SSC CHSL Tier-1 2021: Official Paper (Held On : 25 May 2022 Shift 1) (Previous Year Paper)

SSC Combined Higher Secondary Level (CHSL) • 2021 • 100 questions • 60 minutes • Answer key and solutions

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ENGLISH LANGUAGE

Q1. Select the option that can be used as a one-word substitute for the underlined group of words.

Ravi got the job easily because he speaks many languages.

(a) Polyglot
(b) Polynomial
(c) Polycentric
(d) Polysyllabic

Q2. Select the most appropriate synonym of the given word.

Loathe

(a) Entrench
(b) Abhor
(c) Abjure
(d) Meddle

Q3. From among the words given in bold, select the INCORRECTLY spelt word in the following sentence.

The popular ridikule of Puritanism in burlesque and doggerel is best exemplified in Butler’s Hudibras.

(a) exemplified
(b) ridikule
(c) burlesque
(d) doggerel

Q4. Select the most appropriate meaning of the given idiom.

A snake in the grass

(a) A timid person
(b) A deceitful person
(c) A wealthy person
(d) A talkative person

Q5. Select the INCORRECTLY spelt word

(a) Guide
(b) Geity
(c) Guard
(d) Global

Q6. Select the most appropriate option to substitute the underline segment in the given sentence.

During the war, the comedian proved to be a man of music.

(a) man of words
(b) man of Mars
(c) man of straw

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(d) man of grass

Q7. Select the denotation of the highlighted word.

The archer doesn't get perturbed easily.

(a) Initiated
(b) Agitated
(c) Animated
(d) Triumphed

Q8. Select the most appropriate option that can substitute the underlined words in the given sentence.

All his bones could be counted because his body was totally shrivelled and wrinkled with age.

(a) wizened
(b) shrunken
(c) dried
(d) bony

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

Asha was _____ made a fool by her friend.

(a) insistently
(b) unknowingly
(c) innocently
(d) deliberately

Q10. Select the option that expresses the given sentence in passive voice.

You never hear of a happy billionaire.

(a) A happy billionaire is never heard of.
(b) A happy billionaire never heard of.
(c) A happy billionaire is never heard by you.
(d) No one hears a happy billionaire.

Q11. Select the option that expresses the given sentence in passive voice.

The most recent studies on the human body are likely to alter the face of health sciences.

(a) The most recent studies on the human body are likely to be altered by the face of health sciences.
(b) The face of health sciences will be altering the most recent studies on the human body.
(c) The face of health sciences is likely to be altered by the most recent studies on the human body.
(d) The most face of health sciences is likely to alter the recent studies on the human body.

Q12. The following sentence has been split into four segments. Identify the segment that contains a grammatical error.

The river / flowed besides / the hillock / in our village.

(a) in our village
(b) the hillock
(c) flowed besides
(d) The river

Q13. Select the most appropriate meaning of the given idiom.

Tit for tat

(a) Prepare to leave
(b) A wild guess
(c) Counter attack
(d) Go smoothly

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Q14. Select the most appropriate ANTONYM of the underlined word in the following sentence.

Eventually the patient succumbed to her illness.

(a) died
(b) overcame
(c) surrendered
(d) advanced

Q15. Select the most appropriate option that can substitute the underlined segment in the given sentence.

Show me the better dress in the shop.

(a) a better
(b) a good
(c) the best
(d) the good

Q16. Sentences of a paragraph are given below in jumbled order. Arrange the sentences in the correct order to form a meaningful and coherent paragraph.

A. Their brother, John, is more blatantly hostile to Jane, reminding her that she is a poor dependent of his mother.

B. Orphaned as an infant, Jane Eyre lives at Gateshead with her aunt, Sarah Reed, as the novel opens.

C. Her female cousins, Georgiana, and Eliza tolerate, but don't love her.

D. Jane is ten years old, an outsider in the Reed family.

(a) DCAB
(b) DBCA
(c) BDCA
(d) BACD

Q17. Select the INCORRECTLY spelt word.

(a) Beautycian
(b) Mathematician
(c) Musician
(d) Technician

Q18. Select the most appropriate option that can substitute the underlined segment in the given sentence. If there is no need to substitute it, select ‘No substitution required’.

At the end of our first two weeks on the island, we were informed that our lawyers, Bram Fischer and Joel Joffe, were going to be visiting the following day.

(a) we are informed
(b) we get inform
(c) No substitution required
(d) we were inform

Q19. Select the most appropriate synonym of the given word.

Perilous

(a) Dangerous
(b) Stimulus
(c) Secure
(d) Impetus

Q20. Select the most appropriate synonym of the given word.

Serendipity

(a) Sibilance
(b) Godsend
(c) Catastrophe
(d) Surreptitious

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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.

Psychologists discovered that there are two routes (1) _____ achievement: conformity and originality. Conformity means following the crowd (2) _____ conventional paths and (3) _____ the status quo. Originality is taking the road (4) _____ travelled, championing a set of novel ideas that go against the grain but (5) _____ making things better.

Q21. Select the most appropriate option to fill in blank number 1.

(a) against
(b) on
(c) off
(d) to

Q22. Select the most appropriate option to fill in blank number 2.

(a) down
(b) beside
(c) since
(d) at

Q23. Select the most appropriate option to fill in blank number 3.

(a) building
(b) supplying
(c) serving
(d) maintaining

Q24. Select the most appropriate option to fill in blank number 4.

(a) quietly
(b) far
(c) frequently
(d) less

Q25. Select the most appropriate option to fill in blank number 5.

(a) superficially
(b) disinterestedly
(c) advertently
(d) ultimately

GENERAL INTELLIGENCE

Q26. Select the option that is related to the fifth word in the same way as the second word is related to the first word and the fourth word is related to the third word. (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)

Nut and Bolt : Wrenches :: Screw : Screwdriver :: Nail : ?

(a) Scissors
(b) Pliers
(c) Hammer
(d) Axe

Q27. Which of the following numbers will replace the question mark (?) in the given series?

10, 20, 23, ?, 97, 582

(a) 53
(b) 78
(c) 82
(d) 92

Q28. In a certain code language, 'GREAT' is coded as '2015187', 'WORK' is coded as '11181523' and 'GOING' is coded as '7149157'. How will 'WELL' be coded in that language?

(a) 1425431
(b) 3231345
(c) 1454321
(d) 1212523

Q29. The second number in the given number pairs is obtained by performing certain mathematical operation(s) on the first number. The same operation(s) are followed in all the number pairs, EXCEPT one. Find that odd number pair.

(a) 25 : 100
(b) 22 : 66
(c) 24 : 96
(d) 18 : 72

Q30. Which of the following numbers will replace the question mark (?) in the given series?

11, 13, 29, 91, 369, ?

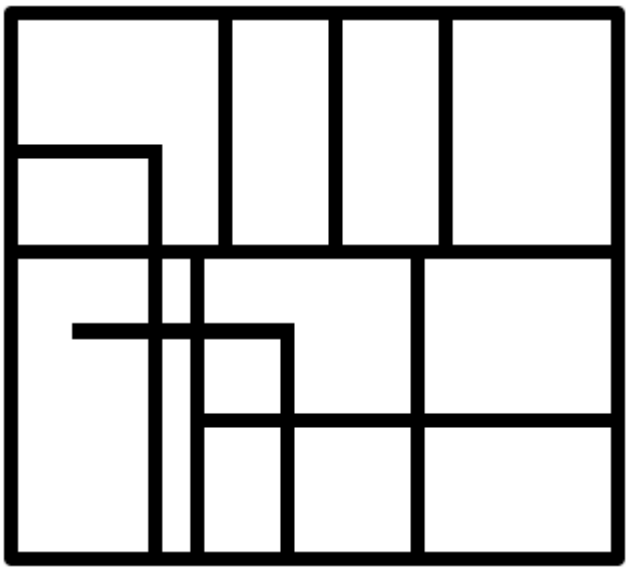
(a) 1815
(b) 1851
(c) 1158
(d) 1518

Q31. Select the option that is related to the third word in the same way as the second word is related to the first word. (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)

Car : Bonnet :: Boat : ?

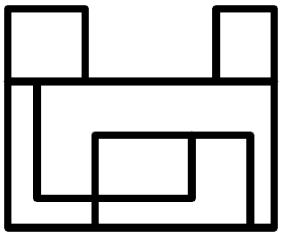
(a) Stern
(b) Mast
(c) Bow
(d) Port

Q32. Select the option that is embedded in the given figure as its part (rotation is NOT allowed).

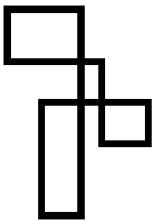


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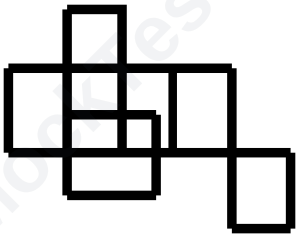
(a)



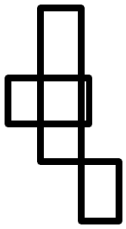
(b)



(c)



(d)



Q33. In a certain code language, “CLIENT” is written as “LCEITN”, and “CLOSED” is written as “LCSODE”. How will “FAMILY” be written in that language?

(a) FAIMYL
(b) AFIMYL
(c) AFIMLY
(d) AFMILY

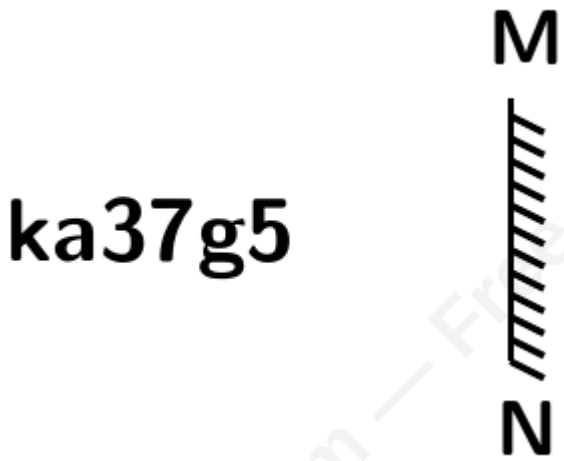
Q34. Which of the following letter-clusters will replace the question mark (?) in the given series to make it logically complete?

WDV, TGS, QJP, NMM, ?

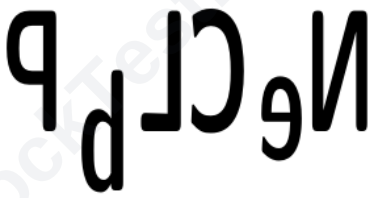
(a) PJK
(b) KPJ
(c) JPK
(d) JKP

Q35. Select the correct mirror image of the given figure when the mirror is placed at MN as shown below.

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(a)



(b)



(c)



(d)



Q36. Select the option that is related to the third term in the same way as the second term is related to the first term and the sixth term is related to the fifth term.

14 : 21 :: 34 : ? :: 47 : 87

(a) 61
(b) 57
(c) 65
(d) 53

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Q37. Study the given pattern carefully and select the number that can replace the question mark (?) in it.

First row: 86, 72, 158

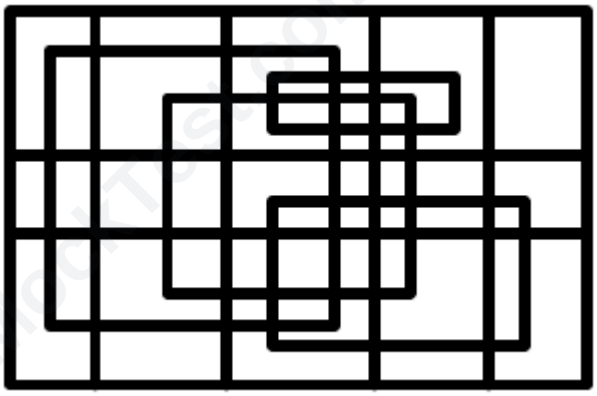
Second row: 98, 111, 209

Third row: 76, 65, ?

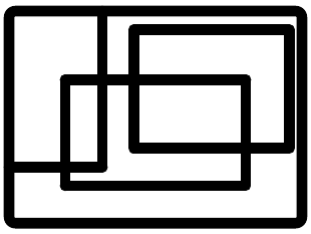
(NOTE: Operations should be performed on the whole numbers, without breaking down the number into its constituent digits. For example, 13 - Operations on 13 such as adding/deleting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1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

(a) 148
(b) 131
(c) 141
(d) 137

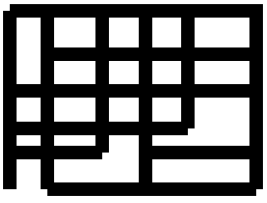
Q38. Select the option figure which is embedded in the given figure as its part (rotation is NOT allowed).



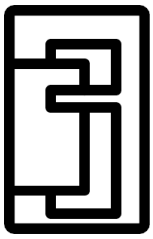
(a)



(b)

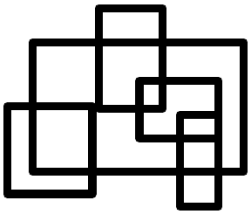


(c)



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(d)



Q39. Select the correct combination of mathematical signs to replace the * signs and to balance the given equation.

62 * 17 * 6 * 81 * 23 * 2 * 37

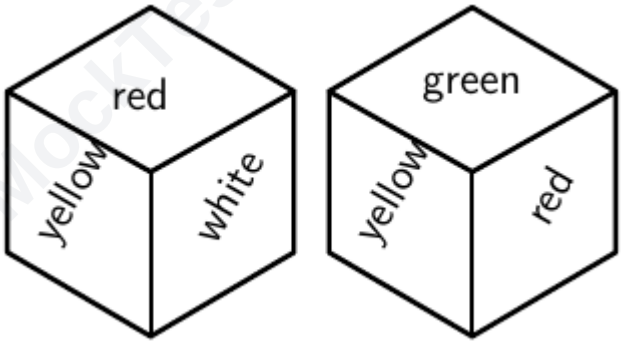
(a) +, =, ÷, −, +, ×

(b) −, ×, =, −, +, ×

(c) =, −, ×, +, −, +

(d) +, ×, −, =, ×, +

Q40. Two different positions of the same dice are shown, the six faces of which are colored Red, Green, Blue, Yellow, Black, White. Select the color that will be on the face opposite to the one colored White.



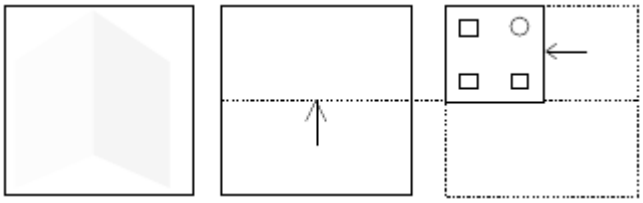
(a) Red

(b) Green

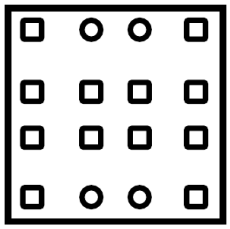
(c) Black

(d) Blue

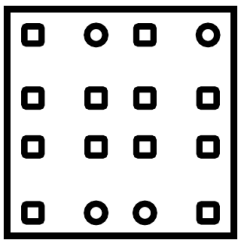
Q41. A paper is folded and cut as shown. How will it appear when unfolded?



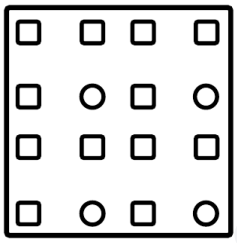
(a)



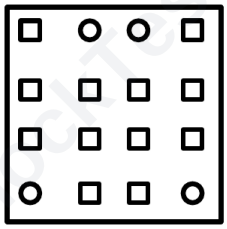
(b)



(c)



(d)



Q42. Select the option that represents the correct order of the given words as they would appear in an English dictionary.

1. Sanitization
2. Sanctuary
3. Salvation
4. Salmon
5. Salesman

(a) 5, 3, 4, 1, 2
(b) 4, 5, 3, 2, 1
(c) 5, 4, 3, 2, 1
(d) 4, 3, 2, 1, 5

Q43. Select the option that represents the correct order of the given words as they would appear in an English dictionary.

1. Curator
2. Culminate
3. Curriculum
4. Culinary
5. Cucumber

(a) 5, 4, 2, 1, 3
(b) 4, 3, 2, 1, 5
(c) 1, 2, 3, 4, 5
(d) 5, 4, 3, 2, 1

Q44. Select the correct combination of mathematical signs to sequentially replace the * signs and to balance the given equation.

25 * 5 * 10 * 2 * 4 * 10

(a) ÷, ×, +, –, =
(b) ×, ÷, –, +, =
(c) +, –, ÷, ×, =

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(d) ÷, ×, –, +, =

Q45. Study the given pattern carefully and select the number that can replace the question mark (?) in it.

First row- 2, 57, 7

Second row- 6, 225, 3

Third row- 5, ?, 2

(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) 192
(b) 127
(c) 172
(d) 129

Q46. 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 conclusions logically follow(s) from the statements.

Statements:

All pencils are erasers.

All sharpeners are erasers.

All compasses are sharpeners.

Conclusions:

I. All compasses are erasers.

II. Some compasses are pencils.

III. Some erasers are compass.

(a) Only conclusions I and III follow
(b) Only conclusion I follows
(c) Only conclusion II follows
(d) Only conclusions I and II follow

Q47. Select the combination of letters that when sequentially placed in the blanks of the given series will complete the series.

A B Z _ P A B _ K P A B X K _ A B _ K P

(a) A C B Z
(b) A Y Z W
(c) K Y P W
(d) K C Z W

Q48. Which of the following numbers will replace the question mark (?) in the given series?

1724, 1716, 1689, 1625, 1500, ?

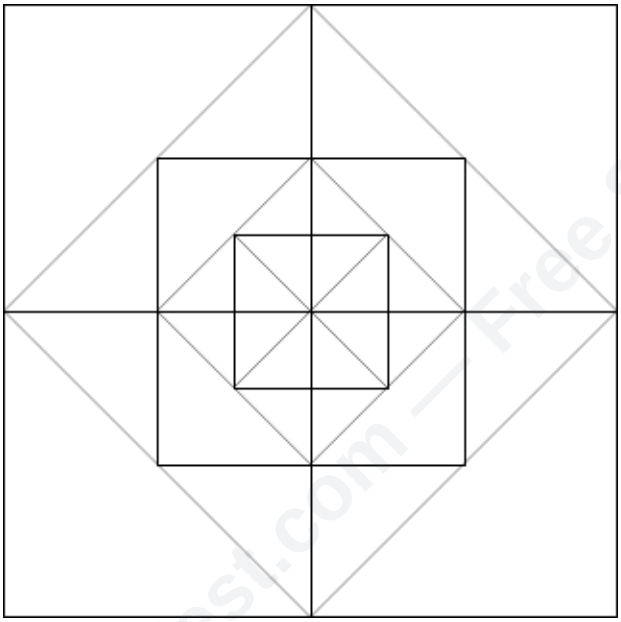
(a) 1296
(b) 1284
(c) 1254
(d) 1280

Q49. The second number in the given number pairs is obtained by performing certain mathematical operation(s) on the first number. The same operation(s) are followed in all the number pairs, EXCEPT one. Find that odd number pair.

(a) 42 : 7
(b) 36 : 6
(c) 48 : 8
(d) 24 : 8

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Q50. How many triangles are there in the given figure?



(a) 30
(b) 24
(c) 28
(d) 26

QUANTITATIVE APTITUDE

Q51. The table below gives the numbers of students from five different colleges,
Who participated in the Olympiads of five different subjects during a given year.

Subjects	College A	College B	College C	College D	College E
Hindi	110	100	125	103	112
English	98	120	80	122	105
Maths	130	110	250	160	180
Science	100	100	150	200	80
GK	182	200	120	130	183

Find the difference between 'the range of the numbers of participants in the different Olympiads from College C' and 'the average number of participants per Olympiad from College E' during the given year.

(a) 38
(b) 13
(c) 37
(d) 36

Q52. The Group Leader of a group of 6 students reported that their average weight is 46 kg. When the members of the group were asked about their individual weights, 5 of them answered: 50 kg, 52 kg, 40 kg, 44 kg, 48 kg. The 6th member said, “I can’t recall my weight”. What is his weight?

(a) 43 kg
(b) 44 kg
(c) 45 kg
(d) 42 kg

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Q53. What will be the smallest natural number to be filled in the blank for the number '23_45678' to be divisible by 22?

(a) 7
(b) 1
(c) 9
(d) 3

Q54. If the cost price of 70 articles is equal to the selling price of 40 articles, what will be the profit percentage?

(a) 75%
(b) 65%
(c) 60%
(d) 70%

Q55. Kamal purchases 80 articles for Rs. 11,180 and sells them at a loss equal to the selling price of 6 articles. What will be the selling price of 1 article?

(a) Rs. 130
(b) Rs. 120
(c) Rs. 135
(d) Rs. 125

Q56. If $a + b + c = 10$ and $ab + bc + ca = 30$, then the value of $a^2 + b^2 + c^2$ is:

(a) 40
(b) 38
(c) 30
(d) 25

Q57. 700 grams of cane sugar solution has 60% of sugar in it. How much sugar should be added to make it 75% in the solution?

(a) 320 gm
(b) 480 gm
(c) 380 gm
(d) 420 gm

Q58. If the sum of two numbers is 25 and their product is 144, then what is the positive difference between the two numbers?

(a) 8
(b) 7
(c) 16
(d) 9

Q59. A can do a piece of work in 24 days and B can do it in 80 days. B works alone for 2 days and A works alone on the 3^(rd) day. This process continues till the work is completed. In how many days will the work be completed?

(a) 42
(b) 45
(c) 48
(d) 44

Q60. The difference between the simple interest and compound interest on Rs. 1,000 for 1 year at 20% per annum, compounded half-yearly, is:

(a) Rs. 8
(b) Rs. 5
(c) Rs. 10
(d) Rs. 12

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Q61. Find the volume of a hemisphere of radius 21 cm. (Use π = 22/7)

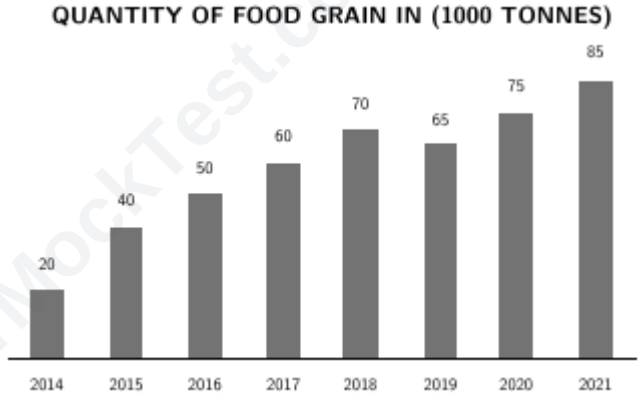
(a) 19400 cm^3
(b) 18440 cm^3
(c) 17404 cm^3
(d) 19404 cm^3

Q62. Rakesh runs 4/3 times as fast as Mukesh. In a race, if Rakesh gives a lead of 60 m to Mukesh, find the distance from the starting point where both of them will meet.

(a) 232 m
(b) 240 m
(c) 264 m
(d) 255 m

Q63. Study the given graph carefully and answer the question that follows.

Production of food grains by a state over the years (1000 tonnes)



What was the percentage drop in the production of food grains from 2018 to 2019 (consider up to two decimals)?

(a) 7.14%
(b) 5.14%
(c) 7.02%
(d) 6.14%

Q64. If $x^2 = b - ax$ and $x^3(x^3 + c) = d$, then which of the following can be the values of c and d?

(a) $c = a^3 - 3ab$ and $d = b^3$
(b) c = -a3 - 3ab and d = b3
(c) c = a3 + 3ab and d = b3
(d) c = a3 + 3ab and d = -b3

Q65. A bike is purchased for Rs. 50,000. Its rate depreciates at 10% annually. In how many years will its value be Rs. 36,450?

(a) 3
(b) 2
(c) 5
(d) 4

Q66. If 2945 ÷ 19 – 11 × 5 = 29 + a, find the value of a.

(a) 90
(b) 100
(c) 69
(d) 71

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Q67. If 15 kg of sugar cost Rs. 600, what is the cost of 25 kg of sugar?

(a) Rs. 1,100
(b) Rs. 900
(c) Rs. 1,000
(d) Rs. 800

Q68. Nikhil suffers a loss of Rs. 140 when he sells a perfume at 20% discount. Find the marked price of the perfume if the cost price is Rs. 380.

(a) Rs. 280
(b) Rs. 300
(c) Rs. 310
(d) Rs. 290

Q69. A sphere passes through the eight corners of a cube of side 14 cm. Find the volume (in cm^3) of the sphere.
Take $\pi = 22/7$

(a) $4312\sqrt{3}$
(b) $4012\sqrt{3}$
(c) $4312\sqrt{2}$
(d) $4012\sqrt{2}$

Q70. If the height and slant height of a right circular cone are 8 cm and 10 cm, respectively, then the volume of the cone is (use $\pi=22/7$): (correct the two decimal places)

(a) 200 cm^3
(b) 301.71 cm^3
(c) 258 cm^3
(d) 299.45 cm^3

Q71. A family spends Rs. 240 per month to buy sugar. A rise of 25% in the price of sugar compels the family to reduce the monthly consumption of sugar by 1.5 kg as it decides to spend the same amount of money on purchase of the commodity. What is the increased price per kg of sugar?

(a) Rs. 32
(b) Rs. 35
(c) Rs. 40
(d) Rs. 38

Q72. The table below gives the numbers of laptops of three different brands sold from four different multi-brands store in the city during a certain month.

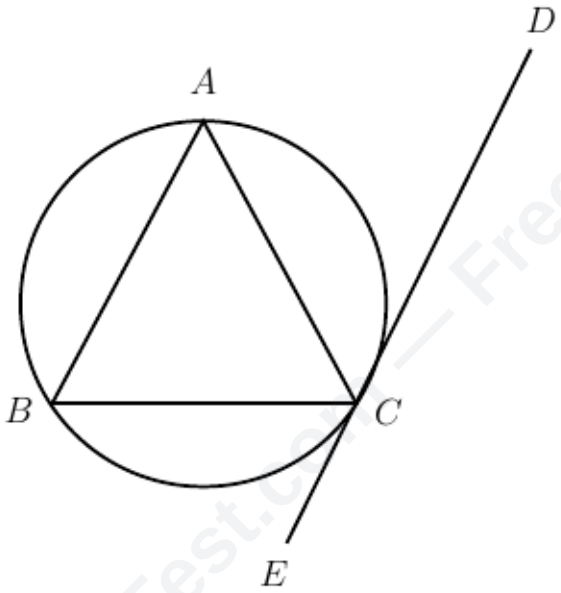
Laptop Brands	Dell	HP	Lenovo
Stores			
A	30	45	50
B	25	32	40
C	25	35	38
D	45	29	45

The number of Lenovo Laptop sold by stores A during the given month is approximately what percentage more than the number of Dell laptops sold by Store D during the same month?

(a) 12.4
(b) 13.8
(c) 11.1
(d) 10.3

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Q73. In the following figure, ΔABC is an inscribed triangle as shown and DE is a tangent to the circle at C. Which of the angles from the given options is necessarily equal to angle ACD?



(a) angle BAC
(b) angle BCE
(c) angle ABC
(d) angle BCA

Q74. If $(x - x\text{cosec}^2 30°)/(1 + \text{cosec}^2 30°) = \cos^2 60° + 4\cot^2 45° - \sec^2 60°$ then the value of x is _____.

(a) 5/12
(b) -5/12
(c) 1/5
(d) -1/12

Q75. By what percent the new price of the article must be increased to restore its former value, if the cost of the article is cut by 25% in the past?

(a) 341/4%
(b) 331/3%
(c) 33%
(d) 34%

GENERAL AWARENESS

Q76. Who wrote the autobiography entitled ‘I am No Messiah’?

(a) Sachin Tendulkar
(b) Sonu Sood
(c) Paramahansa Yogananda
(d) APJ Abdul Kalam

Q77. Who wrote the famous novel ‘The Inheritance of Loss’?

(a) Arundhati Roy
(b) Kiran Desai
(c) RK Narayan
(d) Vikram Seth

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Q78. India's men's hockey team beat Pakistan to win a bronze medal in December 2021 at the:

(a) Asian Champions Trophy
(b) Moinuddowla Gold Cup
(c) ICC Champions Trophy
(d) Ghulam Ahmed Trophy

Q79. _____ is the money which is accepted as a medium of exchange because of the trust between the payer and the payee.

(a) Credit money
(b) Fiduciary money
(c) Fiat money
(d) Full bodied money

Q80. In which sport are arrows used?

(a) Fencing
(b) Shooting
(c) Boxing
(d) Archery

Q81. Rajeev Janardan is an Indian classical _____ player of the Imdadkhani gharana.

(a) tabla
(b) flute
(c) harmonium
(d) sitar

Q82. Tulsidas Borkar, who was awarded with the Padma Shri in 2016, was a _____ player.

(a) nadhaswaram
(b) shehnai
(c) bansuri
(d) Harmonium

Q83. Dr. Tamilisai Soundararajan was given the additional charge of _____ and was sworn in as the Lt. Governor of this Union Territory in February 2021, apart from being the Governor of Telangana.

(a) Delhi
(b) Puducherry
(c) Lakshadweep
(d) Chandigarh

Q84. Aqua regia is an acidic, corrosive and oxidative mixture consisting of _____ volume/volumes of concentrated hydrochloric acid and one volume of concentrated nitric acid, often used to dissolve gold and platinum.

(a) Two
(b) Three
(c) One
(d) Four

Q85. Maithili Thakur and Lydian Nadhaswaram were bestowed with Sur Jyotsna National Music Awards _____.

(a) 2021
(b) 2020
(c) 2019
(d) 2018

Q86. Which compound has the chemical formula $CHCl_3$ whose melting point is 209 K?

(a) Carbon tetrachloride
(b) Chlorophenol
(c) Chloroform

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(d) Chloroethanol

Q87. Who was the runner-up of Yonex Swiss open 2021 women single badminton tournament?

(a) Jwala Gutta
(b) PV Sindhu
(c) Saina Nehwal
(d) Malvika Bansode

Q88. Who among the following Sadir dancer received the Padma Shri 2022?

(a) Tsering Namgyal
(b) Sulochna Chavan
(c) R Muthukannammal
(d) Thavil KongampattuavMurugaiyan

Q89. The famous Jhaveri sisters are associated with the _____classical dance form.

(a) Odissi
(b) Bharatanatyam
(c) Manipuri
(d) Kathak

Q90. The Northern Plains of India are made of alluvial soil. They are formed by the interplay of which three rivers?

(a) Ganga, Mahanadi, Indus
(b) Indus, Ganga, Brahmaputra
(c) Indus, Mahanadi, Brahmaputra
(d) Brahmaputra, Mahanadi, Ganga

Q91. Which inorganic compound is used to manufacture soap, rayon, paper, explosives, dyes, and petroleum products?

(a) NaOCl
(b) NaOH
(c) CaOCl2
(d) NaHCO3

Q92. Pandit Bhimsen Gururaj Joshi was an Indian classical vocalist born in _____.

(a) Karnataka
(b) Madhya Pradesh
(c) Rajasthan
(d) Maharashtra

Q93. Which State Government will provide financial support to Indian wrestling till 2032 Olympics?

(a) Uttar Pradesh
(b) Bihar
(c) Jharkhand
(d) Karnataka

Q94. Which red-orange pigment found in plants and fruits, especially carrots and colorful vegetables, acts as a powerful antioxidant that can benefit our brain, skin, lungs, and eye health?

(a) Beta-cryptoxanthin
(b) Beta-carotene
(c) Zeaxanthin
(d) Lutein

Q95. ‘Waiting for a Visa’ is an autobiographical work of which of the following leaders of India?

(a) Bhagat Singh
(b) Bipin Chandra Pal
(c) Dr. Bhimrao Ramji Ambedkar

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(d) Lala Lajpat Rai

Q96. Haleem Khan is associated with which of the following classical dances?

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

Q97. What test is used where the elements present in the compound are converted from covalent form into the ionic form by fusing the compound with sodium metal?

(a) Flame test
(b) D-dimer test
(c) Blood test
(d) Lassaigne's test

Q98. Members of Public Accounts Committee are elected for a period of:

(a) one year
(b) two years
(c) five years
(d) three years

Q99. Guru Makar Dhwaja Darogha, was conferred the Padma Shri award for his contribution to which form of dance in India?

(a) Panthi
(b) Saila
(c) Chhau
(d) Raut Nacha

Q100. Which English ecologist was the first to describe the distinctive shape of the food web, which he called the pyramid of numbers?

(a) Arthur Tansley
(b) Eugene Odum
(c) Charles Elton
(d) Ernst Haeckel

ANSWER KEY

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

SOLUTIONS

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Q1. Answer: (a) Polyglot

The solution is in Hindi. Read it online.

Q2. Answer: (b) Abhor

The solution is in Hindi. Read it online.

Q3. Answer: (b) ridikule

The solution is in Hindi. Read it online.

Q4. Answer: (b) A deceitful person

The correct answer is 'a deceitful person'.

Key Points

• A snake in the grass means a person who feigns friendship with the intent to deceive.

• Example: Don't trust him as he is a snake in the grass.

• From the meaning and the example sentence given above, it is clear that a snake in the grass means a deceitful person.

• Hence, the correct answer is option 2.

Q5. Answer: (b) Geity

The erroneously spelled word is 'geity'.

Key Points

• In this question, we need to choose the incorrectly spelled word from the given four options.

• The marked option 'Geity' is erroneous here, as its correct spelling is Gaiety.

• Gaiety means a feeling of happiness and fun.

• Example: Let's enjoy the warmth and gaiety of this year's Diwali eve.

• **Hence, the correct answer is option 2.

Q6. Answer: (c) man of straw

The correct answer is 'man of straw'.

Key Points

• We need to substitute the underlined segment with the correct segment from the following options:

• For this, we need to explore the meaning of the sentences in the options:

• Man of words is a person who can be trusted to keep a promise; he is a reliable person.

• Man of mars is not an idiom

• Man of straw means a man whose character is weak and who lacks definite beliefs.

• Men of grass is not an idiom.

• So, from the given options and from the given sentence context, it is clear that 'man of straw' substitutes the 'man of music' as a comedian is not at all reliable and has a lack of definite beliefs to be a warrior in times of war.

Therefore, the correct answer is option 3.

Q7. Answer: (b) Agitated

The solution is in Hindi. Read it online.

Q8. Answer: (a) wizened

The solution is in Hindi. Read it online.

Q9. Answer: (d) deliberately

The correct answer is 'deliberately'.

Key Points

• We have to choose the appropriate word from the given options to fill the given blank as our marked option.

• The marked option 'deliberately' means on purpose,intentionally.

• Example: He didn't break traffic rules deliberately.

• The given sentence implies that 'Asha was purposefully made a fool by her friend.'

• Hence, the correct answer is option 4.

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Q10. Answer: (a) A happy billionaire is never heard of.

The correct answer is: A happy billionaire is never heard of.

Key Points

• Active Voice describes a sentence where the subject performs the action stated by the verb. While in the Passive Voice, subject is acted upon by the verb.

• The given sentence is written in the Present simple tense.

• The structure of active voice = Subject + V1 + object

• The structure of passive Voice = Object + is/am/are + V3 + by + subject

• Rules of Conversion from Active to Passive Voice:

• Identify the subject, the verb, and the object.

• Change the object into the subject.

• Change the verb into the past participle form of the verb.

• Change the subject into an object.

Therefore, the correct answer is option 1.

Thus the passive voice will be: A happy billionaire is never heard of.

Q11. Answer: (c) The face of health sciences is likely to be altered by the most recent studies on the human body.

The correct answer is: The face of health sciences is likely to be altered by the most recent studies on the human body.

Key Points

• The Active Voice describes a sentence where the subject performs the action stated by the verb. While in the Passive Voice, subject is acted upon by the verb.

• The given sentence is written in the Present simple tense.

• The structure of active voice = Subject + V1 + s/es + object

• The structure of passive Voice = Object + is/am/are + V3 + by + subject

• Rules of Conversion from Active to Passive Voice:

• Identify the subject, the verb, and the object.

• Change the object into the subject.

• Change the verb into the past participle form of the verb.

• Change the subject into an object.

Therefore, the correct answer is option 3.

Thus the passive voice will be: The face of health sciences is likely to be altered by the most recent studies on the human body.

Q12. Answer: (c) flowed besides

The erroneous part is 'flowed besides'.

Key Points

• The given sentence is not grammatically correct.

• The error lies in part 2 of the sentence.

• The given sentence requires an appropriate preposition but here the word 'besides' is an adverb that means in addition to.

• The correct preposition is 'beside' which means next to, at the side of.

• Thus, 'flowed beside' is used instead of 'flowed besides' in the given sentence.

• Hence, the correct answer is option 3.

Correct Sentence: The river flowed beside the hillock in our village.

Q13. Answer: (c) Counter attack

The correct answer is 'counter attack'.

Key Points

• The given Idiom 'Tit for tat' a situation in which you do something unpleasant to somebody because they have done something unpleasant to you.

• Example: It is the maturity to be even more forgiving than tit for tat.

• From the given options, The marked option 'counter attack' is an attack made in response to one by an opponent.

• Therefore, The correct meaning is 'counter attack', and hence the correct answer is option 3.

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Q14. Answer: (b) overcame

The solution is in Hindi. Read it online.

Q15. Answer: (c) the best

The correct answer is 'the best'.

Key Points

• The given sentence needs improvement.

• The underlined segment is erroneous here.

• We need to substitute it with the correct replacement given in one of the options.

• The given sentence implies that an extreme degree of quality in dress is required here.

• This shows superlative form will be used in the sentence and moreover, there is the usage of the definite article 'the' in the given sentence which concludes superlative adjectives will be used here as normally nouns with superlative adjectives normally have the article 'the' with it.

Therefore, the correct answer is 'the best' which is option 3.

Q16. Answer: (c) BDCA

The correct answer is "BDCA"

Key Points

• Let's look at the correct sequence of the passage.

• Sentence B should be the starting point as it introduces the main character Jane, her orphan status, and her situation living with the Reeds.

• Following B, sentence D provides specific information about Jane's age and further emphasizes her status as an outsider in the Reed family.

• After the context regarding Jane's situational living with the Reed family has been established, sentence C naturally follows and delves more deeply into the relationships inside the family, focusing on Jane's female cousins.

• Sentence A continues the examination of Jane's relationships within the family and ends the paragraph with a highlight of Jane's hardship living with the Reeds.

Hence, the correct sequence is B, D, C, A

The correct answer is option 3.

The correct passage is: B. Orphaned as an infant, Jane Eyre lives at Gateshead with her aunt, Sarah Reed, as the novel opens. D. Jane is ten years old, an outsider in the Reed family. C. Her female cousins, Georgiana and Eliza tolerate but don't love her. A. Their brother, John, is more blatantly hostile to Jane, reminding her that she is a poor dependent of his mother.

Q17. Answer: (a) Beautycian

The solution is in Hindi. Read it online.

Q18. Answer: (c) No substitution required

The correct answer is 'no substitution required'.

Key Points

• The given sentence is having an underlined segment.

• We need to substitute the underlined segment if it is having any error with the given context of the sentence.

• Here in the last part of the sentence, we can see the use of 'were' which shows that the given sentence is in the past tense.

• As per the rules of parallelism, the tense of the first part of the sentence should be simple past tense.

• Therefore, 'were informed' will remain like that in the underlined segment.

• The correct answer is option 3.

Q19. Answer: (a) Dangerous

The solution is in Hindi. Read it online.

Q20. Answer: (b) Godsend

The solution is in Hindi. Read it online.

Q21. Answer: (d) to

The correct answer is 'to'.

Key Points

• The given sentence 'Psychologists discovered that there are two routes (1) _____ achievement: conformity and originality' requires an appropriate preposition to be filled in the blank number 1 from the given options.

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• Here, the route is a way of achieving something and the given sentence implies the same meaning.
• Route is used with the preposition 'to' like in this.
• Example: Diligent hard work is the only route to success.
• **Therefore, the correct preposition for the given blank is 'to'.
• Hence, the correct answer is option 4.

Q22. Answer: (a) down

The solution is in Hindi. Read it online.

Q23. Answer: (d) maintaining

The correct answer is 'maintaining'.

Key Points

• The given sentence 'Conformity means following the crowd down conventional paths and (3) _____ the status quo. 'requires an appropriate word to be filled in the blank number 3 from the given options.
• Here and is used as a connector to join these two sentences, it shows that an action or condition is happening right now, frequently, or may happen in the future.
• This shows the usage of the present continuous tense (ing form of the verb).
• The marked option 'maintaining' means to keep something in good condition by checking and repairing it regularly.
• Example: Physical activity is an important factor in maintaining fitness.
• **The given sentence also implies the same sense as the example sentence given above, and hence the most appropriate word for the given blank number 3 is maintaining.
• Therefore, the correct answer is option 4.

Q24. Answer: (d) less

The solution is in Hindi. Read it online.

Q25. Answer: (d) ultimately

The solution is in Hindi. Read it online.

Q26. Answer: (c) Hammer

The logic followed here is:

Logic : In each pair second word is an instrument used for fixing or installing the tool (first word)

• Nut and Bolt : Wrenches

A wrench is a tool used for fixing nut and bolt.

• Screw : Screwdriver

A screwdriver is a tool for driving screws. They have a tip that fits into the head of the screw.

• Nail : ?

Similarly, hammer is a tool used for fixing nail.

Hence, 'Hammer' is the correct answer.

Q27. Answer: (d) 92

The pattern followed here is :

Hence, '92' is the correct answer.

Q28. Answer: (d) 1212523

The positional values of the English alphabet are as follows:

The pattern followed here is:

'GREAT' is coded as '2015187'

'WORK' is coded as '11181523'

'GOING' is coded as '7149157'

Similarly, 'WELL' will be coded as:

Hence, 'option 4' is the correct answer.

Q29. Answer: (b) 22 : 66

The logic followed here is:

Logic : First number × 4 = Second number

Let's check each option:
1) 25 : 100
=> 25 × 4 = 100
2) 22 : 66
=> 22 × 4 = 88 ≠ 66
3) 24 : 96
=> 24 × 4 = 96
4) 18 : 72
=> 18 × 4 = 72
Hence, 'option 2' is the correct answer.

Q30. Answer: (b) 1851

The pattern followed here is as follows:
=> 11 × 1 + 2 = 11 + 2 = 13
=> 13 × 2 + 3 = 26 + 3 = 29
=> 29 × 3 + 4 = 87 + 4 = 91
=> 91 × 4 + 5 = 364 + 5 = 369
=> 369 × 5 + 6 = 1845 + 6 = 1851
Hence, '1851' is the correct answer.

Q31. Answer: (c) Bow

The logic followed here is:
Car : Bonnet
The front part of a car is called bonnet.
Similarly, Boat : ?
The front part of a boat is called bow.
Hence, 'Bow' is the correct answer.

Q32. Answer: (b) [figure]

The figure is given below:
The shaded portion is the embedded figure.
Hence, 'option 2' is the correct answer.

Q33. Answer: (b) AFIMYL

The positional values of English alphabets is as follows:
The pattern followed here is:
“CLIENT” is written as “LCEITN”
“CLOSED” is written as “LCSODE”
Similarly, “FAMILY” will be written as:
Hence, 'AFIMYL' is the correct answer.

Q34. Answer: (b) KPJ

The positional values of the English alphabet is as follows:
The pattern followed here is:
Hence, 'KPJ' is the correct answer.

Q35. Answer: (b) [figure]

The correct mirror image of the given figure when the mirror placed at MN is:
Hence,
is the correct answer.

Q36. Answer: (a) 61

The logic followed here is
Logic : (First number × 2) - 7 = Second number

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• 14 : 21
=> (14 × 2) - 7
=> 28 - 7 = 21
• 47 : 87
=> (47 × 2) - 7
=> 94 - 7 = 87
• 34 : ?
=> (34 × 2) - 7
=> 68 - 7 = 61
Hence, '61' is the correct answer.

Q37. Answer: (c) 141

The logic followed here is:
Logic : First number + Second number = Third number
• First row: 86, 72, 158
=> 86 + 72 = 158
• Second row: 98, 111, 209
=> 98 + 111 = 209
Similarly, third row: 76, 65, ?
=> 76 + 65 = 141
Hence, '141' is the correct answer.

Q38. Answer: (b) [figure]

The figure is given below:
The shaded portion is the embedded figure.
Hence, 'option 2' is the correct answer.

Q39. Answer: (d) +, ×, −, =, ×, +

BODMAS Rule:
Given : 62 * 17 * 6 * 81 * 23 * 2 * 37
Lets check each option:
1) +, =, ÷, −, +, ×
62 + 17 = 6 ÷ 81 - 23 + 2 × 37
62 + 17 = 0.07 - 23 + 2 × 37
62 + 17 = 0.07 - 23 + 74
79 = 74.07 - 23
79 ≠ 51.07
2) −, ×, =, −, +, ×
62 - 17 × 6 = 81 - 23 + 2 × 37
62 - 102 = 81 - 23 + 74
62 - 102 = 155 - 23
• 40 ≠ 132
3) =, −, ×, +, −, +
62 = 17 - 6 × 81 + 23 - 2 + 37
62 = 17 - 486 + 23 - 2 + 37
62 = 77 - 488
62 ≠ - 411
4) +, ×, −, =, ×, +
62 + 17 × 6 - 81 = 23 × 2 + 37
62 + 102 - 81 = 46 + 37
164 - 81 = 83
83 = 83
Hence, '+, ×, −, =, ×, +' is the correct answer.

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Q40. Answer: (b) Green

The logic followed here is:

Red and yellow are common in both the dices.

Clearly, Green will be on the face opposite to the White.

Hence, 'Green' is the correct answer.

Q41. Answer: (a) [figure]

The logic followed here is:

When the folder paper is opened, the cuts will appear as follow

Hence, option 1) is the correct answer.

Q42. Answer: (c) 5, 4, 3, 2, 1

The option that represents the correct order of the given words as they would appear in an English dictionary is shown below:

5. Salesman

4. Salmon

3. Salvation

2. Sanctuary

1. Sanitization

Hence, '5, 4, 3, 2, 1' is the correct answer.

Q43. Answer: (a) 5, 4, 2, 1, 3

The option that represents the correct order of the given words as they would appear in an English dictionary is shown below:

5. Cucumber

4. Culinary

2. Culminate

1. Curator

3. Curriculum

Hence, '5, 4, 2, 1, 3' is the correct answer.

Q44. Answer: (c) +, –, ÷, ×, =

BODMAS RULE:

Let's check each option:

1. ÷, ×, +, –, =

Given equation: 25 * 5 * 10 * 2 * 4 * 10

After replacing the signs with mathematical operators, we get:

=>25 ÷ 5 × 10 + 2 - 4 = 10

=>5 × 10 + 2 - 4 = 10

=>50 + 2 - 4 = 10

=>52 - 4 = 10

=> 48 ≠ 10

2.×, ÷, –, +, =

Given equation: 25 * 5 * 10 * 2 * 4 * 10

After replacing the signs with mathematical operators, we get:

=>25 × 5 ÷ 10 - 2 + 4 = 10

=>25 × 0.5 - 2 + 4 = 10

=>12.5 - 2 + 4 = 10

=> 14.5 ≠ 10

3. +, –, ÷, ×, =

Given equation: 25 * 5 * 10 * 2 * 4 * 10

After replacing the signs with mathematical operators, we get:

=>25 + 5 - 10 ÷ 2 × 4 = 10

=>25 + 5 - 5 × 4 = 10

=>25 + 5 - 20 = 10

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=> 10 = 10

4. ÷, ×, –, +, =

Given equation: 25 * 5 * 10 * 2 * 4 * 10

After replacing the signs with mathematical operators, we get:

=>25 ÷ 5 × 10 - 2 + 4 = 10

=>5 × 10 - 2 + 4 = 10

=>50 - 2 + 4 = 10

=> 52 ≠ 10

Hence, "+, –, ÷, ×, =" is the correct answer.

Q45. Answer: (d) 129

The logic followed here is:

Second number = (First number)^3 + (Third number)^2

First row- 2, 57, 7 → $2^3 + 7^2 = 8 + 49 = 57$

Second row- 6, 225, 3 → $63 + 32 = 216 + 9 = 225$

Similarly,

Third row- 5, ?, 2 → $53 + 22 = 125 + 4 = 129$

Hence, 129 is the correct answer.

Q46. Answer: (a) Only conclusions I and III follow

The least possible Venn diagram is as follows:

Conclusions:

I. All compasses are erasers. → True (because all sharpeners are erasers and all compasses are sharpeners.)

II. Some compasses are pencils. → False (because no compass is pencil, all compasses are sharpeners.)

III. Some erasers are compasses. → True (because sharpeners, pencils, compasses, all are erasers.)

Hence, “Only conclusions I and III follow”.

Q47. Answer: (c) K Y P W

Given: A B Z _ P A B _ K P A B X K _ A B _ K P

Let's check each option:

1) A C B Z → A B Z A P - A B C K P - A B X K B - A B Z K P

2) A Y Z W → A B Z A P - A B Y K P - A B X K Z - A B W K P

3) K Y P W → A B Z K P - A B Y K P - A B X K P - A B W K P

• Here we can see a pattern.

• 3rd letter is decreasing by -1, rest letters are the same.

• Z - 1 = Y; Y - 1 = X; X - 1 = W

4) K C Z W → A B Z K P - A B C K P - A B X K Z - A B W K P

Hence, ‘K Y P W’ is the correct answer.

Q48. Answer: (b) 1284

The logic followed here is:

1724 - 8 = 1716

1716 - 27 = 1689

1689 - 64 = 1625

1625 - 125 = 1500

1500 - 216 = 1284

Hence, 1284 is the correct answer.

Q49. Answer: (d) 24 : 8

The logic followed here is:

First number ÷ 6 = Second number

1) 42 : 7 => 42 ÷ 6 = 7

2) 36 : 6 => 36 ÷ 6 = 6

3) 48 : 8 => 48 ÷ 6 = 8

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4) 24 : 8 => 24 ÷ 6 = 4 ≠ 8

Hence, "24 : 8" is the odd one.

Q50. Answer: (d) 26

The number of triangles in given figure is as shown below

Therefore There are 26 triangles in the given figure.

Hence, the correct answer is "26".

Q51. Answer: (a) 38

FORMULA USED:

Range = Highest number - lowest Number

Average =) sum of number/total number

CALCULATIONS:

For finding the range,

we have to first arrange the number in ascending order

The range of the number of participants in the different Olympiads from College C is

=> 125,80,250,150,120

arrange in ascending order, we get

=> 80, 125, 120, 150, 250

For the range of college C

=> Range = Highest Number - Lowest Number

=> 250 - 80

=> 170

For an average student in college E

=> average = sum of number/total number (=(112+105+180+80+183)/5=660/5=132

The difference between the Range of college C and the average of College E = Range- Average

=> 170 - 132

=> 38

Therefore The difference is 38.

Q52. Answer: (d) 42 kg

GIVEN:

The Group Leader of a group of 6 students reported that their average weight is 46 kg

For their individual weights, 5 of them answered: 50 kg, 52 kg, 40 kg, 44 kg, 48 kg

FORMULA USED:

average= (sumof weightofallstudent)/(total no of student)

CALCULATIONS:-

=> Let the weight of the 6th student= x kg

=> The average weight of all student

=> average= (sum of weight of all student)/(total no of student)

=> 46 = (50+52+40+44+48+x)/6

=> 276 = 234 + x

=> x = 276 - 234 = 42kg

=> Hence, The weight of the 6th student is 42kg

Q53. Answer: (a) 7

GIVEN:

The number is 23_45678

Divisible by 22

Concept Used:

The divisibility rule of 11 is the difference between the sum of the odd place of a number and the sum of even place is equal to 0 or 11

The divisibility rule of 2 is the last digit of the number must be divisible by 2

CALCULATIONS:-
Let the blank place digit is x
If a number is divisible by 22 then the number also divisible by 2 and 11
Then the divisibility rule of 2 is the last digit of the number must be divisible by 2
The last digit of the number is divisible by 2
It satisfies the divisibility rule of 2
For the divisibility rule of 11
=> Sum of digits of odd place = 2 + x + 5 + 7 = 14 + x
=> Sum of digits of even place = 3 + 4 + 6 + 8 = 21
The difference is,
=> 21 - (14 + x) = either 0 or 11
For 0
=> 21 - (14 + x) = 0
=> 21 - 14 - x = 0
=> x=7
For 11
=> 21 - (14 + x) = 11
=> 21 - 14 - x = 11
=> x = 7 - 11
=> x = -4
The digit cannot be negative
=> x = 7
Hence, The smallest natural number to be filled in the blank is 7

Q54. Answer: (a) 75%

GIVEN:
The cost price of 70 articles is equal to the selling price of 40 articles
FORMULA USED:
profit%= profit/costprice× 100
CALCULATIONS:
The cost price of 70 articles is equal to the selling price of 40 articles
=> CP x 70= SP x 40
=> CP/SP=4/7
Let CP=Rs.4 and SP=Rs.7
=> Profit = SP - CP = 7 - 4 = Rs. 3
Profit Percentage is
=> Profit% =profit/costprice× 100=3/4× 100=3× 25=75
=> The Profit percentage is 75%

Q55. Answer: (a) Rs. 130

Shortcut Trick
Let the Selling Price (SP) of 1 article be 1 unit.
Total SP of 80 articles = 80 units.
Loss = SP of 6 articles = 6 units.
Cost Price (CP) = SP + Loss = 80 + 6 = 86 units.
Given 86 units = Rs. 11,180 => 1 unit = 11,180 ÷ 86 = Rs. 130.
Therefore The correct answer is Rs. 130.
Alternate Method
Given: Total CP = Rs. 11,180, Number of articles = 80, Loss = 6 × SP.
Formulas: Loss = CP − SP | SP of 1 article = Total SP ÷ Quantity.
=> Loss = CP − SP
=> 6 × SP1 = 11,180 − 80 × SP1

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=> 86 × SP1 = 11,180
=> SP1 = 11,180 ÷ 86
=> SP1 = Rs. 130
Therefore The correct answer is Rs. 130.
Additional Information
Loss in terms of SP
When loss is given as SP of 'n' articles, CP = (Quantity + n) × SP of 1 article.
Profit in terms of SP
When profit is given as SP of 'n' articles, CP = (Quantity − n) × SP of 1 article.

Q56. Answer: (a) 40

GIVEN:
a + b + c =10
ab + bc + ca = 30
FORMULA USED:
(a + b + c)2 = (a2 + b2 + c2 + 2(ab + bc + ca))
CALCULATIONS:
=> a + b + c =10 & ab + bc + ca = 30
=> $(a + b + c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca)$
=> $10^2 = a2 + b2 + c2 + 2(30)$
=> 100 - 60 = a2 + b2 + c2
=> a2 + b2 + c2 = 40
Therefore The value of a2 + b2 + c2 is 40.

Q57. Answer: (d) 420 gm

Given:
Percentage of sugar in 700 grams cane sugar solution = 60%
Required percentage = 75%
Calculation:
=> Amount of sugar in 700 gms solution = 60% of 700
=> Amount of sugar in 700 gms solution = 60/100× 700=60× 7=420 grams
=> Let x grams of sugar is added in the solution.
=> According to the question,
=> (420+x)/(700+x)=75/100
=> 4(420 + x) = 3(700 + x)
=> 1680 + 4x = 2100 + 3x
=> 4x – 3x = 2100 – 1680
=> x = 420 grams
Therefore, 420 grams of sugar should be added in to solution to make the sugar percentage equals to 75%.

Q58. Answer: (b) 7

Given:
The sum of the two numbers is 25
Their product is 144
Formula used:
$(a - b)^2 = (a + b)^2 - 4ab$
Calculation:
We have
x + y = 25 -----(1)
=> xy = 144 -----(2)
By using the above identity
$(x - y)^2 = (x + y)^2 - 4xy$
(x - y)2 = (25)2 - 4 × 144

(x - y)2 = 625 - 576
(x - y)² = 49
(x - y) = 7
Therefore The answer is 7.

Q59. Answer: (b) 45

Given:
A = 24 days
B = 80 days
B works alone for 2 days and A works alone on the 3rd day
Formula Used:
Work = Time × Efficiency
Calculation:
A = 24 days
B = 80 days
B works alone for 2 days and A works alone on the 3rd day.
Work completed in 3 days = 2× 1/80+1/24
Work completed in 3 days = 1/40+1/24=(3+5)/120=8/120=1/15
Work completed in 3 days = 15 units
Total work is completed in = 3× 15=45 days
Therefore the whole work is completed in 45 days.
Shortcut Trick Time Work Efficiency
=> A 24 240 10
=> B 80 240 3
B works alone for 2 days and A works alone on the 3rd day
work done in 3 days = 3 + 3 + 10 = 16
=> T = 240/16
=> T = 15 times
=> T = 15 × 3
=> T = 45 days
Therefore The time taken to complete the task is 45 days.

Q60. Answer: (c) Rs. 10

Given:
P=1000, R=20%, T= 1year
Formula used:
SI = (P× R× T)/100
A = P(1+R/100)^T
P= Principal
R= Rate of interest
T= Time
A = Amount
Calculation:
for compounded half-yearly, the rate gets halved and time gets doubled
=> R = 20/2
=> R = 10%
=> T = 1 × 2
=> T = 2 years
For SI
=> SI = (P× R× T)/100
=> SI = (1000×10×2)/100
=> SI = Rs. 200

For CI
=> A = P(1+R/100)^T=1000(1+10/100)²
=> A = 1000(1+1/10)²
=> A = 1000(11/10 × 11/10)
=> A = Rs. 1210
=> I = A - P
=> I = 1210-1000
=> I = Rs. 210
Difference = CI - SI
=> 210-200
=> Rs.10
Therefore The answer is Rs. 10.

Q61. Answer: (d) 19404 cm³

Given:
The radius of the hemisphere is 21 cm
Formula used:
volume of hemisphere= 2/3× π× r³
Calculation:
The radius of the hemisphere=21cm
The volume of hemisphere,
=> 2/3× π× r³
=> 2/3× 22/7× 21× 21× 21
=> 2 × 22 × 3 × 7 × 21
=> 19404 cm³
The volume of the hemisphere is 19404 cm3.

Q62. Answer: (b) 240 m

Given:
Rakesh runs 4/3 times as fast as Mukesh
Mukesh has a lead of 60 m
Formula used:
Distance = Speed × Time
Calculation:
Here, let us assume the speed of mukesh be 3y
Then, rakesh speed is 4/3 times = 4/3× 3y = 4y
Now, let us take total distance be x
As, rakesh gives a lead of 60m to mukesh
So, distance of rakesh covered = x
Distance covered by mukesh = x - 60
According to the given question, both will meet at the same time
So,
Distance is directly proportional to Speed
=> x/ (x - 60) = 4y/3y
=> x/(x - 60) = 4/3
=> 3x = 4x- 240
=> x = 240 m
Hence, at the distance of 240m from the starting point both of them will meet.

Q63. Answer: (a) 7.14%

GIVEN:-
Formula Used:
Percentage= (intital value-final value)/(initial value)× 100

CALCULATIONS:-

From the above table,

Quality of food grains in 2018 is 70 (1000 ton)

Quality of food grains in 2019 is 65 (1000 ton)

Percentage decreased =(intital value-final value)/(initial value)× 100=(70-65)/70=5/70×100=7.14

The percentage drop in the production of food grains from 2018 to 2019 is 7.14

Q64. Answer: (c) c = a3 + 3ab and d = b3

Given:

x2 = b - ax and x3(x3 + c) = d

Concept used:

If ax + b = c

And 2x + 1 = 3 then, by comparison method, we have:

a = 2

b = 1

and c = 3

Calculations:

x2 = b - ax

=>x2 - b = (- ax)

On dividing by x,

=>x - b/x = (- a) ----------(1)

On cubing both sides, we get:

=>(x - b/x)³ = (- a)³

=>x³ - (b³)/(x³) - 3b(x - b/x) = - a³

From equation (1), we have:(x - b/x) = - a

=>x3 - (b³)/(x³) - 3b(- a) = - a3

=>x3 - (b³)/(x³) = - (a3 + 3ab) ----------(2)

And x3(x3 + c) = d

=>(x3 + c) = d/(x³)

=>(x3 - d/(x³)) = (- c) ----------(3)

Now, by using the concept of comparison method from equations(1) and (2) and (3), we get:

Coefficient of (- 1/(x³)) = d = b³

And Constant terms = - c = - (a3 + 3ab)

=>c = (a3 + 3ab)

Therefore The Required value of c = (a3 + 3ab) and d = b³.

Shortcut Trick

(a - b)³ = a³ - 3ab(a-b) - b³

=>(x - b/x)3 = (- a)3

=>x3 - (b³)/(x³) = - (a3 + 3ab)

=> x³+ (a3 + 3ab) = (b³)/(x³)

=>x³(x3 + (a3 + 3ab) =b³

compairing the equation with x3(x3 + c) = d

we get c = (a3 + 3ab) and d = b3

Q65. Answer: (a) 3

GIVEN:

A bike is purchased for Rs. 50,000

Its rate depreciates at 10% annually

FORMULA USED:

Interest= P× (1+R/100)^T

Where P= The amount lent

R= Interest at the amount lent

T= Year amount lent for

CALCULATIONS:

=> The rate of interest depreciates annually is

=> The value of the bike after T years= its value T years ago ×(1− R/100)^T

=> 36450=50000×(1+(-10)/100)^T

=> 729=1000×(1-1/10)^T

=> 729/1000=(9/10)^T

=> $(9/10)^3 = (9/10)^T$

=> On comparing both sides, we get

=> T = 3yrs

=> The value of the bike will be Rs. 36,450 after 3 years

Q66. Answer: (d) 71

Given:

2945 ÷ 19 – 11 × 5 = 29 + a

Formula used:

Calculation:

Simplifying the given equation and solving for a,

2945 ÷ 19 – 11 × 5 = 29 + a

155 - 55 = 29 + a

a = 100 - 29 = 71

Therefore The value of a is 71.

Q67. Answer: (c) Rs. 1,000

Given:

15 kg of sugar cost Rs. 600

Formula used:

Rate of an item = (amount of some quantity)/quantity

Calculation:

Cost of 1kg sugar (in Rs.)= 600/15= 40

Therefore The cost of 25 kg of sugar is 40 × 25 = Rs. 1000.

Q68. Answer: (b) Rs. 300

Shortcut Trick

Cost Price (CP) = Rs. 380 and Loss = Rs. 140.

Selling Price (SP) = CP − Loss = 380 − 140 = Rs. 240.

Since a 20% discount is given on the Marked Price (MP), SP = 80% of MP.

80% of MP = Rs. 240 => 100% of MP = (240 ÷ 80) × 100 = 3 × 100 = Rs. 300.

Therefore The correct answer is Rs. 300.

Alternate Method

Given: CP = Rs. 380, Loss = Rs. 140, Discount% = 20%.

Formulas: SP = CP − Loss | MP = SP × 100 ÷ (100 − Discount%)

=> Step 1: Calculate Selling Price (SP) = CP − Loss = 380 − 140 = 240.

=> Step 2: Relate SP to Marked Price (MP). SP = MP × (1 − 20/100) = MP × 0.8.

=> Step 3: MP = 240 ÷ 0.8 = 300.

Therefore The correct answer is Rs. 300.

Additional Information

Marked Price & Discount

Discount is always calculated on the Marked Price (MP). Formula: SP = MP − Discount.

Loss and Selling Price

When Cost Price (CP) is greater than Selling Price (SP), a loss occurs. Formula: Loss = CP − SP.

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Q69. Answer: (a) 4312 √3

Shortcut Trick

For a sphere circumscribing a cube, its diameter is equal to the body diagonal of the cube.

Diameter = a√3 = 14√3 cm => Radius (r) = 7√3 cm.

Volume of the sphere = (4/3) × π × r^3

Volume = (4/3) × (22/7) × $(7\sqrt{3})^3$ = 4312√3 cm^3.

Therefore The correct answer is 4312√3 cm^3.

Alternate Method

Given:

Side of the cube (a) = 14 cm

Formula Used:

Diameter of a circumscribed sphere (D) = Body diagonal of the cube = a√3

Volume of a sphere = (4/3)πr^3

Calculations:

=> Diameter of the sphere (D) = 14√3 cm

=> Radius of the sphere (r) = D ÷ 2 = 7√3 cm

=> Volume of the sphere = (4/3) × (22/7) × $(7\sqrt{3})^3$

=> Volume = (4/3) × (22/7) × (343 × 3√3)

=> Volume = 4 × 22 × 49 × √3

=> Volume = 88 × 49 × √3

=> Volume = 4312√3 cm^3

Therefore The correct answer is 4312√3 cm^3.

Additional Information

Sphere Circumscribing a Cube

The sphere passes through all eight vertices of the cube. Its diameter is equal to the body diagonal: D = a√3.

Sphere Inscribed in a Cube

The sphere touches all six faces of the cube. Its diameter is equal to the side length of the cube: D = a.

Key Mensuration Formulas

Total Surface Area of a Cube = $6a^2$ | Total Surface Area of a Sphere = $4\pi r^2$.

Q70. Answer: (b) 301.71 cm^3

Given:

The height and slant height of a right circular cone are 8 cm and 10 cm, respectively

Formula used:

Volume of the cone = 1/3π (l^2- h^2)h, where 'l' and 'h' are the slant height and height of the cone.

Calculation:

Volume of the cone = 1/3× 22/7× (10^2 -8^2)× 8 = 301.71cm^3

Therefore The volume of the given cone is 301.71 cm3

Q71. Answer: (c) Rs. 40

Given:

A family spends Rs. 240 per month to buy sugar. A rise of 25% in the price of sugar compels the family to reduce the monthly consumption of sugar by 1.5 kg as it decides to spend the same amount of money on purchase of the commodity.

Formula used:

Rate × quantity = total cost

Calculation:

Let the old price of the sugar per kg be x and the number of kg of sugar purchased by the family be y.

Then, xy = 240

After the new price, 1.25x(y-1.5)=240

Substituting y=240/x and solving for x,

1.25x (240/x-1.5)=240

1.25×240-1.25× 1.5x=240

x=60/(1.25 × 1.5)=32

125% of 32 = 1.25 × 32 = 40

Therefore The increased price of the sugar is Rs. 40 per kg.

Q72. Answer: (c) 11.1

Given:

A table showing the numbers of laptops of three different brands sold from four different multi-brands store in the city during a certain month is given.

Formula used:

percentage difference of x from y = (y-x)/x× 100

Calculation:

(50-45)/45× 100=1/9× 100=11.1%

Therefore The number of Lenovo Laptop sold by stores A during the given month is 11.1% more than the number of Dell laptops sold by Store D during the same month.

Q73. Answer: (c) angle ABC

Given:

ΔABC is inscribed in a circle and DE is tangent to it.

Formula used:

The alternate segment theorem,

• The angle between a tangent and a chord at the point of contact is equal to the angle made by the chord in the alternate segment of the circle.

Calculation:

According to the alternate segment theorem, the angle between a tangent and a chord at the point of contact is equal to the angle made by the chord in the alternate segment of the circle

=>angle ABC = angle ACD

Therefore The Required angle is angle ABC.

Q74. Answer: (b) -5/12

Given:

(x - xcosec²30°)/(1 + cosec²30°) = cos260° + 4cot245° – sec260°

Concept Used:

Trigonometric Values Substitution

Calculation:

=> (x - xcosec²30°)/(1 + cosec²30°) = cos260° + 4cot245° – sec260°

=> Putting the trigonometric values, we get

=> cosec 30º = 2, cos 60º = 1/2, cot 45º = 1, sec 60º = 2

=> (x-x× 2²)/(1+2²)=(1/2)² + 4 × 1 -2²

=> (-3x)/5=1/4+ 4-4

=> -3x=1/4× 5=5/4

=> x=-5/(4× 3)=-5/12

Hence, the required value of x is -5/12.

Q75. Answer: (b) 331/3%

Given:

An article price was reduced by 25%.

Formula used:

percentage increase = (new price)/(old price)× 100 - 100

Calculation:

Let the old price of the article be Rs.100, which reduced to Rs. 75.

percentage increase = 100/75× 100-100 =133.3 -100=33.3

Therefore The present price of the article must be increased by 331/3% to restore its former value.

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Q76. Answer: (b) Sonu Sood

The correct answer is Sonu Sood.

Key Points

• Sonu Sood's autobiography 'I am no Messiah' is out now; Rajkumar and Aparshakti congratulate the actor.

• Sonu Sood, who has worked towards helping the needy during the ongoing Covid-19 pandemic has inspired and won the hearts of many.

• The book will be co-authored by Meena Iyer.

Additional Information

• Sachin Ramesh Tendulkar is an Indian former international cricketer who captained the Indian national team.

• He is regarded as one of the greatest batsmen in the history of cricket.

• Paramahansa Yogananda was an Indian Hindu monk, yogi and guru who introduced millions to the teachings of meditation and Kriya Yoga through his organization.

• Avul Pakir Jainulabdeen Abdul Kalam was an Indian aerospace scientist and statesman who served as the 11th President of India from 2002 to 2007.

• He was born and raised in Rameswaram, Tamil Nadu and studied physics and aerospace engineering.

Q77. Answer: (b) Kiran Desai

The correct answer is Kiran Desai

Key Points

• The Inheritance of Loss is the second novel by Indian author Kiran Desai.

It was first published in 2006.

It won several awards, including the Man Booker Prize for that year, the National Book Critics Circle Fiction Award in 2007, and the 2006 Vodafone Crossword Book Award.

Additional Information

• Susanna Arundhati Roy is an Indian author best known for her novel The God of Small Things, which won the Man Booker Prize for Fiction in 1997.

• Rasipuram Krishnaswamy Iyer Narayanaswamy was an Indian writer, best known for his work in the fictional South Indian town of Malgudi.

• Vikram Seth CBE, FRSL is an Indian novelist and poet. He has written several novels and poetry books.

• He has received many awards like Padma Shri, Sahitya Akademi Award, Pravasi Bharatiya Samman, WH Smith Literary Award and Crossword Book.

Q78. Answer: (a) Asian Champions Trophy

The Correct answer is Asian Champions Trophy.

Key Points

• Indian men's hockey team led by Manpreet Singh finished their Asian Champions Trophy 2021 campaign on Wednesday in Dhaka

• With a 4-3 win over arch-rivals Pakistan and earned the bronze medal in the coveted tournament.

• India came from behind to win the thrilling match 5-4 and bagged their first Olympic hockey medal since 1980.

Additional Information

• The Moin-ud-Dowlah Gold Cup Tournament is an Indian cricket competition that has been held in Hyderabad from 1930-31

• The ICC Champions Trophy is a One-Day International cricket tournament organized by the International Cricket Council. The 2013 tournament was intended to be the final edition of the Champions Trophy, but it was extended to 2017 due to its widespread popularity.

• A right-arm off-spinner highest class, Ghulam Ahmed was a gentleman cricketer.

• He represented India for a decade with Vinoo Mankad and Subash.

Q79. Answer: (b) Fiduciary money

The correct answer is Fiduciary Money.

Key Points

• Fiduciary money is money that is accepted as a medium of exchange due to the trust that exists between the payer and the payee.

• Cheques are fiduciary money as these are accepted as a means of payment on the basis of trust but not on the basis of any order of the government.

• Fiduciary money, or currency, refers to banknotes and coins in circulation in the economy.

• This is the liquidity available to economic sectors to carry out transactions.

Additional Information

• Credit money is the creation of monetary value through the establishment of future claims, obligations, or debts.

• Fiat money is a type of currency that is not backed by any commodity such as gold or silver. It is typically declared by a decree from the government to be legal tender.

• Full-bodied money has a face value not in excess of its intrinsic value as a commodity.

Q80. Answer: (d) Archery

The correct answer is Archery.

Key Points

• Archery, is a sport involving shooting arrows with a bow, either at an inanimate target or in hunting.

• An arrow is a pointed projectile that is shot with a bow.

• It predates recorded history and is common to most cultures.

• A sport that exudes the values of patience, precision, and concentration, archery has evolved into a global sport in modern times.

• It is defined as the act of using bows and arrows, the word 'archery' comes from the Latin word 'arcus', which meant bow.

Additional Information

• Shooting games involve shooting enemies or objects in multiplayer and single-player environments. These games often test your reflexes, spatial awareness, and aiming skills.

• Fencing is a group of three related combat sports. The three disciplines in modern fencing are the foil, winning points are made through the weapon's contact with an opponent.

• Boxing is a sport that involves two athletes fighting each other, trying to punch their opponent with padded gloves on their fists.

• Fights usually last 3-12 rounds, with each round usually lasting three minutes.

Q81. Answer: (d) sitar

The correct answer is Sitar.

Key Points

• Rajeev Janardan is an Indian classical sitar player of the Imdadkhani Gharana (school), taught by Bimalendu Mukherjee.

• Rajeev Janardan plays the most melodious and the fastest Sitar, and distinguished Guru of the famous Imdadkhani Etawah Gharana (Musical Tradition).

• Pt. Rajeev Janardan is an exponent of Hindustani Classical Music and is recognized as one of the greatest Sitar & Surbahar players of his generation.

• Rajeev Janardan is a classical sitar player in the Hindustani style.

Additional Information

• Pandit Kumar Bose was the exponent of Tabla.

• Ronu Mazumdar is a well-known exponent of flute whereas Debu Chaudhuri is an exponent of sitar and Sahafaat Ahmad is an exponent of tabla.

• Pandit Tulsidas Borkar was the great exponent of Harmonium.

Q82. Answer: (d) Harmonium

The correct answer is Harmonium.

Key Points

• Borkar made a name for himself as an accomplished harmonium player and was conferred with the Padma Shri award in 2016.

• He was also a recipient of the Sangeet Natak Akademi Award.

• Borkar was known for both solo performances as well as his unique style of accompanying Indian classical singers.

• Pandit Tulsidas Borkar had been diagnosed with tuberculosis and was treated in Mumbai's Nanavati Hospital.

• But, due to old age, his body didn't respond well to the treatment.

• He died at the age of 83 on 29 September 2018 at 10:20 A.M. in Mumbai.

Additional Information

• The nadaswaram is a wind instrument made of wood and metal that is found in both classical and folk traditions in South India.

• The sound of shehnai can be described as a cross between an oboe and a muted trumpet.

• A bansuri is an ancient side-blown flute originating from the Indian subcontinent.

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Q83. Answer: (b) Puducherry

The correct answer is Puducherry.

Key Points

• Tamilisai Soundararajan was sworn in as Lt. Governor of Puducherry (additional charge) on 18 February 2021.

• Chief Justice of Madras High court Justice Sanjeeb Banerjee administered the oath of office and secrecy to her

• Telangana Governor Tamilisai Soundararajan, who was given additional charge of Puducherry, was sworn in as Lt Governor of the Union Territory.

Additional Information

• The present lieutenant governor of Delhi is Vinai Kumar Saxena.

• Shri Praful Patel is the present lieutenant governor of Lakshadweep.

• Shri Banwarilal Purohit, Hon'ble Governor of Punjab & Administrator of Chandigarh.

Q84. Answer: (b) Three

The correct answer is Three.

Key Points

• Aqua Regia (Latin for “royal water”) is an acidic, corrosive, and oxidative mixture of three parts concentrated hydrochloric acid (HCl) and one part concentrated nitric acid (HNO3).

• Aqua regia or nitro-hydrochloric acid is a highly corrosive mixture of acids, a fuming yellow or red solution.

• Aqua regia or nitro-hydrochloric acid is a highly corrosive mixture of acids, a fuming yellow or red solution.

• The mixture is formed by freshly mixing concentrated nitric acid and hydrochloric acid, optimally in a volume ratio of 1:3.

Additional Information

• Aqua Regia (HNO3 + 3HCl) is used to etch gold or platinum.

• Optimally it is in a molar ratio of 1 part nitric acid to 3 parts hydrochloric acid.

• When freshly mixed is clear, turns yellow very quickly and eventually red.

Q85. Answer: (a) 2021

The correct answer is 2021.

Key Points

• Talented singer Maithili Thakur and young musician Lydian Nadhaswaram, are the winners of the 8th edition of Sur Jyotsna National Music Awards 2021.

• She was honoured at the hands of Union Information and Broadcasting minister Anurag Singh Thakur at a glittering award ceremony at Kamani Auditorium.

• Maithili Thakur is an Indian playback singer trained in Indian classical music and Folk Music.

• She has sung original songs, covers, and traditional folk music prominently in Hindi, Bengali, Maithili, Urdu, Marathi, Bhojpuri, Punjabi, Tamil, English, and more Indic languages.

Additional Information

• Sur Jyotsna National Music Awards (SJNMA) is one of the most definitive platforms that honour aspiring young talent in Indian Classical & Popular music.

• Instituted by the Lokmat Media Group in memory of Late Smt. Jyotsna Darda, SJNMA's mission is to identify and recognize music talent at the National level.

• Sur Jyotsna National Music Awards (SJNMA) is one of the most definitive platforms that honour aspiring young talent in Indian Classical & Popular music.

Q86. Answer: (c) Chloroform

The correct answer is Chloroform.

Key Points

• Chloroform, or trichloromethane, is an organic compound with the formula CHCl3.

• It is a colourless, strong-smelling, dense liquid that is produced on a large scale as a precursor to PTFE.

• It is also a precursor to various refrigerants. It is one of the four chloromethanes and a trihalomethane.

• Chloroform is used as a solvent, a substance that helps other substances dissolve.

• Also, it is used in the building, paper, and board industries, and in pesticide and film production.

Additional Information

• Carbon tetrachloride chemical structure. CCl4 is a clear, nonflammable, heavy liquid that evaporates readily, producing a sweet characteristic odour similar to chloroform.

• A chlorophenol is any organochloride of phenol that contains one or more covalently bonded chlorine atoms.

• 2-Chloroethanol is primarily used for the synthesis of ethylene oxide and a number of synthetic reactions for the preparation of dyes, pharmaceuticals, biocides, and plasticizers.

• It is also used for the manufacture of thiodiglycol.

Q87. Answer: (b) PV Sindhu

The correct answer is PV Sindhu.

Key Points

• PV Sindhu was the Runner-up of the Yonex swiss open 2021 women's singles tournament.

• Indian badminton star PV Sindhu won the women's singles title at the Singapore Open 2022.

• PV Sindhu, seventh in the badminton world rankings, took 58 minutes to defeat world No.11 Wang Zhi Yi 21-9, 11-21, 21-15.

• This was two-time Olympic medallist PV Sindhu's third title of the year.

Additional Information

• Jwala Gutta is an Indian badminton player. Beginning in the late 1990s, she represented India at international events in both mixed and women's doubles.

• She has a total of 316 match wins in both disciplines—the most by any Indian—and peaked at no. 6 in the world rankings.

• Saina Nehwal is an Indian professional badminton player. A former world no. 1, she has won 24 international titles, which includes ten Superseries titles.

• Malvika Bansod is an Indian badminton player from Nagpur, Maharashtra.

• She has won international titles such as the Maldives International Future Series Badminton Tournament and the Annapurna Post International Series, Nepal in 2019.

Q88. Answer: (c) R Muthukannammal

The correct answer is R Muthukannammal.

Key Points

• R Muthukannamal, 82, is ecstatic that she has won the Padma Shri in the arts category for Sathir.

• An ancient dance form that is a predecessor of the more popular Bharathanatyam, in which she performed her "arangetram" (on stage debut) when she was only 7 years old.

• R Muthukannammal is a seventh-generation veteran Sadir dancer from the Indian State of Tamil Nadu.

• Devadasis (meaning servants of the divine) were associated with Sadir, a traditional form of solo dance performed in temples and royal courts and to select audiences in private places.

Additional Information

• Jamyang Tsering Namgyal is an Indian politician and Member of Parliament from Ladakh, India's largest parliamentary seat geographically.

• Sulochana Kadam, known as Sulochana Chavan is an Indian singer, known for her lavanis in Marathi.

• Thavil Kongampattu A V Murugaiyan (born 1964) is a thavil player from the Puducherry Union Territory in India.

Q89. Answer: (c) Manipuri

The correct answer is Manipuri.

Key Points

• Darshana Jhaveri, a classical Manipuri dancer, research scholar and teacher is one of the four internationally renowned Jhaveri sisters, whose name has become synonymous with Manipuri dance.

• The Manipuri Dance, also referred to as the Manipuri Raas Leela is one of the eight major Indian classical dance forms, originating from the state of Manipur.

• It was in the reign of King Bhagyachandra that the popular Rasleela dances of Manipur originated.

• It is said, that this 18th-century philosopher king conceived this complete dance form along with its unique costume and music in a dream.

Additional Information

• Odissi also referred to as Orissa in old literature, is a major ancient Indian classical dance that origin in the Hindu temples of Odisha – an eastern coastal state of India.

• Bharatanatyam is a major form of Indian classical dance that originated in Tamil Nadu.

• Kathak is one of the eight major forms of Indian classical dance.It is the classical dance form of Uttar Pradesh.

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Q90. Answer: (b) Indus, Ganga, Brahmaputra

The correct answer is Indus, Ganga, Brahmaputra.

Key Points

• The northern plain has been formed by the interplay of the three major river systems, namely — the Indus, the Ganga, and the Brahmaputra along with their tributaries.

• Northern Plains were formed by the sediments brought in by three major Himalayan rivers (Ganga, Indus and the Brahmaputra their tributaries.

• When these rivers flowed through the Himalayas, they eroded rocks, and transported and deposited the smaller fragments of rocks in the foothills of the Himalayas.

Additional Information

• The Indus river, the Ganga river, and the Brahmaputra river comprise the Himalayan river systems.

• Ganga-Brahmaputra is a river basin. As a result, it gets flooded every now and then. Therefore the bulk of the soil present in the basin region will be alluvial soil.

• Most alluvial soils are derived from the sediment being deposited by the river Ganga in the Indo–Gangetic plain, ranging from Punjab in the west to West Bengal and Assam in the east, as well as in the coastal areas of northern parts of Gujarat, Narmada, and Tapi valleys, which are formed by sea waves.

Q91. Answer: (b) NaOH

The correct answer is NaOH.

Key Points

• Sodium hydroxide is used to manufacture soaps, rayon, paper, explosives, dyestuffs, and petroleum products.

• It is also used in processing cotton fabric, laundering and bleaching, metal cleaning and processing, oxide coating, electroplating, and electrolytic extracting.

• Sodium hydroxide is used to manufacture soaps, rayon, paper, explosives, dyestuffs, and petroleum products.

• Sodium hydroxide is used to manufacture many everyday products, such as paper, aluminum, commercial drain and oven cleaners, and soap and detergents.

Additional Information

• Sodium hypochlorite is a chemical compound with the formula NaOCl or NaClO, comprising a sodium cation and a hypochlorite anion.

• $CaOCl_2$ is the chemical formula of calcium oxychloride which is commonly known as bleaching powder. It is prepared by the reaction of chlorine gas with calcium hydroxide (slaked lime).

• Sodium bicarbonate, commonly known as baking soda or bicarbonate of soda, is a chemical compound with the formula $NaHCO_3$.

• It is a salt composed of a sodium cation and a bicarbonate anion.

Q92. Answer: (a) Karnataka

The correct answer is Karnataka.

Key Points

• Pandit Bhimsen Gururaj Joshi also known by the honorific prefix Pandit, was one of the greatest Indian vocalists from India.

• Ron is a taluka headquarters in Gadag district, Karnataka in India. Of historical importance, the town was termed Dronapur in ancient times.

• The temples are believed to be constructed by the ancient architect and warrior-priest Dronacharya.

• Bhimsen Joshi was born in Ron in his mother's house. Giraddi Govindraj, R. C. Hiremath (Kannada Scholar), Rajshekhar Bhoosanoormath, B. V. Mallapur (Kannada Scholar) and Alur Venkatrao were born in Ron Taluka.

Additional Information

• Ramtanu Pande was born in Madhya Pradesh.

• Alladiya Khan was born in Rajasthan.

• Mahesh Kale is an Indian Classical vocalist renowned for his specialization in Indian Classical (Hindustani), Semi-Classical, and Devotional music including Natya Sangeet.

Q93. Answer: (a) Uttar Pradesh

The correct answer is Uttar Pradesh.

Key Points

• Uttar Pradesh Govt. adopts Indian Wrestling Sport till 2032 Olympics.

• The Uttar Pradesh government has decided to adopt Indian wrestling until the 2032 Brisbane Olympics

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• The state is expected to invest Rs. 170 crores in building infrastructure and extend adequate support to the wrestlers.

Additional Information

• Some of the following Indian wrestlers:

• Sushil Kumar.

• Vinesh Phogat.

• The Great Khali.

• Dara Singh.

• Bajrang Punia.

Q94. Answer: (b) Beta-carotene

The correct answer is Beta-Carotene.

Key Points

• Beta carotene is a plant pigment that gives red, orange, and yellow vegetables their vibrant colour.

• Beta carotene is considered a provitamin A carotenoid, meaning that the body can convert it into vitamin A (retinol). Additionally, beta carotene has powerful antioxidant properties.

• The name beta carotene comes from the Greek “beta” and Latin “carota” (carrot).

• It is the yellow/orange pigment that gives vegetables and fruits their rich colours.

Additional Information

• β-Cryptoxanthin is a natural carotenoid pigment.

• It has been isolated from a variety of sources including the fruit of plants in the genus Physalis, orange rind, papaya, egg yolk, butter, apples, and bovine blood serum.

• Zeaxanthin is a carotenoid molecule found in the cells of your eyes (1, 2).

• Lutein is a carotenoid with reported anti-inflammatory properties. A large body of evidence shows that lutein has several beneficial effects, especially on eye health.

Q95. Answer: (c) Dr. Bhimrao Ramji Ambedkar

The correct answer is Dr. Bhimrao Ramji Ambedkar.

Key Points

• Waiting for a Visa is a 20-page autobiographical life story of Dr. B. R. Ambedkar written in the period 1935–36.

• It consists of reminiscences drawn by Ambedkar, related to his experiences with untouchability, in his own handwriting.

• Dr. B. R. Ambedkar written (14 April 1891 – 6 December 1956) was an Indian jurist, economist, social reformer, and political leader who headed the committee drafting the Constitution of India from the Constituent Assembly debates.

Additional Information

• Why I Am an Atheist is an essay written by Indian revolutionary Bhagat Singh in 1930 in Lahore Central Jail.

• The essay was a reply to his religious friends who thought Bhagat Singh became an atheist because of his vanity.

• Memoirs of My Life and Time in The Days of My Youth (1857-1864) was the autobiography of Bipin Chandra Pal.

• Lala Lajpat Rai was an Indian author, freedom fighter, and politician. He played a vital role in the Indian Independence movement. He was popularly known as Punjab Kesari.

• He was one of the three members of the Lal Bal Pal Trimurti.

Q96. Answer: (c) Kuchipudi

The correct answer is Kuchipudi.

Key Points

• Haleem Khan is an Indian Kuchipudi dancer, performer, and movie actor, born on 10 April in Ongole of Andhra Pradesh and presently lives in Hyderabad.

• Haleem has performed more than 800 dance shows across the world, as well as conducted Kuchipudi workshops overseas.

• Kuchipudi is one of six classical dance styles of India. Kuchipudi is indigenous to the state of Andhra Pradesh and differs from the other five classical styles by the inclusion of singing.

Additional Information

• Some other famous classical dance forms of India:

• Bharatanatyam, Tamil Nadu (Southern India).

• Manipuri Dance, Manipur (North-eastern India).

• Kathak (Northern India).

• Odissi Dance, Orissa (Eastern India).

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• Kathakali.
• Mohiniattam.
• Kuchipudi (Southern India).
• Sattriya Dance.

Q97. Answer: (d) Lassaigne’s test

The correct answer is Lassaigne's test.

Key Points

• Lassaigne's test is a general test for the detection of halogens, nitrogen, and sulfur in an organic compound.
• These elements are covalently bonded to the organic compounds.
• In order to detect them, these have to be converted into their ionic forms.
• This is done by fusing the organic compound with sodium metal. This is done by fusing the organic compound with sodium metal.

Additional Information

• A flame test is an analytical procedure used in chemistry to detect the presence of certain elements, primarily metal ions, based on each element's characteristic emission spectrum.
• A D-dimer test looks for D-dimer in blood. D-dimer is a protein fragment (small piece) that's made when a blood clot dissolves in your body.

Q98. Answer: (a) one year

The correct answer is One year.

Key Points

• The members are elected every year from amongst the members of respective houses according to the principle of proportional representation by means of a single transferable vote.
• The chairperson is appointed by the Lok Sabha speaker. The term of office of the members is one year.
• The Committee consists of 22 Members, 15 Members are elected by Lok Sabha and 7 Members of the Rajya Sabha are associated with it.
• The term of office of the members is one year. A minister cannot be elected as a member of the committee.

Additional Information

• The Public Accounts Committee (PAC) is a committee of selected members of parliament, constituted by the Parliament of India, for the purpose of auditing the revenue and the expenditure of the Government of India.
• They check that parliament exercises over the executive stem from the basic principle that parliament embodies the will of the people.
• This committee along with the Estimates committee (EC) and Committee on Public Undertakings (COPU) are the three financial standing committees of the Parliament of India.
• It serves as a check on the government, especially with respect to its expenditure bill and its primary function is to examine the audit report of the Comptroller and Auditor General (C&AG) after it is laid in the Parliament.

Q99. Answer: (c) Chhau

The correct answer is Chhau.

Key Points

• Darogha was awarded Padma Shri in 2011 for his outstanding contribution to the promotion of the Seraikela form of Chhau dance.
• Makar Dhwaja Darogha was an Indian classical dancer and guru, known for his expertise in the classical dance form of Chhau.
• Chhau dance, also spelt Chhou dance, is a semi-classical Indian dance with martial and folk traditions.
• It is found in three styles named after the location where they are performed, i.e. the Purulia Chhau of West Bengal, the Seraikella Chhau of Jharkhand, and the Mayurbhanj Chhau of Odisha.

Additional Information

• Some other important classical dance forms of India.
• Bharatanatyam, Tamil Nadu (Southern India).
• Manipuri Dance, Manipur (North-eastern India).
• Kathak (Northern India).
• Odissi Dance, Orissa (Eastern India).
• Kathakali.
• Mohiniattam.

• Kuchipudi (Southern India).

• Sattriya Dance

Q100. Answer: (c) Charles Elton

The correct answer is Charles Elton.

Key Points

• Charles Elton was an English ecologist who first described the characteristic shape of ecological trophic interactions which he called the pyramid of numbers.

• Elton observed that most food webs have many organisms on their bottom trophic levels and successively fewer on the subsequent, higher levels.

• A food web is the natural interconnection of food chains and a graphical representation of what eats what in an ecological community.

• Charles Elton pioneered the concept of food cycles, food chains, and food size in his classical 1927 book "Animal Ecology";

• Elton's 'food cycle' was replaced by 'food web' in a subsequent ecological text.

Additional Information

• Sir Arthur George Tansley FLS, FRS was an English botanist and a pioneer in the science of ecology.

• Ernst Heinrich Philipp August Haeckel was a German zoologist, naturalist, eugenicist, philosopher, physician, professor, marine biologist, and artist.

• Eugene Pleasants Odum was an American biologist at the University of Georgia known for his pioneering work on ecosystem ecology.

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