SSC CHSL Tier-1 2024: Official Paper (Held On: 01 Jul, 2024 Shift 2) (Previous Year Paper)

SSC Combined Higher Secondary Level (CHSL) • 2024 • 100 questions • 60 minutes • Answer key and solutions

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ENGLISH LANGUAGE

Q1. The given sentence is divided into four segments. Select the option that has the segment with a grammatical error.

She always / likes to / show on / her wealth.

(a) her wealth.
(b) she always
(c) show on
(d) likes to

Q2. The following sentence has been split into four segments. Identify the segment that contains a grammatical error.

Hard had she / thrown the basketball / when it fell / on the ground.

(a) when it fell
(b) thrown the basketball
(c) on the ground
(d) Hard had she

Q3. Parts of the following sentence have been underlined and given as options. Select the option that contains an error.

If it will rain tomorrow, I will stay at home.

(a) I will
(b) If it
(c) will rain
(d) at home

Q4. Parts of the following sentence have been given as options. Select the option that contains an error.

Ramayana is an ancient Sanskrit epic; it is believed to be written around 500 BC to 100 BC.

(a) believed to be written
(b) Ramayana is an ancient
(c) around 500 BC to 100 BC.
(d) Sanskrit epic; it is

Directions

In the following passage, some words have been deleted. Read the passage carefully and select the most appropriate option to fill in each blank.

The period from 1858-1905 was the seed time of Indian nationalism; and the early nationalists (1) _____ the seeds well and deep. Instead of basing their nationalism or appeals to (2) _____ sentiments and passing emotions, or abstract rights of freedom and liberty, or on obscurantist appeals to the past, they___(3) it in a hard-headed and penetrating analysis of the complex mechanism of modern imperialism and the chief contradiction between the interests of the Indian people and British rule. The result was that they (4) _____ a common political and economic programme which (5) _____ rather than divided the different sections of the people. Later on, the Indian people could gather around this programme and wage powerful struggles.

Q5. Select the most appropriate option to fill in blank number 1.

(a) sowed
(b) scattered
(c) threw
(d) buried

Q6. Select the most appropriate option to fill in blank number 2.

(a) deep
(b) shallow
(c) grounded
(d) profound

Q7. Select the most appropriate option to fill in blank number 3.

(a) rooted
(b) minded
(c) controlled
(d) drove

Q8. Select the most appropriate option to fill in blank number 4.

(a) uprooted
(b) banished
(c) evolved
(d) collapsed

Q9. Select the most appropriate option to fill in blank number 5.

(a) complicated
(b) dissolved
(c) united
(d) classified

Q10. Select the most appropriate ANTONYM of the word ‘Defeat’ in the given sentence.

The first battle of Panipat was fought on 21 April 1526, where Babur introduced cannon warfare and was able to gain victory on Delhi and subjugated sultanate ruler Ibrahim Lodi.

(a) subjugated
(b) warfare
(c) gain
(d) victory

Q11. Select the most appropriate ANTONYM of the underlined word in the given sentence.

The committee deposed him from his office.

(a) Promoted
(b) Interacted
(c) Demolished
(d) Segregated

Q12. Select the most appropriate meaning of the given idiom.

At one’s fingertips

(a) To be unaware of something
(b) To have complete knowledge
(c) Out of reach
(d) To take revenge

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Q13. Select the most appropriate ANTONYM of the underlined word in the given sentence.

Ria is liked by everyone as she is very amicable.

(a) Dangerous
(b) Unfriendly
(c) Stupid
(d) Hateful

Q14. Select the most appropriate option to fill in the blank.

It took 4 hours straight to _____ the deal with the regional company.

(a) perform
(b) get
(c) stop
(d) close

Q15. Select the most appropriate meaning of the underlined idiom.

Teja followed his friend's advice so now he is in deep water.

(a) In dilemma
(b) In good position
(c) In trouble
(d) In deep thoughts

Q16. Select the most appropriate option that can substitute the underlined segment in the given sentence.

The road which connecting the two states is overcrowded.

(a) connects
(b) connected
(c) has connecting
(d) have connected

Q17. Select the most appropriate ANTONYM of the given word.

Beautiful

(a) Stingy
(b) Ugly
(c) Slimy
(d) Pungent

Q18. Select the INCORRECTLY spelt word.

(a) Aquire
(b) Congratulate
(c) Category
(d) Hygiene

Q19. Select the most appropriate ANTONYM of the underlined word.

Language interacts with all aspects of human life and society.

(a) intermingles
(b) co-operates
(c) interrelates
(d) disconnects

Q20. Select the most appropriate ANTONYM of the underlined word.

The rocky terrain made the hike difficult and strenuous.

(a) Easy
(b) Demanding
(c) Lively
(d) Intense

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Q21. Select the most appropriate option that can replace the bracketed word segment in the following sentence.

Children should avoid giving out personal details online (which will) identify them or their location.

(a) whichever can
(b) that could
(c) which might lead
(d) what will

Q22. Select the option that can be used as a one-word substitute for the given group of words.

Hospital for people with mental illnesses

(a) Asylum
(b) Shelter
(c) Druggist
(d) Hangar

Q23. Select the most appropriate option that can substitute the underlined segment in the given sentence.

As I have no time to discuss the points, so I wrote a email to her.

(a) so I wrote a e-mail to her
(b) I wrote an email to her
(c) so I wrote an e-mail for her
(d) I write an email to her

Q24. Select the INCORRECTLY spelt word in the given sentence.

A distinguished academecian, Amartya Sen has taught in India, Britain and the United States.

(a) Britain
(b) Taught
(c) Distinguished
(d) Academecian

Q25. Select the most appropriate ANTONYM of the given word.

Resistance

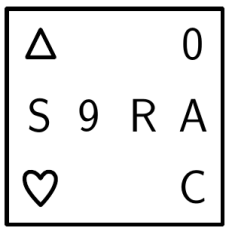
(a) Tolerance
(b) Tenderness
(c) Awareness
(d) Reliance

GENERAL INTELLIGENCE

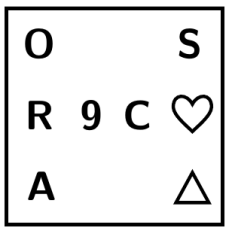
Q26. Which figure should replace the question mark (?) if the following figure series were to be continued?



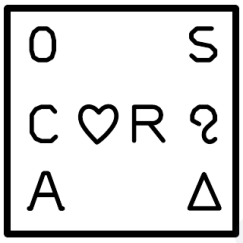
(a)



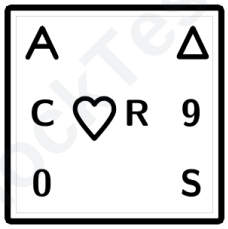
(b)



(c)



(d)



Q27. If 'T' stands for '×', 'M' stands for '+', 'K' stands for '÷' and 'G' stands for '-', what will come in place of the question mark (?) in the following equation?

100 K 5 M 73 T 48 M 56 G 23 = ?

(a) 3560
(b) 3575
(c) 3500
(d) 3557

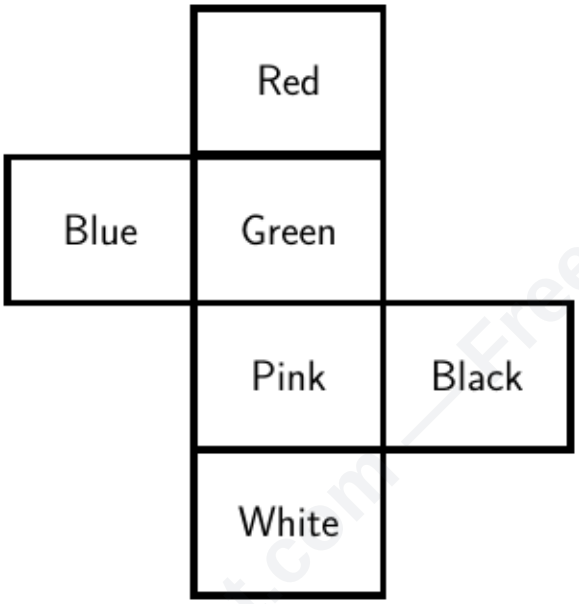
Q28. Based on the alphabetical order, three of the following four letter-clusters are alike in a certain way and thus form a group. Which letter-cluster does not belong to that group?

(Note: The odd one out is not based on the number of consonants/vowels or their position in the letter cluster.)

(a) QNL
(b) ROL
(c) WTQ
(d) LIF

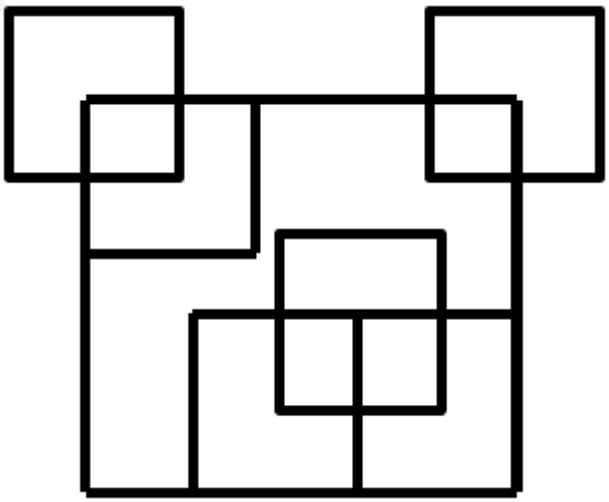
Q29. What would be the word on the opposite side of 'Blue' if the given sheet is folded to form a cube?

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(a) Red
(b) White
(c) Pink
(d) Black

Q30. How many squares are there in the given figure?



(a) 9
(b) 12
(c) 11
(d) 10

Q31. In a certain code language. 'messages are encrypted' is written as 'tg gc mz' and 'are you coming' is written as 'ze fp mz'. How is 'are' written in the given language?

(a) gc
(b) fp
(c) ze
(d) mz

Q32. What will come in the place of '?' in the following equation, if '+' and '÷' are interchanged and '×' and '-' are interchanged?

21 + 3 - 7 ÷ 11 × 4 = ?

(a) 48

(b) 51
(c) 56
(d) 63

Q33. In this question, three statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusion(s) logically follows/follow from the statements.

Statements:

All rings are earrings.

Some rings are chains.

All chains are bangles.

Conclusions:

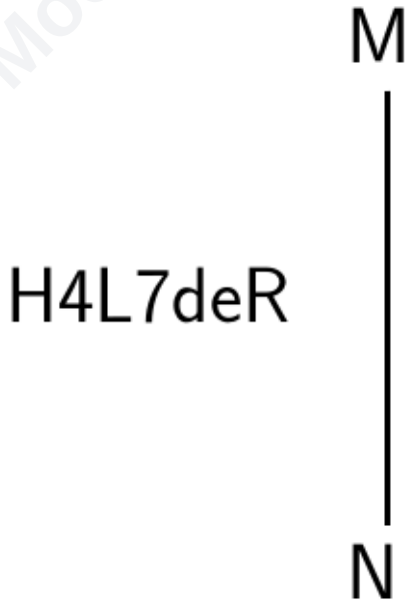
I. Some rings are bangles.

II. Some earrings are bangles.

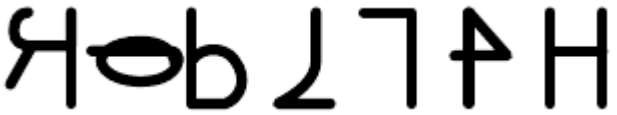
III. Some chains are earrings.

(a) All conclusions I, II and III follow.
(b) Both conclusions II and III follow.
(c) Both conclusions I and II follow.
(d) Both conclusions I and III follow.

Q34. Select the correct mirror image of the given combination when the mirror is placed at MN as shown below.



(a)



(b)



(c)



(d)



Q35. If ‘Z’ stands for ‘÷’, ‘Q’ stands for ‘×’, ‘H’ stands for ‘+’ and ‘E’ stands for ‘–’, what will come in place of the question mark (?) in the following equation?

17 H 23 Q 42 Z 7 E 13 = ?

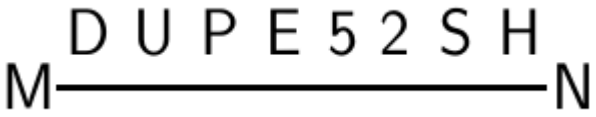
(a) 975
(b) 688
(c) 785
(d) 142

Q36. 11 is related to 55 following a certain logic. Following the same logic, 22 is related to 110.To which of the following is 44 related following the same logic?

(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.)

(a) 210
(b) 220
(c) 200
(d) 230

Q37. Select the correct mirror image of the given figure when the mirror is placed at MN as shown below.



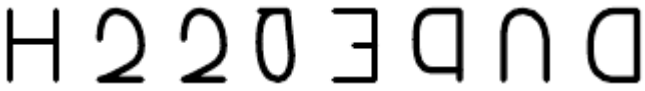
(a)



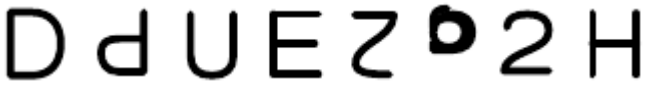
(b)



(c)



(d)

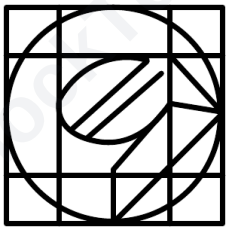


Q38. Select the option figure in which the given figure (X) is embedded as its part (rotation is NOT allowed).

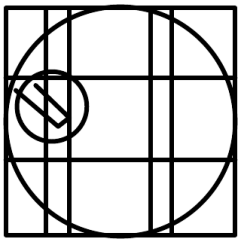




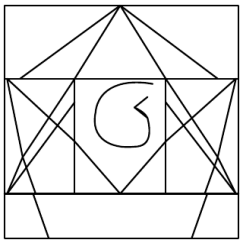
(a)



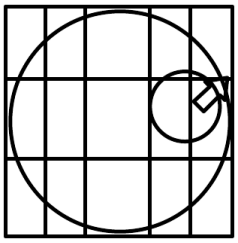
(b)



(c)



(d)



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Q39. Which of the following numbers will replace the question mark (?) in the given series?

54, 58.7, 64.4, 71.1, 78.8 ?

(a) 85.1
(b) 84.4
(c) 86.8
(d) 87.5

Q40. What should come in place of the question mark (?) in the given series?

162, 167, 172, 177, 182, ?

(a) 187
(b) 185
(c) 188
(d) 186

Q41. 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/number of consonants/vowels in the word)

Hand : Wrist

(a) Foot : Ankle
(b) Ear : Hair
(c) Skull : Stomach
(d) Muscle : Bone

Q42. If 6 May 2005 is a Friday, then what will the day of the week on 25 September 2018?

(a) Friday
(b) Sunday
(c) Tuesday
(d) Thursday

Q43. If 15 December 2006 is a Friday, then what will the day of the week on 13 October 2009?

(a) Saturday
(b) Friday
(c) Monday
(d) Tuesday

Q44. 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/number of consonants/vowels in the word.)

Continue - Interrupt

(a) Safe - Secure
(b) Connect - Join
(c) Cow - Buffalo
(d) Attic - Common

Q45. ‘Q + R’ means ‘Q is the father of R’

‘Q – R’ means ‘Q is the wife of R’

‘Q × R’ means ‘Q is the brother of R’

‘Q ÷ R’ means ‘Q is the daughter of R’.

What does ‘ M – N + O’ mean?

(a) M is the daughter of O
(b) M is the mother of O
(c) M is the father of O
(d) M is the brother of O

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Q46. Select the combination of letters that when sequentially placed in the blanks of the given series will complete the series.

KJ_HIJKI_JM_EJ_K

(a) IGJO
(b) GIJO
(c) KJOM
(d) IMKR

Q47. 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, 34, 76)

(39, 26, 104)

(a) (25, 31, 108)
(b) (28, 23, 79)
(c) (37, 43, 127)
(d) (34, 25, 102)

Q48. What should come in place of? in the given series based on the English alphabetical order?

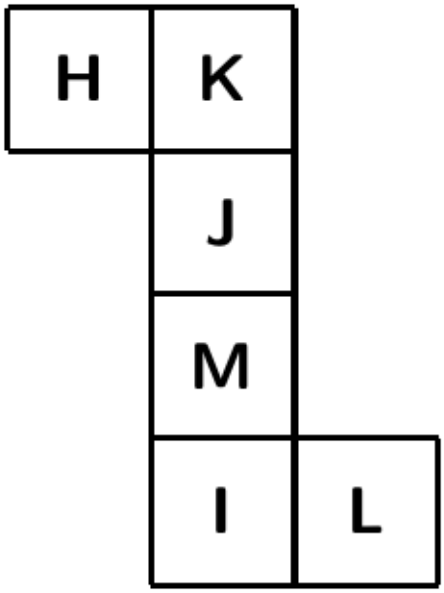
ZRJ EUK JXL ? TDN

(a) OAM
(b) WNE
(c) HST
(d) QHR

Q49. In a certain code language, 'KIOSK' is coded as 'LJRTL' and 'FLAME' is coded as 'GMDNF. What is the code for 'ENJOY' in the given code language?

(a) GNMRY
(b) EMOQY
(c) FOMPZ
(d) ENOQZ

Q50. What would be the letter on the opposite side of 'K' if the given sheet is folded to form a cube?



(a) M
(b) L
(c) H

(d) I

QUANTITATIVE APTITUDE

Q51. If $\sin\theta = (2xy)/(x^2+y^2)$, then the value of $\tan\theta$ is:

(a) $(x^2-y^2)/(x^2+y^2)$
(b) $(2xy)/(x^2-y^2)$
(c) $(x^2+y^2)/(x^2-y^2)$
(d) $(x^2-y^2)/(2xy)$

Q52. If $2^3 : 8\text{^}(5.06) :: 8\text{^}(-4.06) : x$, find the value of x.

(a) 1
(b) $1/2^3$
(c) 2^3
(d) 0

Q53. The age of the older of two boys is thrice that of the younger. 9 years ago it was five times that of the younger. Find the present age of each.

(a) 15 years, 45 years
(b) 12 years, 36 years
(c) 18 years, 54 years
(d) 17 years, 51 years

Q54. A person drives 110 miles at 55 miles per hour, he drives the next 120 miles at 60 miles per hour, and then he drives the next 60 miles in an hour. What is his average speed for the entire journey in miles per hour ?

(a) 63
(b) 60
(c) 58
(d) 55

Q55. PQ is a diameter of a circle with centre O. The tangent at R meets PQ produced at A. If angle RPQ = 27º, then measure of angle RQP is:

(a) 27º
(b) 54º
(c) 153º
(d) 63º

Q56. The value of $(7+8\times7\div8+7\div7\div7)/(3+3\times3\div3+5\div5\div5)$ is:

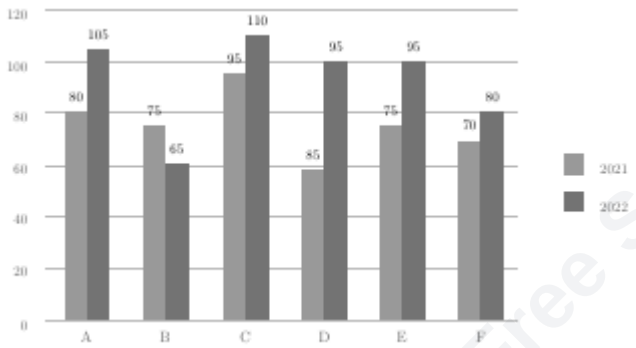
(a) 181/217
(b) 327/217
(c) 261/217
(d) 1 31/217

Q57. The surface areas of two spheres are in the ratio 25 : 36. What is the ratio of their volumes?

(a) 36/125
(b) 36/115
(c) 125/216
(d) 25/36

Q58. The following bar graph shows the sales (in thousands) of magazines from six branches (A, B, C, D, E and F) of a publishing company during two consecutive years 2021 and 2022.

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What percent of the average sales of branches A, B and C in 2022 is the average sales of branches A, C and F in 2021?

(a) 86.2%
(b) 87.5%
(c) 88.4%
(d) 82.3%

Q59. Reshma took a loan of Rs. 12,00,000 with simple interest for as many years as the rate of interest. If she paid Rs. 9,72,000 as interest at the end of the loan period, what was the rate of interest per annum ?

(a) 8.7%
(b) 7.5%
(c) 9%
(d) 8%

Q60. In a ΔABC, two medians AD and BE intersect at G at right angles. If AD = 18 cm and BE = 12 cm, then the length of BD is equal to:

(a) 20 cm
(b) 15 cm
(c) 10 cm
(d) 8 cm

Q61. If 18 toys out of 75 toys are for boys and the rest are for girls, what is the percentage of girls toys?

(a) 57%
(b) 76%
(c) 67%
(d) 18%

Q62. What is the value of the following expression 4/7 × 41/2 ÷ 51/3 of~ 21/2-(77/8÷51/9~of~99/20)+1/2

(a) 1759/3250
(b) 1093/111
(c) 1113/856
(d) 853/1610

Q63. Find the number when successively divided by 3,5, and 7 leaves the remainder 2,1, and 3, respectively, and the last quotient is 3.

(a) 367
(b) 360
(c) 365
(d) 362

Q64. Ram travelled an equal distance with the speed of 40 km/hr, 45 km/hr and 60 km/hr. What is the average speed of Ram during the whole journey? Correct to two decimal places.

(a) 46.96 km/hr
(b) 94.66 km/hr
(c) 66.94 km/hr
(d) 64.96 km/hr

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Q65. A and B can do a piece of work in eight days and B alone can do it in 16 days. In how many days, can A do it alone?

(a) 18 days
(b) 24 days
(c) 16 days
(d) 10 days

Q66. Ravi sells his goods at a 25% loss on cost price but uses 45% less weight. What is his percentage profit or loss?

(a) Loss, 479/10 %
(b) Profit, 364/11 %
(c) Profit, 479/10 %
(d) Loss, 364/11 %

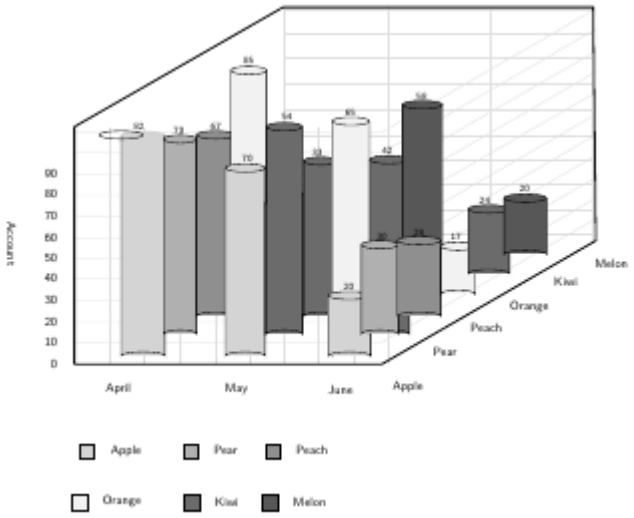
Q67. The sides of a cuboid are in the ratio 3 : 4 : 5 and its surface area is equal to the surface area of the cube with side 6 units. What is the approximate volume of the cuboid?

(a) 210
(b) 150
(c) 180
(d) 240

Q68. Three persons ran for office and got, 1136, 7636 and 11628 votes, respectively. What was the winning candidate's percentage of the total votes?

(a) 59%
(b) 61%
(c) 57%
(d) 52%

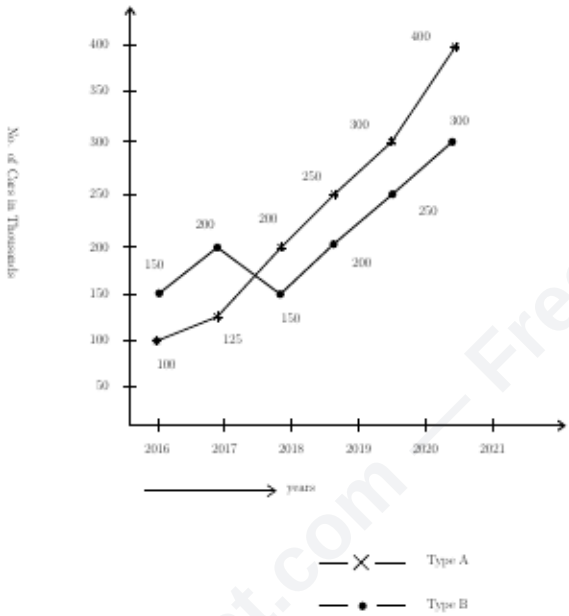
Q69. Study the given three-dimensional chart and answer the question that follows. The chart details the sale of fruits in different months.



In which month was the sale of Melons the lowest and by how much was it more than the sale of Oranges in that month?

(a) June, 3
(b) May, 3
(c) April, 3
(d) June, 4

Q70. The following graph shows the production (in thousands) of two types (A and B) of cars by a company over the years 2016 to 2021.



In how many of the given years was the production of type A cars more than the average production of this type car in the given years?

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

Q71. In a circle, ABCD is a cyclic quadrilateral in which AE is drawn parallel to CD, and BA is produced to F. If angle ABC = 85º and angle FAE = 24º, find the value of angle BCD.

(a) 115º
(b) 119º
(c) 124º
(d) 125º

Q72. The price of an electric bike was Rs. 1,25,000 last year. This year, its price got decreased by 30%. What is the price (in Rs.) of the electric bike this year?

(a) 86,000
(b) 87,000
(c) 87,500
(d) 86,500

Q73. The respective ratio between numerical values of the curved surface area and the volume of a right circular cylinder is 2 : 3. If the respective ratio between the radius and the height of the cylinder is 3 : 7, what is the total surface area of the cylinder?

(a) 45π cm2
(b) 60π cm2
(c) 62π cm2
(d) 65π cm2

Q74. Two circles touch each other at a point O. AB is a simple common tangent to both the circles touching at point A and point B. If radii of the circles are 9 cm and 4 cm, then find AB.

(a) 24 cm
(b) 144 cm
(c) 12 cm
(d) 72 cm

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Q75. The given table shows the marks obtained by 100 students out of 50 marks in Mathematics and Physics in an examination.

Marks/Subjects	40 or above	30 or above	20 or above	10 or above	0 or above
Mathematics	9	32	80	92	100
Physics	4	21	66	81	100
Average	7	27	73	87	100

If at least 60% marks in Physics are required for pursuing higher studies in Physics, how many students will be eligible to pursue higher studies in Physics?

(a) 66
(b) 81
(c) 21
(d) 27

GENERAL AWARENESS

Q76. _____ is one of the first criticism of the caste system written by Mahatma Phule and published in the year 1873.

(a) Gulami Ki Kahani
(b) Gulamgiri
(c) Jati ka Unmoolan
(d) Bharat Mein Jaati Evam Prajaati

Q77. Which of the following dances developed in the monasteries of Assam?

(a) Kathak
(b) Kuchipudi
(c) Sattriya
(d) Bharatanatyam

Q78. Which power were the Badami (or Vatapi) Chalukyas originally subjects of?

(a) Hoysalas
(b) Pandyas
(c) Pallavas
(d) Kadambas

Q79. The song ‘Teri mitti’ is from which of the following movies?

(a) Rajniti
(b) Satya Mev Jayte
(c) Jai Ho
(d) Kesari

Q80. Which of the following is NOT one of the main pillars of the ‘Namami Gange Programme’, launched by the Government of India in 2014?

(a) River Linkage Development
(b) Industrial Effluent Monitoring
(c) River-Front Development
(d) Sewerage Treatment Infrastructure

Q81. Mohammad Yunus established which of the following banks in 1983?

(a) Union Bank
(b) Grameen Bank
(c) Indian Bank
(d) State Bank

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Q82. When was the Swarnajayanti Gram Swarozgar Yojana (SGSY) launched by the Government of India?

(a) 2000
(b) 1991
(c) 1995
(d) 1999

Q83. Which is, by far, the closest dwarf planet orbiting at only 2.8 times Earth's distance from the sun?

(a) Makemake
(b) Pluto
(c) Eris
(d) Ceres

Q84. The default width of a column in MS-Excel is:

(a) 7 characters
(b) 8 characters
(c) 6 characters
(d) 9 characters

Q85. In which year did Robert Brown observe the zigzag movement of colloidal particles in solution?

(a) 1826
(b) 1828
(c) 1829
(d) 1827

Q86. Which of the following statements is correct about the Five-Year Plan?

(a) All Five-Year Plans have equal rates of growth.
(b) The Planning Commission was constituted in 1951.
(c) The President was the ex-officio chairperson of the Planning Commission.
(d) The first Five-Year Plan was started in 1951.

Q87. According to the National Crime Records Bureau data, from 2016 to 2019, suicide cases due to unemployment have increased by _____.

(a) 21%
(b) 18%
(c) 20%
(d) 24%

Q88. Who was the chief coordinator for the G20 summit which held in India in 2023?

(a) Vijay Gokhale
(b) Harsh Vardhan Shringla
(c) S Jaishankar
(d) Vinay Kwatra

Q89. In year 2023, the Government of India launched which of the following schemes to bring Indian-origin researchers to higher educational institutions in the country?

(a) VAIBHAV
(b) SEEKHO
(c) AMANTRAN
(d) VAPSI

Q90. Which of the following are needed for Skype to function on a computer?

1) A web cam
2) A microphone
3) A speaker

(a) 1, 2 and 3

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(b) Only 1 and 2
(c) Only 2 and 3
(d) Only 1 and 3

Q91. In the given main characteristics of farming which is NOT a characteristic of the Indian commercial farming?
(a) Insecticides and pesticides
(b) Chemical fertilisers
(c) High yielding variety seeds
(d) Slash and burn

Q92. ICC World Cup (cricket) 2023 was hosted by _____.
(a) India and Bangladesh
(b) India, Sri Lanka and Bangladesh
(c) India and Sri Lanka
(d) India

Q93. 'Hampi Utsava,' which is celebrated in Karnataka, is also called _____. The festival that captures the pomp, splendour and glory of the historical period of Karnataka is celebrated over a week.
(a) Nritya Mahotsav
(b) Sarhul Mahotsava
(c) Vijaya Utsava
(d) Rajasi Utsava

Q94. Who among the followings won gold at the International Shooting Sport Federation (ISSF) junior world cup 2023?
(a) Rajkanwar Singh Sandhu
(b) Dhanush Srikanth
(c) Umamahesh Maddineni
(d) Mahesh Pasupathy Anandakumar

Q95. Which of the following is NOT a stringed instrument?
(a) Guitar
(b) Violin
(c) Flute
(d) Mandolin

Q96. According to Global Multidimensional poverty index (2022), which of the following groups of states is included in top 10 poorest states of India?
(a) Manipur and Nagaland
(b) Karnataka and Tamil Nadu
(c) Punjab and Gujarat
(d) Meghalaya and Madhya Pradesh

Q97. Which of the following parts of the Indian Constitution is described as the 'Magna Carta of India'?
(a) Part II
(b) Part III
(c) Part IV
(d) Part I

Q98. Which of the following statements about eutrophication is correct?
(a) It happens when too less nitrogen is present in the water, causing reduced growth of plants and algae.
(b) It is a beneficial process for environment restoration.
(c) It happens when too much nitrogen enriches the water, causing excessive growth of plants and algae.
(d) It happens when too much carbon enriches the water, causing excessive growth of bacteria and reduced growth of plants.

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Q99. On 26 January 1950 India became:

(a) a socialist and secular state
(b) an independent state
(c) a unitary state
(d) a sovereign, democratic, republic state

Q100. Nehru Institute of Mountaineering is located at _____.

(a) Jammuand Kashmir
(b) Leh
(c) Uttarakhand
(d) Himachal Pradesh

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (c) show on

The correct answer is ‘3’ i.e. this part of the sentence has an error.

Key Points

• In the third part of the given sentence, the phrase 'show on' is incorrect.
• In the given sentence, the correct phrase should be 'show off'.
• The verb 'show off' means to display something boastfully or ostentatiously.
• Example: She likes to show off her new car to everyone she meets.

Hence, the correct answer is option 3.

Correct sentence: She always likes to show off her wealth.

Additional Information

• Show off is a common phrasal verb meaning to exhibit one's talents or possessions in a noticeable or boastful manner.
• Example: He loves to show off his talent on the guitar.

Q2. Answer: (d) Hard had she

The correct answer is ‘4’ i.e. this part of the sentence has an error.

Key Points

• In the fourth part of the given sentence, the phrase 'Hard had she' is incorrect.
• In the given sentence, the correct phrase should be 'Hardly had she'.
• This is a case of using an adverbial phrase in inversion to emphasize an action that just happened before something else.
• Example: Hardly had she entered the room when the phone rang.

Hence, the correct answer is option 4.

Correct sentence: Hardly had she thrown the basketball when it fell on the ground.

Additional Information

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• Hardly had is commonly used to describe an action that occurred just before another action. It often triggers an inversion in the sentence structure.

• Example: Hardly had they finished their meal when the waiter brought the bill.

Q3. Answer: (c) will rain

The correct answer is ‘3’ i.e. this part of the sentence has an error.

Key Points

• In the third part of the given sentence, the phrase 'will rain' is incorrect.

• In conditional sentences, the word 'if' is followed by the present tense to refer to the future.

• Example: If it rains tomorrow, we will cancel the picnic.

• Therefore, the correct phrase should be 'rains'.

Hence, the correct answer is option 3.

Correct sentence: If it rains tomorrow, I will stay at home.

Additional Information

• In conditional sentences, the present simple tense is used after 'if' to talk about possible future events.

• Example: If she goes to the party, she will see him there.

Q4. Answer: (b) Ramayana is an ancient

The correct answer is '2'.

Key Points

• The title of the ancient Sanskrit epic should include the article "The."

• In English, titles of specific texts or works, particularly classical ones, often include a definite article to denote something specific.

Hence, the correct answer is option 2.

Correct sentence:

The Ramayana is an ancient Sanskrit epic; it is believed to be written around 500 BC to 100 BC.

Additional Information

• In literary and historical contexts, the use of "The" before titles like "The Ramayana" is standard to clarify the reference to a well-known work.

• For example, similarly, we say "The Odyssey" and "The Iliad."

Q5. Answer: (a) sowed

The most appropriate option to fill in blank number 1 is ‘1’ i.e. "sowed"

Key Points

• The correct verb to use in the context of planting seeds is "sowed." It signifies the act of planting seeds in a deliberate manner:

• "Instead of basing their nationalism or appeals to (2) _____ sentiments and passing emotions, or abstract rights of freedom and liberty, or on obscurantist appeals to the past, they sowed it in a hard-headed and penetrating analysis of the complex mechanism of modern imperialism and the chief contradiction between the interests of the Indian people and British rule."

• The other options are less accurate for the metaphorical planting of ideas:

• Option 2: scattered – implies a less deliberate act.

• Option 3: threw – implies a careless action.

• Option 4: buried – implies hiding rather than planting.

Hence, the correct answer is option 1.

Q6. Answer: (b) shallow

The correct answer is 'shallow'.

Key Points

• The passage discusses the basis on which early Indian nationalists grounded their appeals.

• The early nationalists avoided basing their nationalism on insubstantial sentiments.

• 'Shallow' fits well as it denotes sentiments that are superficial and not deeply rooted.

• Other options ("deep", "grounded", "profound") do not contrast with the nationalists' thoughtful approach as effectively as "shallow" does.

Therefore, the correct answer is 'Option 2'.

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Q7. Answer: (a) rooted

The correct answer is 'rooted'.

Key Points

• The passage discusses how the early nationalists founded their nationalism on a detailed analysis of imperialism.

• The appropriate verb indicates establishing a foundation based on thorough analysis.

• "Rooted" fits well as it denotes establishing firmly and deeply.

• Other options ("minded", "controlled", "drove") do not convey the sense of foundational establishment that "rooted" does.

Therefore, the correct answer is 'Option 1'.

Q8. Answer: (c) evolved

The correct answer is 'evolved'.

Key Points

• The passage discusses the development of a common political and economic programme by the early nationalists.

• The appropriate verb should reflect the gradual development or formation of this programme.

• "Evolved" fits well as it denotes a process of gradual and natural development.

• Other options ("uprooted", "banished", "collapsed") do not convey the sense of positive development.

Therefore, the correct answer is 'Option 3'.

Q9. Answer: (c) united

The correct answer is 'united'.

Key Points

• The passage discusses how the programme developed by early nationalists helped bring different sections of the people together.

• The appropriate verb should indicate bringing people together, promoting solidarity.

• "United" fits well as it denotes bringing together and creating unity.

• Other options ("complicated", "dissolved", "classified") do not convey the sense of unity and togetherness required in the context.

Therefore, the correct answer is 'Option 3'.

Q10. Answer: (d) victory

The solution is in Hindi. Read it online.

Q11. Answer: (a) Promoted

The solution is in Hindi. Read it online.

Q12. Answer: (b) To have complete knowledge

The solution is in Hindi. Read it online.

Q13. Answer: (b) Unfriendly

The solution is in Hindi. Read it online.

Q14. Answer: (d) close

The correct answer is ‘4’ i.e. close.

Key Points

• The phrase 'close the deal' is a common business term that means to successfully complete a sales transaction or agreement.

• The other options (perform, get, stop) do not fit the context of finalizing a business transaction.

Hence, the correct answer is option 4.

Correct sentence: It took 4 hours straight to close the deal with the regional company.

Additional Information

• 'Close the deal' is widely used in sales and negotiations to indicate the point when an agreement is finalized and confirmed.

• Example: He worked hard to close the deal with the investors.

Q15. Answer: (c) In trouble

The solution is in Hindi. Read it online.

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Q16. Answer: (a) connects

The solution is in Hindi. Read it online.

Q17. Answer: (b) Ugly

The solution is in Hindi. Read it online.

Q18. Answer: (a) Aquire

The solution is in Hindi. Read it online.

Q19. Answer: (d) disconnects

The solution is in Hindi. Read it online.

Q20. Answer: (a) Easy

The solution is in Hindi. Read it online.

Q21. Answer: (b) that could

The correct answer is ‘2’ i.e. that could.

Key Points

• The phrase 'that could' is appropriate as it indicates the possibility or potential of identifying them or their location.
• Other options do not fit the context as well as 'that could'.
• ‘whichever can’ is incorrect as it does not imply possibility effectively in this context.
• ‘which might lead’ changes the meaning and indicates a consequence rather than the direct action of identification.
• ‘what will’ is grammatically incorrect and does not fit the sentence properly.

Hence, the correct answer is option 2.

Correct sentence: Children should avoid giving out personal details online that could identify them or their location.

Additional Information

• In sentences that discuss possibilities or potential outcomes, 'could' often fits well to express these conditions.
• Example: Actions that could harm the environment should be avoided.

Q22. Answer: (a) Asylum

The solution is in Hindi. Read it online.

Q23. Answer: (b) I wrote an email to her

The correct answer is ‘2’ i.e. I wrote an email to her.

Key Points

• The phrase 'I wrote an email to her' is correct because:
• The use of 'an' before 'email' is grammatically correct as 'email' starts with a vowel sound.
• Using 'so' is redundant because the conjunction 'As' already conveys the cause-effect relationship.
• The other options are either grammatically incorrect or stylistically awkward.
• Option 1 repeats 'so,' making it redundant.
• Option 3 uses 'for' instead of 'to,' which changes the meaning slightly.
• Option 4 uses the wrong verb tense 'write' instead of 'wrote.'

Hence, the correct answer is option 2.

Correct sentence: As I have no time to discuss the points, I wrote an email to her.

Additional Information

• In English, using either 'a' or 'an' depends on the sound that follows the article, not necessarily the first letter of the word.
• Example: He read an article about the subject.

Q24. Answer: (d) Academecian

The solution is in Hindi. Read it online.

Q25. Answer: (a) Tolerance

The solution is in Hindi. Read it online.

Q26. Answer: (d) [figure]

The logic followed here is,

Hence, the correct answer is "Option 4".

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Q27. Answer: (d) 3557

Given Equation: 100 K 5 M 73 T 48 M 56 G 23 = ?

BODMAS Rule:

Decoding the given information:

Alphabet	T	M	K	G
Meaning	×	•	÷	•

Now replacing the sign from left to right using BODMAS Rule, we get:

=> 100 ÷ 5 + 73 × 48 + 56 - 23 = ?

=> 20 + 73 × 48 + 56 - 23 = ?

=> 20 + 3504 + 56 - 23 = ?

=> 3580 - 23 = 3557.

Hence, the correct option is "Option 4".

Q28. Answer: (a) QNL

Let's check each option,

1) QNL

2) ROL

3) WTQ

4) LIF

Here, we can see that Option 1 is different from others.

Hence, the correct answer is "QNL".

Q29. Answer: (d) Black

Opposite surface of the open dice can be found by the below methods: -

• Alternate surfaces are opposite to each other.

• No two opposite surface are touched by side or by corners.

So, by using the above rule we can find the opposite surface of open dice.

Below are the opposite surfaces: -

Here, we can see that the word on the opposite side of 'Blue' is 'Black'.

Hence, the correct answer is "Black".

Q30. Answer: (c) 11

Let's count the number of squares in the given figure,

Hence, the correct answer is "11".

Q31. Answer: (d) mz

According to the given information,

Here, we can see that the code for 'are' is 'mz'.

Hence, the correct answer is "mz".

Q32. Answer: (c) 56

BODMAS Table:

Given equation: 21 + 3 - 7 ÷ 11 × 4 = ?

Now, if '+' and '÷' are interchanged and '×' and '-' are interchanged, then:

=> 21 ÷ 3 × 7 + 11 - 4 = ?

=> 21 ÷ 3 × 7 + 11 - 4 = ?

=> 7 × 7 + 11 - 4 = ?

=> 49 + 11 - 4 = ?

=> 60 - 4 = 56.

Hence, the correct answer is "Option 3".

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Q33. Answer: (a) All conclusions I, II and III follow.

The least possible venn diagram is shown below,

Conclusions:

I. Some rings are bangles → True (All rings are earrings, some rings are chains and all chains are bangles implies that some part of rings which are chains are also bangles).

II. Some earrings are bangles → True (All rings are earrings, some rings are chains and all chains are bangles implies that some earrings which are chains are also bangles).

III. Some chains are earrings → True (All rings are earrings, some rings are chains and all chains are bangles implies that some chains which are rings are also earrings).

Hence, the correct answer is "All conclusions I, II and III follow".

Q34. Answer: (c) [figure]

The correct mirror image of the given figure is:

Hence, the correct answer is "Option 3".

Q35. Answer: (d) 142

Given Equation: 17 H 23 Q 42 Z 7 E 13 = ?

BODMAS Rule:

Decoding the given information:

Alphabet	Z	Q	H	E
Meaning	÷	×	•	–

Now replacing the sign from left to right using BODMAS Rule, we get:

=> 17 + 23 × 42 ÷ 7 - 13

=> 17 + 23 × 6 - 13

=> 17 + 138 -13

=> 155 - 13

= 142

Hence, the correct option is "Option 4".

Q36. Answer: (b) 220

The logic followed here is:

Logic: (1st number × 5 = 2nd number).

Now,

For, 11 : 55

=> 11 × 5 = 55.

For, 22 : 110

=> 22 × 5 = 110.

Similarly, for 44 : ?

=> 44 × 5 = 220.

Hence, the correct answer is "Option 2".

Q37. Answer: (a) [figure]

The correct mirror image of the given figure is:

Hence, the correct answer is "Option 1".

Q38. Answer: (c) [figure]

Let's check each option,

Hence, the correct answer is "Option 3".

Q39. Answer: (d) 87.5

The logic followed here is,

Hence, the correct answer is "87.5".

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Q40. Answer: (a) 187

The logic followed here is,

Hence, the correct answer is "187".

Q41. Answer: (a) Foot : Ankle

The logic followed here is:

Logic: Body parts and their connecting joints.

Here,

Hand : Wrist → Wrist is the joint that connects the Hand to the arm.

Similarly,

Foot : Ankle → Ankle is the joint that connects the Foot to the leg.

Hence, the correct answer is "Option 1".

Q42. Answer: (c) Tuesday

Given: 6 May 2005 was Friday.

Now,

2005 to 2018 = 13 Years (10 Ordinary Years and 3 Leap Years).

And, In 13 Years = 3 Leap years and 10 Ordinary Years.

So, 3 Leap Years have 6 odd days,

And, 10 Ordinary Years have 10 odd days.

Total odd days = 6 + 10 = 16.

16 odd days → 16/7 = 2 weeks and 2 odd days.

then, 6 May 2018 will be Friday + 2 = Sunday.

Now, the number of days between 6 May 2018 to 25 September 2018

= 25(May) + 30(June) + 31(July) + 31(August) + 25(September) = 142 days.

= 142 days → 142/7 = 20 weeks and 2 odd days.

So, 25 September 2018 will be Sunday + 2 = Tuesday.

Hence, the correct answer is "Option 3".

Q43. Answer: (d) Tuesday

Given: 15 December 2006 was Friday.

Now,

2006 to 2009 = 3 Years (2 Ordinary Years and 1 Leap Year).

And, In 3 Years = 1 Leap year and 2 Ordinary Years.

So, 1 Leap Year has 2 odd days,

And, 2 Ordinary Years have 2 odd days.

Total odd days = 2 + 2 = 4.

then, 15 December 2009 will be Friday + 4 = Tuesday.

Now, the number of days between 15 December 2006 to 13 October 2009

= 16 (December 2006) + 365 (2007) + 366 (2008, leap year) + 286 (days from Jan to Oct 13, 2009) = 1033 days.

= 1033 days → 1033/7 = 147 weeks and 4 odd days.

So, 13 October 2009 will be Friday + 4 = Tuesday.

Hence, the correct answer is "Option 4".

Q44. Answer: (d) Attic - Common

The logic followed here is:

Logic: Opposite Actions

Here,

Continue : Interrupt → Continue is an action that means to keep going, while Interrupt is an action that means to stop or break the continuity.

Similarly,

Attic : Common → Attic refers to a specific and often secluded part of a house, while Common refers to something that is usual or shared by all.

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Hence, the correct answer is "Option 4".

Q45. Answer: (b) M is the mother of O

Preparing the family tree using the following symbols,

Given equation: M – N + O

Code	•	•	×	÷
Relation	Father	Wife	Brother	Daughter

The family tree can be drawn as per the given information,

Here, we can see that M is the mother of O.

Hence, the correct answer is "M is the mother of O".

Q46. Answer: (a) IGJO

The logic followed here is,

Hence, the correct answer is "IGJO".

Q47. Answer: (b) (28, 23, 79)

The logic followed here is:

Logic: (1st number × 2) + second number = 3rd number.

Now,

For, (21, 34, 76)

=> (21 × 2) + 34

=> 42 + 34 = 76.

For, (39, 26, 104)

=> (39 × 2) + 26

=> 78 + 26 = 104.

Similarly, for Option 2: (28, 23, 79)

=> (28 × 2) + 23

=> 56 + 23 = 79

Hence, the correct answer is "Option 2".

Q48. Answer: (a) OAM

The logic followed here is,

Hence, the correct answer is "OAM".

Q49. Answer: (c) FOMPZ

The logic followed here is,

KIOSK : LJRTL

FLAME : GMDNF

Similarly,

ENJOY : ?

Hence, the correct answer is "FOMPZ".

Q50. Answer: (a) M

Opposite surface of the open dice can be found by the below methods: -

• Alternate surfaces are opposite to each other.

• No two opposite surface are touched by side or by corners.

So, by using the above rule we can find the opposite surface of open dice.

Below are the opposite surfaces: -

Here, we can see that the letter on the opposite side of 'K' is 'M'.

Hence, the correct answer is "M".

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Q51. Answer: (b) (2 x y)/(x²-y²)

Shortcut Trick

sin θ = 2xy / (x² + y²) = p/h

i.e. p = 2xy, h= (x² + y²)

So, b² = h² - p² = (x² + y²)² - (2xy)² = (x²)² + (y²)² + 2x²y² - 4x²y²

=> b² = (x2)2 + (y2)2 - 2x2y2 = (x² - y²)²

=> b = (x² - y²)

Now,

tan θ = p/b = 2xy / (x2 - y2)

Therefore The correct answer is option (2).

Alternate Method

Given:

sin θ = 2xy / (x² + y²)

Formula used:

sin² θ + cos² θ = 1

tan θ = sin θ / cos θ

Calculation:

sin θ = 2xy / (x² + y²)

=> sin² θ = (2xy / (x² + y²))²

=> sin² θ = 4x²y² / (x² + y²)²

=> cos² θ = 1 - sin² θ

=> cos² θ = 1 - 4x²y² / (x² + y²)²

=> cos² θ = ((x² + y²)² - 4x²y²) / (x² + y²)²

=> cos² θ = (x^4 + 2x²y² + y^4 - 4x²y²) / (x² + y²)²

=> cos² θ = (x^4 - 2x²y² + y^4) / (x² + y²)²

=> cos² θ = (x² - y²)² / (x² + y²)²

=> cos θ = (x² - y²) / (x² + y²)

=> tan θ = sin θ / cos θ

=> tan θ = (2xy / (x² + y²)) / ((x² - y²) / (x² + y²))

=> tan θ = 2xy / (x² - y²)

Therefore The value of tan θ is 2xy / (x² - y²)

Q52. Answer: (a) 1

Shortcut Trick

Product of extremes = Product of means

2³ × x = 8^(5.06) × 8^(−4.06)

8 × x = 8^((5.06 − 4.06))

8 × x = 8¹ => 8x = 8

Therefore The correct answer is 1.

Alternate Method

Given: The proportion is 2³ : 8^(5.06) :: 8^(−4.06) : x

Formula Used: If a : b :: c : d, then a ÷ b = c ÷ d (or ad = bc)

=> 2³ / 8^(5.06) = 8^(−4.06) / x

=> 8 / 8^(5.06) = 8^(−4.06) / x

=> x = (8^(−4.06) × 8^(5.06)) ÷ 8

=> x = 8^((−4.06 + 5.06)) ÷ 8

=> x = 8¹ ÷ 8

=> x = 1

Therefore The correct answer is 1.

Additional Information

Laws of Exponents (Multiplication)

When multiplying terms with the same base, the exponents are added: a^m × aⁿ = a^(m+n).

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Proportion Properties

In a proportion a : b :: c : d, the product of the extremes (a and d) is always equal to the product of the means (b and c).

Negative Exponents

A negative exponent represents the reciprocal of the base: a^(−n) = 1 / a^n.

Q53. Answer: (c) 18 years, 54 years

Given:

The age of the older boy is thrice that of the younger.

9 years ago, the age of the older boy was five times that of the younger.

Formula Used:

Let the present age of the younger boy be y years.

The present age of the older boy = 3y years.

9 years ago:

The age of the younger boy = y - 9 years.

The age of the older boy = 3y - 9 years.

Calculation:

According to the problem statement:

9 years ago, the age of the older boy was five times that of the younger.

So, 3y - 9 = 5(y - 9)

Solving the equation:

=> 3y - 9 = 5(y - 9)

=> 3y - 9 = 5y - 45

=> 3y - 5y = -45 + 9

=> -2y = -36

=> y = 18

The present age of the younger boy is 18 years.

The present age of the older boy is 3 × 18 = 54 years.

The present age of the younger boy is 18 years and the present age of the older boy is 54 years.

Q54. Answer: (c) 58

Given:

First part distance = 110 miles

First part speed = 55 mph

Second part distance = 120 miles

Second part speed = 60 mph

Third part distance = 60 miles

Third part time = 1 hour

Formula Used:

Average speed = Total distance traveled / Total time taken

Calculation:

Time taken for the first part = 110 / 55

Time taken for the first part = 2 hours

Time taken for the second part = 120 / 60

Time taken for the second part = 2 hours

Time taken for the third part = 1 hour

Total distance = 110 + 120 + 60

Total distance = 290 miles

Total time = 2 + 2 + 1

Total time = 5 hours

Average speed = Total distance / Total time

Average speed = 290 / 5

Average speed = 58 mph

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The average speed for the entire journey is 58 mph.

Q55. Answer: (d) 63º

Given:

PQ is a diameter of a circle with centre O.

The tangents at R meet PQ produced at A.

angle RPQ = 27º

Formula Used:

Angle subtended by the diameter of a circle is 90º.

angle RQP = 90º - angle RPQ

Calculation:

angle RPQ = 27º

angle RQP = 180^? - (90º + 27º)

=> angle RQP = 63º

The measure of angle RQP is 63º.

Q56. Answer: (c) 261/217

Shortcut Trick

Solve Numerator: 7 + (8 × 7 ÷ 8) + (7 ÷ 7 ÷ 7) = 7 + 7 + 1/7 = 99/7.

Solve Denominator: 3 + (3 × 3 ÷ 3) + (5 ÷ 5 ÷ 5) = 3 + 3 + 1/5 = 31/5.

Expression = (99/7) ÷ (31/5) = (99/7) × (5/31) = 495/217.

Convert to mixed fraction: 495 ÷ 217 = 2 (remainder 61).

Result = 2 61/217.

Therefore The correct answer is 2 61/217.

Alternate Method

Given: (7 + 8 × 7 ÷ 8 + 7 ÷ 7 ÷ 7) ÷ (3 + 3 × 3 ÷ 3 + 5 ÷ 5 ÷ 5)

Formula used: BODMAS (Division → Multiplication → Addition)

=> Numerator Step 1 (Division): 7 + 8 × (7/8) + (7/7) ÷ 7

=> Numerator Step 2: 7 + 7 + (1 ÷ 7) = 14 + 1/7 = 99/7

=> Denominator Step 1 (Division): 3 + 3 × (3/3) + (5/5) ÷ 5

=> Denominator Step 2: 3 + 3 + (1 ÷ 5) = 6 + 1/5 = 31/5

=> Expression Value = (99/7) / (31/5)

=> Value = (99/7) × (5/31) = 495/217

=> 495 = 217 × 2 + 61

=> Value = 2 61/217

Therefore The correct answer is 2 61/217.

Additional Information

BODMAS / VBODMAS Rule

Simplification follows the order: Vinculum, Bracket, Of, Division, Multiplication, Addition, and Subtraction. Sequential divisions are performed from left to right: a ÷ b ÷ c = (a/b) ÷ c = a/(bc).

Reciprocal of Fractions

To divide two fractions (a/b) ÷ (c/d), multiply the first fraction by the reciprocal of the second: (a/b) × (d/c).

Mixed Fraction Conversion

An improper fraction N/D can be written as Q R/D, where Q is the quotient and R is the remainder when N is divided by D.

Q57. Answer: (c) 125/216

Given:

The surface areas of two spheres are in the ratio 25 : 36.

Formula Used:

Ratio of surface areas = $(\text{radius1}/\text{radius2})^2$

Ratio of volumes = $(\text{radius1}/\text{radius2})^3$

Calculation:

Let the radii of the spheres be r1 and r2.

Given ratio of surface areas = 25/36
=> $(r1/r2)^2 = 25/36$
=> $r1/r2 = \sqrt{(25/36)}$
=> $r1/r2 = 5/6$
Ratio of volumes = $4/3\ \pi\ r1^3 / 4/3\ \pi\ r2^3 = (r1/r2)^3$
=> $(5/6)^3$
=> 125/216
The ratio of their volumes is 125/216.

Q58. Answer: (b) 87.5%

Solution:
Average sales (in thousand number) of branches A, C, and F in 2021
= 1/3 × (80 + 95 + 70) = (245⁄3)
Average sales (in thousand number) of branches A, B, and C in 2022
= 1/3 × (105 + 65 + 110) = (280⁄3)
Therefore Required percentage = (245/3)/(280/3) × 100 % = (245⁄280 × 100)% = 87.5%
Therefore Option 2 is correct answer.

Q59. Answer: (c) 9%

Given:
Loan Amount (P) = Rs. 12,00,000
Simple Interest (SI) = Rs. 9,72,000
Time period (T) = Rate of Interest (R)
Formula Used:
Simple Interest (SI) = (P × R × T) / 100
Calculation:
Given that T = R, we can rewrite the formula as:
SI = (P × R × R) / 100
Plugging in the values:
9,72,000 = (12,00,000 × R × R) / 100
=> $9,72,000 = 12,00,000 \times R^2 / 100$
=> $9,72,000 = 120000 \times R^2$
=> $97,2000 = 12000 \times R^2$
=> $R^2 = 97,2000 / 12000$
=> $R^2 = 81$
=> $R = \sqrt{81}$
R = 9
The rate of interest per annum is 9%.

Q60. Answer: (c) 10 cm

Given:
BD = DC (As AD is median)
AE = EC (As BE is median)
The length of AD = 18 cm
The length of BE = 12 cm
Concept used:
The medians of a triangle intersect each other at the centroid, which divides each median in the ratio 2:1.
Here, G is the centroid of the triangle.
Pythagorean theorem:-
H2 = P2 + B2
Calculation:
AG : GD = 2 : 1
Let AG and GD be 2x and x respectively.

2x + x = 18
=> 3x = 18
=> x = 18/3
=> x = 6
=> GD = 6 cm
BG : GE = 2 : 1
Let BG and GE be y respectively.
2y + y = 12
=> 3y = 12
=> y = 12/3
=> y = 4
BG = 2 × 4 = 8 cm
In right-angled ΔBGD,
BD2 = BG2 + GD2
=> BD2 = (8)2 + (6)2
=> BD2 = 64 + 36
=> BD2 = 100
=> BD = 10
BD = 10 cm
Therefore The length of BD (in cm) is 10.

Q61. Answer: (b) 76%

Given:
Total number of toys = 75
Number of boys' toys = 18
Formula Used:
Percentage of girls' toys = ((Number of girls' toys)/(Total number of toys)) × 100
Calculation:
Number of girls' toys = Total number of toys - Number of boys' toys
Number of girls' toys = 75 - 18
Number of girls' toys = 57
Percentage of girls' toys = (57/75) × 100 0
Percentage of girls' toys = (57 × 100)/75
Percentage of girls' toys = 5700/75
Percentage of girls' toys = 76
The percentage of girls' toys is 76%.

Q62. Answer: (d) 853/1610

Given:
4/7 × 41/2 ÷ 51/3 of~ 21/2-(77/8÷51/9~of~99/20)+1/2
Formula Used:
Order of Operations (PEMDAS): Parentheses, Exponents, Multiplication and Division (from left to right), Addition and Subtraction (from left to right)
Calculation:
=> 4/7 × 9/2 ÷ 16/3 of~ 5/2-(63/8÷46/9~of~189/20)+1/2
=> 4/7 × 9/2 ÷ 16/3 × 5/2-(63/8÷46/9× 189/20)+1/2
=> 4/7 × 9/2 ÷ 40/3 -(63/8÷483/10)+1/2
=> 4/7 × 9/2 × 3/40 -(63/8×10/483)+1/2
=> 1/7 × 9/2 × 3/10 -(21/4×5/161)+1/2
=> 27/140 -105/644+1/2
=> 1706/3220
=> 853/1610

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Q63. Answer: (c) 365

Shortcut Trick

Working backwards from the last quotient (3):

Step 3 (Divisor 7): (7 × 3) + 3 = 24

Step 2 (Divisor 5): (5 × 24) + 1 = 121

Step 1 (Divisor 3): (3 × 121) + 2 = 365

Therefore The correct answer is 365.

Alternate Method

Given: Successive divisors are 3, 5, 7. Respective remainders are 2, 1, 3. Last quotient is 3.

Formula Used: Dividend = (Divisor × Quotient) + Remainder

=> Let the last quotient be q3 = 3.

=> Number before last division (Dividend for divisor 7): N3 = (7 × 3) + 3 = 24

=> This N3 is the quotient for the previous division by 5.

=> Number before second division: N2 = (5 × 24) + 1 = 121

=> This N2 is the quotient for the first division by 3.

=> Original Number: N1 = (3 × 121) + 2 = 365

Therefore The correct answer is 365.

Additional Information

Successive Division Concept

In successive division, the quotient obtained from the first division becomes the dividend for the second division, and so on.

Minimum Number Rule

If the last quotient is not given, we usually assume it to be 0 or 1 to find the least positive number satisfying the condition.

Division Lemma

Based on Euclid's Division Lemma: a = bq + r, where 0 ≤ r < b.

Q64. Answer: (a) 46.96 km/hr

Given:

Speed of the first part = 40 km/hr.

Speed of the second part = 45 km/hr.

Speed of the third part = 60 km/hr.

Formula Used:

Average speed = Total distance travelled / Total Time

Calculation:

Let each part of the journey be of equal distance, say d kilometers.

Time taken in the first part = d / 40

Time taken in the second part = d / 45

Time taken in the third part = d / 60

Total Distance = d + d + d = 3d

Total Time = (d / 40) + (d / 45) + (d / 60)

Total Time = d(1/40 + 1/45 + 1/60)

Total Time = d(9/360 + 8/360 + 6/360)

Total Time = d(23/360)

Average Speed = (3d) / 23d/360

Average Speed = (3d × 360) / 23d

Average Speed = 1080 / 23

Average Speed ≈ 46.96 km/hr

The average speed for the whole journey is 46.96 km/hr.

Q65. Answer: (c) 16 days

Given:

A and B can do a piece of work in 8 days.

B alone can do it in 16 days.

Formula Used:
Work done by A and B together in one day = 1/8
Work done by B alone in one day = 1/16
Work done by A alone in one day = (Work done by A and B together in one day) - (Work done by B alone in one day)
Number of days A alone can do the work = 1 / (Work done by A alone in one day)
Calculation:
Work done by A and B together in one day = 1/8
Work done by B alone in one day = 1/16
Work done by A alone in one day = (1/8) - (1/16)
=> Work done by A alone in one day = (2/16) - (1/16)
=> Work done by A alone in one day = 1/16
Number of days A alone can do the work = 1 / (1/16)
=> Number of days A alone can do the work = 16
The correct answer is option 3: 16 days.

Q66. Answer: (b) Profit, 364/11 %

Given:
Loss% (a) = 25%
Less weight (b) = 45%
Formula Used:
Profit% / Loss% = (b ± a) / (100 - b) × 100
Calculations:
As, a = 25% and b = 45%
Then,
=> Profit% / Loss% = (b ± a) / (100 - b) × 100
=> (45 - 25) / (100 - 45) × 100
=> 20 / 55 × 100
=> 400/11 = 364/11 %
The dealer's profit% is 364/11 %.

Q67. Answer: (a) 210

Given:
The sides of the cuboid are in the ratio 3 : 4 : 5.
Surface area of the cube with side 6 units = 6 × 6^2 = 216 sq units.
Formula Used:
Surface area of cuboid = 2(lw + lh + wh)
Volume of cuboid = l × w × h
Calculation:
Let the sides of the cuboid be 3x, 4x, and 5x.
Surface area of cuboid = 2(3x × 4x + 4x × 5x + 5x × 3x)
Given: Surface area of cuboid = Surface area of cube = 216
=> 2($12x^2$ + $20x^2$ + $15x^2$) = 216
=> 2($47x^2$) = 216
=> $94x^2$ = 216
=> x^2 = 216 / 94
=> x^2 ≈ 2.2979
=> x ≈ √2.2979
=> x ≈ 1.5159
Length = 3x ≈ 3 × 1.5159 ≈ 4.5477
Width = 4x ≈ 4 × 1.5159 ≈ 6.0636
Height = 5x ≈ 5 × 1.5159 ≈ 7.5795
Volume of cuboid = Length × Width × Height

=> Volume ≈ 4.5477 × 6.0636 × 7.5795
=> Volume ≈ 210
The approximate volume of the cuboid is 210 cubic units.

Q68. Answer: (c) 57%

Given:
Votes for the first candidate = 1136
Votes for the second candidate = 7636
Votes for the third candidate = 11628
Formula Used:
Winning candidate's percentage = (Votes for the winning candidate / Total votes) × 100
Calculation:
Total votes = 1136 + 7636 + 11628
Total votes = 20400
Votes for the winning candidate = 11628
Winning candidate's percentage = (11628 / 20400) × 100
Winning candidate's percentage = (11628 / 20400) × 100
=> Winning candidate's percentage = 0.57 × 100
=> Winning candidate's percentage = 57%
The correct answer is option 3

Q69. Answer: (a) June, 3

Given:
Sales data of various fruits in different months (as shown in the three-dimensional chart).
Calculations:
Melon sales in each month:
April: 33 units
May: 58 units
June: 20 units
The lowest sale of melons was in June: 20 units
Orange sales in June: 17 units
Difference between melon and orange sales in June:
=> 20 (melons) - 17 (oranges) = 3 units
Therefore The sale of melons was the lowest in June and it was 3 units more than the sale of oranges in that month.

Q70. Answer: (d) 3

Given:
Production data of Type A cars over the years 2016 to 2021 (as shown in the line graph).
Calculations:
Production of Type A cars in each year:
2016: 100 thousand
2017: 125 thousand
2018: 200 thousand
2019: 250 thousand
2020: 300 thousand
2021: 400 thousand
Calculate the average production:
=> Average production = (100 + 125 + 200 + 250 + 300 + 400) / 6
=> Average production = 1375 / 6
=> Average production ≈ 229.17 thousand
Years when the production was more than the average:
2018: 200 thousand (less than average)
2019: 250 thousand (more than average)

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2020: 300 thousand (more than average)
2021: 400 thousand (more than average)
Therefore The production of Type A cars was more than the average production in 3 years: 2019, 2020, and 2021.

Q71. Answer: (b) 119º

Given:
angle ABC = 85º
angle FAE = 24º
AE is parallel to CD
AB is produced to F
Formula Used:
In a cyclic quadrilateral, opposite angles sum up to 180º.
The exterior angle of a cyclic quadrilateral is equal to the interior opposite angle.
Calculation:
We know in a cyclic quadrilateral opposite angles sum up to 180º. So,
angle ABC + angle ADC = 180^?
angle ADC = 180^? - 85^? = 95^?
angle EAD = angle ADC = 95? [Alternate interior angles of parallel lines CD and AE]
angle FAD = angle FAE + angle EAD
angle FAD = 24^? + 95^? = 119^?
angle BCD = angle FAD = 119^?[Exterior angle of a cyclic quadrilateral]
Therefore The correct answer is 119^?

Q72. Answer: (c) 87,500

Given:
Price of the electric bike last year = Rs. 1,25,000
Decrease in price = 30%
Formula Used:
Price this year = Last year's price - (Decrease percentage × Last year's price)
Calculation:
Decrease in price = 30% of 1,25,000
=> Decrease in price = (30/100) × 1,25,000
=> Decrease in price = 0.30 × 1,25,000
=> Decrease in price = 37,500
Price this year = Last year's price - Decrease in price
=> Price this year = 1,25,000 - 37,500
=> Price this year = 87,500
The price of the electric bike this year is Rs. 87,500.

Q73. Answer: (b) 60π cm2

Given:
The ratio between the curved surface area (CSA) and the volume (V) of a right circular cylinder is 2:3.
The ratio between the radius (r) and the height (h) of the cylinder is 3:7.
Formula used:
Curved Surface Area (CSA) = 2πrh
Volume (V) = πr²h
Total Surface Area (TSA) = 2πr(h + r)
Calculations:
Let the radius (r) be 3x and the height (h) be 7x.
Given ratio of CSA to V = 2:3:
=> 2πrh / πr²h = 2/3
=> 2rh / r²h = 2/3
=> 2 / r = 2/3

=> 2 / 3x = 2/3

=> 2 / 3x = 2/3

This satisfies the given condition when x = 1.

Now, we calculate the TSA:

=> TSA = 2πr(h + r)

=> TSA = 2π(3x)(7x + 3x)

=> TSA = 2π(3x)(10x)

=> TSA = 2π(30x²)

=> TSA = 60πx²

Using the given ratio values:

If x = 1, then:

=> TSA = 60π

Therefore The total surface area of the cylinder is 60π square units.

Q74. Answer: (c) 12 cm

Given:

Radii of the circles are 9 cm and 4 cm.

Formula Used:

Length of common tangent, AB = √((r1 + r2)² - (r1 - r2)²)

Calculation:

Let r_1 = 9 cm and r_2 = 4 cm.

AB = √((9 + 4)² - (9 - 4)²)

AB = √(13² - 5²)

AB = √(169 - 25)

AB = √144

AB = 12 cm

The length of AB is 12 cm.

Q75. Answer: (c) 21

Given:

The table shows the marks obtained by 100 students out of 50 in Mathematics and Physics in an examination.

Marks in Physics for eligibility to pursue higher studies: 60%.

Formula Used:

Marks required for 60% in Physics = Total marks × Percentage required

Calculation:

Marks required for 60% in Physics = 50 × 60%

=> Marks required for 60% in Physics = 50 × 0.6

=> Marks required for 60% in Physics = 30

From the table, the number of students scoring 30 or above in Physics = 21

The number of students eligible to pursue higher studies in Physics is 21.

Q76. Answer: (b) Gulamgiri

The correct answer is Gulamgiri

Key Points

• Gulamgiri is one of the first criticisms of the caste system written by Mahatma Phule in Marathi language and published in the year 1873.

• This work is a significant text in the social reform movement in India, especially in Maharashtra.

• Phule's critique of the caste system was pioneering and laid the groundwork for future reformers and activists.

• The book compares the oppression of lower castes in India with the enslavement of African Americans in the United States, making a powerful case against social injustices.

Additional Information

• Mahatma Jyotirao Phule was an Indian social activist, thinker, anti-caste social reformer, and writer from Maharashtra.

• He and his wife, Savitribai Phule, were pioneers of women's education in India.

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• Phule is also known for his efforts to promote education among women and lower castes.

• He founded the Satyashodhak Samaj (Society of Seekers of Truth) in 1873, which aimed to achieve social justice and equality.

Q77. Answer: (c) Sattriya

The correct answer is Sattriya

Key Points

• Sattriya is a classical dance form that originated in the monasteries of Assam.

• It was introduced by the Vaishnavite saint Sankardeva in the 15th century as a medium for religious expression and storytelling.

• The dance form is an integral part of the Sattras (monastic institutions) and was traditionally performed by male monks known as Bhakats.

• Sattriya dance includes various elements such as nritta (pure dance), nritya (expressive dance), and natya (dramatic elements).

• In 2000, Sattriya was recognized as one of the eight classical dance forms of India by the Sangeet Natak Akademi.

Additional Information

• Sattriya dance is characterized by its use of hand gestures (mudras), footwork (padas), and facial expressions (abhinaya).

• The costumes typically include traditional Assamese attire with elaborate jewelry and headgear.

• Music accompanying Sattriya dance is based on classical ragas and is performed using traditional instruments like the khol (drum), taals (cymbals), and flute.

• Over time, Sattriya has evolved and is now performed by both men and women on various cultural platforms.

Q78. Answer: (d) Kadambas

The correct answer is Kadambas

Key Points

• Kadambas were the original power to whom the Badami (or Vatapi) Chalukyas were subjects.

• The Kadambas ruled from Banavasi in present-day Karnataka, and their reign is considered significant in the early medieval history of the Deccan region.

• The Chalukyas later rose to prominence and established their own dynasty, with Badami (Vatapi) as their capital.

• The Chalukyas are well-known for their contributions to art and architecture, particularly in the construction of rock-cut temples.

• The transition from being subjects of the Kadambas to establishing their own rule marks a significant period in South Indian history.

Additional Information

• The Badami Chalukyas ruled from the 6th to the 8th century CE and are known for their architectural innovations and military prowess.

• Their capital, Badami, is famous for its cave temples, which are exemplary specimens of Indian rock-cut architecture.

• The Chalukyas fought several wars with neighboring dynasties such as the Pallavas and the Rashtrakutas, which shaped the political landscape of the region.

• The Kadambas, on the other hand, are one of the earliest native dynasties to rule over Karnataka and are credited with laying the foundation for the later development of Kannada literature and culture.

• The period of Chalukya rule is often regarded as a golden age in the history of Karnataka, characterized by economic prosperity and cultural achievements.

Q79. Answer: (d) Kesari

The correct answer is Kesari

Key Points

• The song 'Teri mitti' is from the movie 'Kesari'.

• Kesari is a 2019 Indian Hindi-language action-war film starring Akshay Kumar and Parineeti Chopra.

• The film is based on the Battle of Saragarhi, where 21 soldiers of the Sikh regiment fought valiantly against 10,000 Afghan invaders in 1897.

• The song 'Teri mitti' is a patriotic song that pays tribute to the soldiers who laid down their lives for their country.

• The song was composed by Arko Pravo Mukherjee and sung by B Praak.

Additional Information

• Kesari was directed by Anurag Singh and produced by Karan Johar, Aruna Bhatia, Hiroo Yash Johar, Apoorva Mehta, and Sunir Khetarpal.

• The film received positive reviews from critics and audiences alike, particularly for its performances, action sequences, and music.

• The song 'Teri mitti' became an anthem of sorts for patriotism and is often played during national events and celebrations.

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• Kesari grossed over Rs. 200 crore worldwide, making it one of the highest-grossing Bollywood films of 2019.

Q80. Answer: (a) River Linkage Development

The correct answer is River Linkage Development.

Key Points

• River Linkage Development is NOT one of the main pillars of the 'Namami Gange Programme'.

• The main pillars of the 'Namami Gange Programme' include Industrial Effluent Monitoring, River-Front Development, and Sewerage Treatment Infrastructure.

• The programme aims at reducing pollution and rejuvenating the Ganga River by implementing various conservation and clean-up activities.

• It focuses on the treatment of sewage, maintaining the ecological flow, and creating public awareness and participation.

Additional Information

• The 'Namami Gange Programme' was launched by the Government of India in 2014.

• It is a flagship programme under the Ministry of Jal Shakti, aimed at integrating efforts to clean and protect the Ganga River in a comprehensive manner.

• The programme also includes activities like river surface cleaning, biodiversity conservation, and afforestation.

• It is funded by the Central Government and involves multiple stakeholders, including state governments and local communities.

Q81. Answer: (b) Grameen Bank

The correct answer is Grameen Bank

Key Points

• Grameen Bank was established by Mohammad Yunus in 1983.

• It is a microfinance organization and community development bank founded in Bangladesh.

• Grameen Bank makes small loans (known as microcredit or "Grameencredit") to the impoverished without requiring collateral.

• The bank and its founder, Mohammad Yunus, were awarded the Nobel Peace Prize in 2006 for their efforts to create economic and social development from below.

• The model of microfinance pioneered by Grameen Bank has been replicated in many countries around the world.

Additional Information

• Microfinance is a type of banking service that is provided to unemployed or low-income individuals or groups who otherwise would have no other access to financial services.

• Microfinance allows people to take on reasonable small business loans safely, and in a manner that is consistent with ethical lending practices.

• Grameen Bank's approach is based on the idea that the poor have skills that are underutilized and that financial capital can help them to leverage these skills to improve their economic conditions.

• Mohammad Yunus's vision was to eradicate poverty through entrepreneurship and self-sustaining business practices among the poor.

Q82. Answer: (d) 1999

The correct answer is 1999

Key Points

• The Swarnajayanti Gram Swarozgar Yojana (SGSY) was launched by the Government of India in 1999.

• The scheme aimed to bring the assisted poor families (Swarozgaris) above the poverty line by organizing them into Self Help Groups (SHGs) through a mix of bank credit and government subsidy.

• It focused on promoting self-employment in rural areas through the establishment of micro-enterprises.

• SGSY was a major anti-poverty scheme that targeted the rural poor, particularly women and vulnerable sections of society.

• The scheme was later restructured as the National Rural Livelihoods Mission (NRLM) in 2011 to further strengthen the self-employment approach.

Additional Information

• The SGSY scheme was implemented by the Ministry of Rural Development.

• It sought to provide sustainable income to the rural poor through a combination of economic activities, infrastructure support, and capacity building.

• Under the SGSY, assistance was provided to SHGs for the purchase of assets and skill development training.

• The scheme also emphasized the importance of marketing support and technology upgradation for the products produced by SHGs.

• SGSY was one of the flagship programs of the Indian government to alleviate rural poverty and promote inclusive growth.

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Q83. Answer: (d) Ceres

The correct answer is Ceres

Key Points

• Ceres is the closest dwarf planet to Earth, orbiting at only 2.8 times Earth's distance from the sun.

• It is located in the asteroid belt between Mars and Jupiter.

• Ceres was the first dwarf planet to be visited by a spacecraft, NASA's Dawn mission, which provided detailed images and data about its surface and composition.

• Unlike other dwarf planets such as Pluto, Eris, and Makemake, which are located in the distant Kuiper Belt, Ceres resides much closer to the inner solar system.

Additional Information

• Ceres was discovered by Giuseppe Piazzi on January 1, 1801.

• It is named after the Roman goddess of agriculture.

• Ceres has a diameter of about 940 kilometers, making it the largest object in the asteroid belt.

• It is composed of a mixture of water ice and various hydrated minerals such as carbonates and clays.

• Studies suggest that Ceres may have a subsurface ocean, making it a target of interest in the search for extraterrestrial life.

Q84. Answer: (b) 8 characters

The correct answer is 8 characters

Key Points

• The default width of a column in MS-Excel is 8 characters.

• This width is set to accommodate the average width of characters in the default font.

• Users can manually adjust the width of columns to fit their data requirements.

• To change the column width, you can drag the boundary on the right side of the column heading or use the "Format" option under the "Home" tab.

• Additional Information

• Microsoft Excel is a spreadsheet program included in the Microsoft Office suite of applications.

• It features calculation, graphing tools, pivot tables, and a macro programming language called VBA (Visual Basic for Applications).

• Excel is widely used for data analysis, financial modeling, and other tasks involving numerical data.

• Users can customize various aspects of Excel, including column widths, to better suit their specific needs and preferences.

Q85. Answer: (d) 1827

The correct answer is 1827

Key Points

• 1827 is the year when Robert Brown observed the zigzag movement of colloidal particles in solution.

• This phenomenon is known as Brownian motion.

• Brownian motion is the random movement of particles suspended in a fluid, resulting from their collision with fast atoms or molecules in the gas or liquid.

• It provided important evidence for the kinetic theory of heat and the existence of atoms and molecules.

Additional Information

• Robert Brown was a Scottish botanist who is best known for his work on plant cell structure and Brownian motion.

• The discovery was made while observing pollen grains in water under a microscope.

• Brown initially observed this motion in pollen grains from the plant Clarkia pulchella.

• Brownian motion was later explained by Albert Einstein in 1905, providing empirical support for the atomic theory.

• Jean Perrin's experimental work on Brownian motion in 1908 provided further validation of Einstein's theory and helped to establish the reality of atoms and molecules.

Q86. Answer: (d) The first Five-Year Plan was started in 1951.

The correct answer is the first Five-Year Plan was started in 1951.

Key Points

• The first Five-Year Plan was started in 1951.

• The Five-Year Plans were centralized and integrated national economic programs initiated by the Government of India.

• The primary aim was to achieve specific economic goals and promote balanced growth.

• The Planning Commission, established in 1950, was responsible for formulating these plans.

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• While the first Five-Year Plan focused on agricultural development, subsequent plans targeted various sectors such as industry, education, and health.

• The Planning Commission was replaced by the NITI Aayog in 2015.

Additional Information

• The Planning Commission was an institution in the Government of India, which formulated India's Five-Year Plans, among other functions.

• It was established in 1950 by a resolution of the Government of India.

• The Prime Minister of India was the ex-officio chairperson of the Planning Commission.

• The Five-Year Plans were inspired by the Soviet model of economic planning and emphasized public sector development.

• With the dissolution of the Planning Commission, the NITI Aayog (National Institution for Transforming India) was formed to replace it, aiming for a more bottom-up approach to economic planning and development.

Q87. Answer: (d) 24%

The correct answer is 24%.

Key Points

• According to the National Crime Records Bureau data, from 2016 to 2019, suicide cases due to unemployment have increased by 24%.

• The National Crime Records Bureau (NCRB) is responsible for collecting and analyzing crime data in India.

• The increase in suicide cases due to unemployment reflects the growing economic challenges faced by individuals during this period.

• Unemployment is a significant factor contributing to mental health issues, including depression and anxiety, which can lead to suicidal tendencies.

Additional Information

• The National Crime Records Bureau was set up in 1986 to function as a repository of information on crime and criminals.

• It aims to assist the investigators in linking crime to the perpetrators.

• NCRB also publishes annual reports on crime statistics, which are essential for policy formulation and crime prevention strategies.

• The data collected by NCRB is used by various stakeholders, including law enforcement agencies, policymakers, and researchers.

Q88. Answer: (b) Harsh Vardhan Shringla

The correct answer is Harsh Vardhan Shringla

Key Points

• Harsh Vardhan Shringla was the chief coordinator for the G20 summit held in India in 2023.

• The G20 summit is a significant international forum for governments and central bank governors from 19 countries and the European Union.

• India hosted the G20 summit in 2023, focusing on global economic issues, international financial stability, climate change mitigation, and sustainable development.

• As the chief coordinator, Shringla played a crucial role in organizing and managing the summit's logistics, agenda, and diplomatic engagements.

• His extensive experience in diplomacy and international relations was instrumental in ensuring the summit's success.

Additional Information

• Harsh Vardhan Shringla is a seasoned diplomat who has served as India's Foreign Secretary and Ambassador to the United States, among other significant positions.

• The G20 summit in 2023 was an important platform for India to showcase its leadership on global economic issues and to strengthen international cooperation.

• India's presidency of the G20 highlighted its commitment to addressing pressing global challenges and promoting inclusive growth.

Q89. Answer: (a) VAIBHAV

The correct answer is VAIBHAV

Key Points

• VAIBHAV is the scheme launched by the Government of India in 2023 to bring Indian-origin researchers to higher educational institutions in the country.

• VAIBHAV stands for Vaishwik Bharatiya Vaigyanik (VAIBHAV) Summit.

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• The initiative aims to create a platform for global Indian researchers and academicians to collaborate with domestic institutions.

• The scheme is part of India's effort to harness the talent and expertise of its diaspora to boost scientific and technological research in the country.

• VAIBHAV focuses on diverse fields including science, technology, engineering, mathematics, and medicine, among others.

Additional Information

• The VAIBHAV Summit is an initiative of the Government of India to bring together Indian-origin researchers from across the globe to share their knowledge and expertise.

• The summit aims to foster collaboration and strengthen the research ecosystem in India.

• It is aligned with India's vision of becoming a global leader in science and technology.

• The summit includes various sessions, workshops, and discussions on emerging areas of research and innovation.

• The initiative is expected to significantly contribute to India's development goals by leveraging the intellectual capital of the Indian diaspora.

Q90. Answer: (a) 1, 2 and 3

The correct answer is 1) 1, 2 and 3.

Key Points

• Webcam: This is required for video communication. It allows the user to transmit video in real-time to another user.

• Microphone: This is essential for audio communication. It captures the user's voice so that it can be transmitted to the other user.

• Speaker: This is needed to hear the audio from the other user. Without a speaker, the user will not be able to hear the conversation.

Therefore, for Skype to function effectively on a computer, all three components - a webcam, a microphone, and a speaker - are necessary.

Q91. Answer: (d) Slash and burn

The correct answer is Slash and burn.

Key Points

• Slash and burn is not a characteristic of Indian commercial farming.

• Indian commercial farming often uses insecticides, pesticides, chemical fertilizers, and high yielding variety seeds to increase productivity.

• Slash and burn is a method associated with shifting agriculture, not commercial farming.

• Commercial farming focuses on growing crops for sale and profit, utilizing modern agricultural techniques.

Additional Information

• Commercial farming in India includes crops like wheat, rice, cotton, and sugarcane.

• It involves significant investment in agricultural technology and infrastructure.

• Commercial farming aims to meet the demands of both domestic and international markets.

• The use of modern irrigation techniques and mechanized tools is common in commercial farming.

Q92. Answer: (d) India

The correct answer is India

Key Points

• The ICC World Cup (cricket) 2023 was hosted by India.

• This was the 13th edition of the ICC Cricket World Cup.

• India has previously co-hosted the World Cup in 1987, 1996, and 2011.

• The tournament featured 10 teams competing for the prestigious trophy.

• Matches were played in various cities across India, showcasing the country's rich cricketing culture.

Additional Information

• The ICC Cricket World Cup is organized by the International Cricket Council (ICC) every four years.

• It is one of the most viewed sporting events globally, attracting millions of viewers.

• The first ICC Cricket World Cup was held in 1975 in England.

• Australia has won the tournament the most times, with a total of five victories.

• The 2019 ICC Cricket World Cup was hosted by England and Wales, with England emerging as the champions.

Q93. Answer: (c) Vijaya Utsava

The correct answer is Vijaya Utsava

Key Points

• Hampi Utsava is celebrated in Karnataka and is also known as Vijaya Utsava.

• This festival captures the pomp, splendour, and glory of the historical period of Karnataka.

• It is celebrated over a week and includes various cultural programs, showcasing the rich heritage of the region.

• The festival is held in Hampi, a UNESCO World Heritage site, which was the capital of the Vijayanagara Empire.

• Hampi Utsava is a significant cultural event that attracts tourists from all over the world.

Additional Information

• The Vijayanagara Empire was a South Indian empire based in the Deccan Plateau region, established in 1336 by Harihara I and his brother Bukka Raya I.

• Hampi, located in the Ballari district of Karnataka, is known for its ruins, which are a UNESCO World Heritage site.

• The architectural grandeur of Hampi includes temples, palaces, and market streets, reflecting the prosperity and cultural richness of the Vijayanagara Empire.

• The Hampi Utsava includes performances of traditional dance forms like Bharatnatyam and Kathak, as well as folk dances and music, enhancing the cultural experience for visitors.

• Local artisans and craftsmen also showcase their work, providing a glimpse into the traditional arts and crafts of the region.

Q94. Answer: (b) Dhanush Srikanth

The correct answer is Dhanush Srikanth

Key Points

• Dhanush Srikanth won gold at the International Shooting Sport Federation (ISSF) junior world cup 2023.

• The ISSF Junior World Cup is a prestigious event where young shooters from around the world compete in various shooting disciplines.

• Dhanush Srikanth has been recognized for his exceptional skills and performance in shooting sports.

• This achievement adds to India's growing reputation in the field of shooting sports on the international stage.

Additional Information

• The International Shooting Sport Federation (ISSF) is the governing body for the Olympic shooting events in rifle, pistol, and shotgun disciplines.

• The ISSF organizes various championships and world cups to promote and develop shooting sports globally.

• India has been making significant strides in shooting sports, with several athletes achieving international recognition and success.

• Support and training provided by organizations like the National Rifle Association of India (NRAI) have been instrumental in nurturing young talent in the country.

Q95. Answer: (c) Flute

The correct answer is Flute

Key Points

• Flute is a woodwind instrument, not a stringed instrument.

• Stringed instruments produce sound through the vibration of strings. Examples include the Guitar, Violin, and Mandolin.

• The Flute produces sound when air is blown across the opening, causing the air within the instrument to vibrate.

• Stringed instruments typically have strings made of materials such as nylon, steel, or gut, which are plucked, strummed, or played with a bow.

Additional Information

• The Guitar is a popular stringed instrument used in various music genres including rock, jazz, and classical.

• The Violin is a high-pitched stringed instrument often used in classical music and orchestras.

• The Mandolin is a stringed instrument with a distinct, bright sound, commonly used in folk and bluegrass music.

• Woodwind instruments, like the Flute, do not have strings and are played by blowing air into or across an opening.

Q96. Answer: (d) Meghalaya and Madhya Pradesh

The correct answer is Meghalaya and Madhya Pradesh.

Key Points

• Meghalaya and Madhya Pradesh are included in the top 10 poorest states of India according to the Global Multidimensional Poverty Index (2022).

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• The Global Multidimensional Poverty Index (MPI) assesses poverty at the individual level by considering various deprivations people face in their daily lives, such as health, education, and living standards.

• States like Meghalaya and Madhya Pradesh have shown significant levels of poverty in multiple dimensions, contributing to their ranking in the top 10 poorest states of India.

• The MPI is a valuable tool for understanding the complexity of poverty and for shaping policies aimed at poverty alleviation.

Additional Information

• The Global Multidimensional Poverty Index (MPI) is developed by the Oxford Poverty and Human Development Initiative (OPHI) and the United Nations Development Programme (UNDP).

• The MPI complements traditional income-based measures of poverty by considering overlapping deprivations in health, education, and living standards.

• India has made significant progress in reducing poverty, but regional disparities remain, with some states still facing high levels of multidimensional poverty.

• Addressing multidimensional poverty requires targeted interventions in areas such as healthcare, education, sanitation, and housing.

• The MPI can help policymakers identify priority areas for investment and track the effectiveness of poverty reduction strategies over time.

Q97. Answer: (b) Part III

The correct answer is Part III

Key Points

• Part III of the Indian Constitution is described as the 'Magna Carta of India'.

• It contains the Fundamental Rights that are guaranteed to all citizens of India, ensuring civil liberties and protection under the law.

• These rights are considered essential for the overall development of individuals and for maintaining a democratic framework.

• The Fundamental Rights include the right to equality, right to freedom, right against exploitation, right to freedom of religion, cultural and educational rights, and right to constitutional remedies.

• Part III of the Constitution aims to protect individuals from any arbitrary actions by the state and to promote the principles of justice, liberty, and equality.

Additional Information

• The Constitution of India was adopted by the Constituent Assembly on 26th November 1949 and came into effect on 26th January 1950.

• It lays down the framework defining fundamental political principles, establishes the structure, procedures, powers, and duties of government institutions, and sets out fundamental rights, directive principles, and the duties of citizens.

• The Constitution of India is the longest written constitution of any country in the world.

• It declares India a sovereign, socialist, secular, and democratic republic, assuring its citizens justice, equality, and liberty, and endeavors to promote fraternity.

• The Seventh Schedule of the Constitution contains three lists which delineate the subjects under the Union, State, and Concurrent lists.

• Amendments to the Constitution can be made through a process outlined in Article 368.

• The Union List has been amended several times to meet the evolving needs of the nation.

Q98. Answer: (c) It happens when too much nitrogen enriches the water, causing excessive growth of plants and algae.

The correct answer is It happens when too much nitrogen enriches the water, causing excessive growth of plants and algae.

Key Points

• Eutrophication is a process where water bodies become enriched with nutrients, particularly nitrogen and phosphorus.

• This nutrient enrichment leads to excessive growth of algae and aquatic plants, which can result in harmful algal blooms.

• These algal blooms can deplete oxygen levels in the water, causing dead zones where aquatic life cannot survive.

• The primary sources of nutrients causing eutrophication include agricultural runoff, wastewater discharge, and industrial effluents.

• Eutrophication can lead to a loss of biodiversity, changes in species composition and dominance, and overall deterioration of water quality.

Additional Information

• Preventive measures include reducing nutrient runoff through better agricultural practices, improving sewage treatment facilities, and implementing policies to control industrial discharges.

• Restoration efforts for eutrophic water bodies may involve mechanical, chemical, or biological methods to remove excess nutrients and restore ecological balance.

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• Public awareness and education about the sources and impacts of eutrophication are crucial for long-term water quality management.

• International cooperation and regulations, such as the European Union's Water Framework Directive, play a vital role in addressing transboundary water pollution issues.

Q99. Answer: (d) a sovereign, democratic, republic state

The correct answer is a sovereign, democratic, republic state

Key Points

• On 26 January 1950, India officially became a sovereign, democratic, republic state.

• This date marks the adoption of the Constitution of India, which laid down the legal framework for the country.

• The Constitution was adopted by the Constituent Assembly on 26th November 1949 and came into effect on 26th January 1950.

• It established India as a republic, meaning that the head of state is elected, not a hereditary monarch.

• It also declared India as a sovereign state, indicating its independence from any external control.

• The Constitution of India is the longest written constitution in the world and provides for a democratic system of government.

• It assures its citizens justice, equality, and liberty, and endeavors to promote fraternity among them.

Additional Information

• The Constitution of India also declares the nation to be socialist and secular, terms that were added by the 42nd Amendment in 1976.

• The Constitution outlines the fundamental political principles, establishes the structure, procedures, powers, and duties of government institutions, and sets out fundamental rights, directive principles, and duties of citizens.

• The Seventh Schedule of the Constitution contains three lists: the Union List, the State List, and the Concurrent List, delineating the subjects under which each level of government has legislative powers.

• Amendments to the Constitution can be made through a process outlined in Article 368.

• The Constitution has been amended multiple times to address the evolving needs of the nation.

Q100. Answer: (c) Uttarakhand

The correct answer is Uttarakhand

Key Points

• Nehru Institute of Mountaineering is located in Uttarkashi, Uttarakhand.

• It was established in 1965 to honor the memory of India's first Prime Minister, Jawaharlal Nehru, who was an ardent mountain lover.

• The institute offers various courses in mountaineering, including Basic, Advanced, and Method of Instruction courses, as well as specialized courses like Search and Rescue.

• It is one of the premier mountaineering institutes in India, along with the Himalayan Mountaineering Institute in Darjeeling.

• The institute aims to promote mountaineering as a sport and to inculcate the spirit of adventure among the youth.

Additional Information

• Uttarakhand, often referred to as the "Land of the Gods," is known for its natural beauty and is a popular destination for trekking and mountaineering.

• The state is home to several other important mountaineering and adventure sports institutes, including the Indian Military Academy in Dehradun.

• Uttarakhand is also famous for its pilgrimage sites, such as Haridwar, Rishikesh, and the Char Dham (Badrinath, Kedarnath, Gangotri, and Yamunotri).

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