cannot be placed in the arrangement, so P likes Green. So, M likes Yellow.

Case 1: When Q is facing the centre. Person, who likes Yellow is not facing away from the centre, so this case is not possible.



Case 2: When Q is facing away from the centre.

The final arrangement is as follows:



L is facing either towards or away from the centre.

Hence, option D.

46. ____ likes Pink.

A - M

B - P

C - Q

D - O

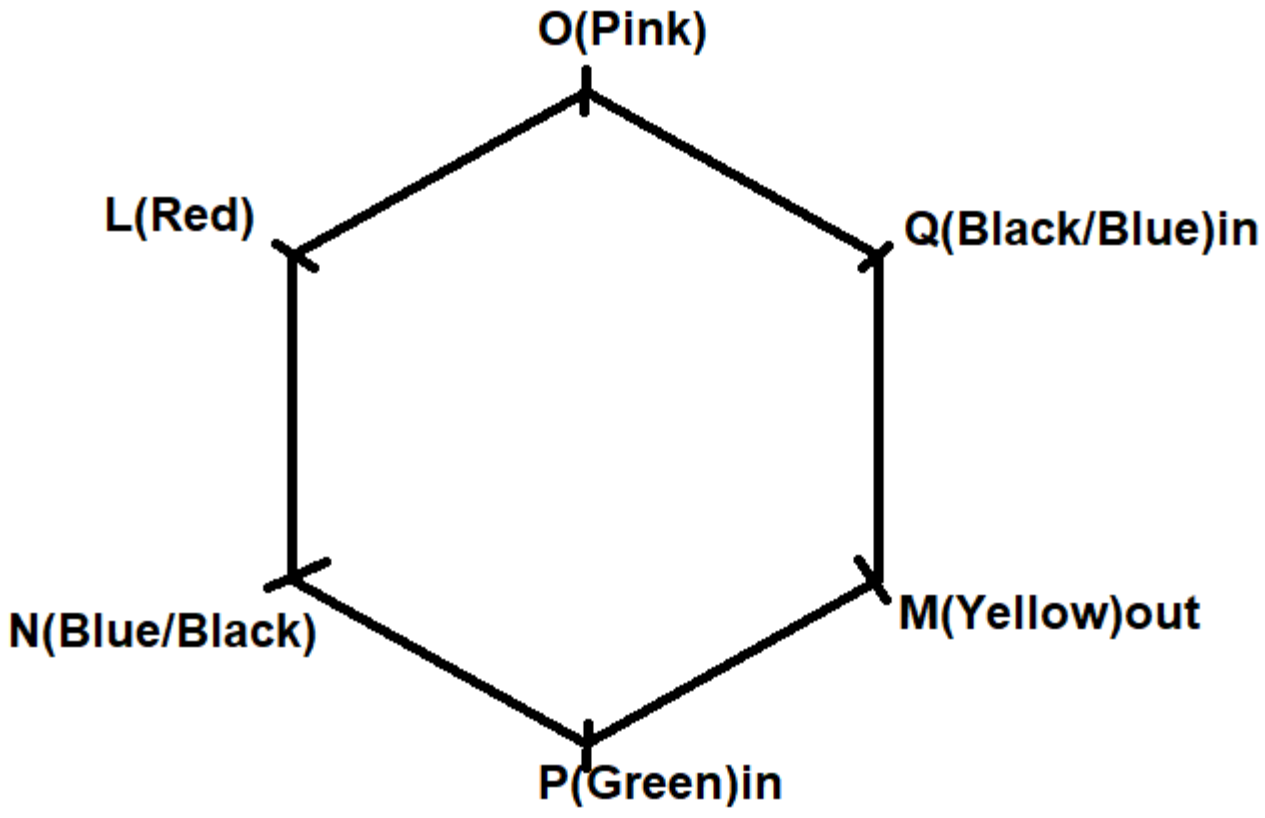
Solution

Starting point: Start placing Q and the person, who likes Green. They are either facing towards or away from the centre. O is sitting immediate right of Q.

Clues: One person is sitting between P and L, who likes Red. Neither M nor N is sitting adjacent to O, who is facing the opposite direction of M. Person, who likes Black is sitting opposite to the one, who likes Blue. M doesn't sit immediately left of P. Person sitting adjacent to P likes Yellow. Person, who likes Yellow is not facing away from the centre.

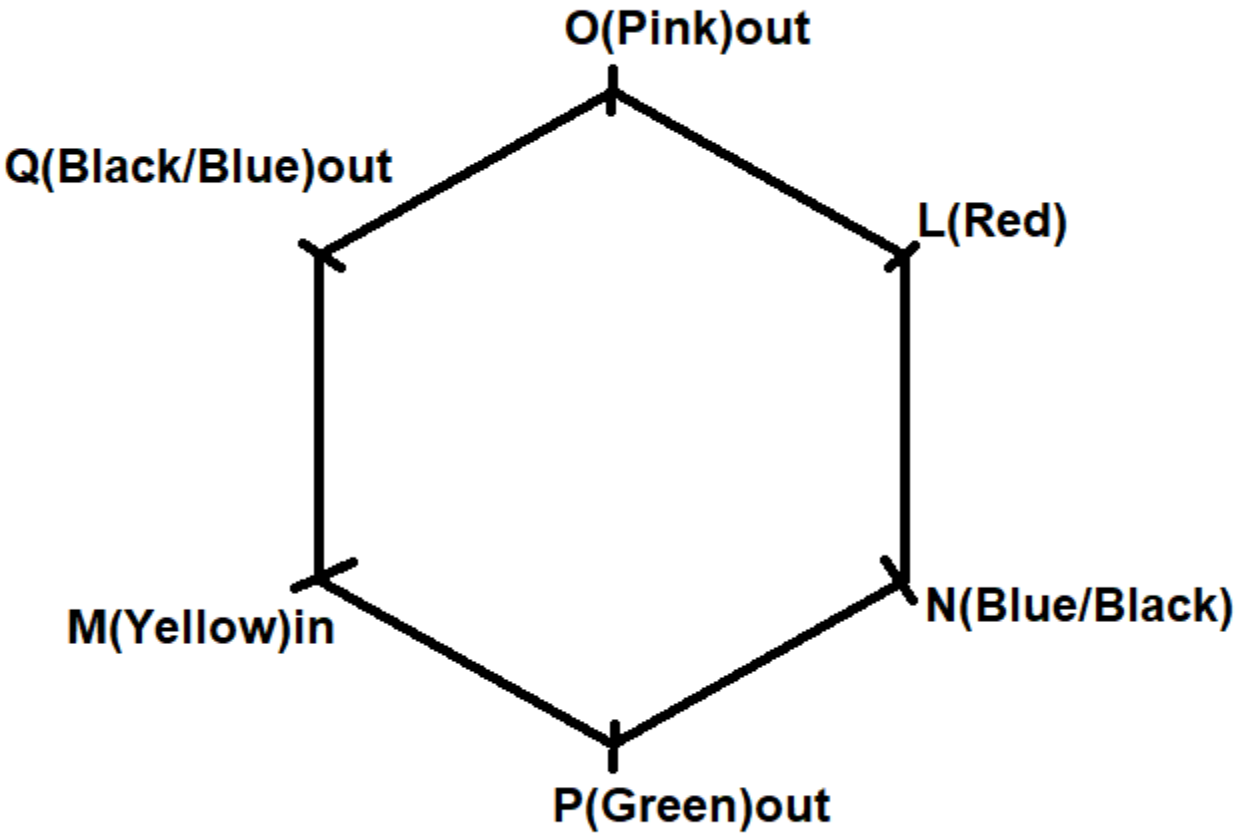
Inference: If L and P are sitting opposite to Q and adjacent to Q, then M and N cannot be placed in the arrangement, so P likes Green. So, M likes Yellow.

Case 1: When Q is facing the centre. Person, who likes Yellow is not facing away from the centre, so this case is not possible.



Case 2: When Q is facing away from the centre.

The final arrangement is as follows:



O likes Pink.

Hence, option d.

47. ____ is sitting adjacent to the person, who is sitting 3rd to the right of O.

A - N

B - Q

C - L

D - P

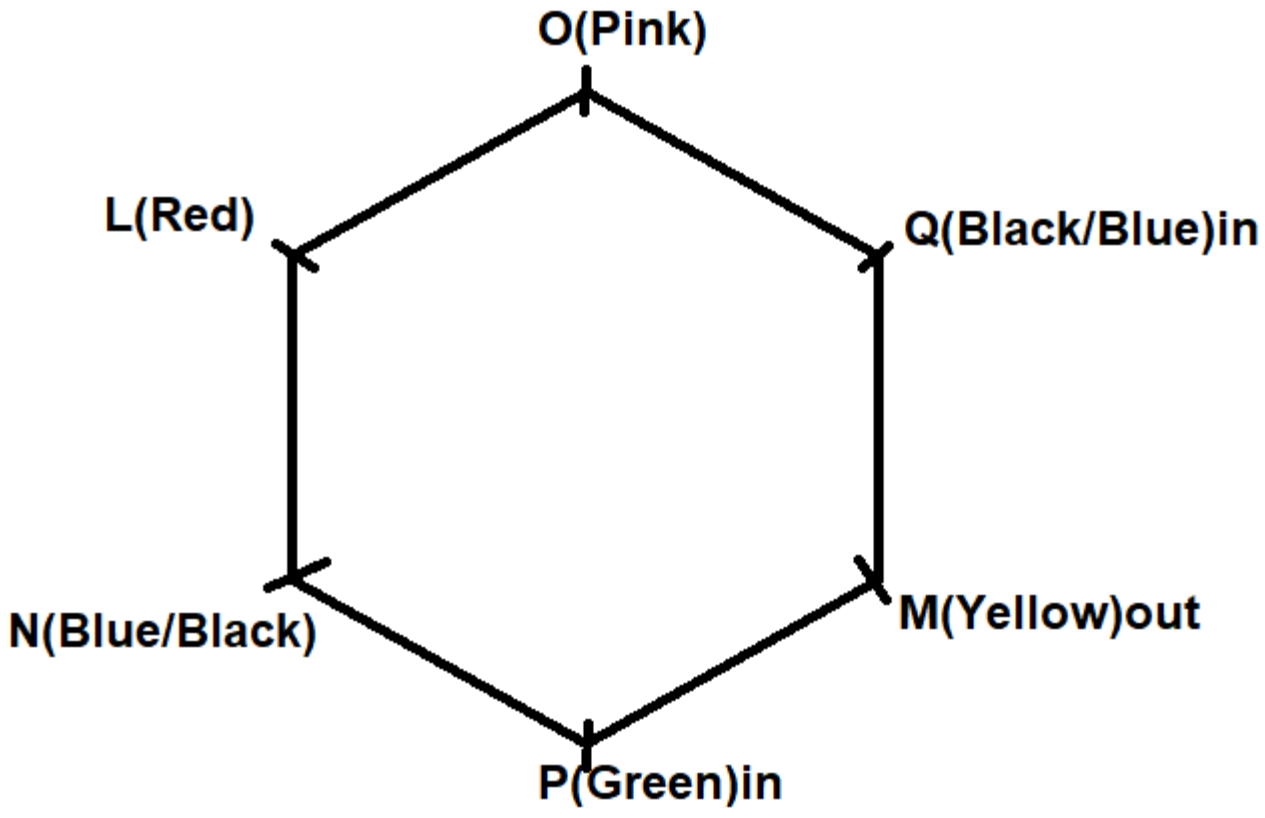
Solution

Starting point: Start placing Q and the person, who likes Green. They are either facing towards or away from the centre. O is sitting immediate right of Q.

Clues: One person is sitting between P and L, who likes Red. Neither M nor N is sitting adjacent to O, who is facing the opposite direction of M. Person, who likes Black is sitting opposite to the one, who likes Blue. M doesn't sit immediately left of P. Person sitting adjacent to P likes Yellow. Person, who likes Yellow is not facing away from the centre.

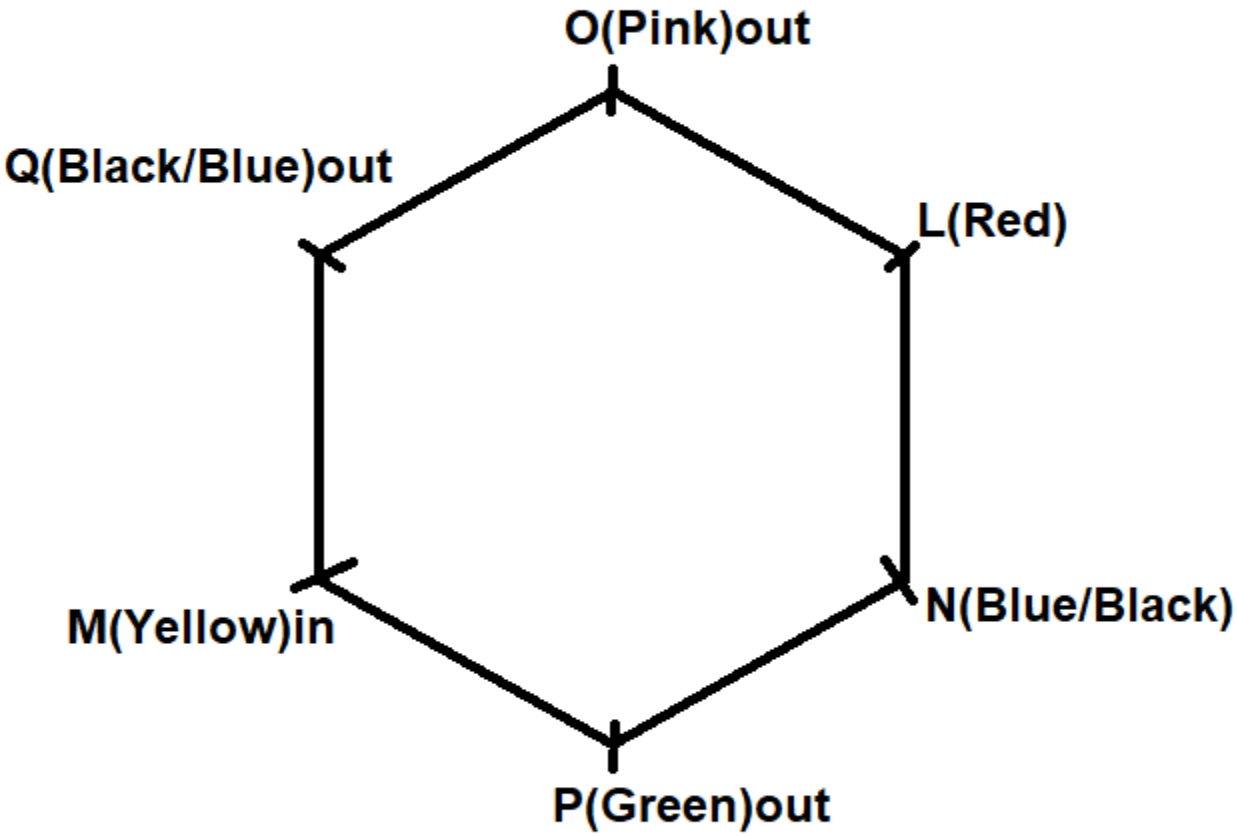
Inference: If L and P are sitting opposite to Q and adjacent to Q, then M and N cannot be placed in the arrangement, so P likes Green. So, M likes Yellow.

Case 1: When Q is facing the centre. Person, who likes Yellow is not facing away from the centre, so this case is not possible.



Case 2: When Q is facing away from the centre.

The final arrangement is as follows:



N is sitting adjacent to P, who is sitting 3rd to the right of O.

Hence, option a.

Logical inequalities

48. In the question, assuming the given statements to be true, find which of the conclusion (s) among given three conclusions is /are definitely true and then give your answer accordingly.

Statements: $X \leq J = 7$; $9 < X \geq 5$; $V < 7 \leq D$

Conclusions:

I. $9 < 7$

II. $D \geq X$

III. $V < 5$

A -

Only conclusion I is true.

B -
Both conclusions I and II are true.

C -
Both conclusions I and III are true.

D -
Only conclusion II is true.

Solution

Given statements: X ≤ J = 7; 9 < X ≥ 5; V < 7 ≤ D

On combining, we get

9 < X ≤ J = 7 ≤ D; V < 7 = J ≥ X ≥ 5

Conclusions:

I. 9 < 7: True (As 9 < X ≤ J = 7, so 9 < 7)

II. D ≥ X: True (As X ≤ J = 7 ≤ D, so D ≥ X)

III. V < 5: False (As V < 7 = J ≥ X ≥ 5, the relation between V and 5 can't be determined)

Hence, option b.

Alphabet test

49. How many pairs of letters are there in the word 'DETECTIVES' which has as many letters between them in the word as in the alphabetical series?

A -
Three

B -
Two

C -
One

D -
Zero

Solution

Given: DETECTIVES

DE, and TV are the two pairs which have as many letters between them in the given word ‘DETECTIVES’ as in the alphabetical series.

Hence, option b.

50. In the question below there are four statements followed by three conclusions I, II and III. You have to take the four given statements to be true even if they seem to be at variance from commonly known facts and then decide which of the given conclusions logically follows from the four statements disregarding commonly known facts.

Statements:

No FJJ are HJJ.

A few HJJ are LJJ

Every LJJ is YJJ.

1% YJJ are EJJ.

Conclusions:

I. A few LJJ are not FJJ.

II. Some FJJ being YJJ is a possibility.

III. No EJJ are LJJ.

A -
Only conclusion I follows

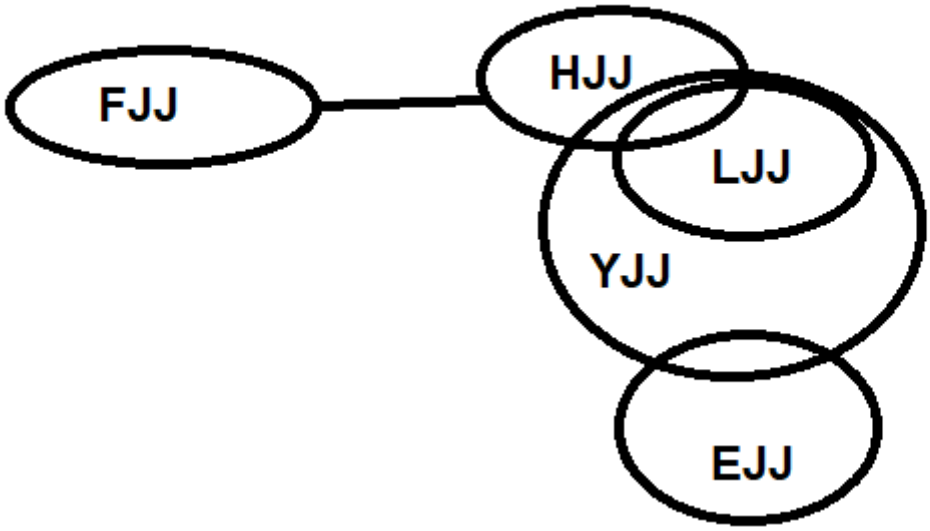
B -
Both conclusion I and conclusion II follow.

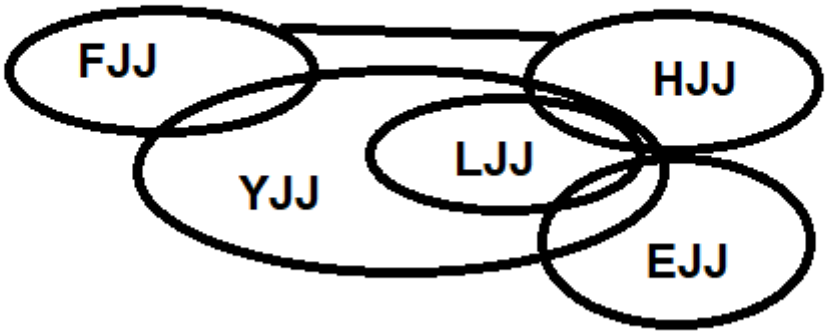
C -
Both conclusion II and conclusion III follow.

D -
Only conclusion II follows

Solution

Following figure can be formed:





From the figure, both conclusion I and conclusion II follow.

Hence, option b.

(51-52) Directions: Answer the questions based on the information given below.

Nine persons, J, K, L, M, N, O, P, Q and R have different number of boxes.

A@2 means 2 persons have less boxes than A.

A%B means A has less boxes than only B.

A&5 means A has more boxes than 5 persons.

L has more boxes than P and N. At most 2 persons have more boxes than J. P has more boxes than Q. N doesn’t have the lowest number of boxes.

K@2; R%M; O&5

51. How many persons have lesser number of boxes than J?’

A -
3

B -
4

C -
6

D -
5

Solution

Clues: L has more boxes than P and N. At most 2 persons have more boxes than J. P has more boxes than Q. N doesn’t have the lowest number of boxes.

K@2; R%M; O&5

Inference: K has 3rd lowest number of boxes. M has highest number of boxes. R has more boxes than J, who has 3rd highest number of boxes. O has more boxes than 5 persons.

The final arrangement is as follows:

M > R > J > O > L > P/N > K > N/P > Q

6 persons have lesser number of boxes than J.

Hence, option c.

52. Who has the 2nd lowest number of boxes?

A -
N

B -
P

C -
Q

D -
Cannot be determined

Solution

Clues: L has more boxes than P and N. At most 2 persons have more boxes than J. P has more boxes than Q. N doesn't have the lowest number of boxes.

K@2; R%M; O&5

Inference: K has 3rd lowest number of boxes. M has highest number of boxes. R has more boxes than J, who has 3rd highest number of boxes. O has more boxes than 5 persons.

The final arrangement is as follows:

M > R > J > O > L > P/N > K > N/P > Q

Either N or P has the 2nd lowest number of boxes.

Hence, option d.

Coding-decoding

(53-54) Directions: Answer the questions based on the information given below.

In a certain code of language,

'profits and margins list' is written as 'bkj mkj aqr cdr'

'price and profits here' is written as 'bkj aqr pir ghr'

'tender and margins now' is written as 'jkl aqr cdr tyr'

'companies small profits here' is written as 'rte qit bkj pir'

53.What is the code of "and"?

A -
cdr

B -
aqr

C -
mkj

D -
pir

Solution

From statement I, II and III, we conclude that ‘and’ is coded as ‘aqr’.

From statement I and III, we conclude that ‘margins’ is coded as ‘cdr’.

From statement III only, we conclude that ‘tender’ and ‘now’ is coded as ‘tyr’ and ‘jkl’.

From statement I only, we conclude that ‘list’ is coded as ‘mkj’.

From statement II and IV, ‘profits’ is coded as ‘bkj’

From statement II only, ‘price’ is coded as ‘ghr’

From statement IV only, we conclude that ‘small’ and ‘companies’ is coded as ‘qit’ and ‘rte’.

The final table is shown below:

Word	profits	and	margins	list	price	here	tender	now	companies	small
Code	bkj	aqr	cdr	mkj	ghr	pir	tyr/jkl	jkl/tyr	rte/qit	qit/rte

The code of the word ‘and’ is ‘aqr’.

Hence, option b.

54. Directions: Answer the questions based on the information given below.

In a certain code of language,

‘profits and margins list’ is written as ‘bkj mkj aqr cdr’

‘price and profits here’ is written as ‘bkj aqr pir ghr’

‘tender and margins now’ is written as ‘jkl aqr cdr tyr’

‘companies small profits here’ is written as ‘rte qit bkj pir’

What is the code of the word ‘small’?

A -
rte

B -
cdr

C -
pqr

D -
Can’t be determined

Solution

From statement I, II and III, we conclude that ‘and’ is coded as ‘aqr’.

From statement I and III, we conclude that ‘margins’ is coded as ‘cdr’.

From statement III only, we conclude that ‘tender’ and ‘now’ is coded as ‘tyr’ and ‘jkl’.

From statement I only, we conclude that ‘list’ is coded as ‘mkj’.

From statement II and IV, ‘profits’ is coded as ‘bkj’

From statement II only, ‘price’ is coded as ‘ghr’

From statement IV only, we conclude that ‘small’ and ‘companies’ is coded as ‘qit’ and ‘rte’.

The final table is shown below:

Word	profits	and	margins	list	price	here	tender	now	companies	small
Code	bkj	aqr	cdr	mkj	ghr	pir	tyr/jkl	jkl/tyr	rte/qit	qit/rte

The code of the word ‘small’ is either ‘qit’ or ‘rte’

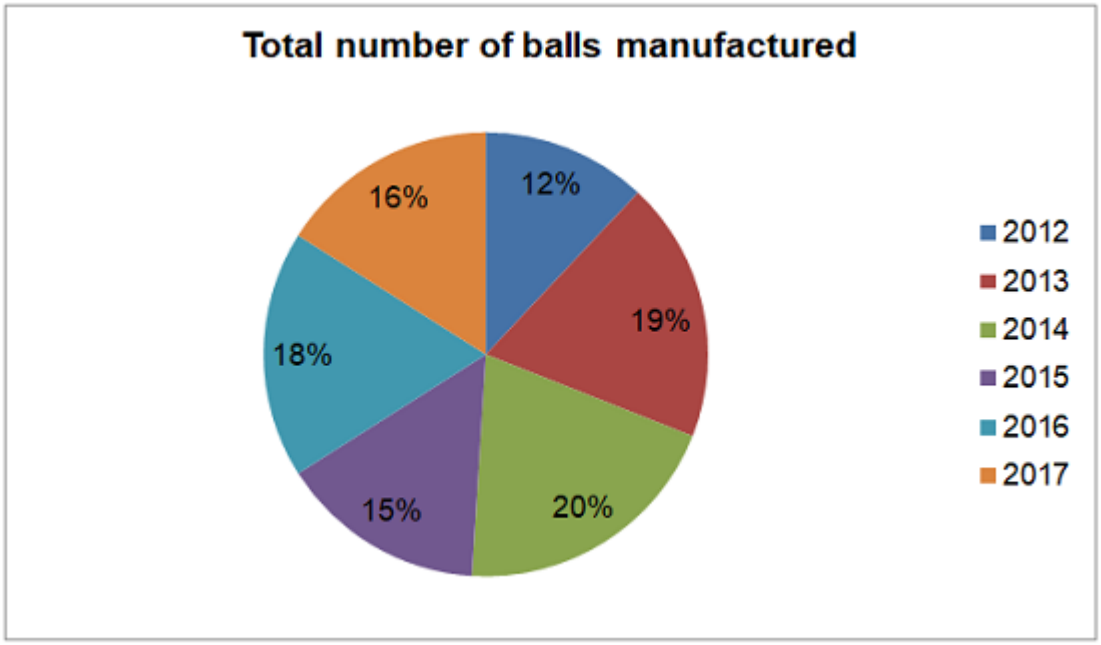
Hence, option d.

Numerical ability

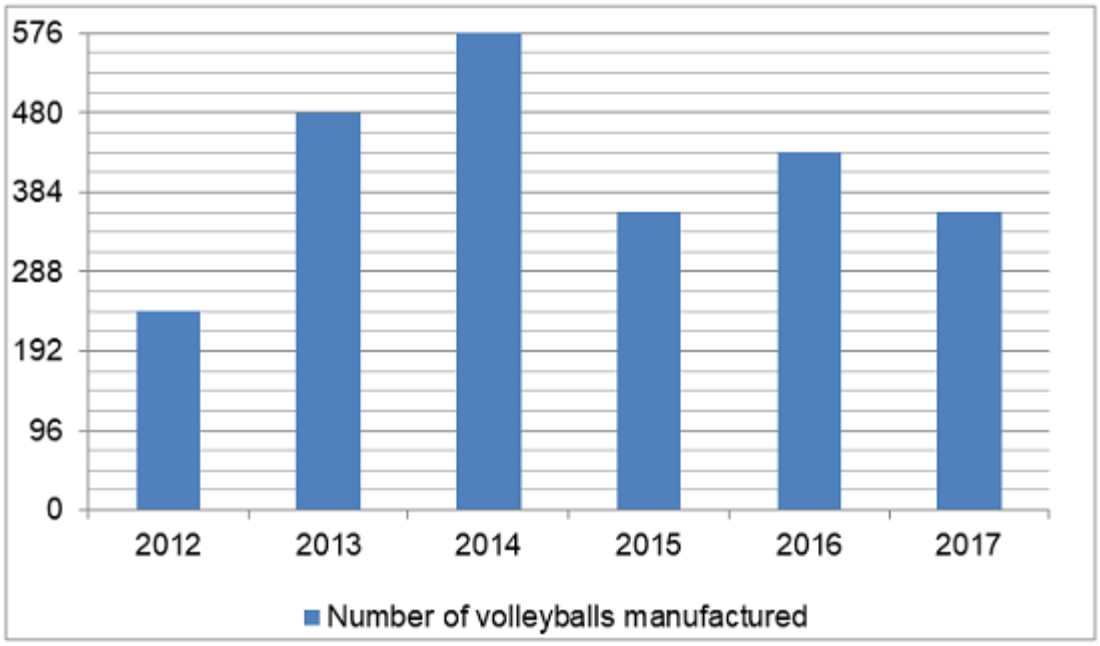
Data interpretation (pie chart, bar graphs on percentages & absolute values)

(55-57) Directions: Answer the questions based on the information given below.

A company manufactures two types of balls i.e. volleyball and football over six different years. The pie chart given below shows the percentage distribution of total number of balls manufactured by the company over the years. Total number of balls manufactured in all six years together is 4500.



The bar graph given below shows the number of volleyballs manufactured by the company in the respective years.



55. What is the ratio of number of volleyballs to number of footballs manufactured in 2015?

A -
6:5

B -
8:7

C -
9:7

D -
7:5

Solution

Years	Total number of balls manufactured	Number of volleyballs manufactured	Number of footballs manufactured
2012	0.12 × 4500 = 540	240	540 – 240 = 300
2013	0.19 × 4500 = 855	480	855 – 480 = 375
2014	0.20 × 4500 = 900	576	900 – 576 = 324

2015	0.15 × 4500 = 675	360	675 – 360 = 315
2016	0.18 × 4500 = 810	432	610 – 432 = 378
2017	0.16 × 4500 = 720	360	720 – 360 = 360

Desired Ratio = 360:315 = 8:7

Hence, option b.

56. 60% of the balls manufactured in 2013, 2015 and 2017 together are sold for charity purpose. Find total number of balls sold for charity purpose in these three years.

A -
750

B -
1250

C -
1350

D -
900

Solution

Years	Total number of balls manufactured	Number of volleyballs manufactured	Number of footballs manufactured
2012	0.12 × 4500 = 540	240	540 – 240 = 300
2013	0.19 × 4500 = 855	480	855 – 480 = 375
2014	0.20 × 4500 = 900	576	900 – 576 = 324
2015	0.15 × 4500 = 675	360	675 – 360 = 315

2016	0.18 × 4500 = 810	432	610 – 432 = 378
2017	0.16 × 4500 = 720	360	720 – 360 = 360

Total number of balls sold for charity purpose = 0.60 × (855 + 675 + 720) = 0.60 × 2250 = 1350

Hence, option c.

57. Number of volleyballs manufactured in 2013 is how much percent more/less than the number of footballs manufactured in the same year?

A -
24%

B -
28%

C -
32%

D -
26%

Solution

Years	Total number of balls manufactured	Number of volleyballs manufactured	Number of footballs manufactured
2012	0.12 × 4500 = 540	240	540 – 240 = 300
2013	0.19 × 4500 = 855	480	855 – 480 = 375
2014	0.20 × 4500 = 900	576	900 – 576 = 324
2015	0.15 × 4500 = 675	360	675 – 360 = 315
2016	0.18 × 4500 = 810	432	610 – 432 = 378

2017	0.16 × 4500 = 720	360	720 – 360 = 360

Desired Percentage = [(480 – 375)/375] × 100 = 28%

Hence, option b.

Q1 & Q2 comparison on Problems on trains, quadratic equations

58. In the question, Quantity I and Quantity II are given. You have to solve both the quantities to establish the correct relation between Quantity-I and Quantity-II and choose the correct option.

Quantity-I: A train travelling with a speed of 'x' m/s can cross a pole as well as a platform of length 324 metres in 12 seconds and 28.2 seconds respectively. Find the value of x.

Quantity-II: Find the value of 'x' if $x^2 – 27x + 140 = 0$

A -
Quantity-I > Quantity-II

B -
Quantity-I < Quantity-II

C -
Quantity-I ≤ Quantity-II

D -
Quantity-I ≥ Quantity-II

Solution

Quantity I:

Let length of train is 'l' metres

So, l = 12x

And, l + 324 = 28.2x

So, 12x + 324 = 28.2x

Or, 16.2x = 324

Or, x = 20

So, Quantity I = 20

Quantity II:

$x^2 – 27x + 140 = 0$

$x^2 – 20x – 7x + 140 = 0$

$x(x – 20) – 7(x – 20) = 0$

$(x – 20)(x – 7) = 0$

$x = 20, 7$

So, Quantity II = 20 or 7

Therefore, Quantity I ≥ Quantity II

Hence, option d.

Mixtures & allegations

59. A 432 ml of mixture contains milk and water in the ratio of 5:4 respectively. If 25% of the mixture is taken out and x ml of water and (2x – 40) ml of milk is added into the remaining mixture then the quantity of milk in the final mixture will be 76 ml more than that of water. Find the value of x.

A -
60

B -
75

C -
100

D -
80

Solution

Quantity of milk in 432 ml of mixture = 5/9 × 432 = 240 ml

Quantity of water in 432 ml of mixture = 4/9 × 432 = 192 ml

According to question;

0.75 × 240 + 2x – 40 = 0.75 × 192 + x + 76

Or, 180 + 2x – 40 = 144 + x + 76

Or, x = 80

Hence, option d.

Time & work

60. Tap A can fill 75% of the tank in 42 minutes while tap A and B together can fill the same tank in 96 minutes. Find the time in which 75% of completely filled tank will be emptied by tap B.

A -
100.8 minutes

B -
112.8 minutes

C -
80.8 minutes

D -
120.8 minutes

Solution

Total time taken by tap A to fill the tank = 42/0.75 = 56 minutes

Let total capacity of the tank = 672 litres

Quantity of water filled by tap A in one minute = 672/56 = 12 litres

Quantity of water filled by tap A and B together in one minute = 672/96 = 7 litres

Quantity of water emptied by tap B in one minute = 12 – 7 = 5 litres

Desired time = (0.75 × 672)/5 = 100.8 minutes

Hence, option a.

Ratios & proportions

61. A bag contains 688 coins consisting of 1 rupee, 50-paise and 25-paise coins, and their values being in the ratio of 10:12:13 respectively. Find the value of 50-paise, 1 rupee and 25-paise coins in the bag respectively.

A -
96, 80, 104

B -
80, 96, 104

C -
104, 80, 96

D -
80, 96, 104

Solution

Let value of 1 rupee, 50-paise and 25-paise coins be Rs. 10x, 12x and 13x respectively

Number of 1 rupee coins = 1 × 10x = 10x

Number of 50-paise coins = 12x × 2 = 24x

Number of 25-paise coins = 13x × 4 = 52x

So, 10x + 24x + 52x = 688

86x = 688

x = 8

Therefore, values of 1 rupee, 50-paise and 25-paise coins are Rs. 80, Rs. 96 and Rs. 104 respectively.

Hence, option a.

Partnership

62. A and B entered into a business with a total investment of Rs. 4750. After one year, A and B made additional investments of Rs. 300 and Rs. 280 respectively. If the ratio of the profit shares of A to B is 5:3 then find the initial investment made by B.

A -
Rs. 3000

B -
Rs. 1750

C -
Rs. 3500

D -

Rs. 2250

Solution

Let initial investment made by A is Rs. x

Initial investment made by B = Rs. (4750 – x)

Ratio of profit share of A to B = [x + x + 300]:[4750 – x + 4750 – x + 280]

So, (2x + 300)/(9780 – 2x) = 5/3

Or, (x + 150)/(4890 – x) = 5/3

Or, 3x + 450 = 24450 – 5x

Or, 8x = 24000

Or, x = 3000

So, initial investment made by B = 4750 – 3000 = Rs. 1750

Hence, option b.

Problems on trains

63. Train A and Train B of lengths 140 metres and 160 metres respectively can cross each other in 30 seconds and 5 seconds while moving in same and opposite directions respectively. Find the distance travelled by the train A in 7 hours 30 minutes if the speed of train A is more than that of train B.

A -
950 km

B -
875 km

C -
945 km

D -
925 km

Solution

Let speed of train A and train B be ‘x’ m/s and ‘y’ m/s respectively.

So, (140 + 160)/(x + y) = 5

x + y = 300/5 = 60……..(1)

And, (140 + 160)/(x – y) = 30

x – y = 300/30 = 10……..(2)

Solving (1) and (2), we get

x = 35 m/s and y = 25 m/s

Speed of train A = 35 × 18/5 = 126 km/h

Desired distance = 126 × 7.5 = 945 km

Hence, option c.

Boats & streams

64. Ratio of speed of a boat in still water to speed of stream is 14:3 respectively. If a boat can travel a distance of 99 km upstream and 119 km downstream together in 8 hours then find the total time taken by the boat to cover 84 km in still water and 51 km in downstream.

A -
3.5 hours

B -
5.5 hours

C -
4.5 hours

D -
2.5 hours

Solution

Let speed of boat in still water and speed of stream is 14x km/h and 3x km/h respectively.

Speed of boat in upstream = 14x – 3x = 11x km/h

Speed of boat in downstream = 14x + 3x = 17x km/h

According to question;

99/11x + 119/17x = 8

Or, 9/x + 7/x = 8

Or, x = 2

Speed of boat in still water = 14 × 2 = 28 km/h

Speed of boat in downstream = 17 × 2 = 34 km/h

Desired time = 84/28 + 51/34 = 3 + 1.5 = 4.5 hours

Hence, option c.

Volumes

65. A right angle triangle with base 24 cm and height 7 cm is rotated along its base. Find the total surface area of the cone thus formed.

A -
724 cm^2

B -
704 cm^2

C -
744 cm^2

D -
684 cm^2

Solution

Slant height of the cone = hypotenuse of the triangle = $\sqrt{(7^2 + 24^2)}$ = 25 cm

When the triangle is rotated along its base then:

Radius of cone formed = height of the triangle = 7 cm

Height of the cone formed = base of the triangle = 24 cm

Desired Area = $\pi \times 7 \times 25 + \pi \times 7 \times 7 = 22 \times 25 + 22 \times 7 = 550 + 154 = 704\ cm^2$

Hence, option b.

Compound interest

66. Jyoti took a loan from a bank at 20% p.a. compound interest compounded annually for 3 years. She returned Rs. 3500 at the end of second year and

cleared all her dues by returning Rs. 1416 at the end of third year. Find the amount of loan taken by Jyoti from the bank.

A -
Rs. 3050

B -
Rs. 3750

C -
Rs. 3450

D -
Rs. 3250

Solution

Let amount of loan taken by Jyoti from the bank is Rs. x

According to question;

$1.20 \times \{1.44 \times x - 3500\} = 1416$

Or, $1.44x - 3500 = 1180$

Or, $1.44x = 4680$

Or, $x = 3250$

Hence, option d.

Averages

67. Average rainfall for a week is 44 cm while average rainfall except Thursday and Friday is 35.8 cm. Total rainfall on Friday is 15% more than total rainfall on Thursday. Find the rainfall on Thursday.

A -
58 cm

B -
62 cm

C -
50 cm

D -
60 cm

Solution

Total rainfall for the whole week = 44 × 7 = 308 cm

Total rainfall on Thursday and Friday = 308 – 5 × 35.8 = 129 cm

Let rainfall on Thursday be ‘x’ cm

Rainfall on Friday = 1.15x cm

According to question,

x + 1.15x = 129

Or, 2.15x = 129

Or, x = 60 cm

Hence, option d.

Ratios & proportions

68. Ratio of monthly income to monthly expenditure of A is 16:7. Ratio of monthly savings of A and B is 5:8 respectively and monthly savings of B is 20% more than his monthly expenditure. If monthly income of B is Rs. 10560, then find monthly income of A.

A -
Rs. 6000

B -
Rs. 7200

C -
Rs. 6400

D -
Rs. 5600

Solution

Let monthly income and monthly expenditure of A is Rs. 16x and Rs. 7x respectively.

Monthly savings of A = 16x – 7x = Rs. 9x

Monthly savings of B = 8/5 × 9x = Rs. 72x/5

Monthly expenditure of B = (72x/5)/1.2 = Rs. 12x

So, 12x + 72x/5 = 10560

Or, x + 6x/5 = 880

Or, x + 1.2x = 880

Or, 2.2x = 880

Or, x = 400

So, monthly income of A = 400 × 16 = Rs. 6400

Hence, option c.

Problems on ages

69. When Anup was born, his father was 36 years elder than his elder brother while his sister was 22 years younger than his mother. If Anup's brother is 8 years elder than Anup and his mother is 6 years younger than his father then find the age of Anup's sister when Anup will be 10 years old.

A -
18 years

B -
24 years

C -
16 years

D -
26 years

Solution

Let age of Anup when he was born = 0 years

Age of Anup's brother = 0 + 8 = 8 years

Age of Anup's father = 8 + 36 = 44 years

Age of Anup's mother = 44 – 6 = 38 years

Age of Anup's sister = 38 – 22 = 16 years

Age of Anup's sister when Anup will be 10 years old = 16 + 10 = 26 years

Hence, option d.

Averages

70. There are four numbers a, b, c and d. The average of ‘a’, ‘b’ and ‘c’ is 110 and the average of ‘b’, ‘c’ and ‘d’ is 90. If the value of ‘d’ is 60, then find the value of ‘a’.

A -
120

B -
150

C -
90

D -
180

Solution

According to the question,

(a + b + c) = 110 × 3 = 330..... (1)

Also, (b + c + d) = 90 × 3 = 270..... (2)

On subtracting equation (2) from (1), we get

(a – d) = 60

Or, a = 60 + 60 = 120

Hence, option a.

Time & distance

71. Ram heard the sound of a bullet which is fired 2.4 km away from him after 25 seconds from the time of firing. Find the speed of the sound of the bullet.

A -
84 m/s

B -
96 m/s

C -

72 m/s

D -
108 m/s

Solution

Speed of the sound of the bullet = (2.4 × 1000)/25 = 96 m/s

Hence, option b.

Discounts

72. Find the equivalent discount of three successive discounts of 15%, 20% and 25%, respectively.

A -
49%

B -
52%

C -
35%

D -
42%

Solution

Equivalent discount percentage of 15% and 20% = 15 + 20 – (15 × 20)/100 = 32%

Equivalent discount percentage of 32% and 25% = 32 + 25 – (32 × 25)/100 = 49%

Hence, option a.

Ratios & proportions

73. The ratio of the number of lotus and Lily flowers in a pond is 8:5. When 18 lotus and 8 lily flowers were plucked, the total number of flowers left becomes 20% less than the original. Find the original number of lotus flowers in the pond.

A -
80

B -
72

C -
50

D -
40

Solution

According to the question,

Let the number of Lotus and Lily flowers in the pond be 8x and 5x respectively.

According to the question,

$(8x – 18 + 5x – 8) = 0.80(8x + 5x)$

Or, $13x – 26 = 10.4x$

Or, $2.6x = 26$

Or, $x = 10$

Therefore, original number of lotus flowers = $8x = 80$

Hence, option a.

Algebra

74. If $(2p/p^2 + 2p + 1) = 1/10$, then find the value of $(p + 1/p)$.

A -
12

B -
15

C -
20

D -
18

Solution

Taking the reciprocal of the expression,

$(p/2 + 1/2p + 1) = 10$

Or, $(1/2))(p + 1/p) = 9$

Or, $(p + 1/p) = 18$

Hence, option d.

Simple interest

75. A certain sum gives the interest equals to $3/5^{th}$ of the sum when invested for 5 years at simple interest. Find the rate of simple interest.

A -
15%

B -
10%

C -
12%

D -
20%

Solution

Let the sum invested be Rs. x and the rate of the interest be r% p.a.

According to te question,

$(x \times 5 \times r)/100 = 3x/5$

Or, r = 12%

Hence, option c.

Trigonometry (heights & distance)

76. The angle of elevation of top of a pole from the foot and top of a 50 m high building is 60^o and 30^o respectively. Find the height of the pole.

A -
75 metres

B -
60 metres

C -
90 metres

D -
120 metres

Solution

According to the question,

Therefore, $\tan 60^o = (50 + h)/ED$

Or, $ED = (h + 50)/\sqrt{3}$

Also, $\tan 30^o = h/BC$

Or, $BC = \sqrt{3}h$

Since,

$ED = BC$

Or, $3h = h + 50$

Or, $h = 25$ m

Therefore, height of the pole = (25 + 50) = 75 metres

Hence, option a.

Geometry (triangles)

77. The centroid of a triangle is a point where

A -
Angle bisectors of the triangle meet

B -
Altitudes of the triangle meet

C -
Medians of the triangle meet

D -
None of these

Solution

Centroid of a triangle is a point where medians of the triangle meet.

Hence, option c.

Trigonometry

78. If cotx = 15/8, then find the value of √(1 – cosx)/(1 + cosx).

A -
1/2

B -
1/4

C -
1/3

D -
1/6

Solution

Given cotx = 15/8 = b/p

Therefore, h = √(15^2 + 8^2)

Or, h = 17

√(1 – cosx)/(1 + cosx)

Or, √(1 – cosx)(1 – cosx)/(1 – $\cos^2$x) = (1 – cosx)/sinx

Putting the value of sinx = p/h and cosx = b/h

We get, √(1 – cosx)/(1 + cosx) = 1/4

Hence, option b.

Data interpretation (tabular form on percentages)

79. The given table shows the monthly income of five different persons. Out of the total income, each spends certain percentage on four different items and saves the rest.

	A (Rs.	B (Rs.	C (Rs.	D (Rs.	E (Rs.

	36000)	42000)	24000)	48000)	56000)
Food	20%	25%	30%	15%	25%
Education	25%	15%	20%	25%	30%
Rent	30%	20%	25%	40%	20%
Travelling	10%	10%	15%	10%	15%

Find the average monthly savings of all the five persons.

A -
Rs. 4680

B -
Rs. 5420

C -
Rs. 6160

D -
Rs. 7240

Solution

Monthly savings of 'A' = (1 – 0.20 – 0.25 – 0.30 – 0.10) × 36000 = 0.15 × 36000 = Rs. 5400

Monthly savings of 'B' = (1 – 0.25 – 0.15 – 0.20 – 0.10) × 42000 = 0.30 × 42000 = Rs. 12600

Monthly savings of 'C' = (1 – 0.30 – 0.20 – 0.25 – 0.15) × 24000 = 0.10 × 24000 = Rs. 2400

Monthly savings of 'D' = (1 – 0.15 – 0.25 – 0.40 – 0.10) × 48000 = 0.10 × 48000 = Rs. 4800

Monthly savings of 'E' = (1 – 0.25 – 0.30 – 0.20 – 0.15) × 56000 = 0.10 × 56000 = Rs. 5600

Required average = (5400 + 12600 + 2400 + 4800 + 5600)/5 = Rs. 6160

Hence, option c.

Time & work

80. ‘A’ and ‘B’ together can complete a work in 16 days. If ‘B’ had worked alone, then would have taken 8 days more to complete the work. How many days ‘A’ will take to complete the same work alone?

A -
54 days

B -
36 days

C -
48 days

D -
30 days

Solution

Time taken by ‘B’ to complete the work alone = 16 + 8 = 24 days

Let the total work = 48 units (L.C.M of 16 and 24)

Efficiency of ‘A’ and ‘B’ together = 48/16 = 3 units/day

Efficiency of ‘B’ = 48/24 = 2 units/day

Therefore, efficiency of ‘A’ = (3 – 2) = 1 unit/day

Therefore, time taken by ‘A’ to complete the work alone = 48/1 = 48 days

Hence, option c.