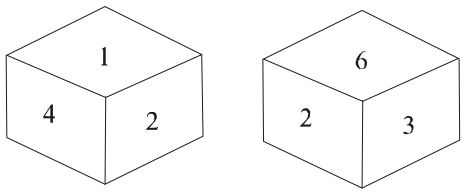
I.C.D.S. SUPERVISOR (FEMALE ONLY) PRELIMINARY EXAMINATION 2019
Questions, Answers with Explanation

1. An article was sold at a gain of 8%. Had it been sold for Rs. 50 more, there would have been a profit of 12%. Find the cost price of the article.
(A) Rs. 1150
(B) Rs. 1200
(C) Rs. 1250
(D) Rs. 1300

2. 1st January, 2004 was Thursday, 3rd March, 2004 was—
(A) Monday
(B) Tuesday
(C) Wednesday
(D) Thursday

3. Ayan working for 2 days and Sayan working for 3 days complete $\frac{3}{5}$ of a work. Again Ayan working for 3 days and Sayan working for 4 days complete $\frac{13}{15}$ of the work. How many more days Sayan will take than Ayan to complete the work, if they work separately?
(A) 5 days
(B) 10 days
(C) 15 days
(D) 20 days

4. What will be the number at the bottom, if 5 is at the top; the two positions of the dice being as given below:



(i) (ii)

(A) 1
(B) 2
(C) 3
(D) 6

5. Find out the wrong match :
(A) Gaddalika - Parashuram
(B) Virangana Kabya- Bankim Chandra Chattopadhyay
(C) Samya or Equality - Bankim Chandra Chattopadhyay
(D) Ghare Baire - R. N. Tagore

6. Variable Energy Cyclotron Centre is located in
(A) Kolkata
(B) Mumbai
(C) Delhi
(D) Hyderabad

7. In an examination, a student scores 4 marks for every correct answer and losses 1 mark for every wrong answer. If he attempts in all 60 questions and secures 130 marks, the number of questions he attempted correctly is
(A) 35
(B) 38
(C) 40
(D) 42

8. The length, breadth and height of a room are respectively 8', 6' and $(2\sqrt{11})'$. What is the length of the longest iron rod that can be kept inside this room?
(A) $(12\sqrt{3})'$
(B) $(11\sqrt{3})'$
(C) 12'
(D) 11'

9. In a row of students, Keya is 7th from the right and Amal is 17th from the left. When they interchange their positions, Keya becomes 33rd from the right. Find the number of students.
(A) 47
(B) 48
(C) 49
(D) 50

10. Arrange the following in a logical order:
(1) Frog
(2) Eagle
(3) Grasshopper
(4) Snake
(5) Grass
(A) 1, 3, 5, 2, 4
(B) 3, 4, 2, 5, 1
(C) 5, 3, 1, 4, 2
(D) 5, 3, 4, 2, 1

11. The present age of a father is thrice that of his daughter. 15 years ago, the age of the father was 6 times that of his son. If the daughter is 4 years younger than the son, determine the present age of the father.

(A) 51 years
(B) 53 years
(C) 55 years
(D) 56 years

12. Find the smallest positive number to be subtracted from the number 9545 so that the result of subtraction is a perfect square.
(A) 59
(B) 106
(C) 136
(D) 89

13. The sum of the squares of two consecutive even numbers is 5620. The sum of the numbers is
(A) 100
(B) 102
(C) 104
(D) 106

14. The ratio of two numbers is 5 : 7 and their L.C.M. is 385. Determine the G.C.D. of the numbers.
(A) 1
(B) 5
(C) 7
(D) 11

15. Who discovered Bacteria?
(A) William Harvey
(B) Louis Pasteur
(C) Edward Jenner
(D) Leeuwenhock

16. The first draft of the Indian Constitution was prepared by
(A) Jawaharlal Nehru
(B) Dr. Ambedkar
(C) B.N. Rau
(D) Drafting Committee

17. What is the headquarters of Reuter news agency?
(A) New York
(B) Washington
(C) London
(D) Birmingham

18. There is a road of 2 metres broad, around a rectangular garden whose length is 25 metres and breadth is 17 metres. The area of the road is
(A) 184sq.metres
(B) 88 sq.metres
(C) 34 sq.metres
(D) 50 sq.metres

19. What does SLV stands for?
(A) Statutory Liquidity Variable
(B) State Level Variation
(C) Satellite Launch Vehicle
(D) Sea-Launch Vessel

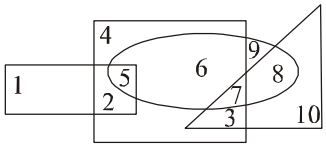
20. Locate the wrongly matched :
(A) India — Kabaddi
(B) Russia — Chess
(C) USA — Basketball
(D) England — Cricket

21. Who among the following, is known as 'Loknayak'?
(A) B. G. Tilak
(B) Jayprakash Narayan
(C) Lala Lajpat Rai
(D) M. S. Gohiwalkar

22. Which term comes next in the sequence:
AC, FH, KM, PR, ?
(A) UW
(B) VW
(C) UX
(D) TV

23. If A : B = 3 : 4 and B : C = 6 : 5, then determine the value of A : C.
(A) 3 : 4
(B) 6 : 5
(C) 9 : 10
(D) 1 : 2

24. Which number is in the square, ellipse and triangle?



(A) 1
(B) 5
(C) 6
(D) 7

25. Who discovered first sea route to India?
(A) Vasco-da-Gama
(B) Amundson
(C) Captain Cook
(D) Columbus

26. Find the ratio of '20 kms. per hour' and '20 metres per second'.
(A) 7 : 9
(B) 5 : 7
(C) 5 : 18
(D) 1 : 1

27. Choose the odd word:
(A) Bake
(B) Peel
(C) Fry
(D) Boil

28. Which of the following statements is true?
(A) $\sqrt{7}+\sqrt{2}>\sqrt{6}+\sqrt{3}$
(B) $\sqrt{11}+\sqrt{3}>\sqrt{8}+\sqrt{6}$
(C) $\sqrt{5}+\sqrt{3}>\sqrt{6}+\sqrt{2}$
(D) $\sqrt{15}+\sqrt{5}>\sqrt{14}+\sqrt{6}$

29. The distance between two places A and B is 25 kms. Sayak started walking from A towards B at 6 am with the speed of 5km/hr. He takes rest for 5 minutes after walking every distance measuring 5 kms. When will Sayak reach B?
(A) At 11 a.m.
(B) At 10 mins. past 11 a.m.
(C) At 20 mins. past 11 a.m.
(D) At 25 mins. past 11 a.m.

30. Agra Fort was built by
(A) Shahjahan
(B) Akbar
(C) Muhammad-bin-Tughlagh
(D) Humayun

31. In a club, every member contributed as many 10 rupees as the number of members to raise the subscription of amount Rs. 4000. How many members are there in that club?
(A) 40
(B) 30
(C) 20
(D) 10

32. Simplify :

$$9\frac{1}{2}\div\frac{1}{2+\frac{2}{3-\frac{3}{4+\frac{4}{5}}}}$$

(A) 27
(B) 23
(C) $\frac{19}{23}$
(D) $\frac{19}{27}$

33. If water in a lake were to behave like other liquids then in extremely cold weather it would freeze
(A) from top to bottom.
(B) from bottom to top.
(C) simultaneously throughout the depth.
(D) first on the surface, bottom and sides and then in the interior.

34. Jumbled letters of a meaningful word are given. You are to rearrange these letters and select from the given alternatives the word which is almost opposite in meaning to the rearranged word.
QHNASVUI
(A) Surrender
(B) Debase
(C) Destroy
(D) Ruin

35. Vasco-da-Gama was a
(A) Dutch
(B) Portuguese
(C) French
(D) British

36. The simplest value of $1000–999.\dot{9}$ will be
(A) 1
(B) 0.1
(C) 0.01
(D) 0

37. The code name used by the Indian nuclear scientists in the case of 'Pokhran I' was
(A) Operation Shakti
(B) Laughing Buddha
(C) Operation Sunshine
(D) Operation Blue Star

38. A completes $\frac{7}{10}$ of a work in 14 days. Then he takes the helps of B and completes the remaining work in 2 days more. In how many days can B alone complete the work?
(A) 16 days
(B) 14 days
(C) 12 days
(D) 10 days

39. A photo of size 2" × 3" is uniformly enlarged so as to increase its area by 9 times. What is the breadth of the enlarged figure?
(A) 9"
(B) 4"
(C) 6"
(D) 12"

40. What is the largest salt lake in the world?
(A) Lake Superior
(B) Caspian Sea
(C) Chilka Lake
(D) Wular Lake

41. Endoscope, used by doctors for examining the inside of a patient's stomach, works on the principle of
(A) reflection of light
(B) dispersion of light
(C) refraction of light
(D) total internal reflection of light

42. In the series 7, 14, 28,.....what will be the 10th term?
(A) 1792
(B) 2456
(C) 3584
(D) 4096

43. 'India has a few countries as her immediate neighbours'— how many?
(A) Eight
(B) Seven
(C) Six
(D) Nine

44. A goods train of length 360 metres is moving with speed 30 km./hr. How much time will the train take to cross a platform of length 140 metres?
(A) 0.28 minute
(B) 0.72 minute
(C) 1 minute
(D) 1.5 minutes

45. Kunal walks 10 km towards North. From there he walked 6 km towards South. Then, he walks 3 km towards East. How far and in which direction is he with reference to his starting point?
(A) 5 km West
(B) 7 km West
(C) 7 km East
(D) 5 km North-east

46. The Universities Act was enacted during the Viceroyalty of
(A) Canning
(B) Curzon
(C) Elgin
(D) Reading

47. The capital of Belgium is
(A) Prague
(B) Sofia
(C) Brussels
(D) Brasilia

48. A wall clock needs 3 seconds to strike 6 bells. Determine the time it requires to strike 9 bells.
(A) 6 seconds
(B) 5-8 seconds
(C) 5 seconds
(D) 4-8 seconds

49. All surfaces of a cube are coloured. If a number of smaller cubes are taken out from it, each side ¼ the size of the original cube's side, indicate the number of cubes with only one side painted.
(A) 60
(B) 32
(C) 24
(D) 16

50. 'Louvre' Museum is located in
(A) London
(B) Venice
(C) Paris
(D) Kane

51. In two acid solutions, the quantities of acids are respectively 40% and 60%. In what ratio are the solutions to be mixed so that the quantity of acid in the new mixture will be 50%?
(A) 1 : 2
(B) 1 : 1
(C) 1 : 3
(D) 2 : 3

52. Choose the odd word:
(A) Mackenzie
(B) Yenisei
(C) Michigan
(D) Danube

53. A boat covers a distance of 1 km in 6 minutes in downstream and a distance of 6 km in 1 hour in upstream. Determine the speed of the stream.
(A) 182 kms/hr.
(B) 188 kms/hr.
(C) 8 kms/hr.
(D) 2 kms/hr.

54. A watch seller fixed his marked price fixing 25% profit on cost price. But he sold the watch at 20% rebate. What was his gain or loss?
(A) 2% gain
(B) 2% loss
(C) 2-5% gain
(D) No loss or gain

55. If 1 is added to the numerator of a fraction, it becomes $\frac{1}{2}$ and if 1 is subtracted from the denominator of it, it becomes $\frac{1}{3}$. Find the fraction.

(A) $\frac{1}{5}$

(B) $\frac{1}{4}$

(C) $\frac{1}{3}$

(D) $\frac{1}{2}$

56. A number when divided by 5279421 leaves the remainder 637. What will be the remainder when that number is divided by 7?
(A) 5
(B) 3
(C) 1
(D) 0

57. When were the Olympic Games first held?
(A) In 750 BC
(B) In 776 BC
(C) In 394 AD
(D) In 1904 AD

58. Simplify :

$$\frac{3\sqrt{7}}{\sqrt{2}+\sqrt{5}}-\frac{5\sqrt{5}}{\sqrt{2}+\sqrt{7}}+\frac{\sqrt{8}}{\sqrt{5}+\sqrt{7}}$$

(A) 0

(B) $2\sqrt{2}$

(C) $3\sqrt{5}$

(D) $\sqrt{7}$

59. Alexandria is located by the side of river
(A) Tigris
(B) Nile
(C) Tiber
(D) Danube

60. Find the simplest value of

$$\left(2-\frac{5}{7}\right)\left(2-\frac{7}{9}\right)\left(2-\frac{9}{11}\right)\ldots\left(2-\frac{201}{203}\right)$$

(A) $31\frac{2}{7}$

(B) $29\frac{2}{7}$

(C) $\frac{1}{203}$

(D) $\frac{1}{7}$

61. A dynamo, which is said to generate electricity actually acts as a
(A) source of ions
(B) source of electric charge
(C) source of electrons
(D) converter of energy

62. The State with the lowest percentage of persons below the poverty line is
(A) Kerala
(B) Maharashtra
(C) Punjab
(D) Gujarat

63. The ratio of Assam tea and Darjeeling tea in a special blend is 3 : 4. Then determine the quantity of the mixture of tea in which 1 kg of Assam tea is present.
(A) 1.2 kg
(B) 12 kg
(C) 1 kg
(D) $\frac{7}{3}$ kg

64. Which country is not an Asian country?
(A) Laos
(B) Lebanon
(C) Mali
(D) Kyrgystan

65. Which river in W. Bengal is described as Bengal's Sorrow?
(A) Kangsabati
(B) Ganga
(C) Damodar
(D) Subarnarekha

66. In a certain code language, THANKS is written as SKNTHA. How is STUPID written in that code language?
(A) DIPUTS
(B) DISPUT
(C) DIPUST
(D) DIPSTU

67. Under whose presidency was the Lahore Session of the Indian National Congress was held in 1929?
(A) Bal Gangadhar Tilak
(B) Gopal Krishna Gokhale
(C) Motilal Nehru
(D) Jawaharlal Nehru

68. The Right to Information Act came into force in
(A) 2005
(B) 2004
(C) 2006
(D) 2007

69. Which is the highest dam in India?
(A) Hirakund Dam
(B) Bhakra Dam
(C) Farakka Dam
(D) Kosi Dam

70. The Nasik city is situated by the river
(A) Godawari
(B) Tapti
(C) Narmada
(D) Cauveri

71. The simple interest and the compound interest of a capital are respectively Rs. 1440 and Rs. 1483.20 in 2 years. Determine the rate of interest.
(A) 6%
(B) 5%
(C) 6.5%
(D) 9%

72. Eight students A, B, C, D, E, F, G and H are planning to enjoy car racing. There are only two cars and following are the conditions:
(i) One car can accommodate maximum five and minimum four students.
(ii) A will sit in the same car in which D is sitting but H is not in the same car.
(iii) B and C can't sit in the same car in which D is sitting.
(iv) F will sit in the car of four people only along with A and E but certainly not with G.

If H and G are sitting in the same car, who are other two students sitting in the same car?
(A) B and C
(B) C and D
(C) B and D
(D) E and B

73. Which day is observed as National Youth Day?
(A) January 12
(B) January 23
(C) March 8
(D) March 21

74. Rahim travelled a distance of 45 kms in 4 hours. He travelled partly on foot at the rate of 8 kms per hour and the rest on bicycle at 16 kms per hour. How much distance did he travel on bicycle?
(A) 26 kms.
(B) 23 kms.
(C) 22 kms.
(D) 19 kms.

75. If the areas of a square and a circle are equal, then compare their circumferences.
(A) $2 : \sqrt{\pi}$
(B) $\pi : 2$
(C) $1 : 1$
(D) $\pi : \sqrt{2}$

76. Which planet appears to be the brightest in the night sky?
(A) Jupiter
(B) Saturn
(C) Venus
(D) Mars

77. (i) Kailash, Govind and Harinder are intelligent.
(ii) Kailash, Rajesh and Jitendra are hardworking.
(iii) Rajesh, Harinder and Jitendra are honest.
(iv) Kailash, Govind and Jitendra are ambitious.

Which of the following person is neither hardworking nor ambitious?
(A) Kailash
(B) Govind
(C) Harinder
(D) Rajesh

78. Jumbled letters of a meaningful word are given. You are to rearrange these letters and select from the given alternatives the word which is almost opposite in meaning to the rearranged word.
IOGTCNRYU
(A) Mismatch
(B) Disagreement
(C) Irregularity
(D) Inconsistancy

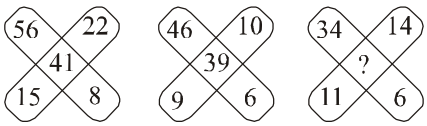
79. Among the supply side measures to contain inflation is
(A) postponing public expenditure.
(B) mopping up excess liquidity through taxation.
(C) credit control measures of RBI.
(D) maintaining price levels through an effective PDS.

80. If the number of works performed by p men in p days is p, then find the number of days in which q men can perform q works.
(A) p days
(B) q days
(C) $\frac{p}{q}$ days
(D) $\frac{q}{p}$ days

81. In India, new All-India Services are created by
(A) an amendment of the Constitution.
(B) Union Government in Consultation with the UPSC.
(C) the Parliament on a resolution of the Council of States.
(D) the President on the advice of the Union Council of Ministers.

82. A and B together complete a work in 2 days. The time taken by B to complete the work individually is 3 days more than that taken by A. In how many days B alone can complete the work?
(A) 3 days
(B) 4 days
(C) 5 days
(D) 6 days

83. Find the missing character



(A) 12
(B) 25
(C) 48
(D) 52

84. A is the father of C. But C is not his son. E is the daughter of C. F is the spouse of A. B is the brother of C. D is the son of B. G is the spouse of B. H is the father of G. Who is the grandfather of D?
(A) A
(B) C
(C) F
(D) H

85. P is any point inside the rectangle ABCD. Then which one of the following is correct?
(A) PA + PC = PB + PD
(B) $PA^2 + PC^2 = PB^2 + PD^2$
(C) $PA^2 + PB^2 = PD^2 + PC^2$
(D) $PA^2 + PD^2 = PB^2 + PC^2$

86. The universal law of gravitation is propounded by
(A) Kepler
(B) Galileo
(C) Newton
(D) Copernicus

87. In which state of India 'Sanchi' Buddhist Monuments are situated?
(A) Madhya Pradesh
(B) Maharashtra
(C) Uttar Pradesh
(D) Orissa

88. If MINJUR is coded as 312547 and TADA as 6898, how can MADURAI be coded?
(A) 3498178
(B) 3894871
(C) 3849781
(D) 3894781

89. The income of Kabita exceeds that of Sabita by 10%. How much less is the income of Sabita than that of Kabita?
(A) 9%
(B) $9\frac{1}{11}$ %
(C) 10%
(D) $10\frac{1}{11}$ %

90. A blacksmith has five iron articles A, B, C, D and E, each having a different weight.
(i) A weighs twice as much as B.
(ii) B weighs four and a half times as much as C.
(iii) C weighs half as much as D.
(iv) D weighs half as much as E.
(v) E weighs less than A but more than C.
Which of the following is the lightest in weight?
(A) A
(B) B
(C) C
(D) D

91. In an examination, 25% of the candidates pass in Mathematics and 20% of the candidates pass in English. If 10% of the candidates pass in both the subjects, then determine the percentage of the candidates who fail in both the subjects.
(A) 55
(B) 65
(C) 70
(D) 75

92. The Congress Socialist Party (CSP) was formally started at a conference in May 1933 in
(A) Bengal
(B) Bombay
(C) Bihar
(D) Assam

93. Which railway in India was declared as a world heritage?
(A) Taj Express
(B) Rajdhani Express between Delhi and Guwahati
(C) Delhi-Kalka Special Train
(D) Darjeeling-Himalayan Railway

94. The ratio of speeds of the minute-hand and the hour-hand of a clock is
(A) 1 : 3
(B) 1 : 4
(C) 4 : 3
(D) 12 : 1

95. If x : y : z = 3 : 2 : 1, then find the value of
$\frac{x-2y+3z}{x+y-3z}$.
(A) 1
(B) 0
(C) –1
(D) $\frac{1}{2}$

96. Which country invented the term 'historical sovereignty' to claim its authority in a particular region?
(A) USA
(B) North Korea
(C) China
(D) Syria

97. Two pipes fitted in a tank separately fills it with water in 6 hours and 12 hours respectively. In how much time will those two pipes together fill the tank?
(A) 3 hours
(B) 4 hours
(C) 5 hours
(D) $\frac{11}{2}$ hours

98. Which one of the following Himalayan passes was reopened in 2006 to facilitate trade between India and China?
(A) Chang La
(B) Jara La
(C) NathuLa
(D) Shipki La

99. Who was the Viceroy in India when Quit India Movement was launched?
(A) Lord Mountbatten
(B) Wavell
(C) Willington
(D) Linlithgo

100. Find the missing character:

3	5	8	7
4	6	4	6
5	2	2	3
58	58	62	?

(A) 126
(B) 122
(C) 128
(D) 124

Answers with Explanation

1. (c) (12 – 8)% = 50

$\Rightarrow \frac{4}{100} = 50$

$\Rightarrow$ 1 = (50 × 25) = 1250

2. (c) 1st January 2004 was Thursday

So, Remaining odd day of Jan–2

,, ,, Feb–1 (2004 was leapyear)

and ,, ,, March – 3 (3rd March)

So Total odd day = 6

3. (b) Let the efficiency of Ayan be x and Sayan be y. According to question :

$2x + 3y = \frac{3}{5} \rightarrow$ (i)

$3x + 4y = \frac{13}{15} \rightarrow$ (ii)

(i) × 3 $\rightarrow 6x + 9y = \frac{9}{5}$

(ii) × 2 $\rightarrow 6x + 8y = \frac{26}{15}$

– –

$y = \frac{9}{5} - \frac{26}{15} = \frac{1}{15}$

$2x + 3y = \frac{3}{5} \rightarrow$ (i)

$3x + 4y = \frac{13}{15} \rightarrow$ (ii)

$2x = \frac{3}{5} - \frac{3}{15} \Rightarrow x = \frac{1}{5}$

∴ Sayan = 15 days – Ayan = 5 days

Required difference = (15 – 5) = 10

4. (b)

(i) (ii)

In this given dice 1 digit (2) is common

So, 2 – 4 – 1

② – 6 – 3

So, the opposite of 2 is 5, and opposite of 5 is 2.

5. (b) Virangana Kabya—Bankim Chandra Chattopadhyay

Virangana Kabya was written by Michael Madhusudan Dutt was a Popular Bengali Poet and Dramatist in 19th century. His famous work Meghnad Bodh Kavya is a tragic epic and he was the father of the Bengali 'Sonnet'.

6. (a) Variable Energy Cyclotron Centre is a research and development unit of the Department of Atomic Energy. It performs research in basic and applied nuclear science and development of the latest nuclear particle accelerators. Established in 1977 in Kolkata. Present director of VECC is Dr. Sumit Som.

7. (b) If answer correctly = (60 × 4) = 240

Now he get = 130

Wrong answer = (240 – 130) = 110

Correctly attempted = $60 - \left(\frac{110}{5}\right) = 38$

8. (c) Diagonal = $\sqrt{(8)^2 + (6)^2 + (2\sqrt{11})^2}$

$= \sqrt{64 + 36 + 44} = \sqrt{144}$

∴ D = 12

9. (c)

Amal $\xrightarrow{\quad}$ 17 Keya $\xleftarrow{\quad}$ 7

After interchange

Keya $\xrightarrow{\quad}$ 17 Amal $\xleftarrow{\quad}$ 7

33 $\longleftarrow$

So, Total Student = (17 + 33) – 1 = 49

10. (c) According the food chain the arrangement is (5) Grass, (3) Grass hopper, (1) Frog, (4) Snake (2) Eagle

11. (a) Let Daughter = x; Father = 3x; Son = (x+4)

15 days ago; Father = (3x – 15); Son = (x +4) – 15

According to question : (3x – 15) = 6(x – 11)

$\Rightarrow$ 3x – 15 = 6x – 66

$\Rightarrow$ 3x = 51

Father = 51

12. (c)

$\overline{95}\ \overline{45}$ | 97
81

187 × 7 | 1445
1309
136

∴ The required no. is136

13. (d) Let the numbers are x ; (x + 2)

According to question :

$x^2 + (x+2)^2 = 5620$

$x^2 + x^2 + 4x + 4 = 5620$

$x^2 + 2x + 2 = 2810$

$x^2 + 2x = 2808$

$x^2 + 54x - 52x - 2808 = 0$

$x(x + 54) - 52(x + 54) = 0$

x = – 54; x = 52

∴ x = 52; (x + 2) = 54

∴ Sum of the numbers = (52 + 54) = 106

14. (d) Let the numbers are 5x and 7x

∴ HCF = x

By the condition :

385 × HCF = 5x × 7x

$\Rightarrow 35x^2 = 385x$

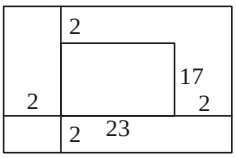
$\Rightarrow x = 11$

15. (d) Antony Leeuwenhock was the first person to see bacteria.

16. (c)

17. (c) "Reuter News Agency" was established in 1851 in London by "Paul Julius Reuter". It has around 200 locations all around the world and transmit news in English, French, German, Italian, Spanish, Portuguese, Russian, Urdu, Arabic, Japanese, Korean and Chinese. Present CEO of Reuter is James C. Smith.

18. (a)



L = (25 + 4) = 29m

B = (17 + 4) = 21m

∴ Area of road = (29 × 21) – (25 × 17)

= (609 – 425) = 184m²

19. (c) "SLV" stands for "Satellite Launch Vehicle". The project started in the early 1970's by the Indian Space Research Organisation to develop the technology needed to launch satellites.

20. (c) "America – Basketball" is wrongly matched. The national game of America is "Baseball".

21. (b) "Jayprakash Narayan" known as "Loknayak", born in 1902 in Patna, Bihar. He was a leader of INC and then Janta Party. He also took as a participent of Sarvodaya movement. Awarded by "Magsaysay Award" in 1965 and "Bharat Ratna" in 1999.

22. (a) $A \xrightarrow{+5} F \xrightarrow{+5} K \xrightarrow{+5} P \xrightarrow{+5} U$

$C \xrightarrow{+5} H \xrightarrow{+5} M \xrightarrow{+5} R \xrightarrow{+5} W$

23. (c) A : B = 3 : 4

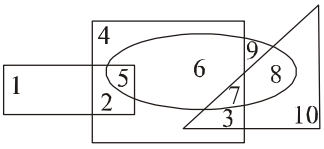
B : C = 6 : 5

A : B : C = 18 : 24 : 20

= 9 : 12 : 10

A : C = 9 : 10

24. (d)



7 is the number in square, ellipse and triangle.

25. (a) Vasco-da-Gama

On May 1498 Portuguese explorer Vasco da-Gama launehed in what is now Kozhikode, India. The most remarkable voyages of the Age of Discevery, it consolidated the Portuguese maritime presence over Kerala and the Bengal Sultahate and that country's dominance of global trade routes.

26. (c) $20:20\times\frac{18}{5}=5:18$

27. (b) Here, all except Peel are different forms of cooking.

28. (c) $(\sqrt{5}+\sqrt{3})\rightarrow$ let $a=5;\ b=3$

$(\sqrt{6}+\sqrt{2})\rightarrow$ let $x=6;\ y=2$

∴ (a+b) = (x + y)

then ab > xy

$\therefore (\sqrt{5}+\sqrt{3})>(\sqrt{6}+\sqrt{2})$

29. (c) $\left(\frac{25}{5}\right)h+\left\{\left(\frac{25}{5}-1\right)\times 5\right\}m=5h\ 20m$

∴ 6am + 5h 20m = 11:20 am

30. (b) Akbar.

Agra Fort is a historical fort in the city of Agra in India. It was the main residence of the emperors of the Mughal Dynasty until 1638. This construction was started around 1565, when the initial structures were built by the Mughal Emperor Akbar, and subsequently taken over by his grandson Shah Jahan, who added most of the marble creations to the fort.

31. (c) Let the number of member be x, each men contibuted = 10x

Total amount = $10x^2$

$\Rightarrow 10x^2 = 4000$

$\Rightarrow x^2 = 400$

$\Rightarrow x = 20$

32. (a) $9\frac{1}{2}\div\cfrac{1}{2+\cfrac{2}{3-\cfrac{3}{4+\frac{4}{5}}}}$

$=\frac{19}{2}\div\cfrac{1}{2+\cfrac{2}{3-\cfrac{3}{\frac{24}{5}}}}$

$=\frac{19}{2}\div\cfrac{1}{2+\cfrac{2}{3-\frac{15}{24}}}$

$=\frac{19}{2}\div\cfrac{1}{2+\cfrac{2}{\frac{57}{24}}}$

$=\frac{19}{2}\div\frac{1}{2+\frac{48}{57}}=\frac{19}{2}\div\frac{1}{\frac{162}{57}}$

$=\frac{19}{2}\div\frac{57}{162}$

$=\frac{19}{2}\times\frac{162}{57}=27$

33. (b)

34. (a)

35. (b) Portuguese

Vasco da-Gama, 1st count of Vidigueira was a Portuguese explorer and the first European to reach India by sea. His initial voyage to India was the first to link Europe and Asia by an ocean route, connecting the Atlantic and the Indian oceans.

36. (d) 1000 – 999.9

$$=1000-\frac{9999-999}{9}$$

$$=\left(1000-\frac{9000}{9}\right)=(1000-1000)=0$$

37. (b) "Laughing" or "Smiling" Buddha was the assigned code name of India's first successful nuclear bomb test on 18 May, 1974 at army base in "Pokhran Test Range" in Rajasthan.

38. (d) A $\rightarrow$ $\frac{7}{10}$ part can do 14 days

1

$$\left(\frac{14\times10}{7}\right)=20 \text{ days}$$

Remaining part of job = $\left(1-\frac{7}{10}\right)=\frac{3}{10}$ part

$\therefore$(A + B) together do the work in 2 days

$\therefore$ $\frac{3}{10}$ Part $\rightarrow$ 2days

1 $\rightarrow$ $\frac{2\times10}{3}=\frac{20}{3}$ days

$\therefore$ B (alone) = $\frac{20\times\frac{20}{3}}{20-\frac{20}{3}}=\frac{\frac{400}{3}}{\frac{40}{3}}=\frac{400}{40}=10$ days

39. (c) Area increase by 9 times

length and breadth both are increases by 3 times

$\therefore$ Breadth of the new figure is = (2 × 3)" = 6"

40. (b)

41. (d) Total internal Reflection (TIR)

TIR occurs when a ray of light strikes a medium boundary at an angle larger than a particular critical angle. With respect to the normal to the surface. If the refractive index () is lower on the other side of the boundary, no light can pass through and all of the light is rflected. In endoscope optical fibre is used, it carry light in to the body.

42. (c) (7×2^0); (7×2^1); (7×2^2); .....

$\therefore$10th term must be = (7×2^9) = (7 × 512) = 3584

43. (a) Immediate neighbouring countries— Pakisthan, Afghanistan, China, Nepal, Bhutan, Bangladesh, Mayanmar and Srilanka.

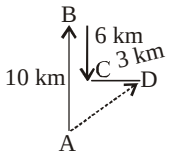
44. (c) D = VT

$\Rightarrow$ (360 + 140) = $(30\times\frac{5}{18}\times t)$

$500 = 30\times\frac{5}{18}\times t$

$\Rightarrow$ t = 60 sec = 1 min

45. (d)



AC = 4 km.

CD = 3 km.

AD is Hypotenous

So, $AD^2 = AC^2 + CD^2$

$AD=\sqrt{4^2+3^2}$

$AD=\sqrt{25}$

AD = 5 km North-East

46. (b) Curzon

The Indian Universities Commission was a body appointed in 1902 on the instructions of Lord Curzon which was intended to make recomendations for reforms in University Education in India. Despite strong and sustained opposition from Indian populace, the recomendations were enacted by Curzon as 'Indian University Act 1904.

47. (c) The capital of Belgium is "Brussels".

48. (d)

Strike	gap	Time
6	5	3 sec
	1	$\frac{3}{5}$ sec
9	8	$\frac{24}{5}$ sec = 4.8 Secs

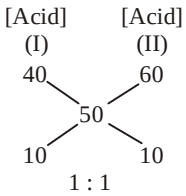
49. (c) Rules of only one side colour is $(x-2)^2\times6$

here n = 4

So, $(4-2)^2\times6=4\times6=24$

50. (c) "Louvre" Museum located in Paris, France. Established in 1763 and world's most risited art museum. Located right bank of Seine river.

51. (b)



52. (c) All except Michigan are rivers, while Michigan is a lake.

53. (d) Speed of downstream =

$\left(\frac{1}{6}\times60\right)\text{km/h}=10\text{km/h}$

Speed of upstream = 6km/h

$\therefore$ speed of stream = $\left(\frac{10-6}{2}\right)=2\text{km/h}$

54. (d) Let the CP be 100
MRP = 125
$\therefore$ Now SP be $\left\{125-\left(\frac{125\times 20}{100}\right)\right\}=100$
$\therefore$ No loss or gain

55. (b) Let the fraction be $\frac{x}{y}$
According to question
$\frac{x+1}{y}=\frac{1}{2}$
$\Rightarrow 2x + 2 = y$
$\Rightarrow 2x - y = -2 \rightarrow$ (i)
$\frac{x}{y-1}=\frac{1}{3}$
$3x = y - 1$
$3x - y = -1 \rightarrow$ (ii)
$2x - y = -2$
$3x - y = -1$
$- \quad + \quad +$
$x = 1$
put the value of x in eq. (i);
we get y.
$2x - y = -2$
$\Rightarrow - y = -4$
$y = 4$
fraction is $\frac{x}{y}=\frac{1}{4}$

56. (d) Let the number be x.
$\therefore$ 5279421 | x | Q
637
$\therefore x = 5279421Q + 637$

7 | 5279421Q+637 | 754203Q+91
5279421Q
637
637
0

$\therefore$ Remainder = 0

57. (b) First olympic game was held in 776 BC in the ancient city of "Olympia", Greece.

58. (a) $\frac{3\sqrt{7}}{\sqrt{2}+\sqrt{5}}-\frac{5\sqrt{5}}{\sqrt{2}+\sqrt{7}}+\frac{\sqrt{8}}{\sqrt{5}+\sqrt{7}}$

$=\frac{3\sqrt{7}(\sqrt{5}-\sqrt{2})}{(\sqrt{5}+\sqrt{2})(\sqrt{5}-\sqrt{2})}-\frac{5\sqrt{5}(\sqrt{7}-\sqrt{2})}{(\sqrt{7}+\sqrt{2})(\sqrt{7}-\sqrt{2})}$

$+\frac{\sqrt{8}(\sqrt{7}-\sqrt{5})}{(\sqrt{7}+\sqrt{5})(\sqrt{7}-\sqrt{5})}$

$=\frac{3\sqrt{35}-3\sqrt{14}}{3}-\frac{(5\sqrt{35}-5\sqrt{10})}{5}+\frac{\sqrt{56}-\sqrt{40}}{2}$

$=\sqrt{35}-\sqrt{14}-(\sqrt{35}-\sqrt{10})+\frac{2(\sqrt{14}-\sqrt{10})}{2}$

$=\sqrt{35}-\sqrt{14}-\sqrt{35}+\sqrt{10}+\sqrt{14}-\sqrt{10}=0$

59. (b) Alexandria is a city of Egypt, located on the bank of river Nile.

60. (b) $\left(2-\frac{5}{7}\right)\left(2-\frac{7}{9}\right)\left(2-\frac{9}{11}\right).....\left(2-\frac{201}{203}\right)$

$\frac{9}{7}\times\frac{11}{9}\times\frac{13}{11}\times.....\times\frac{205}{203}$

$\frac{205}{7}=29\frac{2}{7}$

61. (d) Dynamo convert mechanical energy to Electrical energy. A coil made of conducting wire is possitioned between the North and South pose of two permanent magnets. When the coil is stationary no voltage is induced. But when coil is rotated it experences a change in magnetic field. this induces a voltage within the coil through Faraday's law of induction.

62. (c)

63. (d) According to question 3x = 1
$\Rightarrow x = \frac{1}{3} \Rightarrow 7x = \frac{7}{3}$
$\frac{7}{3}$kg

64. (c) "Mali" is not an Asian country. It's capital is "Bomako" and currency is "Franc CFA". "Ibrahim Boubacar Keita" is the present president of "Mali".

65. (c)

66. (d) T H A N K S → S K N T H A S T U P I D → D I P S T U

67. (d) Jawaharlal Nehru
Jawaharlal Nehru was the new President of Congress. In Lahore session of the Congress held in 1929 was the aim to attain complete independene or 'Poorna Swaraj'.

68. (a) 2005

69. (b)

70. (a) Nasik is a city of Maharashtra, located on the bank of river Godavari.

71. (a)

	I year	IInd year	
Simple interest		720	720
Compound Interest	720	(720 + 43.20)	

$\therefore$ Rate of interest $=\frac{4320}{100}\times\frac{1}{720}\times 100=6\%$

72. (a) A, D, E, F — Car X; H, B, C, G — Car Y
B and C

73. (a) "January 12" observed as "National Youth Day" on the birthday of "Swami Vivekananda". It was celebrated all over India from 1985.

74. (a) Let the distance travelled by foot be x km
let the distance travelled by bicyle be y km
$\therefore$ x + y = 45 $\rightarrow$ (i)

$$\frac{x}{8}+\frac{y}{16}=4 \Rightarrow \frac{1}{8}\left(x+\frac{y}{2}\right)=4$$

$$\Rightarrow \left(x+\frac{y}{2}\right)=32 \rightarrow (ii)$$

Now (i) – (ii) $\rightarrow$ we get $\rightarrow \frac{y}{2}=13$

y = 26

75. (a) Let area of square be x^2 sq unit
then area of circle be πr^2 sq unit
According to question $x^2 = \pi r^2$

$\Rightarrow x=\sqrt{\pi}.r$

Ratio will be $4x : 2\pi r$

$=\sqrt{\pi}r : 2\pi r \quad = 2\sqrt{\pi} : \pi \quad = 2 : \sqrt{\pi}$

76. (c) Because its thick clouds reflects most of the sunlight that reaches it back into space.

77. (c) According to the information

Intelligent $\rightarrow$ Kailash, Govind, Harinder
Hardworking $\rightarrow$ Kailash, Rajesh, Jitendra
Honest $\rightarrow$ Harinder, Rajesh, Jitendra
Ambitious $\rightarrow$ Kailash, Govind, Jitendra

78. (b) CONGRUITY

79. (d)

80. (a) $\frac{M_1D_1}{W_1}=\frac{M_2D_2}{W_2}$

$[\because M = \text{Men} \quad D = \text{Days} \quad W = \text{Work done}]$

$\Rightarrow \frac{P\times P}{P}=\frac{q\times D_2}{q}$

$\Rightarrow D_2 = P$

$\therefore$ P days

81. (c) Article no 312.

82. (d) Let time taken by A is x days
then by the condition; time taken by B is (x +3) days

$$\frac{1}{x}+\frac{1}{x+3}=\frac{1}{2}$$

$$\Rightarrow \frac{x+3+x}{x(x+3)}=\frac{1}{2}$$

$2(2x + 3) = x^2 + 3x$

$\Rightarrow 4x + 6 = x^2 + 3x$

$\Rightarrow x^2 - x + 6 = 0$

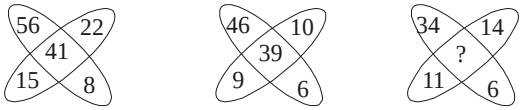
$\Rightarrow x^2 - 3x - 2x + 6 = 0$

$\Rightarrow x(x-3) - 2(x-3) = 0$

$\Rightarrow (x-3)(x-2) = 0$

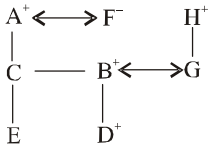
$\therefore$ x = 3 Time taken by B = (x +3) = 6 days

83. (b)

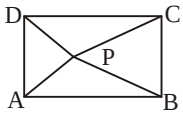


(56 + 15) – (22 + 8) = 71 – 30 = 41
(46 + 9) – (10 + 6) = 55 – 16 = 39
(34 + 11) – (14 + 6) = 45 – 20 = 25

84. (d)



85. (b)



$PA^2 + PC^2 = PD^2 + PB^2$

86. (c) Newton 1687
Gravitational constant 1st accurately measured by Henry Cavendish. 1797

87. (a) The Buddhist monuments of "Sanchi" located in the state of "Madhya Pradesh". It is one of the oldest stone structures in India. It was originally commissioned by "Ashoka" in 3rd century BC. It was declared as "UNESCO World Heritage Site" in 1989. We also found the image of "Sanchi Stupa" in our new Rs. 200 currency note.

88. (d)

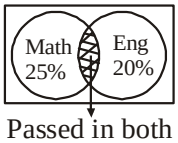
M	I	N	J	U	R	T	A	D	A
3	1	2	5	4	7	6	8	9	8

M	A	D	U	R	A	I
3	8	9	4	7	8	1

89. (b) $\frac{100x}{100+x}=\frac{100\times 10}{110}=9\frac{1}{11}\%$

90. (c) According to the information
Let the weights of C = 2x
Then, B = 9x
A = 18x
D = 4x So, C is the lightest in weight
E = 8x

91. (b)



Passed in both = 10%

Let total number of student be 100

Passed in both = 10%

Total pass percentage = {(25 + 20) – 10}%
= 35%

Fail in both the subject = (100 – 35)% = 65%

92. (c) Bihar.

The CSP conference in Patha was chaired by Narendra Dev wanted to remain with in the Congress but it did not have compatibility with its leadership. They were willing to cooperate with non congress leftist group. They influenced by Fabianism as well as Marxism – Leninism. The CSP included advocates of armed struggle.

93. (d) Darjeeling Himalayan Railway in India was declared as a world heritage in 1999. The first railway UNESCO World heritage site in India.

94. (d) Minute hand (speed) : In 1 hr $\rightarrow$ move 360°

Hour hand (speed) : In 1 hr $\rightarrow$ move $\frac{360}{12} = 30°$

$\therefore$ Ratio 360 : 30

12 : 1

95. (a) x : y : z = 3 : 2 : 1

$$\frac{x-2y+3z}{x+y-3z} = \frac{(3-4+3)K}{(3+2-3)K} = 1$$

96. (c)

97. (b) Time = $\frac{6\times12}{(6+12)} = \frac{6\times12}{18} = 4$ hour

98. (c) "Nathu La" pass was reopened in 2006 to facilitate trade between China and India.

99. (d) Linlithgo.

The Quit India Movement, was started by Mohandas Karamchand Gandhi also known as Civil Disobedience Movement, launched on August 8, 1942 at the Gowalia Tank Maidan in Mumbai. It stated in the time of British Governor General of India was Lord Linlithgow.

100. (d)

3	5	8	7
4	6	4	6
5	2	2	3
58	58	62	?

According to column wise

1st column = (3 × 4 × 5) – 2
= 60 – 2
= 58

2nd column = (5 × 6 × 2) – 2
= 60 – 2 = 58

3rd column = (8 × 4 × 2) – 2
= 64 – 2 = 62

4th column = (7 × 6 × 3) – 2
= 126 – 2 = 124