

MOCK 4 SOLUTION

1. (b)
The concerned sentence talks about 'customer satisfaction' as one of the core metrics/parameters for newly started businesses. Now anywhere, when the talk is regarding metrics or parameters or quantities for that matter related to something, these can only be tracked and nothing else.
2. (e)
Anywhere in business, when customers are once acquired, the next challenge comes in the form of keeping hold of these acquired customers, I.e., retaining them. No other option will fit the bill here. Also, going further into the passage, the talk is only regarding either acquisition or retention and hence the answer.
3. (c)
Using 'viable' and 'new' are irrelevant to the context here, as "new purchases" doesn't stand for anything. Since, occasional has already been used later in the sentence, using 'rare' prior to that will be grossly incorrect. The difference between 'initial' and 'one-off' is that initial means that it's a process and has a continuation later but as per the context we don't know that yet as the talk is regarding a customer and after making the first or one-off purchase, the actual challenge lies in making him come again for a 2nd one, and hence the answer.
4. (a)
The sentence shows the transition phase of a customer from making the first purchase to slowly moving up the ladder in becoming a regular customer. Now to highlight this transmission, only 'graduates' will fit the bill here 'inundates' which means overwhelming and 'enunciate' which means to express are irrelevant to the correct.
5. (a)
The word should be such that it comprehends with the customer behaviour with respect to his buying patterns. Now, 'Pacifist' means peacemaker, 'perpetrator' means a person who carries out harmful acts and 'Monocrat' and 'absolutist' are both synonyms of dictator and hence all of these finds no relevance here. Option A will be the answer.
6. (c)
Replace 'were' with 'was'. The subject here is 'relation' which is singular, hence the appropriate auxiliary would be 'was'. Verb must agree with its subject.
7. (a)
The word 'distress' is an uncountable abstract noun, and cannot be used in plural form.
8. (c)
would completely abolish is the right usage instead of 'would have abolished completely'. Since the sentence is in the past tense with a 'that' conjunction, there should be verb of simple past tense; 'would have' is generally used with a conditional clause. Also, the adverb 'completely' is wrongly placed.
9. (e)
All the parts are correct, making option E the right answer.
10. (e)
All the parts are correct, making option E the right answer.
11. (d)
Here, the sentence depicts cause and effect. I is the cause as to why she could not get a visa for the US, which is stated in II. The appropriate connector here is 'therefore'. The correct sentence will be: She was a member of the Communist-run Free German Youth, and therefore, for some years she could not get a visa for the US to visit her family there. Option a is negated as the
12. (d)
'Nevertheless' means 'in spite of and would be contextually incorrect here. Options b and c are ruled out on the same ground. The appropriate connector here is 'once' (as soon as/when), which shows the causational relation between two sentences. The correct sentence will be: Once the affair was leaked to and investigated by the French media. Sarkozy found himself cast in the role of victim of an apparent conspiracy to wreck his political career.
13. (b)
Two different subjects are being compared here with reference to a common topic that is the Olympics. The appropriate connector here is 'in contrast'. The correct sentence will be: India, with a population of more than 1 billion, has failed to pull its weight in the Olympic arena, in contrast with neighbouring China and its emergence as a global sports powerhouse. None of the other connectors will form a coherent sentence.
14. (c)

Statement A starts with saying that the conservationists are worried. Now, the next sentence should, in all probability, talk about why they're worried. This is given in E. Then, the contradiction for the birth of new calves has been talked about in G. Next the idea mentioned in D is carried forward by C, which introduces 2017 and the reason behind it is contained in F. After this, B says that "it is twice" which it is referring to the context of numbers contained in F. Hence, the final combination will be AEGDCFB.

15. (e) Statement A starts with saying that the conservationists are worried. Now, the next sentence should, in all probability, talk about why they're worried. This is given in E. Then, the contradiction for the birth of new calves has been talked about in G. Next the idea mentioned in D is carried forward by C, which introduces 2017 and the reason behind it is contained in F. After this, B says that "it is twice" which it is referring to the context of numbers contained in F. Hence, the final combination will be AEGDCFB.
16. (e) Statement A starts with saying that the conservationists are worried. Now, the next sentence should, in all probability, talk about why they're worried. This is given in E. Then, the contradiction for the birth of new calves has been talked about in G. Next the idea mentioned in D is carried forward by C, which introduces 2017 and the reason behind it is contained in F. After this, B says that "it is twice" which it is referring to the context of numbers contained in F. Hence, the final combination will be AEGDCFB.
17. (c) Statement A starts with saying that the conservationists are worried. Now, the next sentence should, in all probability, talk about why they're worried. This is given in E. Then, the contradiction for the birth of new calves has been talked about in G. Next the idea mentioned in D is carried forward by C, which introduces 2017 and the reason behind it is contained in F. After this, B says that "it is twice" which it is referring to the context of numbers contained in F. Hence, the final combination will be AEGDCFB.
18. (b)

Statement A starts with saying that the conservationists are worried. Now, the next sentence should, in all probability, talk about why they're worried. This is given in E. Then, the contradiction for the birth of new calves has been talked about in G. Next the idea mentioned in D is carried forward by C, which introduces 2017 and the reason behind it is contained in F. After this, B says that "it is twice" which it is referring to the context of numbers contained in F. Hence, the final combination will be AEGDCFB.

19. (a) The passage focuses on the sixth mass extinction event. It details this by citing a study and then its findings. It tells us how so many species are becoming extinct faster than ever and the causes responsible for this disaster. It also explores the possibility that us humans might be driving this change. Hence, we can choose A as a suitable title. B cannot be an apt title as microbes are not mentioned as a reason for the extinction event anywhere in the passage. C cannot be a title as climate change is only listed as one of the factors responsible for the lead-up to the mass extinction event, but is not the central theme of the passage. D cannot be a suitable title as the passage is not about agriculture or global warming. E cannot be a suitable title as the passage is not about ecosystem modelling. A is the right answer.
20. (c) The first sentence of the third paragraph clearly tells us that C is the right answer.
21. (e) The last two sentences of the fourth paragraph list the ecosystem services. Options A through D are mentioned here. Hence, E is the right answer.
22. (b) The second and third sentences of the fourth paragraph list the reasons as to why the wildlife is dying out. Only B does not figure in the list. Hence, B is the right answer.
23. (b) Eschew - Deliberately avoid using; abstain from. Among the given word, only 'avoid' can be a synonym of the given word. Hence, B is the right answer.
24. (e) A is mentioned in the third sentence of the first paragraph. B is mentioned in the second sentence of the third paragraph. C is mentioned in the first sentence of the fourth paragraph. D is mentioned in

the third sentence of the fourth paragraph. As all the options A through D are present in the paragraph, E is the right answer.

25. (e)
Statement A is mentioned in the second sentence of the last paragraph. Statement B can be implied by his quote mentioned in the last sentence of the last paragraph. Statement C is mentioned in the fourth sentence of the fourth paragraph. Statement D is mentioned in the first sentence of the last paragraph. Statement E is incorrect as can be observed by the second sentence of the last paragraph. E is the right answer.
26. (d)
The meaning of 'secreted' is 'discharged / produced (as in a gland)'. As is evident from this, (a) is not appropriate as a filler. (b) and (c) mean the same and they both are suitable as part of the sentence, (d) is the correct option.
27. (b)
The phrase 'was surely' when used with 'like...' creates a grammatical mismatch. The other two phrases in (a) and (b) can both fill the blank to create meaningful sentences. The correct option is (b).
28. (d)
The phrasal verb 'look after' means 'to take care of, and is not appropriate in the sentence, since the presence of 'in looks' (meaning 'in appearance') indicates that the sentence is talking of resemblances. The correct phrase in the sentence will therefore be 'take after' (meaning 'resemble, be similar to a relative'), as also the word 'resemble', (d) is the right answer.
29. (a)
The meaning of the phrasal verb 'call back' is 'cause to be returned (often a telephone call)' and is the only phrase from the options that fits in the blank. While 'be returning' is grammatically meaningless, 'recall' means 'ask (e.g. a defective product) to be returned', (a) is the right answer.
30. (c)
The phrases 'hand in glove' and 'hand in hand' mean the same -- 'in close association and cooperation'. They fit the sentence correctly. However, 'hand and foot' means 'with great and concerted effort' and is unsuitable in the blank, (c) is the right answer.

(31 to 35)

- 31.(c) The age as on 1st January 2018 will be:

1970	48
1972	46
1976	42
1981	37
1987	31
1995	23
1998	20
2004	14

As was born in 1981 and was not born in Mumbai, hence he was born in either Kolkata or Delhi

Only 2 persons were born in Mumbai and one of them had the age which was prime numbered. Thus, he can be aged 37, 31 or 23. A was not born in Mumbai and the one aged 31 was born in Delhi. Thus, the one aged 23 was born in Mumbai

The eldest person was not born in Kolkata, thus, in Mumbai or Delhi

The person born in 1987 was born in Delhi

1970	48		Mumbai/Delhi
1972	46		
1976	42		
1981	37	A	
1987	31		Delhi
1995	23		Mumbai
1998	20		
200	14		

Three persons were born between H and F and only one of them was born in Kolkata. H was born before F

D was born after 1990. Hence in 1995, or in 2004

There were 2 persons born between D and C.

Case 1:

1970	48		Mumbai/Delhi
1972	46	H	Kolkata
1976	42		
1981	37	A	Kolkata/Delhi
1987	31	C	Delhi
1995	23	F	Mumbai
1998	20		
2004	14	D	

Case 2:

1970	48		
1972	46		
1976	42	H	
1981	37	A	Kolkata/Delhi
1987	31	C	Delhi
1995	23		Mumbai
1998	20	F	
2004	14	D	

B was 6 years elder to E. Thus, case 2 becomes invalid

B and D were born in the same place. Thus, B would be born in Delhi as only 2 persons were born in Mumbai.

E was not born in Kolkata

1970	48	B	Delhi
1972	46	H	Kolkata
1976	42	E	Mumbai
1981	37	A	Kolkata
1987	31	C	Delhi
1995	23	F	Mumbai
1998	20	G	Kolkata
2004	14	D	Delhi

G is the 2nd youngest person

32.(a)

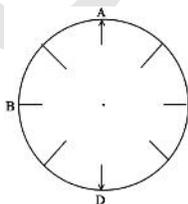
33.(c)

34.(a)

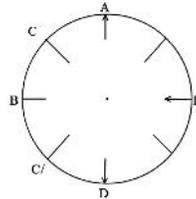
35.(b)

(36 to 40)

36.(c) A is facing away from the centre. B is sitting 2nd to the left of A and 2nd to the right of D.

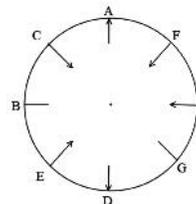


C is sitting at the gap of 2 persons H, who is neither the neighbour of B nor A. Both C and H are facing towards centre.



Both the neighbours of B are facing in the same direction. (i.e. either towards or away from the centre)

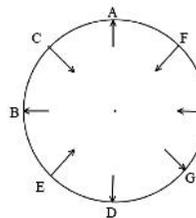
F is sitting at the immediate right of H and is facing towards E.



Number of persons facing away from the centre are same as the number of persons facing towards centre.

So, B and G are facing away from the centre.

Final solution:



A is standing diagonally opposite to D.

37.(c)

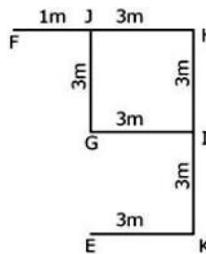
38.(a)

39.(b)

40.(c)

(41 to 43)

41.(e)



J is 6m north of point E.

42.(b)

43.(c)

44.(e) X is greater than or equal to W.

W is equal to T.

T is greater than or equal to U.

Now, for $Y < X$ definitely, Y has to be less than U. Thus the correct operator is $<$.45.(c) (a) $A \geq H$, so this is not definitely true.(b) $A > N < H$, no relation can be established.(c) $H < A$ hence correct option(d) $H > A$, this is incorrect46.(a) A equals B which is greater than C and is greater than or equal to D. So, $A > D$ is definitely true.

47.(d)

A	W	A	K	E	N	I	N	G
B	V	B	J	F	M	J	M	F
V	M	M	J	J	F	F	B	B

48.(d)

R	E	F	R	E	S	H	I	N	G
18	5	6	18	5	19	8	9	14	7

There are three such pairs, EF, HI and IG.

(49 to 53)

49.(e) C is sitting on a chair 3rd to the left of H's chair, who is facing vacant chair. J is sitting to the immediate right of H and is facing B. C is not facing in the north direction

In only one row, both vacant chairs are placed adjacent to each other but neither one is placed at the end of the row.

Case 1:-J H _ _ CB Vacant Vacant _ _**Case 2:-**J H Vacant Vacant CB Vacant _ _ _

D is sitting on a chair which is 2nd to the left of chair of C. So, D is sitting at the leftmost position in the row facing south.

G is facing A, who is sitting on the chair adjacent to C.

Case 1:-J H Vacant A C Vacant DB Vacant Vacant G _ _ _**Case 2:-**J H Vacant Vacant C A DB Vacant _ _ _ G _

E and F are sitting on a chair adjacent to G.

So, case 1 becomes invalid.

Case 2:-

In only one row, both vacant chairs are placed adjacent to each other but neither one is placed at the end of the row.

So, both vacant chairs which are facing north are placed at the gap of 1 chair from each other.

I is sitting on one of the chair.

J H Vacant Vacant C A DB Vacant I Vacant E/F G F/E

Either E or F is facing C.

50.(e)

51.(b)

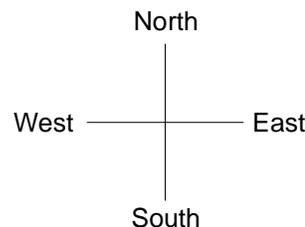
52.(d)

53.(a)

(54 to 56)

54.(a) A is standing 6th to the left of B and is standing 4th from the left end of the row.

G is standing 7th from the east end of the row.

B _ _ G _ _ A _ _ _

Number of persons standing to the left of B is same as the number of persons standing to the right of F, who is the neighbour of G.

Case 1:-

F is standing to the immediate right of G.



Case 2:-

F is standing to the immediate left of G.

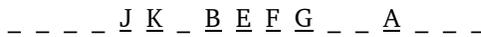


K is standing at the gap of 2 persons from E, who is the neighbour of F

K is standing to the immediate left of J.

Case 1:-

J is neither the neighbour of A nor B.



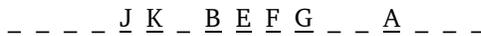
Case 2:-



J is neither the neighbour of A nor B.

So, case 2 is invalid.

So, final solution is;

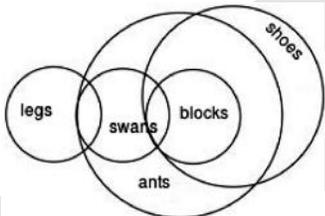


17 persons are standing in the row.

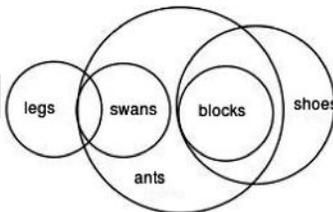
55.(a)

56.(e)

57.(e) We may have the below possible cases:
Some swans are blocks.



No swans is a boock.

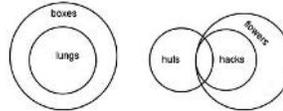


Some shoes are always blocks band all blocks being ants is a possibility.

58.(e) There are two possible cases.

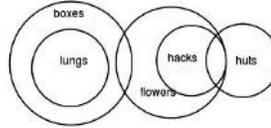
Case 1:

No flower is a box. Here conclusion III follows.



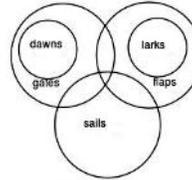
Case II:

Some flowers are boxes. Here conclusion I follows.

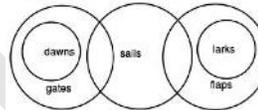


59.(e) There are two possible cases:

Case I: Some gates are flaps

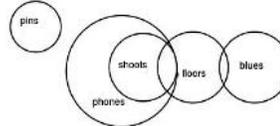


Case II: No flap is a gate



In either case, some gates are dawns.

60.(c) The given statements can be depicted as:

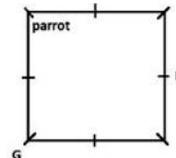


Thus conclusions I and IV follow.

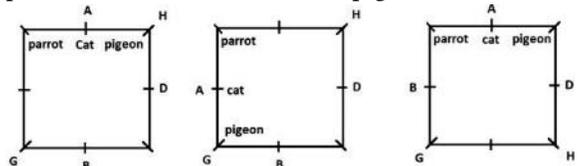
(61 to 65)

61.(b) D was seated alone one of the sides and was seated 3rd to the right of G

The one who drew a parrot was 2nd to the left of G

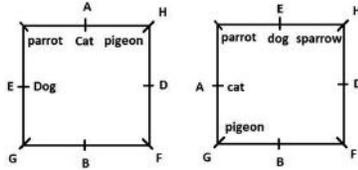


B was 3rd to the left of H who was neighbouring D
Cat was drawn by A and he was seated as an immediate neighbour of both the one with drew parrot and the one who drew pigeon.



The one who drew parrot faced F. Thus 3rd arrangement s invalid.

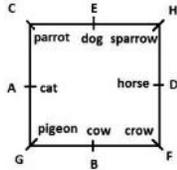
E drew the dog. B's neighbour did not draw the sparrow.



First arrangement is invalid as B's neighbours did not draw the sparrow.

The one who drew the horse was to the immediate right of the one who drew the crow.

The final arrangement is as follows:



D drew the horse

62.(a)

63.(d)

64.(b)

65.(b)

66.(b) Let x, y, z be the three numbers,
Given, $(x + y) / 2 - (y + z) / 2 = 20$
 $\Rightarrow (x - z) / 2 = 20$
 $\Rightarrow x - z = 2 * 20 = 40.$

67.(b) Let the present ages of A, B, C, D be a, b, c and d respectively./From problem,

$$a : b = 2 : 3, b : c = 6 : 5, c : d = 15 : 17$$

Now,

$$a : b = 2 : 3 = 4 : 6$$

[multiplying the ratio by 2 so as to match $b : c$]

$$b : c = 6 : 5$$

$$/ a : b : c = 4 : 6 : 5 = 12 : 18 : 15$$

[Multiplying the ratio by 3 to match $c : d$]

Also, $c : d = 15 : 17$

$$/ a : b : c : d = 12 : 18 : 15 : 17$$

/ Lets their ages be $12k, 18k, 15k, 17k$

\therefore Sum of their ages = 124

$$\Rightarrow 12k + 18k + 15k + 17k = 124$$

$$\Rightarrow 62k = 124$$

$$\Rightarrow k = 2$$

The ratio of their ages after 10 years

$$= (12k + 10) : (18k + 10) : (15k + 10) : (17k + 10)$$

$$= 34 : 46 : 40 : 44$$

$$= 17 : 23 : 20 : 22$$

68.(a)

$$93.75\% \text{ of } C = 125\% \text{ of } A$$

$$A : C = 93.75 / 125 = 3 : 4 \quad \dots(i)$$

$$62.5\% \text{ of } 150\% \text{ of } C = B$$

$$B = (62.5 / 100) * (150 / 100) * C$$

$$B = (15 / 16) * C$$

$$B : C = 15 : 16 \quad \dots(ii)$$

From (i) and (ii)

$$A : C = 3 : 4$$

$$C : B = 16 : 15$$

$$A : C : B = (3 * 16) : (4 * 16) : (4 * 15)$$

$$= 48 : 64 : 60 = 12 : 16 : 15$$

Let A, B and C is $12x, 15x$ and $16x$ respectively.

$$15x - 12x = 15$$

$$3x = 15$$

$$x = 5$$

Difference between A and C

$$= 16x - 12x = 4x = 20$$

69.(c) Ratio of syrup and water in the resultant mixture

$$= ((3 / 5) * 1 + (7 / 10) * 2) :$$

$$((2 / 5) * 1 + (3 / 10) * 2)$$

$$= 2 : 1$$

(70 to 75)

70.(a) Total number of cars of all 4 types in Pune

$$= 20 + 15 + 18 + 16 = 69$$

Total number of Aston cars in all 4 cities together

$$= 16 + 17 + 12 + 15 = 60$$

Required percentage

$$= (69 / 60) * 100\% = 115\%.$$

71.(c) Number of litres of petrol consumed by one Zenvo to cover 120 km

$$= 120 / 2 = 60 \text{ litres}$$

Total petrol consumed by all Zenvo cars

$$= 60 * 20 = 1200 \text{ litres}$$

Number of litres of petrol consumed by one Ferrari to cover 120 km

$$= 120 / 2.5 = 48 \text{ litres}$$

Total petrol consumed by all Ferrari cars

$$= 48 * 15 = 720 \text{ litres}$$

Number of litres of petrol consumed by one Huayra to cover 120 km

$$= 120 / 3 = 40 \text{ litres}$$

Total petrol consumed by all Huayra cars

$$= 18 * 40 = 720 \text{ litres}$$

Number of litres of petrol consumed by one Aston to cover 120 km

$$= 120 / 4 = 30 \text{ litres}$$

Total petrol consumed by all Aston cars
 $= 16 \times 30 = 480$ litres
 Required total = $1200 + 720 + 720 + 480 = 3120$
 litres.

72.(c) Average number of Zenvo cars in all four cities together

$$= (20 + 19 + 30 + 32) / 4 = 101 / 4$$

Average number of Ferrari cars in all four cities together

$$= (15 + 14 + 19 + 20) / 4 = 68 / 4$$

Required average

$$= (101 / 4) - (68 / 4) = 33 / 4 = 8.25.$$

73.(a)

Required ratio = $(19 + 14 + 20 + 17) / (30 + 19 + 17 + 12)$
 $= 70 / 78 = 35 / 39.$

74.(b) Total number of Huayra cars in all four cities together

$$= (18 + 20 + 17 + 16) = 71$$

Total income of Huayra

$$= 71 \times 15 \text{ Cr} = 1065 \text{ Cr.}$$

(75 to 79)

75.(b) Number of accidents in Pune in years 2014, 2015 and 2016 (in thousands) were 20, 18 and 30 respectively.

As the ratios of number of accidents in Pune to the number of accidents in Mumbai in years 2014, 2015 and 2016 were 5 : 4, 9 : 10 and 5 : 4 respectively.

So, number of accidents in Mumbai in years 2014, 2015 and 2016 (in thousands) were 16, 20 and respectively.

Let number of accidents in Bengaluru in year 2015 be N

Number of accidents in Bengaluru in years 2014, 2015 and 2016

$$= 1.2N + N + 1.44N = 91000$$

$$3. + 64N = 91000$$

$$N = 25000$$

So, number of accidents in Bengaluru in years 2014, 2015 and 2016 (in thousands) were 30, 25 and 36 respectively.

Number of accidents in Delhi in year 2016 = $1.25 \times 36 = 45$ (thousands)

The ratio of number of accidents in Delhi in years 2014, 2015 and 2016 was 8 : 6 : 9.

So, number of accidents in Delhi in years 2014, 2015 and 2016 (in thousands) were 40, 30 and 45 respectively.

Number of accidents in Kolkata in years 2014, 2015 and 2016 (in thousands) were 25, 30 and 36 respectively.

Following table shows number of accidents in each of the 5 cities (in thousands)

City	2014	2015	2016
Pune	20	18	30
Mumbai	16	20	24
Bengaluru	30	25	36
Delhi	40	30	45
Kolkata	25	30	36

Total number of accidents in Pune and Bengaluru together in year 2016

$$= (30 + 36) = 66 \text{ (thousands)}$$

Total number of accidents in Pune and Bengaluru together in year 2014

$$= (20 + 30) = 50 \text{ (thousands)}$$

Required percentage

$$= (66 / 50) \times 100\% = 132\%$$

76.(a) Required average number of accidents

$$= ((30 + 24 + 36 + 45 + 36) / 5) \text{ thousands}$$

$$= (171 / 5) \text{ thousands} = 34200$$

77.(c) Total number of accidents in Bengaluru in year 2014 = 30 (thousands)

Total number of accidents in Bengaluru in year 2016 = 36 (thousands)

Required percentage increase

$$= ((36 - 30) / (30)) \times 100\% = 20\%.$$

78.(a) Average number of accidents in Kolkata in all 3 given years together

$$= ((25 + 30) / 3) \text{ thousands}$$

$$= (91 / 3) \text{ thousands}$$

Average number of accidents in Pune in all 3 given years together

$$= ((36 + 25 + 30) / 3) \text{ thousands}$$

$$= (91 / 3) \text{ thousands}$$

Required difference

$$= ((91 / 3) - (91 / 3)) \text{ thousands}$$

$$= 0 \text{ thousands}$$

79.(a) Total number of accidents in Pune, Mumbai and Bengaluru together in year 2014

$$= (20 + 16 + 30) = 66 \text{ (thousands).}$$

Total number of accidents in Bengaluru, Delhi and Kolkata together in year 2016

$$= (36 + 45 + 36) = 117 \text{ (thousands)}$$

$$\text{Required ratio} = 66 / 117 = 22 / 39.$$

- 80.(a)** Let's suppose amount of money invested by both Ajay and Vijay is Rs N.

Using statement (1) alone-

Let's suppose Vijay invested for V months.

$$\text{Therefore; } (V \times N) / (8 \times N) = 5/4$$

$$\Rightarrow V = 10$$

Using statement (2) alone-

Using this statement alone we can't get the answer.

- 81.(c) Using statement (1) alone-**

Time taken by Suman to travel 1st 100 km = $100 / 40 = 2.5$ hours

Total distance travelled in next 4 hours = $(50 \times 4) = 200$ km

Total distance travelled by Suman during her entire journey = $(200 + 100)$ km = 300 km

Therefore her average speed = $300 / ((4 + 2.5)) = 46.15$ km/hr

Using statement (2) alone-

Average speed in this case = $(2 \times 40 \times 60) / ((40 + 60)) = 48$ km/hr

Hence, we can answer using both the statements alone.

- 82.(e) Using statement (1) alone-**

For calculating the profit made, by Ram we should be Cost price hence by knowing marked price we can't determine the profit made by Ram.

Using statement (2) alone-

By using this statement, we can't get the answer as we don't know cost price.

Using both the statements together-

Even by using both the statements together we can't the answer because statement (2) is just a mere restatement of (1).

- 83.(e) Using statement (1) alone-**

Total matches that Indian team won out of the first 20 matches = $(20 \times 0.6) = 12$ matches

Total matches played are unknown. Hence (1) alone is not sufficient.

Using statement (2) alone-

Total matches that Indian team won out of the last 15 matches = $(15 \times 0.4) = 6$ matches.

Total matches played are unknown. Hence (2) alone is not sufficient.

Using both the statement together-

Since we don't know the total number of matches that India played in year 2015 even after using both the statements hence we cannot get the answer.

- 84.(c)** Let, the ages of Kartik and Sukanya before 4 years was 13k years and 15k years respectively

According to the question

$$(13k + 8) / (12k + 8) = 17 / 16$$

$$\Rightarrow 16 \times (13k + 8) = 17 \times (12k + 8)$$

$$\Rightarrow 208k + 128 = 204k + 136$$

$$\Rightarrow 208k - 204k = 136 - 128$$

$$\Rightarrow 4k = 8$$

$$\Rightarrow k = 8 / 4$$

$$\Rightarrow k = 2$$

Present age of Kartik

$$= 13k + 4 = 13 \times 2 + 4 = 30 \text{ years}$$

Present age of Sukanya

$$= 12k + 4 = 12 \times 2 + 4 = 28 \text{ years}$$

From II:

Kartik + Sukanya + Simul

$$= 3 \times 17 + 3 \times 4$$

$$\Rightarrow \text{Kartik} + \text{Sukanya} + \text{Simul}$$

$$= 51 + 12$$

$$\Rightarrow \text{Kartik} + \text{Sukanya} + \text{Simul} = 63$$

From I and II:

Let, the ages of Kartik and Sukanya before 4 years was 15k years and 12k years respectively

According to the question

$$(13k + 8) / (12k + 8) = 17 / 16$$

$$\Rightarrow 16 \times (13k + 8) = 17 \times (12k + 8)$$

$$\Rightarrow 208k + 128 = 204k + 136$$

$$\Rightarrow 208k - 204k = 136 - 128$$

$$\Rightarrow 4k = 8$$

$$\Rightarrow k = 8 / 4$$

$$\Rightarrow k = 2$$

$$\text{Present age of Kartik} = 13k + 4 = 13 \times 2 + 4 = 30$$

years

$$\text{Present age of Sukanya} = 12k + 4 = 12 \times 2 + 4 = 28$$

years

$$\text{Kartik} + \text{Sukanya} + \text{Simul} = 3 \times 17 + 3 \times 4$$

$$\Rightarrow \text{Kartik} + \text{Sukanya} + \text{Simul} = 51 + 12$$

$$\Rightarrow \text{Kartik} + \text{Sukanya} + \text{Simul} = 63$$

$$\Rightarrow 30 + 28 + \text{Simul} = 63$$

$$\Rightarrow 58 + \text{Simul} = 63$$

$$\Rightarrow \text{Simul} = 63 - 58$$

$$\Rightarrow \text{Simul} = 5 \text{ years}$$

Hence, both statements I and II together are needed to answer the question.

- 85.(d)** Let the radius of the smaller spheres be 'x' units and 'y' units.

$$\text{Given, } TTx^2 : TTy^2 = 4 : 9 \quad x : y = 2 : 3$$

Let them be 2k and 3k respectively.

$$\text{Sum of radii} = 2k + 3k = 5k.$$

Let the radius of the larger sphere be 'r' units.

$$\therefore (4/3)\pi r^3 = (4/3)\pi x^3 + (4/3)\pi y^3$$

$$\Rightarrow r^3 = 8k^3 + 27k^3$$

$$\Rightarrow r^3 = 35k^3$$

$$\text{Required ratio} = r^3 / (5k)^3 = 35 : 125 = 7 : 25$$

86.(e) The pattern is as follows:

$$2 + 11 \times 1 = 13$$

$$13 + 11 \times 2 = 35$$

$$35 + 11 \times 3 = 68$$

$$68 + 11 \times 4 = 112$$

$$112 + 11 \times 5 = 167$$

87.(e) The pattern is as follows:

$$3 \times 5 + 8 = 23$$

$$4 \times 6 + 9 = 33$$

$$5 \times 7 + 10 = 45$$

$$6 \times 8 + 11 = 59$$

$$7 \times 9 + 12 = 75$$

$$8 \times 10 + 13 = 93$$

88.(e) The pattern 18 being multiplied, by consecutive prime numbers:

$$18 \times 2 = 36$$

$$18 \times 3 = 54$$

$$18 \times 5 = 90$$

$$18 \times 7 = 126$$

$$18 \times 11 = 198$$

$$18 \times 13 = 234$$

89.(b) The pattern is as follows:

$$25^2 + 4 = 629$$

$$24^2 + 3 = 579$$

$$23^2 + 2 = 531$$

$$22^2 + 1 = 485$$

$$21^2 + 0 = 441$$

$$20^2 + -1 = 399$$

90.(a) The pattern is as follows:

$$9^3 - 5 = 724$$

$$8^3 - 6 = 506$$

$$7^3 - 7 = 336$$

$$6^3 - 8 = 208$$

$$5^3 - 9 = 116$$

$$4^3 - 10 = 54$$

91.(d) Ratio of share in the profit.

$$\text{Anik} : \text{Risabh} : \text{Balak} = (1/5 \times \frac{1}{4}) : (1/3) :$$

$$[(1 - 1/5 - 1/3) \times (1 - \frac{1}{4} - 1/3)]$$

$$= 1/20 : 1/9 : (15 - 3 - 5) / 15 \times (12 - 3 - 4) / 12$$

$$= 1/20 : 1/9 : 7/36$$

$$= 9 : 20 : 35$$

$$\begin{aligned} \text{Share of Balak in the profit} &= 35 / (9 + 20 + 35) \times 6400 \\ &= 35 / 64 \times 64000 \\ &= \text{Rs. } 35000 \end{aligned}$$

92.(d) Let the amount paid by Adam for the article be x .

$$\text{Cost price of Bob} = 1.15x$$

$$\text{Cost price of Charlie} = 0.8 * 1.15x = 0.92x$$

$$\text{Cost price of Dava} = 1.5 * 0.92x = 1.38x = 345$$

$$\Rightarrow \text{Amount paid by Adam for the article}$$

$$= 345 / 1.38 = 250$$

93.(a) Let principal be P

$$\text{Interest in 1st year} = (10 / 100) \times P$$

$$= 0.1P$$

$$\text{Interest in second year}$$

$$= (0.1P) + ((10 / 100) \times (10 / 100) \times P)$$

$$= 0.1P$$

$$\text{Interest in second year}$$

$$= (0.1P) + ((10 / 100) \times (10 / 100) \times P)$$

$\times P$

$$= 0.1P + (0.01P)$$

$$\text{Total interest} = 0.1P + 0.1P + 0.1P = 0.21P$$

$$0.21P = 4200$$

$$P = \text{Rs. } 20000$$

Compound interest on 20000 compounded half-yearly in first 6 months

$$= (8 / 100) \times 20000 = 1600$$

Compound interest in next 6 months

$$= 1600((8 / 100) \times 1600)$$

$$= 1600 + 128 = 1728$$

Total interest = 1600 + 1728 = Rs. 3328.

94.(a) Total no. of possible outcomes = ${}^{12}C_3 = 220$.

Number of ways of selecting three defective bulbs from 6 defective bulbs = ${}^6C_3 = 20$.

Probability that the room is not lighted

$$= 20 / 220 = 1 / 11.$$

Probability that the room is lighted

$$= 1 - (1 / 11) = 10 / 11]$$

95.(b)

$$23 \times ? \times 8 = 37^2 + 1207$$

$$184 \times ? = 1369 + 1207 = 2576$$

$$? 2576 / 184 = 14$$

96.(e)

$$? = 62 \times 50 + 22 \times 77 - 83 \times 53$$

$$? 3100 + 1694 - 4399 = 395$$

97.(e)

$$?\% \text{ of } 70 = 140 - 90\% \text{ of } 140$$

$$?\% \text{ of } 70 = 140 - 90 \times 140 / 100$$

$$= 140 - 126 = 14$$

$$? = 14 \times 100 / 70 = 20$$

98.(b)

$$\begin{aligned}
 ? &= 47 \times 33 + 63 \times 57 - 52 \times 48 \\
 &= (40 + 7) \times (40 - 7) + (60 + 3) \\
 &\quad \times (60 - 3) - (50 + 2) \times (50 - 2) \\
 &= (40^2 - 7^2) + (60^2 - 3^2) \\
 &\quad - (50^2 - 2^2) \\
 &= 1551 + 3591 - 2496 = 2646
 \end{aligned}$$

99.(d)

$$\begin{aligned}
 ? &\approx (80 / 2) - 8 \times 15 + \sqrt{289} \\
 &= 40 - 120 + 17 \\
 &= -63
 \end{aligned}$$

100.(b) Let the speed of speed of Sudeep in still water and speed of stream is 'x' and 'y' respectively.

Speed in downstream = $(x + y)$ km/h

Speed of upstream = $(x - y)$ km/h

Total time takey by Sudeep in downstream

$$= [45 / (x - y)]$$

According to questions

$$= [45 / (x + y)] : [45 / (x - y)]$$

$$= 3 : 5$$

$$\Rightarrow 5x - 5y = 3x + 3y$$

$$\Rightarrow 2x = 8y$$

$$\Rightarrow x : y = 4 : 1$$

Gupta Classes