1 Practice Set

Part-A : General Intelligence & Reasoning

DIRECTIONS (Qs. 1-8) : *In questions, select the related word/ letters/number from given alternatives.*

1. Uttarakhand : Dehradun : : Mizoram : ?
(a) Aizawl (b) Kohima
(c) Shillong (d) Darjeeling

2. Crime : Court : : Disease : ?
(a) Doctor (b) Medicine
(c) Hospital (d) Treatment

3. YQXP : JBIA : : OVNU : ?
(a) FAGZ (b) HRIS
(c) DKCJ (d) DNEO

4. ADGJ : BEHK : : DGJM : ?
(a) KPUB (b) GJMP
(c) KNQT (d) PSVY

5. ACE : BDF : : GIK : ?
(a) HJL (b) AXP
(c) CFG (d) GFC

6. CAT : BIG : : DDY : ?
(a) CLL (b) CLM
(c) CML (d) CEP

7. 1 : 1 : : 10 : ?
(a) 12 (b) 110
(c) 210 (d) 1000

8. 7 : 56 : : 5 : ?
(a) 25 (b) 26
(c) 30 (d) 35

9. The following numbers fall in a group. Which one does not belong to the group?
53, 63, 83, 73
(a) 53 (b) 63
(c) 83 (d) 73

10. Which one is the same as Mumbai, Kolkata and Cochin?
(a) Delhi (b) Kanpur
(c) Chennai (d) Sholapur

DIRECTIONS (Qs. 11-17) : *In questions, find the odd word/ letters/number pair from the given alternatives.*

11. (a) Kolkata (b) Vishakhapatnam
(c) Bengaluru (d) Haldia

12. (a) Cabbage (b) Carrot
(c) Potato (d) Beetroot

13. (a) HGFE (b) PONM
(c) DCBA (d) MSTU

14. (a) GFI (b) VUX
(c) POR (d) LKM

15. (a) vwqp (b) yxmn
(c) gfkl (d) cbrs

16. (a) (324,18) (b) (441, 72)
(c) (117, 81) (d) (186,14)

17. (a) (11,121) (b) (25,625)
(c) (12. 141) (d) (15, 225)

18. Find the smallest number which when divided by 25, 40 or 56 has in each case 13 as remainder.
(a) 1413 (b) 1400
(c) 1439 (d) 1426

19. Arrange the following words as per order in the dictionary :
1. Emplane 2. Empower
3. Embrace 4. Elocution
5. Equable
(a) 5, 1, 3, 2, 4 (b) 4, 2, 1, 3, 5
(c) 4, 3, 1, 2, 5 (d) 4, 5, 2, 3, 1

20. Which one of the given responses would be a meaningful order of the following words?
1. Sowing 2. Tilling
3. Reaping 4. Weeding
(a) 3, 1, 2, 4 (b) 2, 1, 4, 3
(c) 1, 2, 4, 3 (d) 1, 3, 2, 4

21. Arrange the colours of the rainbow (in the reverse order) (from the top edge):
1. Blue 2. Indigo
3. Yellow 4. Green
5. Violet
(a) 3, 4, 1, 2, 5 (b) 4, 3, 1, 5, 2
(c) 5, 3, 4, 2, 1 (d) 2, 4, 3, 1, 5

DIRECTIONS (Qs. 22-24): *In questions, a series is given, with one term missing. Choose the correct alternative from the given ones that will complete the series.*

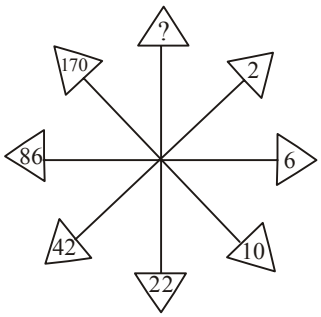
22. CEG, JLN, QSU, ___?___.
(a) QOS (b) TVY
(c) HJL (d) UVW

23. B-1, D-2, F-4, H-8, J-16, ___?___.
(a) K-64 (b) L-32
(c) M-32 (d) L-64

24. CGJ, KOR, TXA, ___?___.
(a) ACE (b) JDP
(c) FJM (d) UWY

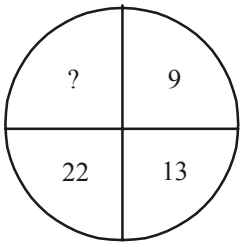
DIRECTIONS (Qs. 25-29) : *In questions, find the missing number from the given responses.*

25.



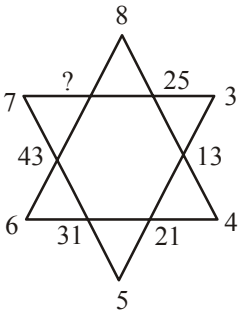
(a) 422 (b) 374
(c) 256 (d) 342

26.



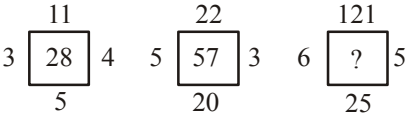
(a) 40 (b) 38
(c) 39 (d) 44

27.



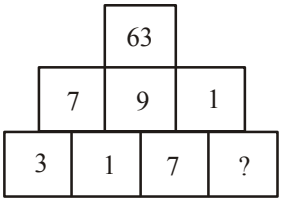
(a) 56 (b) 57
(c) 58 (d) 59

28.



(a) 176 (b) 115
(c) 157 (d) 131

29.



(a) 3 (b) 9
(c) 5 (d) 2

30. Arrange the letters to form a word and suggest what is it.
NGDEALN
(a) State (b) Country
(c) River (d) Ocean

31. If A = 1, B = 2 and N = 14, then BEADING = ?
(a) 2154 (14) 97 (b) 2514 (14) 79
(c) 25149 (14) 7 (d) 2154(14)79

32. If A = 1, AGE = 13, then CAR = ?
(a) 19 (b) 20
(c) 21 (d) 22

33. If an electric train runs in the direction from North to South with a speed of 150 km/hr covering 2000 km, then in which direction will the smoke of its engine go ?
(a) N→S (b) S→N
(c) E→W (d) No direction

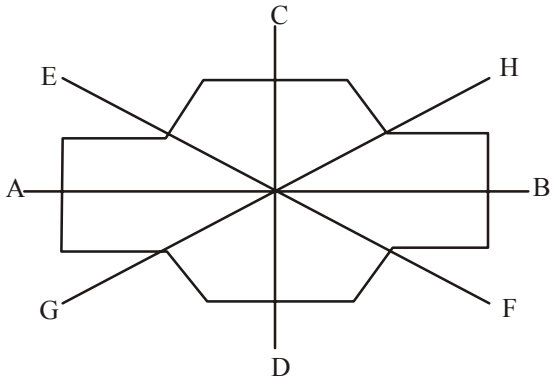
34. If 1 = 1, 2 = 3, 3 = 5 and 4 = 7, then 5 = ?
(a) 9 (b) 7
(c) 5 (d) 8

35. Find the answer of the following:
7 + 3 = 421
11 + 7 = 477
9 + 5 = 445
6 + 2 = ?
(a) 444 (b) 412
(c) 475 (d) 487

36. Find the odd number out:
18, 34, 36, 54
(a) 34 (b) 54
(c) 18 (d) 36

37. Introducing a girl, Ram said to his son-in-law. "Her brother is the only son of my brother-in-law." Who is the girl of Ram?
(a) Sister-in-law (b) Niece
(c) Daughter (d) Sister

38. Which of the following are the lines of symmetry?'

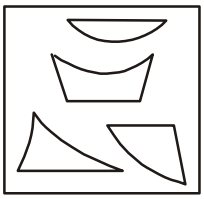


(a) AB and CD
(b) EE and GH
(c) All of the above
(d) None of the above

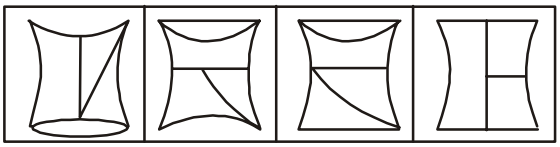
39. Murthy drove from town A to town B. In the first hour, he travelled $\frac{1}{4}$ of the journey. In the next one hour, he travelled $\frac{1}{2}$ of the journey. In the last 30 minutes, he travelled 80 km. Find the distance of the whole journey.
(a) 240 km (b) 300 km
(c) 320 km (d) 360 km

40. Identify the answer figure from which the pieces given in question figure have been cut.

Question figure :



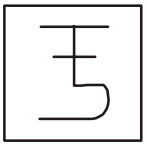
Answer figures:



(a) (b) (c) (d)

41. Which of the answer figures is not made up only by the components of the question figure ?

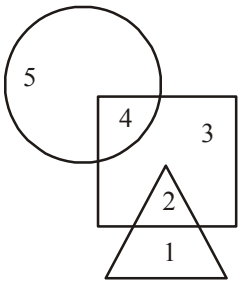
Question figure:



Answer figures:

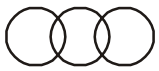
(a) (b) (c) (d)

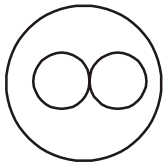
42. Which of the following numbers is present only in the square and the circle?

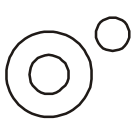


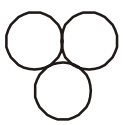
(a) 5 (b) 4
(c) 3 (d) 2

43. Which figure represents the relation among Computer, Internet and Information Communication Technology?

(a) 

(b) 

(c) 

(d) 

DIRECTIONS (Qs. 44-45): *In questions, one or two statements are given, followed by three/four conclusions/Arguments, I, II, III and IV. You have to consider the statements to be true, even if they seem to be at variance from commonly known facts. You are to decide which of the given Conclusions/ Arguments can definitely be drawn from the given statement(s). Indicate your answer.*

44. Statements:

1. SAGE is a reputed publisher of both journals and books.
2. All publishing of SAGE is highly qualitative.

Conclusions:

I. SAGE publishes qualitative articles.
II. SAGE did not publish lowest quality articles.
III. SAGE enriches its publications by high scrutinization.

(a) Only conclusion III
(b) All conclusions .
(c) Only conclusions I and II
(d) Only conclusions II and III

45. Statement:

Should little children be loaded with such heavy school bags?

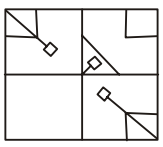
Arguments:

I. Yes, heavy bag means more knowledge.
II. No, heavy school bags spoil the posture of the children.
III. Yes, children need to be adapted for earning knowledge.
IV. No, a heavy bag never ensures knowledge gathering.

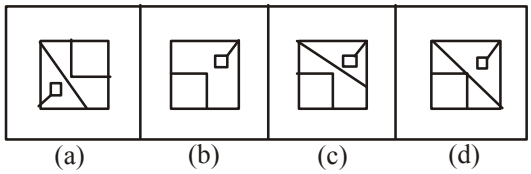
(a) I and III appear to be strong arguments.
(b) I and III are poor arguments
(c) II and IV are strong arguments
(d) I and IV are strong arguments

DIRECTIONS (Qs. 46-47) : *In questions, which answer figure will complete the pattern in the question figure*?

46. Question figure:

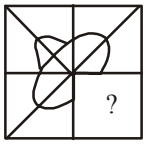


Answer Figures :

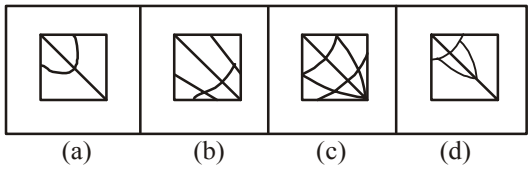


(a) (b) (c) (d)

47. Question figure :



Answer Figures :

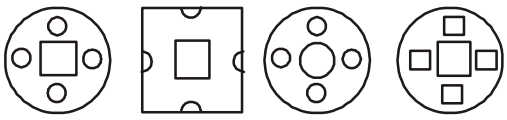


(a) (b) (c) (d)

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

Question figure:

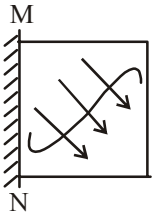
Answer Figures :



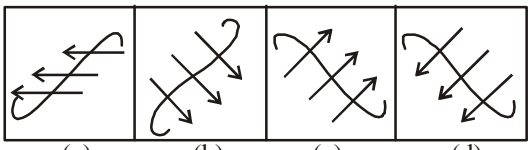
(a) (b) (c) (d)

49. If a mirror is placed on the line MN, then which of the answer figures is the correct image of the question figure?

Question figure:



Answer figures :



(a) (b) (c) (d)

50. A word is represented by 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 in two matrices given below. The columns and rows of Matrix I are numbered from 0 to 4 and that of Matrix II are numbered from 5 to 9. A letter from these matrices can be represented first by its row and next by its column e.g., 'A' can be represented by 40, 01, 13, 32, and 'N' can be represented by 56, 68, 89 etc. Similarly, you have to identify the set for the word given below :

SIX-KIDS

Matrix-I

	0	1	2	3	4
4	A	F	K	P	U
3	F	K	A	U	P
2	P	U	F	K	A
1	K	P	U	A	F
0	U	A	P	F	K

Matrix-II

	5	6	7	8	9
9	D	1	N	S	X
8	X	S	I	D	N
7	N	X	S	I	D
6	S	D	X	N	I
5	I	N	D	X	S

(a) 86, 87, 99 — 40, 41, 86, 64
(b) 98, 96, 85 — 42, 78, 88, 77
(c) 77, 69, 76 — 22, 95, 28, 31
(d) 65, 55, 67 — 05, 25, 91, 40

Part-B : English Language

DIRECTIONS (Qs. 51-55) : *Each of the questions in this section has a sentence with a blank space and four words given after the sentence. Select whichever word you consider most appropriate for the blank space and indicate your choice on the Answer Sheet.*

51. An accomplice is a partner in _____.
(a) business (b) crime
(c) construction (d) gambling

52. A person who pretends to be what he is not is called an_____.
(a) imbiber (b) impresario
(c) imitator (d) imposter

53. His _____ nature would not lot him leave his office before 5 p.m.
(a) honest (b) selfish
(c) unscrupulous (d) conscientious

54. The Committee's appeal to the people for money _____ little response.
(a) evoked (b) provided
(c) provoked (d) prevented

55. Too many skyscrapers _____ the view along the beach.
(a) reveal (b) obstruct
(c) make (d) clear

DIRECTIONS (Qs. 56-58) : *Each questions below consists of a word in capital letters followed by four words or group of words. Select the word or group of words that is most similar in meaning to the words in capital letters.*

56. IMPETUS
(a) Courage (b) Impatience
(c) Arrogance (d) Driving energy

57. PHILANDERER
(a) Time waster (b) Spendthrift
(c) Male flirt (d) Wanderer

58. PALPABLE
(a) Trembling (b) Weak
(c) Obvious (d) Foolish

DIRECTIONS (Qs. 59-63) : *After passage, you will find several questions based on the passage. First, read a passage, and then answer the questions based on it. You are required to select your answers based on the contents of the passage and opinion of the author only.*

PASSAGE

The New Year is a time for resolutions. Mentally at least, most of us could compile formidable lists of do's and don'ts. The same old favourites recur year in and year out with monotonous regularity. Past experience has taught us that certain accomplishments are beyond attainment. If we remain inveterate smokers, it is only because we have so often experienced the frustration that results from failure. Most of us fail in our efforts at selfimprovement because our schemes are too ambitious and we never have time to carry them out. We also make the fundamental error of announcing our resolutions to everybody so that we look even more foolish when we slip back into our old bad ways.

59. The author seems to think that others
(a) feel happy when we slip back to our old ways
(b) do not really want us to improve ourselves
(c) are ready to tease and laugh at our attempts
(d) might embarrass us by praising our attempts

60. The author says that most of us fail in our attempts at self-improvement because
(a) we set too high goals for ourselves
(b) we do not have the persistence of mind
(c) our nature is such that we cannot become perfect
(d) certain imperfections have become a part and parcel of our lives

61. The author seems to imply that many are inveterate smokers because
(a) they have not really tried to give up smoking
(b) they know from past experience that they can never succeed in their attempt to give up
(c) they want to forget the frustration of not smoking
(d) they do not have the will power to stop smoking

62. The same old favourites recur ... with monotonous regularity' implies that
(a) we want to be so perfect that we include some items regularly
(b) we have been so regularly doing certain things that they have become monotonous
(c) in spite of repeated failures, we still would like to try one more time
(d) some favourite actions if repeated often could become monotonous

63. The phrase 'formidable lists of do's and don'ts' means that
(a) the bad points of our character are formidable
(b) the list is so long that it is frightening
(c) the things that need to be included is frightening
(d) the realisation that we are so imperfect is frightening

DIRECTIONS (Qs. 64-73) : *Look at the underlined part of each sentence. Below each sentence, three possible substitutions for the underlined part are given. If one of them (i.e.,) (a), (b) or (c) is better than the underlined part, indicate your response on the Answer Sheet against the corresponding letter (a), (b) or (c). If none of the substitutions improves the sentence, indicate (d) as your response on the Answer Sheet. Thus a 'No improvement' response will be signified by the letter (d).*

64. If I <u>were</u> you, I would do it at once.
(a) was (b) am
(c) would be (d) No improvement

65. They set a strong guard, lest anyone <u>could</u> escape.
(a) would (b) might
(c) should (d) No improvement

66. The matter called <u>up</u> an explanation of his conduct.
(a) out (b) in
(c) for (d) No improvement

67. The accused <u>refused</u> having murdered anybody.
(a) disagreed (b) denied
(c) declaimed (d) No improvement

68. We need honest workers, not people of <u>redoubtable</u> integrity.
(a) doubting (b) doubtful
(c) doubtless (d) No improvement

69. By the time <u>he arrived</u>, everybody had gone home.
(a) when he arrived (b) at which he arrived
(c) by which he arrived (d) No improvement

70. There is no <u>alternate</u>, so we must leave now.
(a) altering (b) alternative
(c) alternation (d) No improvement

71. I cannot <u>listen what</u> she is saying.
(a) hear what (b) listen for what
(c) listen to that (d) No improvement

72. He is still in vigorous health although he is on the <u>right</u> side of sixty.
(a) wrong (b) left
(c) negative (d) No improvement

73. We are sorry to hear <u>regarding</u> your father's death.
(a) of (b) over
(c) for (d) No improvement

DIRECTIONS (Qs. 74-76) : *Each questions below consists of a word in capital letters followed by four words or group of words. Select the word or group of words that is most* ***opposite*** *in meaning to the words in capital letters.*

74. PROCRASTINATE
(a) To be prompt (b) To adjudicate
(c) To teach (d) To help others

75. PROCLIVITY
(a) Speed (b) Weakness
(c) Disgust (d) Disinclination

76. OUTLANDISH
(a) Modern (b) Moderate
(c) Disrespectful (d) Coward

DIRECTIONS (Qs. 77-81): *Each question in this section has a sentence with three underlined parts labelled (a), (b) and (c). Read each sentence to find out whether there is any error in any underlined part and indicate your response in the Answer Sheet against the corresponding letter i.e., (a) or (b) or (c). If you find no error, your response should be indicated as (d).*

77. <u>My detailed statement</u> (a) <u>is respectively</u> (b) <u>submitted</u>. (c) <u>No error.</u> (d)

78. <u>I am waiting</u> (a) <u>for my friend</u> (b) <u>since this morning</u>. (c) <u>No error</u>. (d)

79. <u>He is representing</u> (a) <u>my constituency</u> (b) <u>for the last five years</u>. (c) <u>No error.</u> (d)

80. <u>If he hears</u> (a) <u>of your conduct</u> (b) <u>he is to be unhappy</u>. (c) <u>No error.</u> (d)

81. <u>No sooner he appeared</u> (a) <u>on the stage than the people</u> (b) <u>began to cheer loudly</u>. (c) <u>No error.</u> (d)

DIRECTIONS (Qs. 82-88): *In questions given below out of four alternatives, choose the one which can be substituted for the given word/sentence.*

82. Extreme old age when a man behaves like a fool
(a) Imbecility (b) Senility
(c) Dotage (d) Superannuation

83. That which cannot be corrected
(a) Unintelligible (b) Indelible
(c) Illegible (d) Incorrigible

84. The study of ancient societies
(a) Anthropology (b) Archaeology
(c) History (d) Ethnology

85. A person of good understanding knowledge and reasoning power
(a) Expert (b) Intellectual
(c) Snob (d) Literate

86. A person who insists on something
(a) Disciplinarian (b) Stickler
(c) Instantaneous (d) Boaster

87. State in which the few govern the many
(a) Monarchy (b) Oligarchy
(c) Plutocracy (d) Autocracy

88. A style in which a writer makes a display of his knowledge
(a) Pedantic (b) Verbose
(c) Pompous (d) Ornate

DIRECTIONS (Qs. 89-90): *Find the correctly spelt words.*

89. (a) Foreign (b) Foreine
(c) Fariegn (d) Forein

90. (a) Ommineous (b) Omineous
(c) Ominous (d) Omenous

DIRECTIONS (Qs. 91-95) : *In the following questions four alternatives are given for the idiom/phrase italicised and underlined in the sentence. Choose the alternative which best expresses the meaning of idiom/phrase.*

91. Sobhraj could be easily arrested because the police were *tipped off in a advance*.
(a) Toppled over
(b) Bribed
(c) Given advance information
(d) Threatened

92. I met him after a long time, but he gave me *the cold shoulder*.
(a) scolded me (b) insulted me
(c) abused me (d) ignored me

93. He *passed himself off* as a noble man.
(a) Was regarded as (b) Pretended to be
(c) Was thought to be (d) Was looked upon

94. This matter has been *hanging fire* for the last many months and must therefore be decided one way or the other.
(a) going on slowly (b) hotly debated
(c) stuck up (d) ignored

95. In the armed forces, it is considered a great privilege to *die in harness*.
(a) die on a horse back (b) die in the battlefield
(c) die while still working (d) die with honour

DIRECTIONS (Qs. 96-100): *After passage, you will find several questions based on the passage. First, read a passage, and then answer the questions based on it. You are required to select your answers based on the contents of the passage and opinion of the author only.*

PASSAGE

Once upon a time I went for a week's holiday in the Continent with an Indian friend. We both enjoyed ourselves and were sorry when the week was over, but on parting our behaviour was absolutely different. He was plunged in despair. lie felt that because the holiday was over all happiness was over until the world ended. He could not express his sorrow too much. But in me the Englishman came out strong. I could not see what there was to make a fuss about. It wasn't as if we were parting forever or dying. "Buck up", I said, "do buck up". He refused to buck up, and I left him plunged in gloom.

96. What is the Continent in the context of the passage ?
(a) An island (b) The countryside
(c) Africa (d) Europe

97. What does the author mean by 'buck up' ?
(a) Buckle yourself up (b) Stand up
(c) Cheer up (d) Shut up

98. Why was the Indian friend plunged in despair ?
(a) He was hopeless
(b) He experienced racial discrimination
(c) He would never be so happy again
(d) He had spent lot of money

99. What does 'But in me the Englishman came out strong' imply?
(a) He was a strong Englishman
(b) He had the typical English character
(c) The Englishman went out of him
(d) He started following Indian traditions

100. What is the author's intention in the passage?
(a) To contrast the Indian character with the English character
(b) To show that an Indian is sorrowful
(c) To ridicule the Indian traditions
(d) To praise the Englishman

Part-C : Quantitative Aptitude

101. What is 40% of 50% of $\frac{3}{4}$ of 3200 ?
(a) 480 (b) 560
(c) 420 (d) 600

102. The average age of A, B and C is 26 years. If the average age of A and C is 29 years, what is the age of B in years ?
(a) 26 (b) 20
(c) 29 (d) 23

103. In how many different ways can the letters of the word 'PROBE' be arranged ?
(a) 15 (b) 25
(c) 60 (d) 120

104. A sum of money is divided among A, B, C and D in the ratio 3 : 5 : 8 : 9 respectively. If the share of D is ₹ 1,872 more than the share of A, then what is the total amount of money of B & C together?
(a) ₹ 4,156 (b) ₹ 4,165
(c) ₹ 4,056 (d) ₹ 4,068

105. What approximate compound interest can be obtained on an amount of ₹3,980 after 2 years at 8 p.c.p.a. ?
(a) 650 (b) 680
(c) 600 (d) 662

106. A man walks at the speed of 5 km/hr and runs at the speed of 10 km/hr. How much time will the man require to cover the distance of 28 km, if he covers half (first 14 km) of his journey walking and half of his journey running ?
(a) 8.4 hrs (b) 6 hrs
(c) 5 hrs (d) 4.2 hrs

107. *a, b, c* and *d* are four consecutive numbers. If the sum of *a* and *d* is 103, what is the product of *b* and *c* ?
(a) 2652 (b) 2562
(c) 2970 (d) 2550

108. The ratio of the length and the breadth of a rectangle is 4 : 3 and the area of the rectangle is 1728 sq cm. What is the ratio of the breadth and the area of the rectangle ?
(a) 1 : 38 (b) 1 : 24
(c) 1 : 42 (d) 1 : 48

109. In a 3 litre mixture of water and milk, 50% is milk. How much water should be added so that the percentage of milk becomes 20%?
(a) 1.5 litre (b) 4.5 litre
(c) 2.5 litre (d) 3 litre

110. A bag contains 5 green and 7 red balls. Two balls are drawn. The probability that one is green and the other is red is
(a) $\frac{5}{132}$ (b) $\frac{7}{132}$
(c) $\frac{35}{66}$ (d) $\frac{31}{66}$

111. A bag contains 5 white and 7 black balls and a man draws 4 balls at random. The odds against these being all black is :
(a) 7 : 92 (b) 92 : 7
(c) 92 : 99 (d) 99 : 92

112. The letters of the word SOCIETY are placed at random in a row. The probability that the three vowels come together is
(a) $\frac{1}{6}$ (b) $\frac{1}{7}$
(c) $\frac{2}{7}$ (d) $\frac{5}{6}$

113. There are three events E_1, E_2 and E_3. One of which must, and only one can happen. The odds are 7 to 4 against E_1 and 5 to 3 against E_2. The odds against E_3 is
(a) 4 : 11 (b) 3 : 8
(c) 23 : 88 (d) 65 : 23

114. If $27\times(81)^{2n+3}-3^m=0$, then what is m equal to?
(a) $2n + 5$ (b) $5n + 6$
(c) $8n + 3$ (d) $8n + 15$

115. What is $\frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}}+\frac{\sqrt{5}-\sqrt{3}}{\sqrt{5}+\sqrt{3}}$ equal to ?
(a) 16 (b) 8
(c) 4 (d) $\sqrt{15}$

116. A trader marked a watch 40% above the cost price and then gave a discount of 10%. He made a net profit of ₹ 468 after paying a tax of 10% on the gross profit. What is the cost price of the watch?
(a) ₹ 1200 (b) ₹ 1800
(c) ₹ 2000 (d) ₹ 2340

117. By selling 8 dozen pencils, a shopkeeper gains the selling price of 1 dozen pencils. What is the gain?
(a) $12\frac{1}{2}\%$ (b) $13\frac{1}{7}\%$
(c) $14\frac{2}{7}\%$ (d) $87\frac{1}{2}\%$

118. For what value of k, will the expression $3x^3-kx^2+4x+16$ be divisible by $\left(x-\frac{k}{2}\right)$?
(a) 4 (b) -4
(c) 2 (d) 0

119. What is the value of $2+\sqrt{2}+\frac{1}{2+\sqrt{2}}-\frac{1}{2-\sqrt{2}}$?
(a) 2 (b) $2-\sqrt{2}$
(c) $4+\sqrt{2}$ (d) $2\sqrt{2}$

120. If $a\cos\theta - b\sin\theta = c$, then what is the value of $a\sin\theta + b\cos\theta$?
(a) $\pm\sqrt{a^2+b^2+c^2}$ (b) $\pm\sqrt{a^2-b^2+c^2}$
(c) $\pm\sqrt{a^2+b^2-c^2}$ (d) $\pm\sqrt{a^2-b^2-c^2}$

121. If $2x^2\cos 60^\circ - 4\cot^2 45^\circ - 2\tan 60^\circ = 0$, then what is the value of x?
(a) 2 (b) 3
(c) $\sqrt{3}-1$ (d) $\sqrt{3}+1$

122. Two houses are collinear with the base of a tower and are at distance 3 m and 12 m from the base of the tower. The angles of elevation from these two houses of the top of the tower are complementary. What is the height of the tower?
(a) 4m (b) 6m
(c) 7.5m (d) 36m

123. A round balloon of unit radius subtends an angle of 90° at the eye of an observer standing at a point, say A. What is the distance of the centre of the balloon from the point A?
(a) $1/\sqrt{2}$ (b) $\sqrt{2}$
(c) 2 (d) 1/2

124. If the area of a circle, inscribed in an equilateral triangle is 4π cm², then what is the area of the triangle?
(a) $12\sqrt{3}$ cm² (b) $9\sqrt{3}$ cm²
(c) $8\sqrt{3}$ cm² (d) 18 cm²

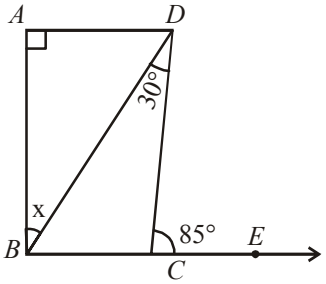
125. The difference between the area of a square and that of an equilateral triangle on the same base is 1/4 cm². What is the length of side of triangle?

(a) $\left(4-\sqrt{3}\right)^{1/2}$ cm (b) $\left(4+\sqrt{3}\right)^{1/2}$ cm

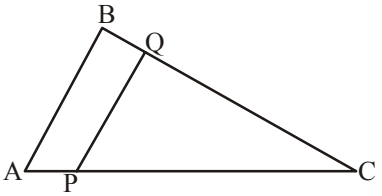
(c) $\left(4-\sqrt{3}\right)^{-1/2}$ cm (d) $\left(4+\sqrt{3}\right)^{-1/2}$ cm

126. If the diameter of a wire is decreased by 10%, by how much per cent (approximately) will the length be increased to keep the volume constant?
(a) 5% (b) 17%
(c) 20% (d) 23%

127. A cone is inscribed in a hemisphere such that their bases are common. If C is the volume of the cone and H that of the hemisphere, then what is the value of C : H?
(a) 1 : 2 (b) 2 : 3
(c) 3 : 4 (d) 4 : 5

128.


If $AD \parallel BE$, $\angle DCE = 85°$ and $\angle BDC = 30°$, then what is the value of x?
(a) 30° (b) 35°
(c) 45° (d) 55°

129.


In the given triangle, AB is parallel to PQ. $AP = c, PC = b, PQ = a, AB = x$. What is the value of x?

(a) $a+\frac{ab}{c}$ (b) $a+\frac{bc}{a}$

(c) $b+\frac{ca}{b}$ (d) $a+\frac{ac}{b}$

130. What is the number of points in the plane of a ΔABC which are at equal distance from the vertices of the triangle?
(a) 0 (b) 1
(c) 2 (d) 3

131. An obtuse angle made by a side of a parallelogram $PQRS$ with other pair of parallel sides is 150°. If the perpendicular distance between these parallel sides (PQ and SR) is 20 cm, what is the length of the side RQ?
(a) 40 cm (b) 50 cm
(c) 60 cm (d) 70 cm

132. $ABCD$ is a square. The diagonals AC and BD meet at O. Let K, L be the points on AB such that $AO = AK$ and $BO = BL$. If $\theta = \angle LOK$, then what is the value of $\tan\theta$?
(a) $1/\sqrt{3}$ (b) $\sqrt{3}$
(c) 1 (d) 1/2

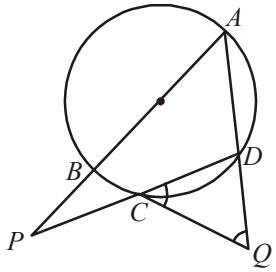
133. 42 men take 25 days to dig a pond. If the pond would have to be dug in 14 days, then what is the number of men to be employed?
(a) 67 (b) 75
(c) 81 (d) 84

134. There are two taps A and B to fill up a water tank. The tank can be filled in 40 min, if both taps are on. The same tank can be filled in 60 min, if tap A alone is on. How much time will tap B alone take, to fill up the same tank?
(a) 64 min (b) 80 min
(c) 96 min (d) 120 min

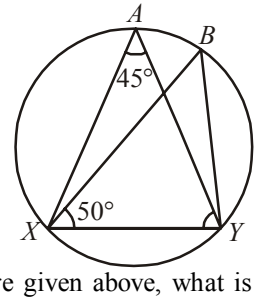
135. A train started from a station with a certain number of passengers. At the first halt, $\frac{1}{3}$rd of its passengers got down and 120 passengers got in. At the second halt, half of the passengers got down and 100 persons got in. Then, the train left for its destination with 240 passengers. How many passengers were there in the train when it started ?
(a) 540 (b) 480
(c) 360 (d) 240

136. If the HCF of $x^3 + mx^2 - x + 2m$ and $x^2 + mx - 2$ is a linear polynomial, then what is the value of m?
(a) 1 (b) 2
(c) 3 (d) 4

137. A person has four iron bars whose lengths are 24 m, 36 m, 48 m and 72 m respectively. This person wants to cut pieces of same length from each of four bars. What is the least number of total pieces if he is to cut without any wastage?
(a) 10 (b) 15
(c) 20 (d) 25

138. In the given figure, if $\frac{x}{3}=\frac{y}{4}=\frac{z}{5}$, where $\angle DCQ = x$, $\angle BPC = y$ and $\angle DQC = z$, then what are the values of x, y and z, respectively?


(a) 33°, 44° and 55° (b) 36°, 48° and 60°
(c) 39°, 52° and 65° (d) 42°, 56° and 70°

139.


In the figure given above, what is $\angle BYX$ equal to?
(a) 85° (b) 50°
(c) 45° (d) 90°

140. What is the value of $1.\overline{34} + 4.1\overline{2}$?

(a) $\frac{133}{90}$ (b) $\frac{371}{90}$

(c) $5\frac{219}{990}$ (d) $5\frac{461}{990}$

141. If mean of y and $\frac{1}{y}$ is M, then what is the mean of y^3 and $\frac{1}{y^3}$?

(a) $\frac{M\left(M^2-3\right)}{3}$ (b) M^3

(c) $M^3 - 3$ (d) $M(4M^2 - 3)$

142. From a series of 50 observations, an observation with value 45 is dropped but the mean remains the same. What was the mean of 50 observations?

(a) 50 (b) 49

(c) 45 (d) 40

DIRECTIONS (Q. Nos. 143-144): *Read the following information carefully to answer the questions that follow.*

The average age of 6 persons living in a house is 23.5 years. Three of them are majors and their average age is 42 years. The difference in ages of the three minor children is same.

143. What is the mean of the ages of minor children?

(a) 3 years (b) 4 years

(c) 5 years (d) 6 years

144. What is the median of the ages of minor children?

(a) 3 years (b) 5 years

(c) 7 years (d) Cannot be determined

145. In how many ways can a committee of 4 people be chosen out of 8 people ?

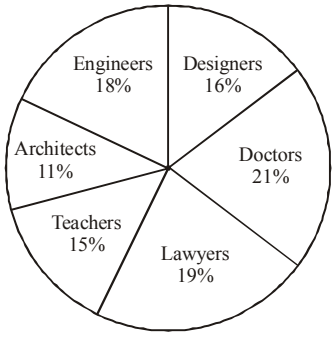
(a) 110 (b) 32

(c) 70 (d) 126

DIRECTIONS (Q. 146-150) : *Study the following Pie-chart carefully and answer the questions given below.*

Survey conducted on 10500 people to find out various Professionals in the town and percentage of Female Professionals amongst them

Various Professionals = 10500



Percentage of Female Professionals

Doctors	20%
Engineers	60%
Architects	40%
Teachers	80%
Lawyers	40%
Designers	35%

146. What is the ratio of the male Engineers and Designers to the same-occupation female professionals in the town?

(a) 41 : 44 (b) 55 : 53

(c) 31 : 35 (d) 44 : 41

147. The total number of Lawyers in town is approximately what per cent of the total number of Doctors in the town?

(a) 95 (b) 98

(c) 90 (d) 85

148. What is the difference between the total number of male and female professionals in the town ?

(a) 1284 (b) 1134

(c) 1054 (d) 1164

149. Female Doctors are what per cent of the female Teachers in the town?

(a) 42 (b) 28

(c) 15 (d) 35

150. What is the ratio of the number of male Architects to the number of male Teachers in the town ?

(a) 11 : 5 (b) 3 : 2

(c) 5 : 11 (d) 2 : 3

Part-D : General Awareness

151. Which one of the following is not a computer language?

(a) Cobol (b) Visual Basic

(c) HTML (d) Netscape

152. Who among the following was the first Governor General of India?

(a) Lord Amherst (b) Lord William Bentinck

(c) Sir Charles Metcalfe (d) Robert Clive

153. Who gave the first evidence of the big-bang theory?

(a) Edwin Hubble (b) Albert Einstein

(c) S Chandrasekhar (d) Stephen Hawking

154. Which one of the following Public Sector Bank's emblem figures a dog and the words 'faithful friendly, in it?

(a) Punjab National Bank

(b) Syndicate Bank

(c) Oriental Bank of Commerce

(d) State Bank of India

155. Which one of the following is not a constituent of biogas?

(a) Methane (b) Carbon dioxide

(c) Hydrogen (d) Nitrogen dioxide

156. In which one of the following sessions was the Indian National Congress split into moderates and extremists?

(a) Nagpur (b) Allahabad

(c) Surat (d) Calcutta

157. The reservoir GB Pant Sagar is located on which river?
(a) Betwa (b) Ghaghara
(c) Kosi (d) Rihand

158. Ozone layer of the Earth's atmosphere is important for living organisms because it
(a) prevents entry of ultra-violet rays
(b) prevents entry of X-rays
(c) maintains level of oxygen on Earth
(d) prevents acid rain on Earth

159. Which one of the following national parks is located near Chamoli?
(a) Dudhwa National Park
(b) Great Himalayan Park
(c) Jim Corbett National Park
(d) Nanda Devi National Park

160. Who among the following as a recipient of the Magsaysay award?
(a) Nirmala Deshpande (b) Arvind Kejriwal
(c) Suprabha Seshan (d) CNR Rao

161. Who among the following had founded the Theosophical Society in the United States of America?
(a) Swami Dayanand Saraswati
(b) Madam Blavatsky
(c) Madam Cama
(d) Lala Hardayal

162. A typical black hole is always specified by
(a) a (curvature) singularity
(b) a horizon
(c) either a (curvature) singularity or a horizen
(d) a charge

163. Inclusion strategy does ***not*** focus on
(a) reduction of inequality
(b) reduction of poverty
(c) diversifying livelihood for tribal population
(d) getting poorer countries close

164. Bar is a unit of which one of the following?
(a) Force (b) Energy
(c) Pressure (d) Frequency

165. Which of the following metals are present in haemoglobin and chlorophyll, respectively?
(a) Fe and Mg (b) Fe and Zn
(c) Mg and Zn (d) Zn and Mg

166. A mother of blood group O has a group O child. What could be the blood group of father of the child?
(a) Only O (b) A or B or O
(c) A or B (d) Only AB

167. 'Freon' used as refrigerants is chemically known as
(a) chlorinated hydrocarbon
(b) fluorinated hydrocarbon
(c) chlorofluoro hydrocarbon
(d) fluorinated aromatic compound

168. The humidity of air measured in percentage is called
(a) absolute humidity (b) specific humidity
(c) relative humidity (d) all of these

169. What does sphygmomanometer measure?
(a) Blood pressure
(b) Velocity of fluids
(c) Temperature
(d) Curvature of spherical surfaces

170. Well-known company Suzlon is engaged in which one of the following?
(a) Oil exploration (b) Telecommunication
(c) Wind energy (d) Petrochemicals

171. Which of the following straits is not in Asia?
(a) Malacca Strait (b) Bass Strait
(c) Formosa Strait (d) Molucca Strait

172. Who among the following was the founder of the Muslim League?
(a) Muhammad Ali Jinnah
(b) Shaukat Ali
(c) Nawab Salimullah
(d) Aga Khan

173. What is the other name for the equatorial rain forests?
(a) Lianos (b) Campos
(c) Gran Chaco (d) Selvas

174. In which of the following years was the first Railway line between Bombay and Thane laid?
(a) 1853 (b) 1854
(c) 1856 (d) 1858

175. On which one of the following conservative laws, does a rocket work?
(a) Mass (b) Energy
(c) Linear momentum (d) Angular momentum

176. Which one of the following was the original name of Tansen, the famous musician in the court of Akbar?
(a) Mahananda Pande (b) Lal Kalwant
(c) Baz Bahadur (d) Ramtanu Pande

177. Sabin Award is given for the conservation of
(a) amphibians (b) reptiles
(c) birds (d) corals

178. Which one among the following is **not** a source of tax revenue for the Central Government in India ?
(a) Income tax (b) Customs duuties
(c) Service tax (d) Motor Vehicle tax

179. Stepwell *Rani-ki-Vav* was approved as a World Heritage Site by the UNESCO recently. It is located at
(a) Rajasthan (b) Gujarat
(c) Madhya Pradesh (d) Maharashtra

180. Which of the following does **not** form part of current account of Balance of Payments?
(a) Export and import of goods
(b) Export and import of services
(c) Income receipts and payments
(d) Capital receipts and payments

181. When the productive capacity of the economic systems of a state is inadequate to create sufficient number of jobs, it is called
(a) seasonal unemployment
(b) structural unemployment
(c) disguised unemployment
(d) cyclical unemployment

182. Who of the following constitutes a Finance Commission for a State in India?
(a) The President of India
(b) The Governor of the State
(c) The Union Finance Minister
(d) The Union Cabinet

183. Which one of the following Schedules of the Constitution of India includes the disqualification of a Legislator on grounds of defection?
(a) 8th Schedule (b) 7th Schedule
(c) Schedule (d) 10th Schedule

184. Which one of the following is involved for desalination of sea water?
(a) Reverse osmosis
(b) Simple osmosis
(c) Use of sodium aluminium silicate as zeolite
(d) Use of ion selective electrodes

185. River Luni originates near Pushkar and drains into which one of the following?
(a) Rann of Kachchh (b) Arbian Sea
(c) Gulf of Cambay (d) Lake Sambhar

186. The value of money varies
(a) directly with the, interest rate
(b) directly with the price level
(c) directly with the volume of employment
(d) inversely with the price level

187. The Great Barrier Reef is located in which country?
(a) Chile (b) Australia
(c) USA (d) Indonesia

188. What does water gas comprise of?
(a) Carbon monoxide and hydrogen
(b) Carbon dioxide and hydrogen
(c) Carbon monoxide and methane
(d) Carbon dioxide and methane

189. What is 'Operation Kolleru' that was recently in the news?
(a) A massive river linkage project
(b) A project to improve a wetland
(c) A project to supply drinking water to a mega city
(d) A rural drinking water supply scheme of a southern state

190. Which one of the following is the permissible level of noise in a silent zone at day time?
(a) 50 dB (b) 60 dB
(c) 65 dB (d) 75 dB

191. Which one of the following substances is made from natural raw materials?
(a) Rayon (b) Nylon
(c) Polyester (d) Polystyrene

192. Which one of the following causes the chikungunia disease?
(a) Bacteria (b) Helminthic worm
(c) Protozoan (d) Virus

193. In which of the following years the Fundamental Duties have been added to the existent Fundamental Rights in the Constitution of India?
(a) 1965 (b) 1976
(c) 1979 (d) 1982

194. Which one of the following metals is less reactive than hydrogen?
(a) Barium (b) Copper
(c) Lead (d) Magnesium

195. Who drafted the Constitution of Muslim League, 'The Green Book'?
(a) Rahamat Ali
(b) Muhammad Iqbal
(c) Muhammad Ali Jinnah
(d) Maulana Muhammad Ali Jauhar

196. Chinook is a
(a) cold wind in Europe
(b) tropical desert storm in West Asia
(c) warm wind in North-America
(d) depression to South Africa

197. Which one of the following is the largest Committee of the Parliament?
(a) The Public Accounts Committee
(b) The Estimates Committee
(c) The Committee on Public Undertakings
(d) The Committee on Petitions

198. Who among the following recommends to the Parliament for the abolition of the Legislative Council in a State?
(a) The President of India
(b) The Governor of the concerned State
(c) The Legislative Council of the concerned State
(d) The Legislative Assembly of the concerned State

199. Which country among the following has the largest cultivated area of cotton in the world?
(a) Egypt (b) India
(c) Pakistan (d) USA

200. In which one of the following years did the Right to information Act come into force?
(a) 2003 (b) 2004
(c) 2005 (d) 2006

ANSWER KEY

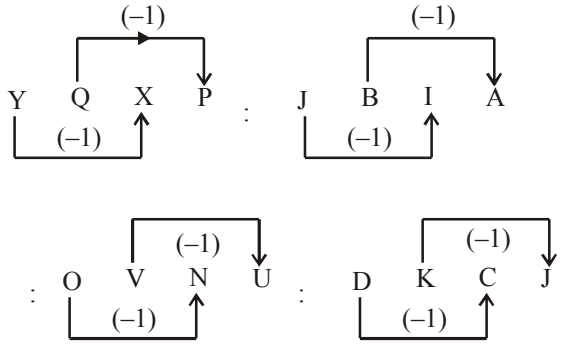
1	(a)	**21**	(a)	**41**	(c)	**61**	(d)	**81**	(a)	**101**	(a)	**121**	(d)	**141**	(d)	**161**	(b)	**181**	(d)
2	(c)	**22**	(c)	**42**	(b)	**62**	(c)	**82**	(c)	**102**	(b)	**122**	(b)	**142**	(c)	**162**	(c)	**182**	(b)
3	(c)	**23**	(b)	**43**	(b)	**63**	(b)	**83**	(d)	**103**	(d)	**123**	(b)	**143**	(c)	**163**	(d)	**183**	(d)
4	(b)	**24**	(c)	**44**	(b)	**64**	(d)	**84**	(b)	**104**	(c)	**124**	(a)	**144**	(b)	**164**	(c)	**184**	(a)
5	(a)	**25**	(d)	**45**	(c)	**65**	(c)	**85**	(b)	**105**	(d)	**125**	(c)	**145**	(c)	**165**	(a)	**185**	(a)
6	(a)	**26**	(b)	**46**	(c)	**66**	(c)	**86**	(b)	**106**	(d)	**126**	(d)	**146**	(e)	**166**	(b)	**186**	(d)
7	(d)	**27**	(b)	**47**	(d)	**67**	(b)	**87**	(b)	**107**	(a)	**127**	(a)	**147**	(c)	**167**	(c)	**187**	(b)
8	(c)	**28**	(a)	**48**	(a)	**68**	(b)	**88**	(a)	**108**	(d)	**128**	(b)	**148**	(d)	**168**	(c)	**188**	(a)
9	(b)	**29**	(a)	**49**	(d)	**69**	(d)	**89**	(a)	**109**	(b)	**129**	(d)	**149**	(d)	**169**	(a)	**189**	(b)
10	(c)	**30**	(b)	**50**	(b)	**70**	(b)	**90**	(c)	**110**	(c)	**130**	(b)	**150**	(a)	**170**	(c)	**190**	(b)
11	(c)	**31**	(c)	**51**	(b)	**71**	(a)	**91**	(c)	**111**	(b)	**131**	(a)	**151**	(d)	**171**	(b)	**191**	(a)
12	(a)	**32**	(d)	**52**	(d)	**72**	(a)	**92**	(d)	**112**	(b)	**132**	(c)	**152**	(b)	**172**	(c)	**192**	(d)
13	(d)	**33**	(d)	**53**	(d)	**73**	(d)	**93**	(b)	**113**	(d)	**133**	(b)	**153**	(a)	**173**	(d)	**193**	(b)
14	(d)	**34**	(a)	**54**	(a)	**74**	(a)	**94**	(a)	**114**	(d)	**134**	(d)	**154**	(b)	**174**	(a)	**194**	(b)
15	(a)	**35**	(b)	**55**	(b)	**75**	(d)	**95**	(c)	**115**	(b)	**135**	(d)	**155**	(d)	**175**	(c)	**195**	(c)
16	(a)	**36**	(a)	**56**	(d)	**76**	(a)	**96**	(d)	**116**	(c)	**136**	(a)	**156**	(c)	**176**	(d)	**196**	(c)
17	(c)	**37**	(b)	**57**	(c)	**77**	(b)	**97**	(c)	**117**	(c)	**137**	(b)	**157**	(d)	**177**	(a)	**197**	(b)
18	(a)	**38**	(c)	**58**	(c)	**78**	(a)	**98**	(a)	**118**	(b)	**138**	(b)	**158**	(a)	**178**	(d)	**198**	(d)
19	(c)	**39**	(c)	**59**	(c)	**79**	(a)	**99**	(b)	**119**	(a)	**139**	(a)	**159**	(d)	**179**	(b)	**199**	(d)
20	(b)	**40**	(c)	**60**	(b)	**80**	(c)	**100**	(a)	**120**	(c)	**140**	(d)	**160**	(b)	**180**	(d)	**200**	(c)

Hints & Explanations

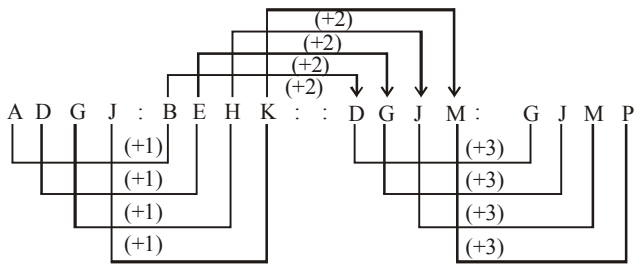
1. (a) Dehradun is capital of Uttarakhand. Similarly, Aizawl is capital of Mizoram.

2. (c) "Court" is the place where the judge gives his decision on crime. Similarly, Hospital is the place where the doctor diagnoses the disease of the patient.

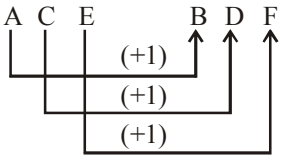
3. (c)



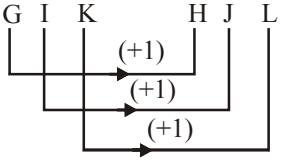
4. (b)



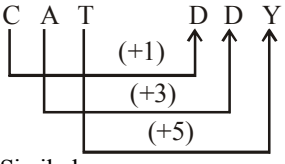
5. (a)



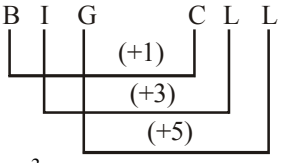
Similarly



6. (a)

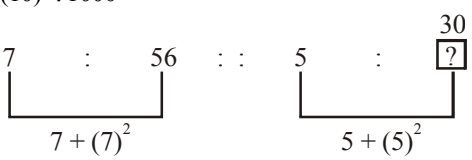


Similarly



7. (d) $(1)^3 : 1$
Similarly
$(10)^3 : 1000$

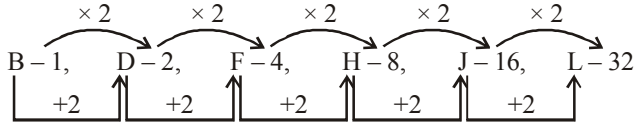
8. (c)



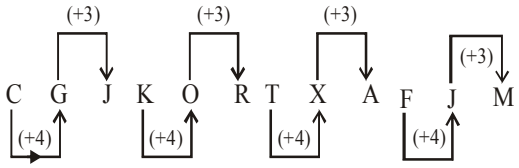
9. (b) Here only 63 is not belonging to group because it is divisible by 3.
10. (c) Mumbai, Kolkata and Cochin all are coastal city. Similarly, Chennai is also a coastal city.
12. (a) All others, except (a) are root vegetables.
13. (d) $H \xrightarrow{(-1)} G \xrightarrow{(-1)} F \xrightarrow{(-1)} E$
$P \xrightarrow{(-1)} O \xrightarrow{(-1)} N \xrightarrow{(-1)} M$
$D \xrightarrow{(-1)} C \xrightarrow{(-1)} B \xrightarrow{(-1)} A$
$M \xrightarrow{(+6)} S \xrightarrow{(+1)} T \xrightarrow{(+1)} U$
M S T U is odd word
14. (d) $G \xrightarrow{(-1)} F \xrightarrow{(+3)} I$
$V \xrightarrow{(-1)} U \xrightarrow{(+3)} X$
$P \xrightarrow{(-1)} O \xrightarrow{(+3)} R$
$L \xrightarrow{(-1)} K \xrightarrow{(+2)} M$
LKM is odd word
15. (a) $v \xrightarrow{(+1)} w$ $p \xrightarrow{(+1)} q$
$y \xrightarrow{(-1)} x$ $m \xrightarrow{(+1)} n$
$g \xrightarrow{(-1)} f$ $k \xrightarrow{(+1)} \ell$
$c \xrightarrow{(-1)} b$ $r \xrightarrow{(+1)} s$
16. (a) Except (a), all others are not divisible by 2nd term.
17. (c) In all the options, second number is square of first number but in option (c), square of 12 is not 141. So, (c) is odd.
18. (a) L C M of 25, 40, 56

2	25, 40, 56
5	25, 20, 28
2	5, 4, 28
2	5, 2, 14
	5, 1, 7

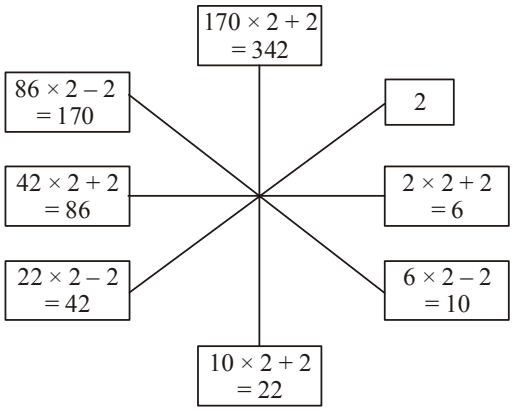
$= 2 \times 5 \times 2 \times 2 \times 5 \times 7$
$= 1400$
Smallest Number $= 1400 + 13 = 1413$.
19. (c) As per dictionary
↳ Elocution → Embrace → Emplane → Empower → Equable.
20. (b) Meaningful word
↳ Tilling → Sowing → Weeding → Reaping.
21. (a) Colour of Rainbow
= V I B G Y O R
Reverse order – R O Y G B I V
According to option
↳ 3, 4, 1, 2, 5
22. (c) $C \xrightarrow{+2} E \xrightarrow{+2} G$ $J \xrightarrow{+2} L \xrightarrow{+2} N$ $Q \xrightarrow{+2} S \xrightarrow{+2} U$
Similarly, $H \xrightarrow{+2} J \xrightarrow{+2} L$
23. (b)



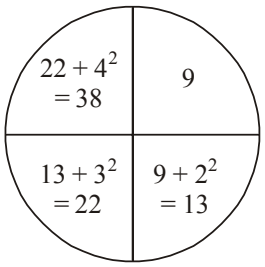
24. (c)



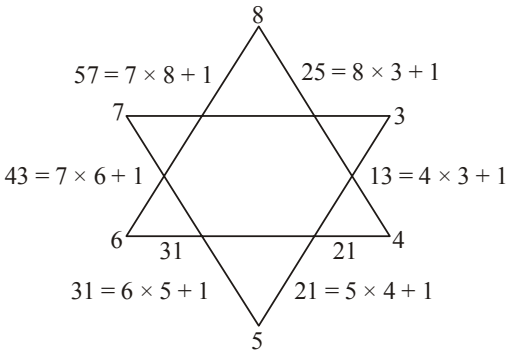
25. (d)



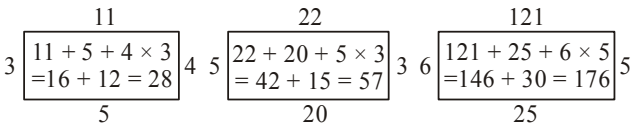
26. (b)



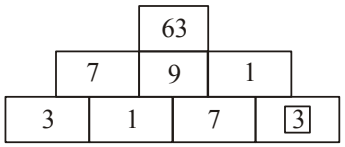
27. (b)



28. (a)



29. (a)



$\Rightarrow 63$
$\Rightarrow 7 \times 1 \times 9 = 63$
$\Rightarrow 3 \times 1 \times 7 \times \boxed{3} = 63$
30. (b) After arranging the letters, we get word 'ENGLAND' which is the name of the country.

31. (c) It is based on position of English alphabet.

B	E	A	D	I	N	G
↓	↓	↓	↓	↓	↓	↓
2	5	1	4	9	14	7

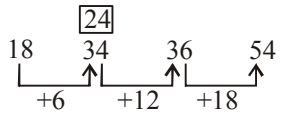
32. (d) $A + G + E = 1 + 7 + 5 = 13$
Similarly, $C + A + R = 3 + 1 + 18 = 22$

33. (d) An electric train does not emit smoke.
Therefore, no smoke will be going in any of the direction.

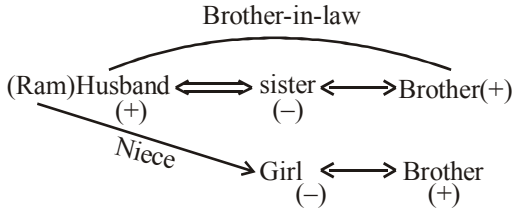
34. (a) $1 \Rightarrow 2 \times 1 - 1 = 1$
$2 \Rightarrow 2 \times 2 - 1 = 3$
$3 \Rightarrow 3 \times 2 - 1 = 5$
$4 \Rightarrow 4 \times 2 - 1 = 7$
$5 \Rightarrow 5 \times 2 - 1 = 9$

35. (b) $7 + 3 = 421 = (7 - 3)(7 \times 3)$
$11 + 7 = 477 = (11 - 7)(11 \times 7)$
$9 + 5 = 445 = (9 - 5)(9 \times 5)$
$6 + 2 = (6 - 2)(6 \times 2) = 412$

36. (a)



37. (b)



Hence, girl is the niece of Ram.

38. (c) All the above lines are symmetrical, as all these lines divide the given figure into two mirror-image halves.

39. (c) Let total Journey = x km.

Ist hour, he travelled $= \frac{x}{4}$ km.

Next hour, he travelled $= \frac{x}{2}$ km.

Total distance travelled $= \left(\frac{x}{4} + \frac{x}{2}\right)$ km

$= \frac{3x}{4}$ km

Remaining distance $= \left(x - \frac{3x}{4}\right)$ km

$= \frac{x}{4}$ km

It is given that, last
last 30 min, he travelled = 80 km

$\Rightarrow \frac{x}{4} = 80$

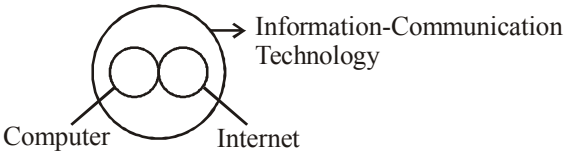
$x = 320$ km.

42. (b)

Regions	Numbers				
	1	2	3	4	5
Circle ○	×	×	×	✓	✓
Square □	×	✓	✓	✓	×
Triangle △	✓	✓	×	×	×

Only number 4 is present in the square and the circle.

43. (b)



44. (b) Conclusions :
I. (✓)
II. (✓)
III. (✓)
] All follow given statements.

45. (c) Arguments :
I. (×) It does not tell about real meaning.
II. (✓) Heavy bags spoil the posture of the children.
III. (×) More load does not mean to get more knowledge
IV. (✓) knowledge can not be gained by taking more load.

51. (b) An accomplice is a partner in crime. Thus option (b) is the answer.

52. (d) Imbiber means one who absorbs something. Impresario means a person who organizes concert and plays. Imitator is the one who copies another person. Imposter is the pretender, so correct answer is option (d).

53. (d) Honest means truthful. Selfish is a person who just thinks about himself. Unscrupulous means dishonest. Conscientious means diligent or hardworking. Looking at the sentence, it is understood that the person is very hardworking. Thus option (d) is the best answer.

54. (a) Evoke means bring to mind and when a response is needed. Thus clearly option (a) is the answer. Provided means given with. Provoked means to incite. Prevent means to stop. Thus these meanings do not fit here.

55. (b) It is evident from the question that too many skyscrapers are blocking the sight of the beach. Now, reveal means to show. Obstruct means to block or stop which perfectly fits here. Make means to build. Clear means clean or without any blemish. Thus we see that option (b) is the best answer.

56. (d) 'Impetus' means 'something that encourages a process or activity.'

57. (c) 'Philanderer' means 'a man who has sexual relations with different women.'

58. (c) 'Palpable' means 'easily noticed'.

59. (c) The author says that we look even more foolish when we slip back into our old bad ways.
60. (b) The author says we fail in our attempts because we never have time to carry them out.
61. (d) The word inveterate means having a particular habit that is long-established and unlikely to change.
62. (c) The author implies that despite our repeated failures we still try one more time.
63. (b) The word formidable means inspiring fear or respect.
64. (d) If I were you, I would do it at once.
65 (c) They set a strong guard, lest anyone should escape.
66. (c) The matter called for an explanation of his conduct. Incorrect preposition is used.
67. (b) The accused denied having murdered anybody.
When you refuse something it means you do not accept it. To refuse to do something is to say that you won't do that. Where as to deny is something is not true. To deny somebody something is to refuse to give it to them.
68. (b) We need honest workers, not people of doubtful integrity.
Redoubtable (adj.)(Of a person): causing fear and respect
Doubtful: Uncertain, undecided and contingent, often use to admitting of doubt.
69. (d) By the time he arrived, everybody had gone home.
70. (b) There is no alternative, so we must leave now. An alternate is something or someone that serves in the place of another. Whereas alternative is the second option that does not replace the first.
71. (a) I cannot hear what she is saying. To hear is to physically experience the sense of sound. As long as one's ear and brain are capable of processing sound waves, one can hear.
To listen is to deliberately apply the ability to hear. One who listens is thinking about what is heard, what it means, how to respond, and whether to continue to listen / pay attention.
72. (a) He is still in vigorous health although he is on the wrong side of sixty.
73. (d) We are sorry to hear regarding your father's death.
74. (a) 'Procrastinate' means to delay or linger in a decision. 'Prompt' means done without delay.
75. (d) 'Proclivity' means a natural tendency (or inclination) to do something.
76. (a) 'Outlandish' means odd or strange.
77. (b) My detailed statement is respectfully submitted.
78. (a) I have been waiting for my friend since morning.
79. (a) He has been representing my constituency for the past five years.
80. (c) If he hears of your conduct, he will be unhappy.
81. (a) No sooner had he appeared on the stage, then the people began to cheer loudly.
96. (d) The author narrates the story in the context of Europe.
97. (c) Buck up is an expression for the word cheer up.
98. (a) The Indian friend was being hopeless because the holiday was over.
99. (b) The author describes the typical English character.
100. (a) The author is trying to highlight the sorrows of Indian character.

101. (a) 40% of 50% of $\frac{3}{4}$ of 3200

$= \frac{4}{10} \times \frac{5}{10} \times \frac{3}{4} \times 3200 = 4 \times 5 \times 3 \times 8 = 480$

102. (b) Age of B = Age of (A + B + C) – Age of (A + C) = $26 \times 3 - 29 \times 2 = 78 - 58 = 20$ years.
103. (d) Required number of arrangements
$= 5! = 120$
104. (c) Share of $B + C = \frac{1872}{9-3} \times (5+8)$
$= ₹\ 4056$
105. (d) Equivalent % interest for compound rate of interest of 8% for 2 years

$= 8 + 8 + \frac{8 \times 8}{100} = 16.64\%$

So, interest = 16.64% of $3980 \approx 662$

106. (d) Total time required $= \frac{14}{5} + \frac{14}{10}$

$= \frac{28+14}{10} = 4.2$ hrs

107. (a) Here $d = a + 3$
$a + a + 3 = 103$
$2a = 100$
$a = 50$
So, numbers are 50, 51, 52 and 53
$\therefore b \times c = 51 \times 52 = 2652$
108. (d) $(4x)(3x) = 1728$
$\Rightarrow x^2 = 144 \therefore x = 12$
$\Rightarrow$ length = 48; breadth = 36

$\therefore$ required ratio $= \frac{36}{36 \times 48} = 1 : 48$

109. (b) Milk = 1.5 litre
Let us add 'x' litre water now the total mixture is $(x + 3)$ litre

$\therefore \quad (x+3) \times \frac{20}{100} = 1.5$

$\Rightarrow x = 4.5$ litre

110. (c) There are $5 + 7 = 12$ balls in the bag and out of these two balls can be drawn in ${}^{12}C_2$ ways. There are 5 green balls, therefore, one green ball can be drawn in ${}^{5}C_1$ ways; similarly, one red ball can be drawn in ${}^{7}C_1$ ways so that the number of ways in which we can draw one green ball and the other red is ${}^{5}C_1 \times {}^{7}C_1$. Hence, P (one green and the other red)

$= \frac{{}^{5}C_1 \times {}^{7}C_1}{{}^{12}C_2} = \frac{5}{1} \times \frac{7}{1} \times \frac{1 \times 2}{12 \times 11} = \frac{35}{66}$

111. (b) There are 7 + 5 = 12 balls in the bag and the number of ways in which 4 balls can be drawn is ${}^{12}C_4$ and the number of ways of drawing 4 black balls (out of seven) is ${}^{7}C_4$.

Hence, P (4 black balls)

$$= \frac{{}^{7}C_4}{{}^{12}C_4} = \frac{7.6.5.4}{1.2.3.4} \times \frac{1.2.3.4}{12.11.10.9} = \frac{7}{99}$$

Thus the odds against the event 'all black balls' are

$$(1 - \frac{7}{99}) : \frac{7}{99} \; i.e., \; \frac{92}{99} : \frac{7}{99} \text{ or } 92 : 7$$

112. (b) The word 'SOCIETY' contains seven distinct letters and they can be arranged at random in a row in ${}^{7}P_7$ ways, i.e. in 7! = 5040 ways.

Let us now consider those arrangements in which all the three vowels come together. So in this case we have to arrange four letters. S,C,T,Y and a pack of three vowels in a row which can be done in ${}^{5}P_5$ i.e. 5! = 120 ways.

Also, the three vowels in their pack can be arranged in ${}^{3}P_3$ i.e. 3! = 6 ways.

Hence, the number of arrangements in which the three vowels come together is $120 \times 6 = 720$

$\therefore$ The probability that the vowels come together =

$$\frac{720}{5040} = \frac{1}{7}$$

113. (d) Since, one and only one of the three events E_1, E_2 and E_3 can happen, therefore

$$P(E_1) + P(E_2) + P(E_3) = 1 \quad .....(1)$$

$\because$ Odds against E_1 are 7 : 4

$$\Rightarrow \; P(E_1) = \frac{4}{4+7} = \frac{4}{11} \qquad .....(2)$$

$\because$ Odds against E_2 are 5 : 3

$$\Rightarrow \; P(E_2) = \frac{3}{3+5} = \frac{3}{8} \qquad .....(3)$$

From (1), (2) and (3), we have,

$$\frac{4}{11} + \frac{3}{8} + P(E_3) = 1$$

$$\text{i.e. } P(E_3) = 1 - \frac{4}{11} - \frac{3}{8}$$

$$= \frac{88 - 32 - 33}{88} = \frac{23}{88} = \frac{23}{23 + 65}$$

Hence odds against E_3 is 65 : 23.

114. (d) Given, $27 \times (81)^{2n+3} - 3^m = 0$

$$\Rightarrow \qquad 3^3 \times (3)^{8n+12} = 3^m$$

$$\Rightarrow \qquad 3^{8n+15} = 3^m \quad \Rightarrow \quad m = 8n + 15 \text{ (on comparing)}$$

115. (b) $\dfrac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}} + \dfrac{\sqrt{5}-\sqrt{3}}{\sqrt{5}+\sqrt{3}}$

$$= \frac{\left(\sqrt{5}+\sqrt{3}\right)^2 + \left(\sqrt{5}-\sqrt{3}\right)^2}{\left(\sqrt{5}\right)^2 - \left(\sqrt{3}\right)^2}$$

$$= \frac{2\left\{\left(\sqrt{5}\right)^2 + \left(\sqrt{3}\right)^2\right\}}{5-3} = \frac{2(5+3)}{2} = 8$$

116. (c) Let the cost price of the watch = ₹x

After 40% marked price and 10% discount

$$= x \times \frac{90}{100} \times \frac{140}{100} = \frac{126x}{100}$$

$$\text{Profit} = \frac{126x}{100} - x = \frac{26x}{100}$$

According to question,

Pay 10% tax on profit

$$= \frac{26x}{100} \times \frac{90}{100} = 468$$

$$x = \frac{468 \times 100 \times 100}{26 \times 90} = ₹2000$$

117. (c) Let the cost price = ₹ x

Profit = ₹ x

Cost price of 8 dozen pencil = ₹ 7x

$$\text{Gain per cent} = \frac{x}{7x} \times 100$$

$$= \frac{100}{7} = 14\frac{2}{7}\%$$

118. (b) The expression $3x^3 - kx^2 + 4x + 16$ is divisible by $x - \dfrac{k}{2}$.

Then, $x = \dfrac{k}{2}$ satisfy the equation

$$\Rightarrow \; 3\left(\frac{k}{2}\right)^3 - k\left(\frac{k}{2}\right)^2 + 4\left(\frac{k}{2}\right) + 16 = 0$$

$$\Rightarrow \; \frac{3k^3 - 2k^3 + 16k + 128}{8} = 0$$

$$\Rightarrow \; k^3 + 16k + 128 = 0$$

$$\Rightarrow \; (k+4)(k^2 - 4k + 32) = 0$$

$$\Rightarrow \; k + 4 = 0$$

$$\Rightarrow \; k = -4$$

119. (a) $2+\sqrt{2}+\dfrac{1}{2+\sqrt{2}}-\dfrac{1}{2-\sqrt{2}}$

$=2+\sqrt{2}+\dfrac{2-\sqrt{2}-2-\sqrt{2}}{4-2}$

$=2+\sqrt{2}+\dfrac{(-2\sqrt{2})}{2}=2+\sqrt{2}-\sqrt{2}=2$

120. (c) Given, $a\cos\theta - b\sin\theta = c$

On squaring both sides, we get

$a^2\cos^2\theta + b^2\sin^2\theta - 2ab\cos\theta\sin\theta = c^2$

$\Rightarrow a^2(1-\sin^2\theta)+b^2(1-\cos^2\theta)-2ab\sin\theta\cos\theta = c^2$

$\Rightarrow a^2+b^2-c^2 = a^2\sin^2\theta + b^2\cos^2\theta + 2ab\sin\theta\cos\theta$

$\Rightarrow (a\sin\theta + b\cos\theta)^2 = a^2+b^2-c^2$

$\Rightarrow a\sin\theta + b\cos\theta = \pm\sqrt{a^2+b^2-c^2}$

121. (d) Given, $2x^2\cos 60^\circ - 4\cot^2 45^\circ - 2\tan 60^\circ = \theta$

$\Rightarrow 2x^2\times\dfrac{1}{2} - 4(1)^2 - 2\times\sqrt{3} = 0$

$\Rightarrow x^2 - 4 - 2\sqrt{3} = 0$

$\Rightarrow x^2 = 4 + 2\sqrt{3}$

$\Rightarrow x^2 = 3 + 1 + 2\sqrt{3}$

$\Rightarrow x^2 = \left(\sqrt{3}\right)^2 + (1)^2 + 2\sqrt{3}\cdot 1$

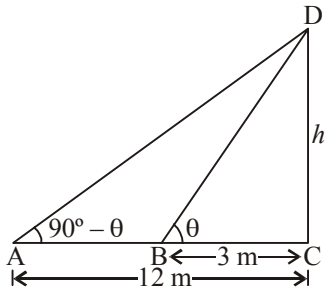
$\Rightarrow x^2 = \left(\sqrt{3}+1\right)^2$

$\Rightarrow x = \sqrt{3}+1$

122. (b) Let the height of the tower be h m and

$\angle CBD = \theta$ then $\angle DAC = 90^\circ - \theta$

(Because both angles are complementary)



$\therefore$ In ΔBCD,

$\tan\theta = \dfrac{CD}{BC} \Rightarrow \tan\theta = \dfrac{h}{3}$

Now, in ΔACD

$\tan(90^\circ-\theta) = \dfrac{CD}{AC} \Rightarrow \cot\theta = \dfrac{h}{12}$

$\dfrac{1}{\tan\theta} = \dfrac{h}{12}$

$h\tan\theta = 12$

put the value of $\tan\theta$

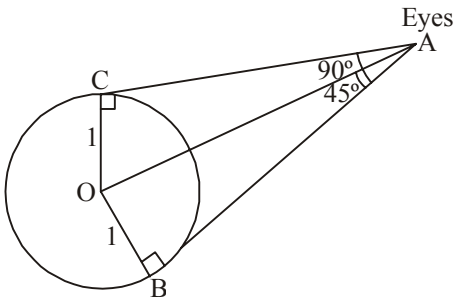
$h\times\dfrac{h}{3} = 12$

$h^2 = 36 \quad \therefore h = 6$

Then, height of tower = 6 m.

123. (b) Let O = Centre of the balloon

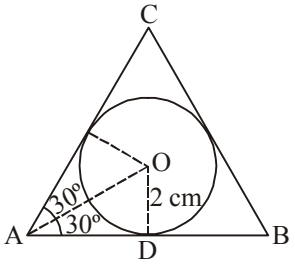
OB = OC = Radii of the balloon



In ΔOBA, $\sin 45^\circ = \dfrac{OB}{OA} \Rightarrow \dfrac{1}{\sqrt{2}} = \dfrac{1}{OA} \Rightarrow OA = \sqrt{2}$

124. (a) Since, area of circle = 4p cm^2 (given)

$\Rightarrow \pi r^2 = 4\pi \Rightarrow r = 2$ cm



In ΔOAD, $\tan 30^\circ = \dfrac{OD}{AD} \Rightarrow AD = 2\sqrt{3}$ cm

Now, $AB = 2AD = 4\sqrt{3}$ cm

$\therefore$ Area of equilateral ΔABC

$= \dfrac{\sqrt{3}}{4}(AB)^2 = \dfrac{\sqrt{3}}{4}(4\sqrt{3})^2$

$= 12\sqrt{3}$ cm^2

125. (c) Let the side of an square be a cm.

By given condition,

Area of square – Area of an equilateral triangle $= \dfrac{1}{4}$

$\Rightarrow a^2 - \dfrac{\sqrt{3}}{4}a^2 = \dfrac{1}{4} \Rightarrow a^2\left(1-\dfrac{\sqrt{3}}{4}\right) = \dfrac{1}{4}$

$\Rightarrow a^2(4-\sqrt{3}) = 1 \Rightarrow a^2 = \dfrac{1}{4-\sqrt{3}}$

$\therefore a = (4-\sqrt{3})^{-1/2}$ cm

126. (d) Volume of wire $= \pi r^2 h$

New radius of the wire $= \frac{r \times 90}{100} = \frac{9r}{10}$

Let new length of the wire be L.

$\therefore$ Volume of new wire $= \pi\left(\frac{9r}{10}\right)^2 \times L = \frac{81}{100}\pi r^2 L$

According to question,

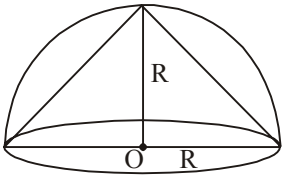
$\pi r^2 h = \frac{81}{100}\pi r^2 L \Rightarrow L = \frac{100}{81}h$

Increase in length $= \frac{100}{81}h - h = \frac{19}{81}h$

Per cent increase $= \frac{19/81h}{h} \times 100\% = 23.46\%$

$= 23\%$ (approx)

127. (a) Volume of cone, $C = \frac{1}{3}\pi R^2 H$



$= \frac{1}{3}\pi R^3$ $(\because H = R)$

Volume of hemisphere, $H = \frac{2}{3}\pi R^3$

$\therefore$ $C : H = \frac{1}{3}\pi R^3 : \frac{2}{3}\pi R^3 = 1 : 2$

128. (b) $AD \parallel BE$

$\therefore$ $\angle ADC = \angle DCE$ (alternate angles)

$\Rightarrow$ $\angle ADB + 30^\circ = 85^\circ$

$\Rightarrow$ $\angle ADB = 55^\circ$

and $\angle BAD = 90^\circ$ (given)

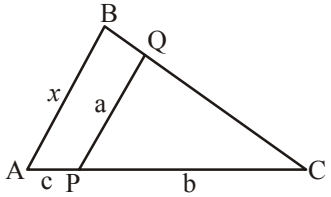
Now, in ΔABD,

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

$\Rightarrow$ $x + 55^\circ + 90^\circ = 180^\circ$

$\Rightarrow$ $x = 180^\circ - 145^\circ = 35^\circ$

129. (d) In ΔABC and ΔPQC,



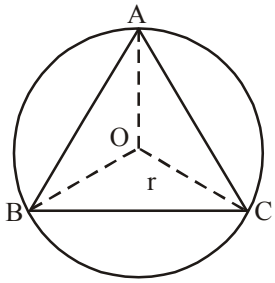
$\therefore$ $\frac{PC}{AC} = \frac{PQ}{AB}$

$\Rightarrow$ $\frac{b}{c+b} = \frac{a}{x}$

$\therefore$ $x = \frac{a(c+b)}{b} = \frac{ac}{b} + a$

130. (b) Number of points is one, because circumcentre is the only point in the plane of a triangle, which is equidistant from the vertices of the triangle.

$OA = OB = OC = r$



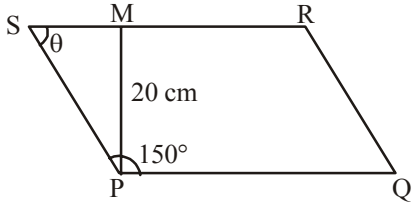
131. (a) Given that, $\angle SPQ = 150^\circ$ and $PM = 20$ cm

In parallelogram $PQRS$,

$\angle RSP + SPQ = 180^\circ$ (interior angles)

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

$\Rightarrow$ $\angle RSP = \theta = 30^\circ$



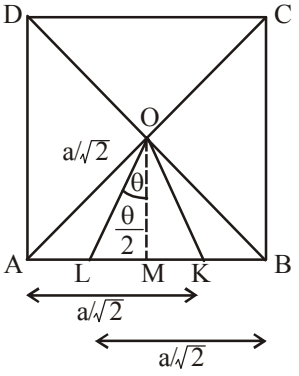
In ΔPSM,

$\sin\theta = \sin 30^\circ = \frac{PM}{SP}$

$\Rightarrow$ $\frac{1}{2} = \frac{20}{SP} \Rightarrow SP = 40$ cm

$\therefore$ $RQ = SP = 40$ cm.

132. (c) Let sides of the square be a.



Then, $AC = a\sqrt{2}$ and $AO = OC = \frac{a}{\sqrt{2}}$

Here, $AM = \frac{a}{2}$

$\therefore \quad LM = \frac{a}{\sqrt{2}} - \frac{a}{2}$ and $OM = \frac{a}{2}$

In ΔOML, $\tan\frac{\theta}{2} = \frac{\frac{a}{\sqrt{2}} - \frac{a}{2}}{\frac{a}{2}} = \frac{\frac{\sqrt{2}-1}{2}}{\frac{1}{2}} = \sqrt{2}-1$

$\therefore \quad \tan\theta = \frac{2\tan\frac{\theta}{2}}{1-\tan^2\frac{\theta}{2}} = \frac{2(\sqrt{2}-1)}{1-(2+1-2\sqrt{2})}$

$= \frac{2(\sqrt{2}-1)}{1-3+2\sqrt{2}} = \frac{2(\sqrt{2}-1)}{2\sqrt{2}-2}$

$\Rightarrow \quad \tan\theta = 1$

133. (b) Let the number of men be n?

Men	**Days**
$\overset{42}{n}\downarrow$	$\overset{25}{14}\uparrow$

$\therefore \quad \frac{n}{42} = \frac{25}{14} \Rightarrow n = 75$

134. (d) Work done by tap B in 1 min

$= \frac{1}{40} - \frac{1}{60} = \frac{3-2}{120} = \frac{1}{120}$

Total time taken by the tap B to fill the tank is 120 min.

135. (d) Suppose number of passengers be x in the starting.
Number of passengers after 1st halt

$= \left(x - \frac{x}{3}\right) + 120 = \frac{2x}{3} + 120$

Number of passengers after 2nd halt

$= \frac{1}{2}\left(\frac{2x}{3} + 120\right) + 100$

According to question,
Number of passengers after 2nd halt

$= \frac{1}{2}\left(\frac{2x}{3} + 120\right) + 100 = 240$

$\Rightarrow \quad \frac{2x}{3} + 120 = (240 - 100) \times 2$

$\Rightarrow \quad \frac{2x}{3} = 280 - 120$

$\frac{2x}{3} = 160$

$x = \frac{\overset{80}{\cancel{160}} \times 3}{\cancel{2}_{1}}$

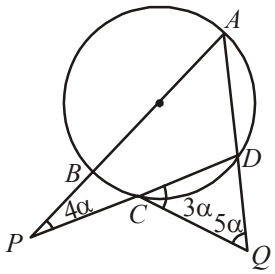
$x = 240$

136. (a) Let $f_1(x) = x^3 + mx^2 - x + 2m$
and $f_2(x) = x^2 + mx - 2$
Let $m = 1$
$\therefore \quad f_1(x) = x^3 + x^2 - x + 2$
and $f_2(x) = x^2 + x - 2 = (x + 2)(x - 1)$
When $x = 1$,
$f(1) = 1 + 1 - 1 + 2 \neq 0$
When $x = -2$,
$f(-2) = (-2)^3 + (-2)^2 - (-2) + 2 = 0$
Required value of m is 1.

137. (b) $24 = 12 \times 2$,
$36 = 12 \times 3$,
$48 = 12 \times 4$,
and $72 = 12 \times 6$
$\therefore$ HCF (24, 36, 48, 72) = 12
Total pieces = 2 + 3 + 4 + 6 = 15

138. (b) Given $\frac{x}{3} = \frac{y}{4} = \frac{z}{5} = \alpha$ (say)

$\therefore \quad x = 3\alpha,\ y = 4\alpha$ and $z = 5\alpha$



Since, $\angle DCQ = \angle BCP = 3\alpha$
(vertically opposite angle)
In ΔDCQ, $\angle CDQ = 180° - (3\alpha + 5\alpha) = 180° - 8\alpha$ by properation of cyclic quadrilateral,
$\angle QDC = \angle CBA = 180° - 8\alpha \quad \Rightarrow \angle PBC = 8\alpha$
In ΔPBC,
$\angle P + \angle B + \angle C = 180°$

$\therefore \quad 4\alpha + 8\alpha + 3\alpha = 180° \Rightarrow \alpha = \frac{180°}{15} \Rightarrow \alpha = 12°$

$\therefore \quad x = 36°,\ y = 48°,\ z = 60°$

139. (a) We know that, the triangle of same segment of a circle makes an equal angles.
$\therefore \quad \angle XBY = \angle XAY = 45°$
In ΔBXY, $\angle BXY + \angle XBY + \angle BYX = 180°$
$\Rightarrow 50° + 45° + \angle BYX = 180° \quad (\because \angle BXY = 50°)$
$\Rightarrow \quad \angle BYX = 180° - 95° = 85°$

140. (d) $\because 1.\overline{34} = \frac{134-1}{99} = \frac{133}{99}$

and $4.1\overline{2} = \frac{412-41}{90} = \frac{371}{90}$

$\therefore \quad 1.\overline{34} + 4.1\overline{2} = \frac{133}{99} + \frac{371}{90} = \frac{1330+4081}{990}$

$= \frac{5411}{990} = 5\frac{461}{990}$

141. (d) Mean of y and $\frac{1}{y}$ = M

$$\Rightarrow \frac{y+\frac{1}{y}}{2} = M \Rightarrow y + \frac{1}{y} = 2M \quad \ldots (i)$$

Now, mean of y^3 and $\frac{1}{y^3}$ is

$$\frac{y^3+\frac{1}{y^3}}{2} = \frac{\left(y+\frac{1}{y}\right)^3 - 3\left(y+\frac{1}{y}\right)}{2}$$

$$\Rightarrow \frac{y^3+\frac{1}{y^3}}{2} = \frac{(2M)^3 - 6M}{2}$$

$$= \frac{(2M)\left[(2M)^2 - 3\right]}{2} = M(4M^2 - 3)$$

142. (c) Let the observation mean = x
∴ Sum of 50 observations = 50x
According to question,

$$\therefore \frac{50x - 45}{49} = x$$

$$\Rightarrow 50x - 45 = 49x$$

$$\therefore x = 45$$

Solution (Q. Nos. 143-144):

Total age of six persons = 23.5 × 6 = 141 years
Total age of three major persons = 42 × 3 = 126 years
∴ Total age of three minor children = 141 – 126 = 15 years
The difference in ages of the three minor children is same.
Therefore, we take ages may be:
5, 5, 5; 3, 5, 7; 2, 5, 8 and 1, 5, 9
In all the cases, median will be 5 years.

143. (c) Mean age of minor children = $\frac{15}{3}$ = 5 years.

144. (b) Median age of minor children = 5 years.

145. (c) Required number of ways

$$= {}^8C_4 = \frac{8!}{4!(8-4)!} = \frac{5\times6\times7\times8}{1\times2\times3\times4} = 70$$

146. (d) Male Engineers + Male Designers
40% of (18% of 10500) + 65% of (16% of 10500)
Female Engineers + Female Designers
= 60% of (18% of 10500) + 35% of (16% of 10500)
∴ Required ratio = (40 × 18)
+ (65 × 16) : (60 × 18 + 35 × 16)
= (720 + 1040) : (1080 + 560)
= 1760 : 1640 = 44 : 41

147. (c) Required % = $\frac{19}{21}\times100 \approx 90\%$

148. (d) % of female professionals =
= [20% of 21% + 60% of 18% + 40% of 11% + 80% of 15%
+ 40% of 19% + 35% of 16%]

$$= \frac{1}{100}[420 + 1080 + 440 + 1200 + 760 + 560]\%$$

$$= \frac{4460}{100}\% = 44.6\%$$

∴ % of male professionals
= 100% – 44.6% = 55.4%
∴ Required diff
= (55.4 – 44.6)% of 10500
= 10.8% of 10500
= 10.8 × 105 = 1134

149. (d) Required %

$$= \frac{20\% \text{ of } 21}{89\% \text{ of } 15}\times100\% \approx \frac{20\times21}{80\times15}\times100\%$$

$$\frac{420}{12} \approx 35\%$$

150. (a) Required ratio = $\frac{60\times11}{20\times15} = 11:5$

151. (d) Netscape is an Internet browser that was popular during the early 1990's.

152. (b) Lord William Bentinck was the first governor General of India.

153. (a) Edwin Hubble gave the first evidence of the big-bang theory.

154. (b) Syndicate Bank. The symbol of dog implies that Bank is trustworthy and a friend. Its slogan is : Your faithful and friendly financial partner.

155. (d) Nitrogen dioxide (NO_2) is not a component of biogas.

156. (c) The 23rd Session (1907) of the Congress was held at Surat.In the session, there was an open clash between the Moderates and the Extremists and ultimately it led to a split in the Congress.

157. (d) Govind Ballabh Pant Sagar is on the Rihand River which is the tributary of the Son River.

158. (a) The ozone layerrefers to a region of Earth's stratosphere that absorbs most of the Sun's ultraviolet (UV) radiation. Ultra Violet radiation is very harmful to all living things. UV radiation can be harmful to the skin and is the main cause of sunburn; excessive exposure can also cause cataracts, immune system suppression, and genetic damage, and skin cancer.

159. (d) The Nanda Devi National Park is a national park situated around the peak of Nanda Devi(7,816 m) in Uttarakhand.

160. (b) In 2006, Kejriwal was awarded the Ramon Magsaysay Award for Emergent Leadership recognising his involvement in a grassroots movement Parivartan using right to information legislation in a campaign against corruption.

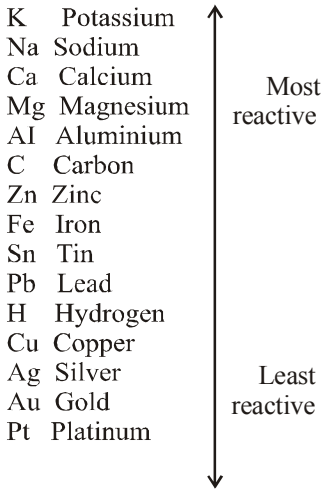
161. (b) The Theosophical Society was formed by Helena Petrovna Blavatsky, Henry Steel Olcott, William Quan Judge and others in November 1875 in New York. The aim of the society was to promote spiritual principles and search for truth known as Theosophy.
162. (c) Black holes are regions of spacetime from which nothing, not even light, can escape. A typical black hole is the result of the gravitational force becoming so strong that one would have to travel faster than light to escape its pull. Such black holes contain a spacetime singularity at their centre.
164. (c) 1 Bar = 10^5 Pa. Both bar and Pa are the unit of pressure.
165. (a) Fe and Mg metals are present in haemoglobin and chlorophyll respectively.
166. (b) The blood group of father of the child could be A or B or O.
167. (c) Chlorofluoro carbon (CF_2Cl_2) is also known as freon. It is used as refrigerants in refrigerators and air conditions. It is also used as propellant in aerosols and foams.
168. (c) The amount of water vapour in the air at any given time is usually less than that required to saturate the air. The relative humidity is the percent of saturation humidity, generally calculated in relation to saturated vapour density.

$$Relative\ Humidity = \frac{actual\ vapor\ density}{saturation\ vapor\ density} \times 100\%$$

169. (a) Sphygmomanometer is an instrument to measure the blood pressure. It is made up of an inflatable cuff to restrict the blood flow and a mercury or manometer to measure pressure.
170. (c) Suzlon is a vertically integrated wind power company. Suzlon makes and installs windmills.
171. (b) Bass Strait is a sea strait which separates Tasmania from the Australian mainland.
172. (c) The All India Muslim League, a political organization was founded in 1906 by Aga Khan under the Nawab of Dhaka Salimullah.Its main purpose was to safeguard the political rights of Muslims in India.
173. (d) Selvas is a tropical rain forest found in the Amazon basin of South America.
174. (a) The country's first railway, built by the Great Indian Peninsula Railway (GIPR), opened in 1853 between Bombay and Thane.
175. (c) Rocket works on the principle of conservation of linear momentum.
176. (d) Tansen, who was one of the nine jewels or navaratnas in the court of Emperor Akbar, was born in a Hindu family at Behat near Gwalior in the Madhya Pradesh state. Father of Tansen was Makarand Pande, who named him Ramtanu Pandey.
177. (a) The Sabin Award provides a unique opportunity to acknowledge and celebrate some of the truly pioneering work that is going on to understand and tackle the decline and extinction of amphibians worldwide, and to get a sense of the true passion and commitment of the individuals responsible for saving species. The award of US$25,000 is given to individuals from all disciplines relevant to amphibian conservation and research anywhere in the world.
178. (d) Motor Vehicle tax is not a source of tax revenue for the central government in India.
179. (b) *Rani ki Vav* stepwell is situated in the town of Patan in Gujarat. It was added to the list of UNESCO's World Heritage Sites on 22 June 2014. It was constructed during the rule of the Solanki dynasty.
180. (d) Capital receipts and payments do not form part of current account of Balance of Payment.
181. (d) Cyclical unemployment is unemployment that results when the overall demand for goods and services in an economy cannot support full employment. It occurs during periods of slow economic growth or during periods of economic contraction.
182. (b) According to Article 243 (I) the governor of the state shall set up the Finance Commission within the period of one year. State Finance Commissions receive grants from the Finance Commission that is set up by the central government.
183. (d) The 10th Schedule to the Indian Constitution is known as Anti-Defection Law. It was inserted by the 52nd Amendment Act 1985 to the Constitution. It sets the provisions for disqualification of elected members on the grounds of defection to another political party.
184. (a) Reverse osmosis method is used to obtain pure water from water containing a salt or for desalination of sea water.
185. (a) The Luni is a river of western Rajasthan state. It originates in the Pushkar valley of the Aravalli Range near Ajmer and ends in Rann of Kutch in Gujarat.
186. (d) The variation in the value of money is always accompanied by opposite variation in the price of commodities and services. In brief, the value of money varies inversely with the price level. It is reciprocal of price level.
$V_m = 1/p$ (where V_m denotes value of money and p stands for price level).
187. (b) The Great Barrier Reef is the world's largest coral reef system located in the Coral Sea, off the coast of Queensland, Australia.
188. (a) Water gas is a synthetic gas, having CO_2 and H_2. The gas is produced by passing steam over a red hot hydrocarbon fuel as coke.
189. (b) With a view to restoring the past glory for Kolleru lake, government had taken up 'Operation Kolleru' on the Krishna and West Godavari district borders. Kolleru Lake is one of the largest freshwater lakes in India located in state of Andhra Pradesh
190. (b) The permissible level is 60 dB.
191. (a) Rayon is made from naturally occuring cellulose. Rayon is also called artificial silk.
192. (d) Chikungunia is caused by chikenguniya virus which is an insect borne virus of genus *Alphavirus*. Symptoms show high fever, maculopapular rash, headache, etc.

193. (b) The Fundamental Duties were added to the Constitution by the 42nd Amendment in 1976 on the recommendations of the Swaran Singh Committee. They were originally ten in number, but by the 86th Amendment in 2002 they were increased to eleven.

194. (b)



C H added for comparison

Reactivity Series of Metals

In the reactivity series of metals, copper is placed below the hydrogen. Hence, it is less reactive than hydrogen. On the other hand barium, lead and magnesium are placed above the hydrogen hence, these are more reactive than hydrogen.

195. (c) Muhammad Ali Jinnah drafted the constitution of Muslim league 'The green Book'.

196. (c) Chinook is a warm, dry, gusty, westerly wind that blows down the Rocky Mountains in North America.

197. (b) The estimates committee is the largest committee of the parliament. This Committee consists of 30 members who are elected by the Lok Sabha every year from amongst its members. The term of office of the Committee is one year. The committee was constituted in 1950 on the recommendation of John Mathai, the then finance minister of India.

197. (d) The legislative assembly of the concerned state recommends to the parliament for the abolition of the legislative council in a state (Article 169).

199. (d) USA has the largest cultivated area of cotton in the world.

Sileru Dam is situated on the boarder of Andhra Pradesh and Odisha.

200. (c) The Right to Information Act (RTI) was passed by the Indian Parliament on 12 May 2005 and received Presidential assent on 15 June 2005. It came into force on 12 October 2005.