

All India Maha Mock NIACL AO Pre 13-Oct-2021 (Solutions)

S1. Ans.(e)

Sol. Reading the second paragraph of the passage it can be deduced that the correct answer is option (e). The relevant sentences of the mentioned sentences have been quoted below: -

“Proteins are ubiquitous in all organisms. By comparing and analysing protein structures, it is possible to get ideas about biological evolution, diseases, defence mechanisms, etc.”

S2. Ans.(c)

Sol. Refer to the 4th paragraph of the passage- “But getting the three-dimensional structures of proteins was so far possible only experimentally through time-consuming and expensive techniques of X-ray crystallography, nuclear magnetic resonance and cryo-electron microscopy”. It clearly shows that X-ray crystallography & nuclear magnetic resonance are expensive and time consuming.

Refer to 5th para of the passage—“But DeepMind’s AlphaFold team led by Demis Hassabis and John Jumper changed tack and switched to ‘attention-based’ deep learning which has been successful in image and speech recognition. This method used in AlphaFold2 is analogous to how people tend to solve jigsaw puzzles paying attention to the pieces that fit locally while keeping the whole picture in mind.”

S3. Ans.(d)

Sol. Option (d) is the correct choice.

(i)- the use of ‘only’ makes it incorrect because recently the AI-based program, AlphaFold2, from the company DeepMind, has stunned the world by accurately and quickly predicting the structure of proteins, starting from the sequences of amino acids that constitute them.

(ii)- refer to the 4th paragraph of the passage- “Proteins, along with nucleic acid sequences that make a genome, form the basis of all organisms. Technology has advanced so much that it is routine and inexpensive to sequence genomes. The sequences of amino acids that form the proteins are encoded in genes which are part of the genome. Therefore, translating and getting the sequences of proteins is easy.”

(iii)- refer to the 2nd paragraph of the passage - “Proteins are ubiquitous in all organisms. By comparing and analysing protein structures, it is possible to get ideas about biological evolution”

S4. Ans.(c)

Sol. Among the given words, ‘forecast’ is the synonym of ‘prediction’. Hence, option (c) is the most suitable answer choice.

Habitual- means- constant

Rain-check- means- pass

Feast-means- a large celebratory meal

Adherence-means- attachment

S5. Ans.(b)

Sol. Subsequent: coming after or later hence previous is the word which is most similar in meaning.

Ensuing: to happen after (and often as a result of) something else

Posterior: Coming after

Sequential: following in order of time or place

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S6. Ans.(e)

Sol. Among the given options, only (c) and (d) contextually derive the meaning of the sentence. (b) is incorrect because it says it would be impossible to sequence genomes but the given statement in question states that the cost is reduced due to advancement and does not talk about the fact mentioned in (b)

S7. Ans.(b)

Sol. Among the given words, 'consolidate' is the synonym of 'compact'. Hence, option (b) is the most suitable answer choice. All the other words are antonyms of 'compact'.
Compact- means- concise.

S8. Ans.(c)

Sol. The correct arrangement of words is- "CAB". The sentence hence formed is- "The Supreme Court in its recent **verdict** upheld the land **acquisition** deal related to Chennai-Salem **Highway**."

S9. Ans.(b)

Sol. The correct arrangement of words is- "BAC". The sentence hence formed is- "The Indian **form** of political **structure** is democratic, pluralistic and **parliamentary**"

S10. Ans.(c)

Sol. The correct arrangement of words is- "CAB". The sentence hence formed is- "The High court has shown **greater** sensitivity to possible **livelihood** and ecological **concerns**."

S11. Ans.(e)

Sol. The sentence needs no correction- "While **states** such as West Bengal and Uttar Pradesh feature **prominently** in the media for notorious **reasons**."

S12. Ans.(a)

Sol. The correct arrangement of words is- "ACB". The sentence hence formed is- The country needs to **retain** its financial **commitments** for nutrition schemes it has **earmarked**.

S13. Ans.(c)

Sol. All the sentences except (c) are grammatically incorrect. Let us see the changes needed to make- In sentence (a)-Ancient India **has** made contributions to several complex and present-day scientific achievements.

RULE- Singular subject is followed by singular helping verb. India is a noun; it will be supported by a singular helping verb.

In sentence (b)- If one is to look **at** a new report, by Stanford University, U.S. on the world ranking of scientists it paints a positive picture

RULE- preposition 'at' is used when we refer to- time, place, building, or a specific object.

In sentence (d)- In certain disciplines, a **larger** number of scientists have secured a place in the list, whereas in some disciplines, only one scientist could be included.

RULE- In case of a comparative degree we use the second form of adjective (-er). The third degree of comparison is the final comparison.

S14. Ans.(c)

Sol. All the sentences except (c) are grammatically incorrect. Let us see the changes needed to make:-

In sentence (a) The vaccines **are** here but they'll be no good without willing arms to take shots

RULE- Plural subject is followed by plural helping verb.

In sentence (b) Rumours flying around on social media don't make the task **easier**.

RULE- In case of a comparative degree we use the second form of adjective (-er). The third degree of comparison is the final comparison

In sentence (d) if you experience side effects after taking your vaccine shot, it **is** nothing to worry about.

RULE- 'it' is a gender-neutral pronoun, which is used to refer to a situation also. It is always followed by the helping verb - 'is'.

S15. Ans.(a)

Sol. All the sentences except (a) are grammatically incorrect. Let us see the changes needed to make

In sentence (b) The initiative **was** launched after the US refused to give India crucial GPS information during the Kargil war in 1999.

RULE- the time period mentioned is in the past, we will use the past tense.

In sentence (c) It is powered by a constellation of seven satellites, all of **which** are positioned around 36,000 kilometres from Earth.

RULE- For non-living object, and to refer to the subject already mentioned in the sentence we use-WHICH. WHOSE -is the possessive version of the relative pronoun of who used for living persons.

In sentence (d) Europe's Galileo system, which began operations in 2016, **has** a constellation of 30 satellites powering its navigation.

RULE- If the subject is singular, the verb must be singular too

S16. Ans.(d)

Sol. All the sentences except (d) are grammatically incorrect. Let us see the changes needed to make:

In sentence (a) He **said** that his transactions were completely disclosed and transparent.

RULE- In case of active voice, we use the reporting speech in first person. 'asked' is used in case of question or while giving orders.

In sentence (b) The CEO **said** that he did not have the clue why the matter suddenly popped up

RULE- 'did' is the past participle of 'do'. Hence, the reporting speech will also be in past not simple present.

In sentence (c) The song is **shown** after Charles begins to resent her popularity

RULE- the correct third form of the verb 'show' is 'shown'.

S17. Ans.(a)

Sol. All the sentences except (a) are grammatically incorrect. Let us see the changes needed to make:-

In sentence (b) With people online **making** jokes and memes about the same, the teacher also joined.

RULE- In case of present continuous tense, we use the format- subject+is/am/are+V1+ing. It denotes the ongoing action.

In sentence (c) The old Parliament house **gave** direction to the country post-independence, the new one would be a witness to the making of a self-reliant India.

RULE- the sentence is in simple present, referring to past. In such cases, the reference to past is in the format- subject+was/were+V2. The correct tense used will be- GAVE.

In sentence (d) We, the people of India, together **will build** this new building of Parliament

RULE- verb + s/es is used in cases of simple present. This sentence is in simple present tense referring to a future action yet to occur, in such cases we take the help of 'will'.

S18. Ans.(e)

Sol. All the sentence uses the correct form of imperfect.

IMPERFECT means something that is not perfect, not pure, or containing faults.

S19. Ans.(d)

Sol. Only (i) and (iii) use the word correctly.

FOUNDATION means base on which the building is made.

S20. Ans.(d)

Sol. Only (i) and (ii) use the word correctly.

SELDOM means not happening regularly or not happening on usual intervals.

S21. Ans.(d)

Sol. Only (ii) and (iii) use the word correctly.

ERUPT means to become active or to vent out.

S22. Ans.(e)

Sol. All the sentences use the word correctly.

MARGINAL (adj) means (1) minor and not important; not central.; (2) relating to or at the edge or margin.

S23. Ans.(a)

Sol. The President of India is a phrase with which we use ('s). Hence, it will be The President of India's in the first part.

S24. Ans.(e)

Sol. The sentence is grammatically correct.

S25. Ans.(a)

Sol. Instead of "blind's life" we will use "life of the blinds" because an adjective is never used as possessive.

S26. Ans.(c)

Sol. The correct sentence after fill up is- "The proposal offered a **written** assurance that government **procurement** at minimum support price would remain"

S27. Ans.(b)

Sol. The correct sentence after fill up is- "**Neither** company presented complete **data** from their ongoing Phase 3 trials."

S28. Ans.(a)

Sol. The correct sentence after fill up is- "Without the **rules** being notified, the Act remains ineffective, quoted the **Ministry**."

S29. Ans.(e)

Sol. The correct sentence after fill up is- "Lipids are relatively **less** prone to degradation and have been **discovered** in pottery from archaeological contexts"

S30. Ans.(c)

Sol. The correct sentence after fill up is: - “The laundry room comprises two **washing** machines and over half-a-dozen plastic **tubs**.”

S31. Ans.(c)

Sol. From the given statements, only three boxes are kept above box P. Two boxes are kept between box P and box T. From here we have two possible cases, Case 1 and Case 2. Only one box is kept between box S and box V. Box S is kept above box V. Box R is kept immediately above box V.

Case-1 Case-2

S	T
R	
V	
P	P
	S
	R
T	V

Now, three boxes are kept between box S and box Q. From here our Case-2 gets eliminated. So, our final arrangement will be:

S
R
V
P
Q
U
T

S32. Ans.(b)

Sol. From the given statements, only three boxes are kept above box P. Two boxes are kept between box P and box T. From here we have two possible cases, Case 1 and Case 2. Only one box is kept between box S and box V. Box S is kept above box V. Box R is kept immediately above box V.

Case-1 Case-2

S	T
R	
V	
P	P
	S
	R
T	V

Now, three boxes are kept between box S and box Q. From here our Case-2 gets eliminated. So, our final arrangement will be:

S
R
V
P
Q
U
T

S33. Ans.(d)

Sol. From the given statements, only three boxes are kept above box P. Two boxes are kept between box P and box T. From here we have two possible cases, Case 1 and Case 2. Only one box is kept between box S and box V. Box S is kept above box V. Box R is kept immediately above box V.



Case-1	Case-2
S	T
R	
V	
P	P
	S
	R
T	V

Now, three boxes are kept between box S and box Q. From here our Case-2 gets eliminated. So, our final arrangement will be:

S
R
V
P
Q
U
T

S34. Ans.(c)

Sol. From the given statements, only three boxes are kept above box P. Two boxes are kept between box P and box T. From here we have two possible cases, Case 1 and Case 2. Only one box is kept between box S and box V. Box S is kept above box V. Box R is kept immediately above box V.

Case-1	Case-2
S	T
R	
V	
P	P
	S
	R
T	V

Now, three boxes are kept between box S and box Q. From here our Case-2 gets eliminated. So, our final arrangement will be:

S
R
V
P
Q
U
T

S35. Ans.(d)

Sol. From the given statements, only three boxes are kept above box P. Two boxes are kept between box P and box T. From here we have two possible cases, Case 1 and Case 2. Only one box is kept between box S and box V. Box S is kept above box V. Box R is kept immediately above box V.

Case-1 Case-2

S	T
R	
V	
P	P
	S
	R
T	V

Now, three boxes are kept between box S and box Q. From here our Case-2 gets eliminated.

So, our final arrangement will be:

S
R
V
P
Q
U
T

S36. Ans.(c)

Sol. @9P #2D &0K

S37. Ans.(b)

Sol. @V3 @B4

S38. Ans.(d)

Sol. N*9 F&0 D#2 K@9

S39. Ans.(e)

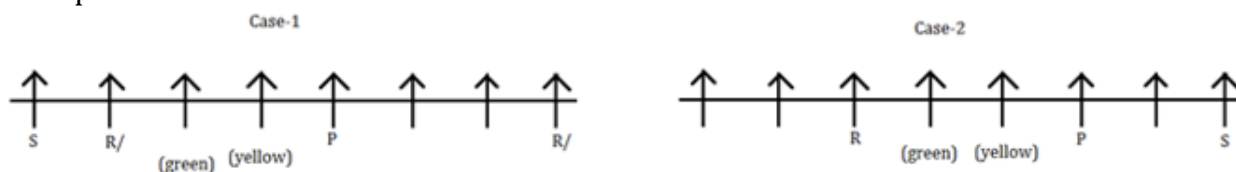
Sol. P 8 % Z 8 % # @ V 3 % B 0 % C N * 9 @ B 4 % D % @ 8 4 D # 2 D K @ 9 P F & 0 K R #

S40. Ans.(d)

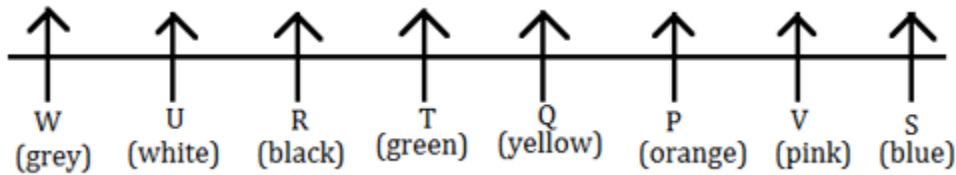
Sol. "9"

S41. Ans.(b)

Sol. From the given statements, S sits at one of the extreme ends of row. Here, we get two possibilities i.e. case 1 and case2. Two person sits between S and the one who likes yellow colour. The person who likes green colour is immediate left of yellow colour. P sits second to the right of person, who likes green colour. Two person sits between P and R.



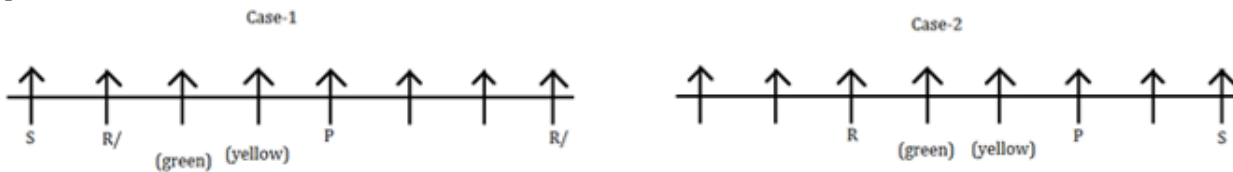
From the given statements, there are four persons sitting between P and the one who likes grey colour. Here case 1 ruled out and case 2 continued. U and W are sitting together. U likes White colour. V likes pink colour and the person who likes blue colour sits second to the right of the one who likes orange colour. T sits to the immediate left of Q. P likes orange colour. So, final arrangement will be:



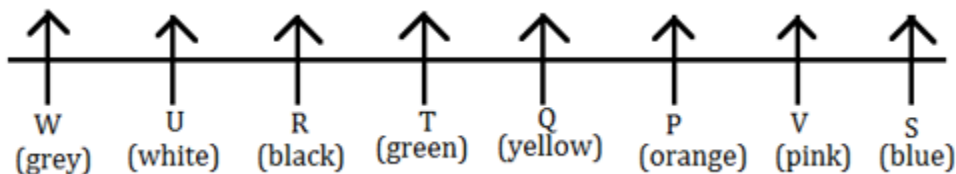
S42. Ans.(a)

Sol.

From the given statements, S sits at one of the extreme ends of row. Here, we get two possibilities i.e. case 1 and case2. Two person sits between S and the one who likes yellow colour. The person who likes green colour is immediate left of yellow colour. P sits second to the right of person, who likes green colour. Two person sits between P and R.



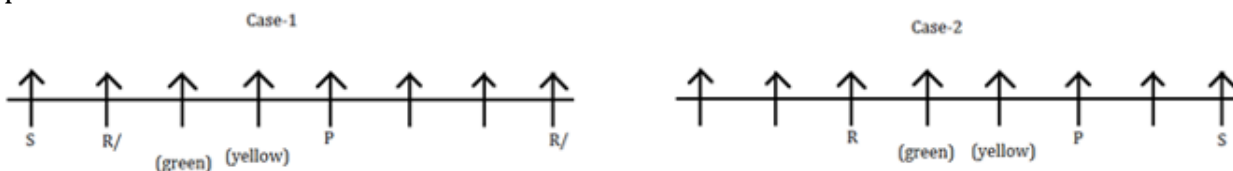
From the given statements, there are four persons sitting between P and the one who likes grey colour. Here case 1 ruled out and case 2 continued. U and W are sitting together. U likes White colour. V likes pink colour and the person who likes blue colour sits second to the right of the one who likes orange colour. T sits to the immediate left of Q. P likes orange colour. So, final arrangement will be:



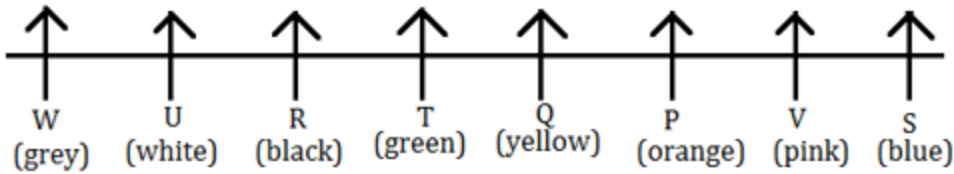
S43. Ans.(a)

Sol.

From the given statements, S sits at one of the extreme ends of row. Here, we get two possibilities i.e. case 1 and case2. Two person sits between S and the one who likes yellow colour. The person who likes green colour is immediate left of yellow colour. P sits second to the right of person, who likes green colour. Two person sits between P and R.

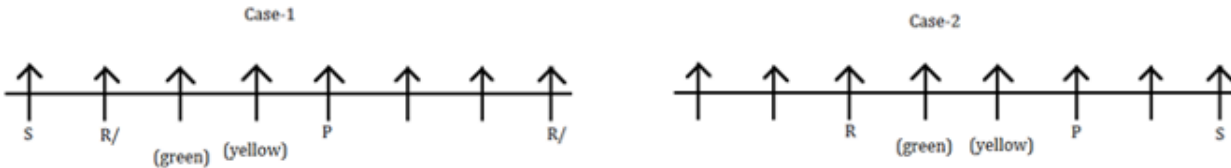


From the given statements, there are four persons sitting between P and the one who likes grey colour. Here case 1 ruled out and case 2 continued. U and W are sitting together. U likes White colour. V likes pink colour and the person who likes blue colour sits second to the right of the one who likes orange colour. T sits to the immediate left of Q. P likes orange colour. So, final arrangement will be:

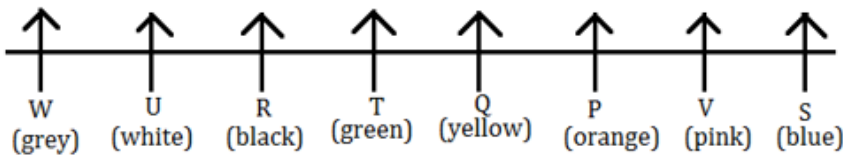


S44. Ans.(e)

Sol. From the given statements, S sits at one of the extreme ends of row. Here, we get two possibilities i.e. case 1 and case2. Two person sits between S and the one who likes yellow colour. The person who likes green colour is immediate left of yellow colour. P sits second to the right of person, who likes green colour. Two person sits between P and R.

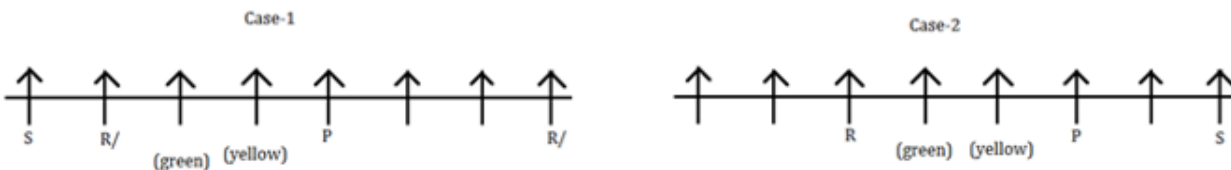


From the given statements, there are four persons sitting between P and the one who likes grey colour. Here case 1 ruled out and case 2 continued. U and W are sitting together. U likes White colour. V likes pink colour and the person who likes blue colour sits second to the right of the one who likes orange colour. T sits to the immediate left of Q. P likes orange colour. So, final arrangement will be:

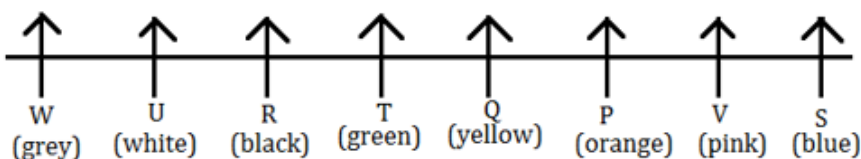


S45. Ans.(e)

Sol. From the given statements, S sits at one of the extreme ends of row. Here, we get two possibilities i.e. case 1 and case2. Two person sits between S and the one who likes yellow colour. The person who likes green colour is immediate left of yellow colour. P sits second to the right of person, who likes green colour. Two person sits between P and R.

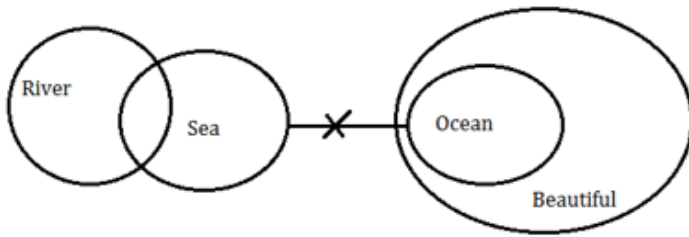


From the given statements, there are four persons sitting between P and the one who likes grey colour. Here case 1 ruled out and case 2 continued. U and W are sitting together. U likes White colour. V likes pink colour and the person who likes blue colour sits second to the right of the one who likes orange colour. T sits to the immediate left of Q. P likes orange colour. So, final arrangement will be:



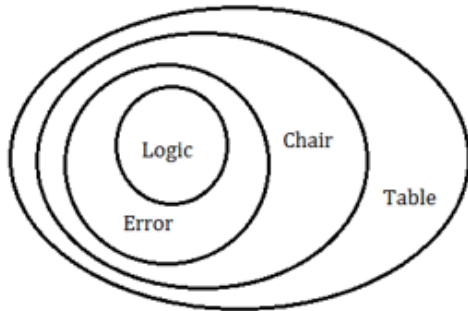
S46. Ans.(a)

Sol.



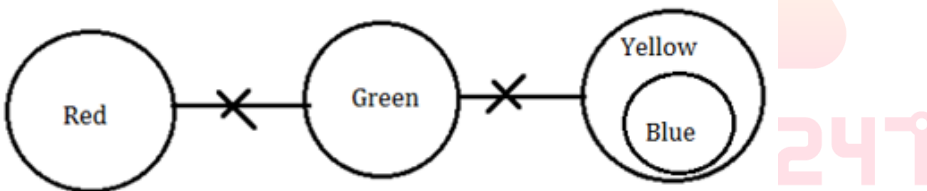
S47. Ans.(d)

Sol.



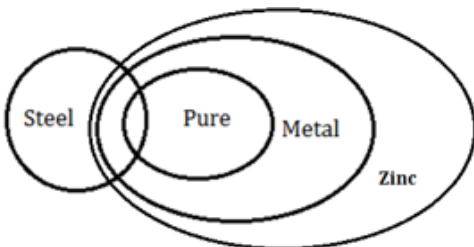
S48. Ans.(b)

Sol.



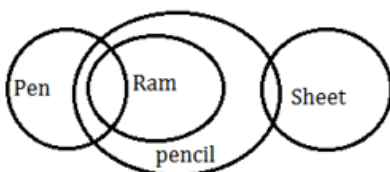
S49. Ans.(a)

Sol.



S50. Ans.(c)

Sol.



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S51. Ans.(d)

Sol.

I: $P \leq F$ (False)

II: $I > R$ (False)

S52. Ans.(b)

Sol.

I: $A > D$ (False)

II: $Q > H$ (True)

S53. Ans.(e)

Sol.

I: $X < E$ (True)

II: $L \leq E$ (True)

S54. Ans.(c)

Sol.

I: $H > O$ (False)

II: $H = O$ (False)

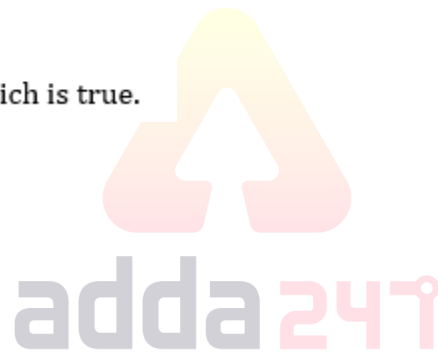
By Combining I & II we get $H \geq O$, which is true.

S55. Ans.(e)

Sol.

I: $S > E$ (True)

II: $I \geq O$ (True)



S56. Ans.(e)

Sol. From the given statements, T likes blue colour and works in Mi. U works in Nokia. P likes grey and works in iPhone. R likes yellow colour. S works in Vivo. W works in LG. The person who likes white colour works in Oppo. Q does not work in Motorola. V does not work in Oppo.

Person	Colour	Company
P	Grey	Iphone
Q	White	Oppo
R	yellow	Samsung/Motorola
S		Vivo
T	Blue	Mi
U		Nokia
V		Samsung/Motorola
W		LG

From the given statements, S does not like black, orange and green colour. The person who works in Nokia does not like green colour. The person who works in Samsung does not like orange colour. So, final arrangement will be:

Person	Colour	Company
P	Grey	Iphone
Q	White	Oppo
R	Yellow	Samsung
S	Pink	Vivo
T	Blue	Mi
U	Black	Nokia
V	Orange	Motorola
W	Green	Lg

S57. Ans.(c)

Sol.

From the given statements, T likes blue colour and works in Mi. U works in Nokia. P likes grey and works in iPhone. R likes yellow colour. S works in Vivo. W works in LG. The person who likes white colour works in Oppo. Q does not work in Motorola. V does not work in Oppo.

Person	Colour	Company
P	Grey	Iphone
Q	White	Oppo
R	yellow	Samsung/Motorola
S		Vivo
T	Blue	Mi
U		Nokia
V		Samsung/Motorola
W		LG

From the given statements, S does not like black, orange and green colour. The person who works in Nokia does not like green colour. The person who works in Samsung does not like orange colour. So, final arrangement will be:

Person	Colour	Company
P	Grey	Iphone
Q	White	Oppo
R	Yellow	Samsung
S	Pink	Vivo
T	Blue	Mi
U	Black	Nokia
V	Orange	Motorola
W	Green	Lg

S58. Ans.(a)

Sol. From the given statements, T likes blue colour and works in Mi. U works in Nokia. P likes grey and works in iPhone. R likes yellow colour. S works in Vivo. W works in LG. The person who likes white colour works in Oppo. Q does not work in Motorola. V does not work in Oppo.

Person	Colour	Company
P	Grey	Iphone
Q	White	Oppo
R	yellow	Samsung/Motorola
S		Vivo
T	Blue	Mi
U		Nokia
V		Samsung/Motorola
W		LG

From the given statements, S does not like black, orange and green colour. The person who works in Nokia does not like green colour. The person who works in Samsung does not like orange colour. So, final arrangement will be:

Person	Colour	Company
P	Grey	Iphone
Q	White	Oppo
R	Yellow	Samsung
S	Pink	Vivo
T	Blue	Mi
U	Black	Nokia
V	Orange	Motorola
W	Green	Lg

S59. Ans.(d)

Sol. From the given statements, T likes blue colour and works in Mi. U works in Nokia. P likes grey and works in iPhone. R likes yellow colour. S works in Vivo. W works in LG. The person who likes white colour works in Oppo. Q does not work in Motorola. V does not work in Oppo.

Person	Colour	Company
P	Grey	Iphone
Q	White	Oppo
R	yellow	Samsung/Motorola
S		Vivo
T	Blue	Mi
U		Nokia
V		Samsung/Motorola
W		LG

From the given statements, S does not like black, orange and green colour. The person who works in Nokia does not like green colour. The person who works in Samsung does not like orange colour. So, final arrangement will be:

Person	Colour	Company
P	Grey	Iphone
Q	White	Oppo
R	Yellow	Samsung
S	Pink	Vivo
T	Blue	Mi
U	Black	Nokia
V	Orange	Motorola
W	Green	Lg

S60. Ans.(a)

Sol. From the given statements, T likes blue colour and works in Mi. U works in Nokia. P likes grey and works in iPhone. R likes yellow colour. S works in Vivo. W works in LG. The person who likes white colour works in Oppo. Q does not work in Motorola. V does not work in Oppo.

Person	Colour	Company
P	Grey	Iphone
Q	White	Oppo
R	yellow	Samsung/Motorola
S		Vivo
T	Blue	Mi
U		Nokia
V		Samsung/Motorola
W		LG

From the given statements, S does not like black, orange and green colour. The person who works in Nokia does not like green colour. The person who works in Samsung does not like orange colour. So, final arrangement will be:

Person	Colour	Company
P	Grey	Iphone
Q	White	Oppo
R	Yellow	Samsung
S	Pink	Vivo
T	Blue	Mi
U	Black	Nokia
V	Orange	Motorola
W	Green	Lg

S61. Ans.(e)

Sol.

Word	Code
Book	pt
Form	rs
post	nc
Note/job	st/bd
Application	cz
Logic	ms
Wise	dp
Master	ce

S62. Ans.(a)

Sol.

Word	Code
Book	pt
Form	rs
post	nc
Note/job	st/bd
Application	cz
Logic	ms
Wise	dp
Master	ce

S63. Ans.(e)

Sol.

Word	Code
Book	pt
Form	rs
post	nc
Note/job	st/bd
Application	cz
Logic	ms
Wise	dp
Master	ce

S64. Ans.(c)

Sol.

Word	Code
Book	pt
Form	rs
post	nc
Note/job	st/bd
Application	cz
Logic	ms
Wise	dp
Master	ce

S65. Ans.(b)

Sol.

Word	Code
Book	pt
Form	rs
post	nc
Note/job	st/bd
Application	cz
Logic	ms
Wise	dp
Master	ce

S66. Ans.(a)

Sol.

Let cost of mixture be Rs. 'X'

ATQ -

$$\frac{(240 - X)}{(X - 160)} = \frac{1}{3}$$

$$720 - 3X = X - 160$$

$$4X = 880$$

$$X = 220 \text{ Rs.}$$

$$\text{Required profit percentage} = \frac{286 - 220}{220} \times 100$$

$$= \frac{66}{220} \times 100 = 30\%$$

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S67. Ans.(c)**Sol.**Let investment of Bholu = $100x$ So, investment of Golu = $125x$ Ratio of investment of Bholu and Golu = $4 : 5$

Let time period of investment of Bholu

& Golu be 'a' & 'b' respectively.

ATQ -

$$\frac{4a}{(4a+5b)} = \frac{7500}{22500}$$

$$\frac{4a}{4a+5b} = \frac{1}{3}$$

$$12a = 4a + 5b$$

$$8a = 5b$$

$$a : b = 5 : 8$$

S68. Ans.(a)**Sol.**

Let total marks be 'X'

ATQ -

$$48\% \text{ of } X - 60 = 33\% \text{ of } X + 15$$

$$0.48X - 0.33X = 75$$

$$0.15X = 75$$

$$X = 500$$

$$\text{Passing marks} = 500 \times \frac{48}{100} - 60 = 180$$

$$\text{Marks obtained by C} = 500 \times \frac{54}{100} = 270$$

$$\text{Required marks} = 270 - 180 = 90$$

**S69. Ans.(c)****Sol.**

Let saving of man = Rs. P

$$\text{SI received by man after two years} = P \times \frac{15 \times 2}{100} = 0.30P$$

$$\text{Equivalent CI at 20\% for two years} = 20 + 20 + \frac{20 \times 20}{100} = 44\%$$

$$\text{CI received by man after two years} = P \times \frac{44}{100} = 0.44P$$

ATQ -

$$0.44P - 0.30P = 280$$

$$0.14P = 280$$

$$P = 2000 \text{ Rs.}$$

So, saving of man = 2000 Rs.

S70. Ans.(e)**Sol.**Let B efficiency = $5x$ units/daySo, efficiency of A = $7x$ units/daySo, efficiency of C = $5x \times \frac{80}{100} = 4x$ units/dayTotal work = $(5x + 7x + 4x) \times 30 = 480x$ unitsOne day work of B & C together = $(5x + 4x) = 9x$ unitsRequired day = $\frac{480x}{9x} = 53\frac{1}{3}$ days**S71. Ans.(c)****Sol.**From ILet C.P. of article be Rs. x .

$$\frac{125}{100} \times 240 - x = 40$$

$$x = 300 - 40 = \text{Rs } 260$$

From II

Since profit% & discount% is given and S.P. & marked price is given.

 \therefore cost price can be determined. \therefore Either from I or II.**S72. Ans.(e)****Sol.**

From I & II

Area of base of cone (πr^2) = 154

$$\therefore \pi r^2 = 154$$

$$r^2 = 49$$

$$\therefore r = 7 \text{ cm}$$

$$\therefore \text{height (h)} = 7 \times 2 = 14 \text{ cm.}$$

$$\text{Volume} = \frac{1}{3} \pi r^2 h$$

$$= \frac{1}{3} \times \frac{22}{7} \times 7 \times 7 \times 14$$

$$= \frac{2156}{3} \text{ cm}^3$$

**S73. Ans.(e)****Sol.**From I & II

$$x + y = 8 \dots(i)$$

$$xy = 7$$

$$(x - y)^2 = (x + y)^2 - 4xy$$

$$(x - y)^2 = (8)^2 - 4 \times 7$$

$$(x - y)^2 = 36$$

$$x - y = 6 \dots(ii)$$

$$\therefore x = 7 \text{ \& } y = 1$$

$$\text{Or } x=1 \text{ \& } y=7$$

S74. Ans.(e)

Sol.

From I & II

Let speed of boat in still water be x km/hr
and speed of stream be y km/hr.

$$\frac{64}{x+y} = \frac{1}{2} \frac{64}{x}$$

$$x = y = 5 \text{ km/hr}$$

S75. Ans.(e)

Sol.

Given no. of white ball

Let $\rightarrow a$

From I let probability $\rightarrow \frac{x}{y}$

Let no. of red ball $\rightarrow px$, total balls $\rightarrow py$

From II \rightarrow Let probability $= \frac{s}{t}$

Let no. of black ball = qs , total balls = qt

From I & II

$$px + a + qs = qt = py$$

we know the values of x, y, s, t and a so

we can find the value of p and q

So, probability of white ball found $= \frac{a}{qt}$ or $\frac{a}{py}$

\therefore I & II together are sufficient to answer the question

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S76. Ans.(b)

Sol.

Total males who visited stadium on Sunday &

$$\text{Wednesday} = (110 - 52) + (130 - 46)$$

$$= 58 + 84 = 142$$

Total female who visited stadium on Monday &

$$\text{Tuesday} = 66 + 64 = 130$$

$$\text{Required ratio} = \frac{142}{130} = 71 : 65$$

S77. Ans.(d)

Sol.

Average no. of females who visited stadium on

$$\text{Sunday & Tuesday} = \frac{52 + 64}{2} = 58$$

Average no. of males who visited stadium on

$$\text{Monday & Wednesday} = \frac{(150-66) + (130-46)}{2} = 84$$

$$\text{Required difference} = 84 - 58 = 26$$

S78. Ans.(e)

Sol.

Total males who visited to stadium on

$$\text{Tuesday} = (140 - 64) = 76$$

Total males who visited to stadium on

$$\text{Monday} = (150 - 66) = 84$$

$$\text{Required \%} = \frac{84 - 76}{84} \times 100$$

$$= \frac{8}{84} \times 100 = 9.523 \approx 9.5\%$$

S79. Ans.(b)

Sol.

Total people who visited to stadium on

$$\text{Friday} = 150 \times \frac{120}{100} = 180$$

Total males who visited to stadium on

$$\text{Friday} = (150 - 66) \times \frac{125}{100} = 105$$

Total female who visited to stadium on

$$\text{Friday} = 180 - 105 = 75$$

S80. Ans.(c)

Sol.

Total no. of people who visited stadium on

$$\text{Sunday and Wednesday} = 110 + 130 = 240$$

Total no. of males who visited stadium on

$$\text{Monday \& Tuesday} = (150 - 66) + (140 - 64) = 160$$

$$\text{Required percentage} = \frac{240 - 160}{160} \times 100$$

$$= \frac{80}{160} \times 100 = 50\%$$

S81. Ans.(d)

Sol.

$$\frac{28}{100} \times 225 + 81 = ?^2$$

$$63 + 81 = ?^2$$

$$?^2 = 144$$

$$? = 12$$

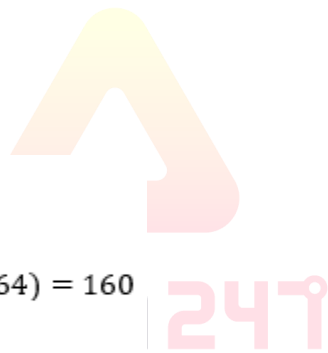
S82. Ans.(a)

Sol.

$$\frac{?}{18} + 196 = 225 - 5$$

$$\frac{?}{18} = 24$$

$$? = 432$$



S83. Ans.(b)**Sol.**

$$32 \times ? + 324 = \frac{80}{100} \times 1405$$

$$32 \times ? + 324 = 1124$$

$$32 \times ? = 800$$

$$? = 25$$

S84. Ans.(e)**Sol.**

$$\frac{56}{100} \times ? + 144 = \frac{68}{100} \times 500$$

$$\frac{56}{100} \times ? = 340 - 144$$

$$\frac{56}{100} \times ? = 196$$

$$? = \frac{196 \times 100}{56}$$

$$? = 350$$

S85. Ans.(d)**Sol.**

$$?^3 \times 18 + 25 = 2275$$

$$?^3 \times 18 = 2250$$

$$?^3 = \frac{2250}{18}$$

$$?^3 = 125$$

$$? = 5$$

S86. Ans.(e)**Sol.**

Let quantity of water = 3x

$$\text{So} \rightarrow \text{Quantity of milk} = 3x \times \frac{2}{3} = 2x$$

$$\text{In 180 ml mixture, quantity of milk} = \frac{180 \times 2}{5} = 72$$

Total milk in new mixture after 30 ml more

$$\text{milk is added} = 72 + 30 = 102 \text{ ml}$$

$$\text{Total new mixture} = 180 + 130 = 210 \text{ ml}$$

$$\text{Required percentage} = \frac{102}{210} \times 100 = 48 \frac{4}{7} \%$$

S87. Ans.(b)**Sol.**

Let age of Rahul's father = 7x

$$\text{So, Age of Rahul} = 7x \times \frac{4}{7} = 4x$$

$$\text{Age of Rahul' son 3 year ago} = 4x \times \frac{1}{4} = x$$

Present age of Rahul's son = x + 3

$$\Rightarrow \frac{7x + 4x + x + 3}{3} = 33$$

$$\Rightarrow 12x = 99 - 3 = 96$$

$$x = 8$$

$$\text{Required difference} = (7 \times 8) - (8 + 3) = 45$$

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S88. Ans.(b)**Sol.**

Let side of square be x cm and length of rectangle is $3x$ cm

ATQ—

$$2(3x + 12) - 4x = 36$$

$$6x - 4x = 36 - 24$$

$$x = 6 \text{ cm}$$

Required sum = Area of square + Area of rectangle

$$= x^2 + (3x \times 12)$$

$$= (6)^2 + (18 \times 12)$$

$$= 36 + 216$$

$$= 252 \text{ cm}^2$$

S89. Ans.(c)**Sol.**

Let the number of green, red and white ball in the bag be $3x$, $4x$ and $5x$ respectively.

ATQ

$$\frac{4x \times 5x}{12x} = \frac{2}{7}$$

$$x = 3$$

Total number of balls = 36

$$\text{Required probability} = \frac{12}{36} = \frac{1}{3}$$

S90. Ans.(a)**Sol.**

Let upstream speed = $3x$ km/hr and

Downstream speed = $5x$ km/hr

ATQ,

$$\text{Speed of boat} = \frac{5x + 3x}{2} = 4x$$

$$4x = 24$$

$$x = 6$$

Upstream speed = $3 \times 6 = 18$ kmph

Downstream speed = $5 \times 6 = 30$ kmph

$$\text{Required time} = \frac{36}{18} + \frac{60}{30}$$

$$= 2 + 2$$

$$= 4 \text{ hours}$$

S91. Ans.(c)**Sol.**

Investment of Deepak for first 6 months

= Rs. 1500

Investment of Dharam for first 6 months

$$= 1500 \times \frac{2}{3} = \text{Rs. } 1000$$

Investment of Shivam for first 6 months

$$= 1500 \times \frac{3}{3} = \text{Rs. } 1500$$



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Investment of Dharam for next 4 months
= Rs. 2000

Investment of Deepak for next 4 months
= $2000 \times \frac{2}{5} = \text{Rs. } 800$

Investment of Shivam for next 4 months
= $2000 \times \frac{3}{5} = \text{Rs. } 1200$

Investment of Shivam for remaining time
= Rs. 900

Investment of Deepak for remaining time
= $900 \times \frac{4}{3} = \text{Rs. } 1200$

Investment of Dharam for remaining time
= $900 \times \frac{3}{3} = \text{Rs. } 900$

Profit share of Deepak, Dharam and Shivam

$(1500 \times 6 + 800 \times 4 + 1200 \times 2)$:

$(1000 \times 6 + 2000 \times 4 + 900 \times 2)$: $(1500 \times 6 + 1200 \times 4 + 900 \times 2)$

$\Rightarrow 73:79:78$

Let profit of Deepak, Dharam and Shivam are Rs.73x, Rs. 79x and Rs.78x respectively.

ATQ

$(79x + 78x - 79x - 73x) = 5x = \text{Rs. } 450$

$x = 90$

Profit share of Deepak = Rs. 6570

Profit share of Dharam = Rs. 7110

Profit share of Shivam = Rs. 7020

Total investment of Deepak

= $(1500 + 800 + 1200) = \text{Rs. } 3500$

Total investment of Shivam

= $(1500 + 1200 + 900) = \text{Rs. } 3600$

Required percentage = $\frac{3500}{3600} \times 100 \approx 97\%$



S92. Ans.(a)

Sol.

Investment of Deepak for first 6 months
= Rs. 1500

Investment of Dharam for first 6 months
= $1500 \times \frac{2}{3} = \text{Rs. } 1000$

Investment of Shivam for first 6 months
= $1500 \times \frac{3}{3} = \text{Rs. } 1500$

Investment of Dharam for next 4 months
= Rs. 2000

Investment of Deepak for next 4 months
= $2000 \times \frac{2}{5} = \text{Rs. } 800$

Investment of Shivam for next 4 months
= $2000 \times \frac{3}{5} = \text{Rs. } 1200$

Investment of Shivam for remaining time
= Rs. 900

Investment of Deepak for remaining time
= $900 \times \frac{4}{3} = \text{Rs. } 1200$

Investment of Dharam for remaining time

$$= 900 \times \frac{3}{3} = \text{Rs. } 900$$

Profit share of Deepak, Dharam and Shivam

$$\begin{aligned} & (1500 \times 6 + 800 \times 4 + 1200 \times 2): \\ & (1000 \times 6 + 2000 \times 4 + 900 \times 2): (1500 \times 6 + 1200 \times 4 + 900 \times 2) \\ & \Rightarrow 73:79:78 \end{aligned}$$

Let profit of Deepak, Dharam and Shivam are Rs.73x, Rs. 79x and Rs.78x respectively.

ATQ

$$(79x + 78x - 79x - 73x) = 5x = \text{Rs. } 450$$

$$x = 90$$

Profit share of Deepak = Rs. 6570

Profit share of Dharam = Rs. 7110

Profit share of Shivam = Rs. 7020

profit of Dharam after one year = $79 \times 90 = \text{Rs. } 7110$

S93. Ans.(d)

Sol.

Investment of Deepak for first 6 months

$$= \text{Rs. } 1500$$

Investment of Dharam for first 6 months

$$= 1500 \times \frac{2}{3} = \text{Rs. } 1000$$

Investment of Shivam for first 6 months

$$= 1500 \times \frac{3}{3} = \text{Rs. } 1500$$

Investment of Dharam for next 4 months

$$= \text{Rs. } 2000$$

Investment of Deepak for next 4 months

$$= 2000 \times \frac{2}{5} = \text{Rs. } 800$$

Investment of Shivam for next 4 months

$$= 2000 \times \frac{3}{5} = \text{Rs. } 1200$$

Investment of Shivam for remaining time

$$= \text{Rs. } 900$$

Investment of Deepak for remaining time

$$= 900 \times \frac{4}{3} = \text{Rs. } 1200$$

Investment of Dharam for remaining time

$$= 900 \times \frac{3}{3} = \text{Rs. } 900$$

Profit share of Deepak, Dharam and Shivam

$$\begin{aligned} & (1500 \times 6 + 800 \times 4 + 1200 \times 2): \\ & (1000 \times 6 + 2000 \times 4 + 900 \times 2): (1500 \times 6 + 1200 \times 4 + 900 \times 2) \\ & \Rightarrow 73:79:78 \end{aligned}$$

Let profit of Deepak, Dharam and Shivam are Rs.73x, Rs. 79x and Rs.78x respectively.

ATQ

$$(79x + 78x - 79x - 73x) = 5x = \text{Rs. } 450$$

$$x = 90$$

Profit share of Deepak = Rs. 6570

Profit share of Dharam = Rs. 7110

Profit share of Shivam = Rs. 7020

required ratio = 800: 900

$$= 8:9$$



S94. Ans.(b)**Sol.**

Investment of Deepak for first 6 months

= Rs. 1500

Investment of Dharam for first 6 months

= $1500 \times \frac{2}{3} = \text{Rs. } 1000$

Investment of Shivam for first 6 months

= $1500 \times \frac{3}{3} = \text{Rs. } 1500$

Investment of Dharam for next 4 months

= Rs. 2000

Investment of Deepak for next 4 months

= $2000 \times \frac{2}{5} = \text{Rs. } 800$

Investment of Shivam for next 4 months

= $2000 \times \frac{3}{5} = \text{Rs. } 1200$

Investment of Shivam for remaining time

= Rs. 900

Investment of Deepak for remaining time

= $900 \times \frac{4}{3} = \text{Rs. } 1200$

Investment of Dharam for remaining time

= $900 \times \frac{3}{3} = \text{Rs. } 900$

Profit share of Deepak, Dharam and Shivam

$(1500 \times 6 + 800 \times 4 + 1200 \times 2):$

$(1000 \times 6 + 2000 \times 4 + 900 \times 2): (1500 \times 6 + 1200 \times 4 + 900 \times 2)$

$\Rightarrow 73:79:78$

Let profit of Deepak, Dharam and Shivam are Rs.73x, Rs. 79x and Rs.78x respectively.

ATQ

$(79x + 78x - 79x - 73x) = 5x = \text{Rs. } 450$

$x = 90$

Profit share of Deepak = Rs. 6570

Profit share of Dharam = Rs. 7110

Profit share of Shivam = Rs. 7020

required difference

$= (1500 + 1200 + 900) - (1000 + 2000) = \text{Rs. } 600$

S95. Ans.(d)**Sol.**

Investment of Deepak for first 6 months

= Rs. 1500

Investment of Dharam for first 6 months

= $1500 \times \frac{2}{3} = \text{Rs. } 1000$

Investment of Shivam for first 6 months

= $1500 \times \frac{3}{3} = \text{Rs. } 1500$

Investment of Dharam for next 4 months

= Rs. 2000

Investment of Deepak for next 4 months

= $2000 \times \frac{2}{5} = \text{Rs. } 800$

Investment of Shivam for next 4 months

$$= 2000 \times \frac{3}{5} = \text{Rs. } 1200$$

Investment of Shivam for remaining time

$$= \text{Rs. } 900$$

Investment of Deepak for remaining time

$$= 900 \times \frac{4}{3} = \text{Rs. } 1200$$

Investment of Dharam for remaining time

$$= 900 \times \frac{3}{3} = \text{Rs. } 900$$

Profit share of Deepak, Dharam and Shivam

$$(1500 \times 6 + 800 \times 4 + 1200 \times 2):$$

$$(1000 \times 6 + 2000 \times 4 + 900 \times 2): (1500 \times 6 + 1200 \times 4 + 900 \times 2)$$

$$\Rightarrow 73:79:78$$

Let profit of Deepak, Dharam and Shivam are Rs.73x, Rs. 79x and Rs.78x respectively.

ATQ

$$(79x + 78x - 79x - 73x) = 5x = \text{Rs. } 450$$

$$x = 90$$

Profit share of Deepak = Rs. 6570

Profit share of Dharam = Rs. 7110

Profit share of Shivam = Rs. 7020

$$\text{Required percentage} = \frac{1500-1200}{1500} \times 100 = 20\% \text{ less}$$

S96. Ans.(c)

Sol.

Pattern of series -

$$\begin{array}{cccccc} 717 & 500 & 331 & ? & 113 & 52 \\ \uparrow & \uparrow & \uparrow & \uparrow & \uparrow & \uparrow \\ 9^3-12 & 8^3-12 & 7^3-12 & 6^3-12 & 5^3-12 & 4^3-12 \end{array}$$

$$\downarrow \\ 204$$

Alternate

$$\begin{array}{cccccc} 717 & 500 & 331 & 204 & 113 & 52 \\ \hline & 217 & 169 & 127 & 91 & 61 \\ \hline & -48 & -42 & -36 & -30 & \\ \hline & +6 & +6 & +6 & & \end{array}$$

So, missing number is 204.

S97. Ans.(e)

Sol.

Pattern of series -

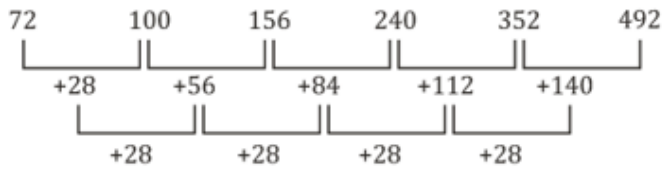
$$\begin{array}{cccccc} 24 & 20 & 28 & 16 & 32 & 12 \\ \hline & -4 & +8 & -12 & +16 & -20 \end{array}$$

So, missing number is 32.

S98. Ans.(b)

Sol.

Pattern of series -

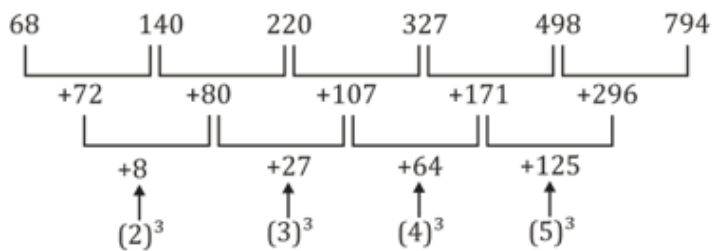


So, missing number is 72.

S99. Ans.(d)

Sol.

Pattern of series -

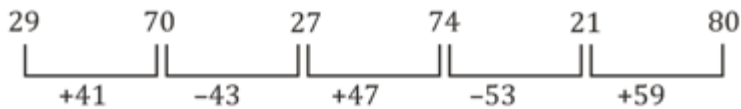


So, missing number is 794.

S100. Ans.(e)

Sol.

Pattern of series -



So, missing number is 80.

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