10th Edition

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CHSL (10+2)

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Contents

GENERAL INTELLIGENCE

1. In the following number-pairs, the second number is obtained by applying certain mathematical operations to the first number. Select the set in which the numbers are related in the same way as are the numbers of the following sets.

   (NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13- Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

   (21,66)   (32,99)
   (a) (25,81)   (b) (36,112)
   (c) (45,138)   (d) (24,77)

2. DHJ is related to AEG in a certain way based on the English alphabetical order. In the same way, ZML is related to WJI. To which of the following is EKQ related following the same logic?
   (a) HNT   (b) DJK
   (c) BHN   (d) QKE

3. Select the number from among the given options that can replace the question mark (?) in the following series.
   383, 381, 377, 369, 353,?
   (a) 325   (b) 323
   (c) 322   (d) 321

4. Select the set in which the numbers are related in the same way as are the numbers of the following sets.
   (12, 11, 137) (17, 21, 362)
   (a) (18, 9, 165)   (b) (14, 31, 440)
   (c) (21, 25, 530)   (d) (38, 7, 270)

5. In a certain code language.
   A - B means 'A is the father of B'
   A - B means 'A is the wife of B'
   A - B means 'A is the brother of B'
   A - B means 'A is the mother of B'
   Based on the above, how is G related to K if
   'G ÷ H × I –J + K'?
   (a) Mother's mother   (b) Father's sister
   (c) Mother   (d) Father's mother

6. Select the term from the given options that can replace the question mark (?) in the given series to make it logically complete.

BO 88, ? HU 80, KX 76, NA72
   (a) DS 86   (b) DS 82
   (c) ER 84   (d) ES 86

7. If 'A' stands for '÷' 'B' stands for 'x', 'C' stands for '+' and 'D' stands for '–', what will come in place of the question mark (?) in the following equation?
   114 C 85 A 5 B 4 D 33 = ?
   (a) 151   (b) 149
   (c) 138   (d) 143

8. The position of how many letters will remain unchanged if each letter in the word AMPLIFY is arranged in alphabetical order?
   (a) Three   (b) Two
   (c) Four   (d) One

9. Select the correct mirror image of the given figure when the mirror is placed at MN as shown below.

   (a) 6HDEa3 (mirror)   (b) 3 ɒ Ǝ D H ȝ
   (c) ɛaƎDHȝ   (d) 3ɒƎDHȝ
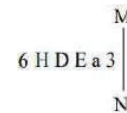
10. Which of the following interchanges in two mathematical operators will balance the equation given below?
    75 ÷ 15 × 8 + 14 – 5 = 67
    (a) ÷ and ×   (b) – and ÷
    (c) – and ×   (d) + and –

11. Read the given statements and conclusions carefully. You have to take the given statements to be true even if they seem to be at variance from commonly known facts. You have to decide which conclusion/s logically follow/s from the given statements.
    Statement: All elephants are tigers. All tigers are horses. No horse is a camel.
    Conclusion (I): Some horses are elephants.
    Conclusion (II): Some camels are tigers.
    (a) Only conclusion I follows.
    (b) Both conclusions I and II follows.
    (c) Only conclusion II follows.
    (d) Neither conclusion I nor II follows.

12. Three of the following four are alike in a certain way and thus form a group. Which is the one that does NOT belong to that group?
    (a) 46 – 41 – 12   (b) 16 – 9 – 21
    (c) 23 – 18 – 15   (d) 34 – 28 – 18

13. Identify the number of triangles in the given figure:
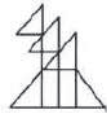
    (a) 10   (b) 7
    (c) 8   (d) 9

14. Select the correct mirror image of the given figure when the mirror is placed at MN as shown.

    (a)   (b)

    (c)   (d)
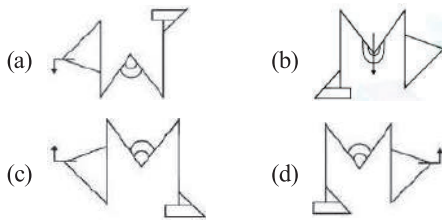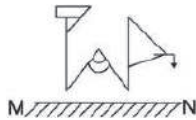
15. Which of the following letter clusters will replace the question mark (?) in the given, series to make it logically complete?
    EY14 .?.IW20.KV24.MU26
    (a) GY 19   (b) HZ 18
    (c) GX 18   (d) HY 19

16. In a certain code language 'RESENT' is written as 'TGUCLR' and 'PEOPLE' is written as 'RGQNJC'. How is 'PERSON' written in the given language?
    (a) RGTQML   (b) RGTQMP
    (c) RGSUQL   (d) RGTUQP

17. Which letter-cluster should come in place of? In the given series based on the English alphabetical order?
    GBW, EZX, CXY, AVZ?
    (a) ZTB   (b) YTA
    (c) XSB   (d) XRC

18. In a certain code language, 'will come back' is written as 'mp rq pl' and 'back to school' is written as 'jn st mp'. How is 'back' written in the given language?
    (a) pl   (b) rq
    (c) jn   (d) mp

19. If 17 April 1992 is Friday, then what will be the day of the week on 10 October 1993.
    (a) Sunday   (b) Wednesday
    (c) Monday   (d) Tuesday

20. Select the number from among the givens options that can replace the question mark (?) in the following series.
    13, 24, 46, 90, 178, ?

    (a) 358   (b) 352
    (c) 354   (d) 356

21. Based on the alphabetical order, three of the following four are alike in a certain way and thus form a group. Which is the one that does NOT belong to that group?
    (a) TVR   (b) DFB
    (c) WYU   (d) MZK

22. Find out the correct alternative that when filled in the blanks in the same sequence will make the series logically compelte.
    G__ MA __ VOY KTQ __ MR __U O __US
    (a) XGVSP   (b) XIWSP
    (c) XOWSO   (d) XGWTQ

23. L is the sister of G. G is the son of M. M is married to D.D is the sister of E. E is the son of C. C is married to S. S is the sister of P.
    How is L related to E?
    (a) Wife's sister   (b) Brother's daughter
    (c) Sister's daughter   (d) Daughter

24. Four number pairs have been given out of which three are alike in some manner and one is different. Select the one that is different.
    (NOTE: Operation should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 -Operations on 13 such as adding/ deleting/ multiplying etc.to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)
    (a) 46 – 141   (b) 55 – 168
    (c) 35 – 108   (d) 29 – 88

25. Identify the figure given in the options that when put in place of the question mark (?) will logically complete the series.

    (a)   (b)

    (c)   (d)
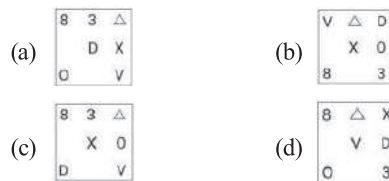
GENERAL AWARENESS

26. Who was awarded the Nobel Prize in Physics in 1909 along with Karl Ferdinand Braun for the development of practical wireless telegraphy?
    (a) Heinrich Rudolf Hertz
    (b) John Michell
    (c) Willhelm Rontgen
    (d) Gugleilmo Marconi

27. Pandit Shivkumar Sharma is remembered for his mastery in playing _____.
    (a) Tabla   (b) Sarod
    (c) Sitar   (d) Santoor

28. Women SHG member appointed as a banking agent is called _____.
    (a) Bank Mitra   (b) Bank Dost
    (c) Bank Sakhi   (d) Bank NGO
29. Which potassium acid salt is obtained as a by-product of alcohol manufacture during the fermentation process?
    (a) Potassium citrate   (b) Potassium bitartrate
    (c) Potassium nitrate
    (d) Potassium hydrogen adipate
30. Mundari dance is associated with the tribal community of which Indian state?
    (a) Mizoram   (b) Karnataka
    (c) Arunachal Pradesh   (d) Jharkhand
31. In 2014, Bandhan Financial Services, microlender with Headquarters at _____. was granted in-principal approval. by RBI to start a universal bank.
    (a) Kolkata   (b) Mumbai
    (c) Pune   (d) Lucknow
32. What is the width of the court for double matches in Lawn Tennis?
    (a) 38 feet   (b) 36 feet
    (c) 34 feet   (d) 32 feet
33. Match the following statements:

List I	List II
(a) Champakkulam boat race	(i) Gujarat
(b) Somnath fair	(ii) Haryana
(c) Surajkund fair	(iii) Rajasthan
(d) Baneshwar fair	(iv) Kerala

    (a) (a)-(iv),(b)-(iii),(c)-(i),(d)-(ii)
    (b) (a)-(iii),(b)-(i),(c)-(iv),(d)-(ii)
    (c) (a)-(iv),(b)-(ii),(c)-(i),(d)-(iii)
    (d) (a)-(iv),(b)-(i),(c)-(ii),(d)-(iii)
34. Mid-latitude deserts (BWK) are found between 35° and ____ N and S, which are poleward of subtropical high pressure areas.
    (a) 70°   (b) 60°
    (c) 79°   (d) 40°
35. Panchpatmali deposits in Koraput district are the deposits of which of the following minerals?
    (a) Iron ore   (b) Copper
    (c) Manganese   (d) Bauxite
36. Which of the following Anglo- Maratha was resulted in merging the Peshwas' territories with the Bombay Presidency?
    (a) Fourth   (b) Third
    (c) Second   (d) First
37. Which of these is the correct reason for a good to be identified as a final good?
    (a) It is not processed by a consumer after purchase.
    (b) It cannot be recycled or re-used.
    (c) It is in the last stage of the product life cycle.
    (d) It is not processed further by a producer.
38. The lofty gates erected in the courtyard of the temples in south India were called _____

(a) mandap   (b) ardhmandap
(c) vimana   (d) gopuram
39. Which of the following crops is the only genetically modified (GM) crop approved for commercial cultivation in India?
    (a) Bt Brinjal   (b) Mustard
    (c) Bt Cotton   (d) Tomato
40. Which of the following players won the orange cap in IPL-2023?
    (a) Yashasvi Jaiswal   (b) Shubman Gill
    (c) Faf du Plessis   (d) Devon Conway
41. The Constitution (Scheduled Castes and Scheduled Tribes) Orders (Second Amendment) Bill, 2022 has recognised the ____ community as a Schedule Tribe in some parts of Uttar Pradesh.
    (a) Erukala   (b) Bhils
    (c) Gonds   (d) Chenchus
42. When the general interest rate reaches a very low level, which of the following statements will be correct?
    (a) Most people will expect the interest rate to rise in the future.
    (b) Most people will prefer to hold bonds.
    (c) Most people will speculate a further decline in the rate of interest.
    (d) Any increase in the money supply will cause the interest rate to fall further.
43. Which of the following government schemes provides skill development training to youth in India?
    (a) Pradhan Mantri Jan Dhan Yojana
    (b) Pradhan Mantri Kaushal Vikas Yojana
    (c) Deendayal Antyodaya Yojana
    (d) Pradhan Mantri Garib Kalyan Anna Yojana
44. Who is known as the founder of Widow Remarriage Association (1861)?
    (a) Dr. Atma Ram Pandurang
    (b) RG Bhandarkar
    (c) Dwarkanath Tagore
    (d) Mahadev Govind Ranade
45. Which state in India has the highest number of aluminium smelting plants?
    (a) Odisha   (b) Tamil Nadu
    (c) Maharashtra   (d) Uttar Pradesh
46. As of February 2023, how many times Aditi Ashok has overall won the LET (Ladies European Tour) title?
    (a) Four   (b) Five
    (c) Three   (d) Six
47. Which of the following Articles of the Indian Constitution prohibits forced labour and prevents exploitation?
    (a) Article 20   (b) Article 19
    (c) Article 25   (d) Article 23
48. In 1956, which of the following awards did Rukmini Devi Arundale, an eminent Bharatanatyam dancer, receive?
    (a) Jnanpith Award   (b) Saraswati Samman
    (c) Kabir Puraskar   (d) Padma Bhushan

49. In which year did John Alexander Newlands propound a new concept of the 'Law of Octaves' proposing the periodicity of chemical elements arranged in order of atomic weight?
    (a) 1860   (b) 1865
    (c) 1873   (d) 1870

50. In India which of the following is a Gandhian principle of Directive Principles of State Policy?
    (a) To Separate judiciary from executive
    (b) To organise village panchayat
    (c) To secure uniform civil code
    (d) To provide equal pay for equal work

QUANTITATIVE APTITUDE

51. Study the given pie-chart and table and answer the question that follows.

    The pie-chart shows the percentage distribution of age groups of visitors to a park in a month.
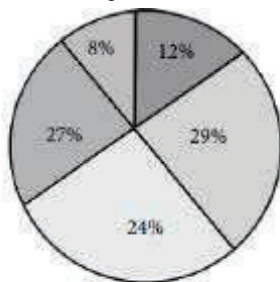
    more than 60 45-60 35-45 25-35 less than 25

    The table shows the male, female distribution of the visitors in terms of the percentage.

Age	Male Percentage	Female Percentage
More than 60	58	42
45-60	80	20
35-45	81	19
25-35	60	40
Less than 25	45	55

    If 2000 male visitors and 1500 female visitors were there in all, then the ratio of the number of male visitors in the age group 25-35, to the female visitors of the age group 45-60 is:
    (a) $71:45$ (b) $57:41$
    (c) $63:47$ (d) $81:29$

52. A shopkeeper marks his goods at 80% more than their cost price and allows a discount of 48% on the marked price His loss percentage is:
    (a) $2\dfrac{1}{5}\%$ (b) $7\dfrac{3}{5}\%$
    (c) $6\dfrac{2}{5}\%$ (d) $3\dfrac{1}{5}\%$

53. The three sides of a triangle are 9, 24 and S units. Which of the following is correct?

    (a) $15 < S < 33$ (b) $15 \le S < 33$
    (c) $15 < S \le 33$ (d) $15 \le S \le 33$

54. If $2x + \dfrac{2}{x} = 5$, then the value of $\left(x^3 + \dfrac{1}{x^3} + 2 \right)$ will be:
    (a) $\dfrac{81}{11}$ (b) $\dfrac{81}{7}$
    (c) $\dfrac{71}{8}$ (d) $\dfrac{81}{8}$

55. Bhushan's monthly income is ₹45,000 and his monthly expenditure is ₹33,000. If his monthly income is increased by 22% while monthly expenditure is increased by 11% then what is his new monthly savings (in ₹)?
    (a) $18,270$ (b) $18,690$
    (c) $18,000$ (d) $19,000$

56. If $x + \dfrac{1}{x} = 7$, then the value of $x^2 + \dfrac{1}{x^2}$ is:
    (a) 49   (b) 51
    (c) 47   (d) 5

57. Two circles of radii 12 cm and 13 cm are concentric. The length of the chord of the larger circle which touches the smaller circle is:
    (a) 8 cm   (b) 18 cm
    (c) 10 cm   (d) 12 cm

58. If $\sin A + \sin^2 A = 1$, then the value of the expression $(\cos^2 A + \cos^4 A)$ is _____.
    (a) $\dfrac{3}{2}$ (b) 1
    (c) 2   (d) $\dfrac{1}{2}$

59. The average age of 6 members of a family is 25 years. If the youngest member is 4 years old, then what was the average age of family just before the birth of the youngest member?
    (a) 27.2 years   (b) 24.8 years
    (c) 32.8 years   (d) 25.2 years

60. If $\cot\theta = \dfrac{9}{17}$, find the value of $\csc^2\theta$
    (a) $1\dfrac{9}{17}$ (b) $\dfrac{208}{289}$
    (c) $\dfrac{8}{17}$ (d) $1\dfrac{81}{289}$

61. How long (in years) will a sum of money invested at 6% per annum simple interest to increase its value by 40%?
    (a) $6\dfrac{2}{3}$ (b) $5\dfrac{2}{3}$
   (c) $6\dfrac{1}{3}$ (d) $4\dfrac{1}{3}$

62. A tangent AB at point A of a circle of radius 6 cm meets a line through the centre O at point B. If OB=10 cm, then the length of AB (in cm) is equal to:
    (a) 5   (b) 6
    (c) 4   (d) 8

63. Suhas, a 3.15 m tall tree, and an 11.25 m tall building are positioned such that their feet on the ground are collinear and the tree is located between Suhas and the building. The tree is located at a distance of 45 m from the building. Further, the eyes of Suhas, the top of the tree, and the top of the building fall in one line, and the eyes of Suhas are at a height of 1.8 m from the ground. At what distance (in m) from Suhas is the tree located?
    (a) 6   (b) 5
    (c) 7.5   (d) 9

64. Find the third proportional of 25 and 45.
    (a) 85   (b) 65
    (c) 81   (d) 76

65. Study the given table and answer the question that follows. The table indicated the number of students studying in three disciplines in four different colleges.

Disciplines	Colleges			
	A	B	C	D
Commerce	520	550	515	690
Management	212	234	289	390
Agriculture	234	567	456	876

    Which college has the minimum number of students in Commerce?
    (a) A   (b) B
    (c) C   (d) D

66. The following bar graph indicates the sales of various items in a shop for one day. Study the bar graph carefully and answer the question that follows.
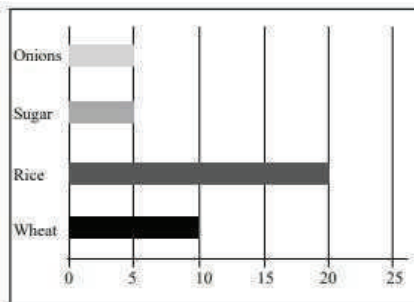
    Find the ratio between the sale of wheat and rice and also the ratio between the sale of sugar and onions, respectively.
    (a) 1 : 2 and 1 : 1   (b) 1 : 1 and 2 : 1
    (c) 2 : 1 and 1 : 2   (d) 1 : 1 and 1 : 1

67. If a right circular cone of height 24 cm has the circumference of its base 42π cm. then the volume of the cone is (use $\pi = \dfrac{22}{7}$)
    (a) 15211 cm^3 (b) 11088 cm^3
    (c) 12034 cm^3 (d) 21011 cm^3

68. A dishonest shopkeeper professes to sell grains at the cost price,but he uses a weight of 920 gm for 1 kg weight.Find his gain percentage (round up to two decimal places).
    (a) 7.90 %   (b) 8.70 %
    (c) 8.50 %   (d) 7.80 %

69. A can finish a work in 15 days, B can finish the same work in 25 days. They work together for 5 days. The rest of the work is finished by A and C in 4 days. Then C alone can finish the work in:
    (a) 18 days   (b) 24 days
    (c) 20 days   (d) 21 days

70. Zeenat and Nasreen participate in a circular race of 1.2 km. They start the race at a speed of 18 km/h and 27 km/h. respectively, from the same point at the same point. After how much time (in minutes) will they meet at the starting point for the first time, if they are running in the same direction?
    (a) 9   (b) 7
    (c) 10   (d) 8

71. Which of the following numbers is NOT divisible by 11?
    (a) 1735624   (b) 752563
    (c) 1661308   (d) 1904529

72. In a show room, the marked prices of various items are displayed in such a manner that after giving a 10% discount to the customers, the owner of the show room earns a profit of 20%. What is the ratio of the marked price and cost price of each item?
    (a) 3 : 4   (b) 4 : 3
    (c) 5 : 2   (d) 2 : 5

73. If $5x + 3y = 15$ and $2xy = 6$, then the value of $5x-3y$ is :
    (a) $3\sqrt{3}$ (b) $3\sqrt{5}$
    (c) $3\sqrt{2}$ (d) $3\sqrt{4}$

74. $\dfrac{\cos\theta}{\sec\theta-1}+\dfrac{\cos\theta}{\sec\theta+1}$ is equal to:
    (a) $2\sec^2\theta$ (b) $2\cot^2\theta$
    (c) $2\cos^2\theta$ (d) $2\sin^2\theta$

75. A certain amount of money was lent for a period of 1 year 9 months at a rate of 10% per annum compounded annually. If the compound interest is ₹1,460, find the amount of money lent.
    (a) ₹8,200   (b) ₹7,500
    (c) ₹6,000   (d) ₹8,000

ENGLISH LANGUAGE

76. Select the most appropriate option to substitute the underlined segment in the following sentence.
    With the harsh words of the boss, Srujan felt sad, but his colleague's words created insult to injury.
    (a) attached insult to injury
    (b) provoked insult to injury
    (c) added injury to insult
    (d) added insult to injury

77. Select the option that correctly expresses the following sentence in passive voice.
    The child will recite the poem.
    (a) By child poem will be recited.
    (b) The poem will be recited by the child.
    (c) The poem is recited by the child.
    (d) The poem will recite by the child

78. Parts of the following sentence have been given as options. Select the option that contains an error.
    You need to acknowledge the itinary and accommodation details of your journey as per the given calendar.
    (a) calender   (b) accommodation
    (c) acknowledge   (d) itinary

79. Choose the correct meaning of the underlined word in the given sentence.
    When I was in Class 5, I won the first prize in <u>extempore</u> at my school
    (a) A short piece of writing on a subject.
    (b) A sports event
    (c) A speech delivered without prior preparation or rehearsal
    (d) A dramatic performance on stage

80. Parts of a sentence are given below in jumbled order. Arrange the parts in the correct order to form a meaningful sentence.
    A. fell before me   B. a carcass of an animal
    C. when suddenly   D. my heart skipped a beat
    (a) BACD   (b) CDBA
    (c) ABCD   (d) DCBA

81. Sentences of a paragraph are given below in jumbled order. Arrange the sentences in the correct order to form a meaningful and coherent paragraph.
    A. So then why are not Silicon Valley entrepreneurs clamouring to decode the ancient wisdom?
    B. The failure rate in finding a new drug is as high as 95%.
    C. Because these once-thriving cultures are now reduced to an endangered tribe.
    D. According to industry data, it takes $2.6 billion and, on average, fourteen years to develop a new drug.
    (a) BADC   (b) DCBA
    (c) DBAC   (d) ACDB

82. Select the most appropriate synonym of the given word.
    Resentment
    (a) Calmness   (b) Happiness
    (c) Anger   (d) Relaxation

83. Select the option with the correct spelling that can replace the underlined word in the given sentence.
    Kasturi acts as a <u>liason</u> between patients and staff.
    (a) liaision   (b) laision
    (c) liaison   (d) liaisan

84. Select the most appropriate ANTONYM of the given word.
    Meagre
    (a) Regional   (b) Racial
    (c) Stupid   (d) Generous

85. Select the most appropriate synonym for the underlined word in the following sentence.
    The politician's <u>pompous</u> rhetoric during the campaign failed to garner much support from the public.
    (a) Conciliatory   (b) Benign
    (c) Supercilious   (d) Diplomatic

86. Parts of a sentence are given below in jumbled order. Select the option that arranges the parts in the correct order to form a meaningful sentence.
    A. In accordance with hierarchical status
    B. Of the services rendered
    C. Rewards are given
    D. And are not related to the economic value
    (a) A, B, D, C   (b) A, D, B, C
    (c) C, A, D, B   (d) C, B, A, D

87. Select the option that expresses the given sentence in positive degree of comparison.
    She is the dullest child in the class.
    (a) She is very duller in the class.
    (b) Dullest child in the class is she.
    (c) No other child in the class is as dull as she.
    (d) In the class of all she is dull.

88. Select the most appropriate ANTONYM of the underlined word.
    Wealthier countries are obligated to fulfil a <u>commitment</u> made in the Paris Agreement to provide $100 billion a year in international climate finance.
    (a) feeble   (b) drape
    (c) breach   (d) hale

89. Select the most appropriate idiom for the underlined segment in the following sentence.
    Brave people never hide <u>at the moment of decision.</u>
    (a) When the crunch comes
    (b) Beat the clock
    (c) A hell of time
    (d) Turn back the hands of time

90. Select the option that expresses the given sentence in active voice.
    French is taught to us by Miss Glenn.
    (a) Miss Glenn taught us French
    (b) Miss Glenn teach us French
    (c) Miss Glenn teaches us French
    (d) Miss Glenn is teaching us French

91. Select the option that will improve the underlined part of the given sentence. Adyasha <u>would have been looked</u> gorgeous in ethnic apparel.
    (a) was looked   (b) would have looked
    (c) had looking   (d) would be looked

92. The following sentence has been split into four segments. Identify the segment that contains a grammatical error.
    Babbal is/a oldest member/in our/ Black Ice Club.
    (a) in our   (b) Black Ice Club
    (c) Babbal is   (d) a oldest member

93. Parts of a sentence are given below in jumbled order, except the first part. Arrange the parts in the correct order to form a meaningful sentence.
   A. not only in the Anglo-American academia
   B. on the literature of the Third World.
   C. however, are a common feature of the literary theory practiced
   D. but also in the Third-World countries
   (a) ABCD   (b) ADCB
   (c) BCAD   (d) CABD

94. Select the most appropriate ANTONYM of the given word.
   Fundamental
   (a) Impact   (b) Neutral
   (c) Least   (d) Link

95. Select the most appropriate homophone to fill in the blank.
   Even animals find it difficult to _____ the loss of their loved ones.
   (a) bear   (b) wear
   (c) where   (d) bare

DIRECTIONS (Qs. 96-100): *In the following passage, some words have been deleted. Read the passage carefully and select the most appropriate option to fill in each blank.*

Unemployment arises from a variety of _____ (a). One which is always recurring and the effects of which we have had a recent example, is the disorganisation of industry resulting from a long war; this is a serious _____ (b) admitting of no easy _____ (c) at the best of times, Again there is the unemployment which followed a marked diminution in the _____ (d) of any raw product, such as cotton; fewer hands are required in the mills and the factories. We may call this cause of bad harvests. Similar, but more serious is the effect of changes in industry due to the invention of machinery which does more work and require _____ (e) hands. Yet another cause is strike or lockout and this is more to be deplored because such a stoppage is due to a very trivial matter, perhaps the men are working half an hour longer than what their Union permits.

96. Select the most aprropriate option to fill in blank (a).
   (a) causes   (b) thoughts
   (c) things   (d) types

97. Select the most aprropriate option to fill in blank (b).
   (a) difference   (b) discussion
   (c) nature   (d) problem

98. Select the most aprropriate option to fill in blank (c).
   (a) key   (b) clue
   (c) answer   (d) solution

99. Select the most aprropriate option to fill in blank (d).
   (a) material   (b) quality
   (c) quantity   (d) cloth

100. Select the most aprropriate option to fill in blank (e).
   (a) fewer   (b) more
   (c) many   (d) a lot of

Hints & Explanations

1. (c) Pattern is that
   $(21 + 1) \times 3 = 66$
   $(32 + 1) \times 3 = 99$
   Similarly,
   $(45 + 1) \times 3 = 138$

2. (c)

D	H	J;	Z	M	L
$-3\downarrow$	$-3\downarrow$	$-3\downarrow$	$-3\downarrow$	$-3\downarrow$	$-3\downarrow$
A	E	G	W	J	I

   Similarly,

E	K	Q
$-3\downarrow$	$-3\downarrow$	$-3\downarrow$
B	H	N

3. (d) Pattern of the series-

   383   381   377   369   353   321
      -2 -4 -8 -16 -32

4. (c) Pattern is that -
   $12 \times 11 + 5 = 137$
   $17 \times 21 + 5 = 362$
   Similarly,
   $21 \times 25 + 5 = 530$

5. (a)

   G(–)
   |
   H(+) —— I(–) ═══ J(+)
   |
   K(–/+)
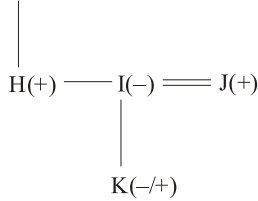
   Hence, G is the mother's mother of K.

6. (c) Pattern of the series is that

   B $\xrightarrow{+3}$ E $\xrightarrow{+3}$ H $\xrightarrow{+3}$ K $\xrightarrow{+3}$ N
   O $\xrightarrow{+3}$ R $\xrightarrow{+3}$ U $\xrightarrow{+3}$ X $\xrightarrow{+3}$ A
   88 $\xrightarrow{-4}$ 84 $\xrightarrow{-4}$ 80 $\xrightarrow{-4}$ 76 $\xrightarrow{-4}$ 72

7. 114 C 85 A 5 B 4 D 33 = ?
   Replace the letters with math operators
   $114 + 85 \div 5 \times 4 - 33$
   $\Rightarrow 114 + 17 \times 4 - 33$
   $\Rightarrow 81 + 68 = 149$

8. (a)

   (A) M P (L) I F (Y)
   (A) F I (L) M P (Y) → Alphabetical order

   Hence, three letters position will remain unchanged.

9. (a)

   M
   6HDEa3   ƐɒƎᗡHგ
   N
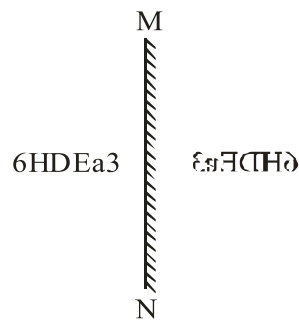
10. (c) $75 \div 15 \times 8 + 14 - 5 = 67$
    By interchanging two operators '–' and '×',
    $75 \div 15 - 8 + 14 \times 5$
    $\Rightarrow 5 - 8 + 70$
    $\Rightarrow 75 - 8 = 67$

11. (a)

    Horses
    Elephants
    Tigers
    Camel
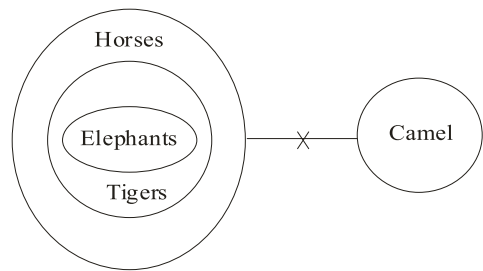
    As all tigers are horses and no horse is a camel, so no camel is a tiger.

    Hence, only conclusion I follows.

12. (a) Pattern is that-
    $(16 - 9) \times 3 = 21$
    $(23 - 18) \times 3 = 15$
    $(34 - 28) \times 3 = 18$
    But
    $(46 - 41) \times 3 = 15 \neq 12$

13. (a) There are 10 triangles in the given figure.

14. (d)

15. (c) Pattern of the series is that.

$$E \xrightarrow{+2} G \xrightarrow{+2} I \xrightarrow{+2} K \xrightarrow{+3} M$$
$$Y \xrightarrow{+3} X \xrightarrow{-1} W \xrightarrow{-1} V \xrightarrow{+3} U$$
$$14 \xrightarrow{-4} 18 \xrightarrow{+2} 20 \xrightarrow{+4} 24 \xrightarrow{+2} 26$$

16. (a) As,

R	E	S	E	N	T
+2	+2	+2	−2	−2	−2
T	G	U	C	L	R

and,

P	E	O	P	L	E
+2	+2	+2	−2	−2	−2
R	G	Q	N	J	C

Similarly,

P	E	R	S	O	N
+2	+2	+2	−2	−2	−2
R	G	T	Q	M	L

17. (b) Pattern of the series is that.

$$G \xrightarrow{-2} E \xrightarrow{-2} C \xrightarrow{-2} A \xrightarrow{-2} Y$$
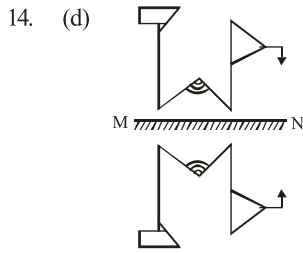$$G \xrightarrow{-2} Z \xrightarrow{-2} X \xrightarrow{-2} V \xrightarrow{-2} T$$
$$W \xrightarrow{+1} X \xrightarrow{+1} Y \xrightarrow{+1} Z \xrightarrow{+1} A$$

18. (d)

Word	Code
Back	mp
Will / come	rq / pl
To / School	jn / st

19. (a) Day on 17 April 1993 is Saturday.

$$\text{Odd days } = \frac{13 + 31 + 30 + 31 + 31 + 30 + 10}{7} = \frac{176}{7} = 1$$

Hence, day of the week on 10 October 1993 = Saturday + 1 = Sunday

20. (c) Pattern of the series is –

13,   24,   46,   90,   178,   354

×2−2	×2−2	×2−2	×2−2	×2−2

21. (d)

$$T \xrightarrow{+2} V \xrightarrow{-4} R$$
$$D \xrightarrow{+2} F \xrightarrow{-4} B$$
$$W \xrightarrow{+2} Y \xrightarrow{-4} U$$
$$M \xrightarrow{+13} Z \xrightarrow{-15} K \,(\text{Odd one})$$

22. (b)

$$G \xrightarrow{+2} I \xrightarrow{+2} K \xrightarrow{+2} M \xrightarrow{+2} O$$
$$X \xrightarrow{-2} V \xrightarrow{-2} T \xrightarrow{-2} R \xrightarrow{-2} P$$
$$M \xrightarrow{+2} O \xrightarrow{+2} Q \xrightarrow{+2} S \xrightarrow{+2} U$$
$$A \xrightarrow{-2} Y \xrightarrow{-2} W \xrightarrow{-2} U \xrightarrow{-2} S$$

Hence, correct alternative are - XIWSP.

23. (c)

$$C(+) = S(-) \text{——} P(-/+)$$
$$|$$
$$E(+) \text{——} D(-) = M(+)$$
$$|$$
$$G(+) \text{——} L(-)$$

Hence, L is the sister's daughter of E.

24. (d) Pattern is that
$$46 \times 3 + 3 = 141$$
$$55 \times 3 + 3 = 168$$
$$35 \times 3 + 3 = 108$$
$$29 \times 3 + 3 = 90 \neq 88 \,(\text{Odd one})$$

25. (a) In the given series two pattern are followed.
I[st] pattern in fig (1) to fig (2)-
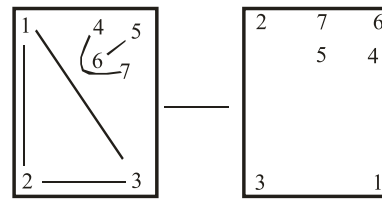
Fig(i)   Fig (ii)

IInd pattern in fig (2) to fig (3)-

Fig (2)   Fig (3)

Hence, next figure in series is-

```
8    3    Δ
     D    X


O         V
```

26. (d) Guglielmo Marconi shared the Nobel Prize in physics with Professor Karl Braun, in recognition of their contributions to the development of wireless telegraphy. Guglielmo Marconi used radio waves to transmit signals over a distance of several kilometers. He developed the technology in subsequent years to achieve greater range. The foundation for both wireless telegraphy and radio had been laid.

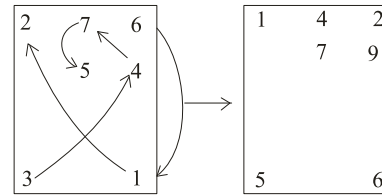27. (d) Pandit **Shivkumar Sharma** was an Indian classical musician and santoor player who is credited with adapting the santoor for Indian classical music. Sharma was awarded the Sangeet Natak Akademi Award in 1986 and the Padma Shri and Padma Vibhushan (India's fourth and second highest civilian awards) in 1991 and 2001.

28. (c) SHG Member who sits in bank branch to support Branch Manager is called as Bank Sakhi. She helps the SHG members in day to day banking services like documentation, loan facilitation, recovery & member of the CBRM but does not undertake financial transactions.

29. (b) Potassium bitartate, also referred to as potassium acid tartrate or cream of tartar, is the potassium acid salt of l-(+)-tartaric acid. It is obtained as a by-product of alchohol manufacture during the fermentation process.
    Potassium bitartrate is an organic potassium salt of L-tartaric acid. It is a by-product of winemaking and occurs naturally in grapes, the major fruit used to produce wine. It has a role as a food anti-caking agent, a laxative, a plant metabolite, an antimicrobial agent, a raising agent, a food acidity regulator, a food humectant and a food stabiliser.

30. (d) Mundari dance is associated with the state of Jharkhand. Munda tribe have its own dance which performed during harvest season and festival accompanied by musical Instrument Madal, Nagara, and Bansi. Munda refers to their dance and song as Durang and Susun respectively Mundari folk dance are Jadur and Jena.

31. (a) Bandhan was set up in 2001 as a not-for-profit entity with the objective of financial inclusion and women empowerment through sustainable livelihood creation. In April 2014, Bandhan received an in-principle approval from the Reserve Bank of India (RBI). It is head quartered in Kolkata and Chandra Shekhar Ghosh is the MD and CEO of the bank.

32. (b) A tennis court is 78ft (23.77m) in length. The courts used for singles matches are 27ft (8.23m) wide, while doubles courts are 36ft (10.97m) wide. The court's service line is 21ft (6.4m) from the net.
    The boxes on a tennis court are used to separate the different regions of the playing area, which are utilised for different parts of the game.

33. (d) The correct order of the list as given below:

List I	List II
Champakkulam boat race	Kerala
Somnath fair	Gujrat
Surajkund fair	Haryana
Baneshwar fair	Rajasthan

34. (b) According to Koppen's classification, the midlatitude deserts (BWk), also known as the cold deserts are found at latitudes between 35° - 60°.
    Cold desert climates (BWk) usually feature hot (or warm in a few instances), dry summers, though summers are not typically as hot as hot desert climates. Unlike hot desert climates, cold desert climates tend to feature cold, dry winters. Snow tends to be rare and sporadic in regions with this climate.

35. (d) The most important bauxite deposits in the state are Panchpatmali deposits in the Koraput district. Bauxite deposits are formed by the decomposition of rocks rich in aluminium silicates. India's bauxite deposits are mainly found in the Amarkantak plateau, Maikal hills and the plateau region of Bilaspur-Katni.

36. (b) The third Anglo Maratha war resulted in the merging the Peshwas' territories with the Bombay Presidency. The war took place from 1817-1819 and was the final and decisive conflict.

37. (d) A final good or consumer good is a final product ready for sale that is used by the consumer to satisfy current wants or needs, unlike an intermediate goods, which is used to produce other goods.

38. (d) In the Dravidian style of architecture, a Gopuram or Gopura s a monumental entrance tower, usually ornate, at the entrance of a Hindu temple, in the South Indian architecture of the southern Indian state.
    Some other significant features of the Dravidian style of Architecture is that the temple is enclosed within a compound wall. Through a Gopuram one enters in the Mandapa followed by the Grabhgriha and Vimana. Also, **Subsidiary shrines** could be found wither within the main tower or beside the main tower.

39. (c) Bt cotton is a genetically modified pest resistant plant cotton variety that produces an insecticide to combat bollworm. It is the only genetically modified crop which is allowed for the commercial cultivation in India presently.

40. (b) In the IPL 2023, Shubman Gill won the orange cap, who belongs to the team Gujarat Titans. He scored 890 runs in 17 innings. It can be noted here that Mohammed Shami, with 28 wickets, procured the

Purple cap. However, the winners of IPL 2023 were the Chennai Super Kings led by MS Dhoni.

41. (c) The Uttar Pradesh government has decided to issue certificates granting Scheduled Tribe (ST) status to the Gond caste in four more districts of the state Sant Kabir Nagar, Kushinagar, Chandauli and Bhadohi.

42. (a) When the general interest rate reaches a very low level, general consensus is that the economy moves towards equilibrium. Hence, most people will expect the interest rate will rise in the future.

43. (b) Pradhan Mantri Kaushal Vikas Yojana (PMKVY) is the flagship scheme of the Ministry of Skill Development and Entrepreneurship (MSDE) implemented by National Skill Development Corporation (NSDC). The objective of this Skill Certification scheme is to enable Indian youth to take up industry relevant skill training that will help them in securing a better livelihood.

44. (d) Widow remarriage association was founded by Vishnu Shastri Pandit and M.G.Ranade in 1856. It was Vishnu Shashtri Pandit who first founded a widow remarriage association in Pune called Punar Vivahtojak Mandal in the year 1850. Ranade was against caste system, untouchability and was a strong supporter of widow-remarriage.

45. (a) The state of Odisha has the highest number of Aluminium smelting plants in India. The Indian Aluminium Industry is a highly concentrated industry, with India being the world's second-largest producer. Aluminium, a lightweight silvery white metal is the most abundant metal on the planet, as well as one of the most affordable.

46. (a) Aditi Ashok is a brilliant golfer belonging to India. The 25-year-old has made to her swing clearly raising her game to another level. Besides the two wins on LET this season, she was second in the Saudi Ladies International, third in the Lalla Meryem Cup, all in February, and won silver in the Hangzhou Asian Games.
She has won 4 overall LET titles.

47. (d) The Article 23 of the Constitution of India prohibits the traffic in human beings and forced labour. **Article 23 protects citizens not only against the State but also from private citizens.**
The State is obliged to protect citizens from these evils by taking punitive action against perpetrators of these acts (which are considered crimes), and also take positive actions to abolish these evils from society.

48. (d) Rukmini Devi features in India Today's list of '100 People Who Shaped India'. She is a great proponent of Bharatnatyam dance and have catalysed the dance renaissance in India. She was awarded the Padma Bhushan in 1956, and the Sangeet Natak Akademi Fellowship in 1967.

49. (b) The law of octaves states that every eighth element has similar properties when the elements are arranged in the increasing order of their atomic masses. John Alexander Newlands in 1865, arranged the elements in increasing order of their atomic mass. He found that the properties of every eighth element are similar to the first element

50. (b) The Directive Principles of State policy deals with many Gandhian principles. The principles are supposed to guide the legislatures to bring the social as well as the economic justice in the country. The Articles 40, 43, 43B, 46, 47, and 48 are categorized as Gandhian Principles.
From the given options the organisation of village panchayat is one of the important Gnadhian principle.

51. (d) Total visitors $= 2000 + 1500 = 3500$

Male visitor in the age group $25 - 35$

$$= 3500 \times \frac{27}{100} \times \frac{60}{100}$$

$$= 35 \times 27 \times \frac{6}{10}$$

Female visitors in the age group 45–60

$$= 3500 \times \frac{29}{100} \times \frac{20}{100}$$

$$= 35 \times 29 \times \frac{2}{10}$$

Hence, required ratio

$$= 35 \times 27 \times \frac{6}{10} : 35 \times 29 \times \frac{2}{10}$$

$$= 27 \times 3 : 29$$

$$= 81 : 29$$

52. (c) Let cost price is ₹ 100

∴ Marked price

$$= 100 \times \frac{180}{100} = ₹ 180$$

So, selling price $= 180 \times \frac{52}{100} = ₹ 93.6$

Hence, loss percentage

$$= \frac{(100 - 93.6)}{100} \times 100 = 6.4 = \frac{64}{10}$$

$$= \frac{32}{5} = 6\frac{2}{5}\%$$

53. (a) Correct is-

$(24 - 9) < S < (24 + 9)$

$\Rightarrow \quad 15 < S < 33$

54. (d) $x + \dfrac{1}{x} = \dfrac{5}{2}$ ...(i)

$\left(x + \dfrac{1}{x}\right)^2 = \dfrac{25}{4}$

$\Rightarrow x^2 + \dfrac{1}{x^2} + 2 = \dfrac{25}{4}$

$\Rightarrow x^2 + \dfrac{1}{x^2} = \dfrac{25}{4} - 2 = \dfrac{17}{4}$ ...(ii)

$\therefore x^3 + \dfrac{1}{x^3} = \left(x + \dfrac{1}{x}\right)\left(x^2 + \dfrac{1}{x^2} - 1\right)$

$\Rightarrow x^3 + \dfrac{1}{x^3} = \dfrac{5}{2}\left(\dfrac{17}{4} - 1\right)$

$= \dfrac{5}{2} \times \dfrac{13}{4}$ [from equ. (i) and (ii)]

$\Rightarrow x^3 + \dfrac{1}{x^3} = \dfrac{65}{8}$

Hence, $x^3 + \dfrac{1}{x^3} + 2 = \dfrac{65}{8} + 2 = \dfrac{81}{8}$

55. (a) New income $= 45000 \times \dfrac{122}{100} = ₹54900$

New expenditure $= 33000 \times \dfrac{111}{100} = ₹36630$

Hence, Bhusan's new monthly saving $= 54900 - 36630$

$₹18,270$

56. (c) $x + \dfrac{1}{x} = 7$

By squaring both sides-

$\left(x + \dfrac{1}{x}\right)^2 = 49$

$\Rightarrow x^2 + \dfrac{1}{x^2} + 2 = 49$

$\Rightarrow x^2 + \dfrac{1}{x^2} + 2 = 49$

Hence, $x^2 + \dfrac{1}{x^2} = 49 - 2 = 47$

57. (c)
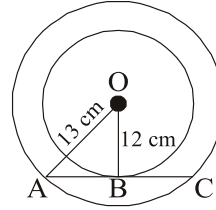
In ΔOAB by Pythagoras theorem

$(AB)^2 = (OA)^2 - (OB)^2$

$= (13)^2 - (12)^2$

$\Rightarrow AB = \sqrt{169 - 144} = \sqrt{25}$

$\Rightarrow \quad AB = 5 \, cm$

$\therefore \quad AC = 2 \times AB$

Hence, the length of the chord $(AC) = 2 \times 5 = 10 \, cm$.

58. (b) $\sin A + \sin^2 = 1$

$\Rightarrow \quad \sin A = 1 - \sin^2 A$

$\Rightarrow \quad \sin A = \cos^2$ ...(i)

Now, $\cos^2 A + \cos^4 A$

$\Rightarrow \quad \cos^2 A + (\cos^2 A)^2$

$\Rightarrow \quad \cos^2 A + \sin^2 A$ [from equ (i)]

$\Rightarrow \quad 1$

59. (d) Total age of family members $= 6 \times 25 = 150$

Total age of family just before the birth of the youngest member $= 150 - 6 \times 4 = 126$

Hence, required average

$= \dfrac{126}{5} = 25.2$ years

60. (d) $\cot \theta = \dfrac{9}{17}$

$\therefore \cot^2 \theta = \left(\dfrac{9}{17}\right)^2 = \dfrac{81}{289}$

Hence, $\text{cosec}^2 = 1 + \cot^2 \theta = 1 + \dfrac{81}{189} = 1\dfrac{81}{289}$

61. (a) Let sum of money is 100.

According to question,

$40 = \dfrac{100 \times T \times 6}{100}$

$\Rightarrow T = \dfrac{40}{6} = \dfrac{20}{3} = 6\dfrac{2}{3}$ years

62. (d)

In $\triangle$AOB by Pythagoras theorem-

$(AB)^2 = (OB)^2 - (OA)^2$

$\Rightarrow AB = \sqrt{100 - 36}$

$\Rightarrow AB = \sqrt{64} = 8\ cm$

Hence, length of tangent AB is 8 cm.

63. (c)

From $\triangle$GAB and $\triangle$GCD

$\dfrac{y}{1.8} = \dfrac{y + x}{3.15}$

$\Rightarrow 3y = 4x$

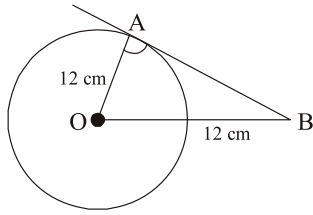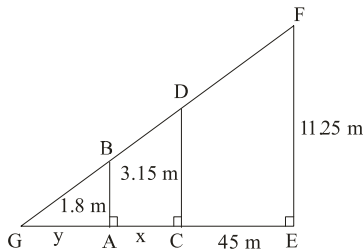$\Rightarrow y = \dfrac{4}{3}x$ ...(i)

From $\triangle$GAB and $\triangle$GEF

$\Rightarrow \dfrac{\dfrac{4}{3}x}{x + \dfrac{4}{3}x + 45} = \dfrac{1.8}{11.25} = \dfrac{4}{25}$

$\Rightarrow \dfrac{4x}{7x + 135} = \dfrac{4}{25}$

$\Rightarrow 100x = 28x + 540$

$\Rightarrow 72x = 540$

$\Rightarrow x = 7.5$

Hence, the tree located at distance of 7.5 m from Suhas.

64. (c) Third proportional

$= \dfrac{b^2}{a} = \dfrac{45 \times 45}{25} = 9 \times 9 = 81$

65. (c) College C has 515 students that is the minimum number of students in commerce.

66. (a) Ratio of sales of wheat and Rice

$= 10 : 20 = 1 : 2$

Ratio of sales of sugar and onion

$= 5 : 5 = 1 : 1$

67. (b) Circumference of base $= 42\pi$.

$\Rightarrow 2\pi r = 42\pi$

$\Rightarrow r = \dfrac{42}{2} = 21\ cm$

Hence, volume of cone

$= \dfrac{1}{3}\pi r^2 h = \dfrac{1}{3} \times \dfrac{22}{7} \times 21 \times 21 \times 24$

$= 22 \times 21 \times 24$

$= 11088\ cm^3$

68. (b) His gain percentage

$= \dfrac{80}{920} \times 100 = 8.70\%$

69. (c) Total work = LCM of 15 and 25 = 75

A's efficiency $= \dfrac{75}{15} = 5$

B's efficiency $= \dfrac{75}{25} = 3$

A and B's 5 day work $= 5 \times (5 + 3) = 40$

A's 4 day work $= 4 \times 5 = 20$

$\therefore$ Remaining work $= 75 - (40 + 20) = 15$

$\therefore$ C's efficiency $= \dfrac{15}{4}$

Hence, C done on finish the work in

$= \dfrac{75}{\dfrac{15}{4}} = 5 \times 4 = 20$ days

70. (d) Relative speed $= 27 - 18 = 9$ km/hr

Hence, they will meet at the starting point for first time

after $= \dfrac{1.2}{9} \times 60 = \dfrac{72}{9} = 8$ min

71. (b) The difference of the sum of digits at odd position and sum of digits at even position in a number is 0 or 11, then the number is divisble by 11.

$|(7 + 2 + 6) - (5 + 5\ 3)| = |15 - 13| = 2$

Hence, 752563 is not divisible by 11.

72. (b) According to question,

Cost price $\times \dfrac{120}{100} = $ Marked price $\times \dfrac{90}{100}$

$\Rightarrow \dfrac{\text{Marked price}}{\text{cost price}} = \dfrac{120}{90} = \dfrac{4}{3}$

Hence, ratio of MP and CP is 4:3

73. (b) $5x + 3y = 15$ ...(i)

$2xy = 6$ ...(ii)

By squaring both side of equ (i)

$(5x + 3y)^2 = 225$

$\Rightarrow (5x)^2 + (3y)^2 + 15 \times 2xy = 225$

$\Rightarrow (5x)^2 + (3y)^2 = 225 - 15 \times 6 = 135$ ...(iii)

Hence, $(5x - 3y)^2 = (5x)^2 + (3y)^2 - 15 \times 2xy$

$= 135 - 15 \times 6$

$= 135 - 90$

$= 45$

$\Rightarrow \boxed{5x - 3y = \sqrt{45} = 3\sqrt{5}}$

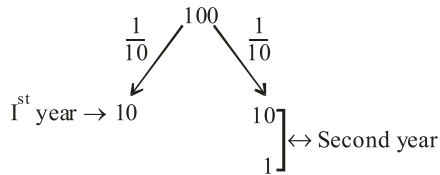74. (b) $\dfrac{\cos\theta}{\sec\theta - 1} + \dfrac{\cos\theta}{\sec\theta + 1}$

$= \dfrac{1 + \cos + 1 - \cos\theta}{\sec^2\theta - 1}$

$\left[\because \cos\theta = \dfrac{1}{\sec\theta} \text{ and } (a-b)(a+b) = a^2 - b^2 \right]$

$= \dfrac{2}{\tan^2\theta} = 2\cot^2\theta$

$\left[\because \cot\theta = \dfrac{1}{\tan\theta} \text{ and } 1 + \tan^2\theta = \sec^2\theta \right]$

75. (d)   Let the amount of money is 100.

$$I^{st} \text{ year} \rightarrow 10 \qquad \begin{array}{c} 10 \\ 1 \end{array} \Big\} \leftrightarrow \text{Second year}$$

$\therefore$ 12 months = 11

$\therefore$ 9 months $= \dfrac{11}{12} \times 9 = \dfrac{33}{4}$

So, total interest $= 10 + \dfrac{33}{4} = \dfrac{73}{4}$ for 1 year 9 months

$\because \dfrac{73}{4} \rightarrow 100 \Rightarrow 1 \rightarrow \dfrac{100 \times 4}{73} = ₹ 8000$

76. (d)   **The idiom 'created insult to injury' means '** to make a bad situation worse'.

77. (b)   The correct passive voice of the sentence is- 'The poem will be recited by the child'. Note that the basic structures of sentences written in the two voices are as follows-

Active: Subject + Verb + Object

Passive: Object + Verb (past participle) + by + Subject

78. (d)   The correct spelling of the word is ITINERARY.

79. (d)   The term 'extempore' refers to the act of something been spoken, done, or written without any prior preparation or thought.

80. (d)   A meaningful sentence can be formed if the phrases are put in D-C-B-A order. The complete sentence therefore is 'My heart skipped a beat when suddenly a carcass of an animal fell in front of me.'

81. (c)   To make a coherent and meaningful paragraph, the sentences should be put in the following order: D-B-A-C

82. (c)   The meaning of the word 'resentment' is 'a feeling of anger that arises one is forced to accept something that one doesn't like'. The synonym of the word is 'anger' for it has similar meaning.

83. (c)   The correct spelling of the word is LIASION, meaning 'a person who initiates and maintains a contact or a connection'.

84. (d)   The meaning of the word 'meagre' is 'too small in amount'. The opposite of the word is 'generous', meaning 'giving away things more than is expected'.

85. (c)   The word 'pompous' means 'having or showing an attitude of being very serious and formal'. The word that has similar meaning is 'supercilious'. Other words on the list have the following meanings-

Conciliatory- intended to gain favour or goodwill, or to reduce hostility Benign- kind or gentle Diplomatic- connected with diplomacy

86. (c)   The phrases when put in the order C-A-D-B make a coherent sentence. Thus, option (c) is the right option.

87. (c)   The most explicit indicator of degree of comparison is 'than'. Thus, it is easy to identify that option (c) is the correct response.

88. (c)   The word 'commitment' means 'a promise or agreement to do something'. The opposite of the word is 'breach', meaning infraction or violation of law. Thus, they are opposites.

89. (a)   The idiom on the list that best conveys the meaning 'at the moment of decision' is 'when the crunch comes'. We use the idiom to denote a crucial moment.

90. (c)   The basic structure of Active and Passive sentences is as follows-

Active: Subject + Verb + Object

Passive: Object + Verb (past participle) + by + Subject

As per the above, option (c) is the correct answer.

91. (b)   Note, 'would have' is used in conditionals to talk about something that did not happen in the past. In the given context, option (b) is the right answer.

92. (d)   There is an error in the use of article. We use the definite article 'the' with superlative degree. The correct phrase is 'the oldest member'.

93. (c)   In order to form a coherent and meaningful sentence, the phrases should be put in B-C-A-D order.

94. (c)   The word 'fundamental' means 'basic and important'. The word that is opposite in meaning to the given word is 'least'.

95. (a)   96. (a)   97. (a)   98. (a)   99. (a)   100. (a)

QUANTITATIVE APTITUDE

1. The concentration of three wines A, B and C are 10%, 20% and 30%, respectively. They are mixed in the ratio 2 : 3 : x resulting in a 23% concentration solution. Find the value of x.
   (a) 5   (b) 8   (c) 6   (d) 7

2. A pole stands vertically on the ground with the help of a 12-metre steel wire tied to its top and affixed on the ground. If the steel wire makes an angle of 30° with the horizontal ground, then the height of the pole is equal to :
   (a) 6 metres   (b) $6\sqrt{3}$ meters
   (c) 8 meters   (d) $8\sqrt{3}$ meters

3. A sum of money is divided among A, B and C in the ratio 4 : 3 : 6. If the share of C is ₹600 more than B, then how much amount will A get more than B?
   (a) ₹200   (b) ₹250
   (c) ₹100   (d) ₹150

4. A person borrowed some money on simple interest. After 3 years, he returned $\frac{4}{3}$ of the money to the lender. What was the rate of interest?
   (a) $11\frac{4}{9}\%$ p.a   (b) $11\frac{1}{9}\%$ p.a
   (c) $11\frac{2}{9}\%$ p.a   (d) $11\frac{3}{9}\%$ p.a

5. A person covers $\frac{1}{4}$ of his journey at the speed of 25 km/h, $\frac{1}{2}$ of the journey at 40 km/h and the remaining at the speed of 50 km/h. Find his average speed per hour for the whole journey (in km/h).
   (a) $36\frac{4}{11}$ (b) $34\frac{4}{11}$
   (c) $34\frac{6}{11}$ (d) $36\frac{6}{11}$

6. If $\cot^4 A + \cot^2 A = 1$, then find the value of $\cos^4 A - 3 \cos^2 A$.
   (a) 2   (b) −1   (c) −2   (d) 1

7. The cost of 4 chairs and 3 tables is ₹2,100 and the cost of 5 chairs and 2 tables is ₹1,750. Find the cost (in ₹) of a chair.
   (a) 130   (b) 140
   (c) 150   (d) 125

8. The average weight of 40 students of a school is 52 kg. If the weight of the teacher is included, the average weight rises by 500 grams. Find the weight (in kg) of the teacher.
   (a) 71.5   (b) 73.5
   (c) 74.5   (d) 72.5

9. If $\sqrt[3]{0.08 \times 0.8 \times p} = 0.008 \times 0.8 \times \sqrt[3]{q}$, then find the value of $\frac{p}{q}$:
   (a) $8^3 \times 10^{-9}$ (b) $8^3 \times 10^{-8}$
   (c) $8^4 \times 10^{-8}$ (d) $8^4 \times 10^{-9}$

10. Which of the following statements is NOT true?
    (a) The area of the triangle with the largest side l always has an area less than $\frac{l^2}{2}$.
    (b) If the sides of a triangle are in the ratio 13 : 5 : 12, then two of its angles are acute angles.
    (c) The triangle formed by connecting the midpoints of the sides of a triangle has one-fourth area of the bigger triangle.
    (d) The area of an isosceles triangle with sides 2a, 2a and 3a is $\frac{3\sqrt{3}a^2}{2}$.

11. A and B enter into a partnership with ₹25,000 and ₹50,000, respectively, in a company for a year. After 7 months, C gets into a partnership with them with ₹30,000 and A withdraws his contribution after 9 months. What would be C's share in the profit, assuming a total profit of ₹3,900 at the end of the year?
    (a) ₹1,000   (b) ₹600
    (c) ₹800   (d) ₹1,200

12. The population of the city was 1,75,000 two years ago. If it had increased by 4% and 5% in the last two years, find the present population of the city.
    (a) 1,89,200
    (b) 1,91,100
    (c) 1,92,100
    (d) 1,93,200

13. A and B can complete work in 9 days, while B and C can complete the same work in 18 days. When working together A, B and C, can finish the same work in 8 days. How many days will it take for A and C complete the work together?
(a) 13   (b) 14
(c) 12   (d) 11

14. If $(a - 2b) = 8$ and $2ab = 9$, then find the value of $(a + 2b)$.
(a) 6   (b) 8
(c) 10   (d) 12

15. In an election between two candidates, 64% of the voters cast their votes, out of which 4% of the votes were declared invalid. A candidate got 12,288 votes which were 64% of the total valid votes. Find the total number of votes enrolled in that election.
(a) 31,250   (b) 30,250
(c) 32,152   (d) 20,152

16. At a Yoga center, 60% of the members are men and 40% of the members are women. If the average age of the men is 55 years and the average age of the women is 45 years, then what is the average age (in years) of all the members?
(a) 49   (b) 48
(c) 50   (d) 51

17. The diameter of a sphere is increased by 30%. What is the percentage increase in its volume?
(a) 41.7%   (b) 119.7%
(c) 69%   (d) 90.5%

18. If $X = \left(\dfrac{3}{2}\right)^2 \times \left(\dfrac{2}{3}\right)^{-4}$, find the value of X^{-2}.

(a) $\left(\dfrac{3}{2}\right)^{12}$ (b) $\left(\dfrac{2}{3}\right)^{6}$

(c) $\left(\dfrac{3}{2}\right)^{6}$ (d) $\left(\dfrac{2}{3}\right)^{12}$

19. If A and B are events with $P(A) = \dfrac{3}{8}$, $P(B) = \dfrac{1}{2}$ and $P(A \cap B) = \dfrac{1}{4}$. Find $P(\bar{A} \cap \bar{B})$.

(a) $\dfrac{1}{8}$ (b) $\dfrac{3}{8}$

(c) $\dfrac{7}{8}$ (d) $\dfrac{5}{8}$

20. A dishonest shopkeeper sells rice at a cost price but makes a 25% profit by using faulty weights. He decides to give a discount to attract more customers. What per cent of discount should he offer to make 10% profit?
(a) 9%   (b) 12%
(c) 10%   (d) 11%

21. A number is increased by 25% and then decreased by 16%, the final value of the number:
(a) decreases by 5%   (b) increases by 5%
(c) decreases by 13%   (d) does not change

22. Find the mode of the given data.
21, 15, 16, 48, 6, 15, 44, 16, 6, 5, 15, 16, 21, 6, 15 and 43
(a) 21   (b) 16
(c) 15   (d) 6

23. A and B each have a certain number of oranges. A says to B, "If you give me 10 of your oranges, I will have twice the number of oranges left with you." B replies, "If you give me 10 of your oranges, I will have the same number of oranges left with you." Find the number of oranges that A has.
(a) 70   (b) 50
(c) 55   (d) 65

24. Let ABC and PQR be two congruent triangles, such that $\angle A = \angle P = 90°$. If BC = 29 cm, PR = 21 cm, find the value (in cm) of AB.
(a) 20   (b) 23
(c) 22   (d) 19

25. A shopkeeper sold his goods at half the list price and thus lost 17%. If he had sold on the listed price, then his gain percentage would be:
(a) 41%   (b) 83%
(c) 17%   (d) 66%

26. The radius and height of a right circular cone is increased by 25%. Find the increase in percentage of the volume of the cone (rounded off to 2 decimal places).
(a) 95.31%   (b) 94.51%
(c) 93.51%   (d) 94.31%

27. For an electric bill for ₹50,000, what is the difference between a discount of 30% and two successive discounts of 26% and 5%?
(a) ₹120   (b) ₹150
(c) ₹130   (d) ₹140

28. Calculate the mode from the following data.

Days of confinement	6	7	8	9	10
Number of patients	4	6	7	5	3

(a) 8   (b) 7
(c) 5   (d) 6

29. The diameter of a hemispherical bowl is 21 cm. The volume of the bowl is equal to : (use $\pi = \dfrac{22}{7}$)
(a) 2,624.5 cm^3
(b) 2.524.5 cm^3
(c) 2.725.5 cm^3
(d) 2,425.5 cm^3

30. In $\triangle ABC$, $\angle A = 85°$ and $\angle C = 58°$. If $\triangle PQR$ is similar to $\triangle ABC$, and in correspondence, then find $\angle Q$.
(a) 58°   (b) 85°
(c) 37°   (d) 73°

GENERAL INTELLIGENCE

31. A square sheet of paper is folded along the dotted line successively along the directions shown and is then punched in the last. How would the paper look when unfolded?

(a)   (b)

(c)   (d)

32. Identify the figure given in the options, which when put in place of '?' will logically complete the series.

(a)   (b)

(c)   (d)

33. A statement is followed by two conclusions, numbered I and II. Find out which of the following conclusion(s) is/are true based on the given statements.
    Statement : $Z < Y = J \geq G \geq P \geq C \geq R$
    Conclusions:
    I. $Z \geq R$
    II. $J = C$
    (a) Only conclusion I is true
    (b) Only conclusion II is true
    (c) Neither conclusion I nor II is true
    (d) Both conclusions I and II are true

34. In a certain code language, 'FAWN' is coded as '09()' and 'LAWN' is coded as '9()1'. What is the code for 'L' in that code language?
    (a) ((b) 0
    (c))   (d) 1

35. Select the combination of letters that when sequentially placed in the blanks of the given series will complete the series.
    TRY_US_U V_YU_UYU XVY_
    (a) FUUTH   (b) UYTWU
    (c) UFYDJ   (d) UCRSD

36. How many meaningful English words can be formed using B, E, O and R using each letter only once in each word?
    (a) One   (b) Two
    (c) Zero   (d) Three

37. Select the combination of letters that when sequentially placed in the blanks of the given series will complete the series.
    CDG_IJ_Z O_SZ_VYZ_BEZ
    (a) ZMPUA   (b) FUGUI
    (c) OJGFU   (d) FJONI

38. The first figure is related to the second figure in a certain way. Study the pattern and select the figure which should be placed in place of the question mark (?) such that the third figure is related to the fourth figure in the same way.

(a)   (b)

(c)   (d)

39. What should come in place of '?' in the given series?
    154, 159, 169, 184, ?, 229, 259
    (a) 203   (b) 202
    (c) 204   (d) 201

40. Select the set in which the numbers are related in the same way as are the numbers of the following sets.
    (4, 12, 8)
    (2, 7, 5)
    (a) 7, 2, 1   (b) 3, 6, 5
    (c) 9, 4, 7   (d) 1, 4, 3

41. How many meaningful English words can be formed using second, third, sixth and seventh letters of the word 'CRACKER' (when counted from left to right) using each letter only once in each word ?
    (a) Two
   (b) One
    (c) Three
    (d) Zero

42. What will come in place of '?' in the following equation, if '+' and '−' are interchanged and '×' and '÷' are interchanged? $292 \div 2 - 15 + 164 \times 4 = ?$
(a) 558   (b) 555
(c) 556   (d) 557

43. Three of the following four word pairs are alike and thus form a group. Select the word pair the does NOT belong to that group.
(a) Hospital - doctors   (b) School - teachers
(c) Theatre - movies   (d) Restaurant - chefs

44. A statement is followed by two conclusions, numbered I and II. Find out which of the following conclusion(s) is/are true based on the given statements.
Statement : $G < H > K \le S \ge L = M < Q$
Conclusions:
I. $G > L$ II. $H = Q$
(a) Both conclusions I and II are true
(b) Only conclusion I is true
(c) Neither conclusion I nor II is true
(d) Only conclusion II is true

45. Select the word-pair that best represents a similar relationship to the one expressed in the pairs of words given below.
(The words must be considered as meaningful English words and must not be related to each other based on the number of letters / number of consonants / vowels in the word.)
Docile : Defiant, Placid : Turbulent
(a) Relinquish : Surrender
(b) Zenith : Nadir
(c) Optimal : Ideal
(d) Scrumptious : Delicious

46. Sunita is ranked 10th from the top and 18th from the bottom in her class. How many students are there in the class?
(a) 27   (b) 28
(c) 30   (d) 29

47. In a certain code language, 'TALKER' is coded as '!@#©$%' and 'TALKED' is coded as '$%@#!£'. What is the code for 'D' in that code language?
(a) %   (b) !
(c) £   (d) ©

48. Read the following information and answer the question that follows.
Suresh has started practicing critical reasoning after hearing about Ramesh's incredible result in the competitive exam.
Which of the following can be inferred from the given statement? (An inference is something which is not directly stated but can be derived from the given facts/information in the statement)
I) Ramesh has scored most of the marks in critical reasoning.
(II) Most of the questions in the exam constitute of critical reasoning questions.
(a) Only (II) can be inferred
(b) Only (I) can be inferred
(c) Neither I nor II can be inferred
(d) Both I and II can be inferred

49. How many meaningful four-letter English words can be formed using T, U, K and S using each letter only once in each word ?
(a) More than two   (b) One
(c) None   (d) Two

50. This question has three statements followed by two conclusions numbered I and II. You have to take the given statements to be true even if they seem to be at variance from commonly known facts. You have to decide which conclusion(s) logically follow(s) from the given statements.
Statements:
Some J's are A's.
Some A's are B's.
All the B's are C's.
Conclusions:
I. Some C's are A's.   II. Some B's are J's.
(a) Only conclusion I follows
(b) Neither conclusion I nor II is follows
(c) Only conclusion II is true
(d) Both conclusions I and II are true

51. Select the combination of letters that when sequentially placed in the blanks of the given series will complete the series.
FMD_B_ZA_MVWTM_SPMN_
(a) ENKGF   (b) VJJFO
(c) EMXRO   (d) VHUYI

52. In this question, a statement is followed by two inferences numbered I and II. Based on the statement, you have to decide which of the inferences can be derived from the statement. (An inference is something which is not directly stated but can be derived from the given facts/information in the statement)
Statement : The eligibility for admission to the course is a minimum of 80% marks in the 10th standard board exams. However, students who have appeared for the 10th standard board exams this year can also apply.
Inference :
I. No 11th standard students can apply for the course.
II. Students who have appeared for 10th standard exams will get admission only if they score 80% or more in their exam.
(a) Only I can be inferred
(b) Both I and II can be inferred
(c) Only II can be inferred
(d) Neither I nor II can be inferred.

53. What will come in place of '?' in the following equation, if '+' and '−' are interchanged and '×' and '÷' are interchanged? $313 \div 4 - 2107 \times 7 + 24 = ?$
(a) 1537   (b) 1525
(c) 1527   (d) 1529

54. What should come in place of '?' in the given series? 16, 21, ?, 43, 60, 81, 106
(a) 31   (b) 32
(c) 33   (d) 30

55. Four of the following five figures are alike in a certain way and thus form a group.

Select the one that does NOT belong to that group.
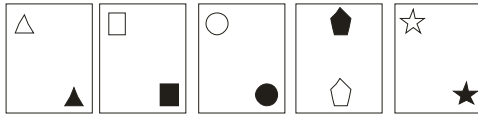
(A)   (B)   (C)   (D)   (E)

  (a)   A   (b)   C

  (c)   D   (d)   B

56. Select the correct mirror image of the given figure when the mirror is placed at MN as shown below.
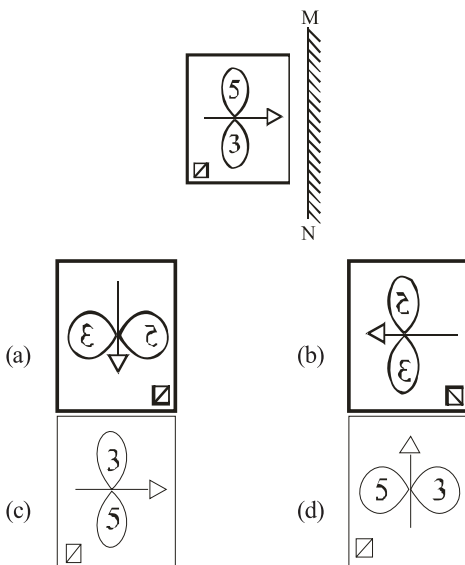
DIRECTIONS (57-59): *Three of the following four are alike in a certain way and thus form a group.*

57. Which is the one that does NOT belong to that group?

  (a)   25, 100   (b)   13, 52

  (c)   41, 164   (d)   33, 152

58. Three of the following four are alike in a certain way and thus form a group. Which is the one that does NOT belong to that group?

  (a)   38-114   (b)   41-123

  (c)   25-75   (d)   33-97

59. Select the set in which the numbers are related in the same way as are the numbers of the given set.

(3, 5, 18)

(2, 3, 15)

  (a)   1, 5, 11   (b)   1, 2, 13

  (c)   5, 2, 10   (d)   5, 6, 11

60. A certain number of people are sitting in a row, facing north. Only two people sit between K and L. L sits third to the right of M. Only three people sit between I and J. I sits to the immediate right of K. If no other person is sitting in the row, how many people are there in total?

  (a)   Nine   (b)   Eight

  (c)   Ten   (d)   Twelve

ENGLISH LANGUAGE

61. Select the INCORRECTLY spelt word.

  (a)   Inconspicuous   (b)   Susceptibility

  (c)   Superindednt   (d)   Extemporise

62. Select the option that expresses the given sentence in passive voice.

He is eating an apple.

  (a)   He has been eating an apple.

  (b)   A apple is being eaten by him.

  (c)   An apple was eaten by him.

  (d)   He was eating an apple.

63. Select the most appropriate Idiom that best explains the given sentence.

Rajat irritated the street dog so much that it was about to bite him.

  (a)   If you can't beat 'em, join' em.

  (b)   If it ain't broke, don't fix it.

  (c)   If you want something done right, you have to do it yourself.

  (d)   If you play with fire, you'll get burned.

64. Select the option that can be used as a one-word substitute for the given group of words.

The inability to obtain adequate sleep

  (a)   Pyromania   (b)   Insomnia

  (c)   Andromania   (d)   Mythomania

65. Parts of the given sentence have been underlined. One of the parts may contain an error. Select the option that rectifies the error. If you don't find any error, mark 'No error' as your answer.

Those players who chose not to <u>play in the league</u> were banned from playing in <u>an World Cup</u>.

  (a)   No error   (b)   play in a league

  (c)   play in league   (d)   the World Cup

66. The following sentence has been divided into parts. One of them may contain an errror. Select the part that contains the error from the given options. If you don't find any error, mark 'No error' as your answer.

Sincere students / like you and he should study / regularly to pass the examination.

  (a)   Sincere students

  (b)   like you and he should study

  (c)   regularly to pass the examination.

  (d)   No error

67. Select the option that expresses the given sentence in passive voice.

The team won the tournament after weeks of hard work and commitment.

  (a)   The tournament has been won by the team after weeks of hard work and commitment.

  (b)   The tournament was winning by the team after weeks of hard work and commitment.

  (c)   The tournament was being won by the team after weeks of hard work and commitment.

  (d)   The tournament was won by the team after weeks of hard work and commitment.

68. Choose the appropriate option to make the following sentence grammatically correct.
Neither of the biscuits you gave me ____ chocolate chips.
(a) contains   (b) are contained
(c) contain   (d) is contain

69. Select the option that can be used as a one-word substitute for the given group of words/phrase.
A phrase or words written in memory of a person who has died
(a) Epigram   (b) Tombstone
(c) Epitaph   (d) Calligraphy

70. There is an error in the given sentence. From the options given, identify the sentence that corrects the error to make it a grammatically accurate sentence.
This lesser known heritage building is so beautiful as the Red Fort.
(a) This lesser known heritage building is very much beautiful as the Red Fort.
(b) This lesser known heritage building is much beautiful as the Red Fort.
(c) This heritage building is an beautiful as the Red Fort.
(d) This less known heritage building is much beautiful than the Red Fort.

71. Parts of the given sentence have been underlined. One of the parts may contain an error. Select the option that rectifies the error. If you don't find any error, mark 'No error' as your answer.
It was the home minister of the country who took the decision to change a laws pertaining to migration of people from one state to another.
(a) No error   (b) the laws pertaining
(c) the migration   (d) an home minister

72. Select the most appropriate option that can substitute the underlined segment in the given sentence. If there is no need to substitute it, select 'No substitute required.' I decided to call out to various bookstores in the area to see if any of them had the book I needed.
(a) call around
(b) No substitution required
(c) call off
(d) call on

73. Select the correct spelling from the given options to fill in the blank.
He was _____ going abroad for his further studies.
(a) contemplating   (b) cuntempltaing
(c) cuntemplating   (d) contempltaing

74. Select the most appropriate tense form to fill in the blank.
Mohnish and Ravi _____ to Canada next month.
(a) are moving   (b) has moving
(c) is moving   (d) has move

75. Select the sentence that has the correct use of words and spellings.
(a) The novel, with its intricate plot and multifaceted characters, captivated readers and left them pondering its deeper themes long after they finished reading.
(b) The novel, with its intricate plot and multifacted characters, captivated readers and left them paundering its deeper themes long after they finished reading.

(c) The novel, with its intricete plot and multifacted characters, captivated readers and left them pondering its deeper themes long after they finished reading.
(d) The novel, with its intrcate plot and multifaceted characters, captivated readers and left them pondering its deeper themes long after they finished reading.

76. Select the most appropriate homonym to fill in the blanks of the given sentences.
A. I use a ____ to weigh my ingredients while cooking.
B. The mountaineer is going to ____ the rocky hills.
(a) climb   (b) scale
(c) horn   (d) crawl

77. Select the option that can be used as a one-word substitute for the given phrase.
One who believes in fate
(a) Fatalist   (b) Flirt
(c) Superstitious   (d) Fatal

78. Select the most appropriate idiom that best explains the given sentence.
I was unable to solve the geometry question myself. So, I have asked my teacher to help me out.
(a) Two wrongs don't make a right.
(b) You can't always get what you want.
(c) When the going gets tough, the tough gets going.
(d) Two heads are better than one.

79. The following sentence has been split into four segments. Identify the segment that contains an error.
The committee requested / the Chief Investigator / to personally / look after the matter.
(a) the Chief Investigator
(b) The committee requested
(c) to personally
(d) look after the matter

80. Select the option that will improve the given sentence by using the most appropriate Pronoun.
Pradeep, whom is a teacher, also works as a content writer.
(a) Pradeep, which is a teacher, also works as a content writer.
(b) Pradeep, whose is a teacher, also works as a content writer.
(c) Pradeep, who is a teacher, also works as a content writer.
(d) Pradeep, that is a teacher, also works as a content writer.

81. Select the option that expresses the given sentence in indirect speech.
Rakesh said, "Wow! What a beautiful house".
(a) Rakesh told that it had been a beautiful house
(b) Rakesh exclaimed with sorrow that it was a beautiful house.
(c) Rakesh exclaimed with surprise that it was must be beautiful house.
(d) Rakesh exclaimed that it was a beautiful house.

82. Select the most appropriate synonym of the given word.
Humble
(a) Beautiful   (b) Keen
(c) Amusing   (d) Modest

83. Select the most appropriate option to fill in the blank.
    Stanley _____ to play the violin now, with an amateur instructor.
    (a) had learnt   (b) will learn
    (c) is learning   (d) was learning
84. Select the most appropriate ANTONYM of the given word.
    Sharp
    (a) Blunt   (b) Kindled
    (c) Magnetic   (d) Handy
85. Select the option that expresses the given sentence in reported speech.
    The captain said to the soldiers, "Follow the enemy."
    (a) The captain said his soldiers to follow the enemy.
    (b) The captain commanded his soldiers to follow the enemy.
    (c) The captain charged his soldiers to followed the enemy.
    (d) The captain requested his soldiers to follow the enemy.
86. Select the option that expresses the given sentence in passive voice.
    The rescue team could have completed the task if there had been uninterrupted power supply.
    (a) The task could have been completed by the rescue team if there had been uninterrupted power supply.
    (b) The task could be completed by the rescue team if there was uninterrupted power supply.
    (c) The task could have to be completed by the rescue team if there was uninterrupted power supply.
    (d) The task can have completed by the rescue team if there was uninterrupted power supply.
87. Select the sentence that gives the most appropriate meaning of the idiom 'In hot water'.
    (a) The company faced challenges due to the economic downturn but managed to overcome them.
    (b) The chef added spices to the dish to enhance its flavour and make it more delicious.
    (c) After accidentaily breaking the valuable vase, Sarah found herself in trouble with her parents.
    (d) The children enjoyed playing in the pool on a hot summer day.
88. Parts of the given sentence have been underlined. One of them contains an error. The underlined parts are given as options with some changes. Select the option that correctly rectifies the error.
    The film received critical acclaim for being a more innovative movie of the year.
    (a) Film receives   (b) In the year
    (c) Acclaim at   (d) An innovative

DIRECTIONS (Qs. 89-92): *In the following passage, some words have been deleted. Read the passage carefully and select the most appropriate option to fill in each blank.*

Girls have been the 1. _____ of many crimes in India for years. The most fearful crime was female foeticide, in which girls were killed in the 2. _____ of the mother after sex determination through ultrasound. 'Save the Girl Child' 3. _____ has been launched by the government to end gender-selective abortions of female foetuses as well as other crimes 4. _ _ the girl child.

89. Select the most appropriate option to fill in blank number 1.
    (a) scapegoats   (b) victims
    (c) victors   (d) sites
90. Select the most appropriate option to fill in blank number 2.
    (a) liver   (b) intestine
    (c) kidney   (d) womb
91. Select the most appropriate option to fill in blank number 3.
    (a) campaign   (b) enterprise
    (c) campfire   (d) undertaking
92. Select the most appropriate option to fill in blank number 4.
    (a) across   (b) through
    (c) against   (d) for

DIRECTIONS (Qs. 93-96): *Read the given passage and answer the questions that follow.*

Environmental or genetic influences antisocial conduct of a human being, which has an impact on behaviours, such as conduct disorder. In a recent study conducted, young people with conduct disorders had their brains examined, along with controls that were healthy and did not have the disease. The thickness of various regions of the cortex and the brain's outer layer was measured using the scanned images. It was demonstrated in the study that conduct disorder is a psychiatric condition rather than adolescent disobedience. Awareness, perception, attention, memory and language are all impacted by the cortex.

The findings of the study were unexpected. They demonstrated distinct disparities between adolescents whose behavioural issues began in adolescence and those whose issues began earlier in life. Although both groups were different from healthy controls, it was discovered that distinct regions of the cortex in the teenagers who had experienced early-onset behavioural issues were thicker in comparison to the healthy participants.

93. Select the most appropriate summary of the sentence given below.
    It was demonstrated in the study that conduct disorder is a psychiatric condition rather than adolescent disobedience.
    (a) conduct disorder is a mental condition rather than teen defiance.
    (b) conduct disorder is teen defiance and not a mental condition.
    (c) Conduct disorder is neither a mental condition nor teen defiance.
    (d) Conduct disorder is less of a mental condition and more of teen defiance.
94. Based on your reading of the passage, select the most appropriate option that describes the conclusion of the study.
    (a) There were no distinct regions in the cortex of participants having early behavioural issues in comparison to healthy students.
    (b) There were distinct regions in the cortex of healthy students in comparison to participants having early behavioural issues.

(c) Distinct regions of the cortex were thicker in the teenagers having early-onset behavioural issues in comparison to the healthy participants.

(d) There were participants having early behavioural issues in comparison to healthy students who had distinct regions in their cortex.

95. Which of the following is NOT impacted by the cortex?
(a) Attention and disobedience
(b) Memory and attention
(c) Language and awareness
(d) Memory and perception

96. Which of the following was measured in scanned images?
(a) Psychiatric condition
(b) Brain's outer layer
(c) Cortex disparities
(d) Behavioural issues

DIRECTIONS (Qs. 97-100): *Read the given passage and answer the questions that follow.*

Taekwondo is a form of empty hand martial arts combat that requires the athlete to use all parts of the body in competition. Taekwondo is a self-defence discipline; the name is derived from the Korean words 'tae', meaning kick, 'kwon', a punch or other blow with the hand or fist, and 'do', which is a way or method of operation. Among the general public, taekwondo is distinguished from other martial arts by its high speed, Sweeping kicks and emphatic punches. As with judo, taekwondo was developed as a sport that is also representative of a moral code, where principles of loyalty, faithfulness, respect, and the preservation of an indomitable spirit form a significant part of taekwondo training. Beginning in 1945, shortly after the end of World War II and Japanese Occupation, new martial arts schools called kwans opened in Seoul. These schools were established by Korean martial artists with backgrounds in Japanese and Chinese martial arts. At the time, indigenous disciplines (such as Taekkyeon) were being forgotten, due to years of decline and repression by the Japnese colonial government. The umbrella term traditional Taekwondo typically refers to the martial arts practiced by the kwans during the 1940s and 1950s, though in reality the term 'Taekwondo' had not yet been coined at that time, and indeed each kwan (school) was practicing its own unique style of the Korean art.

97. Which of the following is NOT a principle of Taekwondo?
(a) Faithfulness
(b) Indomitable spirit
(c) Loyalty
(d) Disrespect

98. Select the most appropriate synonym of the given word.
(a) Aberrant
(b) Unusual
(c) Theoretical
(d) Typical

99. What is Taekwondo a form of?
(a) Visual arts
(b) Conceptual arts
(c) Martial arts
(d) Performing arts

100. Select the most appropriate ANTONYM of the given word.
Indomitable
(a) Invincible
(b) Submissive
(c) Unstoppable
(d) Strong

GENERAL AWARENESS

101. Which of the following statements related to the launch of Platform of Platforms (POP) are correct?
1) The Union Minister of Agriculture and Farmers' Welfare launched the POP under the National Agriculture Market (e-NAM) in Karnataka in October 2022.
2) An equity grant of over ₹37 crore was released to 1,018 Farmer Producer Organizations (FPOs) that will benefit about 3.5 lakh farmers.
3) e-NAM integrates the platform of Service Providers as 'Platform of Platform', which includes Composite Service Providers, Logistics Service Provider, Quality Assurance Service Provider, Cleaning, Grading, Sorting and Packaging Service Provider etc.
4) 41 service providers from different platforms are covered under POP, facilitating various value chain services such as trading, quality checks, warehousing, fintech, market information, transportation etc.
(a) 2, 3 and 4
(b) 1, 3 and 4
(c) 1, 2 and 4
(d) 1, 2 and 3

102. At standard temperature and pressure (STP), the value of temperature is:
(a) 273.15°C
(b) 0°C
(c) 25.51°C
(d) 27°C

103. The behaviour of lithium is similar to that of magnesium. This sort of similarity is commonly referred to as:
(a) inert pair effect
(b) diagonal relationship
(c) same Zeff
(d) isoelectronic species

104. The Reserve Bank of India was established in :
(a) 1948
(b) 1951
(c) 1935
(d) 1930

105. Deficiency of iodine results in an insufficient amount of the _____ hormone.
(a) adrenaline
(b) thrombopoietin
(c) melatonin
(d) thyroid

106. Which of the following statement(s) is/are correct about the servants of India society?
A. The 'Servants of India Society' was founded by Gopal Krishna Gokhale at Fergusson hill on 12 June 1905 in Pune district of Maharashtra.
B. The Society focused on nation-building activities such as education, social welfare, upliftment of the downtrodden and betterment of the under-privileged sections of society.
(a) Only B
(b) Neither A nor B
(c) Both A and B
(d) Only A

107. Which of the following statements about GDP and Welfare are correct?
1) GDP of a country is a indicator of welfare of the people.
2) If GDP is rising, the welfare may not rise equally.
3) GDP and Welfare both are not related each other.
(a) 1, 2 and 3
(b) Only 1 and 2
(c) Only 1 and 3
(d) Only 2 and 3

108. Match the following states with their respective ranks at the Khelo India Youth Game 2023 and choose the correct code.

States		Their Ranks	
a.	Rajasthan	(i)	1st
b.	Madhya Pradesh	(ii)	2nd
c.	Haryana	(iii)	4th
d.	Maharashtra	(iv)	3rd

(a) a-iv, b-ii, c-i, d-iii
(b) a-i, b-iii, c-ii, d-iv
(c) a-iii, b-iv, c-ii, d-i
(d) a-ii, b-iv, c-i, d-iii

109. The season for torrential downpours, often accompanied by hail, associated with violent winds, and localized thunderstorms. In West Bengal, these kinds of storms are known as :
     (a) Trade winds   (b) Loo
     (c) Kaal Baisakhi   (d) Mahawat

110. Mawsynram receives the highest average annual rainfall in the world because the Monsoon Winds of the Bay of Bengal strike the _____ hill.
     (a) Chota Nagpur Plateau   (b) Khasi
     (c) Western Ghats   (d) Aravalli

111. Match List I and List II.

List I		List II	
(A)	Potential energy	(i)	Solar thermal
(B)	Chemical energy	(ii)	Wind turbine
(C)	Kinetic energy	(iii)	Hydropower plant
(D)	Radiation energy	(iv)	Diesel generator

     (a) (A)-(iii),(B)-(ii),(C)-(iv),(D)-(i)
     (b) (A)-(iii),(B)-(i),(C)-(ii),(D)-(iv)
     (c) (A)-(ii),(B)-(iv),(C)-(iii),(D)-(i)
     (d) (A)-(iii),(B)-(iv),(C)-(ii),(D)-(i)

112. In May 2023, _____ in Madhya Pradesh became the first city in India to adopt the localisation of the United Nations-mandated sustainable development goals (SDGs) in collaboration with the UN-Habitat.
     (a) Ujjain   (b) Bhopal
     (c) Indore   (d) Ratlam

113. The 'Pradhan Mantri Jan Arogya Yojana' ('PM-JAY') scheme of the government is associated with which of the following Directive Principles of State Policy?
     (a) Promotion of co-operative societies
     (b) Participation of workers is the management of industries
     (c) Duty of State to raise the level of nutrition and the improvement of public health
     (d) Equal justice and free legal aid

114. Match List-I with List-II

List-I (Governor General)		List-II (Period)	
A.	Warren Hasting	1.	1772-1785
B.	Lord Cornwallis	2.	1786-1793
C.	Sir John Shore	3.	1793 - 1798
D.	Lord Wellesley	4.	1798 - 1805

     (a) A-2, B-1, C-3, D-4   (b) A-2, B-1, C-4, D-3
     (c) A-4, B-3, C-2, D-1   (d) A-1, B-2, C-3, D-4

115. Correctly match the following.

States		Bio-reserve	
1.	Assam	a.	Pachmarhi
2.	Madhya Pradesh	b.	Nokrek
3.	Odisha	c.	Manas
4.	Meghalaya	d.	Similipal

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

116. To check the presence of adulterated sugar solution in honey, a cotton wick dipped in the sample is ignited with a match stick. Adulteration is confirmed if:
     (a) it burns with a violet coloured flame
     (b) it burns smoothly
     (c) it burns with a green coloured flame
     (d) it burns with a crackling sound

117. Select the INCORRECT statement with regards to vitamins.
     (a) Plants can synthesise almost all vitamins.
     (b) Most of the vitamins cannot get synthesised in sufficient amount in our body.
     (c) Vitamins are organic compounds.
     (d) Some bacteria in the gut do not produce vitamins.

118. Who holds the portfolio of Ministry of Home Affairs (as of July 2023) ?
     (a) Amit Shah   (b) Nirmala Sitharaman
     (c) Raj Nath Singh   (d) Nitin Gadkari

119. Match the sportspersons with the medals won by them in the respective events in the given categories at Commonwealth Games 2022 and choose the correct code.

Sportspersons		Medals Won	
(A)	Vinesh Phogat	(i)	Gold, Wrestling Women's Freestyle, 62 kg
(B)	Bajrang Punia	(ii)	Gold, Wrestling Women's Freestyle, 53 kg
(C)	Sakshi Malik	(iii)	Gold, Wrestling Men's Freestyle, 86 kg
(D)	Deepak Punia	(iv)	Gold, Wrestling Men's Freestyle, 65 kg

     (a) (A)-(iii), (B)-(iv), (C)-(ii), (D)-(i)
     (b) (A)-(ii), (B)-(iv), (C)-(i), (D)-(iii)
     (c) (A)-(i), (B)-(iii), (C)-ii, (D)-(iv)
     (d) (A)-(iv), (B)-(iii), (C)-(i), (D)-(ii)

120. Identify whether the following statements are correct or incorrect.
     Statement 1 : According to the Census of India-2011, among the Seven Sister States, Mizoram has the highest literacy rate.
     Statement 2 : According to the Census of India-2011, Bihar has the lowest literacy rate.
     (a) Only statement 2 is correct
     (b) Both the statements are incorrect
     (c) Both the statements are correct
     (d) Only statement 1 is correct

COMPUTER LANGUAGE

121. In computer memory, _____ bus is used to transfer addresses between CPU and the main memory.
     (a) address   (b) data
     (c) status   (d) control

122. In MS Office 365, the 'Table of Authorities' group can be found under which of the following tabs?
   (a) View   (b) References
   (c) Mailings   (d) Review

123. In computer memory, the width of the _____ bus specifies the maximum possible memory supported by a system
   (a) I/O   (b) address
   (c) control   (d) data

124. Which of the following statements is/are correct for email?
   I. A user can check the email header prior to downloading.
   II. A user can partially download an email.
   (a) Only I   (b) Only II
   (c) Neither I nor II   (d) Both I and II

125. The CPU interacts directly with the _____ memory to perform read or write operation.
   (a) secondary   (b) primary
   (c) register   (d) cache

126. In MS-Excel 365, the _____ between two columns is an indicator that we have hidden a column.
   (a) double arrow   (b) single arrow
   (c) double line   (d) single line

127. In MS-Excel 365, you can use _____ when you want to change a cell reference within a formula without changing the formula itself.
   (a) TRANSPOSE   (b) VLOOKUP
   (c) MATCH   (d) INDIRECT

128. A _____ is a computer program that can self-replicate and propagate over the network.
   (a) macro virus   (b) worm
   (c) boot sector virus   (d) trojan horse

129. Which of the following types of firewall operates at the Network layer to examine incoming and outgoing packets?
   (a) Circuit - level gateway
   (b) Application - level gateway
   (c) Packet filtering
   (d) Network filtering

130. In File Explorer of Windows 11, to reduce the space between files, select View > _____ view.
   (a) Stretch   (b) Compact
   (c) Cloud   (d) Wide

131. A _____ bit is an extra bit included with a binary message to make the total number of 1s either odd or even.
   (a) parity   (b) checker
   (c) exclusive   (d) complementary

132. Which of the following keyboard shortcuts is used to copy the selected item in Windows 11 ?
   (a) Ctrl + Insert   (b) Shift + Insert
   (c) Shift + Enter   (d) Ctrl + Enter

133. Which of the following parts of given URL is a 'domain name' ?
   http://www.india.in/tallybook/tallybook.xyz
   (a) www.india.in   (b) http:
   (c) tallybook   (d) tallybook.xyz

134. In Windows 11, to open File Explorer you press the _____ on the keyboard.
   (a) Windows logo key + E
   (b) Windows logo key + O
   (c) Windows logo key + F
   (d) Windows logo key + W

135. In email, which of the following mode(s) is/are included in the Post Office Protocol (POP)?
   I. Delete Mode
   II. Keep Mode
   (a) Neither I nor II   (b) Only II
   (c) Only I   (d) Both I and II

Hints & Explanations

1. (a) Let the amount of wine in A,B,C is 10l, 20l and 30l respectively.
   ATQ
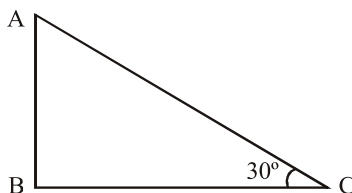 $10 \times 2 + 20 \times 3 + 30 \times x = 23(2 + 3 + x)$
   $\Rightarrow 20 + 60 + 30x = 23(x + 5)$
   $\Rightarrow 80 + 30x = 23x + 115 \Rightarrow 7x = 35$
   $\therefore x = 5$

2. (a)

   Let AB be height of pole and AC be the length of steel wire.

   Then,
   $$\sin 30 = \frac{AB}{AC} \Rightarrow AB = AC \sin 30$$
   $$= 12 \times \frac{1}{2}$$
   $$= 6 \text{ meter}$$

3. (a) Let money of A,B,C is 4x, 3x and 6x respectively
   ATQ,
   $6x = 3x + 600$
   $\Rightarrow 3x = 600$
   $\Rightarrow x = 200$
   Amount that A get more than B = 4x – 3x = ₹200

4. (b) Let person borrowed money x and interest be r.
   $$\text{Amount} = \frac{4}{3}x$$

Hence interest $= \frac{4}{3}x - x = \frac{x}{3}$

Interest $= \frac{P \times R \times T}{100}$

$\frac{x}{3} = \frac{x \times R \times 3}{100}$

$\Rightarrow 9R = 100$

$\Rightarrow R = \frac{100}{9}\% = 11\frac{1}{9}\%$

5. **(a)** Let the total distance = d

Average speed $= \frac{\text{Total distance}}{\text{Time}}$

$= \dfrac{d}{\dfrac{d}{\frac{4}{25}} + \dfrac{d}{\frac{2}{40}} + \dfrac{\left[d - \left(\frac{d}{2} + \frac{d}{4}\right)\right]}{50}} = \dfrac{d}{\dfrac{d}{\frac{4}{25}} + \dfrac{d}{\frac{2}{40}} + \dfrac{d}{\frac{4}{50}}}$

$\Rightarrow = \dfrac{d}{\dfrac{0.25d}{25} + \dfrac{0.5d}{40} + \dfrac{0.25d}{50}}$

$= \dfrac{1}{\dfrac{1}{100} + \dfrac{1}{50} + \dfrac{1}{200}} = \dfrac{1}{\dfrac{4+5+2}{400}} = \dfrac{400}{11} = 36\frac{4}{11}$

6. **(b)** $\cot^4 A + \cot^2 A = 1$

$\cot^2 A \left(\cot^2 A + 1\right) = 1$

$\cot^2 A \left(\dfrac{\cos^2 A + \sin^2 A}{\sin^2 A}\right) = 1$

$\cot^2 A \cdot \csc^2 A = 1$

$\dfrac{\cos^2 A}{\sin^2 A} \cdot \dfrac{1}{\sin^2 A} = 1 \Rightarrow \cos^2 A = \sin^4 A$

$\Rightarrow \cos^2 A = \left(1 - \cos^2 A\right)^2$

$\cos^2 A = 1 + \cos^4 A - 2\cos^2 A \Rightarrow 3\cos^2 A = 1 + \cos^4 A$

Hence, $\cos^4 A - 3\cos^2 A = -1$

7. **(c)** Let C represent chair and T represents table
ATQ
$4C + 3T = 2100$ ..(i)
and
$5C + 2T = 1750$ ..(ii)
Solving (i) and (ii)
$7T = 1050 \Rightarrow T = 150$

8. **(d)** Let weight of teacher be x kg and x_{40} be the weight 40 students.
ATQ

$\dfrac{x_{40}}{40} = 52 \Rightarrow x_{40} = 2080$

When weight of teacher is included, average weight rises by 500 gm.

Hence, $\dfrac{x_{40} + x}{41} = 52.5$

$\Rightarrow x_{40} + x = 2152.5$

$\Rightarrow x = 2152.5 - x_{40}$

$\Rightarrow x = 2152.5 - 2080$

$\Rightarrow x = 72.5$

9. **(d)** $\sqrt[3]{0.08 \times 0.8 \times P} = 0.008 \times 0.8 \times \sqrt[3]{q}$
Cubing both sides

$0.08 \times 0.8 \times P = \left(0.008 \times 0.8\right)^3 \times q$

$\Rightarrow \dfrac{8}{100} \times \dfrac{8}{10} \times P = q \times \dfrac{(8 \times 8)^3}{(10^4)^3}$

$\Rightarrow \dfrac{8 \times 8}{10^3} P = q \times \dfrac{(8 \times 8)^3}{(10^4)^3}$

$\Rightarrow \dfrac{P}{q} = \left(\dfrac{8 \times 8}{10^4}\right)^3 \times \dfrac{10^3}{(8 \times 8)}$

$\Rightarrow \dfrac{P}{q} = 10^{-9} \times (8 \times 8)^2 \Rightarrow \dfrac{P}{q} = 8^4 \times 10^{-9}$

10. **(d)**
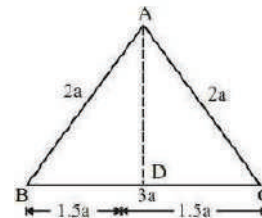
Area of isosceles triangle $= \dfrac{AD \times BC}{2}$

$AD = \sqrt{(AB)^2 - (BD)^2}$

$= \sqrt{4a^2 - \dfrac{9}{4}a^2}$

$= \sqrt{\dfrac{7a^2}{4}} = \dfrac{a\sqrt{7}}{2}$

Hence, area $= \dfrac{1}{2} \times \dfrac{\sqrt{7}}{2} \times \dfrac{3}{2} a = \dfrac{3\sqrt{7}}{8} a^2$

11. **(b)** Profit α Investment x time

A contributed for $\dfrac{9}{12}$ year

B contributed for 1 year

C contributed for $\dfrac{5}{12}$ year

Investment × time for A $= 25,000 \times \dfrac{9}{12}$

Investment × time for B $= 50000 \times 1$

Investment × time for C $= 30,000 \times \dfrac{5}{12}$

Profit A: Profit B: Profit C $= 25000 \times \dfrac{9}{12}$:

$50,000 \times 1: 30,000 \times \dfrac{5}{12} = 3:8:2$

Hence Profit of C $= \dfrac{3900 \times 2}{3+8+2} = \dfrac{3900 \times 2}{13} = ₹600$

12. **(b)** Present population

$= 175000\left(1+\dfrac{4}{100}\right)\left(1+\dfrac{5}{100}\right) = 191100$

13. **(c)** Let $\eta_A\ \eta_B$ and η_C be the efficiency of A, B and C respectively.
Let total work be 144 units.

Efficiency $= \dfrac{\text{Work}}{\text{Time}}$

ATQ, $\eta_A + \eta_B = \dfrac{144}{9} = 16$ ...(1)

$\eta_B + \eta_C = \dfrac{144}{18} = 8$ ...(2)

$\eta_A + \eta_B + \eta_C = \dfrac{144}{8} = 18$ ...(3)

From equation 2 and 3
$\eta_A = 10$
$\therefore\ \eta_B = 6$ and $\eta_C = 2$
A time taken by A and C to complete the work

$= \dfrac{\text{Work}}{\text{Efficiency A+ Efficiency C}}$

$\therefore$ Time taken $= \dfrac{144}{10+2} = \dfrac{144}{12} = 12$ days

14. **(c)** $a - 2b = 8$
Squaring both sides

$\Rightarrow a^2 + 4b^2 - 4ab = 64$

$\Rightarrow a^2 + 4b^2 = 64 + 2(2ab) = 64 + 18 = 82$

Let $a + 2b = x$
Squaring both sides
$a^2 + 4b^2 + 4ab = x^2$
$82 + 2(2ab) = x^2$

$x^2 = 82 + 18 = 100 \Rightarrow x = 10$
Hence, $a + 2b = 10$

15. **(a)** Let total voters $= x$
Number of voters costed their voter = 64% of total

voters $= 0.64\,x$

Total valid votes $= \dfrac{96}{100} \times 0.64x = 0.6144x$

Total votes for candidates $= 0.64 \times 6144\,x = 12288$

$x = \dfrac{12288}{0.393216}$

$x = 31250$

16. **(d)** Let total members $= x$
Total men $= 0.6x$
Total women $= 0.4x$
Let x_m and x_w be the total age of men and women respectively

ATQ

$\dfrac{x_m}{0.6x} = 55$ and $\dfrac{x_w}{0.4x} = 45$

$x_m = 33_x$ and $x_w = 18_x$
Average age of all members

$= \dfrac{x_m + x_w}{0.6x + 0.4x} = \dfrac{51x}{x} = 51$

17. **(b)** Volume of sphere $= \dfrac{4}{3}\pi r^3$

Diameter is inc by 30%. Let D^1 be the new diameter and D be the old diameter. R^1 be the new radius and
$\longrightarrow$ R be the old radius.

$D^1 = 1.3D$

$R^1 = 1.3R$

New volume $= \dfrac{4}{3}\pi(1.3R)^3 = \dfrac{4}{3}\pi(2.197)R^3$

Percentage Increase $= (2.197 - 1)\,100 = 119.7\%$

18. **(d)** $x = \left(\dfrac{3}{2}\right)^2 \times \left(\dfrac{2}{3}\right)^{-4}$

$x = \left(\dfrac{3}{2}\right)^2 \times \left(\dfrac{3}{2}\right)^4$

$x = \left(\dfrac{3}{2}\right)^6$

$x^2 = \left(\dfrac{3}{2}\right)^{12}$

$x^{-2} = \left(\dfrac{2}{3}\right)^{12}$

19. **(b)** $P(A) + P(B) = P(A \cup B) + P(A \cap B)$

$\dfrac{3}{8} + \dfrac{1}{2} - \dfrac{1}{4} = P(A \cup B)$

$\dfrac{3+4-2}{8} = P(A \cup B)$

$$\Rightarrow P(A \cup B) = \frac{5}{8}$$

$$P(\overline{A} \cap \overline{B}) = P(\overline{A \cup B})$$

$$= 1 - P(A \cup B) = 1 - \frac{5}{8} = \frac{3}{8}$$

20. **(b)** Let $CP = ₹100$
To make 25% profit using faulty weight, MP=125
To make 10% profit, SP = 110
SP × CP = MP × (100 − Discount %)
110 × 100 = 125 × [100 − Discount %]

$$\frac{110 \times 100}{125} = 100 - \text{Discount \%}$$

88 = 100 − Discount %
Hence, Discount % = 12%

21. **(b)** Total change in percentage $= 25 - 16 - \dfrac{25 \times 16}{100}$

$$= 9 - 4$$
$$= 5\%$$

22. **(c)** Mode is the number of highest frequency.
5, 6, 6, 6, 15, 15, 15, 15, 16, 16, 16, 21, 21, 43, 44, 48
Hence, Mode is 15

23. **(a)** Let A and B has x and y oranges respectively.
ATQ
y − 10 = x + 10
2(y − 10) = x + 10
2y − 20 = x + 10
2y − 30 = x   ...(i)
If A give 10 oranges to B.
y + 10 = x − 10.
y + 20 = x   ...(ii)
From (i) and (ii)
2y − 30 = y + 20
    y = 50
Hence x = 70

24. **(a)**
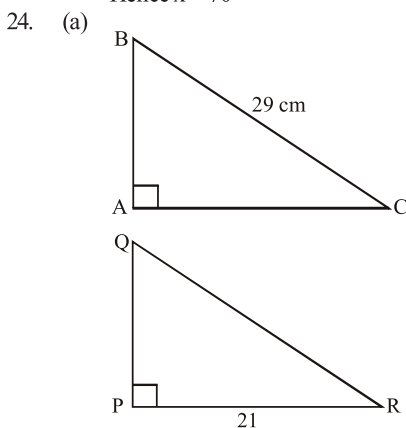
$\because \Delta ABC \cong \Delta PQR$

$\therefore AC = PR = 21$ cm

In $\Delta\ ABC$

$$(BC)^2 = (AB)^2 + (AC)^2$$

$$(29)^2 = (21)^2 + (AB)^2$$

$$(AB)^2 = 841 - 441$$

$$AB = \sqrt{400} = 20 \text{ cm}$$

25. **(d)** Let MP $= x$

Let $SP = \dfrac{x}{2}$

Let CP = y
ATQ,
On selling at half of marked price, there is loss of 17%.

Hence, $\dfrac{x}{2} = 0.83y \Rightarrow x = 1.66y$

Thus on selling at listed price, there would be gain of 66%.

26. **(a)** Volume of cone $= \dfrac{1}{3}\pi r^2 h$

New radius = 1.25r
New height = 1.25 h
Hence New volume =

$$\frac{1}{3}\pi.(1.25r)^2 \cdot (1.25h) = (1.25)^3 \cdot \frac{1}{3}\pi r^2 h$$

$$= (1.953125)\frac{\pi r^2 h}{3}$$

Percentage increase in volume

$$= \left[\frac{(1.953125)\dfrac{\pi r^2 h}{3} - \dfrac{\pi r^2 h}{3}}{\dfrac{\pi r^2 h}{3}}\right] \times 100$$

$$= 95.3125\%$$

27. **(b)** Equivalent discount $= -26 - 5 + \dfrac{26 \times 5}{100}$

$$= -31 + \frac{130}{100} = -31 + 1.3 = -29.7\%$$

Hence the difference between 30% and 29.7% is 0.3

$\therefore 0.3\%$ of $50,000 = \dfrac{3}{10 \times 100} \times 50000 = ₹15$

28. **(a)** The maximum number of patients (7) were in 8 days of confinement, 20 mode is 8.
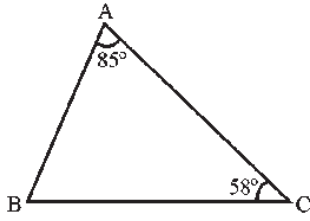
29. **(d)** Volume of hemisphere $= \dfrac{2}{3}\pi r^3$

Radius $= \dfrac{21}{2}$

$\therefore$ Volume $= \dfrac{2}{3}\pi \times \dfrac{21}{2} \times \dfrac{21}{2} \times \dfrac{21}{2}$.
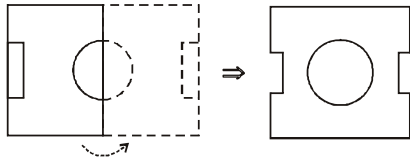
$$= \frac{2}{3} \times \frac{22}{7} \times \frac{21}{2} \times \frac{21}{2} \times \frac{21}{2} = 2425.5 \ cm^3$$

30. (c)
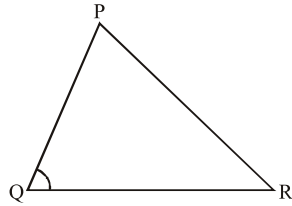
In ΔABC

$\angle A + \angle B + \angle C = 180°$

$\therefore \angle B = 180 - (85 + 58)$

$\angle B = 180 - 143$

$\angle B = 37°$

$\because \Delta ABC \sim \Delta PQR$

$\therefore \angle B = \angle Q = 37°$

31. (c)

32. (b) All the elements are moving clockwise by 1 position. The alphabets are not inverted.

33. (c) Clearly, Z < J and J ≥ R, Hence no relation can be established between Z and R

    $\therefore$ Conclusion 1 is not true.

    $\because J \geq C$

    $\therefore J \neq C$

34. (d) Code for "AWN" is 9 ( ). Hence code for "L" is 1.

35. (b)   T R Y _ | U S _ U | V _ Y U | _ U Y U | X V Y–

               +1   +1

All the letters are moved forward by 1 place.
T + 1 = U, U + 1 = V, V + 1 = W, W + 1 = X
Last position is reserved for U.

36. (b) BORE and ROBE are the words that can be formed using the given letters.

37. (a) C D G – | I J – Z | O – S Z | – V Y Z | – B E Z
All the letters are counted 6 time forward. Last place is fixed for 2. Hence ZMPUA is the correct option.

38. (c) The letter inside the shape is rotated clockwise. The number of sides of the shape is decreased by 1.

39. (c) 159 – 154 = 5
169 – 159 = 10
184 – 169 = 15
Hence, next number will be 184 + 20 = 204

40. (d) 8 + 4 = 12
5 + 2 = 7
Hence the correct set is 1 + 3 = 4

41. (a) C R A C K E R
Second, third, sixth and seventh letter of the word C R A C K E R are R, A, E R
R A R E are REAR are the two meaningful words that can be formed.

42. (a) On interchanging the signs, the obtained equation is
$292 \times 2 + 15 - 164 \div 4 = 584 + 15 - 41 = 599 - 41 = 558$

43. (c) Doctors work in hospital, teachers work in school, chefs work in restaurant but movie doesn't work in theatre.

44. (c)

45. (b) Defiant means resistant, while docile is means submissive.
Placid means calm and peaceful, while turbulant means unstable.
Hence, the above pairs are antonyms.
Relinquish is the synonym of surrender, optimal is the synonym of ideal, scrumptions is the synonym of delicious.
Zenith is the tune at which something is most powerful or successfull. Nadir is the lowest or most unsuccessfull point in a situation.
Hence, Zenith and Nadir are opposite to reach other.

46. (a) Total number of students = 10 + 18 – 1 = 27

47. (c) T A L K E R $\longrightarrow$! @ # © $ %

     T A L K E D $\longrightarrow$ $ % @ # ! £

48. (d) Clearly D corresponds to the code £

49. (b) T U S K can be formed using the given letters.

50. (a)
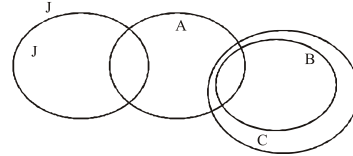
Clearly some C's are A's, but nothing can be said about the relation of B's and J's.

51. (c)

All the letters are counted 4 times backward. Second position is fixed for letter M.

52. (c)

53. (d) On interchanging the signs.
$313 \times 4 + \underline{2107} \div \underline{7 - 24} = 1252 + 301 - 24 = 1553 - 24 = 1529$

54. (d) 16, 21,   ?, 43,   60,   81,   106

            17   21   25

Hence, ? = 43 – 13 = 30

55. (d)   56.   (b)

57. (d) $25 \times 4 = 100$
$13 \times 4 = 52$

$41 \times 4 = 164$

$33 \times 4 = 132 \neq 152$

Hence 33, 152 is the odd one

58. (d) $38 \times 3 = 114$

$41 \times 3 = 123$

$25 \times 3 = 75$

$33 \times 3 = 96 \neq 97$

Hence 33 – 97 is the odd one

59. (b) $(2 + 3) + 10 = 15$

$(3 + 5) + 10 = 18$

Similarly

$(1 + 2) + 10 = 13$

60. (d) M _ _ L _ _ K . I _ _ _ J

Hence, there are total 12 people.

61. (c) The correct spelling is Superintendent. He/she is a police officer with a high post.

62. (b) Passive voice is a form of verb in which the subject undergoes the action of the verb. In this sentence, he (subject) is eating (verb) an apple (object).

63. (d) The idiom, 'if you play with fire, you'll get burned' refers to a warning that dangerous or risky actions often lead to pain and injury. In this sentence, the subject (Rajat) is indulging in a risky action, i.e. irritating the street dog, leading to trouble, i.e. the possibility of being bitten by it.

64. (b) The ability to obtain adequate sleep is a condition termed as insomnia. It is a common sleep disorder which may happen even if one has the time and right environment to sleep well.

The remaining words with their meanings are given below:

Pyromania: an impulse control disorder in which individuals repeatedly fail to resist impulses to deliberately start fires, to relieve some tension or for instant gratification.

Andromania: a kind of human sexual behaviour and desire towards males in females

Mythomania: an abnormal or pathological tendency to exaggerate or tell lies

65. (d) This is an example of spotting an error. In the sentence here, it can be corrected as:

"Those players who chose not to play in the league were banned from playing in the World Cup." Since this is a known event in the game of cricket, 'the' will be used before it.

66. (d) The sentence is grammatically correct as formed.

67. (d) The tournament was won by the team after weeks of hard work and commitment.

A verb is in the passive voice when the subject of the sentence is acted on by the verb. In this sentence, the tournament (the subject) receives the action of the verb (was won).

68. (c) The sentence will be read as- "Neither of the biscuits you gave me <u>contain</u> chocolate chips."

69. (c) It exactly refers to words that are written or said about a dead person, especially words written on a stone where he/she is buried.

The remaining words with their meanings are given below:

Epigram: a short poem or phrase that expresses an idea in a clever or amusing way

Tombstone: a large flat stone that lies on or stands at one end of a grave and shows the name, dates, etc. of the dead person

Calligraphy: the art of writing beautifully with a special pen or brush

70. (b) This lesser known heritage building is as beautiful as the Red Fort.

In the sentence given, the preposition 'so' is used incorrectly in the context of the sentence and is grammatically wrong. Since a comparison is being made, 'as' will be used here.

71. (b) This is an example of spotting an error. In the sentence here, it can be corrected as:

"It was the home minister of the country who took the decision to change <u>the laws pertaining</u> to migration of people from one state to another."

72. (b) The sentence is grammatically correct. "I decided to call out to various bookstores in the area to see if any of them had the book I needed." Hence, no substitution is required in this sentence.

73. (a) "He was <u>contemplating</u> going abroad for his further studies." The word, 'contemplating' refers to thinking carefully about something or the possibility of doing something.

74. (a) "Mohnish and Ravi <u>are moving</u> to Canada next month."

Since it is future tense, 'are moving' will appropriately fit in the sentence. The remaining options refer to only one subject being mentioned through the verbs used.

75. (a) The novel, with its intricate plot and multifaceted characters, captivated readers and left them pondering its deeper themes long after they finished reading.

The remaining sentences have spelling errors in each of them.

76. (b) The complete sentences are as follows:
A. I use a <u>scale</u> to weigh my ingredients while cooking.
B. The mountaineer is going to <u>scale</u> the rocky hills.

77. (a) A fatalist is someone who feels that no matter what he/she does, the outcome will be the same because it's predetermined.

The meanings of the other words are as follows:

Flirt: to behave in a way that suggests you find somebody attractive though you are not serious about a relationship

Superstitious: a person believing in things that are not real or possible, for example, magic

Fatal: causing or ending in death

78. (d) Two heads are better than one.

It refers to having the advice or opinion of a second person.

79. (d) This is an example of spotting the error. The correct sentence would be read as- "The committee requested the Chief Investigator to personally **look into the matter**."

80. (c) Pradeep, who is a teacher, also works as a content writer.

The pronoun 'who' has been replaced by 'whom', thus making the sentence grammatically correct.

81. (d) Indirect speech conveys something that was said or written rather than the exact words that were spoken or written. In this sentence, 'what a beautiful house' as said by Rakesh in direct speech has been transformed into indirect speech.

82. (d) The word 'humble' refers to not thinking that you are better or more important than other people. Hence, 'modest' is a synonym to humble, which is similar in meaning, which is, not talking too much about your own abilities or good qualities. The meanings of the remaining words are:
Beautiful: very pretty or attractive
Keen: showing a quick responsiveness
Amusing: causing one to laugh or smile

83. (c) Since the first part of the sentence has 'now' which specifies present tense, hence, the option, 'is learning' will fit appropriately in the sentence. "Stanley is learning to play the violin now, with an amateur instructor."

84. (a) The word 'sharp' in this context refers to 'having a thin keen edge or fine point'. Its antonym will be blunt, meaning 'having an edge or point that is not sharp'.
The meanings of the remaining words are:
Kindled: to start a fire or to make something start to burn
Magnetic: able to be attracted by a magnet
Handy: within easy reach

85. (b) The captain commanded his soldiers to follow the enemy.
Reported speech is when we tell someone what someone else said.

86. (a) The task could have been completed by the rescue team if there had been uninterrupted power supply.
Passive voice is a form of verb in which the subject undergoes the action of the verb. In this sentence, rescue team (subject) completed the task (verb) with the help of uninterrupted supply of power (object).

87. (c) After accidently breaking the valuable vase, Sarah found herself in trouble with her parents.
The idiom, 'in hot water' refers to 'being in or getting into a difficult situation in which one feels the danger of being criticized or punished'. Though the sentence did not use the idiom in its formation, but its meaning is similar to what the above sentence means.

88. (d) The improved sentence would be- "The film received critical acclaim for being an innovative movie of the year."

89. (b) "Girls have been the victims of many crimes in India for years."

90. (d) "The most fearful crime was female foeticide, in which girls were killed in the womb of the mother after sex determination through ultrasound."

91. (a) "Save the Girl Child campaign has been launched by the government to end gender-selective abortions of female fetuses as well as other crimes…"

92. (c) "…as well as other crimes against the girl child."

93. (a) Conduct disorder is a mental condition rather than teen defiance.
It is clear from these lines in the passage, "The findings of the study were unexpected. They demonstrated distinct disparities between adolescents whose behavioural issues began in adolescence and those whose issues began earlier in life."

94. (c) Distinct regions of the cortex were thicker in the teenagers having early onset behavioural issues in comparison to the healthy participants.
The last paragraph of the passage says. "The findings of the study were unexpected. They demonstrated distinct disparities between adolescents whose behavioural issues began in adolescence and those whose issues began earlier in life. Although both groups were different from healthy controls, it was discovered that distinct regions of the cortex in the teenagers who had experienced early-onset behavioural issues were thicker in comparison to the healthy participants."

95. (a) The last line of the first paragraph of the passage does not mention 'attention' and 'disobedience'. It is evident from this line, "Awareness, perception, attention, memory and language are all impacted by the cortex."

96. (b) This line defines what was measured in scanned images- "The thickness of various regions of the cortex and the brain's outer layer was measured using the scanned images."

97. (d) It is defined through this line- "As with judo, taekwondo was developed as a sport that is also representative of a moral code, where principles of loyalty, faithfulness, respect, and the preservation of an indomitable spirit form a significant part of taekwondo training."

98. (d) The most appropriate synonym for the word 'representative' is 'typical'. Representative refers to someone or something typically belonging to a larger group. Whereas, typical means having or showing the usual qualities of a particular person, thing or type.

99. (c) "Taekwondo is a form of empty hand martial arts combat that requires the athlete to use all parts of the body in competition."

100. (b) The most appropriate antonym for 'indomitable' is submissive. Indomitable means an impossibility to defeat or frighten, even in a difficult situation. While submissive means an inclination or readiness to submit to the authority of another.

101. (a) The Union Minister of Agriculture and Farmers Welfare launched the Platform of Platforms (PoP) under the National Agriculture Market (e-NAM). **e-NAM** integrates the **platform of Service Providers** as **"Platform of Platforms"** which include Composite Service Providers (Service Providers who provide holistic services for trading of agricultural produce including quality analysis, trading, payment systems and logistics)

Hence, statement 1 is wrong, rest of the statements are correct with respect to Platform of Platforms

102. **(b)** Temperature is a physical quantity that quantitatively expresses the attribute of hotness or coldness. Temperature is measured with a thermometer. It reflects the average kinetic energy of the vibrating and colliding atoms making up a substance.

The International Union of Pure and Applied Chemistry (IUPAC) used to define STP as 0 R"C (273.15 K, or 32 R"F) and 1 atm.

The most common scales are the Celsius scale with the unit symbol °C (formerly called *centigrade*), the Fahrenheit scale (°F), and the Kelvin scale (K), the latter being used predominantly for scientific purposes.

103. **(b)** Diagonal relationship refers to the resemblance in attributes between two elements that are diagonally adjacent in the second and third period of the periodic table.

Examples of the pairs showing the diagonal relationship are Lithium (Li) and Magnesium (Mg), Beryllium (Be) and Aluminum (Al), Boron (B), and Silicon (Si).

104. **(c)** The Reserve Bank of India (RBI) is India's central bank. It was established in 1935. It controls the monetary policy concerning the national currency, the Indian rupee. The basic functions of RBI are the issuance of currency, sustaining monetary stability in India, operating the currency, and maintaining the country's credit system.

105. **(d)** The deficiency of Iodine results in an insufficient amount of Thyroid hormone. This insufficiency causes hypothyroidism.

Low levels of thyroid-producing hormones, such as triiodothyronine (T3) and thyroxine (T4), can change the way the body processes fat. This can cause high cholesterol and atherosclerosis (clogging of the arteries), which can potentially lead to serious heart-related problems, such as angina and heart attack

106. **(c)** The Servants of India Society was founded by Gopal Krishna Gokhale in 1905 to unite and train Indians of different ethnicities and religions in welfare work. The aim of 'The Servants of Indian Society' was to train national missionaries for service to India and promote the true interests of the Indian people by constitutional means alone.

107. **(b)** Gross Domestic Product or GDP is the measure of the productivity of population. It is basically the standard measure of the value added created through the production of goods and services in a country during a certain period.

It measures growth as well as the development of an economy, henceforth it measures the welfare of the economy. It is directly proportional to the welfare. So, the last statement is incorrect.

108. **(c)**

State	Rank
Rajasthan	4th
Madhya Pradesh	3rd
Haryana	2nd
Maharashtra	1st

The fifth edition of the Khelo India Youth games was organised and hosted by Madhya Pradesh. Maharashtra took home the most medals that is, with 56 gold, 55 silver, and 50 bronze. The defending champions Haryana came in second with 41 gold medals, 32 silver medals, and 55 bronze medals.

109. **(c)** The localized downpours, accompanied by severe winds, torrential precipitation, rarely carried by the hailstorm are Kaal Baisakhi. Winds such as this occur in West Bengal. With growing recurrence, Kalbaishakhi happens from March until the monsoon settles over north-east India. During such a span of time, violent thunderstorms are witnessed in north-eastern states including Odisha, Bihar, Chhattisgarh, Jharkhand, Assam and West Bengal.

110. **(b)** The Khasi Hills of the North Eastern region is responsible for the highest average annual rainfall in the region. The area experiences a huge amount of orographic rain as a result of moisture laden clouds from the Bay of Bengal hitting the hills and causing perspiration.

111. **(d)**

List I	List II
Potential Energy	Hydropower plant
Chemical Energy	Diesel Generator
Kinetic Energy	Wind turbine
Radiation Energy	Solar Energy

Potential Energy: Potential energy is the stored energy in an object due to its position, properties, and forces acting on it. Common types of potential energy include gravitational, elastic, magnetic, and electric.

Chemical Energy: The energy which is stored in the bonds of chemical compounds (molecules and atoms). It is released in the chemical reaction and mostly produces heat as a by-product, known as an exothermic reaction.

Kinetic Energy: Kinetic energy is the energy of motion, observable as the movement of an object or subatomic particle. Every moving object and particle have kinetic energy.

Radiation Energy: Radiant energy emitted, reflected, transmitted or received, per unit time. This is sometimes also called "radiant power", and called luminosity in Astronomy.

112. (b) The city of Bhopal in India joined the growing global movement on the localization of the Sustainable Development Goals (SDGs) with the launch of An Agenda for Action: Sustainable Urban Transformation in Bhopal, India's first city-level Voluntary Local Review (VLR).

113. (c) The 'Pradhan Mantri Jan Arogya Yojana' ('PM-JAY') scheme of the government is associated with the duty of state to raise the level of nutrition and the improvement of public health.
    Ayushman Bharat PM-JAY is the largest health assurance scheme in the world which aims at providing a health cover of Rs. 5 lakhs per family per year for secondary and tertiary care hospitalization

114. (d)

List I (Governor General)	List II (Period)
Warren Hasting	1772 – 1785
Lord Cornwallis	1786 – 1793
Sir John Shore	1793-1798
Lord Wellesley	1798-1805

115. (d)

State	Bio- reserve
Assam	Manas
Madhya Pradesh	Pachmarhi
Odisha	Simplipal
Meghalaya	Nokrek

116. (d) In order to check the adulteration in Honey take a cotton wick dipped in a pure honey and light with a match stick. Pure honey will burn. If adulterated, the presence of water will not allow the honey to burn if it does; it will produce a cracking sound.

117. (d) Vitamins are wide a group of organic compounds that are required for normal body function. The gut bacteria produce vitamins, specifically vitamin K.

118. (a) The Ministry of Home Affairs (MHA) discharges multifarious responsibilities, the important among them being - internal security, border management, Centre-State relations, administration of Union Territories, management of Central Armed Police Forces, disaster management, etc.

119. (b)

Sportspersons	Medals Won
Vinesh Phogat	Gold wrestling women's freestyle, 53kg
Bajrang Punia	Gold, wrestling women's freestyle 65kg
Sakshi Malik	Gold wrestling women's freestyle 62kg
Deepak Punia	Gold wrestling women's freestyle 86kg

120. (c) Literacy is the foundation stone of any country. India recovering from its colonial past and in that recovery literacy was affected the most. According to census 2011, the lieracy rate of India was 74%.
    Kerala is the only state in India to have 100% literacy rate. It is followed by Goa, Tripura, Mizoram, Himachal Pradesh, and Maharashtra, Sikkim. The lowest literacy rate in India is seen in the state of Bihar.

121. (a) In computer memory architecture, the bus used to transfer addresses between the CPU (Central Processing Unit) and the main memory is called the "address bus." The address bus is a communication pathway that carries the memory address from the CPU to the main memory, indicating the location in memory where data needs to be read from or written to.

122. (b) In Microsoft Word, the "Table of Authorities" feature is typically found under the "References" tab. The "Table of Authorities" is a tool used for creating a list of legal citations or references in a document.

123. (b)   124.   (d)

125. (b) The CPU interacts directly with the primary memory, also known as RAM (Random Access Memory), to perform read or write operations. The primary memory is a volatile type of memory that the CPU uses to store and retrieve data actively during program execution.

126. (c) In MS-Excel 365, a double line (a thicker line) between two columns is an indicator that a column has been hidden. When you hide a column in Excel, this double line appears at the border between the adjacent columns to signify that there is a hidden column in that location.

127. (d) The INDIRECT function in Excel can be used to change a cell reference within a formula without modifying the formula itself. By using INDIRECT, you can create a reference based on the contents of a cell.

128. (b) A computer program that can self-replicate and propagate over a network is commonly referred to as a "Worm." Worms are a type of malicious software or malware that can spread from one computer to another, typically exploiting vulnerabilities in network security.

129. (c) The type of firewall that operates at the Network layer to examine incoming and outgoing packets is called a "Network Layer Firewall" or "Packet Filtering Firewall." This type of firewall filters network traffic based on the source and destination addresses, ports, and protocols specified in the packet headers.

130. (b)

131. (a) A Parity bit is an extra bit included with a binary message to make the total number of bits either odd or even. The purpose of the parity bit is to provide a simple error-checking mechanism.

132. (a) In Windows 11, the keyboard shortcut Ctrl + Insert is indeed an alternative method for copying the selected item. This shortcut performs the same action as Ctrl + C in terms of copying the selected item. After copying, you can use Ctrl + V or Shift + Insert to paste the copied item.

133. (a)

134. (a) In Windows 11, pressing the "Windows logo key" (often represented by "Win") along with the "E" key simultaneously will launch File Explorer and open a new window for easy navigation through your files and folders.

135. (d)

SSC

Combined Higher Secondary Level Exam-2022 Tier-1

Time : 1 Hours   **Max. Marks : 100**

GENERAL INTELLIGENCE

1. After interchanging the given two numbers (not digits) what will be the values of expression (I) and (II) respectively?
   6 and 4
   I. $10 \times 6 - 30 \div 4 + 20$
   II. $8 - 4 \times 5 + 6 \div 2$
   (a) 10 and –6   (b) 12 and –6
   (c) 20 and 55   (d) 55 and –20

2. If H is the daughter of R, R is the father of S, S is the son of T, T is the daughter of N, then how is H related to N?
   (a) Daughter's daughter   (b) Niece
   (c) Daughter   (d) Daughter-in-law

3. Three of the four group of words are alike in some manner. Select the odd group of words.
   (a) (Stock, Troupe, Robber)
   (b) (Team, Council, Bouquet)
   (c) (Crowd, Army, Herd)
   (d) (Shoal, Flock, Chorus)

4. If in a certain code language, 'BASE' is coded as '27', then what is the code of 'COLLECTION' in the same coded language?
   (a) 108   (b) 107
   (c) 110   (d) 111

5. Select the Venn diagram that best represents the relationship between the following classes.
   Language, Punjabi, Hindi. Malyalam

   (a)   (b)

   (b)   (d)

6. By folding the given paper which of the following box can be made?
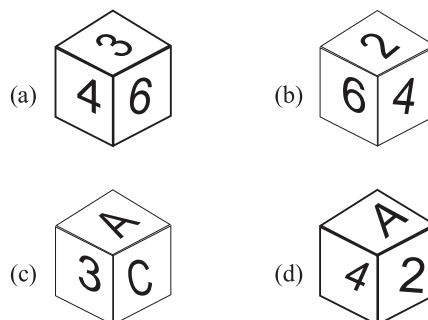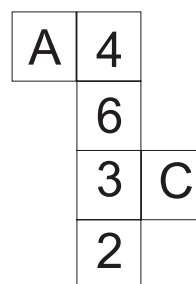
7. Words given on the left side of (::) are related with each other by some Logic/Rule /Relation. Select the missing word/word pair on the right side of (::) from the given alternatives based on the same Logic/Rule/Relation.
   Soldiers : Army :: ?
   (a) Class pupils
   (b) Cattle : Herd
   (c) Team : Players
   (d) Singer : Gang

8. In the following question, four number pairs are given. In each pair the number on left side of (-) is related to the number of the right side of (-) with some Logic/Rule /Relation. Three pairs are similar on basis of same Logic/ Rule/Relation. Select the odd one out from the given alternatives.

(a) 1111 - 1234321
(b) 11111 - 1234554321
(c) 111 - 12321
(d) 111111 - 12345654321

9. In the question two statements are given, followed by two conclusions, I and II. You have to consider the statements to be true even if they seem to be at variance from commonly known facts. You have to decide which of the given conclusions, if any, follows from the given statements.
    Statements:
    I. Each correct is wrong.
    II. No wrong is right.
    Conclusions:
    I. No correct is right.
    II. Some wrongs are correct.
    (a) Only conclusion II follows.
    (b) Both conclusion I and II follow.
    (c) Neither conclusion I nor II follow.
    (d) Only conclusion I follows.

10. Select the option figure in which the given figure is embedded. (Rotation is NOT allowed).
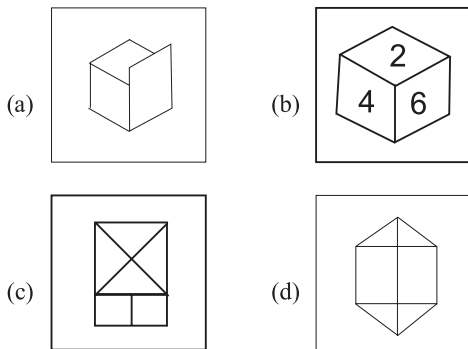
11. How many maximum squares are there in the given figure?
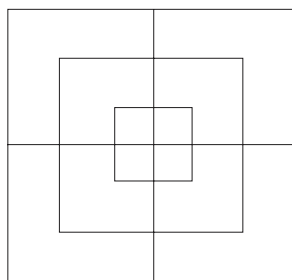
    (a) 8
    (b) 12
    (c) 15
    (d) 18

12. Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it?

m c _ b c m _ c b b c _ m _ b b c m
(a) mccb   (b) bmmc
(c) cbmb   (d) bcmb

13. Two posistion of a dice are given below. What will come on the face opposite to the face containing 'R' on it?

(a) A   (b) H
(c) Q   (d) P

14. Three of the following four letter clusters are alike in a certain way and one is different. Pick the cluster that is different from the rest.
(a) EFG   (b) BDC
(c) OQP   (d) VXW

15. If 'A' means '×', 'B' means '+', 'C' means '-' and 'D' means '÷', then 66 A 3 D 11 B 43 C 48 D 12 = ?
(a) 47   (b) 61
(c) 43   (d) 57

16. In a certain code language, 'MAZZA' is written as 'OBBAC' and 'BLACK' is written as 'DMCDM'. How will 'FUZZY' be written in that language?
(a) HVBBA   (b) HVBAA
(c) HTBAA   (d) HVBZA

17. Select the option in which the numbers shares the same relationship in set as that shared by the numbers in the given set.
(13, 14, 108)
(51, 12, 252)
(a) (17, 14, 134)   (b) (33, 42, 280)
(c) (29, 14, 172)   (d) (19, 26, 160)

18. Select the correct option that indicates the arrangement of the given words in a logical and meaningful order.
1. College   2. School
3. Employment   4. Salary
5. Child
(a) 5,2,1,3,4
(b) 5,2,3,4,1
(c) 5,2,1,4,3
(d) 5,1,2,3,4

19. Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.
183 : 6 : : 164 : 4 : : 122 : ?
(a) 2   (b) 8
(c) 4   (d) 6

20. Select the figure that will come next in the following figure series.

(a)   (b)

(c)   (d)
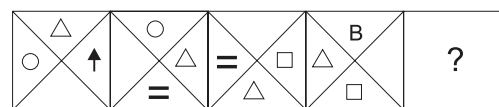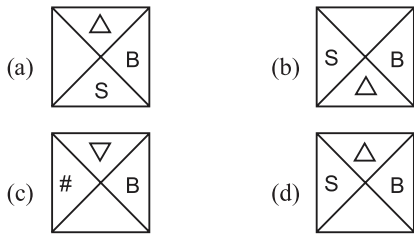
21. Select the option in which the numbers shares the same relationship in set as that shared by the numbers in the given set.
(18, 25, 46)
(24, 31, 52)
(a) (19, 24, 47)   (b) (20, 27, 34)
(c) (16, 21, 44)   (d) (13, 20, 41)

22. In the following question, select the related letters from the given alternatives. NA : SF :: OB : ?
(a) RG   (b) IJ
(c) TG   (d) TH

23. Select the option that is related to the third term on the same basis as the second term is related to the first term.
Mirror : Reflection of light :: Prism : ?
(a) Scattering of light   (b) Dispersion of light
(c) Reflection of light   (d) Inversion of light

24. In the following question, select the missing number from the given series. 36, 18, 54, 27, 81, ?, 121.5
(a) 40   (b) 38
(c) 40.5   (d) 41.5

25. Select the correct mirror image of the given figure when the mirror is placed to its right side

(a)   (b)

(c)   (d)
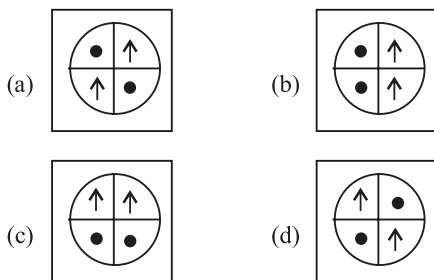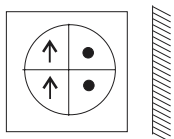
GENERAL AWARENESS

26. In 1809, Lord_____ signed the Amritsar Treaty with Maharaja Ranjit Singh.
(a) Michael John Hastings
(b) William Bentinck
(c) James Andrew Ramsay - Dalhousie
(d) Charles T. Metcalfe

27. The Sino-Indian border is divided into how many sectors?
(a) 2   (b) 5
(c) 4   (d) 3

28. Who among the following was considered to be the queen of thumri?
(a) Girija Devi   (b) Rumi
(c) Mirza Ghalib   (d) Rattan Mohan Sharma

29. Who among the following singers has received the Dadasaheb Phalke Award?
(a) Geeta Dutt   (b) Sonu Nigam
(c) Talat Mahmood   (d) Asha Bhosle

30. Which among the following generations of Computer used vacuum tubes?
(a) First Generation   (b) Third Generation
(c) Fourth Generation   (d) Second Generation

31. Which among the following is not required to be the Vice-President of India?
(a) He should not hold any office of profit under the Union government or any state government or any local authority or any other public authority.
(b) He should have completed 40 years of age.
(c) He should be a citizen of India.
(d) He should be qualified for election as a member of the Rajya Sabha.

32. In India, Silver fir, junipers, pines and birches are the common trees of which of the following forests?
(a) Tropical Evergreen Forests
(b) Tropical Deciduous Forests
(c) Mangrove Forests
(d) Montane Forests

33. Which among the following Vitamins is known as Niacin?
(a) Vitamin B2   (b) Vitamin B1
(c) Vitamin B4   (d) Vitamin B3

34. Which of these books is written by Ruskin Bond? Ans
(a) Home in the World   (b) The Great Big Lion
(c) In an Ideal World   (d) It's a Wonderful Life

35. Who hosted the first meeting of India-Central Asia Summit?
(a) India   (b) Kyrgyzstan
(c) Kazakhstan   (d) Tajikistan

36. Which of the following is NOT an application of third law of motion?
(a) A fielder pulls his hands gradually with the moving ball while holding a catch.
(b) Colliding with player while kicking a football and feeling hurt.
(c) As the sailor jumps in forward direction, the boat moves backwards.
(d) A forward force on the bullet and recoil of the gun.

37. The book 'Your Best Day is Today!' is written by_____.
(a) Pope Francis   (b) Gauri Khan
(c) Anupam Kher   (d) Meena Iyer

38. Which of the following pairs of "players from one team on court - sports" is correct?

I.   5 - basketball
II. 9 - handball
(a) Neither I nor II   (b) Only I
(c) Only II   (d) Both I and II

39. Which article of the Indian Constitution specifies Hindi as official language of the Union?
(a) Article 51A   (b) Article 370
(c) Article 343   (d) Article 80

40. In which year did Saina Nehwal win the Olympic bronze medal in the individual women's Badminton competition?
(a) 2012   (b) 2016
(c) 2008   (d) 2004

41. Which generation of computers used machine code as the programming language?
(a) Second   (b) First
(c) Third   (d) Fourth

42. _____ states that the rates of diffusion of gases are inversely proportional to the square roots of their densities under similar conditions of temperature and pressure.
(a) Graham's Law   (b) Tyndall's Law
(c) Pascal's Law   (d) Kepler's Law

43. Which of the following statements is correct regarding the demand curve?
I.   It is a graphical representation of the demand function.
II. It gives the quantity demanded by the consumer at each price.
(a) Neither I nor II
(b) Both I and II
(c) Only II
(d) Only I

44. In approximately how much time does Mars complete one spin on its axis?
(a) 16 hours   (b) 18 hours
(c) 1 day 18 hours   (d) 1 day

45. Who won the men's singles title at the US Open 2022?
(a) Carlos Alcaraz   (b) Alfie Hewett
(c) Shingo Kunieda   (d) Casper Ruud

46. Which among the following is the oldest stock exchange in India?
(a) Multi-Commodity Exchange
(b) Bombay Stock Exchange
(c) National Stock Exchange
(d) National Commodity and Derivatives Exchange

47. India's short-range Ballistic Missile, Prithvi II was successfully test fired from _____.
(a) Rutland Island, Andaman
(b) Sriharikota, Andhra Pradesh
(c) Machilipatnam, Andhra Pradesh
(d) Chandipur, Odisha

48. Meghaduta was written by which poet of ancient India?
(a) Kalidasa   (b) Vyasa
(c) Ravikirti   (d) Harisena

49. Gopika Varma is a classical dancer of .
(a) Mohiniattam   (b) Kathak
(c) Manipuri   (d) Kuchipudi

50. Which of the following hills are NOT part of the Purvachal hills?
(a) Manipur hills   (b) Naga hills
(c) Patli hills   (d) Mizo hills

QUANTITATIVE APTITUDE

51. The following bar graph shows the marks of a student from 5 different subjects hi 2015 and 2016. Total marks scored in History for 2016 is what per cent of the total marks of Civics for both years ?
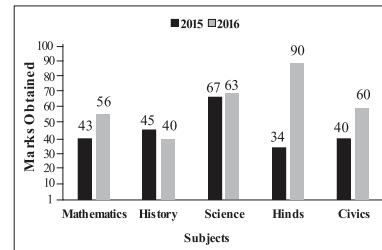
(a) 55%   (b) 40%
(c) 60%   (d) 50%

52. The following bar-graph represents the income and expenditures (Rs. in Thousand) of five companies A, B, C, D and E in the year 2021
which company suffered die maxmum percentage of loss in the year 2021?
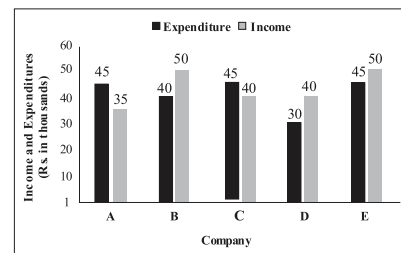
(a) B
(b) E
(c) C
(d) A

53. What is the value of $(.91)^3 + (.09)^3 / [(.91)^2 - .0819 + (.09)^2]$?
(a) 1
(b) 5
(c) 4
(d) 6

54. The line chart given below shows the cost price and value of profit of 6 articles J, K, L, M, N and P.
Which of the following statement is correct?
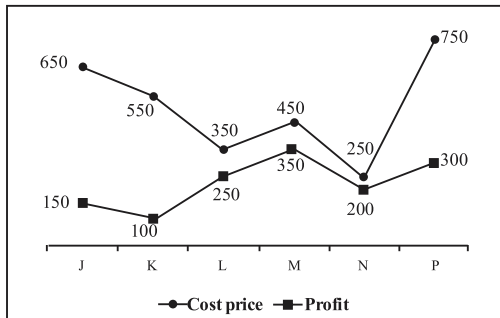
I. The combined cost price of J and K is 100 percent more than the combined profit of L and M.

II. The ratio of combined profit of N and P to the combined cost price of K and M is 2 : 1.

(a) Only I (b) Neither I nor II

(c) Both I and II (d) Only II

55. The line chart given below shows the population of two states P and Q in 5 years.
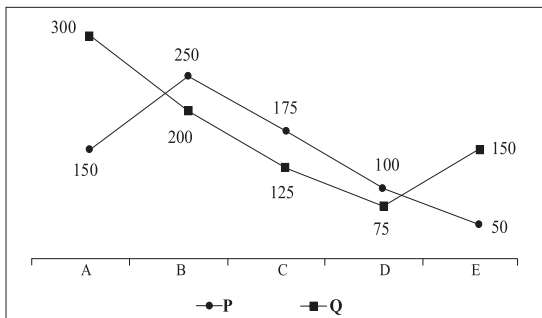
What is the difference between the total population of P and Q in all the years?

(a) 75 (b) 125

(c) 150 (d) 275

56. What is the sum of all two digit even numbers?

(a) 2520 (b) 2470

(c) 2430 (d) 2410

57. The value of $117 \div 45$ of $(1/5) + (12/5) \times (20/3)$ is:

(a) 28 (b) 29

(c) 31 (d) 27

58. Simplify the followig expression: $\dfrac{1-\sin A}{\cos A}+\dfrac{\cos A}{1-\sin A}$

(a) $2\sin A$ (b) $2\cos A$

(c) $2\sec A$ (d) $2\tan A$

59. The average age of 5 children of a family is 15 years. Average age of children together' with their father and mother is 25 years. If the father is older than the mother by 4 years, then find the age of mother (in years)

(a) 44 (b) 48

(c) 46 (d) 52

60. If $N+\dfrac{1}{N}=\sqrt{3}$, then find the value of $N^6+\dfrac{1}{N^6}+11$

(a) -11 (b) 9

(c) -2 (d) 11

61. Nakul event to the market to buy groceries. He has some money with him, 20% of which he used to buy wheat flour, 25% of the remaining money is spent on cocking oils. If he is left with Rs. 900. then find out total amount of money that Nakul had.

(a) ₹ 1,500 (b) ₹ ,200

(c) ₹ 1,350 (d) ₹ 1,800

62. The difference between simple interest on a certahi sum at the annual rate of 8 percent for 5 years and 6 years is Rs. 26. What is the stun?

(a) ₹ 325 (b) ₹ 240

(c) ₹ 290 (d) ₹ 360

63. ΔPQR is similar to ΔUVW. Perimeter of ΔPQR and ΔUVW are 120 cm and 240 cm respectively. If PQ = 30 cm, then what is the length of UV?

(a) 45 cm (b) 60 cm

(c) 75 cm (d) 90 cm

64. If $\cos(A+B)=0$ and $\sin(A-B)=0$, then what is the value of angle A and angle B? (0 degree $< A,\ B \le 90$ degree)

(a) 20 degree, 70 degree (b) 45 degree, 45degree

(c) 15 degree, 75 degree (d) 60 degree, 30 degree

65. 24 equal solid hemispheres are melted to form a right circular cylinder of radius 12 cm and height 24 cm. Find the radius of each solid hemisphere.

(a) 6 cm (b) 8 cm

(c) 3 cm (d) 4 cm

66. The three sides of a triangle are 7 cm. 9 cm and 8 cm. What is the area of the triangle ?

(a) $12\sqrt{5}$ Sq.cm (b) $10\sqrt{3}$ Sq.cm

(c) $12\sqrt{3}$ Sq.cm (d) $2\sqrt{5}$ Sq.cm

67. If $\sec x - \tan x = 5$ and $\csc y - \cot y = 1/3$, then find the value of $(\sec x - \csc y) - (\tan x - \cot y)$.

(a) 2.2 (b) 3.2

(c) 4.2 (d) 3.1

68. In a circle, the length of a chord is 30 cm. The perpend icular distance of the chord from the centre of the circle is 8 cm . Find the diameter of the circle

(a) 34 cm (b) 17 cm

(c) 30 cm (d) 28 cm

69. If an article is sold at 9/10th of its usual selling price, 20% profit would be made on it. find the profit percentage which would have been made on it on selling it at its usual selling price.

(a) 33.33 % (b) 25 %

(c) 30 % (d) 20 %

70. Rahul alone can complete a work in 10 days and Sonu alone can complete the same work in 15 days. If they work together for 4 days, then what part of total work is left?
    (a) 2/5
    (b) 2/3
    (c) 1/5
    (d) 1/3

71. What is the value of $\dfrac{(a+b)^2 - (a-b)^2}{ab}$?
    (a) 1
    (b) 4
    (c) 8
    (d) 2

72. A truck covers three equal distances of 100 km at the speed of 200 km/hr. 300 km/hr and 600 km/hr. Find the average speed of the truck for the whole journey.
    (a) 300 km/h
    (b) 327 km/h
    (c) 366.66 km/h
    (d) 250 km/h

73. An article is sold for ₹.560 after two successive discounts of 30% and 20%. What is marked price of the article?
    (a) ₹ 1000
    (b) ₹ 800
    (c) ₹ 920
    (d) ₹ 700

74. A sum of money is to be divided among P, Q and R in the ratio 7 : 9 : 4. If P gets ₹ 1500 more than R then find the difference between the shares of P and Q.
    (a) ₹ 900
    (b) ₹ 500
    (c) ₹ 1,000
    (d) ₹ 1,500

75. If the square of product of three sides of the triangle is 1024 units and the area of its circumcircle is 16π. what is the area of the given triangle ?
    (a) 2 sq. units
    (b) 3 sq. units
    (c) 2.5 sq. units
    (d) 4 sq. units

ENGLISH LANGUAGE

76. Select the most appropriate meaning of the given idiom. Zero tolerance
    (a) To detect someone in the group is betraying the others
    (b) Riding in the front passenger seat of a car
    (c) To escape and not have to pay
    (d) A policy of not allowing any violations of a rule or law

77. Select the correct passive form of the given sentence. The tigress was trailing the stag.
    (a) The stag had been trailed by the tigress.
    (b) The stag was trailed by the tigress.
    (c) The stag was trailing by the tigress.
    (d) The stag was being trailed by the tigress.

78. Choose the word that is opposite in meaning to the given word. Elucidate
    (a) Obfuscate
    (b) Dilate
    (c) Magnify
    (d) Outdate

79. Fill in the blank with the most suitable word.
    A haze of panic blurred my vision; something terrible was close to_____.
    (a) happened
    (b) happening
    (c) happens
    (d) has happened

80. Fill in the blank with an appropriate option.
    AWS offers various storage services that can____data for your website.
    (a) store
    (b) stack
    (c) pour
    (d) barge

81. Select the most appropriate antonym of the given word. TIMID
    (a) SMELLY
    (b) COURAGEOUS
    (c) LUCID
    (d) CAREFUL

82. Select the word segment that substitutes (replaces) the bracketed word segment correctly and completes the sentence meaningfully. In case no improvement is needed, select 'No improvement'.
    (That's one of the strongest swear word) in Spanish.
    (a) That is of the strongest swear words
    (b) That's the strongly swear words
    (c) That's one of the strongest swear words
    (d) No improvement

83. Fill in the blank with an appropriate option.
    No matter how many times I try, I always end up in the same_____.
    (a) sauce
    (b) meal
    (c) pickle
    (d) account

84. In the following question, out of the given four alternatives, select the alternative which best expresses the meaning of the Idiom/Phrase.
    To bridge the gap
    (a) To reduce differences and reconcile
    (b) To push people apart
    (c) To mend a broken bridge
    (d) To slander someone

85. Select the word that is opposite in meaning (ANTONYM) to the word given below Timorous
    (a) Brazen
    (b) Scared
    (c) Gutless
    (d) Reserved

86. Improve the underlined part of the sentence. Choose 'No improvement' as an answer if the sentence is grammatically correct.
    I try to travelling lightly, packing only the bare essentials.
    (a) No improvement
    (b) travelled light
    (c) travels lightly
    (d) travel lightly

87. Choose the option that is the correct direct form of the sentence. Shubham said that his father was playing cricket with him.
    (a) Shubham said, "My father played cricket with me."
    (b) Shubham said, "My father is playing cricket with me."
    (c) Shubham said, "My father was playing cricket with me."
    (d) Shubham said, "My father had played cricket with me."

88. Select the most appropriate 'one word' for the expression given below. Study of human being & their ancestors through time.
    (a) Anthropology
    (b) Physiology
    (c) Biology
    (d) Ethnology

89. Rearrange the parts of the sentence in correct order. The team plans to
    P. flowering and fruit production in apple trees
    Q. use the data to get a better understanding of
    R. health-promoting compounds of interest and employ
    S. biotechnological approaches that could speed up
    (a) QRSP   (b) PQRS
    (c) RSPQ   (d) QSPR

90. Given below are four jumbled sentences. Pick the option that gives their correct order. The immediate context of the Dunkirk evacuation was Germany's invasion of the Low Countries and northern France in May 1940.
    P. The Dutch defenders fell back westward, and by noon on May 12 German tanks were on the outskirts of Rotterdam.
    Q. Queen Wilhelmina and her government left the country for England on May 13, and the next day the Dutch army surrendered to the Germans.
    R. On May 10 the German blitzkrieg attack on the Netherlands began with the capture by parachutists of key bridges deep within the country, with the aim of opening the way for mobile ground forces.
    S. The invasion of Belgium also began on May 10, when German airborne troops landed on the fortress of Eben Emael, immediately opposite Maastricht, and on bridges over the Albert Canal.
    On May 11 the Belgian front was broken, and German tanks ran on westward while Belgian, French, and British divisions fell back to a line between Antwerp and Namur.
    (a) PSRQ   (b) RPQS
    (c) PRSQ   (d QPRS

91. Select the wrongly spelt word.
    (a) Malleable   (b) Nascent
    (c) Obsequious   (d) Dissiminate

92. Select the word that is closest in meaning (SYNONYM) to the word given below. VAULT
    (a) Ration   (b) Crypt
    (c) Raisins   (d) Monarch

93. Find the part of the given sentence that has an error in it. If there is no error, choose 'No error'.
    A key institution is the judiciary,/especially the Supreme Court, with/a widely remit and a wise legacy.
    (a) a widely remit and a wise legacy.
    (b) especially the Supreme Court, with

    (c) A key institution is the judiciary,
    (d) No error

94. Select the wrongly spelt word.
    (a) Invulnerable   (b) Intrepid
    (c) Litigation   (d) Fortuous

95. Identify the segment in the sentence which contains a grammatical error. If there is no error, then select the option "No error".
    The presidential election/ turned out to be one of/ the biggest landslide in history.
    (a) turned out to be one of
    (b) The presidential election
    (c) No error
    (d) the biggest landslide in history.

DIRECTIONS (Qs. 96-100): In the following passage, some words have been deleted. Fill in the blanks (1), (2), (3), (4), (5) with the help of the alternatives Questions given in below. Select the most appropriate option for each blank.

The modern pizza was originally (1)._____in Naples, Italy but the word pizza is Greek in (2)._____, derived from the Greek word p?ktos meaning solid or clotted. The ancient (3)._____covered their bread with oils, herbs and cheese. The first major (4)._____that led to flat bread pizza was the use of tomato as a topping. It was common for the poor of the area around Naples to add (5)._____ to their yeast-based flat bread, and so the pizza began.

96. Select the most appropriate option to fill in the blank No.1.
    (a) pervaded   (b) arcaded
    (c) assumed   (d) invented

97. Select the most appropriate option to fill in the blank No.2.
    (a) align   (b) origin
    (c) villain   (d) bulletin

98. Select the most appropriate option to fill in the blank No.3.
    (a) Indians   (b) Greeks
    (c) Romans   (d) Spaniards

99. Select the most appropriate option to fill in the blank No.4.
    (a) observation   (b) aggravation
    (c) innovation   (d) cultivation

100. Select the most appropriate option to fill in the blank No.5.
    (a) potato   (b) onion
    (c) herb   (d) tomato

Hints & Explanations

GENERAL INTELLIGENCE

1. (d) (i) $10 \times 4 - 30 \div 6 + 20$
       $= 10 \times 4 - 5 + 20 = 55.$
   (ii) $8 - 6 \times 5 + 4 \div 2$
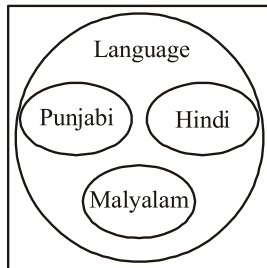 $= 8 - 30 + 2 = -20.$

2. (a)
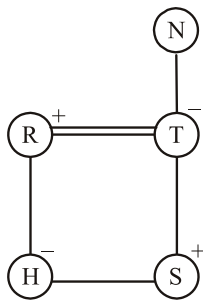
   $\begin{cases} \because \text{" = "} \text{represents husband / wife relation} \\ \text{"|"} \text{ represents son / daughter relation} \\ \text{"——"} \text{ represents brother / sister relation} \end{cases}$

   It is clear from diagram that H is daughter's daughter" of N.

3. (a) Other than option (a), all words in option (b), (c) and (d) represents "a group of something".

4. (a) B   A   S   E
       ↓   ↓   ↓   ↓
       (2) +(1) + (19) + (5) = 27
       Similarly,
   C   O   L   L   E   C   T   I   O   N
   ↓   ↓   ↓   ↓   ↓   ↓   ↓   ↓   ↓   ↓
   (3) + (15)+(12)+(12)+ (5) + (3)+ (20) + (9)   (15)+(14)
    = 108

5. (a)

6. (d) A ↔ C i.e C is opposite to A
       4 ↔ 3 i.e 4 is opposite to 3
       6 ↔ 2 i.e 6 is opposite to 2.
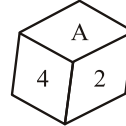
7. (b) Soldiers : Army :: Cattle : Herd
   As Army contains soldiers similarly Herd contains cattle.

8. (b) When the first number is multiplied by the same no. of digits i.e 1 in the first number preduct which we get is 2nd number.
   So, $11111 \times 11111 = $ 123454321 $\neq 1234554321$

9. (b)
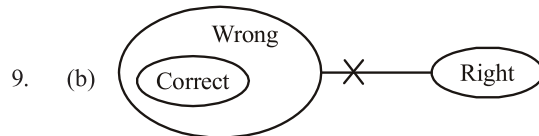
   Conclusion I follows, As NO wrong is Right and Each conrrect is part of wrong so no correct is Right follows.
   Conclusion II follows, As All correct is part of wrong so same wrong are correct is Right.
   So, Both conclusion follows.

10. (b)
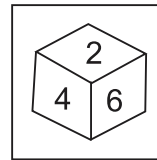
11. (c) Maximum No. of square is 15

12. (b) m c b b c m | m c b b c m |
        m c b b c m
    So, "bmmc" is the answer.

13. (d) A → P → Q
        A → R → H
    When dice is rotated from A point in clock wise direction, Then
        P ↔ R i.e P is opposite to R.

14. (a) V $\xrightarrow{(+2)}$ X $\xrightarrow{(-1)}$ W
       (22)   (24)   (23)

    $\boxed{E \xrightarrow{(+1)} F \xrightarrow{(-1)} G}$ odd
    (5)   (6)   (7)

    O $\xrightarrow{(+2)}$ Q $\xrightarrow{(-1)}$ P
    (15)   (17)   (16)

    B $\xrightarrow{(+2)}$ D $\xrightarrow{(-1)}$ C
    (2)   (4)   (3)

15. (d) $66 \times 3 \div 11 + 43 - 48 \div 12$

$\Rightarrow \quad 66 \times \dfrac{3}{11} + 43 - 4$

$\Rightarrow \quad 18 + 43 - 4$

$\Rightarrow \quad 57.$

16. (b)

(13)	(1)	(26)	(26)	(1)
M	A	Z	Z	A
(+2)	(+1)	(+2)	(+1)	(+2)

;

O	B	B	A	C
(15)	(2)	(2)	(1)	(3)

(2)	(12)	(1)	(3)	(11)
B	L	A	C	K
(+2)	(+1)	(+2)	(+1)	(+2)

D	M	C	D	M
(4)	(13)	(3)	(4)	(13)

Similarly,

(6)	(21)	(26)	(26)	(25)
F	U	Z	Z	Y
(+2)	(+1)	(+2)	(+1)	(+2)

H	V	B	A	A
(8)	(22)	(2)	(1)	(1)

Therefore, "HUBAA" is the answer.

17. (c) (13, 14, 108)

$\Rightarrow \quad (13 + 14) \to (27 \times 4) \to 108$

(51, 12, 252)

$\Rightarrow \quad (51 + 12) \to (63 \times 4) \to 252$

Similarly,

(29, 14, 172)

$\Rightarrow \quad (29 + 14) \to (43 \times 4) \to 172$

18. (a) Child $\to$ School $\to$ College $\to$ Employment $\to$ Salary

19. (d) $183 : 6 :: 164 : 4 :: 122 : \boxed{6}$
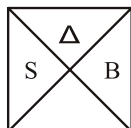
$\Rightarrow \quad 18 \div 3 \to 6$

$\Rightarrow \quad 16 \div 4 \to 4$

Similarly,

$12 \div 2 \to 6$

20. (d) Each element shift one place in clockwise direction and in alternate step first and last element are changed.

21. (d) (18, 25, 46)

$\Rightarrow \quad 18 + 7 = 25$

$\Rightarrow \quad 18 + (7 \times 4) \to 18 + 28 = 46$

(24, 31, 52)

$\Rightarrow \quad 24 + 7 = 31$

$\Rightarrow \quad 24 + (7 \times 4) = 52$
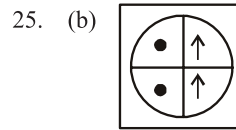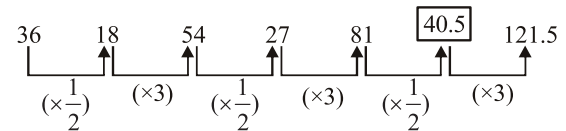
Similarly,

(13, 20, 41)

$\Rightarrow \quad 13 + 7 = 20$

$\Rightarrow \quad 13 + (7 \times 4) = 41$

22. (c)

(14)	(1)	(19)	(6)		(15)	(2)	(20)	(7)
N	A	: S	F	::	O	B	: T	G

(+5) (+5) (+5) (+5)

23. (b) Mirror : Reflection of light :: Prism : $\boxed{\text{Dispersion of light}}$

Reflection of light phenomenon is performed by mirror, similarly with the help prism dispersion of light phenomenon is performed.

24. (c)

36   18   54   27   81 $\boxed{40.5}$ 121.5

$(\times \frac{1}{2})$ $(\times 3)$ $(\times \frac{1}{2})$ $(\times 3)$ $(\times \frac{1}{2})$ $(\times 3)$

25. (b)

GENERAL AWARENESS

26. (d) In 1809,Lord Charles T Metcalfe signed the Amritsar Treaty with Maharaja Ranjeet Singh. Metcalfe, representing the British East India Company, and Ranjit Singh, head of the Sikh kingdom of Punjab in 1809. As per the treaty, Ranjit Singh was free to further consolidate his territorial gains north of the Sutlej river and was promised non-interference in his affairs.

27. (d) Sino-India border was divided into 3 sector. Indian Military has divided the LAC into 3 sectors - the northern sector (some times also called western sector) across Ladakh and the Chinese-held Aksai Chin, the central sector across Himachal Pradesh and Uttrakhand states, and the eastern sector across Sikkim and Arunachal Pradesh states.

28. (a) Girja Devi was considered to be queen of Thumri. Girija Devi was known as the queen of thumri, a common genre of semi-classical Indian music. Girija Devi, one of the brightest stars of the Seniya and Banaras gharanas, took the thumri to a whole new level of greatness.

29. (d) Asha Bhosle recieved the Dadasaheb Phalke Aaward in 2000 .She is best known for her playback singing in Hindi Cinema.

30. (c) A vacuum-tube computer, now termed a first-generation computer, is a computer that uses vacuum tubes for logic circuitry. Although superseded by second-generation transistorized computers, vacuum-tube computers continued to be built into the 1960s. These computers were mostly one-of-a-kind designs.

31. (d) Vice President of India should be qualified for election as a member of the Rajya Sabha. Vice President of India should be citizen of India. Vice-President of India should not hold any office of profit under the Union government or any state government or any local authority.

32. (d) In India, Silver fir, junipers, pines and birches are the common trees of the Montane forests.

33. (d) Vitamin B_3 is known as Niacin. Niacin (also known as vitamin B_3 is one of the water-soluble B vitamins. Niacin is the generic name for nicotinic acid (pyridine-3-carboxylic acid), nicotinamide (niacinamide or pyridine-3-carboxamide), and related derivatives, such as nicotinamide riboside.

34. (d) Its a wonderful Life is written by Ruskin Bond. Ruskin Bond is an Indian author. His first novel, The Room on the Roof, was published in 1956, and it received the John Llewellyn Rhys Prize in 1957.

35. (a) Prime Minister Shri Narendra Modi hosted the first India-Central Asia Summit in virtual format on 27 January 2022, which was attended by Presidents of the Republic of Kazakhstan, Kyrgyz Republic, Republic of Tajikistan, Turkmenistan and Republic of Uzbekistan.

36. (a) Newton's third law of motion states that "When one body exerts a force on the other body, the first body experiences a force which is equal in magnitude in the opposite direction of the force which is exerted".

37. (c) The Book titled 'Your Best Day Is Today!' written by Anupam Kher is based on his experiences during the countrywide lockdown during the coronavirus pandemic.

38. (b) There are 5 players in basketball, in which two teams participate and the duration of the game is 50 minutes. The originator of the basketball game was James Naismith. In the year 1936, the basketball game got a place in the Olympic Games. The game of basketball in India started in the year 1934. Indian Basketball was established in the year 1950. Basketball is one of the most popular and widely watched sports in the world.

39. (c) Article 343 of the Indian constitution specifies Hindi as the official language of the Union.

40. (a) In 2012 Saina Nehwal win the olympic bronze medal in the individual women's badminton competition.

41. (b) First generation of computers used machine code as the programming language. The generation of computers used machine code as the programming language. One of the disadvantage of Programming in a Low language is that when occurs, the code is not easy to fix.

42. (a) Graham's Law states that the rates of diffusion of gases are inversely proportional to the squareroots of their densities under similar conditions of temperature and pressure.

43. (b) Demand curve is graph that shows the relationship between the price of a good or service and the quantity demanded within a specified time frame. Demand curves can be used to understand the price-quantity relationship for consumers in a particular market. Demand curve is a graphical representation of the demand function.

44. (d) Approximately mars complete one spin on its axis by one day. As Mars orbits the Sun, it completes one rotation every 24.6 hours, which is very similar to one day on Earth (23.9 hours).

45. (a) Spain's Carlos Alcaraz, 19, defeated Casper Ruud in the 2022 US Open men's singles final to earn his first Grand Slam title.

46. (b) Bombay Stock Exchange is the oldest stock exchange. BSE limited became the first Indian Stock Exchange to be recognized as a "Designated Offshore Securities Market" (DOWN) by the United States Securities And Exchange Commission.

47. (d) India's short range Ballistic Missile Prithvi 2 was successfully tested from Chandipur, Odisha. A successful training launch of a Short-Range Ballistic Missile, Prithvi-II was carried out on January 10, 2023 from the Integrated Test Range, Chandipur off the coast of Odisha. A well-established system, Prithvi-II missile, has been an integral part of India's nuclear deterrence.

48. (a) Meghaduta was written by Kalidasa. Kalidasa was a Classical Sanskrit author who is often considered ancient India's greatest poet and playwright.

49. (a) Gopika Varma is a classical dancer of Mohniattam. Gopika Varma is a Kerala born Mohiniyattam dancer and dance teacher who is settled in Chennai, Tamil Nadu, India. She received several awards including Sangeet Natak Akademi Award, Kerala Sangeetha Nataka Akademi Award and Kalaimamani.

50. (c) Patli hills are not part of Purvanchal hills. The Purvanchal range includes the hill ranges of the Patkai, Barail Range, Naga Hills, Lushai Hills and Jampui Hills. The Purvanchal Mountains cover the states of Assam, Manipur, Tripura, Nagaland, Meghalaya and Mizoram. The Garo, Khasi and Jaintia hills are not located in this range which is part of Deccan plateau.

QUANTITATIVE APTITUDE

51. (b) Total marks scored in history for 2016 ⇒ 40
Total marks of civics for both years ⇒ 40 + 60 = 100

Percentage ⇒ $\dfrac{40}{100} \times 100 = 40\%$

52. (d) Company A suffered ⇒ $\dfrac{10}{35} \times 100$
⇒ 28.57% loss

Company C suffered ⇒ $\dfrac{5}{40} \times 100$
⇒ 12.5% loss

Company A suffered the maximum percentage of loss in the year 2021.

53. (a) $(0.91)^3 + (.09)^3 / [(.91)^2 - (.0819) + (.09)^2]$

$$\Rightarrow \frac{\left[(.91)+(.09)\right]\left[(.91)^2 - (0.0819) + (.09)^2\right]}{\left[(.91)^2 - (0.0819) + (0.9)^2\right]}$$

⇒ (.91) + (.09)
⇒ 1

54. (a) (i) Combined Cost price of J and K ⇒ 650 + 550 = 1200
Combined profit of L and M ⇒ 250 + 350 = 600

Percentage ⇒ $\dfrac{600}{600} \times 100$

⇒ 100%

The Combined Cost price of J and K is 100 percent more than the combined profit of L and M (True).

(ii) Combined profit of N and P ⇒ 200 + 300 = 500
Combined Cost price of K and M ⇒ 550 + 450 = 1000
Ratio ⇒ 500 : 1000
⇒ 1 : 2
The ratio of Combined profit of N and P to the combined Cost price of K and M is 2 : 1 (False).

55. (b) Total population of state 'P'
⇒ 150 + 250 + 175 + 100 + 50 = 725
Total population of state 'Q'
⇒ 300 + 200 + 125 + 75 + 150 = 850
Difference between the total population of P and Q
⇒ 850 − 725 ⇒ 125

56. (c) AP ⇒ {10, 12, 14, ... 98}
$a_n = a + (n-1)\,d$
98 = 10 + (n − 1)2
88 = (n − 1) × 2
44 + 1 = n
$\boxed{n = 45}$

$Sn = \dfrac{n}{2}(a + a_n)$

$\Rightarrow \dfrac{45}{2}(10 + 98)$

$\Rightarrow \dfrac{45}{2} \times 108 \Rightarrow 45 \times 54 \Rightarrow 2430$

57. (b) $117 \div 45 \text{ of } \left(\dfrac{1}{5}\right) + \left(\dfrac{12}{5}\right) \times \left(\dfrac{20}{3}\right)$

$\Rightarrow 117 \div 45 \times \dfrac{1}{5} + \dfrac{12}{5} \times \dfrac{20}{3}$

$\Rightarrow \dfrac{117}{9} + 16$

⇒ 13 + 16
⇒ 29

58. (c) $\dfrac{1 - \sin A}{\cos A} + \dfrac{\cos A}{1 - \sin A}$

$\Rightarrow \dfrac{(1 - \sin A)^2 + \cos^2 A}{\cos A\,(1 - \sin A)}$

$\Rightarrow \dfrac{1 + \sin^2 A - 2\sin A + \cos^2 A}{\cos A\,(1 - \sin A)}$

$\Rightarrow \dfrac{2(1 - \sin A)}{\cos A\,(1 - \sin A)} = 2\sec A$

59. (b) Total age of five children ⇒ 15 × 5 = 75 years
Average age of children together with their father and mother is ⇒ 25 × 7 = 175 years
Father' age + Mother age = 175 − 75 = 100 years ...(i)
Father' age − Mother age = 4 years ...(ii)
By eq. (i) and eq. (ii)
Father's age is = 52 years
Mother's age is = 48 years

60. (b) $N + \dfrac{1}{N} = \sqrt{3}$
taking square on both side.

$\left(N + \dfrac{1}{N}\right)^2 = \left(\sqrt{3}\right)^2$

$N^2 + \dfrac{1}{N^2} = 1 \to$ taking cube on both side

$\left(N^2 + \dfrac{1}{N^2}\right)^3 = (1)^3$

$N^6 + \dfrac{1}{N^6} + 3 \times N^2 \times \dfrac{1}{N^2}\left(N^2 + \dfrac{1}{N^2}\right) = 1$

$\boxed{N^6 + \dfrac{1}{N^6} = -2}$

$\therefore \quad N^6 + \dfrac{1}{N^6} + 11 = -2 + 11 = 9$

61. (a) Let Nakul has the money $\Rightarrow 100$
Money used to buy wheat flour $\Rightarrow 20$
Money spent on cooking oils

$$\Rightarrow 80 \times \frac{25}{100} \Rightarrow 20$$

Now, he is left with the money
$$\Rightarrow 100 - 20 - 20 \Rightarrow 60$$
Total amount of money that nakul had
$$\Rightarrow \frac{900}{60} \times 100 \Rightarrow 1500.$$

62. (a) Let the certain sum is $\Rightarrow P$
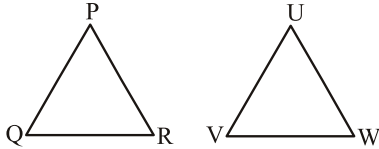Difference between the interest $\Rightarrow 26$

$$P \times \frac{8}{100} \times 6 - P \times \frac{8}{100} \times 5 = 26$$

$$\frac{8P}{100} = 26$$

$$P = 26 \times 12.5$$

$$\boxed{P = ₹325}$$

63. (b)

$$\frac{\text{Perimeter of } \Delta PQR}{\text{Perimeter of } \Delta UVW} = \frac{PQ}{UV}$$

$$\frac{120}{240} = \frac{30}{UV}$$

$$\boxed{UV = 60\,\text{cm}}$$

64. (b) $\cos (A + B) = 0$
$\cos (A + B) = \cos 90°$
$A + B = 90°$ (i)
$\sin (A - B) = 0$
$\sin (A - B) = \sin 0$
$A - B = 0°$ (ii)
By eq (i) and eq (ii)

$A + B = 90°$

$\underline{A - B = 0°}$

$2A = 90°$

$$\boxed{A = 45°}$$

$$\boxed{B = 45°}$$

65. (a) Radius of Cylinder $\Rightarrow 12$ cm
Height of Cylinder $\Rightarrow 24$ cm
A.T.Q.

$$24 \times \frac{2}{3} \pi r^3 = \pi r^2 h$$

$$16r^3 = r^2 h$$

$$16r^3 = 12 \times 12 \times 24$$

$r^3 = 9 \times 24$
$r^3 = 216$

$$\boxed{r = 6\,\text{cm}}$$

radius of each solid Semi sphere is 6 cm.

66. (a) The three sides of a triangle are 7 cm, 9 cm and 8 cm.

$$s = \frac{a + b + c}{2}$$

$$s = \frac{7 + 9 + 8}{2}$$

$$s = \frac{24}{2} = 12\,\text{cm}$$

Area of triangle $\Rightarrow \sqrt{s(s-a)(s-b)(s-c)}$

$$\Rightarrow \sqrt{12(12-7)(12-9)(12-8)}$$

$$\Rightarrow \sqrt{12 \times 5 \times 3 \times 4}$$

$$\Rightarrow 12\sqrt{5}\,\text{sq.cm}$$

67. (b) $\sec x + \tan x = 5$ and $\operatorname{cosec} y - \cot y = \dfrac{1}{3}$
$\sec^2 x - \tan^2 x = 1$
$(\sec x + \tan x)(\sec x - \tan x) = 1$

$$\boxed{\sec x - \tan x = \frac{1}{5}}$$

$\operatorname{cosec}^2 y - \cot^2 y = 1$
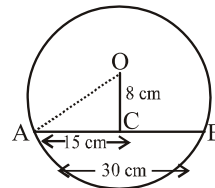$(\operatorname{cosec} y + \cot y)(\operatorname{cosec} y - \cot y) = 1$

$$\boxed{\operatorname{cosec} y + \cot y = 3}$$

$(\sec x + \operatorname{cosec} y) - (\tan x - \cot y)$
$\Rightarrow \sec x + \operatorname{cosec} y - \tan x + \cot y$

$$\Rightarrow \frac{1}{5} + 3 \quad \Rightarrow 3.2$$

68. (a)

In ΔAOC
$AO^2 = AC^2 + OC^2$
$AO^2 = (15)^2 + (8)^2$
$AO^2 = 225 + 64$
$AO = \sqrt{289}$
$AO = 17$ cm
The diameter $= 17$ cm $\times 2 = 34$ cm

69. (a) Let usual selling price $= 10$

If sold of $\dfrac{9}{10}$ th of its usual selling price $= 9$

cost price $= \dfrac{9}{120} \times 100 \Rightarrow 7.5$

Profit, when sold at usual selling price

$$\Rightarrow 10 - 7.5 \Rightarrow 2.5$$

$$\text{Profit\%} = \frac{2.5}{7.5} \times 100 \Rightarrow 33.33\%$$

70. **(d)** Rahul alone can complete the work in

$$\Rightarrow 10 \text{ days} \xrightarrow{\ 3\ } 30 \text{ work}$$

Sonu alone can complete the work in

$$\Rightarrow 15 \text{ days} \xrightarrow{\ 2\ } 30 \text{ work}$$

Work completed in four days

$$\Rightarrow (3 + 2)\,4 \Rightarrow 20$$

Part of work is left $\Rightarrow \dfrac{30 - 20}{30} \Rightarrow \dfrac{10}{30} \Rightarrow \dfrac{1}{3}$
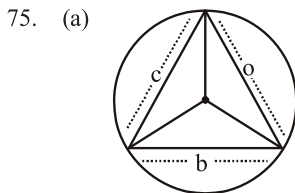
71. **(b)** $\dfrac{(a + b)^2 - (a - b)^2}{ab}$

$$\Rightarrow \frac{a^2 + b^2 + 2ab - a^2 - b^2 + 2ab}{ab} \Rightarrow \frac{4ab}{ab} \Rightarrow 4$$

72. **(a)** Average Speed $\Rightarrow \dfrac{\text{Total Distance}}{\text{Total Time taken}}$

$$\Rightarrow \frac{100 + 100 + 100}{\dfrac{100}{200} + \dfrac{100}{300} + \dfrac{100}{600}}$$

$$\Rightarrow \frac{300}{\dfrac{300 + 200 + 100}{600}}$$

$$\Rightarrow 300 \times \frac{600}{600} \Rightarrow 300 \text{ km/h}$$

73. **(a)** Selling price of on article = 560

Marked price of the article $= \dfrac{560}{80} \times \dfrac{100}{70} \times 100$

$$= 1000$$

74. **(c)** A sum of money is divided among P, Q and R in the Ratio $\Rightarrow 7 : 9 : 4$

Difference between the shares of P and Q

$$\Rightarrow \frac{1500}{3} \times 2 \Rightarrow ₹1000$$

75. **(a)**

$(abc)^2 = 1024$

$abc = 32$

$\pi r^2 = 16\pi$

$\boxed{r = 4}$

Area of the triangle $\Rightarrow \dfrac{abc}{4r}$ {when circumradius is given}

$$\Rightarrow \frac{32}{16} \Rightarrow 2$$

ENGLISH LANGUAGE

76. **(d)** The idiom **'Zero tolerance'** means a policy of not allowing any violations of a rule or law.

77. **(d)** The core meaning of the sentence should not change while converting it from active to passive voice or vice-versa. First, identify the subject, verb and object in the sentence and interchange the position of the subject and the object. In convert into passive voice, root verb changes into past participle form and changes are made to the pronouns. A helping verb and preposition 'by' are also employed in passive voice.

78. **(a)** **Elucidate** implies explain, illuminate and clarify its antonym will be obfuscate, jumble and befog.

79. **(b)** The phrase **Close to happening** means approaching, forthcoming and looming. Thus, option (d) is correct answer.

80. **(a)** As the sentence talks about storage devices then **store** (verb) will be the right answer.

81. **(b)** The antonyms of **timid** will be courageous, bold and brave.

82. **(c)** **One of the + superlative degree** should conjugate with a plural noun because we are talking about one member of a group.

83. **(c)** The Idiom **In the same pickle** means in a difficult situation. Thus, (c) is the correct answer.

84. **(a)** The given idiom **'To bridge the gap'** means to reduce differences and reconcile.

85. **(a)** **Timorous** means fearful and apprehensive. Its antonyms will be bold, brazen and forthcoming.

86. **(d)** Here, **Infinitive** i.e. to + V1 will be used. **Correct sentence:** I try to travel lightly packing only the bare essentials.

87. **(b)** In direct to indirect conversion, **present continuous** changes to **past continuous** tense. Thus, according to the rules, option (b) is the correct answer.

88. **(a)** **Anthropology** is the study of human being and their ancestors through time. **Physiology** is the science of life. Ethnology is the scientific study and comparison of human races. Biology is a branch of science that deals with living organisms and their vital processes.

89. **(a)** Q is the ist sentence followed by R that tells what the data is all about. S is the 3rd statement as it talks about approaches that could increase flowering and fruit production in apple trees as mentioned in P. **QRSP** is the logical sequence.

90. **(b)** R is the ist statement as its states the beginning of the German attacks, followed by P. Q is the 3rd