



SSC CGL Tier 1
2017 Solved Paper

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1. In the following question, select the related word from the given alternatives.
Pressure : Barometer :: ? : Odometer
(1) Humidity
(2) Distance
(3) Thickness
(4) Wind
2. In the following question, select the related letters from the given alternatives.
AEDM : ZQRN :: FLMO : ?
(1) BZYS
(2) CZYS
(3) SZYB
(4) YZBC
3. In the following question, select the related number from the given alternatives.
243 : 578 :: 163 : ?
(1) 291
(2) 326
(3) 347
(4) 443
4. In the following question, select the odd word from the given alternatives.
(1) Flower
(2) Fruit
(3) Leaves
(4) Root
5. In the following question, select the odd letters from the given alternatives.
(1) CEAC
(2) FHDF
(3) PRMP
(4) TVRT
6. In the following question, select the odd number pair from the given alternatives.
(1) 2132 - 161
(2) 2678 - 672
(3) 4325 - 120
(4) 6931 - 162
7. Arrange the given words in the sequence in which they occur in the dictionary.
1. Dillydallying
2. Dillydallied
3. Dillydally
4. Dilled
5. Dillydallies
(1) 42351
(2) 42531
(3) 45312
(4) 45321
8. In the following question, which one set of letters when sequentially placed at the gaps in the given letter series shall complete it?
l m _ o _ n m _ l _ n _ _ n m l
(1) molnon
(2) nolmoo
(3) nomloo
(4) noolmm

9. In the following question, select the missing number from the given series.

21, 25, 52, 68, 193, ?

- (1) 229
- (2) 242
- (3) 257
- (4) 409

10. Kamal starts walking from his home facing west direction. After walking 10 km he takes a right turn and walks another 10 km. He takes another right turn and walks 10 km to reach his school. How far (in km) and in which direction is he from his home?

- (1) 10, North
- (2) 10, South
- (3) 20, North-East
- (4) 20, South-West

11. In a class, P has more marks than Q and R does not have the least marks. S has more marks than T and T has more marks than P, who among them will have the least marks?

- (1) P
- (2) Q
- (3) S
- (4) T

12. In the following question, from the given alternative words, select the word which cannot be formed using the letters of the given word.

RECIPROCATE

- (1) PROCEED
- (2) RACE
- (3) REPEAT
- (4) TEAR

13. In a certain code language, "**CASIO**" is written as "**3119915**". How is "**CITIZEN**" written in that code language?

- (1) 295629134
- (2) 3192295614
- (3) 3912659214
- (4) 3920926514

14. In the following question, correct the equation by interchanging the two signs.

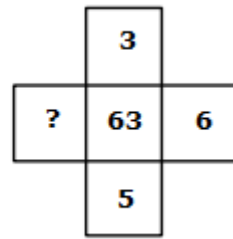
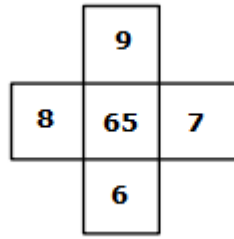
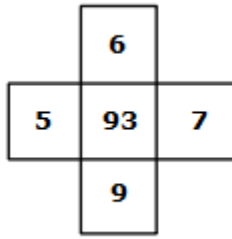
$$6 \div 17 \times 51 + 6 - 12 = -4$$

- (1) \times and \div
- (2) $+$ and \div
- (3) $+$ and $-$
- (4) $-$ and \div

15. If $6 * 9 - 4 = 58$ and $3 * 9 - 7 = 34$, then in the expression $A * 4 - 9 = 91$, what is the value of 'A'?

- (1) 6.5
- (2) 17.5
- (3) 20.5
- (4) 30.5

16. In the following question, select the number which can be placed at the sign of question mark(?) from the given alternatives.



- (1) 4
- (2) 6
- (3) 8
- (4) 16

17. How many triangles are there in the given figure?



- (1) 4
- (2) 5
- (3) 6
- (4) 7

18. In the following question below are given some statements followed by some conclusions. Taking the given statements to be true even if they seem to be at variance from commonly known facts, read all the conclusions and then decide which of the given conclusion logically follows the given statements.

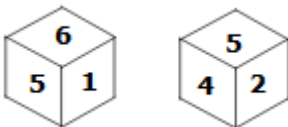
Statements:

- I. Some staplers are pins.
- II. All pins are markers.

Conclusions:

- I. Some staplers are markers.
- II. All markers are pins.
- (1) Only conclusion (I) follows.
- (2) Only conclusion (II) follows.
- (3) Neither conclusion (I) nor conclusion (II) follows.
- (4) Both conclusions follow.

19. Two positions of a cube are shown below. What will come opposite to face containing '4'?

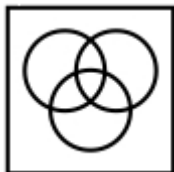


- (1) 1
- (2) 2
- (3) 3
- (4) 6

20. Identify the diagram that best represents the relationship among the given classes.

Green, Mango, Fruits

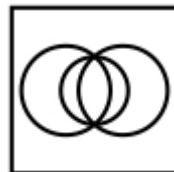
(1)



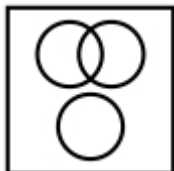
(2)



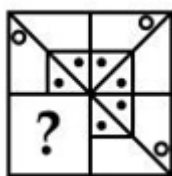
(3)



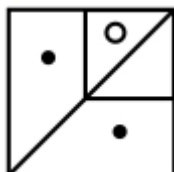
(4)



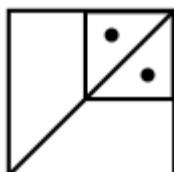
21. Which answer figure will complete the pattern in the question figure?



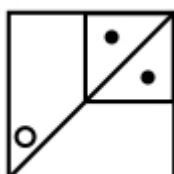
(1)



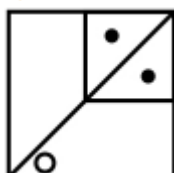
(2)



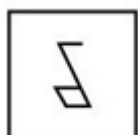
(3)



(4)



22. From the given answer figures, select the one in which the question figure is hidden/embedded.



(1)



(2)



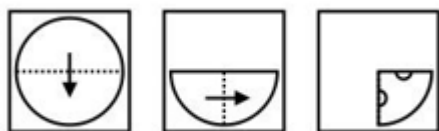
(3)



(4)



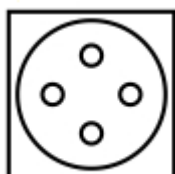
23. A piece of paper is folded and punched as shown below in the question figures. From the given answer figures, indicate how it will appear when opened?



(1)



(2)



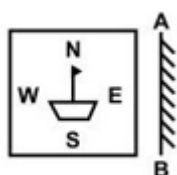
(3)



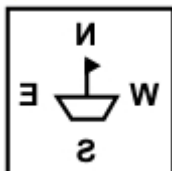
(4)



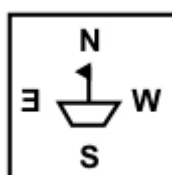
24. If a mirror is placed on the line AB, then which of the answer figure is the right image of the given figure?



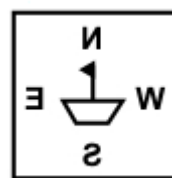
(1)



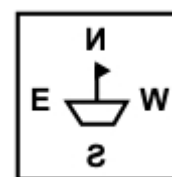
(2)



(3)



(4)



25. A word is represented by only one set of numbers as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabets as shown in the given two matrices. The columns and rows of **Matrix-I** are numbered from 0 to 4 and that of **Matrix-II** are numbered from 5 to 9. A letter from these matrices can be represented first by its row and next by its column, for example, 'A' can be represented by **20, 43** etc. and 'U' can be represented by **68, 87**, etc. Similarly, you have to identify the set for the word **"GUIDE"**.

Matrix-I

	0	1	2	3	4
0	G	L	A	R	E
1	L	A	R	E	G
2	A	R	E	G	L
3	R	E	G	L	A
4	E	G	L	A	R

Matrix-II

	5	6	7	8	9
5	B	U	I	L	D
6	L	D	B	U	I
7	U	I	L	D	B
8	D	B	U	I	L
9	I	L	D	B	U

- (1) 00, 68, 95, 58, 04
 (2) 14, 75, 88, 87, 40
 (3) 23, 99, 76, 78, 31
 (4) 41, 87, 57, 66, 12

26. In which market form, a market or industry is dominated by a few firms?
 (1) Perfect Competition
 (2) Monopoly
 (3) Oligopoly
 (4) Monopolistic
27. Which amongst the following is not a component of monetary policy in India?
 (1) Repo rate
 (2) Moral suasion
 (3) Credit Rationing
 (4) Public Debt
28. Who among the following is not a member of any of the two houses of our country?
 (1) Prime Minister
 (2) Finance Minister
 (3) President
 (4) Railway Minister
29. Which article of Indian constitution has the provision for National Emergency?
 (1) Article 350
 (2) Article 352
 (3) Article 312
 (4) Article 280
30. Who led the Bardoli Satyagraha movement?
 (1) Mahatma Gandhi
 (2) Rabindranath Tagore
 (3) Sardar Vallabhbhai Patel
 (4) Chittaranjan Das
31. Who is known as the 'Father of Indian Unrest'?
 (1) Anant Singh
 (2) Bal Gangadhar Tilak
 (3) Bhagat Singh
 (4) Dadabhai Naoroji

32. Which of the following region is covered by tropical evergreen forest?
(1) Eastern Ghat
(2) Vindhya
(3) Aravalli
(4) Western Ghat
33. The final boundary between the Earth and the outer space is called _____.
(1) magnetosphere
(2) ionosphere
(3) mesopause
(4) magnetopause
34. What is the name of the hormone produced by thymus gland?
(1) Thyroxine
(2) Auxins
(3) Cytokinins
(4) Thymosin
35. Photosynthesis takes place in the presence of chlorophyll and _____.
(1) water
(2) nutrients
(3) carbon dioxide
(4) sunlight
36. Which blood group is universal acceptor?
(1) O+
(2) O-
(3) AB-
(4) AB+
37. If objects appear enlarged and inverted in a rear view mirror, then which type of mirror is used?
(1) Concave
(2) Convex
(3) Cylindrical
(4) Plane
38. Soap bubble attains spherical shape due to.
(1) inertia
(2) pressure
(3) surface tension
(4) Viscosity
39. CAD stands for.
(1) Common Aided Design
(2) Computer Aided Design
(3) Complex Aided Design
(4) Communication Aided Design
40. Which of the following is a characteristic of an exothermic reaction?
(1) Release of heat
(2) Absorption of heat
(3) Doesn't involve any change in temperature
(4) None of the option is correct
41. What is the chemical formula for Sodium Chloride (Salt)?
(1) NaCl₂
(2) NaCl
(3) Na₂Cl
(4) Na₂C

42. Which of the following gas contributes the maximum to the phenomena of global warming?

- (1) Methane
- (2) Chlorofluorocarbon (CFC)
- (3) Nitrogen dioxide
- (4) Carbon dioxide

43. Who selects the Social Audit Committee under MGNREGA scheme?

- (1) Chief Minister
- (2) Gram Sabha
- (3) Mayor
- (4) B.D.O.

44. Which of the following was invented by Sir Humphry Davy?

- (1) Safety Pin
- (2) Steam Engine
- (3) Safety Lamp
- (4) X -Rays

45. Who has won the 2016 Men's Single title at US Open?

- (1) Novak Djokovic
- (2) Rafael Nadal
- (3) Stan Wawrinka
- (4) Andy Murray

46. Match the following.

	Dancer		Dance
1.	Radha Reddy	a.	Bharatnatyam
2.	Padma Subrahmanyam	b.	Kathak
3.	Sitara Devi	c.	Kuchipudi

- (1) 1-b, 2-a, 3-c
- (2) 1-c, 2-b, 3-a
- (3) 1-c, 2-a, 3-b
- (4) 1-a, 2-c, 3-b

47. Who has recently been awarded with Nobel Prize for peace in 2016?

- (1) Juan Manuel Santos
- (2) Henry Dunant
- (3) Kailash Satyarthi
- (4) Malala Yousafzai

48. Which of the following is a book written by Shashi Tharoor?

- (1) It's Not About You
- (2) Invisible People
- (3) An Era of Darkness
- (4) Democrats and Dissenters

49. With which country India has recently decided to partner with for strategic storage of crude oil in southern India?

- (1) Iran
- (2) Iraq
- (3) United Arab Emirates
- (4) United States of America

50. Which neighbouring country of India is also referred as 'Druk Yul'?

- (1) Myanmar
- (2) Maldives
- (3) Bhutan
- (4) Afghanistan

51. How many numbers are there between 1 to 200 which are divisible by 3 but not by 7?
(1) 38
(2) 45
(3) 57
(4) 66
52. 10 women can do a piece of work in 6 days, 6 men can do same work in 5 days and 8 children can do it in 10 days. What is the ratio of the efficiency of a woman, a man and a child respectively?
(1) 4 : 6 : 3
(2) 4 : 5 : 3
(3) 2 : 4 : 3
(4) 4 : 8 : 3
53. The ratio of the volume of two cylinders is 7 : 3 and the ratio of their heights is 7 : 9. If the area of the base of the second cylinder is 154 cm^2 , then what will be the radius (in cm) of the first cylinder?
(1) $6\sqrt{2}$
(2) $6\sqrt{3}$
(3) $7\sqrt{2}$
(4) $7\sqrt{3}$
54. Kanchan bought a clock with 25% discount on marked price. She sold it with 75% gain on the price she bought. What was her profit percentage on the marked price?
(1) 31.25
(2) 50
(3) 56.25
(4) 60
55. A, B and C received an amount of Rs 8400 and distributed among themselves in the ratio of 6 : 8 : 7 respectively. If they save in the ratio of 3 : 2 : 4 respectively and B saves Rs 400, then what is the ratio of the expenditures of A, B and C respectively?
(1) 6 : 8 : 7
(2) 8 : 6 : 7
(3) 9 : 14 : 10
(4) 12 : 7 : 9
56. The average age of 24 students is 12 years. It was observed that while calculating the average age, the age of a student was taken as 14 years instead of 8 years. What will be the correct average age (in years)?
(1) 11.25
(2) 11.5
(3) 11.75
(4) 12.25
57. 70% of the cost price of a article is equal to the 40% of its selling price. What is the profit or loss percentage?
(1) 63% loss
(2) 70% loss
(3) 75% profit
(4) 80% profit
58. $a\%$ of $b + b\%$ of $a =$
(1) $2a\%$ of b
(2) $2a\%$ of $2b$
(3) $2a\%$ of $2a$
(4) $2b\%$ of $2b$

59. If I walk at $\frac{7}{6}$ of my usual speed, then I reach my office 15 minutes early. What is the usual time taken (in minutes) by me to reach the office?
- (1) 60
 - (2) 75
 - (3) 90
 - (4) 105
60. A person lent Rs 10000 to B for 3 years and Rs 6000 to C for 4 years on simple interest at same rate of interest and received Rs 5400 in all from both of them as interest. What is the rate of interest (in %)?
- (1) 10
 - (2) 12.5
 - (3) 15
 - (4) 20
61. If $x^3 + 2x^2 - 5x + k$ is divisible by $x + 1$, then what is the value of k ?
- (1) - 6
 - (2) - 1
 - (3) 0
 - (4) 6
62. If $3x + \left[\frac{1}{(5x)}\right] = 7$, then what is the value of $5x/(15x^2 + 15x + 1)$?
- (1) $\frac{1}{5}$
 - (2) $\frac{1}{10}$
 - (3) $\frac{2}{5}$
 - (4) 10
63. If $x + \left[\frac{1}{(4x)}\right] = \frac{5}{2}$, then what is the value of $(64x^6 + 1)/8x^3$?
- (1) 110
 - (2) 115
 - (3) 125
 - (4) 140
64. If $x^2 + x = 19$, then what is the value of $(x + 5)^2 + \left[\frac{1}{(x + 5)^2}\right]$?
- (1) 77
 - (2) 79
 - (3) 81
 - (4) 83
65. In triangle ABC, AD, BE and CF are the medians intersecting at point G and area of triangle ABC is 156 cm^2 . What is the area (in cm^2) of triangle FGE?
- (1) 13
 - (2) 26
 - (3) 39
 - (4) 52
66. In triangle ABC, $\angle ABC = 15^\circ$. D is a point on BC such that $AD = BD$. What is the measure of $\angle ADC$ (in degrees)?
- (1) 15
 - (2) 30
 - (3) 45
 - (4) 60
67. The length of diagonal of a square is $9\sqrt{2} \text{ cm}$. The square is reshaped to form a triangle. What is the area (in cm^2) of largest incircle that can be formed in that triangle?
- (1) 6π
 - (2) 9π
 - (3) 12π
 - (4) 15π

68. The length of the common chord of two intersecting circles is 12 cm. If the diameters of the circles are 15 cm and 13 cm, then what is the distance (in cm) between their centers?
 (1) $7/2$
 (2) 7
 (3) $7\sqrt{2}$
 (4) 14
69. What is the simplified value of $\sec^4 \theta - \sec^2 \theta \tan^2 \theta$?
 (1) $\operatorname{cosec}^2 \theta$
 (2) $\sec^2 \theta$
 (3) $\cot^2 \theta$
 (4) $\sec \theta \tan \theta$
70. What is the simplified value of $(\sin A - \operatorname{cosec} A)(\sec A - \cos A)(\tan A + \cot A)$?
 (1) 1
 (2) -1
 (3) 0
 (4) 2
71. If $(1/\cos \theta) - (1/\cot \theta) = 1/P$, then what is the value of $\cos \theta$?
 (1) $(P + 1)/(P - 1)$
 (2) $(P^2 + 1)/2P$
 (3) $2(P^2 + 1)/P$
 (4) $2P/(P^2 + 1)$
72. The table given below represents the production and sales of wheat in 4 different countries A, B, C and D over a period of 4 years. At the end of year 2010 A, B, C and D had a stock of 5200, 3500, 7835 and 1956 (in '000 quintals) of wheat respectively. For any given year, the stock of wheat is calculated as:
 Stock of year (n+1) = stock at end of year (n) + production in year (n+1) - sales in year (n+1)
 And surplus of year (n) = production in year (n) - sales in year (n)
- | Year | Wheat production and sales (in '000 quintals) | | | | | | | |
|------|---|-------|-----------|-------|-----------|-------|-----------|-------|
| | Country A | | Country B | | Country C | | Country D | |
| | Prod. | Sales | Prod. | Sales | Prod. | Sales | Prod. | Sales |
| 2011 | 1218 | 1413 | 1881 | 1798 | 2035 | 2247 | 3126 | 2417 |
| 2012 | 1554 | 1783 | 2067 | 2389 | 1821 | 2018 | 2987 | 2911 |
| 2013 | 1671 | 1641 | 1328 | 2063 | 1937 | 2563 | 2143 | 3188 |
| 2014 | 1103 | 1002 | 1578 | 1239 | 3014 | 2988 | 4126 | 3563 |
- What is the surplus (in '000 quintals) of country A of years 2013 and 2014 taken together?
 (1) 122
 (2) 131
 (3) 143
 (4) 158

73. The table given below represents the production and sales of wheat in 4 different countries A,B,C and D over a period of 4 years. At the end of year 2010 A, B, C and D had a stock of 5200, 3500, 7835 and 1956 (in '000 quintals) of wheat respectively. For any given year, the stock of wheat is calculated as:

Stock of year (n+1) = stock at end of year (n) + production in year (n+1) – sales in year (n+1)

And surplus of year (n) = production in year (n) – sales in year (n)

Year	Wheat production and sales (in '000 quintals)							
	Country A		Country B		Country C		Country D	
	Prod.	Sales	Prod.	Sales	Prod.	Sales	Prod.	Sales
2011	1218	1413	1881	1798	2035	2247	3126	2417
2012	1554	1783	2067	2389	1821	2018	2987	2911
2013	1671	1641	1328	2063	1937	2563	2143	3188
2014	1103	1002	1578	1239	3014	2988	4126	3563

What is the stock (in '000 quintals) of country C at end of the 4 year period?

- (1) 5926
- (2) 6213
- (3) 6826
- (4) 8844

74. The table given below represents the production and sales of wheat in 4 different countries A,B,C and D over a period of 4 years. At the end of year 2010 A, B, C and D had a stock of 5200, 3500, 7835 and 1956 (in '000 quintals) of wheat respectively. For any given year, the stock of wheat is calculated as:

Stock of year (n+1) = stock at end of year (n) + production in year (n+1) – sales in year (n+1)

And surplus of year (n) = production in year (n) – sales in year (n)

Year	Wheat production and sales (in '000 quintals)							
	Country A		Country B		Country C		Country D	
	Prod.	Sales	Prod.	Sales	Prod.	Sales	Prod.	Sales
2011	1218	1413	1881	1798	2035	2247	3126	2417
2012	1554	1783	2067	2389	1821	2018	2987	2911
2013	1671	1641	1328	2063	1937	2563	2143	3188
2014	1103	1002	1578	1239	3014	2988	4126	3563

What is the difference (in '000 quintals) in average production and average sales respectively of country C in the given four years?

- (1) – 252.25
- (2) – 415.50
- (3) 350.75
- (4) 275.25

75. The table given below represents the production and sales of wheat in 4 different countries A,B,C and D over a period of 4 years. At the end of year 2010 A, B, C and D had a stock of 5200, 3500, 7835 and 1956 (in '000 quintals) of wheat respectively. For any given year, the stock of wheat is calculated as:

Stock of year (n+1) = stock at end of year (n) + production in year (n+1) – sales in year (n+1)

And surplus of year (n) = production in year (n) – sales in year (n)

Year	Wheat production and sales (in '000 quintals)							
	Country A		Country B		Country C		Country D	
	Prod.	Sales	Prod.	Sales	Prod.	Sales	Prod.	Sales
2011	1218	1413	1881	1798	2035	2247	3126	2417
2012	1554	1783	2067	2389	1821	2018	2987	2911
2013	1671	1641	1328	2063	1937	2563	2143	3188
2014	1103	1002	1578	1239	3014	2988	4126	3563

What can be said about total surplus of country B and country D over the 4 years?

- (1) Surplus of B = Surplus of D
- (2) Surplus of D > Surplus of B
- (3) Surplus of B > Surplus of D
- (4) No relation is there

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

In spite of the doctor's stern warning (1)/ Latika continued taking (2)/ sugars in her milk. (3)/ No Error (4)

- (1) 1
- (2) 2
- (3) 3
- (4) 4

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

Myself and Roshni (1)/ will take care of (2)/ the event on Sunday. (3)/ No Error (4)

- (1) 1
- (2) 2
- (3) 3
- (4) 4

78. In the following question, the sentence given with blank is to be filled in with an appropriate word. Select the correct alternative out of the four and indicate it by selecting the appropriate option.

_____ the rain stopped, the concert had to be suspended.

- (1) Until
- (2) Unless
- (3) Till
- (4) while

79. In the following question, the sentence given with blank is to be filled in with an appropriate word. Select the correct alternative out of the four and indicate it by selecting the appropriate option.

The elephant stampeded and tore_____ the streets.

- (1) on
- (2) out
- (3) in
- (4) down

80. In the following question, out of the four alternatives, select the word similar in meaning to the word given.

Scuttle

- (1) Solitary
- (2) Superficial
- (3) Soothing
- (4) Brazier

81. In the following question, out of the four alternatives, select the word similar in meaning to the word given.

Loquacious

- (1) Talkative
- (2) Foolishness
- (3) Graceful
- (4) Entertainer

82. In the following question, out of the four alternatives, select the word opposite in meaning to the word given.

Obfuscate

- (1) Envelop
- (2) Puzzle
- (3) Haze
- (4) Clarify

83. In the following question, out of the four alternatives, select the word opposite in meaning to the word given.

Triumph

- (1) Establish
- (2) Sorrow
- (3) Disdain
- (4) Elation

84. In the following question, out of the four alternatives, select the alternative which best expresses the meaning of the idiom/Phrase.

Chicken-hearted

- (1) Coward
- (2) Short tempered
- (3) Composed
- (4) Bold

85. In the following question, out of the four alternatives, select the alternative which best expresses the meaning of the idiom/Phrase.

Red letter day

- (1) Starting day
- (2) Holiday
- (3) Significant day
- (4) Ending day

86. Improve the bracketed part of the sentence.

He jumped off the train while it **(had be running)**.

- (1) has been running
- (2) running
- (3) was running
- (4) No improvement

87. Improve the bracketed part of the sentence. I **(didn't seen)** him since we met two years ago.

- (1) am not seeing
- (2) have not seen
- (3) has not seen
- (4) No improvement

88. In the following question, out of the four alternatives, select the alternative which is the best substitute of the phrase.

One who is new to a profession

- (1) Nuance
- (2) Pun
- (3) Tyro
- (4) Vandal

89. In the following question, out of the four alternatives, select the alternative which is the best substitute of the phrase.

A speech or a presentation made without previous preparation.

- (1) Euphemism
- (2) Obituary
- (3) Extempore
- (4) Soliloquy

90. In the following question, four words are given out of which one word is incorrectly spelt. Find the incorrectly spelt word.

- (1) Millionaire
- (2) Omission
- (3) Foreign
- (4) Proprietry

91. In the following question, four words are given out of which one word is incorrectly spelt. Find the incorrectly spelt word.
- (1) Acquaintence
 - (2) Appeasement
 - (3) Abnormality
 - (4) Accentuate
92. The question below consists of a set of labelled sentences. Out of the four options given, select the most logical order of the sentences to form a coherent paragraph.
- P: And the victims are likely to be the poorest of the poor as well as the very sources of water-- rivers, wetlands and aquifers.
- Q: In India, water conflicts are likely to worsen before they begin to be resolved.
- R: Till then they pose a significant threat to economic growth, security and health of the ecosystem.
- S: Water is radically altering and affecting political boundaries all over world, between as well as within countries.
- (1) SQPR
 - (2) PRQS
 - (3) QRPS
 - (4) PSQR
93. The question below consists of a set of labelled sentences. Out of the four options given, select the most logical order of the sentences to form a coherent paragraph.
- P: For one, very few entrepreneurs are willing to take on a new outsource, unless it comes with a guarantee of a certain level of sales.
- Q: This invariably acts as an incentive for outsourcers to be lax in developing the business.
- R: Despite being the dominant partner in the relationship, the outsourcer doesn't always have all the advantages.
- S: The trade refers to it as the minimum guarantee clause, which means that if a outsourcee is unable to reach an anticipated sales level, he will be compensated for the balance amount.
- (1) PRQS
 - (2) SPQR
 - (3) QSPR
 - (4) RPSQ
94. In the following question, a sentence has been given in Active/Passive voice. Out of four alternatives suggested, select the one which best expresses the same sentence in Passive/Active voice.
- Somebody told me that there had been a robbery in the jewellery exhibition.**
- (1) I was informed that there was a robbery in the jewellery exhibition.
 - (2) I was told by somebody that there had been a robbery in the jewellery exhibition.
 - (3) I was told by somebody about a robbery in the jewellery exhibition.
 - (4) I was told by someone about a robbery in the jewellery exhibition.
95. In the following question, a sentence has been given in Direct/Indirect speech. Out of the four alternatives suggested, select the one which best expresses the same sentence in Indirect/Direct speech.
- Rohan said, "Where shall I be this time next month?"**
- (1) Rohan contemplated where shall he be that time the following month.
 - (2) Rohan asked that where should he be that time next month.
 - (3) Rohan wondered where he should be that time the next month.
 - (4) Rohan wondered where he would be that time the following month.

96. In the following passage some of the words have been left out. Read the passage carefully and select the correct answer for the given blank out of the four alternatives.
The modes of action are in science and religion. Science relies on experiment, whereas religion is based on experience. Any religious whether it is Christ's or Ramakrishna's is personal and . Science, on the other hand is marked by objectivity. Theory has to be corroborated by proof providing material comforts. The frontiers of science do not end in knowledge but are to the formation of appliances for actual use.
The modes of action are _____ in science and religion.
(1) similar
(2) different
(3) equal
(4) relevance
97. In the following passage some of the words have been left out. Read the passage carefully and select the correct answer for the given blank out of the four alternatives.
The modes of action are in science and religion. Science relies on experiment, whereas religion is based on experience. Any religious whether it is Christ's or Ramakrishna's is personal and . Science, on the other hand is marked by objectivity. Theory has to be corroborated by proof providing material comforts. The frontiers of science do not end in knowledge but are to the formation of appliances for actual use.
whereas religion is based on experience. Any religious _____ whether
(1) experience
(2) jump
(3) festival
(4) activities
98. In the following passage some of the words have been left out. Read the passage carefully and select the correct answer for the given blank out of the four alternatives.
The modes of action are in science and religion. Science relies on experiment, whereas religion is based on experience. Any religious whether it is Christ's or Ramakrishna's is personal and . Science, on the other hand is marked by objectivity. Theory has to be corroborated by proof providing material comforts. The frontiers of science do not end in knowledge but are to the formation of appliances for actual use.
it is Christ's or Ramakrishna's is personal and _____.
(1) significantly
(2) irrelevant
(3) subjective
(4) objectively
99. In the following passage some of the words have been left out. Read the passage carefully and select the correct answer for the given blank out of the four alternatives.
The modes of action are in science and religion. Science relies on experiment, whereas religion is based on experience. Any religious whether it is Christ's or Ramakrishna's is personal and . Science, on the other hand is marked by objectivity. Theory has to be corroborated by proof providing material comforts. The frontiers of science do not end in knowledge but are to the formation of appliances for actual use.
Theory has to be corroborated by _____ proof providing material comforts.
(1) intangible
(2) transparent
(3) tangible
(4) uniqueness

100. In the following passage some of the words have been left out. Read the passage carefully and select the correct answer for the given blank out of the four alternatives.

The modes of action are in science and religion. Science relies on experiment, whereas religion is based on experience. Any religious whether it is Christ's or Ramakrishna's is personal and . Science, on the other hand is marked by objectivity. Theory has to be corroborated by proof providing material comforts. The frontiers of science do not end in knowledge but are to the formation of appliances for actual use.

The frontiers of science do not end in knowledge but are_____ to the formation of appliances for actual use.

- (1) implied
- (2) happy
- (3) designates
- (4) extended

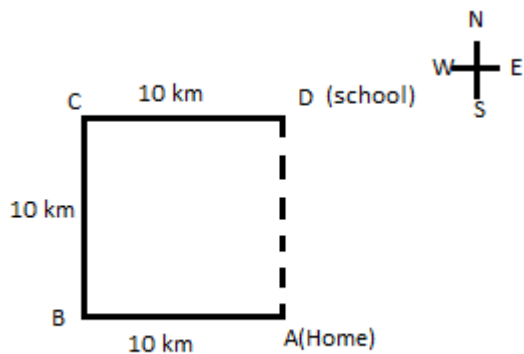
Answer key:

1 (2)	2 (1)	3 (2)	4 (4)	5 (3)	6 (1)	7 (2)	8 (2)	9 (1)	10 (1)
11 (2)	12 (1)	13 (4)	14 (1)	15 (3)	16 (1)	17 (3)	18 (1)	19 (1)	20 (2)
21 (4)	22 (2)	23 (2)	24 (3)	25 (3)	26 (3)	27 (4)	28 (3)	29 (2)	30 (3)
31 (2)	32 (4)	33 (4)	34 (4)	35 (4)	36 (4)	37 (1)	38 (3)	39 (2)	40 (1)
41 (2)	42 (4)	43 (2)	44 (3)	45 (3)	46 (3)	47 (1)	48 (3)	49 (3)	50 (3)
51 (3)	52 (4)	53 (4)	54 (1)	55 (3)	56 (3)	57 (3)	58 (1)	59 (4)	60 (1)
61 (1)	62 (2)	63 (1)	64 (2)	65 (1)	66 (2)	67 (3)	68 (2)	69 (2)	70 (2)
71 (4)	72 (2)	73 (3)	74 (1)	75 (2)	76 (3)	77 (1)	78 (1)	79 (4)	80 (4)
81 (1)	82 (4)	83 (2)	84 (1)	85 (3)	86 (3)	87 (2)	88 (3)	89 (3)	90 (4)
91 (1)	92 (1)	93 (4)	94 (2)	95 (4)	96 (2)	97 (1)	98 (3)	99 (3)	100 (4)

Solutions:

1. 2
Barometer is used to check pressure, in the same way odometer is used to measure distance.
Humidity is measured by Hygrometer.
Thickness is measured by Vernier Callipers.
Wind(speed of wind) is measured by Anemometer.
2. 1
The elements are replaced by adding 13 letters to the diagonal elements.
Eg : A (+13 letters) = N
E (+13 letters) = R
D (+13 letters) = Q
M (+13 letters) = Z
Similarly, FLMO (+13 letters) = SYZB
Since, the diagonal elements are replaced, we will reverse it = **BZYS**
3. 2
The pattern followed is $= 2*4*3 = 24$
now, $24^2 = 576 + 2 = 578$
so, for 163, $1*6*3 = 18$
 $\Rightarrow 18^2 = 324 + 2 = 326$
4. 4
All except 'roots' are visible above the ground in a tree, thus it's the odd one out.
5. 3
(A) : C (+2 letters) = E (-4 letters) = A (+2 letters) = C \Rightarrow CEAC
(B) : F (+2 letters) = H (-4 letters) = D (+2 letters) = F \Rightarrow FHDF
(C) : P (+2 letters) = R (-4 letters) = N (+2 letters) = P \Rightarrow **PRNP not PRMP**
(D) : T (+2 letters) = V (-4 letters) = R (+2 letters) = T \Rightarrow TVRT
6. 1
(A): $2*1*3*2 = \mathbf{12 \text{ not } 161}$
(B): $2*6*7*8 = 672$
(C): $4*3*2*5 = 120$
(D): $6*9*3*1 = 162$
7. 2
As per the dictionary,
Dilled
Dillydallied
Dillydallies
Dillydally
Dillydallying
 \Rightarrow 42531
8. 2
The series is divided into 4 parts consisting of letters first in 'lmno' order and then 'onml' order.
l m **n** o / o n m **l** / l m n o / o n m l
9. 1
 $25-21 = 4 = 2^2$
 $52-25 = 27 = 3^3$
 $68-52 = 16 = 4^2$
 $193-68 = 125 = 5^3$
so, next term will be **$193 + 6^2 = 229$**

10.1



Let Kamal's initial position be at A, he moves towards west for 10 km and reaches B. From B he takes a right turn of 10 km and reaches to C and then after a final right turn of 10 km, he reaches to his school.

His final position is at D.

Thus, D is to the north of A and $AD = 10$ km

11.2

P has more marks than Q,

$\Rightarrow P > Q$

S has more marks than T and T has more marks than P,

$\Rightarrow S > T > P > Q$

Also, R does not have the least marks.

Thus, position of R is unknown but it is clear that Q has the least marks.

12.1

The word RECIPROCATATE does not have any 'D' and thus the word 'Proceed' cannot be formed.

13.4

The numerical positions of the alphabets are concatenated.

CASIO = 3,1,19,9,15 = 3119915

Similarly, CITIZEN = 3,9,20,9,26,5,14 = 3920926514

14.1

by option (1),

$$6 \times 17 \div 51 + 6 - 12 = -4$$

LHS:

$$\Rightarrow 6 \times (1/3) + 6 - 12$$

$$\Rightarrow 2 + 6 - 12$$

$$\Rightarrow 8 - 12$$

$$\Rightarrow -4$$

$$= \text{RHS}$$

so, option (1) is correct choice.

15.3

Sign '-' in the given expressions has been treated as '+' (addition).

$$6 * 9 - 4 = 58 \Rightarrow 6 * 9 + 4 = 58$$

$$3 * 9 - 7 = 34 \Rightarrow 3 * 9 + 7 = 34$$

$$\text{so, for } A * 4 - 9 = 91$$

$$\Rightarrow 4A + 9 = 91$$

$$\Rightarrow 4A = 82$$

$$\Rightarrow A = 82/4 = 20.5$$

16.1

LOGIC: The multiplication of the digits of the number at the centre is equal to the sum of all the numbers around it.

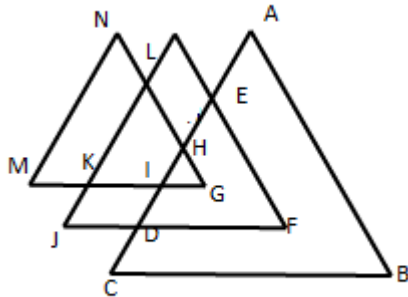
$$9 \times 3 = 27 = 6 + 7 + 9 + 5$$

$$6 \times 5 = 30 = 9 + 7 + 6 + 8$$

$$6 \times 3 = 18 = 3 + 6 + 5 + ?$$

$$\text{so, } ? = 4$$

17.3

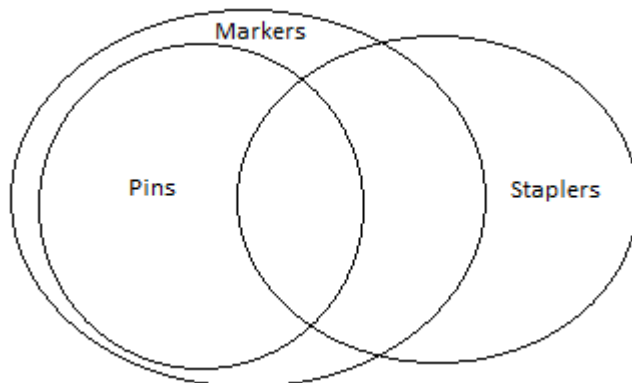


Larger triangles = 3(ABC, LMF, MNG)

Triangles formed by combinations = LKG, GHI, EDF = 3

Thus, total triangles = 3 + 3 = 6

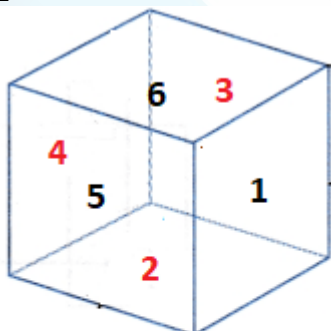
18.1



only statement will follow, as "some staplers are markers" is definitely true.

But, 2nd statement "all pins are markers" is a doubt case so, can be true or can't be true. so this will not follow.

19.1



Black: numbers on front side(visible side of the cube)
red: Numbers of back side of cube

So, from the above figure '1' is opposite to '4'.

20.2

All mango are fruits, whereas some mango are green and some fruits are also green.
Thus, the second figure best describes above relationship.

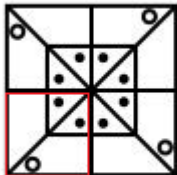
21.4

option (4), completes the above figure.

i.e.,



complete figure:



22.2



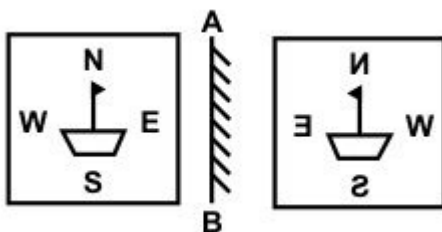
in option(4), the given figure is hidden/embedded.

23.2



as shown above, option (3) is the correct choice for the given question.

24.3



option (3), the mirror image of the given figure across the mirror line AB.(as shown above)

25.3

- (A) : 00, 68, 95, 58, 04 = GUILF
 - (B) : 14, 75, 88, 87, 40 = GUIUE
 - (C) : 23, 99, 76, 78, 31 = **GUIDE**
 - (D) : 41, 87, 57, 66, 12 = GUIDR
- So, option 3 is the correct answer.

26.3

Oligopoly is a market form in which a market or industry is dominated by a few firms. It is said to be highly concentrated.

Auto industry is an example of an oligopoly.

Perfect competition- many firms offer a homogeneous product.

Monopoly- single seller, selling a unique product in the market.

Monopolistic Competition- many producers sell products that are differentiated from one another.

27.4

Public Debt are not a component of monetary policy in India. They are the borrowings and repayments during the year, respectively, by the government.

Repo rate- rate at which the Reserve Bank of India lends money to commercial banks in the event of any shortfall of funds.

Moral suasion-a persuasion tactic used by an authority to influence and pressure, but not force, banks into adhering to policy. It is a method of Credit Control.

Credit Rationing - a measure undertaken by the central bank to limit or deny the supply of credit based on the investor's creditworthiness and an increased loan demand.

28.3

The President is not a member of either House of Parliament or of a House of the Legislature of any State though he is elected by the members of an electoral college consisting of the elected members of both the Houses of Parliament and the elected members of the Legislative Assemblies of States and the Union Territories of Delhi and Pondicherry.

29.2

The Article 352 of the Indian Constitution has the provision for National Emergency.

National Emergency can be declared on the basis of external aggression or armed rebellion in the whole of India or a part of its territory.

Article 350-Language to be used in representations for redress of grievances.

Article 312-National level judicial service.

Article 280-Finance commission.

30.3

The Bardoli Satyagraha of 1928 was led by Sardar Vallabhbhai Patel, in the state of Gujarat, India during the period of the British Raj. It was a major episode of civil disobedience and revolt in the Indian Independence Movement. The movement's success gave rise to Patel becoming one of the main leaders of the independence movement.

31.2

Bal Gangadhar Tilak is known as 'Father of India Unrest'. He was a radical leader and encouraged militancy. He was one of earliest leaders of India's freedom movement.

Valentine Chirol called him "Father of Indian Unrest".

32.4

Western Ghats are covered with tropical evergreen forests as it receives more rainfall compared to the eastern Ghats. The western Ghats receives orographic rainfall. Since the states of Kerala & Karnataka are located on the windward side it receives more rainfall.

Tropical evergreen forest are also found in hills of Jaintia and Khasi.

33.4

Magnetopause is the final boundary between the earth and the outer space. It is a magnetic boundary between the Earth's field and the solar wind.

This is the outer region surrounding the earth, where charged particles spiral along the magnetic field lines.

Here the Earth traps electrons (negative charge) and protons (positive), concentrating them in two bands about 3,000 and 16,000 km above the globe i.e. the Van Allen "radiation" belts.

34.4

The Thymus gland produces and secretes Thymosin, a hormone necessary for T-cell development and production. They are small proteins present in many animal tissues and have been categorized as biological response modifiers.

35.4

Photosynthesis takes place in the presence of chlorophyll and sunlight. It is the process by which green plants and certain other organisms transform light energy into chemical energy. During photosynthesis in green plants, light energy is captured and used to convert water, carbon dioxide, and minerals into oxygen and energy-rich organic compounds.

36.4

The blood group AB+ is a universal Acceptor, because it has both the type of antigen, that is Antigen A and Antigen B. No antibodies are present for any of these antigens in the blood plasma. O- blood group is a universal donor.

37.1

If objects appear enlarged and inverted in a rear view mirror, then Concave mirror is used. Concave mirrors can produce both real and virtual images. Rear view Mirrors are designed to allow the driver to see rearward in the vehicle's rear window (rear windshield).

38.3

Soap attains spherical shape due to surface tension. It take place because an attractive force i.e. surface tension pulls molecules of water into the tightest possible groupings. And the tightest possible grouping that any collection of particles can achieve is to pack together into a sphere.

39.2

CAD stands for Computer Aided Design. It is the use of computer systems to aid in the creation, modification, analysis, or optimization of a design. It can be used to design curves and figures in two-dimensional (2D) space; or curves, surfaces, and solids in three-dimensional (3D) space.

40.1

An exothermic reaction is a chemical reaction that releases energy by light or heat. It is the opposite of an endothermic reaction. In a chemical equation, it can be expressed as: reactants \rightarrow products + energy. In endothermic reaction system absorbs energy from its surroundings, usually in the form of heat.

41.2

Chemical formula of sodium chloride is NaCl. It is an essential compound our body uses to absorb and transport nutrients, maintain blood pressure, maintain the right balance of fluid.

42.4

Carbon dioxide gas contributes the maximum to the phenomena of global warming. It is an important heat-trapping (greenhouse) gas, which is released through human activities such as deforestation and burning fossil fuels, as well as natural processes such as respiration and volcanic eruptions.

43.2

Gram Sabha selects the Social Audit Committee under MGNREGA scheme. After the 73rd Amendment to the Indian Constitution, the Gram Sabha became one of the most important platforms for strengthening peoples participation in development programmes, decentralised planning and for activating grassroots democracy. Social Audit Committee is the primary forum for wage seekers to raise their voices, make demands and validate the findings of social audit.

44. 3

Safety Lamp was invented by Sir Humphry Davy.

Invention	Inventor
Safety pin	Walter Hunt
Steam Engine	James Watt
X Rays	Wilhelm Roentgen

45. 3

Stan Wawrinka won the 2016 Men's Single title at US Open by defeating defending champion Novak Djokovic. This was the first time in the men's singles champion at the US Open a player has won the match after losing the first set since Juan Martin del Potro in 2009.

46. 3

	Dancer		Dance
1.	Radha Reddy	a.	Kuchipudi
2.	Padma Subrahmanyam	b.	Bharatnatyam
3.	Sitara Devi	c.	Kathak

47. 1

The 2016 Nobel Peace Prize has been awarded to the President of Colombia Juan Manuel Santos for his resolute efforts to bring the country's more than 50-year-long civil war to an end. The war has costed the lives of at least 220,000 Colombians and displaced close to six million people.

48. 3

An Era of Darkness is the book written by Shashi Tharoor. It gives an account of history of Indians, who were trampled upon by the colonial rule of British, for which they had to pay for it, in cash, in kind, and in blood.

49. 3

India and United Arab Emirates have recently decided to partner for strategic storage of crude oil in southern India.

India signed 14 agreements with the United Arab Emirates, including a deal allowing the Gulf nation to fill the country's strategic storage facility in southern India.

They have also decided to elevate the bilateral relationship to a Comprehensive Strategic Partnership.

50. 3

Bhutan is referred to as 'Druk Yul'. The Druk is the "Thunder Dragon" of Tibetan and Bhutanese mythology and it is the Bhutanese national symbol. It appears on the flag of Bhutan, holding jewels to represent wealth.

Druk Yul means Land of the Thunder Dragon.

51. 3

Numbers between 1 and 200 which are divisible by 3 are 3,6,9....198

The series is an Arithmetic Progression with first term, last term and common difference as 3,198 and 3 respectively.

$$L = a + (n-1)d$$

$$L - a = (n-1)d$$

$$\text{Now, } 198 - 3 = 3(n-1)$$

$$\text{or, } 195/3 = n - 1$$

$$\text{or, } n = 66$$

The numbers which are both divisible by 3 and 7 would be divisible by 21. (Both 3 and 7 are prime numbers)

Now, the numbers between 1 and 200 divisible by 21 would be 21,42,63.....189

The series is an Arithmetic Progression with first term, last term and common difference as 21,189 and 21 respectively.

$$\text{Now, } 189 - 21 = 21(n-1)$$

$$\text{or, } 168/21 = n - 1$$

$$\text{or, } n = 9$$

No. of terms between 1 and 200 which are divisible by 3 but not 7 will be 57 (=66-9)

52.4

1 woman can do a piece of work in 60 ($=10 \times 6$) days

1 woman 1 day's work = $1/60$

1 man can do the piece of work in 30 ($=6 \times 5$) days

1 man 1 day's work = $1/30$

1 child can do the piece of work in 80 ($=8 \times 10$) days

1 child 1 day's work = $1/80$

Ratio of efficiencies of a woman, a man and a child = $1/60 : 1/30 : 1/80 = 4 : 8 : 3$

53.4

Volume of the cylinder = Area of the base * Height

Acc. to the question, $V_1 : V_2 = 7 : 3$ and $H_1 : H_2 = 7 : 9$

$V_1 / V_2 = A_1 \cdot H_1 / A_2 \cdot H_2$

Or, $7/3 = A_1 \cdot 7 / 154 \cdot 9$

Or, $A_1 = 462 \text{ cm}^2$

Or, $2 \times 22/7 \times R_1 = 462$

$R_1 = 7\sqrt{3}$

54.1

Let the market price of the clock be Rs 100

Discount = 25% or Rs 25

Cost Price for Kanchan = MP - Discount = $100 - 25 = \text{Rs } 75$

Gain % = 75%

Gain = $0.75 \times 75 = 56.25$

Selling Price = Cost Price + Gain = $75 + 56.25 = 131.25$

Profit earned on Market Price = $131.25 - 100 = 31.25$

Profit percentage = $31.25/100 \times 100 = 31.25\%$

55.3

Amount received by A = $6/(6+8+7) \times 8400 = 2400$

Amount received by B = $8/(6+8+7) \times 8400 = 3200$

Amount received by C = $7/(6+8+7) \times 8400 = 2800$

Amount saved by B = Rs 400

Amount saved by A = $3/2 \times 400 = \text{Rs } 600$

Amount saved by C = $4/2 \times 400 = \text{Rs } 800$

Expenditure of A = $2400 - 600 = 1800$

Expenditure of B = $3200 - 400 = 2800$

Expenditure of C = $2800 - 800 = 2000$

Required Ratio = $1800 : 2800 : 2000 = 9 : 14 : 10$

56.3

Incorrect Average age of 24 students = 12 years

Difference in age due to mistake = $14 - 8 = 6$ years

Average change in difference of 24 students = $6/24 = 0.25$ years

Correct average of 24 students = $12 - 0.25 = 11.75$ years (We have subtracted as the incorrect age was more than the correct age)

57.3

Let the cost price and selling price of the article be Rs 'a' and Rs 'b' respectively

Acc. to the question, $0.7a = 0.4b$

Or, $b = 1.75a$

Profit = SP - CP = $b - a = 1.75a - a = 0.75a$

Profit % = $0.75a/a \times 100 = 75\%$

58.1

$a\%$ of $b + b\%$ of $a = ab/100 + ab/100 = 2ab/100$

$2ab/100 = 2a\%$ of b

59.4

Let the speed, time and distance be u km/hr, t hours and x km respectively

Acc. to the question, $t = x/u$

Now, when the speed is increased to $7u/6$, time taken is reduced by 15 minutes (15/60 hours)

Thus, $t - 15/60 = 6x/7u$

From the above equations, we get

$t = x/u = 7/4 = 1.75$ hours or 105 minutes

60.1

Let the rate of interest be r %

Interest earned from B = $10000 \cdot r \cdot 3/100 = 300r$

Interest earned from C = $6000 \cdot r \cdot 4/100 = 240r$

Total interest earned = $5400 = 300r + 240r = 540r$

Or, $r = 10\%$

61.1

If $x^3 + 2x^2 - 5x + k$ is divisible by $x + 1$, that means when we put $x = -1$, the value of the polynomial would be zero.

$(-1)^3 + 2(-1)^2 - 5 \cdot (-1) + k = 0$

Or, $-1 + 2 \cdot 1 + 5 + k = 0$

Or, $-1 + 2 + 5 + k = 0$

Or, $k = -6$

62.2

After dividing the expression by $5x$, we get $1/(3x + 3 + 1/5x)$

Or, $1/(7 + 3) = 1/10$

63.1

$(64x^6 + 1)/8x^3 = 8x^3 + [1/8x^3]$

And, $x + [1/(4x)] = 5/2$

Or, $2x + [1/2x] = 5$

$[2x + \{1/2x\}]^3 = 8x^3 + \{1/8x^3\} + 3 \cdot 2x \cdot 1/2x \cdot [2x + \{1/2x\}]$

Or, $[5]^3 = 8x^3 + \{1/8x^3\} + 3 \cdot 1 \cdot 5$

Or, $8x^3 + \{1/8x^3\} = 125 - 15 = 110$

64.2

Let $(x+5) = a$

Or, $x = a - 5$

Now, $x^2 + x = 19$

Or, $(a-5)^2 + (a-5) = 19$

Or, $a^2 - 10a + 25 + a - 5 = 19$

Or, $a^2 - 9a + 1 = 0$

Or, $a^2 + 1 = 9a$

Or, $a + 1/a = 9$

Squaring both sides, we get

$(a + 1/a)^2 = 81$

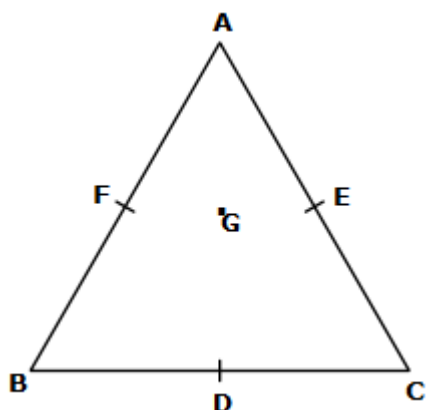
$a^2 + 1/a^2 + 2 = 81$

$a^2 + 1/a^2 = 81 - 2 = 79$

Thus, $(x + 5)^2 + [1/(x + 5)^2] = 79$

65.1

Area of triangle ABC = 156 cm^2



AD, BE and CF are the medians intersecting at point G

Therefore, Area of triangle joining the points D, E and F would be $\frac{1}{4}$ th of triangle ABC

Area of triangle DEF = $(\frac{1}{4}) * 156 = 39 \text{ cm}^2$

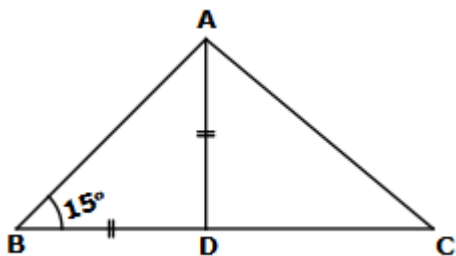
Now, G will also be the centroid of triangle.

Area of triangle FGE = Area of triangle DFG = Area of triangle DGE = $(\frac{1}{3}) * \text{Area of triangle DEF}$

Area of triangle FGE = $(\frac{1}{3}) * 39 = 13 \text{ cm}^2$

66.2

In triangle ABD, AD = BD and $\angle ABD = 15^\circ$



Therefore, $\angle ABD = \angle BAD = 15^\circ$

$\angle ADB + \angle ABD + \angle BAD = 180^\circ$

$\angle ADB = 180^\circ - 15^\circ - 15^\circ = 150^\circ$

$\angle ADC + \angle ADB = 180^\circ$

$\angle ADC = 180^\circ - 150^\circ = 30^\circ$

67.3

Diagonal of the square = $9\sqrt{2} \text{ cm}$

Side of the square = $9\sqrt{2}/\sqrt{2} = 9 \text{ cm}$

Perimeter of the square = $4 * \text{Side of the square} = 4 * 9 = 36 \text{ cm}$

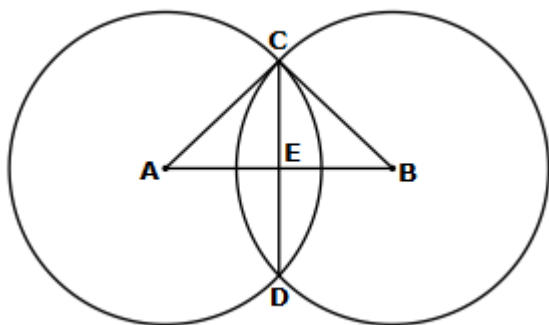
Perimeter of the square = Perimeter of the equilateral triangle = 36 cm

Side of the equilateral triangle = $36/3 = 12 \text{ cm}$

In-radius of the equilateral triangle = $12/2\sqrt{3} = 2\sqrt{3}$

Area of the In-circle = $\pi * (2\sqrt{3})^2 = 12\pi$

68.2



In the figure, $CD = 12$ cm

Diameter of two circles are 15 cm and 13 cm respectively.

Thus, the two radii AC and BC would be 7.5 cm and 6.5 cm respectively

Now, $CD \perp AB$

Thus, $CE = DE = 6$ cm

From $\triangle ACE$, $AE^2 = AC^2 - CE^2 = (7.5)^2 - (6)^2$

$AE = 4.5$ cm

From $\triangle BCE$, $BE^2 = BC^2 - CE^2 = (6.5)^2 - (6)^2$

$BE = 2.5$ cm

Distance between the centres = $AB = AE + BE = 4.5 + 2.5 = 7$ cm

69.2

$$\sec^4 \theta - \sec^2 \theta \tan^2 \theta = \sec^2 \theta (\sec^2 \theta - \tan^2 \theta) = \sec^2 \theta$$

We know that $1 + \tan^2 \theta = \sec^2 \theta$

70.2

$$\begin{aligned} & (\sin A - \operatorname{cosec} A)(\sec A - \cos A)(\tan A + \cot A) \\ &= (\sin A - 1/\sin A)(1/\cos A - \cos A)(\sin A/\cos A + \cos A/\sin A) \\ &= \{(\sin^2 A - 1)/\sin A\} \{(1 - \cos^2 A)/\cos A\} \{(\sin^2 A + \cos^2 A)/\sin A \cos A\} \\ &= (-\cos^2 A * \sin^2 A * 1)/(\sin A * \cos A * \sin A * \cos A) = -1 \end{aligned}$$

71.4

$$(1/\cos \theta) - (1/\cot \theta) = 1/P$$

$$\text{Or, } \sec \theta - \tan \theta = 1/P \dots\dots(1)$$

We know that, $\sec^2 \theta - \tan^2 \theta = 1$

$$(\sec \theta - \tan \theta)(\sec \theta + \tan \theta) = 1$$

$$\text{Or, } \sec \theta + \tan \theta = P \dots\dots(2)$$

From (1) and (2), we get

$$2 \sec \theta = P + 1/P$$

$$\text{Or, } 2/\cos \theta = P + 1/P$$

$$\text{Or, } \cos \theta = 2P/(P^2 + 1)$$

72.2

$$\text{Surplus of country A in 2013} = \text{Production in 2013} - \text{Sales in 2013} = 1671 - 1641 = 30$$

$$\text{Surplus of country A in 2014} = \text{Production in 2014} - \text{Sales in 2014} = 1103 - 1002 = 101$$

$$\text{Total surplus of country A in 2013 and 2014 together} = 30 + 101 = 131$$

73.3

$$\text{Stock of country C at the end of 4 year period} = \text{Stock in 2011} + \text{Total production in 4 year period} - \text{Total sales in 4 year period}$$

$$\text{Total production of country C in 4 year period} = 2035 + 1821 + 1937 + 3014 = 8807$$

$$\text{Total sales of country C in 4 year period} = 2247 + 2018 + 2563 + 2988 = 9816$$

$$\text{Stock of country C} = 7835 + 8807 - 9816 = 6826$$

74. 1

Total production of country C in 4 year period = $2035 + 1821 + 1937 + 3014 = 8807$

Average production of country C in 4 year period = $8807/4 = 2201.75$

Total sales of country C in 4 year period = $2247 + 2018 + 2563 + 2988 = 9816$

Average sales of country C in 4 year period = $9816/4 = 2454$

Required Difference = $2201.75 - 2454 = -252.25$

75. 2

Total production of country B = $1881 + 2067 + 1328 + 1578 = 6854$

Total sales of country B = $1798 + 2389 + 2063 + 1239 = 7489$

Surplus of country B = Total production of country B - Total sales of country B = $6854 - 7489 = -635$

Total production of country D = $3126 + 2987 + 2143 + 4126 = 12382$

Total sales of country D = $2417 + 2911 + 3188 + 3563 = 12079$

Surplus of country D = Total production of country D - Total sales of country D = $12382 - 12079 = 303$

Therefore, Surplus of D > Surplus of B

76. 3

In part (3), the singular form of 'sugar' is to be used. Sugar, being an ingredient in the milk is uncountable will be in singular form. We could have used countable form only if we were talking about individual grains of sugar or about types of sugars (simple and complex). Hence, C is the correct answer.

77. 1

The subjective pronoun 'I' should be used in place of the reflexive pronoun 'myself' as it forms the subject of the verb 'will take care'. Additionally, the correct syntax to be followed in such context is: Third person, second person, first person. Over here, that would be 'Roshni and I'. Hence, A is the correct answer.

78. 1

Unless is used to show conditionality. Till is used to make reference to a certain time frame or an incident. While is used to show two incidents existing simultaneously or to show dissimilarity/contrast. Until is used to show a condition with respect to time, which is the exact context here. Hence, A is the correct answer.

79. 4

Tore down- to pull apart into pieces, which makes perfect sense here. Tore out- abolish, cut out. The other options do not fit contextually and grammatically here. Hence, D is the correct answer.

80. 4

Scuttle: a metal container with a handle, used to fetch and store coal for domestic fire.

Brazier: a portable heater consisting of a pan or a stand for holding lighted coals.

Solitary: secluded or isolated, existing alone

Superficial: not thorough, occurring at the surface

Soothing: have a gentle calming effect.

Hence, D is the correct answer.

81. 1

Loquacious: tending to talk a great deal; talkative.

Graceful: stylish, showing elegance

Hence, A is the correct answer.

82. 4

Obfuscate: make obscure, unclear.

Envelop: wrap up or surround completely (Unrelated word in the given context)

Puzzle: cause (someone) to feel confused because they cannot understand something. (similar in meaning as 'obfuscate')

Haze: a state of mental confusion (similar to 'obfuscate')

Clarify: make something less confused or more comprehensible. Hence, D is the correct answer.

83. 2

Triumph: a great victory or achievement; elation

Sorrow: a feeling of deep distress caused by loss, disappointment, or other misfortune suffered by oneself or others.

Disdain: the feeling that someone or something is unworthy of one's consideration or respect.

Elation: great happiness and exhilaration.

Hence, B is the correct answer.

84. 1

Chickenhearted: easily frightened; cowardly.

Short tempered: quick to lose one's temper, to get angry easily.

Composed: having one's feelings and expression under control; calm.

Bold: willingness to take risks, courageous.

Hence, A is the correct answer.

85. 3

Red letter day: a day that is pleasantly noteworthy or memorable. 'Significant day' best expresses its meaning. Hence, C is the correct answer.

86. 3

In the given statement, 'had' should have been followed by the word 'been' (past participle is to be used always with the word 'had') to make it grammatically correct. Option (A) is incorrect: it is present tense but the sentence is talking about an event which happened in the past. Option (B) is also incorrect grammatically as it has the verb in the continuous tense but no supporting verb is present in the original sentence. Option C fits the sentence contextually and grammatically; hence, C is the correct answer.

87. 2

In the given statement, 'didn't' will take base form of the verb 'see'. Option A is grammatically incorrect: the sentence is talking about an event in the past; present continuous form of the verb cannot be used. Option C is ungrammatical and can be eliminated. Option B is contextually and grammatically correct. Hence, B is the correct answer.

88. 3

Nuance: a subtle difference in or shade of meaning, expression, or sound.

Pun: a joke exploiting the different possible meanings of a word or the fact that there are words which sound alike but have different meanings.

Tyro: a beginner or novice.

Vandal: a person who deliberately destroys or damages property belonging to others.

Hence, C is the correct answer.

89. 3

Euphemism: a mild or indirect word or expression substituted for one considered to be too harsh or blunt when referring to something unpleasant or embarrassing.

Obituary: a notice of a death, especially in a newspaper, typically including a brief biography of the deceased person.

Extempore: spoken or done without preparation.

Soliloquy: an act of speaking one's thoughts aloud when by oneself or regardless of any hearers, especially by a character in a play.

Hence, C is the correct answer.

90. 4

Proprietary: relating to an owner or ownership. Hence, D is the correct answer.

91. 1

Acquaintance: familiarity; knowledge or experience of something.

Appeasement: to pacify or placate to one's demands.

Abnormality: Not in normal condition

Accentuate: make more prominent.

Hence, A is the correct answer.

92. 1

The passage cannot start with P and R: P starts with the conjunction 'and'; R starts with 'till then' (it should be preceded by an event; then only 'till then' can be used). Option B and D gets eliminated. QP is a pair: Q talks about a problem and P talks about the victims of the problem referred in Q. Option C is eliminated. S, being a general statement that introduces the topic of discussion can be the opening sentence of the passage. Hence, A is the correct answer.

93. 4

The passage cannot start with P, Q and S: P starts with mentioning the cause of the problem (we cannot have that without having a mention of the problem itself). Q starts with a pronoun 'this' (it should be preceded by something to which 'this' would point to). S talks about the clause related to outsourcee which has to be preceded by a statement mentioning something about trade. R talks about advantages and P builds on it (further explaining the point in R). RP is a pair. Hence, D is the correct answer.

94. 2

The given sentence is in active voice. A is incorrect because it changes the construction of the sentence as well as the tense from past perfect (had been) to simple past (was). C is incorrect as it changes the sentence and eliminates the second verb clause (had been). D is incorrect as it changes the object altogether (somebody) to 'someone'. B is the right answer because it changes the voice of the sentence while keeping the meaning and the tense intact. Hence, B is the correct answer.

95. 4

The given sentence is in direct speech and in simple future tense (shall be). A is incorrect because it does not change the syntax from interrogative to assertive which should follow if a question asked in direct speech is to be converted into indirect. B is incorrect because it uses the verb 'asked' whereas the original sentence didn't involve the speaker asking a question to another person. Furthermore, it changes the modal verb 'shall' to 'should'. When converting direct to indirect speech, 'shall' always changes to 'would'. Likewise, for option C. D is the right answer because it retains the original meaning as well as the essence of the given statement while converting it to indirect speech. D is the correct answer.

96. 2

The given line is followed by a line which describes the basis on which science and religion are based upon, which are different. So, 'similar' and 'equal' gets eliminated. The blank is to be filled by an adjective since it has to describe/qualify the modes of action (which are nouns). 'Relevance' gets eliminated; since it's a noun. 'Different' fits into the blank correctly; hence, B is the correct answer.

97. 1

The previous line talks about religious experience; so the word here should be a continuation of the same; giving similar tone. None of the other options fit the context. Hence, A is the correct answer.

98. 3

If something is personal, it can't be objective. People will have different views over it. Additionally, the blank has to be filled by an adjective. Option A and D are eliminated (since it's an adverb). Option B does not fit in contextually. 'Irrelevant' is too extreme to be fit in here. The only option left is 'subjective' which fits in here both contextually and grammatically,.

99. 3

If we are talking about proof, it cannot be intangible (meaning not having physical presence). 'Transparent' is contextually wrong as it does not make sense to qualify the noun 'proof' with the word 'transparent'. Uniqueness being a noun cannot fit into the sentence (The blank should be filled by an adjective which should qualify the noun 'proof'). Option C is the correct answer.

100. 4

As per the context, the statement talks about the frontiers of science which have far reaching effect than just in knowledge. The only option which talks about far reaching implications of frontiers of science is 'extended'; hence, D is the correct answer.

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