C2C MENTORS
CAT 2020 SLOT - 2

ANSWER KEY

VARC

1. **CORRECT ANSWER - A**

   Option B is "Images are meaningful visual experiences when they have a foundation of covenants seeing them." This is a distorted option. The actual statement states that sight becomes a meaning visual experience when images are associated with covenants . There is nowhere any discussion about the meaningfulness of images

   Option C is "Sight as a meaningful visual experience is possible when there is a foundational condition established in images of covenants." Again a twisted option. There is nothing said about the possibility of sight as a visual experience. There could be other cases too in which meaningful visual experience could be established

   Option D is "The way we experience sight is through images operated on by meaningful covenants." Entirely out of context option. The statement is about meaningful visual experience not about meaningful covenants.

   Option A correctly encapsulates all the points. Hence it is the correct answer.

2. **CORRECT ANSWER – D**
   Option D states "studying visual culture requires institutional structures without which the structures of perception cannot be analysed".

   In the penultimate paragraph of the passage," Vision is a socially and a biologically constructed operation, depending on the design of the human body and how it engages the interpretive devices developed by a culture in order to see intelligibly"

   Studying visual culture thus depends on the design of human body and interpretative devices developed by the culture. Nowhere it is mentioned that ,without institutional structures of culture vision can't be analysed as it also depends on the design of human body. Hence this is a wrong inference. Remaining all three options are correct.

3. **CORRECT ANSWER – D**
   Epiphenomena means "a secondary effect or byproduct". The option "Phenomena supplemental to the evidence", is the closest one. Hence it is the correct answer.

4. **CORRECT ANSWER – B**

   Option A states that ,"Socially existing beings cannot be analysed, unlike the art of Michelangelo or Leonardo which can." Twisted option. The excerpt from the passage states that "no amount of social analysis is enough for Michelangelo and Leonardo, because they were such vast artists" However other beings could be socially analysed because not everyone is like Michelangelo or Leonardo.

Option C states that ,"Michelangelo or Leonardo cannot be subjected to social analysis because of their genius." This is an entirely wrong option. These artists can be subjected to social analysis, but nothing will do justice to them.

Option D states that ,"No analyses exist of Michelangelo's or Leonardo's social accounts.". This is beyond the scope of the pasaage, as nothing has been mentioned about this.

Option B is the correct answer.

5. **CORRECT ANSWER – C**

   Imagery can be inferred from the second paragraph. And from the subsequent paragraphs we can also infer Visual Practices, Lifeworlds and Structures of Perception(penultimate paragraph).

6. **CORRECT ANSWER – C**
   Option A states that the author is "facetious". Facetious means, treating serious issues with inappropriate humor. Author is nowhere mocking the hard life of peasants. On the contrary, he is actually admitting it and suggesting it as the reason why so many people became pirates in the first place. Hence this option is incorrect.

   Option B states analytical. The author is nowhere contrasting the lives of peasant and pirates. He has not portrayed the lives of pirates in a pleasant light. Ultimately they also have to face surveillance and other dangers, thus the contrast in the option is wrong.

   Indignant is completely wrong. The author is not angry at the pirates , for amassing huge wealth. Entirely out of context.

   Option C talks about irony, which is actually correct. The author is ironical that an honest peasant has to toil day and night and still has to sleep empty stomach but on the other hand a pirate could easily amass twice the fortunes of peasant, without breaking much sweat. This entirely captures the essence of the mentioned line. Hence this answer is correct.

7. **CORRECT ANSWER – D**
   Option B and Option C are factually out of scope. Nothing has been said about who laid the groundwork for modern piracy. Neither has any comparisons made between the piracy of today and yesteryears,

   In this statement , the author is obviously not assigning any blame to Vasco Da Gama and East India company. He just wants to highlight their roles in early pirates history.

   Option D is the most accurate one.

8. **CORRECT ANSWER – A**
   According to the passage, the "root causes" of piracy are abject poverty and the daily struggle for survival (paragraph 4). The author also explains in the last two paragraphs that international cooperation in enforcing strict deterrents, investments in local welfare and using technology solutions like robot shipping have failed.

9. **CORRECT ANSWER – A**

The passage states that there are never enough warships to patrol pirate-infested waters, but this does not imply that the surveillance at the high seas is declining, just that the scale of the problem is large. All other reasons for rise in piracy today are mentioned in the lines "Increased globalisation has done more to encourage piracy than suppress it. European colonialism weakened delicate balances of power, leading to an influx of opportunists on the high seas."

10. CORRECT ANSWER – A

The passage states that an abnormally low neural regulation of aggressive impulses (not testosterone) in humans accounts for hostile behaviours.

Other statements are implied from the line "Sigmund Freud (1930) proposed that all individuals are born with a death instinct that predisposes us to a variety of aggressive behaviors, including suicide (self directed aggression)..."

11. CORRECT ANSWER – A

The last few lines of the first paragraph have the answer: "The first variable is the aggressor him/herself. The second is the social situation or circumstance in which the aggressive act(s) occur. The third variable is the target or victim of aggression."

12. CORRECT ANSWER – A

As the line indicates, torturing an enemy combatant for intelligence may be just a means to an end.

13. CORRECT ANSWER – C

Only the idea in option C is not mentioned in the passage.
From the first few lines of the passage we know option D is true and from the last few lines line, we know options A and B are true.

14. **CORRECT ANSWER – A**

Option A is the main idea of the passage. All other options can be easily eliminated. Option B is clearly incorrect, as it implies corporate control ensures democratic access. The last paragraph states the exact opposite of options D and C.

15. CORRECT ANSWER - A

"For investors looking to redirect funds, wind turbines and solar panels, among other technologies, seem a straightforward choice. But renewables need to be further scrutinized before being championed as forging a path toward a low-carbon future." Clearly, the author has reservations about the consequences of renewable energy systems.

16. CORRECT ANSWER – B

Statement B goes against one of the key ideas in the passage.
All other statements are based on ideas in the passage.

17. CORRECT ANSWER – D

Statements B and C, if true, support the argument in the passage that the "disposal of toxic waste has long perpetuated social injustice through the flows of waste to the Global South and to marginalized communities in the Global North".
According to the passage, "agricultural finance reveals the concentration of control of corporate activity facilitates profit generation". Statement A is based on the same idea.
Statement D, however, is different from the arguments in the passage. According to the passage,

though investment in renewable energy is a "*straightforward choice*", further scrutiny is needed before declaring that it will lead to a low-carbon future.

18. CORRECT ANSWER – A
The author discusses the social injustice perpetuated through the disposal of toxic waste in the passage. He is hence likely to be supportive of more stringent global policies and regulations to ensure a more just system of toxic waste disposal.

19. ANSWER – B
The given paragraph compares intuitive decisions to decisions made based on information, in terms of the speed of decision-making and the ability of the decision maker to explain the rationale behind the decision. Option D captures the essence of the paragraph. Options A and C are limited to intuitive decisions and decisions based on information respectively. Option D does not cover the idea of the ability of the decision maker to explain the rationale behind the decision.

20. ANSWER – A
The main idea of the paragraph is that, given the rural-urban continuum, in order to identify urban areas and measure urbanization rates in a consistent manner we need not only a richer combination of measurable criteria but also some element of human judgement. Option A captures all key ideas. Options D and C are limited to one idea, D to human judgement and C to the combination of criteria. Option B is too general and does not include key points.

21. ANSWER – B
CA is a clear link. C states that the purpose of inventing things is to create intellectual property rights. Sentence A adds to C. Similarly, DE is a link. D talks of a different dynamic: information as a social good, incapable of being owned, exploited or priced. E adds to the point made in D. CADE is a possible sequence. Only option B is slightly different, about a new kind of capitalism being created.

22. ANSWER – BDAC
B is the best opening sentence. B states that large-scale nuclear fission is dangerous. D explains how so. So, BD is a sequence about the danger posed by large-scale nuclear fission. Statement A adds to BD, explaining that the attention of the layman, however, directed at the atom bomb instead. C talks of a danger that may be much greater: the danger to humanity by so-called "peaceful uses" of atomic energy. So, BDAC is the correct order.

23. ANSWER – D
The main point of the paragraph is that the secular political order emerged because people, in order to escape the insecurity of death and war, delivered their rights to a sovereign power in return for the sovereign's provision of security. Option D captures all key ideas.

Option A does not mention the people's sense of insecurity, which, according to the paragraph, was the main motive. Option B incorrectly states the motive as limiting the power of the papacy. Option C incorrectly attributes an additional motive--the establishment of the doctrine of sovereign equality-- to the people.

24. ANSWER – D
EBCA is a sequence: E talks about the new genre of stories of sexual assault. B adds to this, stating that the telling focuses on the perpetrators' futures and victims' pasts. C states the result of this:

the lack of vocabulary for what happens in the victim's future. Sentence A adds to C.

Option D is about "questions asked about victims", a related but slightly different idea.

25. ANSWER – BADC
B is the best opening sentence. Sentence A adds to B, as it describes the telescope. D states the result of combining the telescopes mentioned in B and A with large telescopes, and C concludes the paragraph stating how this configuration helps.

26. ANSWER – ACBD
Sentence A is the best opening sentence as it explains the tendency being discussed in the paragraph. The pronoun 'it' in C clearly refers to the brain, mentioned in A. So, AB is a link. AB leads on to C. B, which labels the tendency, is the best concluding sentence.

LRDI

27. ANSWER – D
Applying points 1, 2, 3, 6:

Sales Amounts (Crore Rs.)								
	Delhi		Mumbai		Bengaluru		Kolkata	
	2018	2019	2018	2019	2018	2019	2018	2019
Apparels	X	Y	Y		Y		X	54
Electronics	78	98	82	102	90	70	80	100
HomeDecor	80	100	Z	72	60	80	Z	54

Now let's apply point 5 so that we can get the missing value Z
$(100+72+80+54)-(80+Z+60+Z)=70$
$306-140-2(Z)=70$
$166-2(Z)=70$
$2(Z)=96$
$Z=48$

This is how the table looks as of now:

Sales Amounts (Crore Rs.)								
	Delhi		Mumbai		Bengaluru		Kolkata	
	2018	2019	2018	2019	2018	2019	2018	2019
Apparels	X	Y	Y		Y		X	54
Electronics	78	98	82	102	90	70	80	100
HomeDecor	80	100	48	72	60	80	48	54

From the available info, we can get the answer to this question. Delhi had the highest sales in 2018 and 2019.

Let's continue to solve the table, let's apply point 7 now

C2C MENTORS
CAT 2020 SLOT - 2

Sales Amounts (Crore Rs.)								
	Delhi		Mumbai		Bengaluru		Kolkata	
	2018	2019	2018	2019	2018	2019	2018	2019
Apparels	X	Y	Y	54 + Y - X	Y	2Y - X	X	54
Electronics	78	98	82	102	90	70	80	100
HomeDecor	80	100	48	72	60	80	48	54

Let's apply point 8.
Since Sales for Delhi, Kolkata and Bangalore in 2019 form an AP, the following must be true:

K(2019)-D(2019)=B(2019)-K(2019)
54-Y=(2Y-X)-54
108=3Y-X………………………(Equation1)

Finally, let's apply point 4.
(98 + 102 + 70 + 100) - (78 + 82 + 90 + 80) = (Y + 54 + Y - X + 2Y - X + 54) -(X+Y+Y+X)
370-330=(108+4Y-2X)-(2Y+2X)
40=108+2Y-4X
4X-2Y=68………………………(Equation2)

Solve equations 1 and 2
4X-2Y=68
12Y-4X=432
10Y=500
Y=50
X=42

The finished table looks like this:

Sales Amounts (Crore Rs.)								
	Delhi		Mumbai		Bengaluru		Kolkata	
	2018	2019	2018	2019	2018	2019	2018	2019
Apparels	42	50	50	62	50	58	42	54
Electronics	78	98	82	102	90	70	80	100
HomeDecor	80	100	48	72	60	80	48	54

28. ANSWER – A
62 - 50 = 12
Increase in sales amount, in Crore Rupees, in the Apparel department of Mumbai from 2018 to 2019 can be found out to be 12.

29. ANSWER – D
A quick glance at the table can tell us that the % will be highest where the base is low and the increase is high. A strong candidate is Mumbai in HomeDecor from 2018-19 (50% increase), no other cell seems to fit the bill.

30. ANSWER – B
By adding, using the finished table, we arrive at the answer 900.

31. ANSWER – 9

Let's try to fill the table first. Partially applying points 1 and 3 we can get the votes for the 2nd runner up in A and the winning candidate in D.

	Constituency			
	A	**B**	**C**	**D**
Number of Candidates	10	12	5	8
Total Votes	5,00,000	3,25,000	6,00,030	*T*
Winning Candidate Votes	2,75,000	48,750		*37,500 + 0.05T*
1st Runner Up Votes	95,000			37,500
2nd Runner Up Votes	*85,000*			30,000
% Votes by 3rd Runner Up				10%

To begin answering this question, we need to first see what is the% of total votes between the candidates we already know about: Winner + 1st + 2nd Runner Up total: 455,000 (91%) So the vote share among the remaining 7 candidates was only 9% To lose security deposit, one must get less than or equal to 1/6th i.e. lesser than 16.67% of the total votes. Clearly that is indeed the case with the remaining candidates in A.

32. ANSWER – 11

Total votes polled=325000
1/6th of total votes =325000/6=54166.66
And it is given that the winner scored 48750 votes which mean all the other candidates get less than 48750 votes that is less than 1/6th of total votes polled so they all will lose their security deposit.
Thus required answer = 12 -1 =11

33. ANSWER – D

Minimum votes for the last candidate = 600030/6 = 100006
Minimum votes for the 2nd last candidate = 110006
Minimum votes for the 3rd last candidate = 120006
Minimum votes for the 4th last candidate = 130006
Minimum votes for the 5th last (winner) candidate = 140006
Sum = 600030
Thus required answer 4) 140,006

34. ANSWER – C

Let the total valid votes polled =100x
Then votes polled for winner = 37500+5%of100x=37500+5x
Thus as per question, 37500+30000+37500+5x=100x–35x
105000=60x
x=105000/60=1750
so total number of votes polled = 1750*100 = 175000

35. ANSWER – C
Winning   margin   in   D=5%of175000=8750
Winning   margin   in   C>10000
So in increasing order the order of C and D should be D , C not C, D option C) B, C, D, A

36. ANSWER - C
Total   valid   votes=500000+325000+600030+175000=1600030
Total number of votes polled for the candidates who lost their security deposit = 45000+(325000 – 48750)+35%of175000=382500
Required percentage = 382500/1600030 *100 = 23.905% = 23.91%

37. ANSWER – 2
As we need to use only two colours, in any row or column these two coloured beads will be placed alternately.
So we cannot place Red coloured beads at position 1 or two as between any two Red beads there must at least two beads (at least one green and at least one Blue). Hence, we can use only Green and Blue coloured beads. We can have two possible configurations:
Configuration 1: Green bead is placed at top left corner

G	B	G	B	G
B	G	B	G	B
G	B	G	B	G
B	G	B	G	B
G	B	G	B	G

Configuration 2: Blue bead is placed at top left corner

B	G	B	G	B
G	B	G	B	G
B	G	B	G	B
G	B	G	B	G
B	G	B	G	B

38. ANSWER – 9
Between Any two Red beads there must be at least two Beads. So any Row or column there can be maximum two red beads. If we place two red beads in each row then two columns will have three red bead which cannot be accepted.

R			R	
	R			R
R			R	
	R			R
R			R	

The above configuration is not correct.

So in the third row we will place only one Red bead at the middle of the third row. Also we will adjust other rows so that between any two Red beads there are at least two beads in any column.

R			R	
	R			R

		R		
R			R	
	R			R

So maximum 9 Red beads are possible in any configuration. At remaining places Green and Blue coloured beads can be placed in such way that all the conditions given are satisfied.
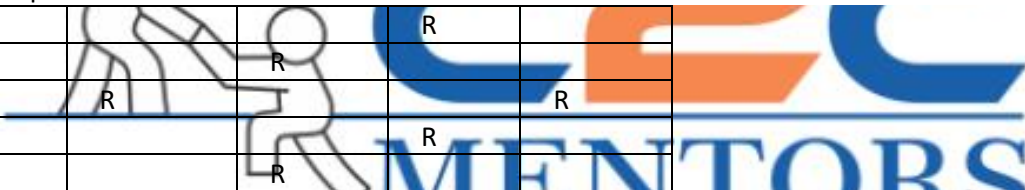
39. Answer - 6

To minimise number of Blue beads we need to maximise number of Red and Green beads. From the previous question solution, Maximum no. Red beads can be 9. The row in which has two red beads, we will place two green and one Blue bead additionally. The row with only one red bead we will place two green and two blue beads additionally. So overall there will be minimum 6 Blue beads.

R	G	B	R	G
G	R	G	B	R
B	G	R	G	B
R	B	G	R	G
G	R	B	G	R

40. Answer – 6

We can place maximum 6 more beads as shown below.

R			R	
		R		
	R			R
R			R	
		R		

41. ANSWER- A

Let's try to form and then solve the grid first. A basic grid may look like this:

	A	B	C	D	E	F	G	H
Guide								
Subject								
Slot								

Try to apply the constraints as is easiest to apply, not in the same order as given in the question. For now, if we apply the straightforward parts of points 2, 3, 5 and 6 we get the following grid (also keeping in mind that since A is the only one scheduled at 10 and that Eco students have seminars in all 4 slots, this means A has to be Eco):

	A	B	C	D	E	F	G	H
Guide	R	P	P					
Subject	Eco	Soc				Anthro	Soc	
Slot	10:00AM					10:30AM		

For now, all we have done is plug in the info directly from the question. Now to try and make some

conclusions:
It is mentioned that the guides are from the same subject as well. So P Must be in Sociology as well, meaning C is also from Sociology. So now we have all 3 people from Sociology
A and G have in consecutive slots. So A could either have it in the 930AM slot or in the 1030AM slot since A has it at 10

	A	B	C	D	E	F	G	H
Guide	R	P	P					
Subject	Eco	Soc	Soc			Anthro	Soc	
Slot	10:00AM					10:30AM	930AM / 1030AM	

P who is guiding B and C has to attend in the 1st 2 slots, i.e., 9AM and 930AM
Also mentioned that B and G have it in the same slot.
This means that G must have the seminar in the 930 slot as only then the conditions above will be satisfied (keep in mind that A and G have in consecutive slots)

	A	B	C	D	E	F	G	H
Guide	R	P	P					
Subject	Eco	Soc	Soc			Anthro	Soc	
Slot	10:00AM	930AM				10:30AM	930AM	

P also has a slot at 9AM which means it must be C who has it

	A	B	C	D	E	F	G	H
Guide	R	P	P					
Subject	Eco	Soc	Soc			Anthro	Soc	
Slot	10:00AM	930AM	9AM			10:30AM	930AM	

We know there are 4 Eco students, so the remaining must be Eco

	A	B	C	D	E	F	G	H
Guide	R	P	P					
Subject	Eco	Soc	Soc	Eco	Eco	Anthro	Soc	Eco
Slot	10:00AM	930AM	9AM			10:30AM	930AM	

One Eco student has the review at 9:30 (guided by T). Meaning 9:30AM already has 3 students so far
9AM at least has one more eco students with the seminar
If 930AM has 3, 10 has only 1, 9 has at least 2
From the remaining Eco students, one has at 9 for sure, one has at 930, so there can only be one more who has it at 1030

9AM	2
930AM	3
10AM	1
1030AM	2

We have the complete table as per the info provided, let's try to solve from here

B: Only one seminar is scheduled in the second slot.
FALSE, check table

D: Three seminars are scheduled in the last slot.
FALSE, check table

C: Three seminars are scheduled in the first slot.
FALSE, check table

A: Two seminars are scheduled in the first slot.
TRUE

42. ANSWER – D
Let's try to form and then solve the grid first. A basic grid may look like this:

	A	B	C	D	E	F	G	H
Guide								
Subject								
Slot								

Try to apply the constraints as is easiest to apply, not in the same order as given in the question. For now, if we apply the straightforward parts of points 2, 3, 5 and 6 we get the following grid (also keeping in mind that since A is the only one scheduled at 10 and that Eco students have seminars in all 4 slots, this means A has to be Eco):

	A	B	C	D	E	F	G	H
Guide	R	P	P					
Subject	Eco	Soc				Anthro	Soc	
Slot	10:00AM					10:30AM		

For now, all we have done is plug in the info directly from the question. Now to try and make some conclusions:
It is mentioned that the guides are from the same subject as well. So P Must be in Sociology as well, meaning C is also from Sociology. So now we have all 3 people from Sociology
A and G have in consecutive slots. So A could either have it in the 930AM slot or in the 1030AM slot since A has it at 10

C2C MENTORS
CAT 2020 SLOT - 2

	A	B	C	D	E	F	G	H
Guide	R	P	P					
Subject	Eco	Soc	Soc			Anthro	Soc	
Slot	10:00AM					10:30AM	930AM / 1030AM	

P who is guiding B and C has to attend in the 1st 2 slots, i.e., 9AM and 930AM
Also mentioned that B and G have it in the same slot.
This means that G must have the seminar in the 930 slot as only then the conditions above will be satisfied (keep in mind that A and G have in consecutive slots)

	A	B	C	D	E	F	G	H
Guide	R	P	P					
Subject	Eco	Soc	Soc			Anthro	Soc	
Slot	10:00AM	930AM				10:30AM	930AM	

P also has a slot at 9AM which means it must be C who has it

	A	B	C	D	E	F	G	H
Guide	R	P	P					
Subject	Eco	Soc	Soc			Anthro	Soc	
Slot	10:00AM	930AM	9AM			10:30AM	930AM	

We know there are 4 Eco students, so the remaining must be Eco

	A	B	C	D	E	F	G	H
Guide	R	P	P					
Subject	Eco	Soc	Soc	Eco	Eco	Anthro	Soc	Eco
Slot	10:00AM	930AM	9AM			10:30AM	930AM	

One Eco student has the review at 9:30 (guided by T). Meaning 9:30AM already has 3 students so far
9AM at least has one more eco students with the seminar
If 930AM has 3, 10 has only 1, 9 has at least 2
From the remaining Eco students, one has at 9 for sure, one has at 930, so there can only be one more who has it at 1030

9AM	2
930AM	3
10AM	1
1030AM	2

We have the complete table as per the info provided, let's try to solve from here

Eliminate any option where R is present

43. ANSWER – B
Let's try to form and then solve the grid first. A basic grid may look like this:

	A	B	C	D	E	F	G	H
Guide								
Subject								
Slot								

Try to apply the constraints as is easiest to apply, not in the same order as given in the question.
For now, if we apply the straightforward parts of points 2, 3, 5 and 6 we get the following grid (also keeping in mind that since A is the only one scheduled at 10 and that Eco students have seminars in all 4 slots, this means A has to be Eco):

	A	B	C	D	E	F	G	H
Guide	R	P	P					
Subject	Eco	Soc				Anthro	Soc	
Slot	10:00AM					10:30AM		

For now, all we have done is plug in the info directly from the question. Now to try and make some conclusions:
It is mentioned that the guides are from the same subject as well. So P Must be in Sociology as well, meaning C is also from Sociology. So now we have all 3 people from Sociology
A and G have in consecutive slots. So A could either have it in the 930AM slot or in the 1030AM slot since A has it at 10

	A	B	C	D	E	F	G	H
Guide	R	P	P					
Subject	Eco	Soc	Soc			Anthro	Soc	
Slot	10:00AM					10:30AM	930AM / 1030AM	

P who is guiding B and C has to attend in the 1st 2 slots, i.e., 9AM and 930AM
Also mentioned that B and G have it in the same slot.
This means that G must have the seminar in the 930 slot as only then the conditions above will be satisfied (keep in mind that A and G have in consecutive slots)

	A	B	C	D	E	F	G	H
Guide	R	P	P					
Subject	Eco	Soc	Soc			Anthro	Soc	
Slot	10:00AM	930AM				10:30AM	930AM	

P also has a slot at 9AM which means it must be C who has it

	A	B	C	D	E	F	G	H
Guide	R	P	P					
Subject	Eco	Soc	Soc			Anthro	Soc	
Slot	10:00AM	930AM	9AM			10:30AM	930AM	

We know there are 4 Eco students, so the remaining must be Eco

	A	B	C	D	E	F	G	H
Guide	R	P	P					
Subject	Eco	Soc	Soc	Eco	Eco	Anthro	Soc	Eco
Slot	10:00AM	930AM	9AM			10:30AM	930AM	

One Eco student has the review at 9:30 (guided by T). Meaning 9:30AM already has 3 students so far
9AM at least has one more eco students with the seminar
If 930AM has 3, 10 has only 1, 9 has at least 2
From the remaining Eco students, one has at 9 for sure, one has at 930, so there can only be one more who has it at 1030

9AM	2
930AM	3
10AM	1
1030AM	2

We have the complete table as per the info provided, let's try to solve from here

A: Q is guiding G.
Need not be true, could be S also

B: H is an Economics student.
Has to be True

D: B is scheduled in the first slot.
Incorrect

C: S is guiding F.
Need not be true, could be anyone

44. ANSWER – D
Let's try to form and then solve the grid first. A basic grid may look like this:

	A	B	C	D	E	F	G	H
Guide								
Subject								
Slot								

Try to apply the constraints as is easiest to apply, not in the same order as given in the question. For now, if we apply the straightforward parts of points 2, 3, 5 and 6 we get the following grid (also keeping in mind that since A is the only one scheduled at 10 and that Eco students have seminars in all 4 slots, this means A has to be Eco):

	A	B	C	D	E	F	G	H
Guide	R	P	P					
Subject	Eco	Soc				Anthro	Soc	
Slot	10:00AM					10:30AM		

For now, all we have done is plug in the info directly from the question. Now to try and make some conclusions:
It is mentioned that the guides are from the same subject as well. So P Must be in Sociology as well, meaning C is also from Sociology. So now we have all 3 people from Sociology
A and G have in consecutive slots. So A could either have it in the 930AM slot or in the 1030AM slot since A has it at 10

	A	B	C	D	E	F	G	H
Guide	R	P	P					
Subject	Eco	Soc	Soc			Anthro	Soc	
Slot	10:00AM					10:30AM	930AM / 1030AM	

P who is guiding B and C has to attend in the 1st 2 slots, i.e., 9AM and 930AM
Also mentioned that B and G have it in the same slot.
This means that G must have the seminar in the 930 slot as only then the conditions above will be satisfied (keep in mind that A and G have in consecutive slots)

	A	B	C	D	E	F	G	H
Guide	R	P	P					
Subject	Eco	Soc	Soc			Anthro	Soc	
Slot	10:00AM	930AM				10:30AM	930AM	

P also has a slot at 9AM which means it must be C who has it

	A	B	C	D	E	F	G	H
Guide	R	P	P					
Subject	Eco	Soc	Soc			Anthro	Soc	
Slot	10:00AM	930AM	9AM			10:30AM	930AM	

We know there are 4 Eco students, so the remaining must be Eco

	A	B	C	D	E	F	G	H
Guide	R	P	P					
Subject	Eco	Soc	Soc	Eco	Eco	Anthro	Soc	Eco
Slot	10:00AM	930AM	9AM			10:30AM	930AM	

One Eco student has the review at 9:30 (guided by T). Meaning 9:30AM already has 3 students so far
9AM at least has one more eco students with the seminar
If 930AM has 3, 10 has only 1, 9 has at least 2
From the remaining Eco students, one has at 9 for sure, one has at 930, so there can only be one more who has it at 1030

9AM	2
930AM	3
10AM	1
1030AM	2

We have the complete table as per the info provided, let's try to solve from here

D can either have it at 930 or 1030

Case 1: D has it at 930

	A	B	C	D	E	F	G	H
Guide	R	P	P	T	R / T	Q	S	T / R
Subject	Eco	Soc	Soc	Eco	Eco	Anthro	Soc	Eco
Slot	10:00AM	930AM	9AM	930AM	9AM	10:30AM	930AM	10:30AM

This does not give us a correct result as it will violate the constraints

Case 2: D has it at 1030

	A	B	C	D	E	F	G	H
Guide	R	P	P	R	T	S	Q	T
Subject	Eco	Soc	Soc	Eco	Eco	Anthro	Soc	Eco
Slot	10:00AM	930AM	9AM	10:30AM	9 / 930	10:30AM	930AM	930 / 9

The key constraint to remember in this question is: The same guide must have slots as consecutive

Clearly both the statements as per the above table are true

45. ANSWER –C

Let's try to form and then solve the grid first. A basic grid may look like this:

	A	B	C	D	E	F	G	H
Guide								
Subject								
Slot								

Try to apply the constraints as is easiest to apply, not in the same order as given in the question. For now, if we apply the straightforward parts of points 2, 3, 5 and 6 we get the following grid (also keeping in mind that since A is the only one scheduled at 10 and that Eco students have seminars in all 4 slots, this means A has to be Eco):

	A	B	C	D	E	F	G	H
Guide	R	P	P					
Subject	Eco	Soc				Anthro	Soc	
Slot	10:00AM					10:30AM		

For now, all we have done is plug in the info directly from the question. Now to try and make some conclusions:
It is mentioned that the guides are from the same subject as well. So P Must be in Sociology as well, meaning C is also from Sociology. So now we have all 3 people from Sociology
A and G have in consecutive slots. So A could either have it in the 930AM slot or in the 1030AM slot since A has it at 10

	A	B	C	D	E	F	G	H
Guide	R	P	P					
Subject	Eco	Soc	Soc			Anthro	Soc	
Slot	10:00AM					10:30AM	930AM / 1030AM	

P who is guiding B and C has to attend in the 1st 2 slots, i.e., 9AM and 930AM
Also mentioned that B and G have it in the same slot.
This means that G must have the seminar in the 930 slot as only then the conditions above will be satisfied (keep in mind that A and G have in consecutive slots)

C2C MENTORS
CAT 2020 SLOT - 2

	A	B	C	D	E	F	G	H
Guide	R	P	P					
Subject	Eco	Soc	Soc			Anthro	Soc	
Slot	10:00AM	930AM				10:30AM	930AM	

P also has a slot at 9AM which means it must be C who has it

	A	B	C	D	E	F	G	H
Guide	R	P	P					
Subject	Eco	Soc	Soc			Anthro	Soc	
Slot	10:00AM	930AM	9AM			10:30AM	930AM	

We know there are 4 Eco students, so the remaining must be Eco

	A	B	C	D	E	F	G	H
Guide	R	P	P					
Subject	Eco	Soc	Soc	Eco	Eco	Anthro	Soc	Eco
Slot	10:00AM	930AM	9AM			10:30AM	930AM	

One Eco student has the review at 9:30 (guided by T). Meaning 9:30AM already has 3 students so far
9AM at least has one more eco students with the seminar
If 930AM has 3, 10 has only 1, 9 has at least 2
From the remaining Eco students, one has at 9 for sure, one has at 930, so there can only be one more who has it at 1030

9AM	2
930AM	3
10AM	1
1030AM	2

We have the complete table as per the info provided, let's try to solve from here

E and Q in same slot can either mean Q guides the Sociology student with the 930 slot OR the Anthro student with the 1030 slot

Case 1: Q guides the Sociology student with the 930 slot

	A	B	C	D	E	F	G	H
Guide	R	P	P	T / R	T	S	Q	R / T
Subject	Eco	Soc	Soc	Eco	Eco	Anthro	Soc	Eco
Slot	10:00AM	930AM	9AM	9 / 930	930AM	10:30AM	930AM	930 / 9

Case 2: Q guides the Anthro student with the 1030 slot

	A	B	C	D	E	F	G	H
Guide	R	P	P	T / R	T	Q	S	R / T
Subject	Eco	Soc	Soc	Eco	Eco	Anthro	Soc	Eco
Slot	10:00AM	930AM	9AM		10:30AM	10:30AM	930AM	

Violates constraints

From Case 1, which is the correct case, clearly T guides at least one of D and H

46. ANSWER -B
Let's try to form and then solve the grid first. A basic grid may look like this:

	A	B	C	D	E	F	G	H
Guide								
Subject								
Slot								

Try to apply the constraints as is easiest to apply, not in the same order as given in the question. For now, if we apply the straightforward parts of points 2, 3, 5 and 6 we get the following grid (also keeping in mind that since A is the only one scheduled at 10 and that Eco students have seminars in all 4 slots, this means A has to be Eco):

	A	B	C	D	E	F	G	H
Guide	R	P	P					
Subject	Eco	Soc				Anthro	Soc	
Slot	10:00AM					10:30AM		

For now, all we have done is plug in the info directly from the question. Now to try and make some conclusions:
It is mentioned that the guides are from the same subject as well. So P Must be in Sociology as well, meaning C is also from Sociology. So now we have all 3 people from Sociology
A and G have in consecutive slots. So A could either have it in the 930AM slot or in the 1030AM slot since A has it at 10

	A	B	C	D	E	F	G	H
Guide	R	P	P					
Subject	Eco	Soc	Soc			Anthro	Soc	
Slot	10:00AM					10:30AM	930AM / 1030AM	

P who is guiding B and C has to attend in the 1st 2 slots, i.e., 9AM and 930AM
Also mentioned that B and G have it in the same slot.
This means that G must have the seminar in the 930 slot as only then the conditions above will be satisfied (keep in mind that A and G have in consecutive slots)

	A	B	C	D	E	F	G	H
Guide	R	P	P					
Subject	Eco	Soc	Soc			Anthro	Soc	
Slot	10:00AM	930AM				10:30AM	930AM	

P also has a slot at 9AM which means it must be C who has it

	A	B	C	D	E	F	G	H
Guide	R	P	P					
Subject	Eco	Soc	Soc			Anthro	Soc	
Slot	10:00AM	930AM	9AM			10:30AM	930AM	

We know there are 4 Eco students, so the remaining must be Eco

	A	B	C	D	E	F	G	H
Guide	R	P	P					
Subject	Eco	Soc	Soc	Eco	Eco	Anthro	Soc	Eco
Slot	10:00AM	930AM	9AM			10:30AM	930AM	

One Eco student has the review at 9:30 (guided by T). Meaning 9:30AM already has 3 students so far
9AM at least has one more eco students with the seminar
If 930AM has 3, 10 has only 1, 9 has at least 2
From the remaining Eco students, one has at 9 for sure, one has at 930, so there can only be one more who has it at 1030

9AM	2
930AM	3
10AM	1
1030AM	2

We have the complete table as per the info provided, let's try to solve from here

If D is scheduled in the slot immediately before Q's, then which of the following is NOT necessarily true?

D immediately before Q's means that D has to be in the 9AM slot (naturally cannot be 930 as there is only 1 seminar at 10AM, cannot be 10AM for the same reason)

	A	B	C	D	E	F	G	H
Guide	R	P	P	T	T / R	S	Q	R / T
Subject	Eco	Soc	Soc	Eco	Eco	Anthro	Soc	Eco
Slot	10:00AM	930AM	9AM	9AM	930 / 1030	10:30AM	930AM	1030 / 930

A: G is guided by Q.
Yes

D: D is guided by T.
Yes

C: F is guided by S.
Yes

B: E is guided by R.
Not necessary

47. ANSWER – D
As per question, initially the parking lot would now be described as 1, 2, 3, 4
When car 1 leaves , V , V , 2, 3, 4
Now after the arrivals of car 5 (a compact car) and car 6 (an SUV). -> 5 , V, 2, 3, 4, 6
When car 4 leaves -> 5 , V, 2, 3, V,V, 6
Now after the arrivals of car 7 (an SUV) and car 8 (a compact car) -> 5 , 8, 2, 3, 7, 6
Thus car 7 is parked next to car 3.

48. ANSWER – D
Just solve by options
C: 8, 2, 3, V, 5, 7, 6
This means that the missing numbers (i.e. 1 and 4) have left. There is no situation where 1 and 4 leave but 6 is after 7. If 6 arrived first, then clearly it should be after 5, and since 1 and 4 are leaving this in any case does not affect how 6 can be after 7 despite arriving earlier. This option is not possible
A: 8, 2, 3, V, 6, 5, 7
Here again, 1 and 4 have left. Once again, there is no situation where 6 can be before 5. (unlesss 4 is an SUV but clearly stated that 4 is a compact car)
D: 8, 2, 3, V, 5, 6, 7

This is feasible. 1 and 4 left, 8 arrived last so fills 1's space. This is the correct answer.

49. ANSWER – C
If 3 comes after 4 spaces, it is clear that 1 and 2 were SUVs.(since it was the 3rd to arrive and from the current arrangement we know that it comes after 4 spaces)
So we can conclude that: 1,2 were SUVs; 4, 5, 6 have to be compacts
Now let's go by options
A: Car 4 is compact
Yes it's true
D: Car 5 is a compact.
Yes, necessarily true
B: Car 1 is an SUV.
Necessarily true as well
C: Car 3 is an SUV.
Irrelevant, car 3 can be anything. This is the correct option

50. ANSWER – D

From this sequence we can say car 6 and car 7 comes when car 1, 2 and 4 left or when 2 and 4 left. Now from this we can say that car 4 and car 6 are of same type and car 2 and car 7 are of same type.

Now we can say car 6 comes when at least 2 cars left along with car 4. Now car 6 comes before car 7 so if it would have been a compact car then it should be there at the place of car 1 or car 2 but it is at the place of car 4 it means it is not a compact car so it should be an SUV.

Which also mean car 1 and car 2 are compact car.

QUANTS

51. ANSWER – A

let the distance b/w A to B = 10x so that of B to C = 30x.
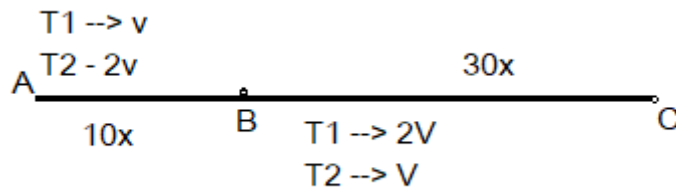
Total time taken by T1 = (10x/v)+(30x/2v) = 25x/v
Total time taken by T2 = (10x/2v) + (30x/v) =35x/v
Required ratio of time = 25x/v : 35x/v = 5:7

52. ANSWER – 4

John = x units/day
Jack = 2x units/day
Jim = x units/day (1/3rd of John does = 3x units, out of which jack does 2x)
Total = 4x units/day
John's time taken = x(n+3) = 4x × n
Then n = 1 day for 4x units
For x units, Jim will take 4 days

53. ANSWER – B

Given, g(x) = f(x+1) – f(x-1)
g(x) = (x+1)^2 + a(x+1) +b – (x-1)^2 – a(x-1) – b
g(x) = 4x +2a
Also ,
g(20) = 72
4*20 + 2a = 72
Or a = -4
Now as f(x) >=0
It means (4ac-b^2)/4a≥0
(4b-a^2)/4≥0
Or (4b-16)/4≥0 ot b≥4 So least value of b =4

54. ANSWER – 90000

Let the principal be P .
As per question ,
P { (1+5/100)^2- 1}-P×3×3/100=1125
0.1025P – 0.09P = 1125
P = 90000

55. ANSWER – A
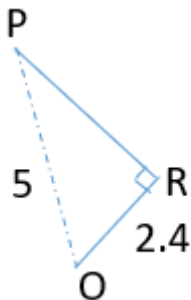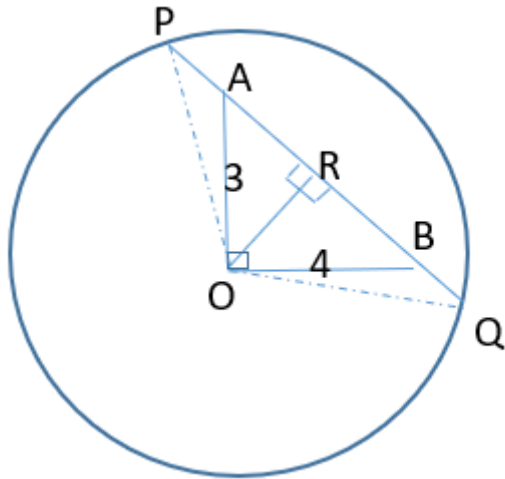
O is the center of the circle and radius of circle = 5
In triangle AOB, using pythagorean triplet AB = 5
OR = 3×453×45 = 2.4
Since OR if from the center it bisects the chord,
PR = RQ
Now in triangle POR,
$5^2 = PR^2 + (2.4)^2$
PR = √{19.24}
PQ = 2 √{19.24}
PQ ≅ 8.8

56. ANSWER – B

The distance between car B and C when car A reaches the destination = 90 – 50 = 40 km
Now when car B will travel next 50 km , it will reach the destination point and the distance between car B and C will be 45km.
Thus we can say for each 50 km that Car B travels , distance b/w B and C increases by 5 km
Thus the required distance = 50 *45/5 = 450 km

57. ANSWER – 315

_ _ _ _ on the 4 digit 7 has to come before 3

So, $^4C_2$ possibilities for 7 coming before 3 into the spaces

7 ___ 3 ____, 2 numbers are already there and 2 remaining spots we have to fill in

From 8 digits available (Excluding 7 and 3)

So, $^8C_2$ ways of choosing

After choosing two from 8, that two can be placed in any way

For example : 1 and 2 can be arranged as 12 and 21

So, $^4C_2 \times ^8C_2 \times 2$

Now we need to subtract the possibility where 0 comes in the first position

0753, So these are in the form 0__ __ __

In this 3 places 7 before 3 can be placed in $^3C_2$ ways and remaining 1 digit

Can be chosen from 7 (Excluding 0,3,7) digits.

$^3C_2 \times 7 = 21$ numbers

Should subtract 21 from $^4C_2 \times ^8C_2 \times 2$

$= (6 \times 28 \times 2) - 21$

$= 315$

58. ANSWER – A

Let the length of each sides of the triangle = x and that of rectangle are a and 3a.

So as per question 3x + 8a = 90 ———1)

Also $3a^2 = (\sqrt{3}/4 \ast x^2)^2 = 3/16 \ast x^4$

$16a^2 = x^4$

$x = 2\sqrt{a}$ ————-2)

On solving eq 1 and eq 2 , we get a = 9 and x =3

Thus the longer side of rectangle = 3a = 27

59. ANSWER – 800

Ratio of shares of Amal and Sunil = 3 : 2 = 6:4

Ratio of shares of Sunil and Mita = 4:5

Thus ratio of shares of Amal , Sunil and Mita = 6:4:5

As per question 6x – 4x = 400

x = 200

share of Sunil = 4x = 4*200 = 800

60. ANSWER – C

log(base a)(a/b) +log(base b)(b/a)

= 1 – log_a⁡b+1- log_b⁡a

= 2 – (log(base a)⁡b+ log(base b)⁡a)

= 2 – (log(base a⁡)b+1/(log(base a⁡)b))

Now as x +1/x≥2 for all the positive values of x .

So 2 – (log(base a)⁡ b+1/(log(base a)⁡ b)) will always be less than or equal to zero. Thus it can never be equal to 1.
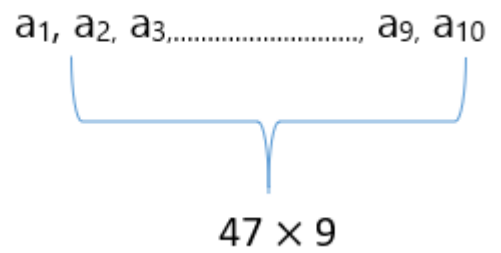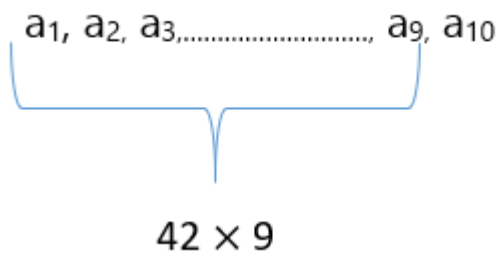
C2C MENTORS
CAT 2020 SLOT - 2

61. ANSWER – C
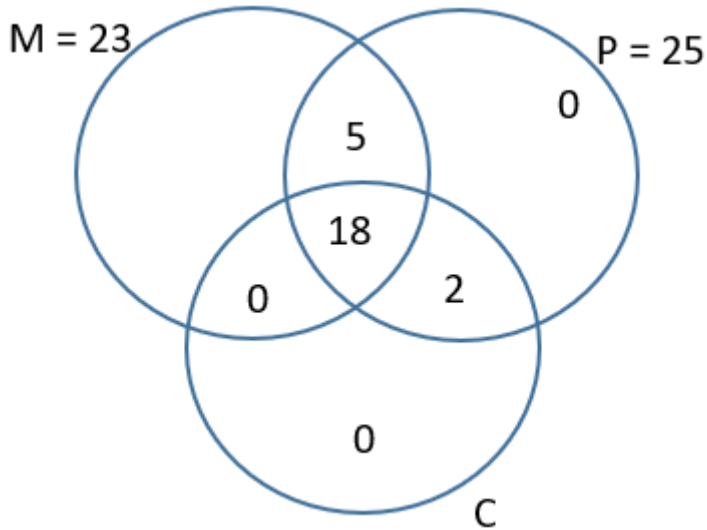
We need to have M∩C and P∩C
as small as possible.
Then Need to keep only M∩P as high as possible = 5
Smallest possible number of students choosing chemistry = 18 + 2 = 20

62. ANSWER – B

$a_1, a_2, a_3, \ldots \ldots \ldots \ldots, a_9, a_{10}$

42×9

$a_1, a_2, a_3, \ldots \ldots \ldots \ldots, a_9, a_{10}$

47×9

Here a_2 to a_9 is common to both the terms
So, $a_1 + (a_2$ to $a_9) = 42 \times 9$
$a_{10} + (a_2$ to $a_9) = 47 \times 9$
Solving these two $a_{10} - a_1 = 45$
$a_1, a_2, a_3, \ldots \ldots \ldots \ldots, a_9, (a_1 + 45)$
One instance is every number is 42
42, 42, …………………, 42, 42+45 (a_1 to a_9 are equal) -----------(1)
Another instance is every number is 47
47 – 45, 47, …………………, 47, 47 (a_2 to a_{10} are equal) ---------(2)
Mean of (1) = 46.5
Mean of (2) = 42.5
(1) – (2) = 4

63. ANSWER – A
Time taken by them to meet each other = √(1×4)=2 minutes
Time taken by Ram to reach from A to B = 1+2 = 3 minutes
Time taken by Rahim to reach from B to A = 4+2 = 6 minutes
As distance is same for both , so required ratio of speed = 6/3 = 2

64.ANSWER – B
Length of track T1 = Circumference of T1 = 2πr=2×3.14×100=614
Length of track T2 = Circumference of T2 = 2πr=2×3.14×20=122.8
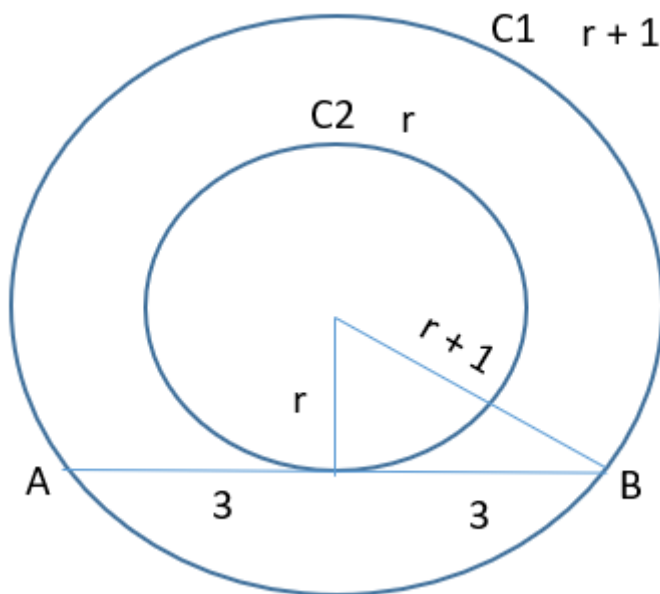So ratio of length = 614/122.8 = 5:1
Ratio of speed = 15 : 5 = 3:1
Ratio of time to cover their respective track = 5/3 : 1 = 5:3
Thus when Ram will make 3 rounds of T1 Rahim will make 5 round of T2 and they will meet at A again.
Thus the required answer = 3

65. ANSWER –10

The line from the center bisects chord of length 6
into 3 and 3. Since the triangle is of 3, r and r +1
Triplet of triangle 3,4 and 5
r = 4, r + 1 = 5 (radius of C1)
Diameter of C1 = 10

66. ANSWER – A
Let the labeled price = 100x
SP of 8 toys = 8*(100x – 20% of 100x) = 640x
SP of next 4 toys = 75% of *(100x – 20% of 100x)*4 = 240x
Total SP = 640x + 240x = 880x
As per question, 880x = 2112
x = 2.4
so Total MP = 1200x = 2800
Total CP = 880*2.4/1.1 = 1920
With no discount , profit = 2800 – 1920 = 880
Profit percentage = 880/1920 *100 = 50

67. ANSWER – A
Case 1 : if x +1 = 0
Means x = -1
Case 2 :
If x^2-5x+7=1
or x^2-5x+6=0
So x = 2 or 3
Thus possible number of integer solutions = 3

68. ANSWER – 17
Given,
2x +5y = 99
2x = 99 -5y
x = (99 -5y)/2
x = 49 -2y + (1-y)/2
x is minimum when y is maximum and vice versa. Also for x to be integer y need to be odd integer .
Maximum value of x = 49 –2(-19) + 20/2 =97
Next value of x = 49 + 2*17 + 18/2 = 92
At least value of x , x =y
So 7x = 99
x = 99/7 = 14.14
As x is an integer so x can be 97, 92 , 87……..22 , 17
Number of possible pair = (97-17)/5 + 1 = 16+1 =17

69. ANSWER – C
The sum of all the three lengths = height of equilateral triangle = s
If Side of equilateral triangle is a then s=√3/2*a
Or a=2s/√3
So required Area = √3/4*a^2 = s^2/√3

70. ANSWER – D
mth=34   nth= 12
m > n
Given r is an integer, So r^k = 12/3/4 = 16
r^k = 2^4 or 4^2
Since asked for minimum possible value, Taking r^k = $\{(-2)\}^2$ or $\{(-4)\}^2$
k = n – m (From m how many terms we have to jump to reach n)
We have two cases r = - 2 and n - m = 4 ----> r + n – m = 2
r = - 4 and n – m = 2 ----> r + n – m = - 2
-2 is the smallest possible value

71. ANSWER – A
Rice in april = 450
Increase in 20% = +90
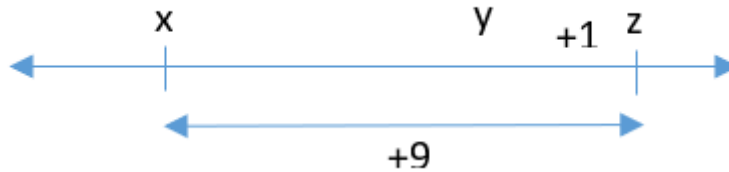Since 150 more is the amount he spent, +60 should be on wheat
So 12%(Wheat) = Rs 60
Price of wheat = 500
So +60 in may = 500 + 60 = 560

72. ANSWER – 23

$x + x + 8 < x + 9 + 5$
$2x + 8 < x + 14$
$x < 6$
Maximum possible of x = 5, then y = 13
$2x + y = 2(5) + 13 = 23$

73. ANSWER –A

	Pencils and it's price = x	Sharpeners and it's price = x+2
Aron	p	s
Aditya	2p	s-10

(Aron) Px + sx + 2s = (Aditya) 2px + sx – 20 – 10x + 2s
Px = 10x + 20
x(p-10) = 20
Together they bought 3p pencils
Minimum value of p has to be 11
So, minimum pencils they bought together is 33

74. ANSWER –C

Dividing by x on both numerator and

denominator

$$\frac{1}{\sqrt{\frac{1+x^4}{x^2}}} = \frac{1}{\sqrt{\frac{1}{x^2}+x^2}}$$

$$\frac{1}{x^2} + x^2 \geq 2$$

$$\sqrt{\left[\frac{1}{x^2}+x^2\right]} \geq \sqrt{2}$$

$$\frac{1}{\sqrt{\frac{1}{x^2}+x^2}} \leq \frac{1}{\sqrt{2}}$$

75. ANSWER – D

$|x|^2 - 2|x| + |a - 2| = 0$
$|x|^2 - 2|x| + 1 = 0$ is the square of a quadratic number
In the above equation the value of constant cannot be more than 1
So $|a - 2| = 0$ or $= 1$
$|x|^2 - 2|x| = 0$
$|x|^2 = 2|x|$
x = 0 or 2 or -2
For all these possibilities value of a = 2
$|x|^2 - 2|x| + 1 = 0$
$(|x| - 1)^2 = 0$
$|x| = 1$
So, x = 1 or x = -1
Then $|a - 2| = 1$, a = 3 or a = 1
Four combinations of (x,a) are possible already we have 3
Totally 7 pairs

76. ANSWER – 2704
Given,
x+y = 102
we have to minimize , 2601*(1+1/x)(1+1/y)=2601(1+x)(1+y)/xy
to minimize this we have to maximize xy , which is maximum when x =y = 102/2 =51
so minimum value = 2601(1+x)(1+y)/xy = 2601(1+51)(1+51)/(51*51) = 2704