1. If \( A + B \) means \( A \) is the brother of \( B \); \( A - B \) means \( A \) is the sister of \( B \) and \( A \times B \) means \( A \) is the father of \( B \). Which of the following shows that \( C \) is the son of \( M \)?
   (A) \( M - N \times C + F \)  
   (B) \( F - C + N \times M \)  
   (C) \( N + M - F \times C \)  
   (D) \( M \times N - C + F \)

2. Which word does not form a group in the following questions?
   (A) table  
   (C) chair  
   (C) wood  
   (D) cupboard

3. When the shape below is folded at the dotted lines, which shape does it produce?

   (A)  
   (B)  
   (C)  
   (D)

Directions (Q. no 4-5): In each of the following question two statements are given, which are followed by four conclusions (1), (2), (3) and (4). Choose the conclusions which logically follow from the given statements.

4. Statements:
   No door is dog.
   All the dogs are cats.

   Conclusions:
   1. No door is cat  
   2. No cat is door  
   3. Some cats are dog  
   4. All the cats are dogs

   (A) Only (2) and (4)  
   (B) Only (1) and (3)  
   (C) Only (3) and (4)  
   (D) Only (2) and (4)

5. Statements:
   All greens are blue. All blue are white.

   Conclusions:
   1. Some blue are green  
   2. Some white are green  
   3. Some green are not white  
   4. All white are blue

   (A) Only (1) and (2)  
   (B) Only (1) and (3)  
   (C) Only (1) and (4)  
   (D) Only (2) and (4)
6. Which number should replace the question mark in the following table?

<table>
<thead>
<tr>
<th>17</th>
<th>8</th>
<th>5</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>7</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>12</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>6</td>
<td>4</td>
<td>?</td>
</tr>
</tbody>
</table>

(A) 4   (B) 5   (C) 6   (D) 7

7. If in the word 'DISTURBANCE', the first letter is interchanged with the last letter, the second letter is interchanged with the tenth letter and so on, which letter would come after the letter T in the newly formed word?

(A) S   (B) I   (C) T   (D) N

8. If JOSEPH is coded as FKOALD, then GEORGE will be coded as:

(A) CAKNCA   (B) HAKNCA   (C) CBKNCA   (D) CALNCA

9. In a queue, Amrita is 10th from the front while Mukul is 25th from behind and Mamta is just in the middle of the two. If there are 50 persons in the queue. What position does Mamta occupy in the queue?

(A) 20th   (B) 19th   (C) 18th   (D) 17th

10. An institute organised a fete. \( \frac{1}{5} \) of the girls and \( \frac{1}{8} \) of the boys participated in it. What fraction of the total number of students took part in the fete?

(A) \( \frac{2}{13} \)   (B) \( \frac{13}{40} \)   (C) Data inadequate   (D) \( \frac{5}{13} \)

11. A man walks 5 km toward south and then turns to the right. After walking 3 km he turns to the left and walks 5 km. Now in which direction is he from the starting place?

(A) West   (B) South   (C) North-East   (D) South-West

12. Look at this series: 544, 509, 474, 439, ... What number should come next?

(A) 404   (B) 414   (C) 420   (D) 445

13. Seema is daughter-in-law of Sudhir and sister-in-law of Ramesh. Mohan is the son of Sudhir and only brother of Ramesh. Seema is Mohan's ..........

(A) sister-in-law   (B) sister   (C) wife   (D) niece
Directions (Q. No. 14-16): Study the following sequence of digit-letter-symbol carefully and answer the questions given below:

R * T J L 2 $ D = M # 8 C % B < K 1 & A W ? P E + Q @ 7 F 6

14. How many such numbers are there in the above sequence each of which is immediately preceded by a consonant and immediately followed by a symbol?
(A) Nil (B) One (C) Three (D) Two

15. Which of the following is sixth to the left of eighteenth element from the left?
(A) C (B) # (C) % (D) 8

16. Choose the word which is different from the others.
(A) Kiwi (B) Eagle (C) Emu (D) Ostrich

17. How many such digits are there in the number 7346285 which are as far away from the beginning of the number, as they will be when arranged in ascending order within the number?
(A) None (B) One (C) Two (D) Three

18. Which one will replace the question mark?

\[
\begin{array}{cccccc}
12 & 18 & 30 & 16 & 24 & 40 \\
6 & 8 & ? & 45 & 18 & 27 \\
\end{array}
\]

(A) 18 (B) 12 (C) 9 (D) 6

19. In the following questions find out the alternative which will replace the question mark.

Ornithologist : Bird :: Archealogist : ?
(A) Islands (B) Mediators (C) Archeology (D) Aquatic

20. In the following questions, arrange the given words in a meaningful sequence and thus find the correct answer from alternatives. Arrange the words given below in a meaningful sequence.

(A) 5, 1, 2, 4, 3 (B) 4, 2, 1, 5, 3 (C) 1, 3, 2, 4, 5 (D) 1, 2, 3, 5, 4

21. The total age of Lucky, Nitya and Vivek is 80 years. What was the total of their ages three years ago?
(A) 71 years (B) 72 years (C) 74 years (D) 77 years

22. Choose the correct alternative that will continue the same pattern and replace the question mark in the given series.

125, 80, 45, 20, ?
(A) 5 (B) 8 (C) 10 (D) 12
23. In the following alphabet second half is written first and then the first half is arranged in reverse order. Then which of the following will be the 5th letter to the left of 16th letter from the right?

A B C D E F G H I J K L M N O P Q R S T U
V W X Y Z

(A) S  (B) T  (C) P  (D) F

24. Choose the box that is similar to the box formed from the given sheet of paper (X).

(A) 1 and 4 only  (B) 3 and 4 only  (C) 1 and 2 only  (D) 2 and 3 only

25. In a certain code language the word ‘LOGICAL’ is coded as ‘NQIJAYJ’. How will you code the word FINANCE?

(A) HKPBLAC  (B) HPBKLAC  (C) HKLPBAC  (D) HPBKLAC

26. The cost of food accounted for 25% of the income of particular family. If the income gets raised by 20% then what should be the percentage decrease in the food expenditure so as expenditure unchanged?

(A) 3.5%  (B) 8.33%  (C) 4.16%  (D) 5%

27. Ramesh deposited ₹15,600 is a fixed deposit at the rate of 10% per annum at simple interest. After every second year, he adds his interest earnings to the principal. The total interest at the end of fourth year is

(A) ₹6468  (B) ₹6684  (C) ₹6864  (D) ₹6864

28. A person cover certain distance by Train, Bus and Car in ratio 4 : 3 : 2. The ratio of fair is 1 : 2 : 4 per km. The total expenditure of the fare is ₹720. Then, the fare of train is

(A) ₹140  (B) ₹150  (C) ₹160  (D) ₹170
29. A shopkeeper calculates percentage profit on the buying price and another on the selling price. What will be their difference in profits if both claim a profit of 20% on goods sold for ₹3000?
(A) ₹200  (B) ₹100
(C) ₹400  (D) ₹150

30. Two taps are running continuously to fill a tank. The 1st tap could have filled it in 5 hours by itself and the second one by itself could have filled it in 20 hours, but the operator failed to realise that there was a leak in the tank from the beginning which caused a delay for one hour in the filling of the tank. Find the time in which the leak would empty a filled tank:
(A) 15 hours  (B) 20 hours
(C) 25 hours  (D) 40 hours

31. \[\sqrt{8} + \sqrt{54} + \sqrt{38} + \sqrt{108} + \sqrt{169} = ?\]
(A) 4  (B) 6
(C) 8  (D) 10

32. Which is the largest fraction among \(\frac{3}{8}, \frac{3}{5}, \frac{2}{3}\) and \(\frac{1}{2}\).
(A) \(\frac{2}{3}\)  (B) \(\frac{3}{5}\)
(C) \(\frac{1}{2}\)  (D) \(\frac{3}{8}\)

33. A cylinder and a cone have equal radii of their bases and equal heights. If their curved surface areas are in the ratio 8 : 5, the ratio of their radius and height is:
(A) 1 : 2  (B) 1 : 3
(C) 2 : 3  (D) 3 : 4

34. A man, a woman and a girl worked for a contractor for the same period. A man is twice efficient a woman and a woman is thrice efficient a girl and ₹10,000 were given to all of them. What is the sum of money received by a woman and a girl together?
(A) ₹5500  (B) ₹4500
(C) ₹4000  (D) ₹6000

35. In an election among 3 candidates A, B and C, A gets 50% more votes than B. A also beats C by 1,80,000 votes. If it is known that B gets 5 percentage more votes than C, then find the number of voters on the voting list (given that 90% of the voters on the voting list voted and no votes were invalid).
(A) 72,000  (B) 81,000
(C) 90,000  (D) 1,00,000
36. A jar contained a mixture of two liquids A and B in the ratio 4 : 1. When 10 litres of the mixture was taken out and 10 litres of liquid B was poured into the jar, the ratio became 2 : 3. The quantity of liquid A contained in the jar initially was:
(A) 4 litres  (B) 8 litres  
(C) 16 litres  (D) 32 litres

37. Two car start from same place at same time. Speed of first car is 10 km/hr and the speed of 2nd car increases its speed \( \frac{1}{2} \) km/hr after each hour. After how much distance the second overtake the first?
(A) 90 km  (B) 100 km  
(C) 180 km  (D) None of these

38. A certain sum amount to ₹ 5,832 in 2 years at 8% per annum compound interest. Find the sum.
(A) ₹ 5,000  (B) ₹ 5,200  
(C) ₹ 5,280  (D) ₹ 5,400

39. A boys was asked to find the value of \( \frac{3}{8} \) of a sum of money. Instead of multiplying the sum by \( \frac{3}{8} \) he divided it by \( \frac{3}{8} \) and then his answer exceeded by ₹ 55. Find the correct answer?
(A) ₹ 9  (B) ₹ 24  
(C) ₹ 64  (D) ₹ 13

40. How many seconds will a 500 metre long train take to cross a man walking with a speed of 3 km/hr in the direction of the moving train if the speed of the train is 63 km/hr?
(A) 25 sec  (B) 30 sec  
(C) 40 sec  (D) 45 sec

41. The HCF of two numbers is 15 and their LCM is 225. If one of the number is 75, then the other number is:
(A) 105  (B) 90  
(C) 60  (D) 45

42. A rectangular lawn 60 m × 40 m has two roads each 5 m wide running between the park. One is parallel to length and other is parallel to width. Cost of gravelling is 60 paisa/m². Find the total cost of gravelling:
(A) ₹ 285  (B) ₹ 300  
(C) ₹ 275  (D) ₹ 270

43. An item is marked at ₹ 240 for sale. If two successive discounts of 10% and 5% are allowed on the marked price, the selling price of the article will be:
(A) ₹ 205.20  (B) ₹ 204  
(C) ₹ 34.80  (D) ₹ 36

44. A rectangular lawn 60 m × 40 m has two roads each 5 m wide running between the park. One is parallel to length and other is parallel to width. Cost of gravelling is 60 paisa/m². Find the total cost of gravelling:
(A) ₹ 285  (B) ₹ 300  
(C) ₹ 275  (D) ₹ 270

45. The HCF of two numbers is 15 and their LCM is 225. If one of the number is 75, then the other number is:
(A) 105  (B) 90  
(C) 60  (D) 45
44. The sum \(101 + 102 + 103 + \ldots + 200\) is equal to:
(A) 15000  (B) 15025  (C) 15050  (D) 25000

45. A shopkeeper sold goods for ₹ 2400 and made a profit of 25% in the process. Find his profit percent if he sold his goods for ₹ 2040.
(A) 6.25%  (B) 7%  (C) 6.20%  (D) 6.5%

46. Sita’s present age is \(\frac{6}{5}\) times of her age at the time of her marriage and she got married 6 years ago. Age of her son is \(\frac{1}{12}\) of her current age. Find the age of her son.
(A) 2 years  (B) 5 years  (C) 4 years  (D) 3 years

47. In the given figure, \(\angle ADB\) is:
(A) 144°  (B) 132°  (C) 48°  (D) 96°

**Directions (48 - 50):** Two different finance companies declare fixed annual rate of interest on the amounts invested with them by investors. The rate of interest offered by these companies may differ from year to year depending on the variation in the economy of the country and the banks rate of interest. The annual rate of interest offered by the two Copmanies P and Q over the years are shows by the line graph provided below. Answer the questions based on this graph.

ANNUAL RATE OF INTEREST OFFERED BY TWO FINANCE COMPANIES OVER THE YEAR

44. \(101 + 102 + 103 + \ldots + 200\) का योग बनता कि होगा?
(A) 15000  (B) 15025  (C) 15050  (D) 25000

45. एक व्यक्ति 2024 में खरीद तो वे चारे पक 25% का लाभ हाना चाहता है, यदि वह वस्तु का 2040 में व्यय चाहता है तो उसका लाभ प्रतिशत ज्ञात करें?
(A) 6.25%  (B) 7%  (C) 6.20%  (D) 6.5%

46. यदि तीनों में अन्य उपरोक्त शर्तों के साथ के अनुसार की गुणित बूंदी के का 6 गुण है और राशि की बूंदी पूरी की हुई है। तीनों में के वें की अनुय 60 की बूंदी का है। उनके वें के की अनुय 60 के बूंदी का है। उनके वें के की अनुय 60 के बूंदी का है।
(A) 2 वर्ष  (B) 5 वर्ष  (C) 4 वर्ष  (D) 3 वर्ष

47. दिए गयी आंकों में \(\angle ADB\) है?
(A) 144°  (B) 132°  (C) 48°  (D) 96°
48. If two different amount in the ratio 8 : 9 are invested in Companies P and Q respectively in 2014, then the amounts received after one year as interests from Companies P and Q are respectively in the ratio:
(A) 2 : 3  
(B) 3 : 4  
(C) 6 : 7  
(D) None of these

49. In 2012, a part of ₹ 30 lakhs was invested in Company P and the rest was invested in Company Q for one year. The total interest received was ₹ 2.43 lakhs. What was the amount invested in Company P?
(A) ₹ 9 lakhs  
(B) ₹ 11 lakhs  
(C) ₹ 12 lakhs  
(D) None of these

50. A sum of ₹ 4.75 lakhs was invested in Company Q in 2011 for one year. How much more interest would have been earned if the sum was invested in Company P?
(A) ₹ 19,000  
(B) ₹ 14,250  
(C) ₹ 11,750  
(D) None of these

51. Brass gets discoloured in air because of the presence of which of the following gases in air?
(A) Oxygen  
(B) Hydrogen sulphide  
(C) Carbon dioxide  
(D) Nitrogen

52. Guarantee to an exporter that the importer of his goods will pay immediately for the goods ordered by him, is known as:
(A) Letter of Credit (L/C)  
(B) laissezfaire  
(C) inflation  
(D) None of the above

53. Which of the following is a non metal that remains liquid at room temperature?
(A) Phosphorous  
(B) Bromine  
(C) Chlorine  
(D) Helium

54. Who among the following Prime Ministers of India never had to seek trust vote (vote of confidence) from the Lok Sabha?
(A) Indira Gandhi  
(B) P.V. Narasimha Rao  
(C) H.D. Devegowda  
(D) Manmohan Singh

55. Chlorophyll is a naturally occurring chelate compound in which central metal is
(A) copper  
(B) Magnesium  
(C) iron  
(D) Calcium

56. Exposure to sunlight helps a person improve his health because
(A) the infrared light kills bacteria in the body  
(B) resistance power increases  
(C) the pigment cells in the skin get stimulated and produce a healthy tan  
(D) the ultraviolet rays convert skin oil into Vitamin D
57. Which of the following is used in pencils?
   (A) Graphite  (B) Silicon  
   (C) Charcoal   (D) Phosphorous

58. The item ‘Education’ belongs to the
   (A) Union List  (B) State List  
   (C) Concurrent List  (D) Residuary Subjects

59. The gas usually filled in the electric bulb is
   (A) Nitrogen  (B) Hydrogen  
   (C) carbon dioxide  (D) Oxygen

60. Quartz crystals normally used in quartz clocks etc. is chemically
   (A) silicon dioxide  (B) germanium oxide  
   (C) a mixture of germanium oxide and silicon dioxide  (D) sodium silicate

61. Bromine is -
   (A) black solid  (B) red liquid  
   (C) colourless gas  (D) highly inflammable gas

62. FFC stands for
   (A) Foreign Finance Corporation  (B) Film Finance Corporation  
   (C) Federation of Football Council  (D) None of these

63. The hardest substance available on earth is
   (A) Gold  (B) Iron  
   (C) Diamond  (D) Platinum

64. Tetra ethyl lead is used as
   (A) pain killer  (B) fire extinguisher  
   (C) mosquito repellent  (D) petrol additive

65. Eritrea, which became the 182nd member of the UN in 1993, is in the continent of
   (A) Asia  (B) Africa  
   (C) Europe  (D) Australia

66. Which of the following is used as a lubricant?
   (A) Graphite  (B) Silica  
   (C) Iron Oxide  (D) Diamond

67. The gases used in different types of welding would include
   (A) oxygen and hydrogen  (B) oxygen, hydrogen, acetylene and nitrogen  
   (C) oxygen, acetylene and argon  (D) oxygen and acetylene

68. The property of a substance to absorb moisture from the air on exposure is called
   (A) osmosis  (B) deliquescence  
   (C) efflorescence  (D) desiccation
69. Galileo was an Italian astronomer who
(A) developed the telescope
(B) discovered satellites of Jupiter
(C) discovered that the movement of
pendulum produces a regular time
interval
(D) All of the above

70. In which of the following activities silicon
carbide is used?
(A) Making cement and glass
(B) Disinfecting water of ponds
(C) Cutting very hard substances
(D) Making casts for statues

71. The average salinity of sea water is
(A) 3%  (B) 3.5%
(C) 2.5%  (D) 2%

72. On which date, the Indian Army Day is
celebrated?
(A) January 15  (B) January 21
(C) January 11  (D) January 18

73. Which of the following cities is the host for
the 66th Senior National Basketball
Championship for Men and Women?
(A) Allahabad  (B) Mysore
(C) Ludhiana  (D) Kolkata

74. When an iron nail gets rusted, iron oxide is
formed
(A) without any change in the weight of the
nail
(B) with decrease in the weight of the nail
(C) with increase in the weight of the nail
(D) without any change in colour or weight
of the nail

75. How many zones in Indian Railway?
(A) 18  (B) 16
(C) 14  (D) 15

76. Grand Central Terminal, Park Avenue, New
York is the world's
(A) largest railway station
(B) highest railway station
(C) longest railway station
(D) None of the above

77. The variety of coal in which the deposit
contains recognisable traces of the original
plant material is
(A) bitumen  (B) anthracite
(C) lignite  (D) peat

78. Entomology is the science that studies
(A) Behavior of human beings
(B) Insects
(C) The origin and history of technical and
scientific terms
(D) The formation of rocks

79. Garampani sanctuary is located at
(A) Junagarh, Gujarat
(B) Diphu, Assam
(C) Kohima, Nagaland
(D) Gangtok, Sikkim
80. For which of the following disciplines is Nobel Prize awarded?
   (A) Physics and Chemistry
   (B) Physiology or Medicine
   (C) Literature, Peace and Economics
   (D) All of the above

81. The inert gas which is substituted for nitrogen in the air used by deep sea divers for breathing, is
   (A) Argon  (B) Xenon
   (C) Helium  (D) Krypton

82. Hitler party which came into power in 1933 is known as
   (A) Labour Party  (B) Nazi Party
   (C) Republic Party  (D) Democratic Party

83. Fastest shorthand writer was
   (A) Dr. G. D. Bist  (B) J.R.D. Tata
   (C) J.M. Tagore  (D) Khudadaf Khan

84. What is the name of the new crop insurance scheme approved by the union cabinet?
   (A) Mahatma Gandhi Fasal Bima Yojana
   (B) Atal Fasal Bima Yojana
   (C) Pradhan Mantri Fasal Bima Yojana
   (D) Deen Dayal Upadhyaya Fasal Bima Yojana

85. Epsom (England) is the place associated with
   (A) Horse racing  (B) Polo
   (C) Shooting  (D) Snooker

86. First human heart transplant operation conducted by Dr. Christiaan Barnard on Louis Washkansky, was conducted in
   (A) 1967  (B) 1968
   (C) 1958  (D) 1922

87. Habeas Corpus Act 1679
   (A) states that no one was to be imprisoned without a writ or warrant stating the charge against him
   (B) provided facilities to a prisoner to obtain either speedy trial or release in bail
   (C) safeguarded the personal liberties of the people against arbitrary imprisonment by the king's orders
   (D) All of the above

88. Golf player Vijay Singh belongs to which country?
   (A) USA  (B) Fiji
   (C) India  (D) UK

89. Which of the gas is not known as green house gas?
   (A) Methane  (B) Nitrous oxide
   (C) Carbon dioxide  (D) Hydrogen
90. Who was the first Indian to become member of British Parliament?
(A) W.C. Bannerjee  (B) Behramji M. Malabari  (C) D.N. Wacha  (D) Dadabhai Naoroji

91. Which British Military Officer defeated Tipu Sultan in India, Napolean Bonaparte in Europe and eventually became the Duke of Wellington?
(A) Arthur Wellesley  (B) Robert Clive  (C) Warren Hastings  (D) Richard Wellesley

92. The Chola kings were ruling over
(A) Tamil Nadu  (B) Andhra  (C) Kerala  (D) Bengal

93. On the tributary of which river has Rihand Dam been constructed?
(A) Chambal  (B) Yamuna  (C) Son  (D) Periyar

94. Which one of the following countries does not border Lake Victoria?
(A) Kenya  (B) Tanzania  (C) Uganda  (D) Zambia

95. Washing soda is the common name for
(A) Sodium carbonate  (B) Calcium bicarbonate  (C) Sodium bicarbonate  (D) Calcium carbonate

96. Which one of the following zones of the atmosphere is rich in ozone gas?
(A) Mesosphere  (B) Troposphere  (C) Stratosphere  (D) Ionosphere

97. What is the maximum time interval permitted between two sessions of Parliament?
(A) 4 months  (B) 6 months  (C) 8 months  (D) 9 months

98. Which one of the following lakes in India has the highest water salinity?
(A) Dal  (B) Chilika  (C) Wular  (D) Sambhar

99. Which of the following metals forms an amalgam with other metals?
(A) Tin  (B) Mercury  (C) Lead  (D) Zinc

100. Chemical formula for water is
(A) NaAlO₂  (B) H₂O  (C) Al₂O₃  (D) CaSiO₃