STAFF SELECTION COMMISSION

COMBINED HIGHER SECONDARY LEVEL (TIER-I)

SOLVED PAPER

(2nd August 2023: Shift-1)

Time Allotted- 1 hour **Max marks-** 200

Important Instructions:-

⇨ This paper contains 100 questions which are divided into 4 sections and each section contains 25 questions.
- ✓ English Language (Basic Knowledge)
- ✓ General Intelligence
- ✓ Quantitative Aptitude (Basic Arithmetic Skill)
- ✓ General Awareness

⇨ There will be 2 marks for each correct answer and also there will be negative marking of 0.50 marks for each wrong answer.

⇨ Each question is compulsory to attempt and there will be no negative marking for unattempted questions.

English Language

1. 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.
1. attached insult to injury **2.** provoked insult to injury
3. added injury to insult **4.** added insult to injury

2. Select the option that correctly expresses the following sentence in passive voice.
The child will recite the poem.
1. By child poem will be recited.
2. The poem will be recited by the child.
3. The poem is recited by the child.
4. The poem will recite by the child.

3. Parts of the following sentence have been given as options. Select the option that contains an error.
You need to acknowledge the itinerary and accommodation details of your journey as per the given calendar.
1. calendar **2.** accommodation
3. acknowledge **4.** itinerary

4. Choose the correct meaning of the underlined word in the given sentence.
When I was in Class 5, I won the first prize in extempore at my school.
1. A short piece of writing on a subject
2. A sports event
3. A speech delivered without prior preparation or rehearsal
4. A dramatic performance on stage

5. 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
1. BACD **2.** CDBA **3.** ABCD **4.** DCBA

6. 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.
1. BADC **2.** DCBA **3.** DBAC **4.** ACDB

7. Select the most appropriate synonym of the given word.
Resentment
1. Calmness **2.** Happiness **3.** Anger **4.** Relaxation

8. Select the option with the correct spelling that can replace the underlined word in the given sentence.
Kasturi acts as a liason between patients and staff.
1. liaision **2.** laision **3.** liaison **4.** liaisan

9. Select the most appropriate ANTONYM of the given word.
Meagre
1. Regional **2.** Racial **3.** Stupid **4.** Generous

10. Select the most appropriate synonym for the underlined word in the following sentence.
The politician's pompous rhetoric during the campaign failed to garner much support from the public.
1. Conciliatory **2.** Benign
3. Supercilious **4.** Diplomatic

11. 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
1. A, B, D, C **2.** A, D, B, C **3.** C, A, D, B **4.** C, B, A, D

12. Select the option that expresses the given sentence in positive degree of comparison.
She is the dullest child in the class.
1. She is very duller in the class.
2. Dullest child in the class is she.
3. No other child in the class is as dull as she.
4. In the class of all she is dull.

13. Select the most appropriate ANTONYM of the underlined word.
Wealthier countries are obligated to fulfil a commitment made in the Paris Agreement to provide $100 billion a year in international climate finance.
1. feeble **2.** drape **3.** breach **4.** hale

14. Select the most appropriate idiom for the underlined segment in the following sentence.
Brave people never hide at the moment of decision.
1. When the crunch comes **2.** Beat the clock
3. A hell of time **4.** Turn back the hands of time

15. Select the option that expresses the given sentence in active voice.
French is taught to us by Miss Glenn.
1. Miss Glenn taught us French.
2. Miss Glenn teach us French.
3. Miss Glenn teaches us French.
4. Miss Glenn is teaching us French.

ELOQUENT EDGE

16. Select the option that will improve the underlined part of the given sentence.
Adyasha <u>would have been looked</u> gorgeous in ethnic apparel.
1. was looked **2.** would have looked
3. had looking **4.** would be looked

17. 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.
1. in our **2.** Black Ice Club
3. Babbal is **4.** a oldest member

18. 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.
Such poststructuralist pronouncements…
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
1. ABCD **2.** ADCB **3.** BCAD **4.** CABD

19. Select the most appropriate ANTONYM of the given word.
Fundamental
1. Impact **2.** Neutral **3.** Least **4.** Link

20. Select the most appropriate homophone to fill in the blank.
Even animals find it difficult to _____ the loss of their loved ones.
1. bear **2.** wear **3.** where **4.** bare

Comprehension:
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 _____(1). 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 _____ (2) admitting of no easy_____ (3) at the best of times. Again there is the unemployment which followed a marked diminution in the _____ (4) 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 _____ (5) 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.

21. Select the most appropriate option to fill in blank number 1.
1. causes **2.** thoughts **3.** things **4.** types

22. Select the most appropriate option to fill in blank number 2.
1. difference **2.** discussion **3.** nature **4.** problem

23. Select the most appropriate option to fill in blank number 3.
1. key **2.** clue **3.** answer **4.** solution

24. Select the most appropriate option to fill in blank number 4.
1. material **2.** quality **3.** quantity **4.** cloth

25. Select the most appropriate option to fill in blank number 5.
1. fewer **2.** more **3.** many **4.** a lot of

General Intelligence

26. 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)
1. (25,81) **2.** (36, 112) **3.** (45, 138) **4.** (24,77)

27. DHJ is related to AEG in a certain way based on the English alphabetical order. In the same way, ZMO is related to WJL To which of the following is EKQ related following the same logic?
1. HNT **2.** DJK **3.** BHN **4.** QKE

28. Select the number from among the given options that can replace the question mark (?) in the following series.
383, 381, 377, 369, 353, ?
1. 325 **2.** 323 **3.** 322 **4.** 321

29. 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.)
(12, 11, 137)
(17, 21, 362)
1. (18, 9, 165) **2.** (14, 31, 440)
3. (21, 25, 530) **4.** (38, 7, 270)

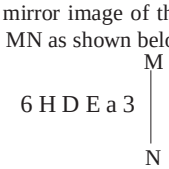
30. In a certain code language,
A + B means 'A is the father of B'
A – B means 'A is the wife of B'
A × B means 'A is the brother of B'
A ÷ B means 'A is the mother of B
Based on the above, how is G related to K if 'G ÷ H × I – J + K'?
1. Mother's mother **2.** Father's sister
3. Mother **4.** Father's mother

31. 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, NA 72
1. DS 86 **2.** DR 82 **3.** ER 84 **4.** ES 86

32. If 'A' stands for '÷' 'B' stands for '×', '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 = ?
1. 151 **2.** 149 **3.** 138 **4.** 143

33. The position of how many letters will remain unchanged if each letter in the word AMPLIFY is arranged in alphabetical order?
1. Three **2.** Two **3.** Four **4.** One

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



1. **2.** ɐ
3. 9 **4.** 3 E

35. Which of the following interchanges in two mathematical operators will balance the equation given below?
75 ÷ 15 × 8 + 14 – 5 = 67
1. ÷ and × **2.** – and ÷ **3.** – and × **4.** + and –

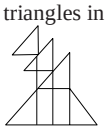
36. Read the given statements and conclusions carefully. You have to take the given statements to be true even if they seem to be at variance from commonly known facts. You have to decide which conclusion(s) logically follow(s) from the given statements.

ELOQUENT EDGE

Statements: 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.
1. Only conclusion I follows.
2. Both conclusions I and II follow.
3. Only conclusion II follows.
4. Neither conclusion I nor II follows.

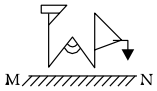
37. Three of the following four are alike in a certain way and thus form a group. Which is the one that does NOT belong to that group?
(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g.. 13-Operations on 13 such as adding/ subtracting /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)
1. 46 – 41 – 12 **2.** 16 – 9 – 21
3. 23 – 18 – 15 **4.** 34 – 28 – 18

38. Identify the number of triangles in the given figure.

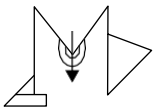


1. 10 **2.** 7 **3.** 8 **4.** 9

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



1.

2.

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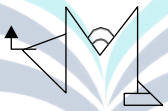
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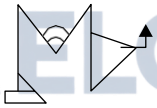


40. Which of the following letter-clusters will replace the question mark (?) in the given series to make it logically complete?
EY 14, ?, IW 20, KV 24, MU 26
1. GY 19 **2.** HZ 18 **3.** GX 18 **4.** HY 19

41. In a certain code language, 'RESENT' is written as 'TGUCLR' and 'PEOPLE' is written as 'RGQNJC. How is 'PERSON' written in the given language?
1. RGTQML **2.** RGTQMP **3.** RGSUQL **4.** RGTUQP

42. Which letter-cluster should come in place of ? In the given series based on the English alphabetical order?
GBW, EZX, CXY, AVZ, ?
1. ZTB **2.** YTA **3.** XSB **4.** XRC

43. 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?
1. pl **2.** rq **3.** jn **4.** mp

44. If 17th April 1992 is Friday, then what will be the day of the week on 10th October 1993?
1. Sunday **2.** Wednesday
3. Monday **4.** Tuesday

45. Select the number from among the given options that can replace the question mark (?) in the following series.
13, 24, 46, 90, 178, ?
1. 358 **2.** 352 **3.** 354 **4.** 356

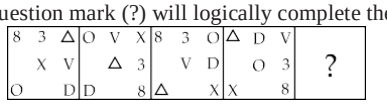
46. Based on the alphabetical order, three of the following four are alike in a certain way and thus form a group. Which is the one that does NOT belong to that group?
1. TVR **2.** DFB **3.** WYU **4.** MZK

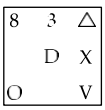
47. Find out the correct alternative that when filled in the blanks in the same sequence will make the series logically complete.
G_MA _VOY KTQ_ MR_U O_US
1. XGVSP **2.** XIWSP **3.** XOWSO **4.** XGWTQ

48. 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?
1. Wife's sister **2.** Brother's daughter
3. Sister's daughter **4.** Daughter

49. 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: 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 /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.)
1. 46 – 141 **2.** 55 – 168 **3.** 35 – 108 **4.** 29 – 88

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



1.

2.

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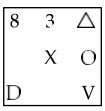
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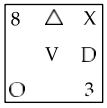
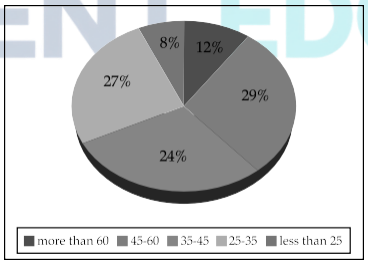


Quantitative Aptitude

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.



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:
1. 71:45 **2.** 57:41 **3.** 63:47 **4.** 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:
1. $2\frac{1}{5}\%$ **2.** $7\frac{3}{5}\%$ **3.** $6\frac{2}{5}\%$ **4.** $3\frac{1}{5}\%$

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

ELOQUENT EDGE

1. $15 < S < 33$ **2.** $15 \le S < 33$
3. $15 < S \le 33$ **4.** $15 \le S \le 33$

54. If $2x + \frac{2}{x} = 5$, then the value of $\left(x^3 + \frac{1}{x^3} + 2\right)$ will be:

1. $\frac{81}{11}$ **2.** $\frac{81}{7}$ **3.** $\frac{71}{8}$ **4.** $\frac{81}{8}$

55. Bushan'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 `)?

1. 18,270 **2.** 18,690 **3.** 18,000 **4.** 19,000

56. If $x + \frac{1}{x} = 7$, then the value of $x^2 + \frac{1}{x^2}$ is:

1. 49 **2.** 51 **3.** 47 **4.** 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:

1. 8 cm **2.** 18 cm **3.** 10 cm **4.** 12 cm

58. If $\sin A + \sin^2 A = 1$, then the value of the expression $(\cos^2 A + \cos^4 A)$ is _____.

1. $\frac{3}{2}$ **2.** 1 **3.** 2 **4.** $\frac{1}{2}$

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?

1. 27.2 years **2.** 24.8 years
3. 32.8 years **4.** 25.2 years

60. If $\cot\theta = \frac{9}{17}$, find the value of $\operatorname{cosec}^2\theta$.

1. $1\frac{9}{17}$ **2.** $\frac{208}{289}$ **3.** $\frac{8}{17}$ **4.** $1 + \frac{81}{289}$

61. How long (in years) will a sum of money invested at 6% per annum simple interest to increase its value by 40%?

1. $6\frac{2}{3}$ **2.** $5\frac{2}{3}$ **3.** $6\frac{1}{3}$ **4.** $4\frac{1}{3}$

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:

1. 5 **2.** 6 **3.** 4 **4.** 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?

1. 6 **2.** 5 **3.** 7.5 **4.** 9

64. Find the third proportional of 25 and 45.

1. 85 **2.** 65 **3.** 81 **4.** 76

65. Study the given table and answer the question that follows.
The table indicates 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?

1. A **2.** B **3.** C **4.** 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.

1. 1 : 2 and 1 : 1 **2.** 1 : 1 and 2 : 1
3. 2 : 1 and 1 : 2 **4.** 1 : 1 and 1 : 1

67. If a right circular cone of height 24 cm has the circumference of its base 42 π cm, then the volume of the cone is (use $\pi = \frac{22}{7}$):

1. 15211 cm^3 **2.** 11088 cm^3
3. 12034 cm^3 **4.** 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).

1. 7.90% **2.** 8.70% **3.** 8.50% **4.** 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:

1. 18 days **2.** 24 days **3.** 20 days **4.** 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 time. 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?

1. 9 **2.** 7 **3.** 10 **4.** 8

71. Which of the following numbers is NOT divisible by 11?

1. 1735624 **2.** 752563 **3.** 1661308 **4.** 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?

1. 3 : 4 **2.** 4 : 3 **3.** 5 : 2 **4.** 2 : 5

73. If $5x + 3y = 15$ and $2xy = 6$, then the value of $5x - 3y$ is:

1. $3\sqrt{3}$ **2.** $3\sqrt{5}$
3. $3\sqrt{2}$ **4.** $3\sqrt{4}$

74. $\frac{\cos\theta}{\sec\theta - 1} + \frac{\cos\theta}{\sec\theta + 1}$ is equal to:

1. $2\sec^2\theta$ **2.** $2\cot^2\theta$ **3.** $2\cos^2\theta$ **4.** $2\sin^2\theta$

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.

1. `8,200 **2.** `7,500 **3.** `6,000 **4.** `8,000

General Awareness

76. Who was awarded the Nobel Prize in Physics in 1909 along with Karl Ferdinand Braun for the development of practical wireless telegraphy?

1. Heinrich Rudolf Hertz **2.** John Michell
3. Wilhelm Rontgen **4.** Guglielmo Marconi

ELOQUENT EDGE

77. Pandit Shivkumar Sharma is remembered for his mastery in playing.
1. Tabla **2.** Sarod **3.** Sitar **4.** Santoor

78. Women SHG member appointed as a banking agent is called _____.
1. Bank Mitra **2.** Bank Dost
3. Bank Sakhi **4.** Bank NGO

79. Which potassium acid salt is obtained as a by-product of alcohol manufacture during the fermentation process?
1. Potassium citrate **2.** Potassium bitartrate
3. Potassium nitrate **4.** Potassium hydrogen adipate

80. Mundari dance is associated with the tribal community of which Indian state?
1. Mizoram **2.** Karnataka
3. Arunachal Pradesh **4.** Jharkhand

81. In 2014, Bandhan Financial Services, microlender with Headquarters at _____, was granted in-principal approval by RBI to start a universal bank.
1. Kolkata **2.** Mumbai **3.** Pune **4.** Lucknow

82. What is the width of the court for double matches in Lawn Tennis?
1. 38 feet **2.** 36 feet **3.** 34 feet **4.** 32 feet

83. 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

1. a-iv, b-iii, c-i, d-ii **2.** a-iii, b-i, c- iv, d-ii
3. a-iv, b- ii, c- i, d-iii **4.** a-iv, b-i, c-ii, d-iii

84. Mid-latitude deserts (BWK) are found between 35° and _____ N and S, which are poleward of subtropical high-pressure areas.
1. 70° **2.** 60° **3.** 79° **4.** 40°

85. Panchpatmali deposits in Koraput district are the deposits of which of the following minerals?
1. Iron ore **2.** Copper
3. Manganese **4.** Bauxite

86. Which of the following Anglo-Maratha wars resulted in merging the Peshwas' territories with the Bombay Presidency?
1. Fourth **2.** Third **3.** Second **4.** First

87. Which of these is the correct reason for a good to be identified as a final good?
1. It is not processed by a consumer after purchase.
2. It cannot be recycled or re-used.
3. It is in the last stage of the product life cycle.
4. It is not processed further by a producer.

88. The lofty gates erected in the courtyard of the temples in south India were called _____.
1. mandap **2.** ardhmandap
3. vimana **4.** gopuram

89. Which of the following crops is the only genetically modified (GM) crop approved for commercial cultivation in India?
1. Bt Brinjal **2.** Mustard **3.** Bt Cotton **4.** Tomato

90. Which of the following players won the orange cap in IPL-2023?
1. Yashasvi Jaiswal **2.** Shubman Gill
3. Faf du Plessis **4.** Devon Conway

91. 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.
1. Erukala **2.** Bhils **3.** Gonds **4.** Chenchus

92. When the general interest rate reaches a very low level, which of the following statements will be correct?
1. Most people will expect the interest rate to rise in the future.
2. Most people will prefer to hold bonds.
3. Most people will speculate a further decline in the rate of interest.
4. Any increase in the money supply will cause the interest rate to fall further.

93. Which of the following government schemes provides skill development training to youth in India?
1. Pradhan Mantri Jan Dhan Yojana
2. Pradhan Mantri Kaushal Vikas Yojana
3. Deendayal Antyodaya Yojana
4. Pradhan Mantri Garib Kalyan Anna Yojana

94. Who is known as the founder of Widow Remarriage Association (1861)?
1. Dr. Atma Ram Pandurang **2.** RG Bhandarkar
3. Dwarkanath Tagore **4.** Mahadev Govind Ranade

95. Which state in India has the highest number of aluminium smelting plants?
1. Odisha **2.** Tamil Nadu
3. Maharashtra **4.** Uttar Pradesh

96. As of February 2023, how many times Aditi Ashok has overall won the LET (Ladies European Tour) title?
1. Four **2.** Five
3. Three **4.** Six

97. Which of the following Articles of the Indian Constitution prohibits forced labour and prevents exploitation?
1. Article 20 **2.** Article 19
3. Article 25 **4.** Article 23

98. In 1956, which of the following awards did Rukmini Devi Arundale, an eminent Bharatanatyam dancer, receive?
1. Jnanpith Award **2.** Saraswati Samman
3. Kabir Puraskar **4.** Padma Bhushan

99. 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?
1. 1860 **2.** 1865 **3.** 1873 **4.** 1870

100. In India which of the following is a Gandhian principle of Directive Principles of State Policy?
1. To Separate judiciary from executive
2. To organise village panchayat
3. To secure uniform civil code
4. To provide equal pay for equal work

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Answer Key

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

Answers with Explanations

1. **Option (4) is correct.**
The phrase 'created insult to injury' will be best substituted by 'add insult to injury'. This idiom implies 'to do or say something that makes a bad situation even worse for someone.'Here, the harsh words of the boss had already made Srujan feel sad, but his colleague's words actually worsened his sadness.

2. **Option (2) is correct.**
In voice change, the object of the active verb becomes the subject of the passive verb. The active sentence's subject becomes the object of the passive sentence (or is dropped). Active voice: Subject + shall/will + verb + object. Passive voice: Object + shall/will + be + verb [past participle] + by/to/with + object. Thus, the correct sentence is: The poem will be recited by the child.

3. **Option (4) is correct.**
There is a spelling error in the sentence 'You need to acknowledge the itinerary and accommodation details of your journey as per the given calendar'. Here, 'itinerary' will be spelled as 'Itinerary', meaning 'a planned route or journey.'

4. **Option (3) is correct.**
In the sentence, 'When I was in Class 5, I won the first prize in extempore at my school', 'extempore' implies 'spoken or done without preparation.' Therefore, only option (3) matches the connotation: A speech delivered without prior preparation or rehearsal. Thus, the correct sentence is: The poem will be recited by the child.

5. **Option (4) is correct.**
The correct sequence of the parts of sentence is: DCBA. (D) has the subject of the sentence 'my heart' followed by the verb 'skipped a beat'. Next, comes C 'when suddenly' followed by the action 'a carcass of an animal fell before me'.

6. **Option (3) is correct.**
The correct sequence of the sentences is: DBAC. D gives the introduction to the subject 'According to industry data' then, comes the figures of the data. This shows a huge failure, which is attributed in B 'failure rate in finding a new drug is as high as 95%.' These statistics give rise to the question in A 'So then why are not Silicon Valley entrepreneurs clamouring to decode the ancient wisdom?' the answer of which is provided in C- Because these once-thriving cultures are now reduced to an endangered tribe. Thus, the correct order is: According to industry data, it takes $2.6 billion and, on average, fourteen years to develop a new drug. The failure rate in finding a new drug is as high as 95%. So then why are not Silicon Valley entrepreneurs clamouring to decode the ancient wisdom? Because these once-thriving cultures are now reduced to an endangered tribe.

7. **Option (3) is correct.**
The word 'resentment' means 'a feeling of angry displeasure at something regarded as a wrong, insult, or injury.'Since, (1), (2) and (4) are positive words, the odd one out is (3). The synonym is 'anger'.

8. **Option (3) is correct.**
The spelling of 'liason' is incorrect in 'Kasturi acts as a liason between patients and staff.' The correct spelling is liaison 'someone who helps groups to work effectively with each other'.

9. **Option (4) is correct.**
Meagre means 'lacking in quantity or quality.' Thus, the antonym is 'generous'.

10. **Option (3) is correct.**
The word 'pompous' in 'the politician's pompous rhetoric during the campaign failed to garner much support from the public' implies 'excessively elevated or ornate.' 'Supercilious' is the correct synonym of 'arrogant'; while 'conciliatory' connotes 'pacifying'.

11. **Option (3) is correct.**
The correct sequence of the parts of sentence is: CADB. The topic 'rewards' in C is given, but in what way is mentioned in A- in accordance with hierarchical status, the phrase 'the economic value' is best complemented by 'of the services rendered'. The correct sentence is: Rewards are given in accordance with hierarchical status and are not related to the economic value of the services rendered.

12. **Option (3) is correct.**
The sentence 'She is the dullest child in the class' is in superlative degree of comparison, because of the use of the adjective 'dullest'. To appear in positive, it will change to 'dull'. Both (3) and (4) use the appropriate form, but only (3) makes the necessary comparison of the girl with the class. The correct sentence is: No other child in the class is as dull as she.

13. **Option (3) is correct.**
The word 'commitment' implies 'an agreement or pledge to do something in the future.' The correct antonym is 'breach', meaning 'an act of breaking a law, promise, agreement, or relationship'.

14. **Option (1) is correct.**
The idiom 'When the crunch comes' means 'when a situation reaches a very important or difficult point and you must make a decision.' 'Beat the clock' implies 'perform a task quickly or within a fixed time limit.' 'A hell of time' connotes 'very bad or difficult.' 'Turn back the hands of time' means to travel backwards in time, into the past.

15. **Option (3) is correct.**
The sentence 'French is taught to us by Miss Glenn' is in passive voice; to change voice, the object of the active verb becomes the subject of the passive verb. The active sentence's subject becomes the object of the passive sentence (or is dropped). *Active:* Subject + V1 + object…
Passive: Object + Is/are/am/+ verb (III form) + by + subject
The correct sentence is: Miss Glenn teaches us French.

16. **Option (2) is correct.**
The part 'would have been looked' will be replaced by 'would have looked'. The usage of would have in conditionals indicate talking about something that did not happen in the past. The form 'would have been looked' is incorrect as this refers to the past perfect, so is appropriate.

17. **Option (4) is correct.**
The correct sentence is: Babbal is the oldest member in our Black Ice Club. In the usage of superlative degree of comparison 'oldest'; the definite article (the) is chosen over indefinite article (a/an).

18. **Option (3) is correct.**
The correct sequence of the sentences is: BCAD. All options, except (B) start with conjunctions, and this eliminates them as the continuation after 'Such poststructuralist pronouncements. Therefore, 'Such poststructuralist pronouncements on the literature of the Third World', are common traits of the literary theory. The co-relative conjunction 'not only' will be followed by 'but also'; thus, AD is a definite pair. The correct sentence is: Such poststructuralist pronouncements on the literature of the Third World however, are a common feature of the literary theory practiced not only in the Anglo-American academia but also in the Third-World countries.

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19. Option (3) is correct.

'Fundamental' means forming a necessary base or core; of central importance; so, the antonym is 'least'/unimportant.

20. Option (1) is correct.

'Bear' means 'endure (an ordeal or difficulty)'. The word makes perfect sense in the context. Even animals find it difficult to bear the loss of their loved ones.

21. Option (1) is correct.

The correct sentence is: Unemployment arises from a variety of causes. The verb 'arises' confirms the use of 'causes', some event arises due to some causes.

22. Option (4) is correct.

The correct sentence is: the disorganisation of industry resulting from a long war; this is a serious problem. The aspect of 'the disorganisation of industry resulting from a long war' hints at a difficulty.

23. Option (4) is correct.

The correct sentence is: the disorganisation of industry resulting from a long war; this is a serious problem admitting of no easy solution at the best of times. A problem needs a solution to be solved. But the context hints at the unavailability of no solutions.

24. Option (3) is correct.

The correct sentence is: Again, there is the unemployment which followed a marked diminution in the quantity of any raw product, such as cotton. The sentence 'fewer hands are required in the mills and the factories' affirms that there has been a decrease in quantity of cotton.

25. Option (1) is correct.

The correct sentence is: Similar, but more serious is the effect of changes in industry due to the invention of machinery which does more work and require fewer hands. The context determines that with the invention of machinery, there will be an evident decrease in the number of employees. So, 'fewer' is correct.

26. Option (3) is correct.

Given pairs:

(21, 66)

(32, 99)

The pattern used here is (1st term × 3) + 3 = 2nd term.

In the first pair, (21, 66)

$(21 \times 3) + 3 = 66$

$\Rightarrow 66 = 66$

In the second pair,

$(32, 99) = (32 \times 3) + 3 = 99$

$\Rightarrow 99 = 99$

Similarly,

In option (3), (45, 138)

$(45 \times 3) + 3 = 138$

$\Rightarrow 138 = 138$

Hence, it is the correct option.

27. Option (3) is correct.

Given that: DHJ : AEG

D H J
–3 –3 –3
A E G

Similarly,

E K Q
–3 –3 –3
B H N

Hence, BHN is the correct answer.

28. Option (4) is correct.

Given that: 383, 381, 377, 369, 353, ?

According to the pattern followed, the numbers which are being subtracted by the term (Subtrahend) is progressively getting double with each step.

So, $383 - 2 = 381$

$381 - 4 = 377$

$377 - 8 = 369$

$369 - 16 = 353$

Similarly, $353 - 32 = 321$

So, the missing number is 321.

29. Option (3) is correct.

Given that:

(12, 11, 137)

(17, 21, 362)

The pattern followed here is:

(1st term × 2nd term) + 5 = 3rd term

In the first set, (12, 11, 137)

$(12 \times 11) + 5 = 137$

$\Rightarrow 137 = 137$

In the second set, (17, 21, 362)

$(17 \times 21) + 5 = 362$

$\Rightarrow 362 = 362$

Similarly in option (3), (21, 25, 530)

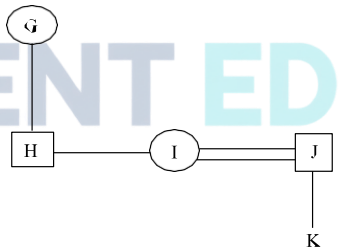
$(21 \times 25) + 5 = 530$

$\Rightarrow 530 = 530$

30. Option (1) is correct.

Given that: G ÷ H × I – J + K

After decoding the statement, possible family tree will be,



Hence, G is the Mother's mother of K'.

31. Option (3) is correct.

Given that: BO 88, ?, HU 80, KX 76, NA 72

According to the pattern followed,

B O 88
+3 +3 –4
E R 84
+3 +3 –4
H U 80
+3 +3 –4
K X 76
+3 +3 –4
N A 72

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32. Option (2) is correct.

Given series: 114 C 85 A 5 B 4 D 33 = ?

After replacing the letters with signs, we get

114 + 85 ÷ 5 × 4 – 33

On solving the equation using BODMAS rule,

= 114 + 17 × 4 – 33

= 114 + 68 – 33

= 182 – 33

⇒ 149

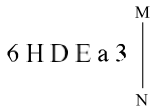
33. Option (1) is correct.

Given word: AMPLIFY

If we rearrange the letters in English alphabetical order, we get AFILMPY

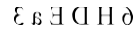
Hence, A, L and Y will remain unchanged.

34. Option (1) is correct.



In the mirror image, left becomes right, and right becomes left.

Hence, the required image is:



35. Option (3) is correct.

Given that: 75 ÷ 15 × 8 + 14 – 5 = 67

Upon interchanging the signs in the options, following equations can be obtained:

(1) 75 × 15 ÷ 8 + 14 – 5 = 149.625

(2) 75 – 15 × 8 + 14 ÷ 5 = – 42.2

(3) 75 ÷ 15 – 8 + 14 × 5 = 67

(4) 75 ÷ 15 × 8 – 14 + 5 = 31

Hence, by interchanging – and ×, the equation will be correct.

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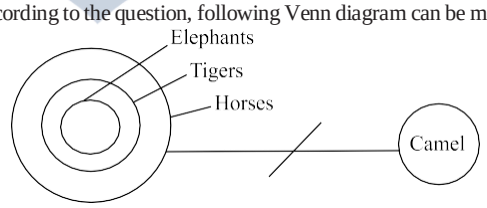
36. Option (1) is correct.

According to the question, following Venn diagram can be made.



37. Option (1) is correct.

The pattern followed here is:

1st term – ((3rd term)/3) = 2nd term

Checking option (1), 46 – 41 – 12

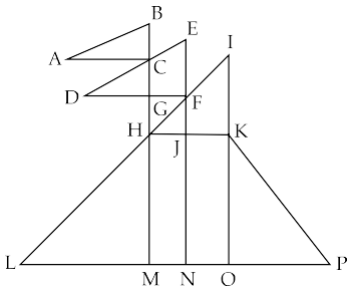
= 46 – (12/3) = 41

= 46 – 4 = 41

⇒ 42 ≠ 41

So, above option is not following the pattern.

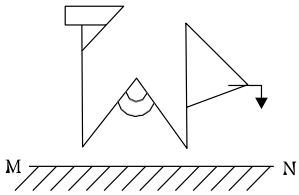
38. Option (1) is correct.



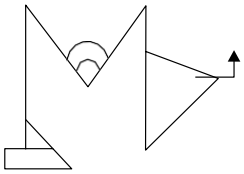
Triangles formed are ABC, DEF, DCG, HGF, FHJ, IHK, ILO, HLM, KPO, FLN.

Hence, there are total 10 triangles in the figure.

39. Option (4) is correct.

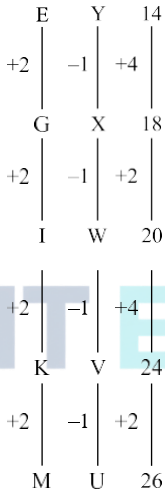


When the mirror is placed beneath the figure, the orientation of the top and bottom is reversed. Hence, the required image is:



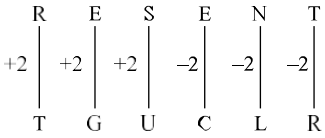
40. Option (3) is correct.

EY 14, ?, IW 20, KV 24, MU 26

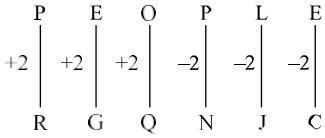


41. Option (1) is correct.

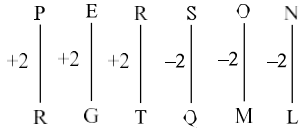
The pattern followed here is



And,



Similarly,



42. Option (2) is correct.

Given that: GBW, EZX, CXY, AVZ, ?

The pattern followed here is,

G	B	W
–2	–2	+1
E	Z	X
–2	–2	+1
C	X	Y
–2	–2	+1
A	V	Z
–2	–2	+1
Y	T	A

43. Option (4) is correct.

According to the pattern followed,

Will come [back] ⟶ [mp] rq pl

[Back] to school ⟶ jn st [mp]

Hence, 'back' will be coded as 'mp'.

44. Option (1) is correct.

Given that, 17th April, 1992 is a Friday.

Let's calculate the number of days

From 17th April 1992 to 17th April 1993, there are 365 days (since it is not a leap year).

$\Rightarrow 365 \div 7 = 52$ weeks with a remainder 1.

So, 1 day ahead of Friday is a Saturday.

Then, from 17th April 1993 to 10th October 1993, there are 176 days i.e. 25 weeks + 1 day.

So, counting 1 day ahead of Saturday, we arrive at Sunday.

45. Option (3) is correct.

Given that: 13, 24, 46, 90, 178, ?

The pattern followed here is:

13 + 11 = 24

24 + 22 = 46

46 + 44 = 90

90 + 88 = 178

Hence, 178 + 176 = 354

46. Option (4) is correct.

The pattern followed here is:

$$T \xrightarrow{+2} V \xrightarrow{-4} R$$

$$D \xrightarrow{+2} F \xrightarrow{-4} B$$

$$W \xrightarrow{+2} Y \xrightarrow{-4} U$$

$$M \xrightarrow{+14} Z \xrightarrow{+11} K$$

Hence, MZK is the correct answer.

47. Option (2) is correct.

Given that: G_MA _VOY KTQ_ MR_U O_US

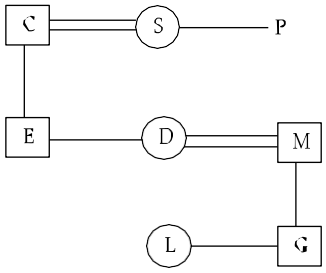
Upon inserting the letters of option 2, we get

GXMA IVOY KTQW MRSU OPUS

Here 1st and 3rd alphabets are increasing by 2 and 2nd and 4th alphabets are decreasing by 2.

Hence, it forms a logical series.

48. Option (3) is correct.



Hence, L is sister's daughter of E.

49. Option (4) is correct.

The pattern followed here is:

(1st term × 3) + 3 = 2nd term

Option 1, 46 – 141

(46 × 3) + 3 = 141

Option 2, 55 – 168

(55 × 3) + 3 = 168

Option 3, 35 – 108

(35 × 3) + 3 = 108

Option 4, 29 – 88

(29 × 3) + 3 = 90 ≠ 88

Hence, '29 – 88' is the odd one out.

50. Option (1) is correct.

8 3 △	O V X	8 3 O	△ D V	?
X V	△ 3	V D	O 3	
O D	D 8	△ X	X 8	

According to the pattern followed and the symmetry, the required figure is:

8	3	△
	D	X
O		V

51. Option (4) is correct.

Total visitors = 2000 + 1500 = 3500

Number of male visitors in age group 25–35 years

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

Number of female visitors in age group 45–60 years

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

$$\therefore \quad \text{Request ratio} = \frac{\frac{27}{100} \times \frac{60}{100} \times 3500}{\frac{29}{100} \times \frac{20}{100} \times 3500}$$

$$= \frac{81}{29} = 81:29$$

52. Option (3) is correct.

Let the cost price = `100

∴ Market price = `180 (80% more)

Discount percentage = 48%

$$\therefore \quad \text{Selling price} = \left[\frac{100-48}{100}\right] \times 180$$

$$= \frac{52 \times 180}{100}$$

$$= \frac{468}{5}$$

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$\therefore$ Loss percentage $= \left[100 - \frac{468}{5}\right]\%$

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

53. Option (1) is correct.

Q We know that sum of two sides of a triangle is greater than the third side.

Two sides of triangle are 9 and 24 units.

Sum of the two sides = 9 + 24 = 33 units

Difference of two sides = 24 – 9 = 15 units.

$\Rightarrow 15 < S < 33$

54. Option (4) is correct.

Q $2x + \frac{2}{x} = 5$

$\Rightarrow 2x^2 - 5x + 2 = 0$

$\Rightarrow (x-2)(2x-1) = 0$

$\Rightarrow x = 2$ or $\frac{1}{2}$

When $x = 2$

$x^3 + \frac{1}{x^3} + 2 = 2^3 + \frac{1}{2^3} + 2 = \frac{81}{8}$

When $x = ½$

$x^3 + \frac{1}{x^3} + 2 = \left(\frac{1}{2}\right)^3 + \frac{1}{\left(\frac{1}{2}\right)^3} + 2 = \frac{81}{8}$

In both cases answer is equal.

55. Option (1) is correct.

Monthly income = `45000 and monthly expenditure = `33000

New saving after increment

$= \frac{122}{100} \times 45000 - \frac{111}{100} \times 33000$

= 122 × 450 – 111 × 330 = `18270

56. Option (3) is correct.

Q $x + \frac{1}{x} = 7$

Squaring both sides:

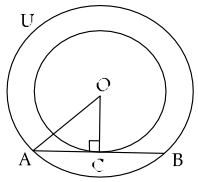
$\left(x + \frac{1}{x}\right)^2 = 7^2$

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

$\Rightarrow x^2 + \frac{1}{x^2} = 49 - 2 = 47$

57. Option (3) is correct.

As per the given information,



OC =12cm

OA =13cm

Let AC = x cm

Q Radius from the centre bisect the chord at 90°.

In triangle OAC,

$\Rightarrow AC^2 = OA^2 - OC^2$ [By pythagoras theorem]

$= 13^2 - 12^2 = 169 - 144 = 25$

$AC = \sqrt{25} = 5\text{cm} = x$

Now, AB = 2 × AC = 2 × x = 2 × 5 = 10 cm

58. Option (2) is correct.

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

$\rightarrow \sin A = 1 - \sin^2 A$

$\rightarrow \sin A = \cos^2 A$ ...(ii)

$\rightarrow \sin^2 A = \cos^4 A$ ...(iii)

Now, from equation (ii) and (iii), we get

$\rightarrow \cos^2 A + \cos^4 A = \sin A + \sin^2 A$

$\rightarrow \cos^2 A + \cos^4 A = 1$ [from (i)]

59. Option (4) is correct.

Average age of 6 member family = 25 years

$\therefore$ Sum of their ages = 6 × 25 = 150 years

Sum of ages of 5 members except younger one = 150 – 4 = 146 years

Sum of ages of 5 members just before the birth of youngest member = 146 – 5 × 4 = 126 years

$\therefore$ Required average $= \frac{126}{5} = 25.2$ years.

60. Option (4) is correct.

Q $\cot\theta = \frac{9}{17}$

Also, $\text{cosec}^2\theta = 1 + \cot^2\theta = 1 + \left(\frac{9}{17}\right)^2$

$= 1 + \frac{81}{289}$

61. Option (1) is correct.

Let principal amount, P = `100

$\therefore$ Amount, A = `140 (after including 40% interest)

$\therefore$ Simple interest = `40

Rate of interest, R = 6%

Let time, T = x years

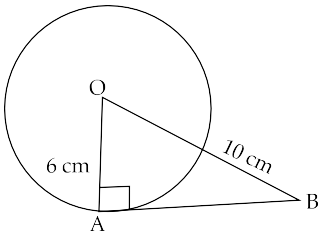
Q $S.I = \frac{f1 \times R \times T}{100}$

$\Rightarrow 40 = \frac{100 \times 6 \times T}{100}$

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

62. Option (4) is correct.

As per given the figure will be:



ELOQUENT EDGE

Since tangent and radius are perpendicular at part of contact.

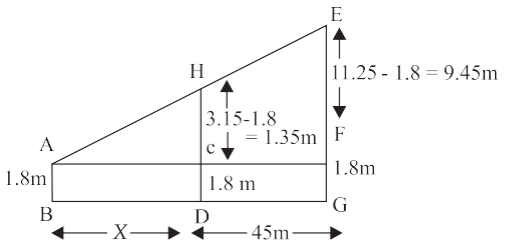
$\Rightarrow OA \perp AB$

$\therefore$ $AB = \frac{\sqrt{OB^2 - OA^2}}{\sqrt{10^2 - 6^2}} = \sqrt{64} = 8$ cm

[Pythagoras theorem]

63. Option (3) is correct.

As per the given information the figure will be:



EG $\Rightarrow$ Height building

HD $\Rightarrow$ Height of tree

DG $\Rightarrow$ Distance of tree from building

AD $\Rightarrow$ Distance of area from tree = x m

Q $\Delta EAF \sim \Delta HAC$

$\Rightarrow \frac{EF}{HC} = \frac{AF}{AC}$ [C.P.S.T]

$\Rightarrow \frac{9.45}{1.35} = \frac{45 + x}{x}$

$\Rightarrow 7 = \frac{45 + x}{x}$

$\Rightarrow 6x = 45$

$\Rightarrow x = 7.5$ m

64. Option (3) is correct.

Let third proportion of 25 and 45 = x

$\Rightarrow \frac{25}{45} = \frac{45}{x}$

$\Rightarrow x = \frac{45 \times 45}{25} = 81$

65. Option (3) is correct.

From the given data, college C has the minimum number of students in commerce.

66. Option (1) is correct.

Ratio between the sale of wheat and rice = $\frac{10}{20} = 1:2$

Ratio between the sale of sugar and onion = $\frac{5}{5} = 1:1$

67. Option (2) is correct.

Let the radius = r cm

Height of cone, h = 24 cm

Q Circumference of base = $2\pi r = 42\pi$

$\Rightarrow$ $2r = 42$

$r = 21$cm

Volume of cone = $\frac{1}{3}\pi r^2 h = \frac{22}{3 \times 7} \times 21 \times 21 \times 24$

$= 11088$ cm^3

68. Option (2) is correct.

Error in weight = 1 kg – 920 gms = 80 gms

$\therefore$ Gain% = $\frac{\text{Error}}{\text{True value} - \text{Error}} \times 100\%$

$= \frac{80}{1000 - 80} \times 100\% = 8.695\% \cong 8.70\%$

69. Option (3) is correct.

Work can be finished by A in 15 days.

Work can be finished by B in 25 days.

Work can be finished by C in x days (Assumption).

According to question,

$5\left[\frac{1}{15} + \frac{1}{25}\right] + 4\left[\frac{1}{15} + \frac{1}{x}\right] = 1$

$\Rightarrow \frac{5}{15} + \frac{5}{25} + \frac{4}{15} + \frac{4}{x} = 1$

$\Rightarrow \frac{4}{x} = 1 - \frac{120}{150} = \frac{1}{5}$

$\Rightarrow x = 20$

$\therefore$ C can finish the work in 20 days.

70. Option (4) is correct.

Relative speed of both Zeenat and Nasreen,

= (27 – 18) km/h

$= 9 \times \frac{5}{18}$ m/s

= 2.5 m/s

Time taken by them to meet for the first time on the track while running in some direction

$= \frac{\text{Length of track}}{\text{Relative speed}}$

$= \frac{1200}{2.5} = 480$ s

$= \frac{480}{60} = 8$ m

71. Option (2) is correct.

Divisibility test for 11:

[Sum of even place digits a number-sum of odd place digits of a number] ÷ 11

= Number must be divisible by 11.

For 1735624:

(7 + 5 + 2) – (1 + 3 + 6 + 4) = 0 which is divisible by 11

So, 1735624 is divisible by 11

For 752563:

(7 + 2 + 6) – (5 + 5 + 3) = 2 which is divisible by 11

$\Rightarrow$ 752563 is not divisible by 11

72. Option (2) is correct.

Let cost price of a item = `100

And selling price of that item = `120

$\Rightarrow$ Market price of that item = $\frac{120 \times 100}{90}$

Required ratio = $\frac{\frac{120 \times 100}{90}}{100} = \frac{12}{9} = 4:3$

73. Option (2) is correct.

Let $5x - 3y = m$ …(i)

$5x + 3y = 15$ …(ii)

ELOQUENT EDGE

Add (i) and (ii)

$$10x = m + 15$$

$$\Rightarrow \quad x = \frac{m+15}{10} \quad \ldots(iii)$$

Subtract (i) from (ii)

$$6y = 15 - m$$

$$y = \frac{15-m}{6} \quad \ldots(iv)$$

Q $\quad 2xy = 6$

$\Rightarrow \quad xy = 3$

$\Rightarrow \quad \frac{m+15}{10} \times \frac{15-m}{6} = 3$

$\Rightarrow \quad (15 + m) \times (15 - m) = 180$

$\Rightarrow \quad 225 - m^2 = 180$

$\Rightarrow \quad m^2 = 45$

$$m = \sqrt{45} = 3\sqrt{5}$$

74. Option (2) is correct.

$$\frac{\cos\theta}{\sec\theta - 1} + \frac{\cos\theta}{\sec\theta + 1}$$

$$= \frac{\cos\theta\left[(\sec\theta+1)+(\sec\theta-1)\right]}{(\sec\theta-1)(\sec\theta+1)}$$

$$= \frac{\cos\theta \times 2\sec\theta}{\sec^2\theta - 1} = \frac{2}{\tan^2\theta} = 2\cot^2\theta$$

[Q $\sec^2\theta - 1 = \tan^2\theta$ and $\cos\theta \ \sec\theta = 1$]

75. Option (4) is correct.

Let principal amount tent = `x

Rate of interest, R = 10% per annum

Time period = 1 year 9 months

Amount after 1 year

$$= x + \frac{x \times 10 \times 1}{100} = \frac{11}{10}x$$

Amount after next 9 months

$$= \frac{11}{10}x + \frac{\frac{11}{10}x \times 10 \times \frac{9}{12}}{100}$$

[9 months = $\frac{9}{12}$ years]

$$= \frac{11}{10}x + \frac{33x}{400} = \frac{473}{400}x$$

Compound interest = Amount – Principal

$$1460 = \frac{473}{400}x - x$$

$$1460 = \frac{73x}{400}$$

$$x = \frac{1460 \times 400}{73} = 8000$$

∴ Amount lent = `8000

76. Option (4) is correct.

Guglielmo Marconi received the Nobel Prize in Physics in 1909, sharing the honor with Karl Ferdinand Braun for their significant contributions to the development of wireless telegraphy. Marconi, an Italian entrepreneur and electrical engineer, is often regarded as the inventor of radio.

Wilhelm Röntgen, a German physicist and mechanical engineer, was awarded the Nobel Prize in Physics in 1901 for his discovery of X-rays. The element "Roentgenium" in the modern periodic table is named in his honor.

John Michell, an English philosopher and clergyman, had a wide range of interests encompassing gravitation, optics, geology, and astronomy. He is credited with being the first person to propose the existence of black holes and to suggest that earthquakes propagate through seismic waves.

Heinrich Rudolf Hertz, a German physicist, is renowned for his experimental proof of the existence of electromagnetic waves. The SI unit of frequency, the "hertz," was named in his honor.

These revisions maintain the accuracy and context of the original text while improving readability and flow.

77. Option (4) is correct.

Pandit Shivkumar Sharma was an Indian classical musician and santoor player. He is famous for his collaboration with Indian flautist Hariprasad Chaurasia and the duo was known by the name 'Shiv-Hari.' Both of them composed music for some of the famous Bollywood movies such as Lamhe, Faasle, Chandni etc. He was honoured with Padma Shri, Padma Bhushan, and Sangeet Natak Akademi Award. He passed away at the age of 84 years in Mumbai.

78. Option (3) is correct.

A Women Self Help Group (SHG) member appointed as a banking agent is called a Bank Sakhi. The word 'Sakhi' means 'female friend'. It is an initiative aimed at promoting financial inclusion and women empowerment in rural areas. They act as intermediaries between the local population and formal banking institutions. They promote digital literacy and help people access digital financial services. She sits in the bank branch to support Branch Manager and helps in day to day banking services such as loan facilitation, documentation etc.

Bank mitras are the banking correspondents who are the intermediaries between formal banking institutions and customers in the rural and remote areas. These individuals provide banking and financial services to underserved and unbanked areas while promoting financial inclusion and empowerment.

79. Option (2) is correct.

"Alcohol or ethanol is widely produced using the fermentation method. Basically, it involves the conversion of carbohydrates into ethanol and carbon dioxide through the action of yeast or other microorganisms. Raw materials such as fruits, sugarcane, grains, molasses, and starchy crops are used. These grains are typically ground into a powder and mixed with hot water at a specific temperature. The resulting mash is then cooled and transferred to a fermentation vessel, where yeast is added. Yeast converts the mash into alcohol and carbon dioxide through fermentation. During the fermentation of grape juice in wine containers, potassium bitartrate is formed. It precipitates, crystallizes, and is deposited in wine bottles and containers."

80. Option (4) is correct.

Dance	State
Cheraw, Khuallam, Sarlamkai/Solakia, Chailam, Cheihlam, Chawnglaizawn	Mizoram
Dollu Kunitha, Kamsale, Bolak-aat (Bolak Dance), Bhootha Aradhane, Nagamandala Dance	Karnataka

ELOQUENT EDGE

Buiya, Chalo, Wancho, Pasi Kongki, Ponung, Popir	Arunachal Pradesh
Mundari, Santali, Kurukh, Chhau, Paiki, Fagua, Domkach, Mardani Jhumair	Jharkhand

81. Option (1) is correct.

"In 2014, Bandhan Financial Bank, a micro-lender headquartered in Kolkata, West Bengal, received in-principle approval from the Reserve Bank of India (RBI) to establish a universal bank. Bandhan was originally founded in 2001 as a not-for-profit organization with a mission to promote financial inclusion and women's empowerment. On June 17, 2015, Bandhan Bank was granted a banking license, making it the first Micro Finance Institution (MFI) to become a universal bank in India. It commenced its operations on August 23, 2015.

As of September 2023:

Chairman: Dr. Anup Kumar Sinha

MD & CEO: Chandra Shekhar Ghosh"

82. Option (2) is correct.

"Tennis is played on a rectangular flat surface with the length of the court measuring 23.77 m (78 feet) and the width as 8.2 m (27 feet) for a singles court and 11 m (36 feet) for a doubles court. The size of the court is regulated by the International Tennis Federation (ITF). Tennis courts can be made of various materials, with grass, clay, and hard courts typically constructed using asphalt or concrete.

Some of the famous tennis tournaments include Wimbledon, the US Open, the Australian Open, the French Open, and the Indian Wells Masters, among others. Notable Indian tennis players include Leander Paes, Sania Mirza, Vijay Amritraj, Mahesh Bhupathi, and Rohan Bopanna."

83. Option (4) is correct.

List I	List II
Champakkullam boat race	Kerala
Somnath Fair	Gujarat
Surajkund fair	Haryana
Baneshwar Fair	Rajasthan

84. Option (2) is correct.

Midlatitude deserts (BWk) are found between 35 degrees and 60 degrees N and S, which are poleward of subtropical high-pressure areas. In BWk, B represents 'dry', W represents 'Arid Desert', and 'k' represents 'cold.' This falls under the Koeppen climate classification, which classifies climate into five categories- Tropical (A), Arid (B), Temperate (C), Continental (D), and Polar (E). All climates except for those in the E group are assigned a seasonal precipitation subgroup (the second letter).

85. Option (4) is correct.

"Panchpatmali deposits in Odisha's Koraput district are renowned for bauxite, the primary source of aluminum. These deposits result from the decomposition of rocks containing aluminum silicates."

86. Option (2) is correct.

The Anglo-Maratha Wars were a series of conflicts between the British East India Company and the Maratha Empire in India. The three wars were:

I. First Anglo-Maratha War (1775-1782): Fought between the British East India Company and the Maratha Confederacy. The British lost, resulting in the Treaty of Salbai, which restored territorial boundaries to their pre-war positions.

II. Second Anglo-Maratha War (1803-1805): Led by Governor-General Lord Wellesley, it aimed to check Maratha expansion in northern India. This war led to the Treaty of Bassein in 1802, making the British protectors of Maratha Peshwa Baji Rao II and allowing them to station troops in Maratha territories.

III. Third Anglo-Maratha War: Triggered by Pindari raids, loosely affiliated with Maratha chiefs. The British accused Peshwa Baji Rao II of supporting the raids, leading to a British attack on the Maratha Empire. The war ended in the British annexation of Maratha territories, exile of the Peshwa, and dissolution of the Maratha Confederacy.

87. Option (4) is correct.

Final goods do not require further processing and are directly produced for and used by end consumers. Intermediate goods, on the other hand, are used in the production of final goods and serve as inputs for consumer products.

88. Option (4) is correct.

Gopurams, the towering gates in South Indian temples, symbolize the entrance to the Dravidian style of Hindu temples. Mandaps are halls with pillars in temples for public rituals; they can be 'open' or 'closed' based on wall presence, leading to the temple's interior.

Ardhmandaps are semi-open pillars in Hindu temples, serving as transitional spaces between the temple's exterior and inner sanctum.

Vimanas are the tallest structures constructed above the inner sanctum in temples found in Odisha and South India.

89. Option (3) is correct.

Genetically Modified (GM) organisms are the ones whose genetic material is altered using recombinant DNA technology. Selected genes are chosen from the host to be transferred into the GM organisms. The plants obtained under this category are GM plants. This is done to have increased yield, tolerance to a herbicide, resistance to disease or drought, or to improve its nutritional value. In India, only Cotton is currently commercially cultivated as a GM crop.

90. Option (2) is correct.

India is set to host the prestigious 2023 ICC Men's Cricket World Cup from October 5th to November 19th, marking the first time India hosts the event exclusively. Ten teams will compete in this cricket extravaganza. The tournament will feature mascots representing a male and female duo from the fictional cricketing paradise known as "Crictoverse." The grand finale is scheduled to take place at the Narendra Modi Stadium in Ahmedabad, Gujarat, on November 19th, 2023.

91. Option (3) is correct.

The Constitution (Scheduled Castes and Scheduled Tribes) Order (Second Amendment) Bill, 2022 aims to make important changes to the Constitution (Scheduled Castes) Order, 1950, and the Constitution (Scheduled Tribes) (Uttar Pradesh) Order, 1967. Specifically, it proposes the exclusion of the Gond community from the list of Scheduled Castes (SCs) in four districts of Uttar Pradesh: Chandauli, Kushinagar, Sant Kabir Nagar, and Bhadohi. Simultaneously, it seeks to recognize the Gond community as a Scheduled Tribe (ST) in these same four districts.

ELOQUENT EDGE

Upon the passage of this Bill, it will result in the transfer of the Gond community from the list of SCs to the list of STs in these four districts. Furthermore, the Bill will also include Dhuria, Nayak, Ojha, Pathari, and Rajgond in the list of STs in Uttar Pradesh within the districts of Sant Kabir Nagar, Kushinagar, Chandauli, and Bhadohi.

This legislative move reflects the government's commitment to addressing the social and economic concerns of various communities and ensuring equitable representation and benefits as per the provisions of the Indian Constitution. It's important to note that such amendments undergo thorough parliamentary and legal procedures before being enacted.

92. Option (1) is correct.

When the general interest rate reaches an exceptionally low level, it often signals an expectation that interest rates will increase in the near future. Such a decline in interest rates can potentially result in a liquidity trap, wherein both customers and investors opt to hoard money rather than investing or spending it. This term, "liquidity trap," was originally coined by the renowned economist John Maynard Keynes.

Additional Information: A liquidity trap is a concept in macroeconomics that suggests that in certain economic conditions, even when central banks lower interest rates to stimulate borrowing and spending, individuals and businesses may choose to hold onto cash rather than putting it into the economy. This can result in a situation where traditional monetary policy tools become less effective in stimulating economic growth. Understanding liquidity traps is important for policymakers in managing monetary policy during economic downturns.

93. Option (2) is correct.

Pradhan Mantri Kaushal Vikas Yojana (PMKVY) is a skill development initiative launched by the Ministry of Skill Development and Entrepreneurship in 2015. Its primary objective is to enhance the skills of Indian youth in alignment with industry needs, thereby enabling them to secure better livelihoods and contribute significantly to the country's economic growth.

Pradhan Mantri Jan Dhan Yojana (PMJDY), initiated by the Government of India in 2014, is a financial inclusion program that encourages people to open basic savings bank accounts with no minimum balance requirement. Account holders who maintain their accounts satisfactorily for a specified period become eligible for an overdraft facility, subject to a certain limit.

Deendayal Antyodaya Yojana - National Rural Livelihoods Mission (DAY-NRLM) is a flagship poverty alleviation program of the Indian government. It aims to empower rural households and communities by providing access to financial resources, skill development opportunities, and self-employment prospects.

Pradhan Mantri Garib Kalyan Anna Yojana (PM-GKAY) is a part of the Atmanirbhar Bharat initiative designed to distribute free food grains to migrants and impoverished individuals. Under this scheme, the central government provides 5 kg of free food grains per month to those in need. This complements the subsidized ration (available at Rs 2-3 per kg) provided under the National Food Security Act (NFSA) to eligible families within the Public Distribution System (PDS). The quantity and type of food grains may vary.

94. Option (4) is correct.

Organisation	Founders	Year
Widow Remarriage Association	Mahadev Govind Ranade	1861
Union Bank In Calcutta	Dwarkanath Tagore	1829
Maharashtra Girls Education Society (MGE)	Ramakrishna Gopal Bhandarkar, Vaman Abaji Modak, and Justice Ranade	1885
Prarthana Samaj	Dr Atma Ram Pandurang and Keshav Chandra Sen	1867

95. Option (1) is correct.

Odisha boasts the highest count of aluminum smelting plants in India. Aluminum, a silver-colored element, is extracted from Bauxite ore through Bayer's method. It holds the distinction of being the most abundant metallic element in Earth's crust and the most widely utilized non-ferrous metal. Smelting, a crucial step in metal extraction, involves applying heat to the ore. Remarkably, Odisha stands as the largest bauxite-producing state in the nation.

96. Option (1) is correct.

Fousing on her speed and distance Aditi Ashok won four LET title (overall), she is an Indian professional golfer from Bangalore.

97. Option (4) is correct.

Article 23 of the Constitution of India plays a pivotal role in upholding human rights by explicitly prohibiting the heinous acts of human trafficking and forced labor. It emphatically guarantees the right against exploitation and seeks to protect the dignity and freedom of individuals.

Article 19 of the Constitution is a cornerstone of democracy as it enshrines the fundamental right to freedom of speech and expression. This cherished right empowers every citizen to openly express their thoughts and opinions without fear of censorship or retribution, whether through oral, written, electronic, broadcasting, or press mediums.

Article 20 of the Constitution of India stands as a bulwark in safeguarding the rights of the accused and convicts. It provides essential protections against self-incrimination and double jeopardy, ensuring a fair and just legal process.

Article 25 of the Constitution embraces the principles of religious freedom and tolerance. It grants all citizens the cherished freedom of conscience and the unbridled ability to profess, practice, and propagate their religion. This fundamental right promotes harmony and diversity in India's rich cultural tapestry.

98. Option (4) is correct.

Rukmini Devi Arundale, a luminary in the world of Indian dance and choreography, was renowned for her dedication to Bharatnatyam. Beyond her contributions to the arts, she was a passionate animal welfare activist, advocating for the well-being of all living creatures.

Notably, Rukmini Devi Arundale achieved a historic milestone by becoming the first woman in India to be nominated as a member of the Rajya Sabha, the upper house of India's Parliament. Her exemplary contributions to society were duly recognized, and she was honored with the prestigious Padma Bhushan award in 1956. The Padma Bhushan is the third highest civilian award bestowed by the Government of India, highlighting her exceptional achievements.

ELOQUENT EDGE

In addition to the Padma Bhushan, Rukmini Devi Arundale was also bestowed with the Sangeet Natak Akademi Fellowship in 1967, a testament to her enduring legacy and profound impact on the field of Indian dance and culture.

99. Option (2) is correct.

John Newlands, a British chemist, is renowned for his Law of Octaves introduced in 1865 for the Periodic Table. This law suggests that each element exhibits similar properties to the eighth element following it when the elements are arranged by increasing atomic masses. Newlands organized 62 elements from Hydrogen to Thorium using this principle, though it was only accurate for elements up to Calcium.

100. Option (2) is correct.

The Directive Principles of State Policy (DPSP) in the Indian Constitution are outlined in Part IV (Article 36-51). The concept of DPSP is inspired by Article 45 of the Irish Constitution. While not legally enforceable, these principles serve as guidelines for the government in shaping policies for the welfare of the people. They are rooted in four main principles: Socialist, Gandhian, Liberal, and Intellectual.

The directives influenced by Gandhian principles include:

Article 40 - Formation of village panchayats as self-government units.

Article 43 - Promotion of cottage industries, either individually or cooperatively, in rural areas.

Article 46 - Advancement of the educational and economic interests of weaker sections.

Article 47 - Implementation of measures to enhance public health and prohibit the consumption of intoxicating drinks and harmful drugs.

Article 48 - Prohibition of cow, calf, and other milch and draught cattle slaughter, as well as efforts to improve their breeds.

ELOQUENT EDGE