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TIER-1

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SYLLABUS COVERED

SSC CHSL

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PREFACE

The SSC (Staff Selection Commission) Combined Higher Secondary Level examination is a competitive exam. It is conducted by the SSC to recruit candidates for various clerical positions like Lower Divisional Clerk (LDC), Junior Secretariat Assistant (JSA), Postal Assistant (PA), Sorting Assistant (SA) and Data Entry Operator (DEO in the Central Government Ministries and associated departments.

The intake application rate for SSC CHSL is relatively high. In this situation, candidates compete for a limited number of seats. However, with the right preparation strategy, you can secure a seat in SSC CHSL and give your career the right push.

The term "Previous Years' Solved Papers" refers to actual Question Papers from past years that have been thoroughly solved and explained to aid applicants in understanding the blueprint and format of the exam. For any Competitive Exam, solving Previous Years' Question Papers is a crucial component of the study plan because it enables applicants to identify their learning gaps and fill them at the earliest.

This book aims to help students achieve a high score in SSC CHSL Tier-1, prepared by the Editorial Board of Oswaal Books. It consists of solved question papers, which will enable students to answer the questions with confidence. This book has 25 Solved Papers (2017 -2023) of SSC CHSL Tier-I.

How will this book benefit students?

- **100% Updated** with 2023 Papers Fully Solved
- **Extensive Practice** with 2500+ Previous Years Questions & 2 Sample Papers
- **Concept Clarity:** Learn Key Concepts through Detailed Explanations
- **100% Exam Readiness** with Latest Years' Trend Analysis (2020-2023)
- **Valuable Exam Insights** with Hints, Short-cuts, Expert Tips to Crack SSC CHSL Tier-1 Exam in the first attempt.

This book has developed with the highest editorial standards. The innovative learning pedagogy of the book makes it a must-have for anyone preparing for SSC CHSL Tier-1. To stay true to our motto of 'Learning Made Simple', we constantly strive to present information in ways that are easy to understand and remember. We wish the readers great success ahead!

All the Best!
Team Oswaal

Oswaal Books Expert Tips to
Crack the Exam in First Attempt

1. **Start your planning at the right time**

   It is advisable to start early. There are many instances where students fall short of time to finish the syllabus and wind up avoiding a couple of points that show up in the examination. Additionally, beginning the SSC CHSL preparation at the initial stage can help in reviewing all the concepts on time and thus, scoring high marks.

2. **Know the Syllabus**

   The initial step prior to starting the planning is to know the detailed prospectus of SSC CHSL. The syllabus assists with having a reasonable comprehension of what all must be examined. With the assistance of the SSC CHSL syllabus, students can plan their studies and focus on points that will require additional time and concepts.

3. **Check the SSC CHSL Exam Pattern**

   Having a knowledge of how the SSC CHSL exam will be conducted, the type of questions posed or the marking scheme is profoundly advantageous. The SSC CHSL test comprises of Multiple Choice Questions (MCQs).

4. **Get the right tools and study material**

   Success in scoring high in SSC CHSL depends upon studying from the right books such as Oswaal Books. You can refer to Oswaal Books SSC CHSL Tier-1 Solved Papers to your preparation. The books are on the lines of the current syllabus and can be entrusted upon before the examination for sure.

5. **Practice a lot of Sample Papers**

   Sample Papers will not only help the candidates in understanding the examination pattern, but also help them in figuring out the questions that come up every year and this might give them an edge over other students. The candidates can refer to Oswaal SSC CHSL Tier-I: 25 Solved Papers to practice for the upcoming exams.

6. **Revise whenever you get time**

   Make sure to revise as much as possible. Revision will help the candidates in keeping the concepts fresh in their mind.

7. **Analysing your performance**

   While solving papers, make sure to keep a track of time i.e. how much time does it take to solve one section or one question? Make a report of the sections and type of questions, which take minimum and maximum time.

Eligibility Criteria

Nationality/Citizenship: A candidate must be either:

1. a citizen of India, or
2. a subject of Nepal, or
3. a subject of Bhutan, or

Provided that a candidate belonging to categories shall be a person in whose favour a certificate of eligibility has been issued by the Government of India.

Age limit of the candidates should be from 18 to 27 years, Permissible relaxation in upper age limit for different categories in accordance with extant Rules/ guidelines of Government of India are as under:

Category	Age-relaxation permissible beyond the upper age limit
SC/ ST	5 years
OBC	3 years
PwBD (Unreserved)	10 years
PwBD (OBC)	13 years
PwBD (SC/ ST)	15 years

Educational Qualifications:

The educational qualification for the post is a 12th pass or its equivalent from a recognized Educational Board. However, those who appeared for the 12th exam can also apply, provided that they produce the 12th certificate before the cut-off date.

Overview of SSC CHSL Exams

The Staff Selection Commission will hold a competitive examination for recruitment to the Group C posts viz. Lower Divisional Clerk/ Junior Secretariat Assistant, and Data Entry Operators for various Ministries/ Departments/ Offices of the Government of India and various Constitutional Bodies/ Statutory Bodies/ Tribunals, etc. The details of the examination are as under:

Scheme of the Examination:

The Computer Based Examination will be conducted in two tiers as indicated below:

Scheme of Tier-I Examination:

Part	Subject (Not in sequence)	Number of Questions/ Maximum Marks	Time Duration (For all four Parts)
1	English Language (Basic Knowledge)	25/ 50	
2	General Intelligence	25/ 50	
3	Quantitative Aptitude (Basic Arithmetic Skill)	25/ 50	60 Minutes
4	General Awareness	25/ 50	

- The Tier-I Examination will consist of Objective Type, Multiple choice questions only. The questions will be set in English and Hindi for Part-II, III & IV.
- There will be negative marking of 0.50 marks for each wrong answer. Candidates are, therefore, advised to keep this in mind while answering the questions.

Scheme of Tier-II Examination:

Session	Subject	Number of Questions	Maximum Marks	Time allowed
Session-I (2 hours and 15 minutes)	Section-I: Module-I: Mathematical Abilities Module-II: Reasoning and General Intelligence.	30 30 Total = 60	$60 \times 3 = 180$	1 hour (for each section)
	Section-II: Module-I: English Language and Comprehension Module-II: General Awareness	40 20 Total = 60	$60 \times 3 = 180$	1 hour
	Section-III: Module-I: Computer Knowledge Module	15	$15 \times 3 = 45$	15 Minutes
Session-II	Section-III: Module-II: Skill Test/ Typing Test Module	Part A: Skill Test for DEOs.		15 Minutes
		Part B: typing Test for LDC/ JSA.		10 Minutes

Tier-II will include following three sections having two modules each:

Section-I:
   Module-I: Mathematical Abilities
   Module-II: Reasoning and General Intelligence.

Section-II:
   Module-I: English Language and Comprehension
   Module-II: General Awareness

Section-III:
   Module-I: Computer Knowledge Test
   Module-II: Skill Test/ Typing Test

Tier-II will be conducted in two sessions - Session –I & Session-II, on same day. Session-I will include conducting of Section-I, Section-II and Module-I of Section-III. Session-II will include conducting of Module-II of Section-III.

It will be mandatory for the candidates to qualify all the sections of Tier-II.

Tier-II will consist of Objective Type, Multiple choice questions, except for Module-II of Section-III. The questions will be set in English and Hindi except for Module-II (i.e. English Language and Comprehension module) in Section-II.

There will be negative marking of 1 mark for each wrong answer in Section-I, Section-II and Module-I of Section-III. Candidates are, therefore, advised to keep this in mind while answering the questions.

Module-I of Section-III i.e. Computer Knowledge Test is mandatory but qualifying in nature.

Module-II of Section-III i.e. Skill Test/ Typing Test:

Module-II of Section-III will include conducting of Skill Test/ Typing Test in Session-II on the same day.

Skill Test/ Typing Test will be of qualifying nature.

Errors in the Skill Test will be calculated up to 2 decimal places.

Latest Syllabus

Indicative Syllabus (Tier-I):

English Language: Spot the Error, Fill in the Blanks, Synonyms/ Homonyms, Antonyms, Spellings/ Detecting mis-spelt words, Idioms & Phrases, One word substitution, Improvement of Sentences, Active/ Passive Voice of Verbs, Conversion into Direct/ Indirect narration, Shuffling of Sentence parts, Shuffling of Sentences in a passage, Cloze Passage, Comprehension Passage.

General Intelligence: It would include questions of both verbal and non-verbal type. The test will include questions on Semantic Analogy, Symbolic operations, Symbolic/ Number Analogy, Trends, Figural Analogy, Space Orientation, Semantic Classification, Venn Diagrams, Symbolic/ Number Classification, Drawing inferences, Figural Classification, Punched hole/pattern-folding & unfolding, Semantic Series, Figural Pattern-folding and completion, Number Series, Embedded figures, Figural Series, Critical Thinking, Problem Solving, Emotional Intelligence, Word Building, Social Intelligence, Coding and de-coding, Numerical operations, Other sub-topics, if Any.

Quantitative Aptitude:

Number Systems: Computation of Whole Number, Decimal and Fractions, Relationship between numbers.

Fundamental arithmetical operations: Percentages, Ratio and Proportion, Square roots, Averages, Interest (Simple and Compound), Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and distance, Time and work.

Algebra: Basic algebraic identities of School Algebra and Elementary surds (simple problems) and Graphs of Linear Equations.

Geometry: Familiarity with elementary geometric figures and facts:

Triangle and its various kinds of centres, Congruence and similarity of triangles, Circle and its chords, tangents, angles subtended by chords of a circle, common tangents to two or more circles.

Mensuration: Triangle, Quadrilaterals, Regular Polygons, Circle, Right Prism, Right Circular Cone, Right Circular Cylinder, Sphere, Hemispheres, Rectangular Parallelepiped, Regular Right Pyramid with triangular or square Base.

Trigonometry: Trigonometry, Trigonometric ratios, Complementary angles, Height and distances (simple problems only) Standard Identities like $\sin^2\theta + \cos^2\theta = 1$ etc.,

Statistical Charts: Use of Tables and Graphs: Histogram, Frequency polygon, Bar-diagram, Pie-chart.

General Awareness: Questions are designed to test the candidate's general awareness of the environment around him and its application to society. Questions are also designed to test knowledge of current events and of such matters of everyday observation and experience in their scientific aspect as may be expected of an educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining to History, Culture, Geography, Economic Scene, General policy and scientific research.

For VH candidates of 40% and above visual disability, there will be no component of Maps/ Graphs/ Diagrams/ Statistical Data in the General Intelligence and Quantitative Aptitude parts.

Trend Analysis (2023-2020)

English Language						
Chapter Name	**Topic Name**	**Aug-23**	**Mar-23**	**May-22**	**Aug-21**	**Oct-20**
Vacabulary	Antonym	3	1	3	2	2
	Synonym	2	3	2	2	2
	Spelling	1	3	3	2	3
	Idioms & Phrases	1	2	3	2	2
	One word substitution	1	2	2	5	3
Reading Comprehension	Reading Comprehension	5	0	0	5	1
Grammar	Error Identification	2	2	3	1	2
Fill in the blanks	Cloze test	2	0	0	0	0
	One Word	1	8	8	2	5
Sentence Formation & Logical Sequence	Parajumbles	4	0	1	2	3
	Sentence Corrections	0	0	0	0	0
	Actice & Passive	2	1	0	1	1
	Direct & Indirect Narration	1	1	0	1	1
Total Questions		25	25	25	25	25

Quantitative Aptitude						
Chapter Name	**Topic Name**	**Aug-23**	**Mar-23**	**May-22**	**Aug-21**	**Oct-20**
Number System	Simplification	1	2	2	2	2
	Divisibility Rules	1	2	2	1	1
	Sum of Numbers	1	0	2	0	1
	HCF & LCM	0	0	0	0	0
	Factors	0	0	0	0	0

Trend Analysis (2023 -2020)

Arithmetic	Percentage	2	2	4	3	1
	Simple Interest & Compund Interest	3	1	0	1	1
	Average	1	3	1	1	1
	Profit, loss and Discount	1	1	0	0	2
	Ratio & Proportion and Partnership	1	1	2	1	1
	Time, Speed & Distance	2	2	1	1	2
	Time & Work	1	1	1	1	0
Algebra	Algebraic Expression	1	0	2	2	1
Geometry	Triangles	1	1	0	2	2
	Circles	2	3	1	2	1
	Quadrilateral	0	0	0	0	0
Mensuration	Sphere	0	0	2	1	0
	Cube	0	0	0	0	0
	Hemishpere	0	0	0	0	0
	Cylinder/cone	1	0	0	0	0
	Trapezium	0	0	0	0	0
	Rectangles	0	0	0	0	1
	Hexagon	0	0	0	0	0
Trigonometry	Trigonometric Ratios	2	1	1	3	3
	Properties of Triangle	0	0	0	0	1
	Trigonometric Identities	1	2	0	0	0
	Height & Distance	0	0	1	0	0
Data Interpretation	Pie Chart	1	1	1	2	0
	Tabular	1	1	1	0	0
	Bar Graph	1	1	1	2	4
Total Questions		25	25	25	25	25

Trend Analysis (2023 -2020)

General Intelligence						
Chapter Name	**Topic Name**	**Aug-23**	**Mar-23**	**May-22**	**Aug-21**	**Oct-20**
Mathematical Operations	Mathematical Symbol	0	3	0	0	1
	Mathematical Symbol & Alphabet letter	2	1	1	1	
Blood Relations	Symbol & Letter Based Relation	1	4	0	0	0
	Family Relation	1	0	0	0	0
Matrix	Number Based	3	1	0	1	0
Non-Verbal (Mirror Image, Counting figure, Embedded figure)	Embedded figure	0	3		1	0
	Mirror Image	2	2	3	1	1
	Figure Letter & Symbol Series	0	1	0	0	0
	Paper Cutting	0	1	1	1	1
	Figure Series	0	0	0	1	2
Coding-Decoding	Word Coding	1	2	5	0	1
	Word & Number Coding	1	0	0	2	1
	Group of words Coding	0	0	0	0	0
Odd one out	Letters or word	2	2	0	2	3
	Number Based	1	0	2	1	1
Direction Sense Test	Movement - Left & Right	0	0	0	0	0
Sitting Arrangement	Row Arrangement	0	0	2	1	0
	Ractangular Arrangement	0	0	0	0	0
	Circular Arrangement	0	0	0	0	0
Statement & Conclusion	3 Statements & 4 Conclusions	0	0	0	0	0
	3 Statements & 3 Conclusions	0	1	1	0	0
	3 Statements & 2 Conclusions	0	0	0	0	0
	1 Statements & 2 Conclusions	1	0	0	1	1

Trend Analysis (2023 -2020)

Analogy	Word /Letter Analogy	1	0	0	2	1
	Number Analogy	0	1	1	0	2
Series	Alphabet Letter Series	1	1	1	1	1
	Number Series	1	1	3	1	0
Calendar	Day & Date Based	1	0	1	0	0
Cube & Dice	Face Number, Letter & Colour Based	0	0	1	0	1
	Symbol Based Cube	0	0	0	1	0
Miscellaneous	English Dictionary Order Words Sequence	1	1	1	1	2
	Venn Diagram	0	0	0	1	1
	Logical Words Sequence	4	0	0	2	2
	Number Ratio/ percentage	0	0	1	2	3
	Logical Puzzle	0	0	0	0	0
	Number of Triangles/ Squares in the Figure	1	0	1	1	1
Total Questions		**25**	**25**	**25**	**25**	**25**

General Awareness						
Chapter Name	**Topic Name**	**Aug-23**	**Mar-23**	**May-22**	**Aug-21**	**Oct-20**
Polity & Indian Costitution	Indian Constitution	2	2	4	1	1
	Five Year Plan	0	0	0	0	0
Economics	GDP	2	2	0	0	0
	Schemes	2	0	0	2	0
	Budget	1	0	0	0	0
History	Modern History	0	1	0	1	2
	Medieval History	1	0	0	1	0
	Ancient History	1	1	1	1	0
Geography	Ecology & Environment	1	4	1	2	4

Trend Analysis (2023 -2020)

Science & Technology	Physics	0	2	1	1	0
	Chemistry	3	2	0	0	1
	Biology	1	1	2	2	3
Miscellaneous	Sports	2	3	2	2	2
	Awards	3	3	3	3	5
	Art & Culture	2	2	3	1	2
	Book & Author	0	0	2	1	0
	Autobiography	0	0	1	0	1
	Personality	2	1	3	3	2
	Appointment	0	0	0	0	0
	Organizations	0	0	0	0	0
	Fact Based	2	1	2	4	2
Total Questions		**25**	**25**	**25**	**25**	**25**

SSC CHSL 2017 -2023 Tier-1 Cut Off

Category	2017	2018	2019	2020	2021	2022	2023
UR/GEN	143.5	135.6	159.52	141.88710	140.18226	140.18226	154.94
OBC	139	133.74	156.10	139.42190	140.12370	140.12370	151.00
EWS	-	127.25	149.98	117.59855	131.40838	131.40838	....
SC	122.5	110.09	136.10	114.16235	112.86061	112.86061	134.52
ST	112	99.09	127.32	108.88518	104.78368	104.78368	127.63
ESM	-	56.11	87.32	72.06370	55.58610	55.58610	.....
VH	95.5	84.87	123.78	93.81684	89.87114	89.87114	124.00
OH	111.5	102.75	124.36	106.37481	107.63592	107.63592	124.45
HH	73.5	58.43	81.08	63.80870	65.89994	65.89994	80.98
EXS	83	-	-	-	-	-	74.31
Other PWD	-	50	74.32	51.12050	56.41375	56.41375	.....

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	KERALA		SALEM	Pattu book centre, 9894816280
ERNAKULAM	Academic Book House, (0484) 2376613, H & C Store, 9864196344, Surya Book House, 9847124217, 9847238314		TRICHY	P.R.Sons Book Seller, 9443370597, Rasi Publication, 9894816280
			THENI	Maya Book Centre, 9443929274
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CALICUT	Aman Book Stall, (0495) 2721282,			**TELANGANA**
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CHHINDWARA	Pustak Bhawan, (E & C), 8982150100			Vishal Book Distributors, 9246333166, Himalaya Book World, 7032578527
GWALIOR	Agarwal Book Depot, 9425116210			

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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 synonym of the given word.
   Dynamic
   1. Famous   2. Halt   3. Innate   4. Energetic

2. Choose the correct meaning of the underlined word in the given sentence.
   The museum's <u>archive</u> is a great place to find valuable artifacts such as ancient manuscripts.
   1. A collection of essays
   2. A room to store lots of books
   3. A room to store important official documents
   4. A collection of historical documents or records

3. Select the most appropriate ANTONYM of the given word.
   Guile
   1. Deceit   2. Treachery   3. Honesty   4. Terseness

4. Select the most appropriate homophone to fill in the blank.
   Ants _____ food during the summer and save it for winter.
   1. horde   2. hoard   3. heard   4. herd

5. The following sentence has been divided into parts. One of them may contain an error.
   Select the part that contains the error from the given options. If you don't find any error, mark 'No error' as your answer.
   A owl was / hooting throughout / the night.
   1. A owl was   2. the night
   3. No error   4. hooting throughout

6. Select the option that can be used as a one-word substitute for the given group of words.
   One who studies the evolution of mankind
   1. Anarchist   2. Amateur
   3. Anthropologist   4. Antagonist

7. Select the most appropriate ANTONYM for 'redeem' in the given sentence.
   Shantanu violated the rules of the college when he started screaming and shouting in the premises.
   1. Screaming   2. Violated   3. Premises   4. Shouting

8. Select the option that can be used as a one-word substitute for the given group of words.
   Something to be easily carried or moved
   1. Robust   2. Stagnant   3. Portable   4. Fragile

9. Select the option that can be used as a one-word substitute for the given group of words.
   An imagined place or state of things in which everything is perfect
   1. Dwarf   2. Utopia
   3. Chronology   4. Octogenarian

10. Select the option that can be used as a one-word substitute for the given group of words.
    Poor physical or mental condition.
    1. Ill nature   2. Illicit   3. Ill-fated   4. Ill health

11. The following sentence has been split into four segments. Identify the segment that contains a grammatical error.
    They were laid / in the sun / the entire morning / till Sudharshan came.
    1. till Sudharshan came   2. They were laid
    3. the entire morning   4. in the sun

12. Select the correct spelling of the underlined word in the given sentence.
    The feeling of weightlessness while skydiving is known to <u>exilarete</u> many people.
    1. exilairate   2. exhilerete 3. exilarate   4. exhilarate

13. Select the option that expresses the given sentence in active voice.
    I was never supported by my family.
    1. My family have never supported me.
    2. My family had never supported me.
    3. My family never supported me.
    4. My family never supports me.

14. The following sentence has been split into four segments. Identify the segment that contains a spelling error.
    The famous author / clearly mentioned / all the names of his friends / in the acknolledgments of the book.
    1. in the acknolledgments of the book
    2. The famous author
    3. clearly mentioned
    4. all the names of his friends

15. Select the most appropriate ANTONYM of the given word.
    Mean
    1 Minute   2. Noble   3. Notorious 4. Novel

16. Select the most appropriate idiom for the underlined segment in the following sentence.
    Nitish's promotion is <u>due</u>.
    1. On the cards   2. Not worth his salt
    3. With due respect   4. Done to death

17. 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 social evolution by imitation
    B. by reason of its higher standard of living
    C. the royal style is the agent
    D. and cultural patterns are similarly transmitted by the dominant caste
    1. C, D, A, B   2. C, A, D, B
    3. B, C, D, A   4. B, A, C, D

18. Select the option that expresses the following sentence in passive voice.

An agitated gathering of workers in the company disturbed the meeting.

1. Meeting of the company was disturbed.

2. An agitated meeting of workers in the company disturbed the gathering.

3. The meeting was disturbed by an agitated gathering of workers in the company.

4. The gathering agitated the meeting of the company.

19. Select the most appropriate meaning of the given idiom.

Costs an arm and a leg

1. To be affordable   **2.** To be moderately priced

3. To be free of charge   **4.** To be very expensive

20. Select the most appropriate option to fill in the blank.

The _____ of the company's CEO was widely praised for her innovative leadership.

1. rein   **2.** rayne   **3.** rain   **4.** reign

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.

Globalisation is not a new 1_____. Traders travelled vast distances in ancient times to buy commodities that were 2_____ and expensive for sale in their homelands. The Industrial Revolution brought 3_____ in transportation and communication in the 19th century that eased trade across borders. The think tank, Peterson Institute for International Economics (PIIE), states globalisation 4_____ after World War I and nations moved toward 5_____ as they launched import taxes to more closely guard their industries in the aftermath of the conflict.

21. Select the most appropriate option to fill in blank number 1.

1. power   **2.** variation   **3.** design   **4.** concept

22. Select the most appropriate option to fill in blank number 2.

1. plentiful   **2.** common   **3.** preserved   **4.** rare

23. Select the most appropriate option to fill in blank number 3.

1. chaos   **2.** advances   **3.** issues   **4.** a decline

24. Select the most appropriate option to fill in blank number 4.

1. trooped   **2.** soared

3. de-escalated   **4.** stalled

25. Select the most appropriate option to fill in blank number 5.

1. protectionism   **2.** integration

3. liberalisation   **4.** diversification

General Intelligence

26. A square sheet of paper is folded along the dotted line successively along the directions shown and is then punched in the end. How would the paper look when unfolded?
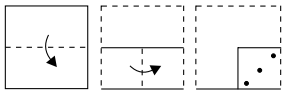
27. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

Some houses are trees.

All flowers are houses.

No vegetable is a flower.

Conclusions:

 (I) Some vegetables are houses is a possibility.

 (II) Some flowers are trees is a possibility

 (III) No vegetable is a house.

1. Both conclusions II and III follow

2. Only conclusion II follows

3. Both conclusions I and II follow

4. Only conclusion III follows

28. 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?

4 B 18 D 5 C 9 A 9 = ?

1. 88   **2.** 58   **3.** 78   **4.** 68

29. What will come in the place of '?' in the following equation, if '+' and '–' are interchanged with '÷' and '×', respectively?

88 + 8 – 17 × 16 ÷ 40 = ?

1. 203   **2.** 197   **3.** 200   **4.** 211

30. In a certain code language, 'BALD' is coded as '7680' and 'DRAB' is coded as '8097'. What is the code for 'L' in the given code language?

1. 8   **2.** 6   **3.** 0   **4.** 7

31. Select the combination of letters that when sequentially placed in the blanks of the given series will complete the series.

A_DE   FGI_   _LNO   PQ_T   UV_Y

1. CJKSX   **2.** CJKRW   **3.** BJKRW   **4.** BJKSX

32. Select the word-pair that best represents a similar relationship to the one expressed in the pair 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/consonants/vowels in the word.)

Heat : Cold

1. Encourage : Motivate   **2.** Compete : Success

3. Sustain : Persist   **4.** Demolish : Build

33. RSPT is related to VWTX in a certain way based on the English alphabetical order. In the same way, MNKO is related to QROS. Which of the following is GHEI related to, following the same logic?

1. KLHI   **2.** KLJM   **3.** KLIM   **4.** JKHL

34. 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 I and 3 is not allowed)

1. 2 – 6   **2.** 4 – 20   **3.** 5 – 30   **4.** 8 – 75

35. In a certain code language, 'QUEZAL' is coded as '82' and 'LUCKY' is coded as '72'. What is the code for 'ADVERSE' in the given code language?

1. 68   **2.** 78   **3.** 74   **4.** 62

36. GIEK is related to OQMS in a certain way based on the English alphabetical order. In the same way, KMIO is related to SUQW. To which of the following is EGCI related to, following the same logic?

1. MQOK   **2.** MOKQ   **3.** PRNT   **4.** UWSY

37. The second number in the given number pairs is obtained by performing certain mathematical operations(s) on the first number. The same operation(s) are followed in all the number pairs except one. Find that odd number pair.

1. 5 : 20   **2.** 4 : 12   **3.** 7 : 42   **4.** 6 : 36

38. Based on the alphabetical order, three of the following four letter-clusters are alike in a certain way and thus form a group. Which of the following does NOT belong to that group?

1. WZB   **2.** UWX   **3.** ORT   **4.** GJL

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

40. If 9th July 1978 is Sunday, then what will be the day of the week on 19th September 1983?
1. Monday **2.** Friday **3.** Tuesday **4.** Sunday

41. How many triangles are there in the given figure?
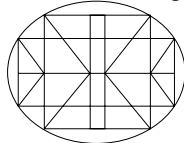
1. 24 **2.** 28 **3.** 22 **4.** 30

42. N is the brother of X. X is the wife of M. S is the daughter of M. K is the brother of S. P is the mother of N. How is K related to P?
1. Son's Son **2.** Daughter's son
3. Mother's brother **4.** Sister's Son

43. What should come in place of X in the given series?
23   31   47   71   103   X
1. 153 **2.** 147 **3.** 150 **4.** 143

44. Select the number from among the given options that can replace the question mark (?) in the following series.
136, 135, 137, 136, 138, 137, ?
1. 136 **2.** 140 **3.** 138 **4.** 139

45. 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.)
(15, 96)
(35, 216)
1. (41,250) **2.** (18, 102) **3.** (29, 180) **4.** (21, 122)

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

47. Select the correct mirror image of the given figure when the mirror is placed at MN as shown.
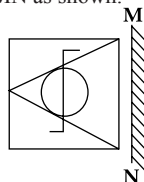
1. **2.** **3.** **4.**

48. Select the combination of letters that when sequentially placed in the blanks of the given series will complete the series.
A_CD_CDAC_AB_ABC
1. AACD **2.** AABB **3.** BBDD **4.** BDBD

49. Identify the figure given in the options which when put in place of the question mark (?) will logically complete the series.
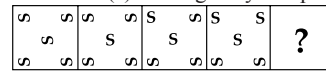
1. **2.** **3.** **4.**

50. Select the set in which the numbers are related in the same way as are the numbers of the given sets.
(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into their 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.)
11 : 87 : 34
6 : 28 : 8
1. 9 : 25 : 54 **2.** 7 : 35 : 12
3. 8 : 19 : 47 **4.** 12 : 81 : 63

Quantitative Aptitude

51. The table below shows the laptop sold on different days by different wholesalers. Study the table and answer the questions that follow.

	Monday	Tuesday	Wednesday	Thursday	Friday
Wholesaler 1	22	20	14	24	10
Wholesaler 2	46	45	06	14	8
Wholesaler 3	18	40	07	15	19
Wholesaler 4	23	30	32	06	26

Laptop sold by wholesaler 1 and wholesaler 2 together on Thursday is what percent of laptop sold by wholesalers 3 on Friday?
1. 200% **2.** 150% **3.** 100% **4.** 50%

52. Find the area of a right-angled triangle whose base is 12 cm and hypotenuse is 13 cm.
1. 30 cm^2 **2.** 55 cm^2 **3.** 65 cm^2 **4.** 22 cm^2

53. Find the value of $\tan(50 + \theta) - \cot(40 - \theta)$.
1. $\dfrac{1}{2}$ **2.** –1 **3.** 0 **4.** 1

54. In 2021, Sam received an annual increment in his salary by 40% but due to recession in 2022, company started taking cost cutting measures and his salary was reduced by 15%. What was the net change in his salary?
1. 17% increase **2.** 19% increase
3. 9% decrease **4.** 11% increase

55. A rod of 5 cm radius and 52 cm length is converted into a wire of 100 cm length of uniform thickness. The radius of the wire (in cm) is:
1. $\sqrt{13}$ **2.** $\sqrt{15}$ **3.** $\sqrt{23}$ **4.** $\sqrt{17}$

56. If $\left(y^2 + \dfrac{1}{y^2}\right) = 74$ and $y > 1$, find the value of $\left(y - \dfrac{1}{y}\right)$.
1. $6\sqrt{2}$ **2.** $-2\sqrt{19}$ **3.** $2\sqrt{19}$ **4.** $-6\sqrt{2}$

57. If a sum of money at simple interest becomes 45 times in 110 years, then in how many years will that sum become 23 times?
1. 48 **2.** 60 **3.** 55 **4.** 50

58. Two trains 320 m and 205 m in length are running towards each other on parallel lines. One train runs at the rate of 70 kmph and the other train runs at the rate of 56 kmph. Find the time they will take to cross each other (in seconds).
    1. 10   **2.** 20   **3.** 12   **4.** 15

59. A can complete a task in the same time in which B and C work together. If A and B could complete it jointly in 10 days and C alone in 50 days, then B could complete it independently in:
    1. 26 days   **2.** 27 days   **3.** 25 days   **4.** 23 days

60. What is the value of $(1 - \sin^2 A)\, \mathrm{cosec}^2 A$?
    1. $\cot^2 A$ **2.** $\cos^2 A$ **3.** $\tan^2 A$ **4.** $\sin^2 A$

61. If $3x - 2y = 3$ and $xy = 9$, then find the value of $3x + 2y$.
    1. 16   **2.** 13   **3.** 14   **4.** 15

62. Study the table given below and answer the question that follows.
The table below shows the total number of students studying different subjects in a college and the percentage of boys and girls.

Subject	Number of Students	Percentage of Girls	Percentage of Boys
Hindi	110	60	40
English	70	50	50
Physics	50	30	70
Chemistry	40	80	20
Mathematics	80	20	80
Computers	90	40	60

What is the ratio of the total number of girls in all the subjects to that of boys in all the subjects?
    1. 5 : 6   **2.** 7 : 9   **3.** 6 : 7   **4.** 2 : 3

63. Simplify the following:
$18 \times [24 \div 70 \times \{25 \times 49 \div (5 \times 7)\}]$
    1. 218   **2.** 216   **3.** 215   **4.** 220

64. A 40-litre mixture of milk and water contains milk and water in the ratio of 7 : 3. How many litres of water should be added to the mixture so that the resulting mixture has 60% of water in it?
    1. 30   **2.** 35   **3.** 20   **4.** 25

65. Δ ABC inscribe in a circle with center O, if AB = 9 cm, BC = 40 cm and AC = 41 cm, then what is the circum-radius of a triangle?
    1. $20\dfrac{1}{2}$ cm   **2.** $12\dfrac{1}{2}$ cm
    3. $18\dfrac{1}{2}$ cm   **4.** $16\dfrac{1}{2}$ cm

66. The compound interest accrued on a sum of ₹20,000 at the end of 2 years compounded annually is ₹2,050. Find the compound interest at the end of the 3rd year.
    1. ₹3,153.50   **2.** ₹2,852.50
    3. ₹3,152.50   **4.** ₹3,154.50

67. If $\tan 15° = 2 - \sqrt{3}$, then the value of tan 15° cot 75° + tan 75° cot 15° is:
    1. 6   **2.** 10   **3.** 8   **4.** 14

68. A certain sum was to be divided between A and B in the ratio 8 : 5. However, be mistake, it was divided in the ratio 5 : 8. Thus, A gets ₹300 less than his original share. Find the sum.
    1. ₹2,600   **2.** ₹1,500   **3.** ₹1,300   **4.** ₹600

69. Akash sold a motorcycle to Navin at a profit of 10%. Navin sold it to Vinay at a profit of 20%. Vinay sold it to Vishal at a loss of 5%. If Vishal paid 162,700 for the motorcycle, then what was the cost of the motorcycle (in ₹) for Akash?
    1. 48,000   **2.** 48,500   **3.** 52,500   **4.** 50,000

70. The perimeters of two similar triangles XYZ and PQR are respectively 62 cm and 42 cm. If PQ = 21 cm, find XY.
    1. 27 cm   **2.** 28 cm   **3.** 29 cm   **4.** 31 cm

71. If $px + qy = 1$ and $qx + py = \dfrac{2pq}{p^2 + q^2}$, then $(x^2 + y^2)(p^2 + q^2)$ is equal to:
    1. 2   **2.** 3   **3.** 0   **4.** 1

72. The radii of two circles are 9 cm and 4 cm, the distance between their centres is 13 cm, then the length of the direct common tangent is:
    1. 8 cm   **2.** 14 cm   **3.** 12 cm   **4.** 16 cm

73. If an electricity bill is paid before the due date, one gets a reduction of 13% on the amount of the bill. By paying the bill before the due date, Ravi got a reduction of ₹260.39. The amount of his electricity bill (in ₹) was:
    1. 2,003   **2.** 2,580   **3.** 2,230   **4.** 2,064

74. A salesman marks his goods 30% above the cost and gives a discount of 10% on them. Find his gain or loss percentage.
    1. Loss 7%   **2.** Gain 7%   **3.** Loss 17%   **4.** Gain 17%

75. Study the given pie-chart and answer the question that follows. Percentage-wise distribution of teachers in six different subjects in a school is given in the pie-chart. The total number of teachers is 600. The ratio of male and female teachers is 3 : 1.
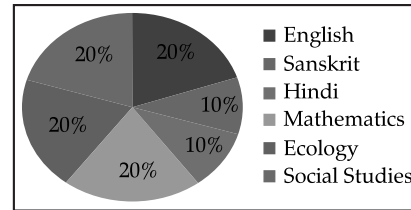
Find the ratio of teachers in English, Sanskrit and Hindi to teachers in Mathematics, Biology and Social Studies.
    1. 2 : 5   **2.** 1 : 2   **3.** 2 : 3   **4.** 1 : 5

General Awareness

76. Which is the most powerful river in the world in terms of its volume and extensive drainage into the Atlantic Ocean?
    1. Congo   **2.** Amazon   **3.** Amur   **4.** Nile

77. Who among the following was India's sherpa for the G20 summit 2023?
    1. Amitabh Kant   **2.** B.V.R. Subrahmanyam
    3. Arvind Panagariya   **4.** Suman Bery

78. The law of octaves asserts that every eighth element has comparable properties when grouped in increasing order of their atomic masses and is also known as:
    1. Gravity relation   **2.** Doppler relation
    3. Coulomb's relation   **4.** Newland's relation

79. Which of the following regions in India is nicknamed as the storehouse of minerals?
    1. Deccan Plateau   **2.** Western Ghats
    3. Chota Nagpur   **4.** Himalayas

80. Which of the following is consistent with import substitution policy?
    1. Capital account convertibility
    2. Flexible exchange rate policy
    3. Tariffs and quotas
    4. Current account convertibility

81. Which of the following will be considered as normal residents of India?
    A. Indians working in foreign embassies in India
    B. Ambassador for India in rest of the world
    1. Only A   **2.** Only B
    3. Both A and B   **4.** Neither A nor B

82. Which of the following is the most problematic and primary difficulty of barter exchanges as against money-based exchanges?
1. Bartered exchanges involve difficulty in preserving value.
2. Barter exchanges may result in an incorrect valuation of the goods transacted.
3. Barter exchanges may be imperfectly divisible.
4. Barter exchanges require a double coincidence of wants.

83. Who among the following personalities is a professional Kuchipudi Dancer?
1. Radha Sridhar
2. Surupa Sen
3. Anupama Hoskere
4. Kaushalya Reddy

84. Which region has the maximum concentration of Iron and Steel industries?
1. Shillong Plateau
2. Deccan Plateau
3. Chota Nagpur Plateau
4. Malwa Plateau

85. Who among the following has been accused of committing the judicial murder of Raja Nand Kumar?
1. Lord Wellesly
2. Lord Dalhousie
3. Lord Cornwallis
4. Warren Hastings

86. In which year did Swami Dayanand Saraswati establish Arya Samaj?
1. 1875
2. 1867
3. 1828
4. 1887

87. Which of the following is a transfer payment?
a. Unemployment allowances
b. Scholarships
c. Retirement pension
1. Only a
2. All of a, b and c
3. Only a and b
4. Only c

88. Which equation was verified by American scientists Nichols and Hull in 1903 by measuring the radiation pressure of visible light?
1. $Pr = C/N$
2. $P = L/M$
3. $P = F/A$
4. $P = U/C$

89. Match the items in list I with those in list II.

Measure of Money Supply	Formula
i. M_1	a. $M_1 + T_d$
ii. M_2	b. $C_p + D_d + O_d$
iii. M_3	c. $M_3 + TPO_d$
iv. M_4	d. $M_1 + POSB_d$

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

90. Sheorinarayan fair is held in which of the following states?
1. West Bengal
2. Jharkhand
3. Chhattisgarh
4. Madhya Pradesh

91. Where is Bhimrao Ambedkar Multipurpose Stadium situated?
1. Faizabad
2. Ghaziabad
3. Kanpur
4. Patna

92. Which of the following Articles of the Indian Constitution has the idea that 'No child below the age of fourteen years shall be employed to work in any factory or mine or engaged in any other hazardous employment?
1. Article 22
2. Article 24
3. Article 19
4. Article 20

93. Totaram Sharma is associated with which of the following instruments?
1. Tanpura
2. Panchavadyam
3. Pakhawaj
4. Sarangi

94. The founders of Vijayanagara Empire were the feudatories of which of the following dynasties?
1. Hoysala
2. Pandya
3. Kakatiya
4. Chola

95. The Pakhawaj syllables are primarily used to conclude which of the following Indian classical dances?
1. Manipuri
2. Kathak
3. Odissi
4. Kathakali

96. Who among the following was a member of the Drafting Committee of the Constituent Assembly?
1. Dr. KM Munshi
2. BN Rao
3. TT Krishnamachari
4. N Madhav Rau

97. Which of the following is the official sponsor of the Indian contingent at Hangzhou Asian Games?
1. Unacademy
2. Byju's
3. Amul
4. Pepsico

98. In which of the following cities was the 43rd ASEAN summit held in September 2023?
1. Jakarta
2. Kaula Lumpur
3. Vientiane
4. Hanoi

99. Which of the following is the first city in India to measure its progress towards achieving the Sustainable Development Goals (SDGs)?
1. Lucknow
2. Pune
3. Bhopal
4. Chandigarh

100. In which year did Rudolf Ludwig Karl Virchow formulate his famous aphorism 'Omnis cellula-e cellula' which became a part of the foundation of cell theory?
1. 1855
2. 1869
3. 1840
4. 1835

Answer Key

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

Answers with Explanations

1. Option (4) is correct.

Dynamic means continuously changing or developing. So 'energetic' is the correct synonym.

2. Option (4) is correct.

The word 'archive' in 'The museum's archive is a great place to find valuable artifacts such as ancient Manuscripts' implies a collection of historical documents or records. A collection of essays is referred to as an anthology; a room to store lots of books is called a library; an archive is not a room to store important official documents.

3. Option (3) is correct.

The word 'guile' implies 'deceitful cunning'. Options (1) and (2) are synonyms. Only 'honesty' justifies as the antonym.

4. Option (2) is correct.

Ants hoard food during the summer and save it for winter. To hoard refers to accumulating items, while to horde is to gather as a group.

5. Option (1) is correct.

An owl was hooting throughout the night. Here, 'a owl was' will be replaced by 'an owl was'. This is so because, 'owl' has a vowel sound, and with such sounds we use 'an' not 'a'.

6. Option (3) is correct.

Anarchist is a person who rebels against any authority, established order, or ruling power. Amateur is a person who engages in a study, sport, or other activity for pleasure rather than for financial benefit or professional reasons. Anthropologist is one who studies the evolution of mankind. Antagonist is one that contends with or opposes another.

7. Option (2) is correct.

Redeem means to buy or win back. While 'violated' implies to break a rule, an agreement, etc. other options hardly justify.

8. Option (3) is correct.

Robust means strong and healthy; Stagnant means not growing or developing; portable refers to something to be easily carried or moved. Fragile implies easily damaged or broken. Therefore, the correct answer is 'portable'.

9. Option (2) is correct.

Chronology is the science that deals with measuring time by regular divisions and that assigns to events their proper dates. Octogenarian is a person aged between 80 and 89 years. Utopia is a place of ideal perfection especially in laws, government, and social conditions. Therefore, the correct answer is 'utopia'.

10. Option (4) is correct.

Ill nature is the quality of being <u>bad-tempered</u>. Illicit means unlawful. Ill-fated means unfortunate; Ill health means poor physical or mental condition. So, the correct answer is 'Ill health'.

11. Option (2) is correct.

They were lying in the sun the entire morning till Sudharshan came. We use the past continuous tense to show a past action that has been interrupted. Here the arrival of Sudharshan interrupts the act of laying down in the sun. Therefore, 'were lying' will replace 'were laid'.

12. Option (4) is correct.

The spelling 'exilarete' is incorrect. It should be 'exhilarate' (meaning excitement).

13. Option (3) is correct.

The sentence 'I was never supported by my family' is in passive voice. In voice change, the object of the active <u>verb</u> becomes the <u>subject</u> of the passive verb. (Active) Subject + 2nd verb form + Object/Noun. You were taught by me. (Passive) Subject + was/were + Past participle form verb + by + object. My family never supported me.

14. Option (1) is correct.

The famous author clearly mentioned all the names of his friends in the acknowledgment of the book. The part 'acknolledgments of the book' will be replaced by 'acknowledgment of the book'. Acknowledgment means 'the fact of accepting that something is true or right'.

15. Option (2) is correct.

Mean implies someone who is unkind and behaves in a hurtful or aggressive way towards others.; whereas 'noble' means 'having, showing, or coming from personal qualities that people admire (such as honesty, generosity, courage, etc.)'.

16. Option (1) is correct.

The idiom 'On the cards' means 'likely to happen'. 'Not worth his salt' means 'not worth the cost or value.' 'With due respect' is used for expressing polite disagreement. 'Done to death' means 'to repeat too often, to the point of becoming monotonous and boring.'So, something is 'due' means it is 'on the cards'.

17. Option (2) is correct.

The correct sequence of the parts of sentence is : C, A, D, B. C starts with the subject 'the agent- the royal style'. This will be followed by an object in A 'agent in social evolution'. The idea of cultural patterns being transmitted by the dominant caste is due to its higher standard of living. So, the logical sentence is: The royal style is the agent in social evolution by imitation and cultural patterns are similarly transmitted by the dominant caste by reason of its higher standard of living.

18. Option (3) is correct.

The sentence 'An agitated gathering of workers in the company disturbed the meeting' is in active voice. In voice change, the object of the active <u>verb</u> becomes the <u>subject</u> of the passive verb. (Active) Subject + 2nd verb form + Object/Noun. You were taught by me. (Passive) Subject + was/were + Past participle form verb + by + object. The meeting was disturbed by an agitated gathering of workers in the company.

19. Option (4) is correct.

The idiom "cost an arm and a leg" is used to describe something that is extremely expensive or comes at a very high price. To be very expensive.

20. Option (4) is correct.

The reign of the company's CEO was widely praised for her innovative leadership. 'Reign' means 'to exercise authority in the manner of a monarch'.

21. Option (4) is correct.

Globalisation is not a new concept. 'Concept' means an idea/principle. Globalisation cannot be referred to as power/variation/design.

22. Option (4) is correct.

Traders travelled vast distances in ancient times to buy commodities that were rare and expensive for sale in their homelands. The reason behind traders travelling vast distances to buy commodities could be that the products were expensive as they were rare ones. Other options do not qualify for the commodities being expensive.

23. Option (2) is correct.

The Industrial Revolution brought advances in transportation and communication in the 19th century that eased trade across borders. It is easy to conclude that the Industrial Revolution has brought in development in transportation and communication in the 19th century.
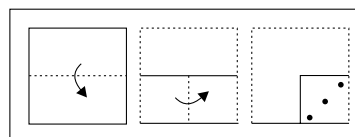
24. Option (4) is correct.

The think tank, Peterson Institute for International Economics (PIIE), states globalisation stalled after World War I. 'Stalled' means at a standstill.
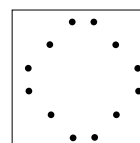
25. Option (1) is correct.

After World War I and nations moved toward protectionism as they launched import taxes to more closely guard their industries in the aftermath of the conflict. Protectionism refers to government policies that restrict international trade to help domestic industries. The meaning is evident in the part 'they launched import taxes to more closely guard their industries in the aftermath of the conflict.'

26. Option (4) is correct.
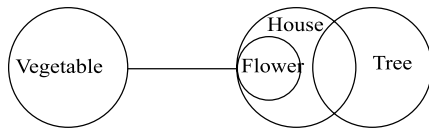
Given figure:

The paper when unfolded looks like:

27. Option (4) is correct.

According to the given statements, following venn diagram can be made:

Hence, Only conclusion III follows.

28. Option (4) is correct.

Given that: 4 B 18 D 5 C 9 A 9 = ?

After putting the signs, we get

4 × 18 – 5 + 9 ÷ 9

Now, according to the BODMAS rule,

= 4 × 18 – 5 + 1 = 68

29. Option (4) is correct.

Given that: 88 + 8 – 17 × 16 ÷ 40 = ?

After interchanging the signs, we get

88 ÷ 8 × 17 – 16 + 40

Now, according to the BODMAS rule,

= 11 × 17 + 24 = 211

30. Option (2) is correct.

Given that:

BALD → 7680

DRAB → 8097

If we compare both of the words we get,

The codes for the alphabets D, R, A, B are 8, 0, 9, 7 (In random order), indicating that the only different letter remaining is 'L.'

Therefore, there is only 1 digit left for 'L' which is 6.

31. Option (4) is correct.

Given that: A_DE FGI__LNQ PQ_T UV_Y

After inserting alphabets in the series from option (4) sequentially, we get

A**B**DE FGI**J K**LNQ PQ**S**T UV**X**Y

Here, all the letters of each set are increasing by 5.

Hence, it forms a logical series.

32. Option (4) is correct.

Given pair: Heat : Cold

As we know, heat and cold are antonyms to each other. Therefore, Option (4) is the only pair which are opposite to each other. Demolish means to completely destroy a building, structure or an object. Whereas, Build means to create or construct a structure or an object.

Hence, both of the words are antonyms to each other.

33. Option (3) is correct.

As per the pattern followed,

Given that:

$$\begin{array}{cccc} R & S & P & T \\ +4 & +4 & +4 & +4 \\ V & W & T & X \end{array}$$

And,

$$\begin{array}{cccc} M & N & K & O \\ +4 & +4 & +4 & +4 \\ Q & R & O & S \end{array}$$

Similarly,

$$\begin{array}{cccc} G & H & E & I \\ +4 & +4 & +4 & +4 \\ K & L & I & M \end{array}$$

So, GHEI is related to KLIM with same logic.

34. Option (4) is correct.

The pattern followed here is, 2nd term is completely divisible by the 1st term.

Except option (4), all the options are following the same pattern.

Hence, it is the odd one out.

35. Option (3) is correct.

Given that:

QUEZAL ⟶ 82

LUCKY ⟶ 72

Here, the positional values of the alphabets are added.

Hence, ADVERSE will be coded as 74.

36. Option (2) is correct.

As per the pattern followed,

Given that:

$$\begin{array}{cccc} G & I & E & K \\ +8 & +8 & +8 & +8 \\ O & Q & M & S \end{array}$$

And,

$$\begin{array}{cccc} K & M & I & O \\ +8 & +8 & +8 & +8 \\ S & U & Q & W \end{array}$$

Similarly,

$$\begin{array}{cccc} E & G & C & I \\ +8 & +8 & +8 & +8 \\ M & O & K & Q \end{array}$$

So, EGCI is related to MOKQ with same logic.

37. Option (4) is correct.

The pattern followed here is that, 1st term is multiplied by it's preceeding number to get the 2nd term.

Let's check the options:

(1) 5 : 20

   5 × 4 = 20

(2) 4 : 12

   4 × 3 = 12

(3) 7 : 42

   7 × 6 = 42

(4) 6 : 36

   6 × 5 = 30

Hence, option (4) is the odd one out.

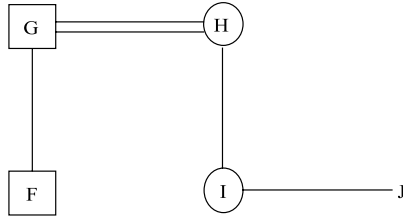**38. Option (2) is correct.**

As per the pattern followed,

(1) W $\xrightarrow{+3}$ Z $\xrightarrow{+2}$ B

(2) U $\xrightarrow{+2}$ W $\xrightarrow{+1}$ X

(3) O $\xrightarrow{+3}$ R $\xrightarrow{+2}$ T

(4) G $\xrightarrow{+3}$ J $\xrightarrow{+2}$ L

Hence, UWX is the odd one out.

39. Option (1) is correct.

Given that: F × G – H ÷ I + J

After decoding the statement, following family tree can be made:

Hence, F is the brother of J.

40. Option (1) is correct.

Given that: It was a Sunday on 09th July, 1978

Let's count the number of odd days for each year which needs to be added in Sunday.

1978 = +1

1979 = +1

1980 = +2   [Due to leap year]

1981 = +1

1982 = +1

Total no. of odd days = 6 days

So, 6 days ahead of Sunday will be a Saturday (On 09th July 1983)

And, the number of days between 09th July 1983 and 19th September 1983 are 72 = 10 weeks and 2 odd days.

Hence, counting 2 days ahead of Saturday, it will be Monday.

Note: A Non-leap year consists of 365 days, which is when divided by 7 (a week) results in 52 weeks and a remainder of 1, known as an odd day.

A leap year consists of 366 days, which is when divided by 7 (a week) results in 52 weeks and a remainder of 2, known as odd days.

41. Option (2) is correct.
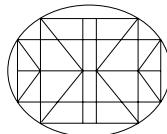
A total of 28 triangles can be seen in the given figure.

42. Option (2) is correct.

According to the question, following family tree can be made.
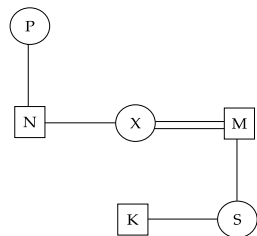
Hence, K is the daughter's son of P.

43. Option (4) is correct.

Given series: 23 31 47 71 103 X

As per the pattern followed here,

A multiple of 8 is added in the 1st term to obtain the next term.
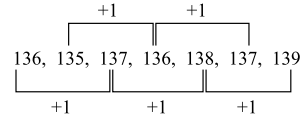
23 + 8 = 31

31 + 16 = 47

47 + 24 = 71

71 + 32 = 103

103 + 40 = **143**

Hence, the missing number is 143.

44. Option (4) is correct.

Hence, the missing number is 139.

45. Option (3) is correct.

Given that:

(15, 96)

(35, 216)

The pattern followed here is:

(1st term × 6) + 6 = 2nd term

Checking option (3), (29, 180)

(29 × 6) + 6 = 180

Hence, it follows the same pattern.
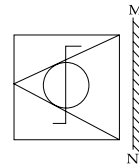
46. Option (1) is correct.

Given word: ACQUIRE

After arranging them in alphabetical series, we get,
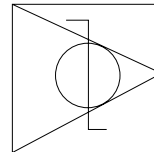
ACEIQRU,

Hence, position of 3 alphabets will remain the same i.e. A, C, R.

47. Option (3) is correct.

Given figure:

As per the pattern followed and symmetry, the required figure is:

48. Option (3) is correct.
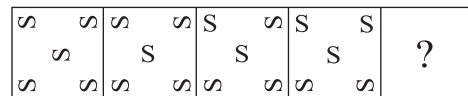
Given series: A_CD_CDA C_AB_ABC

After inserting alphabets from option (3), we get

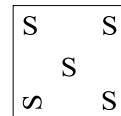A**B**CD **B**CDA C**D**AB **D**ABC

Hence, it forms logical series.

49. Option (4) is correct.

Given figure:

As per the pattern followed and symmetry, the required figure is:

50. Option (4) is correct.

Given that :   11 : 87 : 34

                                  6 : 28 : 8

Given pattern : $\left(\dfrac{87}{11}\right)_{\text{Remainder}} = -1$

and $\left(\dfrac{34}{11}\right)_{\text{Remainder}} = +1$

same for, 6 : 28 : 8,

$$\left(\frac{28}{6}\right)_{\text{Remainder}} = -2$$

and

$$\left(\frac{8}{6}\right)_{\text{Remainder}} = +2$$

So, in both cases remainders are same with different sign.
From given options, 12 : 81 : 63 is following the same.

$$\left(\frac{81}{12}\right)_{\text{Remainder}} = -3$$

$$\left(\frac{83}{12}\right)_{\text{Remainder}} = +3$$

51. Option (1) is correct.

Laptop sold by wholesaler 1 and wholesaler 2 together on thursday = 24 + 14 = 38
Laptop sold by the wholesaler 3 on friday = 19

Required percentage = $\frac{38}{19} \times 100\% = 200\%$

52. Option (1) is correct.

Base of triangle = 12 cm
Hypotenuse of triangle = 13 cm

∴ Altitude of triangle = $\sqrt{13^2 - 12^2} = \sqrt{25} = 5$ cm

[By pythagoras theorem]

Area of triangle = $\frac{1}{2} \times 12 \times 5 = 30$ cm^2

53. Option (3) is correct.

$\tan[50° + \theta] - \cot[40° - \theta]$

$= \tan[50° + \theta] - \tan[90° - (40° - \theta)]$

[∵ tan (90° − A) = cot A]

$= \tan[50° + \theta] - \tan[50° + \theta]$

$= 0$

54. Option (2) is correct.

Let salary of Som = ₹100

∴ His salary after 40% increment = ₹140

His salary after 15% reduction $= \left[\frac{100-15}{100}\right] \times 140$

$= \frac{85 \times 14}{10} = 119$

∴ Net change in his salary is 19% increase.

55. Option (1) is correct.

Radius of rod, $\quad r_1 = 5$ cm

Length of rod, $\quad h_1 = 52$ cm

Length of wire, $\quad h_2 = 100$ cm

Radius of rod, $\quad r_2 = x$ cm (Assume)

According to question,

$$\pi r_1^2 h_1 = \pi r_2^2 h_2$$

$\Rightarrow \qquad 5 \times 5 \times 52 = r_2^2 \times 100$

$\Rightarrow \qquad \frac{52}{4} = x^2$

$\Rightarrow \qquad x^2 = 13$

$\Rightarrow \qquad x = \sqrt{13}$ cm

Radius of wire, $r_2 = \sqrt{13}$ cm

56. Option (1) is correct.

$$y^2 + \frac{1}{y^2} = 74$$

$\Rightarrow \qquad y^2 + \frac{1}{y^2} - 2 \times y \times \frac{1}{y} = 74 - 2$

$\Rightarrow \qquad \left(y - \frac{1}{y}\right)^2 = 72$

$\Rightarrow \qquad y - \frac{1}{y} = \sqrt{72} = 6\sqrt{2}$

57. Option (3) is correct.

Let principal amount = P
Rate of interest = r%

According to first condition

$$44P = \frac{P \times r \times 110}{100} \qquad \left[\because \text{S.I.} = \frac{P \times r \times t}{100}\right]$$

$r = 40\%$

Let sum will be become 23 times in x years.

$\Rightarrow \qquad 22P = \frac{P \times r \times x}{100}$

$\Rightarrow \qquad 22 = \frac{40x}{100}$

$\Rightarrow \qquad \frac{2200}{40} = x$

$\Rightarrow \qquad x = 55$ years.

58. Option (4) is correct.

Total length of both trains, $d = 320 + 205 = 525$ m
Relative speed of both trains = (70+56) km/h

$= 126 \times \frac{5}{18}$ m/s = 35 m/s

Required time to cross each other = $\frac{525}{35} = 15$ seconds.

59. Option (3) is correct.

A can complete work in days = x
$\Rightarrow$ B and C can complete work in days = x
C can complete work in days = 50
According to question

$$\frac{1}{A} = \frac{1}{B} + \frac{1}{C} = \frac{1}{x} \qquad \qquad ...(i)$$

$\Rightarrow \qquad \frac{1}{A} = \frac{1}{B} + \frac{1}{50} = \frac{1}{x}$

$\Rightarrow \qquad \frac{1}{B} = \frac{1}{x} - \frac{1}{50} \qquad \qquad ...(ii)$

Also, $\qquad \frac{1}{A} + \frac{1}{B} = \frac{1}{10}$

$\Rightarrow \qquad \dfrac{1}{x}+\dfrac{1}{x}-\dfrac{1}{50}=\dfrac{1}{10}$ [Using (i) & (ii)]

$\Rightarrow \qquad \dfrac{2}{x}=\dfrac{1}{10}+\dfrac{1}{50}=\dfrac{5+1}{50}=\dfrac{6}{50}$

$\Rightarrow \qquad \dfrac{1}{x}=\dfrac{3}{50}$

ut in equation (ii),

$\Rightarrow \qquad \dfrac{1}{B}=\dfrac{3}{50}-\dfrac{1}{50}=\dfrac{2}{50}=\dfrac{1}{25}$

∴ B can complete the work in 25 days.

60. Option (1) is correct.

$\left(1-\sin^2 A\right).\operatorname{cosec}^2 A$

$= \cos^2 A . \operatorname{cosec}^2 A \qquad \left[\because \sin^2 A+\cos^2 A=1\right]$

$= \cos^2 A.\dfrac{1}{\sin^2 A} \qquad \left[\because \operatorname{cosec} A=\dfrac{1}{\sin A}\right]$

$=\left(\dfrac{\cos A}{\sin A}\right)^2 = \cot^2 A \qquad \left[\because \dfrac{\cos A}{\sin A}=\cot A\right]$

61. Option (4) is correct.

$3x-2y=3$

Squaring both sides

$\left(3x-2y\right)^2=3^2$

$\Rightarrow 9x^2+4y^2-12xy=9$

$\Rightarrow 9x^2+4y^2 = 9+12xy=9+12\times 9=117$ ...(i)

$3x+2y = \sqrt{\left(3x+2y\right)^2} = \sqrt{9x^2+4y^2+12xy}$

$= \sqrt{117+12\times 9} = \sqrt{117+108}$

[Using equation (i)]

$= \sqrt{225} = 15$

62. Option (1) is correct.

Total number of girls

$= \dfrac{60}{100}\times 110+\dfrac{50}{100}\times 70+\dfrac{30}{100}\times 50+\dfrac{80}{100}\times 40+$

$\dfrac{20}{100}\times 80+\dfrac{40}{100}\times 90=200$

∴ Total number of boys

$= 110+70+50+40+80+90-200$

$= 240$

Required ratio $= \dfrac{200}{240}=\dfrac{5}{6}$ = 5:6

63. Option (2) is correct.

$18\times[24\div 70\times\{25\times 49\div(5\times 7)\}]$

$= 18\times[24\div 70\times\{25\times 49\div 35\}]$

$= 18\times[24\div 70\times(35)]$

$= 18\times\left[\dfrac{24}{70}\times 35\right]=18\times 12=216$

64. Option (1) is correct.

Ratio of milk and water = 7:3

∴ Milk in mixture $= \dfrac{7}{10}\times 40=28$ litres

Water in mixture = 12 litres

Let we added x litre water in mixture.

∴ Percentage of water in mixture $= \dfrac{12+x}{40+x}\times 100$

According to the question,

$\Rightarrow \qquad 60=\dfrac{12+x}{40+x}\times 100$

$\Rightarrow \qquad 240+6x=120+10x$

$\Rightarrow \qquad 4x=120$

$\Rightarrow \qquad x=30$

We need to add 30 litre water in mixture.

65. Option (1) is correct.

$\because AC^2=AB^2+BC^2$

$= 9^2+40^2=1681=41^2$

∴ $\triangle ABC$ is a right triangle and hypotenuse

$= AC=41$

∴ Circumradius $= \dfrac{AC}{2}=\dfrac{41}{2}=20.5$ cm $=20\dfrac{1}{2}$ cm

66. Option (3) is correct.

Principal, P = ₹20000

Time period, t = 2 years

Rate of interest = r% compounded annually

∴ $\qquad C.I.=P\left[1+\dfrac{r}{100}\right]^2-P$

$\Rightarrow \qquad 2050=20000\left[1+\dfrac{r}{100}\right]^2-20000$

$\Rightarrow \qquad \left[1+\dfrac{r}{100}\right]^2=\dfrac{22050}{20000}$

$\Rightarrow \qquad 1+\dfrac{r}{100}=1.05$

$\Rightarrow \qquad r=5\%$

Now, C.I. after 3 years

$= 20000\left[1+\dfrac{5}{100}\right]^3-20000$

$= ₹3152.5$

67. Option (4) is correct.

$\because \qquad \tan 15°=2-\sqrt{3}$

$\Rightarrow \qquad \cot[90°-15°]=2-\sqrt{3}$

$\left[\tan\theta=\cot\left(90-\theta\right)\right]$

$\Rightarrow \qquad \cot 75°=2-\sqrt{3}$

Now, tan 15° . cot 75° + tan 75° . cot 15°

$= \left(2-\sqrt{3}\right)+\dfrac{1}{\cot 75°}\times\dfrac{1}{\tan 15°}$

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

$= 7-4\sqrt{3}+\dfrac{1}{7-4\sqrt{3}}$

$= 7-4\sqrt{3}+\dfrac{7+4\sqrt{3}}{49-48}$

$= 7-4\sqrt{3}+7+4\sqrt{3}$

$= 14$

68. Option (3) is correct.

Let the amount to be divided = ₹13x

A's original share = $\dfrac{8}{13} \times 13x = ₹8x$

A's wrongly given share = $\dfrac{5}{13} \times 13x = ₹5x$

According to question

$$8x - 5x = 300$$
$$\Rightarrow \qquad 3x = 300$$
$$\Rightarrow \qquad x = 100$$
$$\therefore \qquad \text{Amount} = 13 \times 100 = ₹1300$$

69. Option (4) is correct.

Let cost for Akash = ₹x

Cost for Navin = $\dfrac{110}{100}x = \dfrac{11}{10}x$ [10% Profit]

Cost for Vinay = $\dfrac{120}{100} \times \dfrac{11}{10}x = \dfrac{12 \times 11}{100}x$ [20% Profit]

Cost for Vishal = $\dfrac{95}{100} \times \dfrac{12 \times 11}{100}x$ [5% Loss]

According to question

$$\Rightarrow \qquad \dfrac{95 \times 12 \times 11}{100 \times 100}x = 62700$$
$$\Rightarrow \qquad x = ₹50000$$

So, Cost for Akash = ₹50000

70. Option (4) is correct.

$\because \Delta XYZ \sim \Delta PQR$

$$\Rightarrow \dfrac{\text{Perimeter of } \Delta XYZ}{\text{Perimeter of } \Delta PQR} = \dfrac{XY}{PQ}$$ [C.P. S.T]

$$\Rightarrow \qquad \dfrac{62}{42} = \dfrac{XY}{21}$$

$$\Rightarrow \qquad XY = \dfrac{62}{2} = 31 \text{ cm}$$

71. Option (4) is correct.

$$px + qy = 1 \qquad \qquad ...(i)$$
$$qx + py = \dfrac{2pq}{p^2 + q^2} \qquad ...(ii)$$

From equation (i),

$$x = \dfrac{1 - qy}{p}$$

Put the value of x in equation (ii),

$$q\left(\dfrac{1-qy}{p}\right) + py = \dfrac{2pq}{p^2 + q^2}$$

$$\Rightarrow \qquad \dfrac{q - q^2y + p^2y}{p} = \dfrac{2pq}{p^2 + q^2}$$

$$\Rightarrow \qquad y(p^2 - q^2) = \dfrac{2p^2q}{p^2 + q^2} - q$$

$$\Rightarrow \qquad (p^2 - q^2)y = \dfrac{q(p^2 - q^2)}{p^2 + q^2}$$
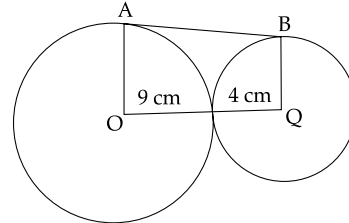
$$\Rightarrow \qquad y = \dfrac{q}{p^2 + q^2}$$

After putting the value of y in eqn. (i), $x = \dfrac{p}{p^2 + q^2}$

So, value of $(x^2 + y^2)(p^2 + q^2) = \dfrac{(p^2 + q^2)}{(p^2 + q^2)^2} \times (p^2 + q^2) = 1$

Hence, (4) is the correct answer.

72. Option (3) is correct.

As per given figure will be:

Here, $\quad d = 13$ cm

$r_1 = 9$ cm

$r_2 = 4$ cm

$\because$ Length of direct common tangent

$$= \sqrt{d^2 - (r_1 - r_2)^2}$$
$$= \sqrt{13^2 - (9-4)^2}$$
$$= \sqrt{13^2 - 5^2}$$
$$= \sqrt{144} = 12 \text{ cm}$$

73. Option (1) is correct.

Reduction percent = 13%

Reduction amount = ₹260.39

Let the bill amount = ₹x

According to question

$$\dfrac{13}{100} \times x = 260.39$$

$$x = \dfrac{26039}{13} = 2003$$

74. Option (4) is correct.

Let cost price of goods = ₹100

$\therefore \qquad$ Marked price = ₹130   [30% more]

$$\text{Selling price} = \left[\dfrac{100 - 10}{100}\right] \times 130$$

[10% discount]

$$= ₹117$$

$\therefore \qquad$ Profit percentage = 17%

75. Option (3) is correct.

Percentage of teachers in English, Sanskrit and Hindi = 20% + 10% + 10% = 40%

Percentage of teachers in Mathematics, Biology and Social studies = 20% + 20% + 20% = 60%

$\therefore$ Required ratio = $\dfrac{40}{60} = 2{:}3$

76. Option (2) is correct.

Congo River: The Congo River is the second-largest river in Africa and flows into the Atlantic Ocean, but it does not have the same volume or extensive drainage as the Amazon.

Amazon River: The Amazon River is the largest river in the world by both volume and drainage basin. It carries more water than any other river and has a vast drainage basin in South America, which includes parts of Brazil, Peru, Colombia, and several other countries. It empties into the Atlantic Ocean.

Amur River: The Amur River flows into the Pacific Ocean, not the Atlantic Ocean, and it is not as large as the Amazon River in terms of volume or drainage.

Nile River: The Nile River is a significant river in Africa, but it flows northward into the Mediterranean Sea, not the Atlantic Ocean. It is known for its historical and cultural significance but is not as extensive or voluminous as the Amazon.

77. Option (1) is the correct answer

Amitabh Kant was India's Sherpa for the G20 summit 2023. A sherpa is the personal representative of the leader of the member country who focuses on socio-economic issues such as agriculture, anti-corruption, climate, digital economy, education, employment, energy, environment, health, tourism, trade, and investment.

G-20 summit was held from 9th to 10th September 2023 in New Delhi under the theme 'Vasudhaiva Kutumbakam- One Earth, One Family, One Nation.'

78. Option (4) is correct.

John Newlands was a British chemist known for his Law of Octaves for the Periodic table, given in the year 1865. The law stated that any given element will exhibit similar behaviour to the eighth element following it in the table when the elements are arranged in increasing order of atomic masses. Newlands successfully arranged 62 elements from Hydrogen to Thorium using this law. However, it's important to note that this law was only applicable to elements up to Calcium.

79. Option (3) is correct.

Chota Nagpur in India is known as the storehouse of minerals. It is the storehouse of coal, iron ore, mica, bauxite, limestone, and other minerals. Chota Nagpur is a plateau in Eastern India with an area of approximately 65,000 square kilometers.

Deccan Plateau is characterised by elevated terrain and covers the states of Maharashtra, Karnataka, Telangana, Andhra Pradesh, Tamil Nadu, and Madhya Pradesh. The plateau is surrounded by Eastern and Western Ghats. It is known for its diverse flora and fauna.

Western Ghats are the mountain range that stretch 1600 kilometres from Gujarat in the north to Tamil Nadu in the south. These run parallel to the western coast of India and are bounded by the Arabian Sea to the west. They are characterized by their elevated terrain. This is a UNESCO world heritage site and is one of the 36 biodiversity hotspots in the world. They are even older than the Himalayas.

The Himalayas mountain range spans across Nepal, China, Pakistan, Bhutan and India and they form a natural border between the Indian subcontinent and the Tibetan Plateau. They are composed of multiple parallel ranges. These were formed as a result of the collision between the Indian Plate and the Eurasian Plate.

80. Option (3) is correct.

The import substitution policy is an economic strategy employed by a country to diminish its dependence on imported goods while fostering the expansion of domestic industries through the implementation of trade barriers. Two prevalent methods employed to realize this objective include:

1. Tariffs: Tariffs constitute taxes levied on imported goods, elevating their cost for consumers. This encourages consumers to prefer domestically manufactured products over imports, thereby stimulating the growth of domestic industries.

2. Quotas: Quotas, conversely, impose restrictions on the quantity of a specific imported commodity permitted to enter a country. By curbing the volume of imports, quotas are instituted to shield domestic industries from foreign competition.

Both of these strategies align with the import substitution policy's fundamental goal: curbing the influx of foreign goods and bolstering the development of domestic industries. In contrast, alternative options such as capital account convertibility, flexible exchange rate policy, and current account convertibility are not typically associated with import substitution policies but may instead form part of distinct economic strategies or policies.

81. Option (3) is correct.

The citizenship of India is defined under the Citizenship Act, 1955. The citizenship can be acquired by birth, descent, registration, naturalization, or incorporation of territory. Indians working in Foreign embassies in India and Ambassadors for India in the rest of the world are citizens of India.

82. Option (4) is correct.

Barter exchange or transaction is an exchange of goods or services in exchange of other goods or services. Basically, both the involved parties are fulfilling their needs and wants and there is a mutual benefit of both the involved parties. It enables the involved parties to do away with cash. Sometimes, the involved parties monetise their unused capacities and excess inventories. It is an effective method of conserving cash and increasing sales. However, there should be a double coincidence of wants.

83. Option (4) is correct.

Kaushalya Reddy is an esteemed Indian Classical Kuchipudi dancer, renowned for her contributions to the world of dance. In collaboration with Raja Radha Reddy, she played a pivotal role in the establishment of the Natya Tarangini Kuchipudi dance school in 1976. This institution was created with the noble purpose of imparting the intricate and rich traditions of Kuchipudi to aspiring students, thereby preserving and propagating this ancient art form. Additionally, Kaushalya Reddy initiated the annual 'Parampara Series' in 1998, further enhancing the cultural landscape.

Radha Sridhar has made a name for herself as a Bharatnatyam dancer, showcasing her artistry and talent in this classical dance form.

Surupa Sen's expertise lies in Odissi dance, where she not only excels as a performer but also shines as a choreographer, contributing to the evolution and innovation of Odissi dance.

Anupama Hoskere has established herself as a master puppeteer and is the visionary Founder-Director of the Dhaatu Puppet Theater in Bengaluru, India. Her outstanding contributions to the world of puppetry have earned her the prestigious Sangeet Natak Akademi Puraskar, the highest honor bestowed upon practicing artists in India, recognizing her remarkable achievements in the realm of performing arts.

84. Option (3) is correct.

The Chota Nagpur Plateau, located in eastern India, has the maximum concentration of iron and steel industries in the country. This region is rich in iron ore deposits and coal, which are essential raw materials for the iron and steel industry. As a result, it has become a major hub for the iron and steel sector in India.

85. Option (4) is correct answer.

Warren Hastings has been accused of committing the judicial murder of Raja Nand Kumar. Nand Kumar was an Indian tax

collector in West Bengal in the Pre-independence era, and he replaced the then Governor General Warren Hasting as the tax collector. Warren Hasting, the then governor-general of Bengal had conspired against Raja by bringing charges of forgery against him. He was tried under Elijah Impey, who was India's first Chief Justice. Raja was found guilty and hanged on 5th August 1775 becoming the first Indian to be executed by hanging. This was followed by impeachment of Warren hasting and Elijah by the British government.

86. Option (1) is correct.

Arya Samaj was founded by Swami Dayanand Saraswati on 10th April 1875 in Mumbai, India. Arya Samaj was a monotheistic Indian movement the promoted the belief in Indian Vedas- Sam Veda, Rig – Veda, Atharva Veda, and Yajur Veda, paved the Samaj path. It promotes physical, spiritual and social progress of all humans beings of the whole world. It established ten principles called the ten Niyama's or Principles.

Swami Dayanand Saraswathi is considered one of the 'Makers of Modern India'. He was an Indian philosopher and social leader. He is known for the book 'Satyarth Prakash.' In 1876, he was the first person to give the call for Swaraj as 'India for Indians'.

87. Option (2) is correct.

Unemployment allowances, scholarships, and retirement pension are transfer payments. Transfer payments are the payments or the incomes in which no goods or services are being paid for. These include subsidy or benefit payment. These types of payments usually redistribute the money to the strata that require the payment. These are transferred into government accounts as these are methods to achieve social goals such as medicare, welfare programs, and subsidies etc. These are not part of national income as this is a one-sided payment.

88. Option (4) is correct.

American scientists Nichols and Hull verified the equation $P = U/C$ in 1903 by measuring the pressure of visible light. In this equation, 'U' is the total energy transferred to a surface, 'P' is the Pressure, and 'c' is the speed of light. Its value was found to be 7×10^{-6} N/m^2

89. Option (2) is correct.

There are four measures of money supply in India and these are:

M1= Currency notes and coins in circulation with public (but not those held by banks) + Net demand deposits with the commercial banks + Other deposits

M2 = M1 + Deposits with post-office savings banks

M3 = M1 + Fixed deposits with banks

M4 = M3 + All post-office savings bank deposits

Mostly, M3 is used as a measure of money supply.

90. Option (3) is correct.

Sheorinarayan Fair is held in the town of Sheorinarayan, located in the Janjgir district of Chhattisgarh. The devotees of Lord Rama come and visit the temple devoted to Lord Rama as well as be a part of this colorful and vibrant fiesta. It is held on Magh Purnima, which is the full moon day in the month of February. The Sherorinarayan Temple which is devoted to Lord Rama is the main venue of this Sheorinarayan Fair. Sheorinarayan town is located on the confluence of three rivers, Mahandi, Sheonath and Jonk.

91. Option (1) is correct.

Dr. Bhimrao Ambedkar International Sports Stadium is a multipurpose stadium in Faizabad, Ayodhya district, Uttar Pradesh, India. It is a part of multi crores stadium complex. It can host games of Football, athletics, volleyball, hockey, basketball, badminton, cricket, handball, table tennis, taekwondo and wrestling.

92. Option (2) is correct.

Article 24 of the constitution prohibits the employment of children below the age of fourteen in factories, mines etc.

Article 19 of the Constitution provides freedom of speech which is the right to express one's opinion freely without any fear through oral, written, electronic, broadcasting, or press means.

Article 22 of the constitution grants protection to persons who are arrested or detained.

Article 20 of the Constitution of India is a fundamental right that safeguards the rights of an accused/convict. It provides protection against the convictions of offenses.

93. Option (3) is correct.

Totaram Sharma and Pakhavaj:

Totaram Sharma is a pakhavaj expert.

Pakhavaj is a two-headed barrel-shaped drum.

It's commonly used in dhrupad style Indian classical music.

Made with animal skins like goat and cow, it's a percussion instrument.

Tanpura: Tanpura, or tambura/tanpuri, is a long-necked string instrument.

Its role is to provide a continuous harmonic drone, not melody.

Panchavadyam: A Kerala orchestra with five instruments: kombu, edakka, thimila, ilathalam, and maddalam.

Performed at temple festivals like pooram and vela.

Sarangi: A short-necked, three-stringed instrument.

Used in Punjabi folk music, Boro folk music, and Rajasthani folk music

94. Option (3) is correct answer.

The Vijaynagar empire was founded by Harihara and his brother Bukka Raya in peninsular and southern India. They were feudatories of Kakatiyas of Warrangal. The Vijaynagar empire was ruled by the Sangama Dynasty, Saluva Dynasty, and Tuluva dynasty.

95. Option (3) is correct.

Odissi Dance: Odissi is a traditional dance-drama genre of performance art that originated in the temples of Odisha. This dance form involves artists and musicians enacting and dancing to stories, spiritual messages, or devotional poems from Hindu texts. It utilizes precise body movements, mudras (hand gestures), abhinaya (expression), and symbolic costumes.

Kathakali: Kathakali is an Indian classical dance native to Kerala. It is essentially a "story-play" that features vibrant costumes and traditional makeup.

Kathak: Kathak is the classical dance of Uttar Pradesh and is one of the eight major forms of Indian classical dance.

Manipuri Dance: Manipuri Dance, also known as Manipuri Raas Leela, is another of the eight major forms of Indian classical dance. It is performed as a dance-drama, with its central themes revolving around the love stories of Krishna and Radha.

96. Option (1) is correct.

The Constituent Assembly was elected by the Provincial Assembly to frame the Constitution of India and this idea was first proposed by M. N. Roy in December 1934. The members of this assembly served as the nation's first Parliament as the 'Provisional Parliament of India'. The constituent assembly was formed on 9th December 1946 under the leadership of Rajendra Prasad with a total of 389 members. A total of 22 committees were created to deal with different tasks of constitution-making. There were 15 female members who were part of the Constituent Assembly that framed the Constitution of India. Some of the different members of the committee and their head are:

Order of Business Committee- KM Munshi

Union Powers Committee - Jawaharlal Nehru

Fundamental Rights Sub-Committee-J.B. Kripalan

Credential Committee of India- Alladi Krishnaswami Ayyar.

97. Option (3) is correct.

Amul is the official sponsor of the Indian contingent at Hangzhou Asian Games, which will be held in Hangzhou, China from 23rd September to 8th October 2023. The event is officially called the 19th Asian Games Hangzhou 2022. It was originally slated to be held last year but was postponed due to Covid-19. The Asian Games, also known as the Asiad, are a continental multi-sport event held every four years among athletes from all over Asia.

98. Option (1) is correct.

The 43rd ASEAN summit was held from 4th-7th September 2023 in Jakarta, Indonesia. ASEAN refers to the Association of Southeast Asian Nations and it is an economic and political union of ten member states in Southeast Asia. The members of ASEAN are-Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam.

99. Option (3) is correct.

Bhopal is the first city in India to measure its progress towards achieving the Sustainable Development Goals (SDGs). It has adopted a Voluntary Local Review (VLR) process, which is a tool that helps cities to assess their progress on the SDGs and identify areas where they need to improve.

The SDGs are a set of 17 goals that were adopted by all United Nations member states in 2015. These are a roadmap for a better future for all.

100. Option (1) is correct.

Rudolf Virchow published his now-famous aphorism 'omnis cellula e cellula,' which means 'every cell stems from another cell,' in 1855. Rudolf Virchow was a German physician, biologist, pathologist, anthropologist, and prehistorian known as the 'father of modern pathology.' He is renowned for his contributions to cell theory, cellular pathology, biogenesis, and Virchow's triad.

■■■