SSC CHSL Tier-1 2021: Official Paper (Held On : 27 May 2022 Shift 3) (Previous Year Paper)

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

Take this paper as a timed mock test

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ENGLISH LANGUAGE

Q1. Select the most appropriate option to fill in the blank.

A student _____ in ragging can be expelled from the institution.

(a) avoiding
(b) curbing
(c) contrasting
(d) indulging

Q2. Select the option that expresses the given sentence in active voice.

Four grams of sodium chloride was added to the mixture by the research team.

(a) The research team added the mixture to four grams of sodium chloride.
(b) Four grams of sodium chloride added the mixture to the research team.
(c) The research team added four grams of sodium chloride to the mixture.
(d) The mixture added four grams of sodium chloride to the research team.

Q3. Select the INCORRECTLY spelt word in the following sentence.

The Imitations of Horace raise issues of political nautrality, partisanship and moral satire, and as such are key texts of the Augustan age.

(a) nautrality
(b) satire
(c) Augustan
(d) partisanship

Q4. Identify the option that arranges the given parts in the correct order to form a meaningful and coherent paragraph.

a) However, through sheer grit and determination
b) Nick was able to get admission to a high school
c) Nick Vujicic was prevented from
d) attending mainstream middle schools.

(a) d, c, a, b
(b) a, b, c, d
(c) b, c, a, d
(d) c, d, a, b

Q5. The following sentence has been split into four segments. Identify the segment that contains a grammatical error.

Ronaldo is / a famous / player of / the football.

(a) a famous
(b) Ronaldo is
(c) the football
(d) player of

Q6. Select the most appropriate ANTONYM of the given word.

Sceptic

(a) Doubter
(b) Believer
(c) Disbeliever
(d) Receiver

Q7. Select the most appropriate ANTONYM of the underlined word in the following sentence.

The uneducated man was flummoxed by the legal document.

(a) happy
(b) annoyed
(c) comfortable
(d) scared

Q8. Select the option that can be used as a one-word substitute for the given group of words.

One who gives money or help to another person or cause.

(a) Anarchist
(b) Agnostic
(c) Benefactor
(d) Amateur

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

He was a _____ stranger to me.

(a) settled
(b) full
(c) complete
(d) entire

Q10. Select the most appropriate meaning of the given idiom.

Red letter day

(a) Memorable day
(b) Rose day
(c) Holiday
(d) Birthday

Q11. Select the most appropriate ANTONYM of the highlighted word.

Two original manuscripts of this text are still extant.

(a) negotiate
(b) extinct
(c) drool
(d) persist

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

Elina is / travelling / since / yesterday.

(a) since
(b) yesterday
(c) Elina is
(d) travelling

Q13. Select the INCORRECTLY spelt word.

(a) Discipline
(b) Conscious
(c) Previlege
(d) Believe

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Q14. Select the option that can be used as a one-word substitute for the given group of words.

The love of man or mankind

(a) Philology
(b) Philanthropy
(c) Phylactery
(d) Philosophy

Q15. Select the sentence which has no spelling error.

(a) Beethoven is known to be a prodigious musician of all times.
(b) His business gives him cash in prodigeous amounts.
(c) Ashley caught the spectators by his prodigiuos tricks.
(d) Dusty is a prodegious novelist of the present era.

Q16. Select the most appropriate meaning of the given idiom.

Read between the lines.

(a) Be afraid of doing something again
(b) Harm someone who trusts you
(c) Speak the truth even if it is unpleasant
(d) Understand something that is not said outright

Q17. Select the option that will improve the underlined part of the given sentence.

Reema and Aasha were frolicking in the park.

(a) were enjoying in the garden
(b) were participating in the garden
(c) were playing in the garden
(d) were performing in the garden

Q18. Select the most appropriate meaning of the given idiom.

A kick in the teeth.

(a) Great disappointment
(b) Extraction of a tooth
(c) Toothache
(d) Alcohol consumption

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

Pace

(a) Target
(b) Corner
(c) Angle
(d) Speed

Q20. Select the option that expresses the given sentence in passive voice.

My father teaches students.

(a) My father is teaching students.
(b) Students are being taught by my father
(c) Students are taught by my father.
(d) A student is taught by my father.

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.

In April 1945, during the Conference to set up the United Nations (UN) held in San Francisco, representatives of Brazil and China proposed that an international health organization be (1) _____ and a conference to frame its constitution convened. On 15 February 1946, the Economic and Social Council of the UN instructed the Secretary-General to (2) ___ such a conference. A

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Technical Preparatory Committee met in Paris from 18 March to 5 April 1946 and (3) ____ proposals for the Constitution which were presented to the International Health Conference in New York City (4) ___ 19 June and 22 July 1946. On the basis of these proposals, the Conference drafted and (5) _____ the Constitution of the World Health Organization, signed 22 July 1946 by representatives of 51 Members of the UN and of 10 other nations.

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

(a) establishes
(b) established
(c) establish
(d) establishing

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

(a) sit
(b) collect
(c) convene
(d) disperse

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

(a) drew off
(b) drew down
(c) drew up
(d) drew away

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

(a) between
(b) from
(c) among
(d) while

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

(a) adapted
(b) adopted
(c) maintained
(d) revoked

GENERAL INTELLIGENCE

Q26. Study the given pattern carefully and select the number that can replace the question mark (?) in it.

First row : 24, 9, 108

Second row : 38, 5, 95

Third row : 12, 17, ?

(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) 112
(b) 96
(c) 90
(d) 102

Q27. Select the correct combination of mathematical signs to replace the * signs and to balance the given equation.

14 * 11 * 22 * 56 * 8

(a) +, −, =, ×
(b) −, ×, =, +
(c) +, +, =, −

(d) ×, ÷, =, ÷

Q28. 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.

24 : 137 : : 14 : ? : : 18 : 101

(a) 87
(b) 65
(c) 82
(d) 77

Q29. Which two numbers, from amongst the given options, should be interchanged to make the given equation correct?

82 – 5 + (24 ÷ 6) + 17 + (5 × 8) = 127

(a) 82 and 24
(b) 6 and 8
(c) 5 and 17
(d) 5 and 8

Q30. Select the option that is related to the fifth term in the same way as the second term is related to the first term and the fourth term is related to the third term.

NEUTRAL : NAUTREL : : PACIFIC : PICIFAC : : LOYALTY : ?

(a) LTYALOY
(b) LOAYLTY
(c) LTAYLOY
(d) LOYLATY

Q31. 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) 537 : 15
(b) 917 : 17
(c) 459 : 19
(d) 673 : 16

Q32. In a certain code language, 'MUSIC' is written as ‘LNTVRTHJBD’ and 'VIOLIN' is written as 'UWHJNPKMHJMO’. How will 'CHORD' be written in that language?

(a) BDGPIPQSCE
(b) BDGINPQSCE
(c) DBGINPQSCE
(d) BDGINPQECS

Q33. Which letter-cluster will replace the question mark (?) to complete the given series?

RRQZ, MADQ, ?, CSDY, XBQP

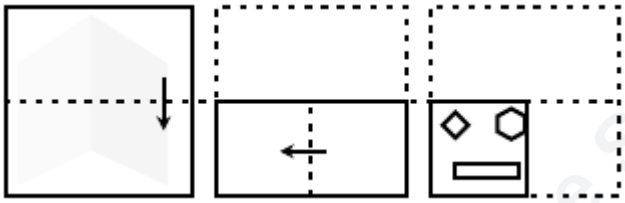
(a) HJQH
(b) HLQJ
(c) GYJZ
(d) GJPQ

Q34. If 30 January 2010 was Saturday, then what was the day of the week on 01 March 2011?

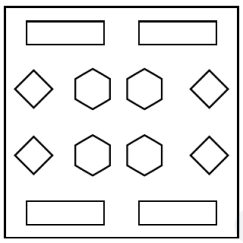
(a) Monday
(b) Tuesday
(c) Sunday
(d) Wednesday

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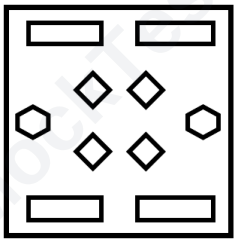
Q35. The sequence of folding a piece of paper and the manner in which the folded paper has been cut is shown in the following figures. How would this paper look when unfolded?



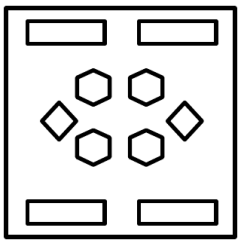
(a)



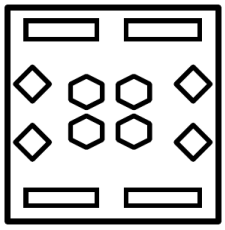
(b)



(c)

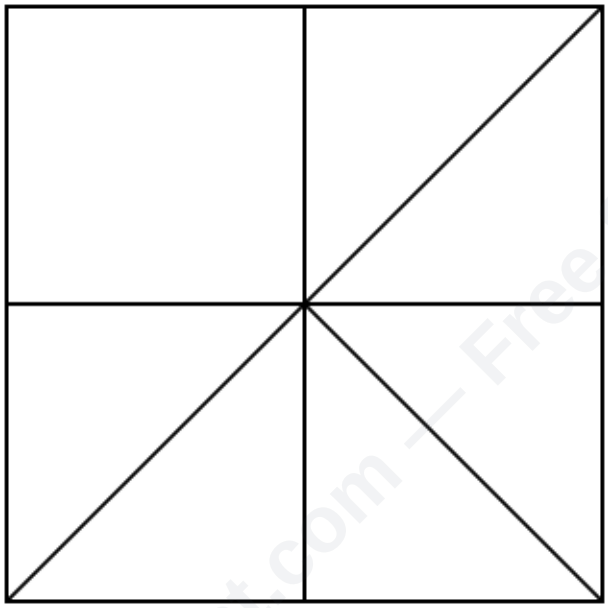


(d)



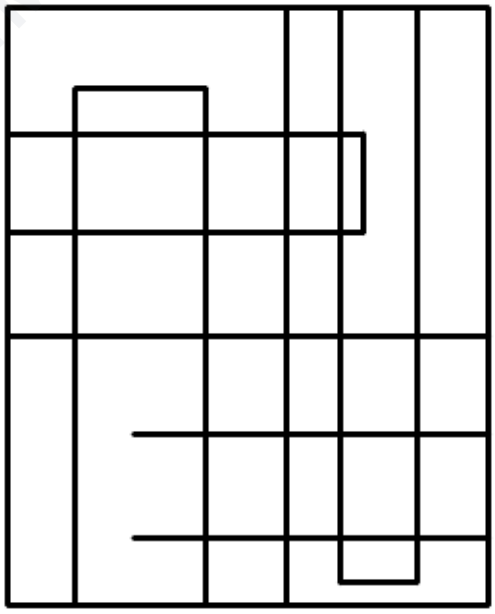
Q36. How many triangles are there in the given figure?

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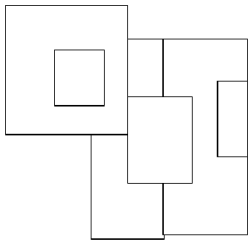


(a) 8
(b) 6
(c) 10
(d) 12

Q37. Select the option that is embedded in the given figure as its part (rotation is NOT allowed).

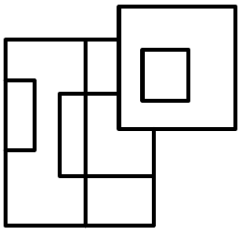


(a)

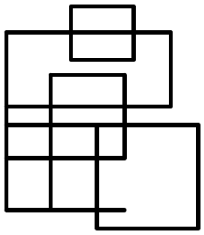


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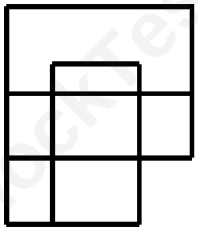
(b)



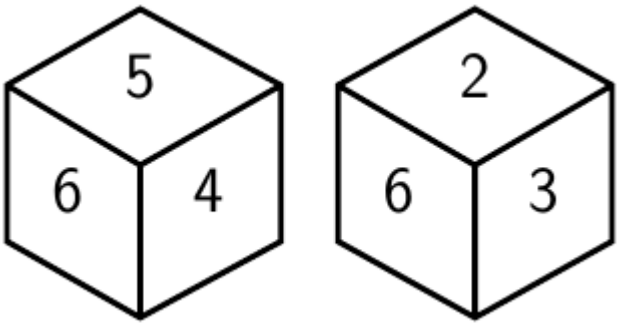
(c)



(d)



Q38. Two different positions of the same dice are shown, the six faces of which are numbered from 1 to 6. Select the number that will be on the face opposite to the one showing '6'.



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

Q39. Select the correct combination of mathematical signs to replace the * signs and to balance the given equation.
41 * 3 * 53 * 48 * 3 * 18 * 5 * 36

(a) −, ×, −, =, +, ×, −
(b) −, =, +, ×, −, ÷, +
(c) ×, −, =, ÷, +, ×, −
(d) +, −, ×, +, =, ×, ÷

Q40. If 22^(nd) January 2011 was a Saturday, then what was the day of the week on 23^(rd) January 2015?

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

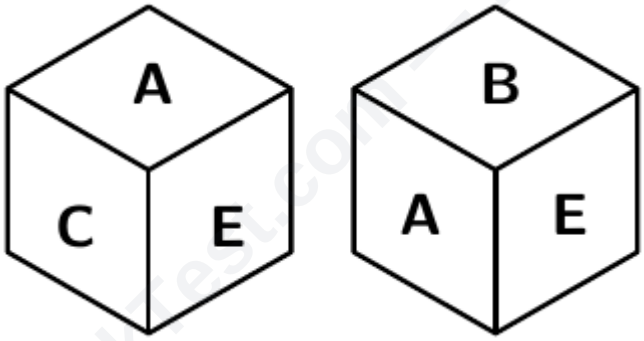
(d) Sunday

Q41. Which of the following numbers will replace the question mark (?) in the given number series?

1244, 624, 314, ?, 81.5, 42.75

(a) 156
(b) 159
(c) 155.5
(d) 157

Q42. Two different positions of the same dice are shown, the six faces of which are marked as A, B, C, D, E, F. Select the letter that will be on the face opposite to the one showing 'B'.



(a) A
(b) D
(c) C
(d) E

Q43. 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)

Centre : Central : : Character : Characteristic : : Ambition : ?

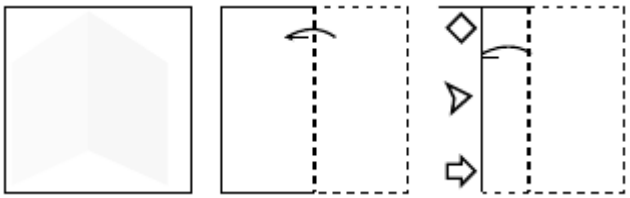
(a) Ambitious
(b) Amusing
(c) Astounding
(d) Amazing

Q44. Which letter-cluster will replace the question mark (?) to complete the given series?

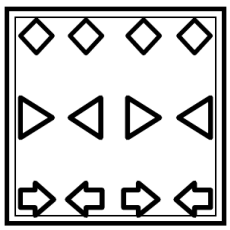
DPSQ, GTXW, ?, MBHI, PFMO

(a) HWBC
(b) KXDC
(c) IJDE
(d) JXCC

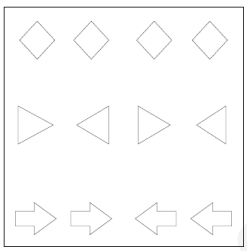
Q45. A paper is folded and cut as shown below. How will it appear when unfolded?



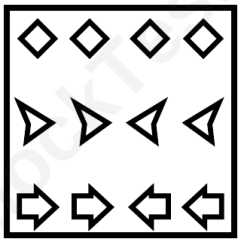
(a)



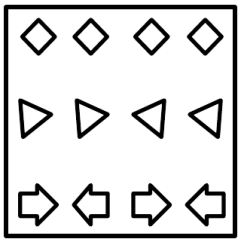
(b)



(c)



(d)



Q46. Which of the following numbers will replace the question mark (?) in the given series?

7, 8, 12, 39, 55, 180, 216, ?

(a) 555
(b) 559
(c) 595
(d) 599

Q47. In a certain code language, 'THEORY' is written as ‘YROEHT’ and ‘OPTION’ is written as ‘NOITPO’. How will 'EXPERT' be written in that language?

(a) RTEPXE
(b) TRERTE
(c) TREPXE
(d) TREPEX

Q48. If ‘A’ denotes ‘+’, ‘B’ denotes ‘×’, ‘C’ denotes ‘–’ and ‘D’ denotes ‘÷’, then what will come in place of ‘?’ in the following equation?

(48 D 12) C 71 A 14 B (96 D 6) A 3 B 12 = ?

(a) 133
(b) 193
(c) 162
(d) 172

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Q49. 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 plants are herbs.

Some herbs are trees.

All trees are shrubs.

Conclusions:

I. Some shrubs are plants.

II. Some shrubs are herbs.

III. Some trees are plants.

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

Q50. Select the option that is related to the fifth term in the same way as the second term is related to the first term and fourth term related to third term.

8 : 516 :: 6 : 219 :: 4 : ?

(a) 69
(b) 72
(c) 66
(d) 68

QUANTITATIVE APTITUDE

Q51. The table below shows the number of cakes sold by six different bakeries in a town on five different days of particular week.

Days → Bakery ↓	Monday	Tuesday	Thursday	Saturday	Sunday
A	222	255	215	250	266
B	205	275	314	295	260
C	245	266	305	195	235
D	221	230	185	300	280
E	312	325	298	272	254
F	175	205	255	240	308

What is difference between the highest number of the cakes sold by bakery F in a single day and the lowest numbers of cake sold by bakery B in a single day?

(a) 139
(b) 125
(c) 103
(d) 100

Q52. If a positive integer N is divided by 7, the remainder is 3. Which of the following numbers yields a remainder of 0 when it is divided by 7?

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

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Q53. If $x^2 - 8x + 1 = 0$, what is the value of $x^8 - 3842x^4 + 1$?

(a) -1
(b) 0
(c) 2
(d) 1

Q54. The population of a town is increasing at the rate of 5% per annum. What will be the population of the town on this basis after two years, if the present population is 16000?

(a) 17600
(b) 17640
(c) 17620
(d) 17680

Q55. The price of a TV has been reduced by 20%. In order to restore the original price, the new price must be increased by:

(a) 20%
(b) 28%
(c) 31%
(d) 25%

Q56. A discount of 20% on the marked price of an article is allowed and then the article is sold for Rs. 1,380. The marked price of the article is _____.

(a) Rs. 1,850
(b) Rs. 1,800
(c) Rs. 1,725
(d) Rs. 1,625

Q57. The difference between the compound and the simple interests for 3 years at the rate of 20% per annum is Rs. 432. What is the principal lent?

(a) Rs. 3378
(b) Rs. 3375
(c) Rs. 3385
(d) Rs. 3380

Q58. One candidate received 60% of the total valid votes in an election between two candidates. A total of 20% of the votes were invalid. What is the number of valid votes the other candidate received if the total votes were 16250?

(a) 2990
(b) 4760
(c) 5200
(d) 5800

Q59. In a circle with centre at O and radius 8 cm, AB is a chord of length 14 cm. If OM is perpendicular to AB, then the length of OM is:

(a) √10 cm
(b) √5 cm
(c) √12 cm
(d) √15 cm

Q60. 56% of 4800 – {(9^3 × 8) ÷ √6561} – 48% of (81 ÷ 8) = ?

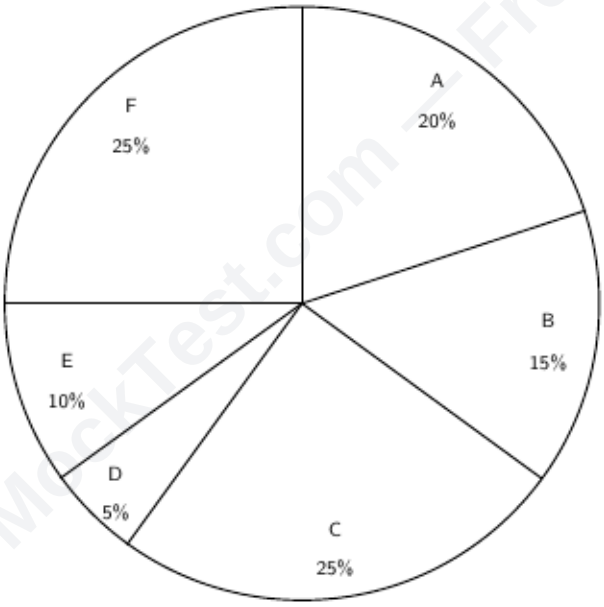
(a) 2612.14
(b) 2611.86
(c) 2612.86
(d) 2611.14

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Q61. A car covers a certain distance travelling at a speed of 60 km/h and returns to the starting point at a speed of 40 km/h. The average speed of the car for the entire journey is:

(a) 20 km/h
(b) 48 km/h
(c) 120 km/h
(d) 50 km/h

Q62. The given pie chart shows the percentage wise distribution of an item in 6 different states A, B, C, D, E and F. Find the central angle for state D.



(a) 40°
(b) 25°
(c) 18°
(d) 20°

Q63. A can complete a task in 12 days and B can complete the same task in 18 days. They start working together but A works for only 2 days. The remaining work is completed by B. If the total wage is Rs. 2,400, then what is B's share (in Rs.)?

(a) 1600
(b) 1800
(c) 1200
(d) 2000

Q64. A solid right-circular cylinder, whose radius of the base is 15 cm and height is 12 cm, is melted and moulded into the solid right-circular cone, whose radius of the base is 24 cm. What will be the height of this cone?

(a) 14.0625 cm
(b) 14.0675 cm
(c) 14.6025 cm
(d) 14.0525 cm

Q65. A shopkeeper makes a profit of 12.5% after allowing a discount of 10% on the marked price of an article. Find his profit percentage if the article is sold at the marked price, allowing no discount.

(a) 25%
(b) 30%
(c) 22.5%
(d) 27%

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Q66. With an average speed of 42 km/h, a train reaches its destination in time. If it moves with an average speed of 14 km/h, it is late by 35 minutes. The length of the journey is:

(a) 12.25 km
(b) 12.15 km
(c) 10.25 km
(d) 11.25 km

Q67. The first number is one-third of the second number. The second number is 1.5 times of the third number. The third number is three times the fourth number. If the average of the four numbers is 10, find the largest of the number.

(a) 12
(b) 18
(c) 16
(d) 15

Q68. $144x^2 - 36x + 9/4$ can be expressed as the square of _____.

(a) 14x - 3/2
(b) 12x - 9/4
(c) 12x - 3/2
(d) 12x - 9

Q69. A solid cylinder has a radius of 9 cm and a height of 25 cm. What is the ratio of its total surface area to its curved surface area?

(a) 9 : 25
(b) 25 : 9
(c) 25 : 34
(d) 34 : 25

Q70. Find the fourth proportional to 18, 36 and 52.

(a) 48
(b) 104
(c) 127
(d) 81

Q71. Find the value of the following.

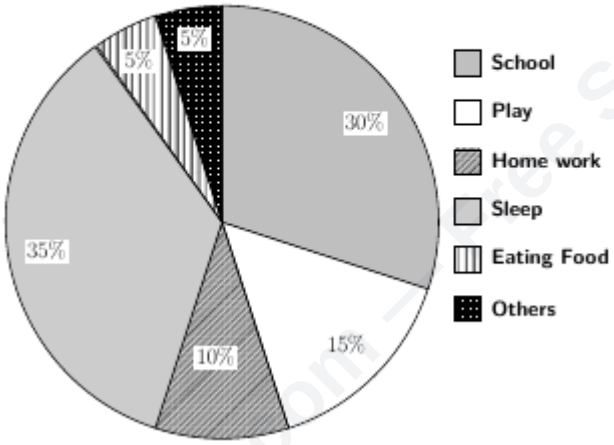
$(\sin 67° \cos 37° - \sin 37° \cos 67°)/(\cos 13° \cos 17° - \sin 13° \sin 17°)$

(a) $1/(\sqrt{3})$
(b) $4/(\sqrt{3})$
(c) $2/(\sqrt{3})$
(d) 7

Q72. The pie-chart below represents the number of hours as percent of 24 hours of a day, spent on different activities by a student, Study the pie chart and answer the question that follows.

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Number of hours as percent of 24 hours of a day, spent on different activities by a student



How many hours per day does the student spend in school?

(a) 7 hours 20 minutes
(b) 8 hours 15 minutes
(c) 8 hours 10 minutes
(d) 7 hours 12 minutes

Q73. The radius of a solid metallic sphere is equal to 15 cm. It is melted and drawn into a long wire of radius 15 mm having uniform cross-section. Find the length of the wire.

(a) 2100 cm
(b) 1900 cm
(c) 1800 cm
(d) 2000 cm

Q74. If a tradesman marks his goods 25% above the cost price and allows his customers a 12% reduction on their bill, then the percentage profit he makes is _____.

(a) 30%
(b) 20%
(c) 40%
(d) 10%

Q75. If $b^2 - 4b - 1 = 0$, then find the value of $b^2 + 1/(b^2) + 3b - 3/b$.

(a) 32
(b) 30
(c) 18
(d) 24

GENERAL AWARENESS

Q76. In 2017, Deepika Reddy got the Sangeet Natak Akademi Awards 2017 for her contribution in the field of _____ dance.

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

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Q77. Which of the following is the autobiography of Dr. Manmohan Singh, the ex-Prime Minister of India?

(a) A Shot at history
(b) Ace Against Odds
(c) Changing India
(d) My Country My Life

Q78. Which of the following is the autobiography of the first female judge of India, Anna Chandy?

(a) Atmavrittanta
(b) Majya Jalmachi Chittarkatha
(c) Ente Katha
(d) Atmakatha

Q79. In 2020, VP Dhananjayan and Shanta Dhananjayan were honoured with Sri Shanmukh ananda National Eminence Award in the field of _____.

(a) Dance
(b) Carnatic vocal
(c) Sarangi
(d) Tabla

Q80. Which of the following countries was ranked first in Paralympic 2020 medal tally?

(a) England
(b) China
(c) Australia
(d) The US

Q81. Who was awarded the Nobel Prize in Physics in 1926, ‘for his work on the discontinuous structure of matter’?

(a) Charles Wilson
(b) Murray Gell-Mann
(c) Jean Baptiste Perrin
(d) Owen Willans Richardson

Q82. Which base unit, was discovered in 1820, represents one coulomb of electric current per second?

(a) Volt
(b) Kelvin
(c) Candela
(d) Ampere

Q83. ‘The Wings of Fire’ is an autobiography of which of the following Presidents of India?

(a) Ram Nath Kovind
(b) Pranab Mukherjee
(c) APJ Abdul Kalam
(d) Kocheril Raman Narayanan

Q84. Who among the following Khayal singers of 19^(th) century was given the title of ‘Tanras” by Bahadur Shah Jaffar, the last Mughal Emperor of India?

(a) Bade Ustad Ghulam Ali Khan
(b) Meer Qutub Baksh
(c) Ustad Amir Khan
(d) Sadarang

Q85. Who among the following was appointed as the Chairman of ICC Men's Cricket Committee in November 2021?

(a) Kapil Dev
(b) Anil Kumble
(c) Sunil Gavaskar
(d) Sourav Ganguly

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Q86. Which structural layer surrounds the algal, fungal and plant cells and provides tensile strength and protection against mechanical and osmotic stress?

(a) Cell membrane
(b) Plastids
(c) Cell wall
(d) Vacuole

Q87. Who won the Dronacharya Award for outstanding coaches in Sports and Games 2021 (Regular Category) in Table Tennis discipline?

(a) Manika Batra
(b) Sathiyan Gnanasekaran
(c) Mouma Das
(d) Subramanian Raman

Q88. In which state of matter is the kinetic energy of molecules greater than the forces of attraction between them, such that they are so far apart and move independently of each other?

(a) Liquid
(b) Plasma
(c) Gas
(d) Solid

Q89. In February 2021, in the Devilal vs _____ case, the Supreme Court observed that juvenile offenders under 18 years and above 16 years are to be remitted to the jurisdictional Juvenile Justice Board.

(a) State of Punjab
(b) State of Madhya Pradesh
(c) State of Uttar Pradesh
(d) State of Bihar

Q90. Which Articles of the Indian Constitution deal with the Union Executive?

(a) Articles 38 to 50
(b) Articles 52 to 78
(c) Articles 80 to 86
(d) Articles 112 to 118

Q91. What was India's rank in the world in 2019 for crude steel production?

(a) 2^(nd)
(b) 1^(st)
(c) 4^(th)
(d) 3^(rd)

Q92. The Kathak dance exponent Birju Maharaj is associated with which of the following Gharana?

(a) Raigarh Gharana
(b) Jaipur Gharana
(c) Lucknow Gharana
(d) Banaras Gharana

Q93. GDP that takes into account the costs in terms of environmental pollution and exploitation of natural resources is called _____.

(a) white GDP
(b) green GDP
(c) brown GDP
(d) blue GDP

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Q94. Which of the following civilian awards was conferred to Ustad Bismillah Khan in 2001?

(a) Padma Vibhushan
(b) Padma Shri
(c) Bharat Ratna
(d) Padma Bhushan

Q95. In which track and field event is the baton used?

(a) Hammer throw
(b) Relay race
(c) High jump
(d) Steeple chase

Q96. Alarmel Velli was awarded with the 'Chevalier of Arts and Letters award' from the Government of _____ in 2004.

(a) Germany
(b) England
(c) France
(d) Spain

Q97. Identify the structural formula for ethene.

(a) H2C = CH3
(b) HC = CH3
(c) H3C = CH3
(d) H2C = CH2

Q98. Bickram Ghosh, a recipient of Global Indian Music Award, is a music composer and an Indian classical _____ player.

(a) tanpura
(b) sarangi
(c) tabla
(d) bansuri

Q99. Which is a perennial carnivorous plant of the sundew family that attracts preys and usually traps insects and then breaks them down with digestive enzymes?

(a) Phytoplankton
(b) Bladderwort
(c) Venus flytrap
(d) Seaweed

Q100. India's last living Sadir dancer from Tamil Nadu, Muthukannammal, was honoured with which of the following highest Indian civilian awards in 2022?

(a) Padma Vibhushan
(b) Padma Bhushan
(c) Padma Shri
(d) Bharat Ratna

ANSWER KEY

1	d	2	c	3	a	4	d	5	c	6	b	7	c	8	c	9	c	10	a
11	b	12	c	13	c	14	b	15	a	16	d	17	c	18	a	19	d	20	c
21	b	22	c	23	c	24	a	25	b	26	d	27	d	28	d	29	b	30	a
31	c	32	b	33	a	34	b	35	a	36	c	37	d	38	a	39	c	40	b
41	b	42	c	43	a	44	d	45	a	46	b	47	c	48	b	49	b	50	c

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51	c	52	c	53	b	54	b	55	d	56	c	57	b	58	c	59	d	60	d
61	b	62	c	63	d	64	a	65	a	66	a	67	b	68	c	69	d	70	b
71	a	72	d	73	d	74	d	75	b	76	c	77	c	78	d	79	a	80	b
81	c	82	d	83	c	84	b	85	d	86	c	87	d	88	c	89	b	90	b
91	a	92	c	93	b	94	c	95	b	96	c	97	d	98	c	99	c	100	c

SOLUTIONS

Q1. Answer: (d) indulging

The solution is in Hindi. Read it online.

Q2. Answer: (c) The research team added four grams of sodium chloride to the mixture.

The correct answer is 'The research team added four grams of sodium chloride to the mixture.'

Key Points

• The given sentence is the example of an passive voice of simple past tense.

• Structure:

• Subject+ the second form of verb + object (Active voice)

• Example: She taught maths.

• Object+ is/am/are+ the third form of verb+ by subject (Passive voice)

• Example: Maths was taught by her.

• From the above structure: The research team (object turned as subject) + added (V2) + four grams of sodium chloride to the mixture(subject as an object)

• Thus, from the above, it is clear that the correct answer is option 3.

Additional Information

• Simple past tense: It express an action i.e. started in past, finished in past and has no relation with present.

Q3. Answer: (a) nautrality

The correct answer is 'nautrality'.

Key Points

• nautrality: There is no such word in the dictionary, the correct word is neutrality which means the state of not supporting or helping either side in a conflict, disagreement, etc.; impartiality.

• satire: the use of humor, irony, exaggeration, or ridicule to expose and criticize people's stupidity or vices, particularly in the context of contemporary politics and other topical issues.

• Augustan: connected with or occurring during the reign of the Roman emperor Augustus.

• partisanship: prejudice in favor of a particular cause; bias.

• Thus, from above we can say that, from the given options only option 1 is spelt incorrectly.

• Therefore, the correct answer is option 1.

Q4. Answer: (d) c, d, a, b

The correct answer is 'c, d, a, b'.

Key Points

• Statement c will come first as it contains the subject of the sentence 'Nick Vujicic'.

• Statement d will follow statement c as the phrasal verb 'prevented from' takes a gerund after it.

• Statement a will follow statement d as it gives the contrast to what is said in statement c and statement d.

• Statement b will come last.

The final sequence will be:

• c) Nick Vujicic was prevented from

• d) attending mainstream middle schools.

• a) However, through sheer grit and determination

• b) Nick was able to get admission to a high school

Therefore, the correct answer is option 4.

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Q5. Answer: (c) the football

The correct answer is 'the football', i.e. the error lies in this part of the sentence.

Key Points

• The error lies in the usage of the article 'the'.
• An article describes a noun as specific or general.
• Article 'the' is a definitive article that comes before a noun to describe it as specific or particular.
• Example: Please give me the blue hammer.
• In the above example article 'the' is specifying a particular type of hammer whose colour is blue.
• But, in the given sentence noun football isn't specific, therefore, the usage of the article is superfluous here.
• Thus, the correct answer is option 3.

Correct sentence: Ronaldo is a famous player of football.

Q6. Answer: (b) Believer

The correct answer is 'Believer'.

Key Points

• Let's take a look at the meaning of the given word and its marked answer:
• Sceptic: a person inclined to question or doubt accepted opinions.
• Example: But he now has to convince sceptics that he has a serious plan.
• Believer: a person who believes that a specified thing is effective, proper, or desirable.
• Example: I made no secret of the fact that I was not a believer.
• Thus, from the above-given explanation, the correct answer is option 2.

Additional Information

• Doubter: a person who questions or lacks faith in something; a skeptic.
• Disbeliever: a person who refuses to believe something or who lacks religious faith.
• Receiver: a person who gets or accepts something that has been sent or given to them.

Q7. Answer: (c) comfortable

The correct answer is 'comfortable'.

Key Points

• Let's take a look at the meaning of the given word and the marked answer:
• Flummoxed: bewildered or perplexed.
• Example: No wonder Josef was feeling a bit flummoxed.
• Comfortable: giving comfort or physical relief.
• Example: He was described as comfortable in the hospital last night.
• Thus, from the above-given explanation, the correct answer is option 3.

Additional Information

• Happy: feeling or showing pleasure or contentment.
• Annoyed: slightly angry; irritated.
• Scared: fearful; frightened

Q8. Answer: (c) Benefactor

The correct answer is 'Benefactor'.

Key Points

• Let's take a look at meaning of the options:
• Anarchist: a person who believes in or tries to bring about anarchy.
• Agnostic: a person who claims neither faith nor disbelief in God.
• Benefactor: a person who gives money or other help to a person or cause.
• Amateur: a person who engages in a pursuit, especially a sport, on an unpaid rather than a professional basis.
• From the above-given explanation, we can say that the correct answer is option 3.

Q9. Answer: (c) complete

The correct answer is 'complete'.

Key Points

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• Let's take a look at meaning of the given options:
• settled: resolve or reach an agreement about (an argument or problem).
• Example: As far as we're concerned, the matter is settled.
• full: containing or holding as much or as many as possible; having no empty space.
• Example: It's healthy to eat when I'm hungry and to stop when I'm full.
• complete: (often used for emphasis) to the greatest extent or degree; total.
• Example: The rebels had taken complete control.
• entire: with no part left out; whole.
• Example: He had spent his entire life in China as a doctor.
• Thus, from above, it is clear that the correct answer is option 3.
Correct sentence:He was a complete stranger to me.

Q10. Answer: (a) Memorable day

The correct answer is 'a day that is pleasantly noteworthy or memorable.'.
Key Points
• 'Red letter day' is an idiom that means a day that is pleasantly noteworthy or memorable.
• Example: The day I first set foot in America was a red-letter day for me.
• From the given options, only option 1 fits the meaning.
Thus, the correct answer is option 1.
Additional Information
• Rose day - Refers to a day celebrated in some cultures where people exchange roses, often associated with Valentine's Day.
• Holiday - A day of festivity or recreation when no work is done.
• Birthday - The anniversary of the day on which a person was born.

Q11. Answer: (b) extinct

The correct answer is 'extinct'.
Key Points
• Let's take a look at the given word and the marked option:
• Extant: (especially of a document) still in existence; surviving.
• Example: Two fourteenth-century manuscripts of this text are still extant.
• Extinct: (of a species, family, or another group of animals or plants) having no living members; no longer in existence.
• Example: It is 250 years since the wolf became extinct in Britain.
• Thus, from above, we can say that the correct answer is option 2.
Additional Information
• Negotiate: obtain or bring about by discussion.
• Drool: make an excessive and obvious show of pleasure or desire.
• Persist: continue firmly or obstinately in an opinion or a course of action in spite of difficulty, opposition, or failure.

Q12. Answer: (c) Elina is

The correct answer is 'Elina is'.
Key Points
• Let's look at the keyword 'since yesterday'.
• It expresses an action that started in past and still continues.
• To express it present perfect continuous tense is used. It is used in a sentence to indicate an action that started in the recent past and is still continuing in the present.
• Structure:
• Subject+ has + been + The -ing form of verb.
• Example:
• It has been raining since morning.
• Thus, the correct answer is option 3 which means that it is the part of the sentence that contains an error.
• Therefore, 'is' needs to be replaced with 'has been'.
Correct sentence: Elina has been travelling since yesterday.

Q13. Answer: (c) Previlege

The correct answer is 'Previlege'.

Key Points

• Discipline: the practice of training people to obey rules or a code of behavior, using punishment to correct disobedience.

• Conscious: aware of and responding to one's surroundings; awake.

• Previlege: There is no such word in the dictionary, the correct word is Privilege which means a special right, advantage, or immunity granted or available only to a particular person or group.

• Believe: accept (something) as true; feel sure of the truth of.

• Thus, from above we can say that, from the given options only option 3 is spelt incorrectly.

• Therefore, the correct answer is option 3.

Q14. Answer: (b) Philanthropy

The correct answer is 'Philanthropy'.

Key Points

• Let's understand the meaning of the four given options:

• Philology: the branch of knowledge that deals with the structure, historical development, and relationships of a language or languages.

• Philanthropy: the desire to promote the welfare of others, expressed especially by the generous donation of money to good causes.

• Phylactery: a small leather box containing Hebrew texts on vellum, worn by Jewish men at morning prayer as a reminder to keep the law.

• Philosophy: the study of the fundamental nature of knowledge, reality, and existence, especially when considered as an academic discipline.

• From the above given meaning of all the four options, we are sure that the one-word substitute for the given group of words is Philanthropy.

Thus, the correct answer is option 2.

Q15. Answer: (a) Beethoven is known to be a prodigious musician of all times.

The correct answer is 'Beethoven is known to be a prodigious musician of all times.'

Key Points

• In all the given option, the spelling of the word 'prodigious' is incorrectly spelled. Only in option 1, it is correctly spelled.

• prodigious: remarkably or impressively great in extent, size, or degree.

• Thus, the correct answer is option 1.

Q16. Answer: (d) Understand something that is not said outright

The correct answer is 'Understand something that is not said outright'.

Key Points

• 'Read between the lines' is an idiom which means to look for or discover a meaning that is implied rather than explicitly stated.

• Example: Reading between the lines, I think Clare needs money.

• From the given options, only option 4 fits the meaning.

• Thus, the correct answer is option 4.

Q17. Answer: (c) were playing in the garden

The correct answer is 'were playing in the garden'.

Key Points

• Frolicking: (of an animal or person) play and move about cheerfully, excitedly, or energetically.

• Playing: engage in activity for enjoyment and recreation rather than a serious or practical purpose.

• Gardens and parks are for recreational activities, therefore, the most suitable word for them is 'playing'.

• Thus, the correct answer is option 3.

correct sentence: Reema and Aasha were playing in the garden.

Q18. Answer: (a) Great disappointment

The correct answer is 'Great disappointment'.

Key Points

• 'Kick in the teeth' is an idiom that means something that is very shocking and disappointing.

• Example: Losing that game was a real kick in the teeth.
• From the given options, only option 1 fits the meaning.
• Thus, the correct answer is option 1.

Q19. Answer: (d) Speed

The correct answer is 'Speed'.

Key Points

• Let's take a look at the given word and the marked option:
• Pace: consistent and continuous speed in walking, running or moving.
• Example*:* Many people were not satisfied with the pace of change.
• Speed: the rate at which someone or something is able to move or operate.
• Example: He drove off at high speed.
• Thus from above, we can say that the correct answer is option 4.

Additional Information

• Target: a person, object, or place selected as the aim of an attack.
• Corner: a place or angle where two or more sides or edges meet.
• Angle: the space (usually measured in degrees) between two intersecting lines or surfaces at or close to the point where they meet.

Q20. Answer: (c) Students are taught by my father.

The correct answer is 'Students are taught by my father.'

Key Points

• The given sentence is an example of an active voice of simple present tense.
• Structure:
• Subject+ the first form of verb (s/es)+ object (Active voice)
• Example: She teaches maths.
• Object+ is/am/are+ the third form of verb+ by subject (Passive voice)
• Example: Maths is taught by her.
• From the above structure : Students (object in active became as subject in passive) + are + taught(V3) + by + my father(Subject in active).
• Thus, from the above, it is clear that the correct answer is option 3.

Additional Information

• Simple present tense: We use the simple present tense when an action is happening right now, or when it happens regularly

Q21. Answer: (b) established

The correct answer is 'established'.

Key Points

• Let's take a look at the keyword 'In April 1945' which suggests that it is talking about past action which is finished in past thus, the tense will be used to express it, is simple past tense.
• Simple past tense: It represents an action which started in past, finishes in past, and has no relation to the future.
• Structure:
• Subject+ second form of the verb
• He went home yesterday.
• Thus, the correct answer is option 2.

Q22. Answer: (c) convene

The correct answer is 'convene'.

Key Points

• Let's take a look at the meaning of the given options:
• Sit: adopt or be in a position in which one's weight is supported by one's buttocks rather than one's feet and one's back is upright.
• Collect: bring or gather together (things, typically when scattered or widespread).
• Convene: come or bring together for a meeting or activity; assemble.
• Disperse: distribute or spread over a wide area.

• Thus, from above, we can say that the correct answer is option 3.

Q23. Answer: (c) drew up

The correct answer is 'drew up'.

Key Points

• Let's take a look at the meaning of the options:

• drew off: remove, withdraw.

• drew down: to deplete by using or spending.

• drew up: to prepare a draft or version of draw-up plans.

• drew away: to move away from a person or place.

• Thus, the correct answer is option 3.

Q24. Answer: (a) between

The correct answer is 'between'.

Key Points

• Let's take a look at the phrase '_____ 19 June and 22 July 1946.'

• To show the relationship between two things preposition 'between' is used generally with 'and'.

• Example: Do not call me between 2 pm and 4 pm, I shall be teaching.

• From the given example, we are clear that the most appropriate preposition from the given options is 'between'.

• Thus, the correct answer is option 1.

Additional Information

• Preposition: a word governing, and usually preceding, a noun or pronoun and expressing a relation to another word or element in the clause.

Q25. Answer: (b) adopted

The correct answer is 'adopted'.

Key Points

• Let's take a look at the meaning of the given options:

• adapted: make (something) suitable for a new use or purpose; modify.

• adopted: formally approve or accept

• maintained: cause or enable (a condition or state of affairs) to continue.

• revoked: put an end to the validity or operation of (a decree, decision, or promise).

• Thus, from above, we can say that the correct answer is option 2.

Q26. Answer: (d) 102

The applied logic is:

(First term × Second term) ÷ 2 = Third term

First row : 24, 9, 108

(24 × 9) ÷ 2 = 108

216 ÷ 2 = 108

108 = 108

Second row : 38, 5, 95

(38 × 5) ÷ 2 = 95

190 ÷ 2 = 95

95 = 95

That is (11+3=14, FROM FIRST ROW)

Third row : 12, 17, ?

(12 × 17) ÷ 2 = ?

204 ÷ 2 = ?

102 = Answer

Hence the correct answer is option 4)

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Q27. Answer: (d) ×, ÷, =, ÷

We solve the given equation using BODMAS rule:

14 * 11 * 22 * 56 * 8

We apply each option:

Option 1)+, −, =, ×

14 + 11 - 22 = 56 × 8

14 + 11 - 22 = 448

25 - 22 = 448

3 ≠ 448

Option 2)−, ×, =, +

14 - 11 × 22 = 56 + 8

14 - 242 = 56 + 8

14 - 242 = 64

-228 ≠ 64

Option 3) +, +, =, −

14 + 11 + 22 = 56 - 8

47 = 56 - 8

47 ≠ 48

Option 4)×, ÷, =, ÷

14 × 11 ÷ 22 = 56 ÷ 8

14 × 0.5 = 7

7=7

Hence the correct answer is option4)

Q28. Answer: (d) 77

The pattern used in the given series is:

(First term × 6) - 7 = Second term

Let's apply the pattern on the given series:

24 : 137 : : 14 : ? : : 18 : 101

(24 × 6) - 7 = 137

144 - 7 = 137

137 = 137

24 : 137 : : 14 : ? : : 18 : 101

(18 × 6) - 7 = 101

108 - 7 = 101

101 = 101

24 : 137 : : 14 : ? : : 18 : 101

(14 × 6) - 7 = ?

84 - 7 = ?

77 = Answer

Hence the correct answer is option 4)

Q29. Answer: (b) 6 and 8

lets check each option by interchanging the numbers and by using BODMAS RULE,

82 AND 24

24 – 5 + (82 ÷ 6) + 17 + (5 × 8)

24 - 5 + 13.66+17+40

94.66-5

92.66

6 and 8

82 – 5 + (24 ÷ 8) + 17 + (5 × 6) = 127

LHS:

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82 - 5 + 3 + 17 + 30
132 - 5
127
5 AND 17
82 – 17+ (24 ÷ 6) + 5 + (17 × 8) = 127
82 - 17 + 4 + 5 + 136
227 - 17
210
5 and 8
82 – 8 + (24 ÷ 6) + 17 + (8× 5) = 127
82 - 8 + 4 + 17 + 40
143 - 8
135
Hence, the correct option is 2.

Q30. Answer: (a) LTYALOY

The pattern used in the given series is:
Second and sixth alphabets are interchanged.
and
Similarly,
Hence the correct answer is option 1)

Q31. Answer: (c) 459 : 19

The pattern followed is:
Sum of each digit : The sum
Let's apply on each options:
Option 1)537:15
5 + 3 + 7 = 15
15 = 15
Option 2)917:17
9 + 1 + 7 = 17
17 = 17
Option 3) 459:19
4 + 5 + 9 = 18
19 ≠ 18
Option 4)673:16
6 + 7 + 3 = 16
16 = 16
So, 459:19 is the odd one.
Hence the correct answer is option 3)

Q32. Answer: (b) BDGINPQSCE

The positional values of the English alphabet is as follows:
The pattern followed here is : Each letter of the given word is coded as its previous as well as following letter.
• 'MUSIC' is written as ‘LNTVRTHJBD’
• 'VIOLIN' is written as 'UWHJNPKMHJMO’
Similarly, 'CHORD' will be written as:
Hence, 'option 2' is the correct answer.

Q33. Answer: (a) HJQH

According to the English alphabets and their positional values:
The pattern followed in the given series is:
• First alphabet is decreased by 5 positional values.

• Second alphabet is increased by 9 positional values.
• Third alphabet is increased by 13 positional values.
• Fourth alphabet is decreased by 9 positional values.

Hence the correct answer is option 1)

Q34. Answer: (b) Tuesday

There was no leap year in 2010 and 2011 so the on 30th January 2011 there will be a shift by only one day.
That is on 30th January 2011 it will be Sunday.
Total number of days from 30th January 2011 to 01 March 2011:
1 + 28 + 1 = 30 days = 2 odd days
So, Sunday + 2 = Tuesday
Hence the correct answer is option 2)

Q35. Answer: (a) [figure]

When we unfold the paper step by step we get:
Now from the given options, the pattern matches with option 1) and rest of the options are unsymmetrical.
Hence the correct answer is option 1)

Q36. Answer: (c) 10

Here, we are given a image and we need to find out the number of triangles.
So, first we will count all the small triangles as shown below:
Thus, we got 6 triangles.
Next, we will can see that, triangle DOC and COB are 2 triangles.
Also, DCB and DAB are two big triangles.
Thus, we have a total of 6 + 2 + 2 = 10 triangles.
Hence, there are 10 triangles.

Q37. Answer: (d) [figure]

The figure is given below:
The shaded portion is the embedded figure.
Hence, 'option 4' is the correct answer.

Q38. Answer: (a) 1

Here, can see that we are given two dices each having one face same i.e. 6.
We will write the numbers in clockwise direction starting from the common face, then the positional number will be the opposite face of that number.
So,
1st dice: 6 - 5 - 4
2nd dice: 6 - 2 - 3
Also, we can see both the dices have number 6 on the same side and the remaining numbers are shown on both the dices except number 1.
Hence, number 1 will be on the face opposite to the one showing number 6.

Q39. Answer: (c) ×, −, =, ÷, +, ×, −

Here, we will substitute each option to check which is the correct answer.
First,
41 × 3 × 53 × 48 × 3 × 18 × 5 × 36
Substitute option 1, we will get,
=> 41 - 3 × 53 - 48 = 3 + 18 × 5 - 36
Using BODMAS rule, we will get,
=> 41 - 3 × 53 - 48 = 3 + 18 × 5 - 36
=> 41 - 159 - 48 = 3 + 90 - 36
=> -166 = -107

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=> 166 = 107, which is not possible and so, option 1 is not possible.

Next,

41 × 3 × 53 × 48 × 3 × 18 × 5 × 36

Substitute option 2, we will get,

=> 41 - 3 = 53 + 48 × 3 - 18 ÷ 5 + 36

Using BODMAS rule, we will get,

=> 38 = 53 + 144 - 3.6 + 36

=> 38 = 229.4, which is not possible and so, option 2 is not possible.

Again,

41 × 3 × 53 × 48 × 3 × 18 × 5 × 36

Substitute option 3, we will get,

=> 41 × 3 - 53 = 48 ÷ 3 + 18 × 5 - 36

Using BODMAS rule, we will get,

=> 123 - 53 = 16 + 90 - 36

=> 70 = 70, which is possible and so, option 3 is the correct option.

Last,

41 × 3 × 53 × 48 × 3 × 18 × 5 × 36

Substitute option 4, we will get,

=> 41 + 3 - 53 × 48 + 3 = 18 × 5 ÷ 36

Using BODMAS rule, we will get,

=> 41 + 3 - 2544 + 3 = 18 × 0.1388

=> - 2497 = 2.5, which is not possible and so, option 4 is not possible.

Hence, the correct option is 3.

Q40. Answer: (b) Friday

Here, we will draw a table with the year and total number of days in it as shown below:

Year	Number of odd days
2011	365 days = 1 odd day
2012	366 days = 2 odd days
2013	365 days = 1 odd day
2014	365 days = 1 odd day
2015	365 days = 1 odd day

So, 22nd Jan 2011 to 22nd Jan 2015 = Saturday + 5 odd days = Thursday.

Thus, next day will be Friday i.e. on 23rd Jan 2015.

Hence, the correct answer is Friday.

Q41. Answer: (b) 159

Here, we need to find a pattern used to find the missing number.

Logic: Each term divided by 2 and then the answer is added by 2 to get the final answer.

Hence, the answer of the missing number is 159.

Q42. Answer: (c) C

Here, we are given two dices and two faces of both the dices are same. So, we will rotate the second dice so that it is same as the first dice.

So, we have:

From that, we can say that face C is opposite to face B.

Thus, the letter C will be on the face opposite to the one showing B.

Hence, the correct answer is 'option 3'.

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Q43. Answer: (a) Ambitious

Here, we are given a pattern and we need to find the missing word using that pattern.

For the word Centre : Central we have:

As we can see that, both the words centre and central have the same meaning.

For the word Charater : Characteristic we have:

Also both the words character and characteristic have the same meaning. This means they are synonyms of each other.

Similarly for the word Ambition : ? we have:

Thus, for the given word ambition we can see from the options that the word ambitious is the one having the same meaning.

Hence, the word 'ambitious' is related to the fifth word.

Q44. Answer: (d) JXCC

Here, we will the alphabet and their positions as below:

The logic here follows is as below:

so, the missing letter cluster of the given series will be 'JXCC'.

Hence, the correct answer is JXCC'.

Q45. Answer: (a) [figure]

Here, we are given a paper which is folded two times and then some designs are made on it.

We are given the figure as below

Figure 1 Figure 2

As. we open the first fold we get the mirror image of the design as shown in the figure 2.

Next we will open the last fold, we will get the same design as in the 1st half of it as shown below:

Thus, we will get the final output as:

Hence, the correct answer is option 1.

Q46. Answer: (b) 559

Here, we need to find the pattern used to get the missing number.

The logic here is:

Hence, the missing number is 559.

Q47. Answer: (c) TREPXE

Here, this follows a pattern and we need to find the word.

The logic here is:

and

Thus, for the given word the code language of EXPERT is:

Hence, the word EXPERT be written in that language as 'TREPXE'.

Q48. Answer: (b) 193

Here, we are given with an equation as below:

(48 D 12) C 71 A 14 B (96 D 6) A 3 B 12 = ?

Next, we will substitute the signs in place of letters given as ‘A’ denotes ‘+’, ‘B’ denotes ‘×’, ‘C’ denotes ‘–’ and ‘D’ denotes ‘÷, we will get,

= (48 ÷ 12) - 71 + 14 × (96 ÷ 6) + 3 × 12

Using BODMAS rule, we will get,

= (4) - 71 + 14 × (16) + 36

Opening the brackets, we will get,

= 4 - 71 + 14 × 16 + 36

= - 67 + 224 + 36

= 193

Hence, the correct answer is 193.

Q49. Answer: (b) Only conclusion II follows

Here, we are given some statements and from that we need to find out if the given conclusions are true or not.

So, from 1st statement: All plants are herbs, we get the figure:

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Also, from 2nd statement: Some herbs are trees, we get the figure:

And, from 3rd statement: All trees are shrubs, we get the figure:

Thus, combining all the three statements, we will get,

Next, we will check the conclusion from the given figure

I. Some shrubs are plants: This is not possible.

II. Some shrubs are herbs: This is true as we can see that some herbs are trees and all trees are shrubs. So this is true conclusion.

III. Some trees are plants: All plants are herbs and some herbs are trees. So, some trees cannot be plants and thus this is not true conclusion.

Hence, only conclusion 2 is true.

Q50. Answer: (c) 66

Here, we need to find the pattern used to get the missing number.

As, we can see 8^3= 512 + 4 = 516

Next, 63 = 216 + 3 = 219

So, we can say the pattern followed here is that, they are taking the cube of the given number and then it is added by half of the given number.

Thus, for the given number 4, we will take cube of 4 i.e. 64 and then add half of 4 i.e. 2 to it to get the final answer as shown below:

4^3 = 64 + 2 = 66

Hence, the final answer is 66.

Q51. Answer: (c) 103

Given:

The table below shows the number of cakes sold by six different bakeries in a town on five different days of particular week.

Days → Bakery ↓	Monday	Tuesday	Thursday	Saturday	Sunday
A	222	255	215	250	266
B	205	275	314	295	260
C	245	266	305	195	235
D	221	230	185	300	280
E	312	325	298	272	254
F	175	205	255	240	308

Calculations:

According to the question,

The highest number of the cakes sold by bakery F in a single day = 308 cakes

The lowest numbers of the cakes sold by bakery B in a single day = 205 cakes

Now the difference between sales of Bakery F and Bakery B = 308 - 205 = 103 cakes

Therefore The difference between sales of Bakery F and Bakery B in a single day is 103 cakes.

Q52. Answer: (c) N + 4

Alternate Method

Dividend = Divisor x Quotient + Remainder

Let the quotient be q

Divisor = 7, Remainder = 3

Dividend = Divisor x Quotient + Remainder

=> N = 7q + 3

=> N + 4 = 7q + 7 which is divisible by 7

Therefore The correct answer is option 3

Shortcut TrickHit and trial Method

Given:

A positive integer N is divided by 7, the remainder is 3

Calculation:
Let k be any integer.
=> n = 7k + 3
By trial and error method
Option 1,
=> n + 2 = 7k + 3 + 2
=> n + 2 = 7k + 5
When n + 2 is divided by 7, the remainder is 5.
Option 2,
=> n + 1 = 7k + 3 + 1
=> n + 1 = 7k + 4
When n + 1 is divided by 7, the remainder is 4.
Option 3,
=> n + 3 = 7k + 3 + 3
=> n + 3 = 7k + 6
When n + 3 is divided by 7, the remainder is 6
Option 4,
=> n + 4 = 7k + 3 + 4
=> n + 7 = 7k + 7
When n + 5 is divided by 7, the remainder is 0.
Therefore n + 4 yields remainder 0.

Q53. Answer: (b) 0

Given:
x2 - 8x + 1 = 0
Formula used:
$(a + b)^2 = a^2 + b^2 + 2ab$
Calculations:
x2 - 8x + 1 = 0
=> x2 + 1 = 8x (dividing x on both sides)
=> x + 1/x = 8 (squaring both sides)
=> $(x + 1/x)^2 = 8^2$
=> x2 + 2 + 1/x2 = 64
=> $x^2 + 1/x^2 = 62$ (squaring both sides)
=> $(x2)2 + (1/x2)^2 = (62)^2$
=> x4 + 2 + 1/x4 = 3844
=> x4 + 1/x4 = 3842
=> x8 + 1 = 3842x4
=> x8 - 3842x4 + 1 = 0
Therefore The value of given equation is 0.
Shortcut TrickIf x + 1/x = a, then $x^2 + 1/(x^2) = a^2 - 2$
Here, we have x2 - 8x + 1 = 0
=> x + 1/x = 8
=> $x^2 + 1/(x^2) = 8^2 - 2 = 64 - 2 = 62$
=> x^4 + 1/(x^4) = $(62)^2$ - 2
=> x^4 + 1/(x^4) = 3844 - 2 = 3842
=> x8 + 1 = 3842x4
=> x8 - 3842x4 + 1 = 0

Q54. Answer: (b) 17640

Given:
Growth Rate = 5% per annum

Time Period = 2 years
Present Population = 16000
Concept used:
Final Population = Initial Population(1 + R%)^T
Calculations:
Final Population = 16000(1 + 5%)²
=> 16000(1 + 0.05)2
=> 16000 × (1.05)2
=> 16000 × 1.1025 = 17640
Therefore The population of the town after 2 years will be 17640.
Additional InformationIn this question, we have used the formula for the Population of the town,
Do not get confused with the formula of compound interest.
Here the population is increasing, which is why we took the + sign in the bracket,
If the population decreases, then we will use the - sign in the bracket.

Q55. Answer: (d) 25%

Given:
The price of a TV has been reduced by 20%
Calculation:
Let the original price be Rs. 100
Reducing price = 100 - 20 = Rs. 80
For getting Rs. 100
Rs. 80 is increased by = Rs. 20
Rs. 1 is increased by = 20/80
Rs. 100 is increased by = Rs (20/80) × 100 = 25%
Therefore The new price must be increased by 25%.
Shortcut TrickHere, 20% = 1/5
Ratio of original to reduced price = 5 : 4
To restore the original price, we have ratio = 4 : 5
So, 1 unit increase out of 4 units
=> 1/4 = 25% increase

Q56. Answer: (c) Rs. 1,725

Given:
Discount (D) on the Marked Price (MP) of an article = 20%
Selling Price (SP) of the article = Rs. 1380
Concept used:
Selling Price = Market Price - Discount
Calculations:
Let the market price 'x'
Discount on market price = 20%
Discount = (x × 20)/100
=> 20x/100
=> SP = MP - D
=> x - (20x/100) = 80x/100
Now according to the question:
=> 80x/100 = 1380
=> x = 138000/80 = Rs. 1725
Therefore The marked price of the article is Rs. 1725.
Shortcut TrickCalculation:
Discount = 20% = 1/5
M.P : S.P = 5 : 4

=> 4 units = Rs. 1380
=> 1unit = Rs. 345
=> 5 units = 345 × 5 = Rs. 1725
Therefore The marked price of the article is Rs. 1725.

Q57. Answer: (b) Rs. 3375

Given:
The difference between the Compound (CI) and the Simple interests (SI) is Rs. 432.
Time (T) = 3 years
The Rate (R) of interest = 20% per annum
Concept used:
Compound Interest = P(1 + R%)^T
Simple Interest = (P × R × T)/100
Calculations:
According to the question,
CI - SI = Rs. 432
=> 432 = [P(1 + 20%)3 - 1] - [(P × 20 × 3)/100]
=> 432 = P[(1 + 20%)3 - 1] - P[(20 × 3)/100]
=> 432 = P[(1 + 0.20)3] - P[6/10]
=> 432 = P[(1.20)3 - 1] - P[3/5]
=> 432 = P[1.728 - 1 - 3/5]
=> 432 = P[(3.64 - 3)/5]
=> 432 = P[0.64/5]
=> P = 432/0.128
=> P = Rs. 3375
Therefore The principal lent was Rs. 3375.
Shortcut Trick20% = 20/100 = 1/5
Time = 3 years
Hence assume that the Principle is 5^3 = 125 Rs.
Simple Interest for 3 years = 75 Rs.
Compound Interest for 3 years = 91 Rs.
=> 91 - 75 = 16
Given that,
=> 16 = 432
=> 1 = 432/16
The principle, 125
=> 125 × 432/16 = 3375 Rs.
Therefore The principal lent was Rs. 3375.

Q58. Answer: (c) 5200

Given:
Candidate A received 60% of the total valid votes
Total invalid votes = 20% of the votes
Total votes = 16250
Calculations:
According to the question,
Total Valid votes = Total votes (1 - 20%)
=> Valid votes = 16250 (1 - 0.20)
=> Valid votes = 16250 (0.80) = 13000 votes
Total valid votes of A = 60% of valid votes
=> A = 0.60 × 13000 = 7800 votes
Now total valid votes of B = Total valid votes - Valid cotes of A

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=> B = 13000 - 7800 = 5200 votes

Therefore Candidate B recived 5200 valid votes.

Shortcut TrickLet total votes = 100 units

=> 100 units = 16250

=> 32 units = (16250/100) × 32 = 5200

Q59. Answer: (d) √15 cm

Given:

Radius of circle = 8 cm

Length of chord AB = 14 cm

OM perpendicular to AB which bisects AB at M.

Concept used:

Pythagoras Theorem

=> (Hypotenuse)² = (Perpendicular)² + (Base)²

Calculation:

According to the question,

AM = MB = 14/2 = 7 cm

In ΔOAM,

$(OA)^2 = (OL)^2 + (AL)^2$

$=> (8)^2 = (OM)^2 + (7)^2$

=> 64 = (OM)2 + 49

=> (OM)2 = 64 − 49 = 15

=> OM = √15 cm

Therefore The length of OM is √15 cm.

Q60. Answer: (d) 2611.14

Given:

56% of 4800 – {(9^3 × 8) ÷ √6561} – 48% of (81 ÷ 8) = ?

Formula used:

BODMAS Rule

x% of y = (x ÷ 100) × y

Calculation:

? = 56% of 4800 – {(729 × 8) ÷ 81} – 48% of 10.125

=> ? = (56 × 48) – {5832 ÷ 81} – (48/100 × 10.125)

=> ? = 2688 – 72 – 4.86

=> ? = 2616 – 4.86

=> ? = 2611.14

Therefore The correct answer is option (4).

Q61. Answer: (b) 48 km/h

Given:

A car covers a distance at a speed = 60 km/h

Returns to the starting point at a speed of 40 km/h.

Formula used:

Average speed = 2ab/(a + b)

a = Speed a object when it goes from A to B.

b = Speed of a object when it returns same place

Formula is only used when the distance travels by all the speed is equal.

Calculations:

Average speed = 2(60 × 40)/(60 + 40)

=> A = 2 × 2400/100

=> A = 4800/100 = 48 km/h

Therefore The average speed of the car for the entire journey is 48km/h.

Q62. Answer: (c) 18°

Given:

Concept used:

Percentage = Given value/Total value × 100

Here, Total value is 360°

Calculations:

According to the question,

=> Angle of D = 5% of 360°

=> D = 0.05 × 360° = 18°

Therefore The central angle for state D is 18°.

Q63. Answer: (d) 2000

Shortcut Trick

Total work = LCM(12, 18) = 36 units.

Efficiencies: A = 3, B = 2.

Work done by A in 2 days = 3 × 2 = 6 units.

Work done by B = 36 − 6 = 30 units.

B's share = (Work by B ÷ Total Work) × Total Wage = (30 ÷ 36) × 2400 = Rs. 2,000.

Therefore The correct answer is Rs. 2000.

Alternate Method

Given: A completes task in 12 days, B in 18 days. Total wage = Rs. 2,400. A leaves after 2 days.

Formula Used: Wage of a person = (Work done by the person ÷ Total work) × Total wage

Person	Days	Total Work	Efficiency
A	12	36	3
B	18	2	

=> Total work is the LCM of 12 and 18 = 36 units.

=> Efficiency of A = 36 ÷ 12 = 3 units/day.

=> Efficiency of B = 36 ÷ 18 = 2 units/day.

=> Since A worked for only 2 days, work done by A = 3 × 2 = 6 units.

=> B completed the remaining work, thus work done by B = 36 − 6 = 30 units.

=> Ratio of work done by A and B = 6 : 30 = 1 : 5.

=> B's share of wage = [5 ÷ (1 + 5)] × 2400

=> B's share = 5/6 × 2400 = 5 × 400 = Rs. 2,000.

Therefore The correct answer is Rs. 2000.

Additional Information

Wage Distribution Rule

Wages are always distributed in the ratio of the work done by each individual, which is calculated as Efficiency × Time.

Efficiency and Wage

If all persons work for the same amount of time, the wages can be distributed directly in the ratio of their efficiencies.

Pipes and Cisterns Correlation

The concepts of Time and Work are identical to Pipes and Cisterns, where efficiency represents the rate of filling or emptying a tank.

Q64. Answer: (a) 14.0625 cm

Given:

Radius of the base of a cylinder (R) = 15 cm

Height (H) is 12 cm,

Radius of the base of right-circular cone (r) = 24 cm.

Formula used:

Volume of a cylinder = π × radius² × height

Volume of a cone = (1/3) × π × r² × h

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Calcultions:

According to the question,

A solid right-circular cylinder is melted and moulded into the solid right-circular cone then

Volume of cylinder = Volume of Cone

=> π × $(R)^2$ × H = (1/3) × π × r2 × h

=> (R)2 × H = (1/3) × r2 × h

=> h = ((15)2 × 12 × 3)/$(24)^2$

=> h = (225 × 36)/ 576

=> h = 8100/576 = 14.0625 cm

Therefore The height of this cone is 14.0625 cm.

Q65. Answer: (a) 25%

Given:

Profit = 12.5%

Discount = 10%

Concept used:

Profit% = [(SP - CP)/CP] × 100

Calculations:

Let the Mark up Price be Rs. 100

According to the question,

Selling Price = Mark up Price (1 - D%/100)

=> SP = 100 (1 - 10%)

=> SP = 100(0.90) = 90 Rs.

Then Profit% = [(90 - CP)/CP] × 100

=> (12.5/100)CP = 90 - CP

=> CP (1 + 12.5/100) = 90

=> CP (112.5/100) = 90

=> CP = 9000/112.5 = Rs. 80

Now Profit% when SP = MP = Rs. 100

=> Profit% = [(100 - 80)/80] × 100

=> Profit% = [20/80] × 100

=> Profit% = 1/4 × 100 = 25%

Therefore Profit percentage if the article is sold at the marked price is 25%.

Shortcut TrickProfit = 12.5% = 1/8

Ratio of C.P. to S.P. = 8 : 9 ----(1)

Again, Discount% = 10% = 1/10

Ratio of M.P. to S.P. = 10 : 9 ----(2)

Combining the ratio of equations (1) and (2), we get

Ratio of C.P. : S.P. : M.P. = 8 : 9 : 10

So, if the article is sold at M.P., then

Profit = 10 - 8 = 2 units

=> Profit % = 2/8 × 100 = 25%

Q66. Answer: (a) 12.25 km

Given:

an average speed of a train = 42 km/h,

If average speed of a train = 14 km/h, it is late by 35 minutes.

Concept used:

Distance = Speed × Time

Calculations:

Let the time taken by train at speed 42km/h be T then

Time taken by train at 14 km/h = T + 35 mins = T + 35/60 = T + 7/12

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Now the distance of both journey is same then
42 × T = 14 × (T + 7/12)
=> 42T = 14 × (12T + 7)/12
=> 42T = 7 × (12T + 7)/6
=> 252T = 84T + 49
=> (252 - 84)T = 49
=> T = 49/168 = 7/24 h
Now the distance,
=> D = 42 × 7/24
=> D = 21 × 7/12
=> D = 147/12 = 12.25 km
Therefore The length of the journey is 12.25 km.
Shortcut TrickAs per the question,
The ratio of average speed => 42 : 14 = 3 : 1
Time ratio => 1 : 3
Difference 2 Unit = 35/60
1 Unit = 7/24
Now the distance,
=> D = 42 × 7/24 = 12.25 km

Q67. Answer: (b) 18

Given:
The first number (A) is one-third of the second number.
The second number (B) is 1.5 times of the third number.
The third number (C) is three times the fourth number (D).
If the average of the four numbers is 10
Calculations:
According to the question,
=> A = 1/3 B
=> B = 1.5 C
=> C = 3 × D
Then,
Average value = (A + B + C + D)/4
=> 10 = (B/3 + B + B/1.5 + B/4.5)/4
=> 40 = B(1/3 + 1 + 1/1.5 + 1/4.5)
=> 40 = B(1.5 + 4.5 + 3 + 1)/4.5
=> 40 × 4.5 = 10B
=> B = 180/10 = 18
Therefore The largest of the number is 18.

Q68. Answer: (c) 12x - 3/2

Given:
144x2 - 36x + 9/4
Formula used:
$(a - b)^2 = a^2 + b^2 - 2ab$
Calculations:
144x2 - 36x + 9/4
=> $(12x)^2 - 2(12x)(3/2) + (3/2)^2$
=> (12x - 3/2)2
Therefore The given equation can be expressed as the square of 12x - 3/2.

Q69. Answer: (d) 34 : 25

Given:

A solid cylinder has a radius of 9 cm and a height of 25 cm.

Formula used:

Total surface area of cylinder = 2 × π × r × (r + h)

Curved surface area of cylinder = 2 × π × r × h

Where, r = radius

h = height

Calculations:

According to the question,

=> TSA = 2 × π × 9 × (9 + 25)

=> TSA = 2 × π × 9 × (9 + 25)

=> TSA = 18 × π × 34 = 612π

Now CSA

=> CSA = 2 × π × 9 × 25

=> CSA = 225 × 2 × π = 450π

Now TSA : CSA

=> TSA : CSA = 612π : 450π

=> TSA : CSA = 612 : 450

=> TSA : CSA = 34 : 25

Therefore The ratio of its total surface area to its curved surface area is 34 : 25.

Q70. Answer: (b) 104

Given:

18, 36 and 52

Calculations:

Let the fourth proportion be x

According to the question,

18 : 36 :: 52 : x

=> 18/36 = 52/x

=> x = (52 × 36)/18

=> x = 52 × 2 = 104

Therefore The fourth proportion is 104.

Q71. Answer: (a) 1/(√3)

Shortcut Trick

Apply compound angle formulas directly: sin A cos B − cos A sin B = sin(A − B) and cos C cos D − sin C sin D = cos(C + D).

Numerator = sin(67° − 37°) = sin 30°

Denominator = cos(13° + 17°) = cos 30°

Result = sin 30° / cos 30° = tan 30° = 1/√3

Therefore The correct answer is 1/√3.

Alternate Method

Given:

Expression = (sin 67° cos 37° − sin 37° cos 67°) / (cos 13° cos 17° − sin 13° sin 17°)

Formulas Used:

1. sin(A − B) = sin A cos B − cos A sin B

2. cos(A + B) = cos A cos B − sin A sin B

Calculations:

=> Identify A = 67° and B = 37° in the numerator.

=> Numerator = sin(67° − 37°) = sin 30°

=> Identify C = 13° and D = 17° in the denominator.

=> Denominator = cos(13° + 17°) = cos 30°

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=> Total Value = sin 30° / cos 30°

=> sin 30° = 1/2 and cos 30° = √3/2

=> Total Value = (1/2) / (√3/2) = 1/√3

Therefore The correct answer is 1/√3.

Additional Information

Sine Addition/Subtraction Formulas

sin(A + B) = sin A cos B + cos A sin B and sin(A − B) = sin A cos B − cos A sin B.

Cosine Addition/Subtraction Formulas

cos(A + B) = cos A cos B − sin A sin B and cos(A − B) = cos A cos B + sin A sin B.

Tangent Values

tan 30° = 1/√3, tan 45° = 1, and tan 60° = √3.

Q72. Answer: (d) 7 hours 12 minutes

Calculations:

According to the question,

Total hours = 24hours

Total hours spent in school = 30% of total hours

School = 30% × 24

School = 0.30 × 24 = 7.2 hours or 7 hours 12 minutes

Therefore The student spend 7 hours 12 minutes per day in school.

Q73. Answer: (d) 2000 cm

Shortcut Trick

Volume of melted Sphere = Volume of cylindrical Wire => L = Volume of sphere ÷ Area of cross-section.

Radius of wire (r) = 15 mm = 1.5 cm.

$L = (4/3 \times \pi \times R^3) \div (\pi \times r^2)$

$L = (4/3 \times 15^3) \div 1.5^2 = 4500 \div 2.25 = 2000$ cm

Therefore The correct answer is 2000 cm.

Alternate Method

Given:

Radius of solid metallic sphere (R) = 15 cm

Radius of wire (r) = 15 mm = 1.5 cm

Formula Used:

Volume of Sphere = $4/3 \times \pi \times R^3$

Volume of Cylinder (Wire) = $\pi \times r^2 \times L$

Calculations:

Since the sphere is melted to form the uniform wire, their volumes must be equal.

=> Volume of Sphere = Volume of Wire

=> $4/3 \times \pi \times R^3 = \pi \times r^2 \times L$

=> $4/3 \times 15^3 = 1.5^2 \times L$

=> $4/3 \times 3375 = 2.25 \times L$

=> $4500 = 2.25 \times L$

=> $L = 4500 \div 2.25$

=> L = 2000 cm

Therefore The correct answer is 2000 cm.

Additional Information

Conservation of Volume

Whenever a solid metallic object is melted and recast into another geometric form, the total volume remains strictly constant assuming no material is lost in the process.

Volume of a Cylinder

A wire is typically considered a very long cylinder. The volume of a solid cylinder of radius r and length (or height) h is given by $V = \pi \times r^2 \times h$.

Volume of a Sphere

The total internal volume of a solid 3D sphere of given radius R is calculated using the formula $V = 4/3 \times \pi \times R^3$.

Units Conversion

It is essential to convert all physical measurements to a common consistent unit before substituting them into equations. For linear length, 1 cm = 10 mm.

Q74. Answer: (d) 10%

Given:

Mark up % = 25% of CP

Discount% = 12%

Concept used:

Profit% = [(SP - CP)/CP] × 100

Calculations:

Let the CP be Rs. 100 then MP = Rs. 125

=> SP = 125 (1 - 12%)

=> SP = 125 (1 - 0.12)

=> SP = 125 (0.88) = Rs. 110

Now Profit%

=> Profit% = [(110 - 100)/100] × 100

=> Profit% = [10/100] × 100

=> Profit% = 10%

Therefore The percentage profit he makes is 10%.

Q75. Answer: (b) 30

Given:

b2 - 4b - 1 = 0

Formula used:

$(a - b)^2 = a^2 + b^2 - 2ab$

Calculation:

According to the question,

=> b2 - 4b - 1 = 0

=> b2 - 1 = 4b

Divide both sides by b.

=> b - 1/b = 4

Hence, b - 1/b = 4

On squaring both sides, we get,

$=> (b - 1/b)^2 = (4)^2$

$=> b2 + 1/(b^2) - 2 = 16$

$=> b2 + 1/(b^2) = 18$

Now,

$=> b2 + 1/(b^2) + 3b - 3/b$

$=> (b2 + 1/(b^2)) + 3 (b - 1/b)$

=>18 + 3 × 4

=>18 + 12 = 30

Hence, the required value is 30.

Shortcut Trick

Concept used:

If, x-1/x = p then,

$x^2+1/(x^2) = p^2 + 2$

Calculation:

According to the question,

=> b2 - 4b - 1 = 0

=> b2 - 1 = 4b

Divide both side by 'b'

=> b - 1/b = 4

Now,

=> b - 1/b = 4

=> $b^2 + 1/(b^2) = (4)^2 + 2$

=> b2 + $1/(b^2)$ = 18

Now,

=> b2 + $1/(b^2)$ + 3b - 3/b

=> (b2 + $1/(b^2)$) + 3 (b - 1/b)

=> 18 + 3 × 4

=> 18 + 12 = 30

Q76. Answer: (c) Kuchipudi

The correct answer is Kuchipudi.

Key Points

• Deepika Reddy is an acclaimed Kuchipudi dancer.

• She started her journey 50 years ago and she had her Rangapravesham in 1976.

• She has performed across the world, including at the Rashtrapati Bhavan, Sri Lankan parliament, Hiroshima in Japan, and France.

• She received the prestigious Sangeet Natak Akademi Award for her contribution to the Kuchipudi dance from President Ram Nath Kovind at Rashtrapati Bhavan.

• Deepika Reddy has been in the field of Kuchipudi for the past 47 years.

• She has relentlessly propagated this art form through her performances the world over and by training hundreds of students in her dance institute Deepanjali.

Additional Information

• Sujata Mohapatra is a popular Odissi dancer.

• She has mesmerized many people with her graceful moves and she was conferred with the prestigious Sangeet Natak Akademi Awards for 2017.

• She is a disciple and daughter-in-law of legendary Odissi guru Kelucharan Mohapatra.

• She is known for her strict adherence to the technicalities of the dance form and genuine expressions that leave the audience spell-bound.

• The award carries with it Rs 100,000, a ‘Tamra Patra’ and an ‘angavastram’.

Bharatanatyam

• Rama Vaidyanathan is a popular Bharatanatyam dancer.

• She is one of the directors of Ganesha Natyalaya, one of the best Bharatanatyam institutes in the country.

• She has toured the country and the world, performing and showcasing her art.

• She was selected for Sangeet Natak Akademi Award for the year 2017.

Manipuri

• L.N. Oinam Ongbi Dhoni Devi is a popular Manipuri dancer.

• President Ram Nath Kovind confers Sangeet Natak Akademi Award 2017 on Manipuri dancer L.N. Oinam Ongbi Dhoni Devi during a special investiture ceremony at Rashtrapati Bhawan.

Q77. Answer: (c) Changing India

The correct answer is Changing India.

Key PointsChanging India

• The book titled “Changing India” has been authored by former Prime Minister Dr. Manmohan Singh.

• In the book, the Congress leader narrated his journey from an economist to a politician and shared anecdotes from his life.

• It provides a comprehensive view of today’s rapidly changing India in a way that is both reader-friendly and scholarly, without requiring prior knowledge on the subject from its readers.

• It investigates Indian culture, politics, economics and technology, as well as population and environmental issues.

• Gender issues are also discussed throughout the book.

• The author provides a balanced picture of emerging India’s many triumphs, as well as its lingering problems and the ongoing battle for more inclusive growth.

Additional Information

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A shot at history

• "A Shot at History: My Obsessive Journey to Olympic Gold" is a 2011 autobiography of Indian 2008 Summer Olympics Gold medalist Abhinav Bindra.

• In this book, Bindra tells that only hunger for success and inner desire helps anyone to achieve his or her dreams.

Ace Against odd

• "Ace Against Odds" is the 2016 biography of the Indian professional tennis player Sania Mirza.

• The book is her official biography chronicling her journey to becoming one of India and the world's top female tennis players.

My Country My Life

• "My Country My Life" is an autobiographical book by L. K. Advani.

• He was an Indian politician who served as the Deputy Prime Minister of India from 2002 to 2004 and was the Leader of the Opposition in the 15th Lok Sabha.

• The book was released on 19 March 2008 by Abdul Kalam, the eleventh President of India.

Q78. Answer: (d) Atmakatha

The correct answer is Atmakatha.

Key PointsAtmakatha

• Justice Anna Chandy was India’s first female judge and the first woman in the country to become a High court judge.

• She has been described as a ‘first-generation feminist’.

• She contested from Shree Mulam Popular Assembly and was elected for the term 1932-34.

• She became the first woman judge in the Indian district court in 1937.

• She was the 2nd woman in the world who reached the high court judgeship in 1959.

• In 1971 the Malayala Manorama serialized her autobiography which was subsequently published in Thrissur by Carmel Books in 1973 under the title Atmakatha.

Additional Information Atmavrittanta

• Atmavrittanta, formally published as Manilal Nabhubhai Dwivedinu Atmavrittanta, is an autobiography written by Gujarati writer Manilal Nabhubhai Dwivedi.

• At the age of 28, Manilal decided to write his autobiography and maintain a diary of important events until the end of his life.

• Manilal handed over the manuscript of his autobiography to his trusted friend Anandshankar Dhruv before his death in 1898.

Majya Jalmachi Chittarkatha

• Maya Jalmachi Chittarkatha is an autobiography of Shantabai Kamble published in 1983.

• This is considered the first autobiographical narrative by a Dalit woman writer.

• This book shows the life of an Indian woman who was from the lower class of the caste.

Ente Katha

• Ente Kadha (My Story) is an autobiography written by Kamala Surayya (Madhavikutty) in the year 1973.

• She was motivated to write this as she became ill and thought will not survive.

• The book was controversial and outspoken and had her critics gunning her after it was published in 1973.

Q79. Answer: (a) Dance

The correct answer is Dance.

Key Points

• Vannadil Pudiyaveettil Dhananjayan and Shanta Dhananjayan, also known as the Dhananjayans.

• They are a dancing couple of India and were awarded Padma Bhushan in 2009.

• They were honored with Sri Shanmukh ananda National Eminence Award in the field of dance in 2020.

• They were honored with the Sangeet Natak Academy Award, Government of India, 1994.

Additional InformationNational Eminence Award

• The National Eminence Award is granted only once during the lifetime of the awardee and he/she would be disqualified if he/she surrenders or is directed to surrender any national honors like Padmashri, Padma Bhushan, Padma Vibhushan, etc.

• The Award carries a cash prize of Rs .2,50,000 a Citation, a gold-coated lamp, a trophy, and a shawl.

• The National Eminence Award covers any of the following fields:

• Music of all forms and origin

• Dance

• Theatre

• Fine Arts Administrators

National Eminence Awardees

Year	Date	Awardee	Category
2017	17/12/2017	Pandit Ramnarayan	Sarangi
2018	15/12/2018	Ustad Zakir Hussain	Tabla
2019	07/12/2019	Dr. Umayalpuram Sivaraman	Mrudangam
2020	05/12/2020	Shri. V. P. Dhananjayan	Dance
2021	27/03/21	Pandit Arvind Parikh	Hindustani Sitar

Q80. Answer: (b) China

The correct answer is China.

Key Points

• The 2020 Summer Paralympics, branded as the Tokyo 2020 Paralympic Games, was an international multi-sport parasports event held from 24 August to 5 September 2021 in Tokyo, Japan.

• They were the 16th Summer Paralympic Games as organized by the International Paralympic Committee (IPC).

• China topped the medal table for the fifth consecutive Paralympics, with 96 golds and 207 total medals.

• Great Britain finished second for the ninth time, with 41 golds and 124 total medals.

• The United States finished third, with 37 golds, their best finish since the 2008 games, and 104 total medals.

• The Russian Paralympic Committee finished fourth, with a total of 36 golds and 118 total medals, putting them in third place when ranked by total medals.

Additional Information

• Out of the 124 British medals won at Tokyo 2020, 41 were gold, 38 silver, and the remaining 45 were bronze medals..

• The Australian Paralympic team achieved a total BenchMark EC Score of 219 among all those familiar with the team.

• The second placed team was the Australian Olympic team with 213.

• Overall, the study evaluated 19 of Australia’s national and state teams.

• The United States of America (USA), represented by the United States Olympic & Paralympic Committee, has participated in every Summer and Winter Paralympic Games and is currently first on the all-time medal table.

• The nation used to be a dominant Paralympic power in the 1960s, 1970s, and 1980s, but has steadily declined since the 1990s to a point where it finished sixth in the 2012 Summer Paralympics medal count.

• The team then improved to a fourth-place finish in 2016, and third in 2020, and unexpectedly finished first at the 2018 Winter Paralympics.

Q81. Answer: (c) Jean Baptiste Perrin

The correct answer is Jean Baptiste Perrin.

Key PointsJean Baptiste Perrin

• Jean Baptiste Perrin was awarded the Nobel Prize in Physics in 1926“ for his work on the discontinuous structure of matter, and especially for his discovery of sedimentation equilibrium”.

• His work with Brownian motion verified Albert Einstein’s theory and confirmed the atomic nature of matter.

• The majority of his career was spent at the University of Paris-Sorbonne.

• In 1895, Perrin showed that cathode rays were of negative electric charge in nature.

• He determined Avogadro's number by several methods.

• He explained solar energy as due to the thermonuclear reactions of hydrogen.

Additional InformationCharles Wilson

• Charles Thomson Rees Wilson was a Scottish physicist and meteorologist.

• He won the Nobel Prize in Physics for his invention of the cloud chamber.

• The invention of the cloud chamber was by far Wilson's signature accomplishment, earning him the Nobel Prize for Physics in 1927.

• He became particularly interested in meteorology, and in 1893 he began to study clouds and their properties.

Murray Gell-Mann

• Murray Gell-Mann is an American physicist who is credited with the introduction of the concept of quarks.

• He has done groundbreaking work on the description and classification of subatomic particles.

• The Nobel Prize in Physics 1969 was awarded to Murray Gell-Mann "for his contributions and discoveries concerning the

classification of elementary particles and their interactions."

Owen Willans Richardson

• Richardson was born in Dewsbury, Yorkshire, England, the only son of Joshua Henry and Charlotte Maria Richardson.

• He was educated at Batley Grammar School and Trinity College, Cambridge, where he gained First Class Honours in Natural Sciences.

• He then got a DSc from the University of London in 1904.

• Sir Owen Willans Richardson, was a British physicist who won the Nobel Prize in Physics in 1928 for his work on thermionic emission, which led to Richardson's law.

Q82. Answer: (d) Ampere

The correct answer is Ampere.

Key PointsAmpere

• The ampere often shortened to 'amp' is the SI base unit of electric current.

• The ampere (symbol: A) is the SI base unit of electric current equal to one coulomb per second.

• One ampere is equal to 6.241509074×1018 electrons worth of charge moving past a point in a second.

• It is named after the French mathematician and physicist Andre Marie Ampere considered the father of electromagnetism along with Danish physicist Hans Christian Orsted.

Additional InformationVolt

• The volt (symbol: V) is the derived unit for electric potential, electric potential difference (voltage), and electromotive force.

• It is named after the Italian physicist Alessandro Volta.

• One volt is defined as the electric potential between two points of a conducting wire when an electric current of one ampere dissipates one watt of power between those points.

• Equivalently, it is the potential difference between two points that will impart one joule of energy per coulomb of charge that passes through it.

• It can be expressed in terms of SI base units (m, kg, s, and A).

Kelvin

• The kelvin, symbol K, is the SI base unit of temperature.

• It is named after the Belfast-born and University of Glasgow-based engineer and physicist William Thomson, 1st Baron Kelvin.

• The Kelvin scale is an absolute thermodynamic temperature scale, meaning it uses absolute zero as its null point.

• The Kelvin scale was developed by shifting the starting point of the much older Celsius scale down from the melting point of water to absolute zero.

Candela

• The candela (cd) is defined as the luminous intensity in a given direction of a source that emits monochromatic radiation of frequency 540 × 1012 hertz.

• It has a radiant intensity in that same direction of 1/683 watt per steradian (unit solid angle).

• It is the unit of luminous intensity in the International System of Units (SI).

• The candela has replaced the standard candle or lamp as a unit of luminous intensity in calculations involving artificial lighting and is sometimes called the “new candle".

Q83. Answer: (c) APJ Abdul Kalam

The correct answer is APJ Abdul Kalam.

Key PointsAPJ Abdul Kalam - Wings of Fire

• The Wings of Fire is an autobiography of former Indian President APJ Abdul Kalam.

• His autobiography is jointly penned by Abdul Kalam and Arun Tiwari.

• The book covers his life before he became the President of India and commanded the armed forces.

• It covers his inspiring journey from a modest background to the journey up the ranks in his career as well as popularity with the common man.

• The book goes on to his rise as a f the most loved sons of the country.

Additional InformationRam Nath Kovind

• Ram Nath Kovind was the 14th President of India.

• Ram Nath Kovind started his career in 1971 as an advocate with the Bar Council and served as the Central Government Advocate from 1977 to 1979.

• Between 1977 and 1978, he served as the personal assistant of PM Morarji Desai.

• In 1978, he became an advocate-on-record of the Supreme Court of India and served as a standing counsel for the central

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government in the Supreme Court of India from 1980 to 1993.

Pranab Mukherjee

• Pranab Mukherjee, in full Shri Pranab Kumar Mukherjee was an Indian politician and government official who served as president of India.

• Mukherjee was the author of several books, including Beyond Survival: Emerging Dimensions of Indian Economy (1984) and Challenges Before the Nation (1993).

• In 2019 he was awarded the Bharat Ratna, India's highest civilian honor.

Kocheril Raman Narayanan

• K. R. Narayanan or Kocheril Raman Narayanan was a diplomat, academic and politician.

• He served India as the 10th President and 9th Vice-President.

• He did his B.A. (Hons.) and M.A. in English literature from the University of Travancore and became the first Dalit to obtain a degree with first-class from the University of Travancore.

Current president Of India: Droupadi Murmu

Q84. Answer: (b) Meer Qutub Baksh

The correct answer is Meer Qutub Baksh.

Key PointsMeer Qutub Baksh

• Meer Qutub Baksh alias 'Tanrus Khan' was an iconic Khayal singer of the 19th century.

• He was an Indian musician of the Hindustani Classical tradition known for being a luminary of the Delhi Gharana.

• He was a court musician and music teacher to the last Mughal emperor Bahadur Shah Zafar II.

• Tanrus Khan was famous for his swift, sparkling Taans and so the title 'Tanrus' (one who has a charming Taan) was given to him by Bahadur Shah Zafar II, the last Mughal emperor.

• Occasionally Tanrus Khan sang qawwalis also.

• So he is also said to be a member of the 'Qawwal Bachchon Ka Delhi Gharana' originally organized by the legendary 13th-century musician Amir Khusrow.

Additional InformationBade Ustad Ghulam Ali Khan

• Ustad Bade Ghulam Ali Khan was an Indian Hindustani classical vocalist, from the Patiala gharana.

• Bade Ghulam amalgamated the best of three traditions into his own Patiala-Kasur style:

• The Behram Khani elements of Dhrupad

• The gyrations of Jaipur

• The behlavas of Gwalior.

• He received Sangeet Natak Akademi Award in 1962.

Ustad Amir Khan

• Ustad Amir Khan was one of the greatest and most influential Indian vocalists in the Hindustani classical tradition.

• He was the founder of the Indore Gharana.

• Although his singing style was an amalgamation of Kirana and Bhendibazaar Gharanas.

• He was a virtually self-taught musician.

• He developed his own gayaki influenced by the styles of Abdul Waheed Khan, Rajab Ali Khan, and Aman Ali Khan.

Sadarang

• Sadarang was the pen name of the Hindustani musical composer and artist Naimat Khan.

• He was active in the eighteenth century.

• He and his nephew Adarang changed the Khayal style of Hindustani music into the form performed today.

• Naimat Khan composed Khyal for his disciples and he never performed Khyal.

• Sadarang served in the court of Mughal Emperor Muhammad Shah.

• Sadarang and Adarang remain influential in Hindustani classical music, mainly through their compositions.

Q85. Answer: (d) Sourav Ganguly

The correct answer is Sourav Ganguly.

Key Points

• Board of Control for Cricket in India (BCCI) President and former India captain Sourav Ganguly has been appointed as the chairman of the International Cricket Council (ICC) Men's Cricket Committee.

• He replaced Anil Kumble in the role.

• Anil Kumble stepped down as chairman of the ICC Cricket Committee after he served a maximum of three-year terms.

• Ganguly served as President of the Cricket Association of Bengal between 2015 and 2019 and took over as BCCI president in October 2019.

• The decision was taken at the International Cricket Council (ICC) Board Meeting in Dubai.

Additional InformationKapil Dev

• Kapil Dev Ramlal Nikhanj is an Indian former cricketer.

• He was a fast-medium bowler and a hard-hitting middle-order batsman and was named by Wisden as the Indian Cricketer of the Century in 2002.

• Dev captained the Indian cricket team that won the 1983 Cricket World Cup.

Anil Kumble

• Anil Kumble is a former Indian cricket captain, coach, and commentator.

• He played Test and One Day International cricket for his national team over an international career of 18 years.

• Widely regarded as one of the best leg-spin bowlers in Test cricket history, he took 619 wickets in Test cricket.

• He is the fourth highest wicket-taker of all time as of 2022.

Sunil Gavaskar

• Sunil Manohar Gavaskar is an Indian cricket commentator and former cricketer who represented India and Bombay from 1971 to 1987.

• Gavaskar is acknowledged as one of the greatest opening batsmen of all time.

• Gavaskar was widely admired for his technique against fast bowling, with a particularly high average of 65.45 against the West Indies.

• He possessed a four-pronged fast bowling attack regarded as the most vicious in Test history.

Confusion Points

• The composition of the ICC Board is as follows :

• ICC Chairman is Greg Barclay (ICC Chair).

• ICC Men's Cricket Committee Chairman is Sourav Ganguly.

• Women's Cricket Committee Chairman is Clare Connor.

• India's representative in ICC is Jay Shah.

Q86. Answer: (c) Cell wall

The correct answer is the Cell wall.

Key PointsCell wall

• The cell wall is the outer covering of a cell, present adjacent to the cell membrane, which is also called the plasma membrane.

• The cell wall is present in all plant cells, fungi, bacteria, algae, and some archaea.

• An animal cell is irregular in its shape and this is mainly due to the lack of a cell wall.

• The compositions of the cell wall usually vary along with organisms.

• It provides tensile strength and protection against mechanical and osmotic stress.

Additional InformationCell membrane

• The cell membrane is also called the plasma membrane.

• It is found in all cells and separates the interior of the cell from the outside environment.

• The cell membrane consists of a lipid bilayer that is semi-permeable.

• It regulates the transport of materials entering and exiting the cell.

Plastids

• Plastids are double-membrane organelles that are found in the cells of plants and algae.

• They are responsible for manufacturing and storing food.

• These often contain pigments that are used in photosynthesis and different types of pigments that can change the color of the cell.

Vacuole

• The term “vacuole” means “empty space”.

• They help in the storage and disposal of various substances.

• They can store food or other nutrients required by a cell to survive.

• They also store waste products and prevent the entire cell from contamination.

• The vacuoles in plant cells are larger than those in animal cells.

Q87. Answer: (d) Subramanian Raman

The correct answer is Subramanian Raman.

Key Points

• The Dronacharya Award, officially known as Dronacharya Award for Outstanding Coaches in Sports and Games, is sports coaching honour of the Republic of India.

• The award is named after Drona, often referred to as "Dronacharya" or "Guru Drona", a character from the Sanskrit epic Mahabharata of ancient India.

• He was a master of advanced military warfare and was appointed as the royal preceptor to the Kaurava and the Pandava princes for their training in military arts and astras.

• It is awarded annually by the Ministry of Youth Affairs and Sports.

• Subramanian Raman won the Dronacharya Award for outstanding coaches in Sports and Games 2021 (Regular Category) in the Table Tennis discipline.

Additional InformationDronacharya Award 2021 recipients

Sr. No	Recipients	Discipline
1	Pritam Rani Siwach	Hockey
2	Radhakrishnan Nair P	Athletics
3	Sandhya Gurung	Boxing
4	Prakash Nautiyal	Shooting

Q88. Answer: (c) Gas

The correct answer is Gas.

Key PointsGas

• In a gas, particles are in continual straight-line motion.

• The kinetic energy of the molecule is greater than the attractive force between them, thus they are much farther apart and move freely of each other.

• The gas particles have big distances between them.

• In most cases, there are essentially no attractive forces between particles.

• This means that gas has nothing to hold a specific shape or volume.

Additional InformationLiquid

• The particles in a liquid usually are still touching but there are some spaces between them

• In a liquid, particles will flow or glide over one another, but stay toward the bottom of the container.

• The attractive forces between particles are strong enough to hold a specific volume but not strong enough to keep the molecules sliding over each other.

Solid

• Solids are denser than liquids.

• The particles in the solid are touching with very little space between them.

• In a solid, the attractive forces keep the particles together tightly enough so that the particles do not move past each other.

• Their vibration is related to their kinetic energy.

• In the solid, the particles vibrate in place.

Plasma

• Plasma is often called “the fourth state of matter,” along with solid, liquid, and gas.

• Just as a liquid will boil, changing into a gas when energy is added, heating a gas will form a plasma.

• Although the plasma state is very rare on earth it is interesting to note that our solar system is dominated by plasma, as the Sun is in a plasma state.

• Other examples where plasmas can be found are in stars, lightning, solar wind, fusion devices, welding arcs, neon signs, aurora, nebulae, galaxies, etc.

Q89. Answer: (b) State of Madhya Pradesh

The correct answer is State of Madhya Pradesh.

Key PointsJuvenile Justice And Its Procedure In India

• The word juvenile originated from the Latin word juvenis, which means young.

• It means that a child has not completed the eighteenth year of age.

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• The Supreme Court observed that juvenile offenders under 18 years and above 16 years are to be remitted to the jurisdictional Juvenile Justice Board.

• Clause (l) of Section 2 of the 2000 Act provides that “juvenile in conflict with law” means a “juvenile” who is alleged to have committed an offense and has not completed the eighteenth year of age as on the date of commission of such offense.

• Section 20 also enables the court to consider and determine the juvenility of a person even after conviction by the regular court and also empowers the court, while maintaining the conviction.

Additional Information

• The Cabinet has approved amendments to the Juvenile Justice (Care and Protection of Children) Act, whereby juveniles in the age group of 16-18 can be tried under the Indian Penal Code (IPC) if they are accused of heinous crimes.

• Rejecting the recommendations of a Parliamentary Standing Committee, the Women and Child Development Ministry decided to go ahead with the proposal.

• The Supreme Court had also recently observed that there was a need to relook at the provisions of the Juvenile Justice Act in cases where the accused have committed crimes like rape, murder dacoity and acid attacks.

Q90. Answer: (b) Articles 52 to 78

The correct answer is Articles 52 to 78.

Key PointsArticles 52 to 78

• Articles 52 to 78 of the Indian Constitution deal with the Union Executive.

• Article 52 states that there shall be a President of India.

• Article 53 talks about that the executive power of the Union shall be vested in the President and shall be exercised by him.

• Article 56 defines the term of the office of the President to be of five years

• Article 58 talks about the eligibility of a person to become President of India.

• Article 59 of the Indian Constitution talks about the conditions of the President’s office.

• Article 71 deals with matters relating to the election of the President.

• Article 72 provides for the provisions relating to the pardoning powers of the President.

Additional Information

• Article 38 talks about Social, Political, and Economic Justice.

• Article 39 mentions all the Principles of policy that must be followed by the State.

• Article 40 deals with the Organization of Panchayats.

• Article 41 talks about Welfare Government.

• Article 42 talks about Securing just and humane work and maternity relief.

• Article 43 talks about Fair wages and a decent standard of life.

• Article 44 talks about the Uniform Civil Code.

• Article 45 contains the Provision for free and compulsory education for the children in the country.

• Article 46 deals with the Protection of SCs, STs, and weaker sections from exploitation.

• Article 47 talks about Nutrition, Standard of living, and public health.

• Article 48 talks about Scientific agriculture and animal husbandry.

• Article 49 talks about the Protection of monuments and places and objects of national importance.

• Article 50 talks about the Separation of the Judiciary from the Executive.

Q91. Answer: (a) 2^(nd)

The correct answer is 2nd

Key Points

• As per World Steel Association data, India became the second-largest steel producer of crude steel after China in 2019, by replacing Japan.

• India’s crude steel production in 2019 was at 111.2 MT, an increase of 1.7 percent from 109.3 MT in 2018.

• China remains number one with 996.3 million tonnes in 2019.

• The United States and Russia rank fourth and fifth respectively.

Additional Information

• India’s crude steel production in 2018 was reported at 109.3m tonnes, an increase of 7.7% from 2017. In 2019, this increased to 111.2m tonnes.

• The growth in the Indian steel sector has been driven by the easy availability of raw materials, labour as well as a steadily expanding construction market.

• India’s steel demand is expected to rise by 7.2% in 2019-20. The demand growth for steel is expected to remain unchanged at

7.2% in 2020-21.

• The Government has launched the Purvodaya program which aims accelerated the development of eastern India with an integrated steel hub.

• Here is the list of Top 5 Crude steel producers in the world in 2019:

Rank	Country	Quantity(mt)
1	China	996.3
2	India	111.2
3	Japan	99.3
4	USA	87.9
5	Russia	71.6

Q92. Answer: (c) Lucknow Gharana

The correct answer is Lucknow Gharana.

Key PointsBirju Maharaj

• Pandit Birju Maharaj was an Indian dancer, composer, singer, and exponent of the Lucknow "Kalka-Bindadin" Gharana of Kathak dance in India.

• He was a descendant of the Maharaj family of Kathak dancers, which includes his two uncles, Shambhu Maharaj and Lachhu Maharaj, and his father and guru, Acchan Maharaj.

• He is associated with the Lucknow Gharana.

• He also practiced Hindustani classical music and was a vocalist.

• Birju Maharaj was a recipient of the Padma Vibhushan, India's second highest civilian honor, in 1986.

Additional InformationRaigarh Gharana

• Raigarh Gharana was founded by Raja Chakradhar Singh.

• It is the youngest of all gharanas and has its own compositions of thumris, ghazals, todas, and bols which are unique in themselves.

• It is not named much, but this Gharana is a kind of ‘Samhita’ of dance for the unique light of classical and folk tradition.

Jaipur Gharana

• Jaipur Gharana of Kathak was conceived by Bhanu Ji Maharaj.

• He learned Shiv Tandav from a saint and continued to pass this culture to the coming generations.

• Shiv Tandav is an aggressive dance form of Kathak.

• It is believed by Hindus that Lord Shiva performed Tandav to channel his anger.

Banaras Gharana

• Kathak Banaras Gharana was developed by Renowned Kathak dancer Janakiprasad.

• He originally belonged to Bikaner. He established Banaras Gharana of Kathak while teaching his student the intricacies of this classical dance.

• There are several differences that stand this Gharana apart from other Kathak Gharanas.

• Among other things, Thaat (a piece of performance) and Tatkaar (footwork) performed under this Banaras Gharana differs from other Gharanas.

• Unlike Jaipur Gharana, the pirouettes (chakkars) are used minimally.

Q93. Answer: (b) green GDP

The correct answer is green GDP.

Key PointsGreen GDP

• Green GDP is a term used generally for expressing GDP after adjusting for environmental damage.

• In other words, Green GDP is a monetization of the loss of biodiversity caused by climate change.

• It is calculated by subtracting resource depletion, and environmental degradation from the traditional GDP figure.

• It is very helpful for managing economies as well as resources.

• It is expected to account for the use of natural resources as well as the costs involved.

• It also includes medical costs generated from factors such as air and water pollution, loss of livelihood due to environmental crises such as floods or droughts, and other factors.

Additional InformationWhite Economy

• The term “white economy” includes all sectors that involve the production, research, marketing, and distribution of health-related goods and services.

• In Italy, it is composed of public and private components, because the Italian health system is a system composed of both components.

• The private component involves, in particular, manufacturing, commerce, and services.

• The public component relates to services provided by public hospitals, general practitioners, and, more generally, all the facilities and professionals who make up the National Health Service.

Brown Economy

• A brown economy is one in which economic growth is largely dependent on environmentally destructive forms of activity, especially fossil fuels like coal, oil, and gas.

• At the center of this economy are the major oil corporations as well as a wide range of companies that assist with the extraction, refining, and transportation of fossil fuels.

• This type of economy is rife with political corruption and is responsible for the massive levels of global warming causing greenhouse gases in our atmosphere.

Blue Economy

• In parallel, considerable momentum has gathered behind the current and future role of the ocean and its resources in economic development—nominally called the Blue Economy.

• This has specifically focused on the potential for growth of global trade and commerce and an increased resource base for critical provisions and services such as food and energy.

• The Blue Economy captures a range of activities and sectors.

• Three overarching issues stand out due to their importance in developing sustainable blue economies, namely healthy coastal and marine ecosystems, sustainable fisheries, and pollution from land-based sources.

Q94. Answer: (c) Bharat Ratna

The correct answer is Bharat Ratna.

Key Points

• Bismillah Khan became the first Indian to be invited to perform at the prestigious Lincoln Centre Hall in the United States of America.

• He also took part in the World Exposition in Montreal, the Cannes Art Festival, and in the Osaka Trade Fair.

• So well known did he become internationally that an auditorium in Teheran was named after him — Tahar Mosiquee Ustaad Bismillah Khan.

• National awards like the Padmashri, the Padma Bhushan, and the Padma Vibhushan were conferred on him.

• In 2001, Ustad Bismillah Khan was awarded India’s highest civilian award, the Bharat Ratna.

Additional InformationPadma Awards

• The Padma Awards are one of the highest civilian honours of India announced annually on the eve of Republic Day.

• The Awards are given in three categories:

• Padma Vibhushan (for exceptional and distinguished service)

• Padma Bhushan (distinguished service of higher order)

• Padma Shri (distinguished service).

• The award seeks to recognize achievements in all fields of activities or disciplines where an element of public service is involved.

• The Padma Awards are conferred on the recommendations made by the Padma Awards Committee, which is constituted by the Prime Minister every year.

• The nomination process is open to the public. Even self-nomination can be made.

Q95. Answer: (b) Relay race

The correct answer is Relay race.

Key PointsRelay race

• Relay race, also called Relay, is a track-and-field sport consisting of a set number of stages (legs), usually four, each leg run by a different member of a team.

• The runner finishing one leg is usually required to pass on a baton to the next runner while both are running in a marked exchange zone.

• The baton in track and field serves its purpose as passing or exchanging objects/tools from one runner/sprinter to the next during a relay race between various competing teams of four members each running against each as a team.

• Track and field relay normally have the 4 by 100 meter or 4 by 100-yard relay or the 4 by 400 meter or 4 by 440-yard relay.

• There are other relay distances, especially during a sole relay race competition.

Additional InformationHammer throw

• The hammer throw is one of the four throwing events in regular track and field competitions, along with the discus throw, shot put, and javelin.

• The "hammer" used in this sport is not like any of the tools also called by that name.

• It consists of a metal ball attached by a steel wire to a grip.

• The size of the ball varies between men's and women's competitions.

High Jump

• The high jump is a track and field event in which competitors must jump unaided over a horizontal bar placed at measured heights without dislodging it.

• In its modern, most-practiced format, a bar is placed between two standards with a crash mat for landing.

• Since ancient times, competitors have introduced increasingly effective techniques to arrive at the current form, and the current universally preferred method is the Fosbury Flop, in which athletes run towards the bar and leap head first with their back to the bar.

Steeple Chase

• The steeplechase is an obstacle race in athletics, which derives its name from the steeplechase in horse racing.

• The foremost version of the event is the 3000 meters steeplechase.

• The 2000 meters steeplechase is the next most common distance.

• A 1000 meters steeplechase is occasionally used in youth athletics.

Q96. Answer: (c) France

The correct answer is France.

Key Points

• Alarmel Valli is a leading Indian classical dancer and choreographer and the foremost exponent of the Pandanallur style, in the Indian classical dance form, Bharatanatyam.

• She is widely acclaimed for her ability to turn traditional grammar into a deeply internalized, personal dance poetry.

• She founded The Dipasikha Dance Foundation in Chennai in 1984, where she teaches Bharatanatyam.

• She was awarded the Sangeet Natak Akademi Award in 2001 by India's National Academy for Music, Dance, and Drama.

• Alarmel Valli was the second youngest dancer to be conferred the Padma Shri from the Government of India, after Vyjayanthimala.

• Followed by one of India's highest civilian honours – the Padma Bhushan award from the Government of India in 2004 and the Chevalier of Arts and Letters award from the Government of France, also in 2004.

Additional InformationChevalier of Arts and Letters award

• The award honors those who have made important contributions to the arts in France or to France’s cultural and artistic legacy.

• Established by the Minister of Culture in 1957 and confirmed by President Charles de Gaulle in 1963, it is the most significant arts-specific honor conferred by the French government.

• Some noted Indian recipients of this honour in the past include Shahrukh Khan, Aishwarya Rai, Raghu Rai, Ebrahim Alkazi, the late Habib Tanveer, and Upamanyu Chatterjee.

• Riding high on the remarkable success of her recent Hindi feature film Pagglait, acclaimed filmmaker Guneet Monga is conferred with the honour of Knight of the Order of Arts and Letters.

• Producer Guneet Monga, known for backing films like "The Lunchbox" and "Masaan", has been awarded the second highest civilian French honour.

Q97. Answer: (d) H2C = CH2

The correct answer is H2C = CH2.

Key PointsEthene

• Ethene (ethylene) is the most important organic chemical, by tonnage, that is manufactured.

• It is the building block for a vast range of chemicals from plastics to antifreeze solutions and solvents.

• It is a group of plant growth regulators which are widely used for ripening fruits and for the production of more flowers and fruits.

• It is a small hydrocarbon, the colorless flammable gas which is denoted by the formula C2H4 or H2C=CH2.

• Ethene is the IUPAC name for ethylene.

• It has a “sweet and musky” odour when it is pure.

• It is the simplest alkene and also the second simplest unsaturated hydrocarbon C2H2.

Additional InformationPropene

• Propylene also known as Propene has the chemical formula: C3H6.

• It is a colorless fuel gas with a naturally pungent smell.
• It is composed of 3 carbon atoms and 6 hydrogen atoms.
• It also has one double bond from the middle carbon to one of the outer carbons, and then one single bond from the centre carbon to the free carbon.

1,2- dimethylethene

• 1,2-Dimethylethylenediamine (DMEDA) is the organic compound with the formula (CH3NH)2C2H4.
• It is a colorless liquid with a fishy odor.
• It features two secondary amine functional groups.
• DMEDA is used as a chelating diamine for the preparation of metal complexes, some of which function as homogeneous catalysts.
• The compound is used as a precursor to imidazolidines by condensation with ketones or with aldehydes.

Q98. Answer: (c) tabla

The correct answer is tabla.

Key PointsBickram Ghosh

• Bickram Ghosh is an Indian classical tabla player.
• He started learning tabla from his father, Pandit Shankar Ghosh.
• He has performed with Ali Akbar Khan and Pandit Ravi Shankar.
• He launched his music company, Melting Pot Productions, in October 2010.
• On 1 October 2012, he won the 2012 Global Indian Music Academy (GIMA) Awards for his composition Vande Mataram.
• In June 2012, he performed a concert "One World Fusion Extravaganza" at Shilpakala Vedika auditorium in Hyderabad.

Additional InformationTanpura

• The tanpura or tambura, tanpuri is a long-necked plucked string instrument, originating from India.
• It supports and sustains the melody of another instrument or singer by providing a continuous harmonic bourdon or drone.
• Hindustani musicians favor the term tanpura whereas Carnatic musicians say tambura.
• Gowrishankar Gurusawmy, Soman Pillai, Prasanna Athele are some of the famous tambura players.

Sarangi

• Sarangi, also called saran or saranga is a short-necked fiddle used throughout South Asia.
• It measures about 76 cm (30 inches) long.
• The instrument has a roughly rectangular slightly waisted body and broad fretless neck.
• It has three melody strings made of gut.

Bansuri

• A bansuri is an ancient side-blown flute originating from the Indian subcontinent.
• It is an aerophone produced from bamboo, and used in Hindustani classical music.
• It is referred to as nadi and tunava in the Rigveda and other Vedic texts of Hinduism.
• Its importance and operation are discussed in the Sanskrit text Natya Shastra.
• Bansuri is traditionally made from a single hollow shaft of bamboo with six or seven finger holes.
• Some modern designs come in ivory, fiberglass, and various metals.

Q99. Answer: (c) Venus flytrap

The correct answer is Venus Flytrap.

Key PointsVenus Flytrap

• The Venus flytrap is a flowering plant best known for its carnivorous eating habits.
• The “trap” is made of two hinged lobes at the end of each leaf.
• On the inner surfaces of the lobes are hair-like projections called trichomes.
• These projections cause the lobes to snap shut when prey comes in contact with them.
• The trap will only shut when the trichomes are touched multiple times.
• Venus flytrap is one of the very few that exhibits motion to actively trap its prey.

Additional InformationPhytoplankton

• Phytoplankton, also known as microalgae.
• They are similar to terrestrial plants.
• Most phytoplankton is buoyant and floats in the upper part of the ocean.
• Phytoplankton also requires inorganic nutrients such as nitrates, phosphates, and sulfur.

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• They convert inorganic nutrients into proteins, fats, and carbohydrates.

Bladderwort

• Bladderwort is a carnivorous plant.

• It is found in swamps, lakes, and streams.

• There are hundreds of different varieties of bladderworts.

• The bladders are traps that are a part of the underwater structure where the plant catches and processes its food source.

Seaweed

• "Seaweed" is the common name for countless species of marine plants and algae.

• They grow in the ocean as well as in rivers, lakes, and other water bodies.

• Some seaweeds are microscopic, such as phytoplankton.

• Some are enormous, like the giant kelp that grow in abundant forests.

• Most are medium-sized, come in colors of red, green, brown, and black.

Q100. Answer: (c) Padma Shri

The correct answer is Padma Shri.

Key PointsMuthukannammal

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

• She is the only surviving person among the 32 Devadasis who served the deity at the Viralimalai Murugan temple.

• She is the last woman to have the ceremony pottukkattutal of dedicating oneself to God performed at the Viralimalai temple.

• In the year 2022, Govt of India honoured Muthukannammal by conferring the Padma Shri award for her contributions in the field of art.

• The dance form Sadir, variously called as Sadiraattam or Parathaiyar Aattam or Thevarattam, is a classical Indian dance from which was reinvented, modified and rechristened as Bharatanatyam.

Additional InformationPadma Awards

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