SSC CHSL Tier-1 2021: Official Paper (Held On : 10 June 2022 Shift 3) (Previous Year Paper)

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

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ENGLISH LANGUAGE

Q1. Select the INCORRECTLY spelt word.

(a) Interpretation
(b) Tremendous
(c) Persistent
(d) Pronounciation

Q2. Sentences of a paragraph are given below in jumbled order. Arrange the sentences in the correct order to form a meaningful and coherent paragraph.

A. To think that a computer would one day replace a book is indeed unthinkable and far fetched.

B. The thoughts and ideas contained in a book are immortal like Tulsidas' Ram Charitra Manas, Ved Vyas' Mahabharata, The Bible and many other religious and literary works like Shakespeare's plays etc.

C. On the other hand a computer is but a machine, that at best can visually display the contents of a specific book.

D. A good book in the words of John Milton "is the precious lifeblood of a master spirit, embalmed and treasured up to a purpose to a life beyond life."

(a) BDAC
(b) DBCA
(c) ABDC
(d) DCBA

Q3. The following sentence has been split into four segments. Identify the segment that contains an INCORRECTLY spelt word.

Shanu's inquisitive mind could not / accept the seemingly ingenous reply / of the man and he resolved to solve the mystery / to mitigate the pain of the old couple.

(a) of the man and he resolved to solve the mystery
(b) accept the seemingly ingenous reply
(c) Shanu's inquisitive mind could not
(d) to mitigate the pain of the old couple

Q4. Select the INCORRECTLY spelt word.

(a) Committee
(b) Develop
(c) Referance
(d) Beginning

Q5. Select the option that can be used as a one-word substitute for the underlined group of words.

The newspaper dedicated a report giving the news of the death and details about the life of the deceased.

(a) Editorial
(b) Illustration
(c) Obituary

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(d) Forecast

Q6. Select the option that can be used as a one-word substitute for the given group of words.

A pause between the acts of a play

(a) Interlude
(b) Interline
(c) Interlace
(d) Interlink

Q7. Select the most appropriate meaning of the given idiom. Face up to

(a) Look into face
(b) Personally
(c) Alter the face of
(d) To accept a difficult situation

Q8. The following sentence has been split into four segments. Identify the segment that contains a grammatical error

The perception / of success / vary / from person to person.

(a) The perception
(b) vary
(c) of success
(d) from person to person

Q9. Select the most appropriate synonym of the given word.

Eccentric

(a) Queer
(b) Excellent
(c) Common
(d) Charming

Q10. Select the INCORRECTLY spelt word.

(a) Accessories
(b) Dominant
(c) Pamplet
(d) Politician

Q11. Select the most appropriate meaning of the highlighted idiom.

The team members seem to be running around in circles.

(a) To be very active but with few results
(b) To be extremely successful
(c) Hardly any time to breathe
(d) Very dynamic and hardworking

Q12. Select the option that can be used as a one-word substitute for the given group of words.

An instrument for detecting an earthquake

(a) Electrograph
(b) Seismograph
(c) Spectrograph
(d) Magnetograph

Q13. Select the most appropriate meaning of the given idiom. Hale and hearty

(a) Clumsy and calm
(b) Angry but happy
(c) Weak and ill
(d) Strong and healthy

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

Fall back or sink again (into a worse state after an improvement)

(a) Rekindle
(b) Reiterate
(c) Relayed
(d) Relapse

Q15. Select the most appropriate synonym of the given word.

Ludicrous

(a) Intuitive
(b) Crazy
(c) Astute
(d) Intrinsic

Q16. Select the option that expresses the given sentence in direct speech.

Fiona enquired whether I had gone to school on Tuesday

(a) “Had you been going to school on Tuesday?” Fiona asked me.
(b) “Where are you going on Tuesday?’’ Fiona asked me.
(c) “Did you go to school on Tuesday?’’ Fiona asked me.
(d) “Are you gone to school on Tuesday? Fiona enquired.

Q17. Which word in the given sentence is the ANTONYM of – Jeopardy?

(a) leave
(b) relative
(c) safety
(d) reluctant

Q18. The following sentence has been split into four segments. Identify the segment that contains a grammatical error.

He didn’t / called me / in the / last week

(a) in the
(b) He didn’t
(c) called me
(d) last week

Q19. Select the option that expresses the given sentence in passive voice.

He invited me to his place yesterday.

(a) I invited to his place yesterday.
(b) I was invited.
(c) I was invited by him to his place yesterday.
(d) To his place I was invited yesterday.

Q20. Select the correct homonym from the given options to fill in the blank.

The wind_____ so powerfully that the door closed.

(a) blew
(b) blues
(c) blue
(d) blow

Directions

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

Everything (1) _____ us makes our environment. Living and non-living things form the (2) _____ of our surroundings. Plants, animals and microbes are parts of our environment. Humans have affected the environment in multiple (3) __ like clearing of forests, building houses and farms, making roads, etc. This is the root (4) ___ of air, water and land pollution on the planet.

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Ecologists across the globe are making efforts to educate mankind about the (5) _____ of nature, the crisis we face and the methods of managing these crises.

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

(a) over
(b) beyond
(c) across
(d) around

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

(a) fractions
(b) ingredients
(c) components
(d) fragments

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

(a) plans
(b) courses
(c) means
(d) ways

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

(a) cause
(b) source
(c) origin
(d) Motive

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

(a) surprise
(b) wonders
(c) compassion
(d) sensation

GENERAL INTELLIGENCE

Q26. If 14 January 2022 was Friday, then what will be the day of the week on 28 February 2025?

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

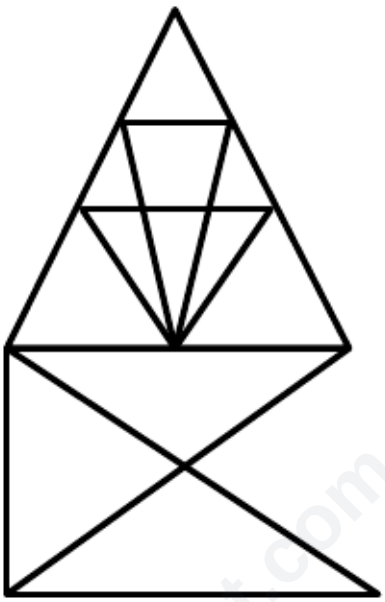
Q27. Select the option that is related to the fifth term in the same way as the second term is related to the first term and fourth term related to third term.

5372 : 7532 :: 4928: 9842 :: 9284 : ?

(a) 8924
(b) 9842
(c) 8942
(d) 9824

Q28. Find how many triangles are there in the given figure.

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(a) 24
(b) 21
(c) 22
(d) 23

Q29. Seven friends A, B, C, D, E, F and G, each has a different height. C is taller than D. A is the shortest among all. Only four people are taller than C. E is taller than G but shorter than F. F is not the tallest. The height of how many people is between the heights of B and G?

(a) 3
(b) 1
(c) 0
(d) 2

Q30. Select the option that is related to the third word in the same way as the second word is related to the first word. (The words must be considered as meaningful English words and must NOT be related to each other based on the number of letters/number of consonants/vowels in the word)

ATM : Bank :: Ambulance : ?

(a) Nurse
(b) Patient
(c) Hospital
(d) Doctor

Q31. In a certain code language, ‘ADDITION’ is written as ‘EBJEJUOP’ and ‘SUBTRACT’ is written as ‘VTUCBSUD’. How will 'MULTIPLY’ be written in that language?

(a) VNMUJQMY
(b) UMTILLPY
(c) VNUMQJZM
(d) YLPITLUM

Q32. Select the option that represents the correct order of the given words as they would appear in an English dictionary.

1.Assertive
2.Astringent
3.Astronomy
4.Aspirations
5.Ascertain

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

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

Q33. Which of the following numbers will replace the question mark (?) in the given series?

9, 18, 15, ?, 55, 330

(a) 62
(b) 68
(c) 60
(d) 71

Q34. If I denotes '÷', J denotes '×', K denotes '−' and L denotes '+', then what will come in place of '?' in the following equation?

(18 I 9) J 12 L 22 K 41 L (36J2) K 2 J 8 = ?

(a) 80
(b) 61
(c) 60
(d) 71

Q35. Which letter-cluster will replace the question mark (?) to complete the given series?

RSDA, WDUX, ?, GZCR, LKTO

(a) DYXS
(b) BOLU
(c) BIDZ
(d) CHLS

Q36. Which of the following numbers will replace the question mark (?) in the given series?

5, 30, 35, ?, 143, 286

(a) 95
(b) 140
(c) 70
(d) 120

Q37. Which letter cluster will replace the question mark (?) to complete the given series?

WXYZ, XWZY, YVAX, ?, ATCV

(a) ZUBW
(b) ZUBV
(c) WBUZ
(d) ZBMW

Q38. Select the set in which the numbers are related in the same way as are the numbers of the following set.

(45, 37, 360)

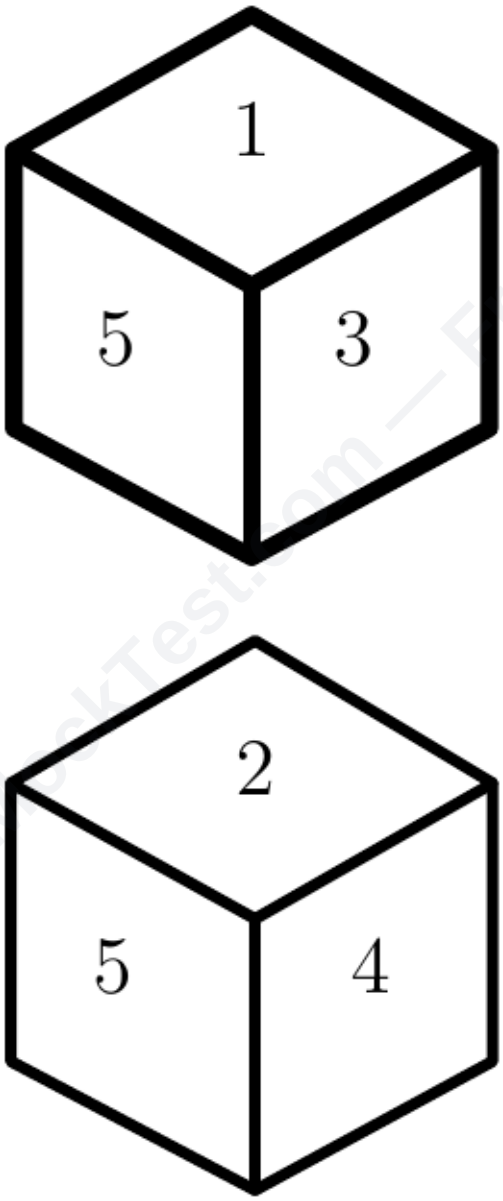
(17, 14, 51)

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

(a) (18, 10, 148)
(b) (35, 22, 465)
(c) (21, 17, 87)
(d) (34, 26, 272)

Q39. 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 '5'

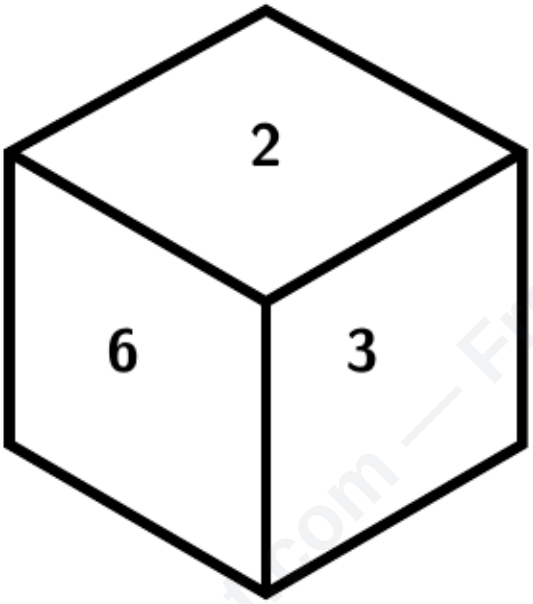
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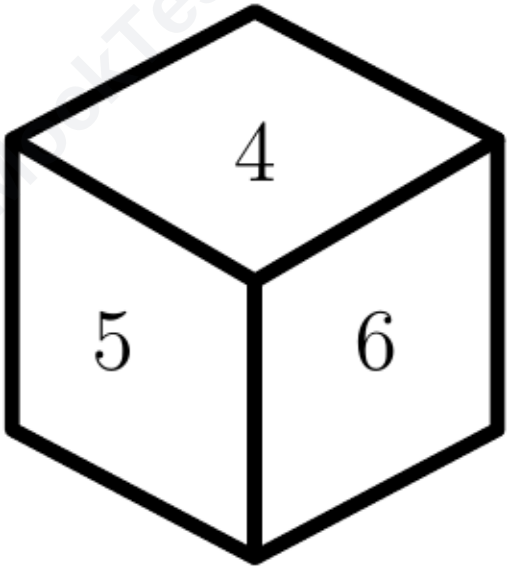


(a) 2
(b) 3
(c) 4
(d) 6

Q40. 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 '1'

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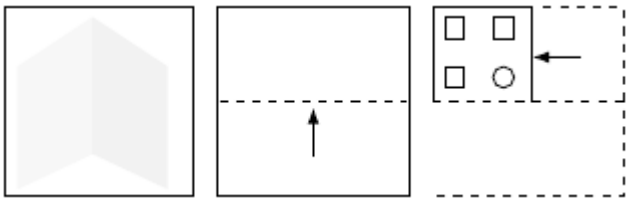
(a) 3
(b) 6
(c) 5
(d) 4

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

36, 45, 63, 90, 126, 171, ?

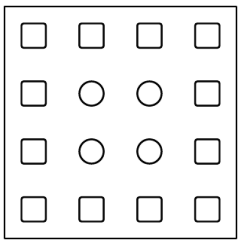
(a) 252
(b) 255
(c) 222
(d) 225

Q42. A peper is folded and cut as shown. How will it appear when unfolded?

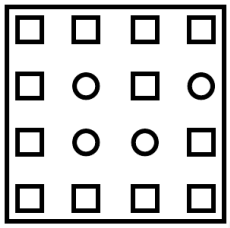


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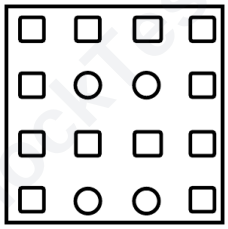
(a)



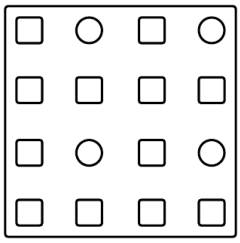
(b)



(c)



(d)



Q43. Which two numbers, from amongst the given options, should be interchanged to make the given equation correct?

$(17 \times 4) - (7)^2 + (63 \div 9) \times 6 + 83 - 41 = 83$

(a) 7 and 9
(b) 7 and 6
(c) 4 and 6
(d) 4 and 7

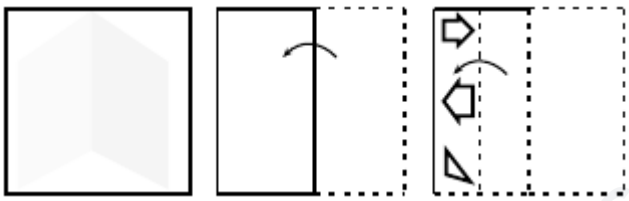
Q44. Select the correct combination of mathematical signs to sequentially replace the * signs and to balance the given equation.

25 * 5 * 10 * 2 * 4 * 21

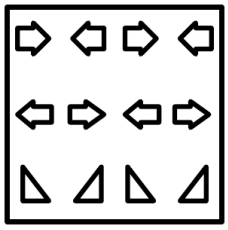
(a) –, +, ÷, ×, =
(b) ÷, ×, +, –, =
(c) ×, ÷, –, +, =
(d) ÷, +, ×, –, =

Q45. A paper is folded and cut according to the pattern given in the figure. How the paper would look like when it is unfolded?

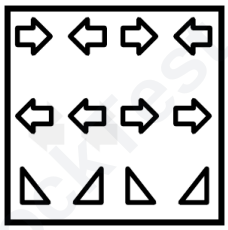
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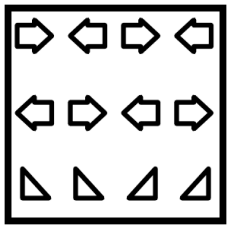
(a)



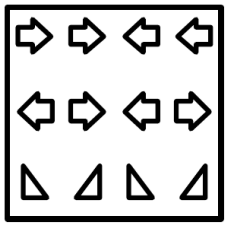
(b)



(c)



(d)



Q46. Select the option that is related to the fourth term in the same way as the first term is related to the second term and the fifth term is related to the sixth term

6 : 43 :: ? : 203 :: 20 : 407

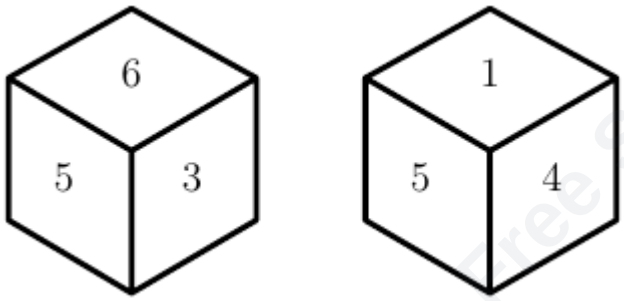
(a) 14
(b) 15
(c) 8
(d) 12

Q47. Which letter will come in place of the question mark (?) in the following series?

V, S, O, L, ?, E

(a) J
(b) H
(c) G
(d) M

Q48. Two differeent 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 '5'.



(a) 2
(b) 4
(c) 6
(d) 1

Q49. Select the set in which the numbers are related in the same way as are the numbers of the following set.

(41, 24, 39)

(10, 5, 13)

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

(a) (27, 19, 44)
(b) (26, 19, 35)
(c) (29, 21, 6)
(d) (22, 17, 37)

Q50. In a certain code language, “ISLAND” is written as “SIALDN”, and “LAWYER” is written as “ALYWRE”. How will “LAUNCH” be written in that language?

(a) ALNUHC
(b) ALUNHC
(c) ALHNUC
(d) ALNUCH

QUANTITATIVE APTITUDE

Q51. The mean of five numbers is 18. If one number is excluded, their mean is 16. The excluded number is:

(a) 30
(b) 26
(c) 36
(d) 32

Q52. After seeing a policeman from a distance of 500 m, a thief starts running at a speed of 10 km/h. After noticing, the policeman chases immediately with a speed of 12 km/h, and the thief is caught. The distance run by the policeman is:

(a) 2.4 km
(b) 3 km
(c) 2.5 km
(d) 3.6 km

Q53. A varies jointly with B and C. A = 6 when B = 3 and C = 2. Find A when B = 5 and C = 7.

(a) 17.5
(b) 35
(c) 105

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(d) 70

Q54. Which of the following options has the greatest value?

(a) 20 + 4 + (−8) − 2 + 3 + 6
(b) (−22) + (−4 −7)
(c) (−18) − 45 + (−3 −2)
(d) (−99) + (−44) − 12

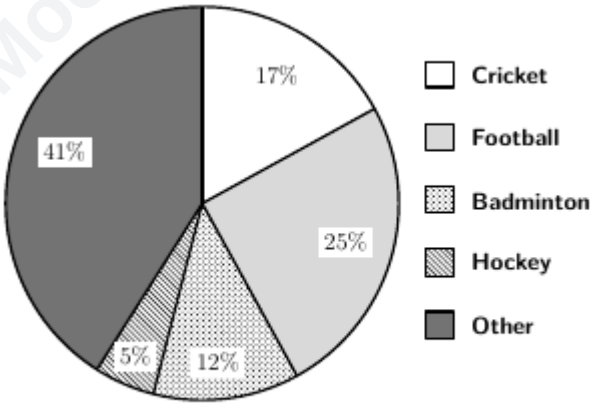
Q55. In ΔABC, if G is the centroid and AD is a median with a length of 9 cm, then the length of AG is:

(a) 8 cm
(b) 5 cm
(c) 7 cm
(d) 6 cm

Q56. A sum of Rs. 14,375, when invested at r% interest per year compounded annually, amounts to Rs. 16,767 after two years. What is the value of r?

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

Q57. In a school of 200 students. the following chart represents the percentage of students involved in different sports.



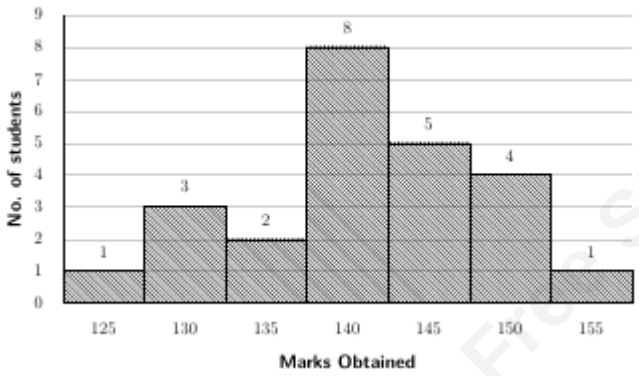
What is the number of students playing cricket?

(a) 34
(b) 24
(c) 83
(d) 17

Q58. The average of 10 observations is 21. A new observation is included and the average of these 11 numbers is 1 less than the prevoius average. The 11^(th) observation is_____.

(a) 21
(b) 11
(c) 10
(d) 12

Q59. Observe the graph and answer the question that follows.



How many students obtained marks more than 130?

(a) 14
(b) 19
(c) 20
(d) 17

Q60. Which of the following is the least 6-digit number that is divisible by 93?

(a) 100068
(b) 100070
(c) 100075
(d) 100065

Q61. A number x is three times another number y. If the sum of both the numbers is 20, then x and y, respectively, are:

(a) 8 and 12
(b) 15 and 5
(c) 5 and 15
(d) 2 and 18

Q62. A person could save 20% of his income. A year later, his income increased by 25% but he could save the same amount only as before. By what percentage has his expenditure increased?

(a) 27.5%
(b) 32.5%
(c) 31.25%
(d) 29.75%

Q63. The marked price of a table fan is Rs. 3,750 and is available to the retailer at a discount of 20%. At what price should the retailer sell it to earn a profit of 15%?

(a) Rs. 3,350
(b) Rs. 3,400
(c) Rs. 3,300
(d) Rs. 3,450

Q64. Ravi drove for 4 hours at a speed of 70 miles per hour and for 2 hours at 40 miles per hour. What was his average speed (in miles per hour) for the whole journey?

(a) 50
(b) 60
(c) 55
(d) 45

Q65. What is the product of (x + a) and (x + b)?

(a) $x^2 + (a + b)x + ab$
(b) $x^2 + (a - b)x + ab$
(c) $x^2 + (a + b)x - ab$
(d) $x^2 + (a - ab)x - ab$

Q66. What is the height of a solid right circular cylinder whose radius is 3 cm and total surface area is 60 π cm^2?

(a) 3 cm
(b) 5 cm
(c) 7 cm
(d) 9 cm

Q67. 45 people can repair a road in 10 days, working 6 hours a day. In how many days can 30 people, working 6 hours a day, complete the same work ?

(a) 12
(b) 10
(c) 18
(d) 15

Q68. What is the area (in cm^2) of an equilateral triangle of side 20 cm ?

(a) 100 √3
(b) 200
(c) 100
(d) 200 √2

Q69. Under a discount scheme, a dozen pair of gloves quoted at Rs. 200 is available at a discount of 20%. How many pairs of gloves can be bought for Rs. 320?

(a) 15
(b) 20
(c) 18
(d) 24

Q70. The value of sin 73° + cos 137° is

(a) sin 13°
(b) cos 13°
(c) cos 18°
(d) sin 18°

Q71. The diameter of the base of a right-circular cylinder is 12 cm and the height of the cyinder is 2.45 times the radius of its base. Find the curved surface area of the cylinder. [Use π = 22/7]

(a) 552.4 cm^2
(b) 556.4 cm^2
(c) 544.4 cm^2
(d) 554.4 cm^2

Q72. If $x + y + z = 10$, $x^2 + y^2 + z^2 = 30$, then the value of $x^3 + y^3 + z^3 - 3xyz$ is_____.

(a) -70
(b) -10
(c) -30
(d) -50

Q73. A pen passing through two hands is finally sold at a profit of 44% of the original cost price. If the first dealer makes a profit of 20%, then the profit made by the second dealer is:

(a) 36%
(b) 24%
(c) 20%
(d) 27%

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Q74. A shopkeeper purchases 20000 units of a product at Rs. 1 each, 15000 units at Rs. 1.15 each and 5000 units at Rs. 2 each. What is the weighted average price of one unit? (Correct to two decimal places)

(a) Rs. 1.36
(b) Rs. 1.20
(c) Rs. 1.18
(d) Rs. 1.38

Q75. The table below shows the number of cakes sold by six different bakeries in a town on five different 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 the total number of cakes sold by the bakery D on Monday Thursday and Sunday, taken together ?

(a) 686
(b) 668
(c) 779
(d) 530

GENERAL AWARENESS

Q76. In 1928, who discovered that when a ray of coloured light enters a liquid, a fraction of the light scattered by that liquid is of a different colour?

(a) Lord Rayleigh
(b) CV Raman
(c) SN Bose
(d) John Tyndall

Q77. Which of the following autobiographies is written by former English footballer, David Beckham published in 2003 ?

(a) A Shot at History
(b) The Greatest: My own Story
(c) My Side
(d) Standing my Ground

Q78. Which sport scheme was extended from 2021-22 to 2025-26 in March 2021?

(a) Rajiv Gandhi Khel Abhiyan
(b) Urban Sports Infrastructure Scheme
(c) Khelo India
(d) National Sports Talent Search Scheme

Q79. In which state is cactus vegetation found in dry areas of Thorny Bushes in the form of spines?

(a) West Bengal
(b) Assam
(c) Odisha
(d) Rajasthan

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Q80. Kalamandalam Rajan received the Sangeet Natak Akademi Award 2009 for which of the following dance forms?

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

Q81. What is the duration of the interval in a football match?

(a) 15 minutes
(b) 10 minutes
(c) 30 minutes
(d) 12 minutes

Q82. Diving comes under which category of sport?

(a) Defensive sport
(b) Martial arts
(c) Combat sport
(d) Aquatic sport

Q83. What is the upper limit of annual household income for microfinance borrowers in rural areas?

(a) Rs. 1 lakh
(b) Rs. 1.25 lakh
(c) Rs. 1.5 lakh
(d) Rs. 2 lakh

Q84. Which of the following Bollywood choreographers has won the 63rd National Film Awards in the category of Best Choreography for his/her excellent work in the Hindi movie ‘Bajirao Mastani’ ?

(a) Ganesh Acharya
(b) Remo D’Souza
(c) Prabhu Deva
(d) Farah Khan

Q85. Which Article of the Indian Constitution empowers a High Court to issue writs for the enforcement of the Fundamental Rights of the citizens?

(a) Article 226
(b) Article 235
(c) Article 230
(d) Article 242

Q86. Which of the following is the correct pair?

(a) Kalamandalam Kalyanikutty Amma - Mohiniyattam
(b) Sonal Mansingh - Manipuri
(c) Shovana Narayan - Odissi
(d) Bala Sarasawati - Kathak

Q87. ‘Faster than Lightning - My Story’ is the autobiography of _____.

(a) Hima Das
(b) Usain Bolt
(c) Dutee Chand
(d) P T Usha

Q88. Which is a major essential lipophilic (fat-soluble) vitamin required for the protection of cell membranes and the formation of red blood cells (RBCs)?

(a) Vitamin A
(b) Vitamin C
(c) Vitamin D

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(d) Vitamin E

Q89. Gangubai Hangal was an Indian vocalist of Hindustani classical tradition who was awarded the Sangeet Natak Academy Award in 1973. From which of the following musical Gharanas did she belong ?

(a) Banaras Gharana
(b) Patiala Gharana
(c) Kirana Gharana
(d) Agra Gharana

Q90. The long jumper _____ won Silver in the U-20 World Athletics Championships in August 2021.

(a) Shaili Singh
(b) MA Prajusha
(c) Nayana James
(d) Reeth Abraham

Q91. In which year did Rudolf Virchow published an essay titled ‘Cellular Pathology’ in which he famously declared that "every cell arises from another cell”?

(a) 1865
(b) 1845
(c) 1835
(d) 1855

Q92. Who among the following Hindustani classical musicians blended the best of classical music and created a unique style of music of his own who was often touted as the Tansen of 20th century?

(a) Ustad Bade Ghulam Ali Khan
(b) Ustab Ali Baksh Khan
(c) Ustad Chhote Ghulam Ali Khan
(d) Munawar Ali Khan

Q93. By what metabolic process in the kitchen can you make food like curd, paneer and sauerkraut?

(a) Fermentation
(b) Condensation
(c) Pasteurisation
(d) Steaming

Q94. Which of the following is an organic compound with the formula C6H4Cl2 that is used as a fumigant insecticide to control cloth moths?

(a) Paradichlorobenzene
(b) Ethylbenzene
(c) Benzoyl chloride
(d) Chlorobenzene

Q95. Which of the following pairs is INCORRECT?

(a) Kumar Gandharva – Guitar
(b) Zia Mohiuddin Dagar – Rudra Vina
(c) Kadri Gopalnath − Saxophone
(d) Bombay Jayashree – Vocalist

Q96. In which sport did TP Ouseph receive the Dronacharya Award in the Lifetime Achievement category for outstanding coaches in Sports and Games 2021?

(a) Kabaddi
(b) Cricket
(c) Hockey
(d) Athletics

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Q97. In which year was International Booker Prize established?

(a) 2005
(b) 1969
(c) 1981
(d) 1918

Q98. In the format of the IUPAC name of the organic compound, the term 'Root' is used to represent:

(a) functional groups that may be present in the compound
(b) the cyclic or acyclic nature of the given compound
(c) the number of carbon atoms in the parent chain
(d) the presence of side chains or substituent groups

Q99. Ms. Kamalini Asthana and Ms. Nalini Asthana are conferred with one of the top highest civilian awards of India, Padma Shri 2022. Which of the following dance forms of Banaras Gharana are they known for?

(a) Odissi
(b) Kathakali
(c) Kuchipudi
(d) Kathak

Q100. Ustad Hassu Khan, Ustad Haddu Khan and Ustad Nathu Khan were exponents of the _____ Gharana.

(a) Benaras
(b) Gwalior
(c) Delhi
(d) Patiala

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (d) Pronounciation

The solution is in Hindi. Read it online.

Q2. Answer: (b) DBCA

The correct answer is 'DBCA'.

Key Points

• Sentence D is the first sentence as it tells the definition of a good book in the words of 'John Milton'.

• Sentence B would come in the second line as it further elaborates the points stated in the first sentence i.e. '"A good book is the precious lifeblood of a master spirit, embalmed and treasured up to a purpose to a life beyond life."'

• Sentence C would come next as this sentence is comparing computers with books.

• Sentence A would be the last sentence as it concludes the comparison between book and computer.

Hence, the correct answer is 'DBCA'.

Q3. Answer: (b) accept the seemingly ingenous reply

The solution is in Hindi. Read it online.

Q4. Answer: (c) Referance

The solution is in Hindi. Read it online.

Q5. Answer: (c) Obituary

The correct answer is 'Obituary'.

Key Points

• Let's understand the meaning of the correct option:

• Obituary: a report, especially in a newspaper, that gives the news of someone's death and details about their life.

• Example: There was no eulogy or obituary in a national newspaper.

Thus, from the above meanings correct one-word substitution for the given question is 'Obituary'.

Additional Information

• Let's explore the other given options:

• Editorial: It is a section in newspapers or magazines in which the writers or editors share their opinion on ongoing topics.

• Illustration: A drawing, diagram, or picture in a book or magazine.

• Forecast: To say (with the help of information) what will probably happen in the future.

Q6. Answer: (a) Interlude

The correct answer is 'Interlude'.

Key Points

• Let's understand the meaning of the correct option:

• Interlude: a period of time between two events during which something different happens.

• Example: They always met in the city for their romantic interludes.

Hence, the correct answer is Option 1.

Additional Information

• Let's explore the other given options:

• Interline: insert words between the lines of (a document or other text).

• Interlace: to join things together by twisting them and crossing them over each other.

• Interlink: join or connect(two or more things) together.

Thus, from the above meanings correct one-word substitution for the given question is 'Interlude'.

Q7. Answer: (d) To accept a difficult situation

The correct answer is 'To accept a difficult situation'.

Key Points

• Let's look at the meaning and example of the given idiom:

• Face up to: to deal with (something bad or unpleasant) in a direct way.

• Example: She has to face up to her problems now, or else they'll only get worse.

Hence, the correct answer is Option 4.

Q8. Answer: (b) vary

The correct answer is 'Vary'.

Key Points

• The subject of the sentence is 'perception'. As 'perception' is singular in form, the verb that must agree with it must also be singular.

• 'vary' is a plural verb. Hence, the singular verb i.e 'varies' should be appropriate in this context.

Thus, the correct sentence is The perception of success varies from person to person.

Additional Information

Singular (he, she, it)	Plural(I, you, we, they)
applies	apply

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carries	carry
hurries	hurry
pities	pity
replies	reply
spies	spy
bullies	bully
worries	worry

Q9. Answer: (a) Queer

The solution is in Hindi. Read it online.

Q10. Answer: (c) Pamplet

The correct answer is 'Pamplet'.

Key Points

• The incorrectly spelled word among the options is 'Pamplet' as the correct spelling would be 'Pamphlet'.

• A pamphlet is a very thin book with a paper cover containing information about a particular subject.

Additional Information

Let's look at the other word meanings;

• Accessories: an extra item that is added to something and is useful or attractive but not of great importance.

• Dominant: more powerful, important, or noticeable than others.

• Politician: a person who holds or is seeking political office as an elected government official.

Q11. Answer: (a) To be very active but with few results

The correct answer is 'To be very active but with few results'.

Key Points

• The meaning of the idiom 'running around in circles' is 'to be very active but with few results'.

• For eg:- I've been running around in circles trying to get all the reports finished before the meeting.

• Hence, the correct answer is To be very active but with few results.

Additional Information

• Hardly any time to breathe idiom means to be very busy.

Q12. Answer: (b) Seismograph

The correct answer is 'Seismograph'.

Key Points

• An instrument for detecting an earthquake is called a 'Seismograph'

• Hence, the correct answer is Seismograph.

Additional Information

• Electrograph is a curve or plot automatically traced by the action of an electric device.

• Spectrograph is an apparatus for photographing or otherwise recording spectra.

• Magnetograph is an instrument for recording measurements of magnetic forces.

Q13. Answer: (d) Strong and healthy

The correct answer is 'Strong and healthy'.

Key Points

• The meaning of the idiom 'Hale and hearty' is 'Strong and healthy'.

• E.g.- She is still hale and hearty in her nineties.

Hence, the correct answer is 'Strong and healthy'.

Additional Information

• The term 'hale and hearty' derives from Old English, the language spoken in England prior to the late 11th century. In Old

English, the word 'hal' means 'safe' or 'unhurt'. It is the root word of the modern English words 'whole' and 'heal' as well as 'health' and 'hail'. The modern English word 'hale' meaning fit and healthy, derives from this root.

• The word 'hearty' first appears in the 14th century and is used to mean 'spirited' or 'courageous'. In the Middle Ages, the heart was thought to be the seat of feelings. As a result, a wide variety of English terms refer to the heart in this way. Examples include 'hard-hearted', heartfelt' and 'heartbreak'. To be 'hearty', therefore, is to have a strong heart and to be in high spirits.

Q14. Answer: (d) Relapse

The solution is in Hindi. Read it online.

Q15. Answer: (b) Crazy

The solution is in Hindi. Read it online.

Q16. Answer: (c) “Did you go to school on Tuesday?’’ Fiona asked me.

The correct answer is “Did you go to school on Tuesday?’’ Fiona asked me.

Key Points

• The given sentence is enquiring about something. So, the Direct Speech of this sentence must be an interrogative sentence.

• The rule of changing an indirect speech into a direct speech of an Interrogative sentence is as follows:

• In Indirect Narration, interrogative Verbs such as “ask”, “enquire”, “demand”, “want to know” etc are used as Reporting Verbs before the Reported Speech in place of simple Verb “say” or “tell”.

• E.g.- He said to me, "Are you ill?" (Direct Speech)

• He asked (or enquired of) me if (or whether) I was ill. (Indirect Speech)

• If the Reported Speech in Direct Narration is introduced by Verbs like “ be”, “have”, “do”, or any other auxiliary Verbs like “can”, “shall”, “will”, the connective “ if ”, “ whether ” is used after the Reporting Verb or object of the Reporting verb in the Indirect Narration.

• E.g.- He said to me, "Are you ill?" (Direct Speech)

• He asked (or enquired of) me if (or whether) I was ill. (Indirect Speech)

Hence, the correct answer is “Did you go to school on Tuesday?’’ Fiona asked me.

Additional Information

• What is Direct & Indirect Speech?

• Direct speech – reporting the message of the speaker in the exact words as spoken by him.

• Direct speech example: Maya said, "I am busy now."

• Indirect speech – reporting the message of the speaker in our own words.

• Indirect speech example: Maya said that she was busy then.

Q17. Answer: (c) safety

The solution is in Hindi. Read it online.

Q18. Answer: (c) called me

The erroneous part is: called me.

Key Points

• The base form of verb (V1) is always used after 'do' and 'did'.

• For example:

• I did go there.

• I did not know about this secret place.

• Similarly, in this context, 'didn't' must be followed by the base form of verb.

• Hence, 'called' (V2) must be replaced by 'call' (V1).

Therefore, the correct answer is: He didn’t call me in the last week.

Q19. Answer: (c) I was invited by him to his place yesterday.

The correct answer is 'I was invited by him to his place yesterday'.

Key Points

• The given sentence is in Active Voice. As per the question we have to change it into Passive Voice.

• The structure of the given sentence is as follows:

• Subject +V2 + Object. (Active Voice)

• Subject(objective case) + was/were +V3 + by + Object(subjective case). (Passive Voice)

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• The subject of the given sentence is 'he'.
• The object of the given sentence is 'me'.
• The subject will be put in place of the object and the object will be put in place of the subject.
Correct sentence: I was invited by him to his place yesterday.

Q20. Answer: (a) blew

The correct answer is 'Blew'.
Key Points
• As we can see the given sentence is in the simple past tense so it must have a verb in its past form.
• So 'blew' is the correct word to fill in. Blew is the V^2 form of the word blow.
• Other given options don't grammatically fit into the sentence.
Therefore, the correct answer is: The wind blew so powerfully that the door closed.

Q21. Answer: (d) around

The correct answer is 'Around'.
Key Points
• According to the context of the sentence, the most appropriate preposition to fill the blank is 'around'.
• Use of around - In a position or direction surrounding, or in a direction going along the edge of or from one part to another(of).
• Example: The moon goes around the sun.
Therefore the correct answer is option 4.
correct sentence: Everything (1) around us makes our environment.
Additional Information
• Let's understand the usage of other given options:
• Over: It is used to talk about movement or position data at a higher level than something else.
• Beyond: It is used as further away in the distance (than something).
• Across: It is used as on the other side of something which has sides or limits such as a city, road or river.

Q22. Answer: (c) components

The correct answer is 'Components'.
Key Points
• In the given sentence, Living and non-living things form the (2) ____of our surroundings, we need an appropriate word from the given options which will convey the same context.
• In the given context, Components refer to one of several parts of which something is made.
• Example: Enriched uranium is a key component of a nuclear weapon.
Therefore, the most appropriate word to be filled in the blank is 'component'.
Hence, the correct answer is option 3.

Q23. Answer: (d) ways

The solution is in Hindi. Read it online.

Q24. Answer: (a) cause

The solution is in Hindi. Read it online.

Q25. Answer: (b) wonders

The solution is in Hindi. Read it online.

Q26. Answer: (a) Friday

The correct answer is option(1)
In any two consecutive ordinary years, date of the next year will be one day ahead of the same date of the previous year.
14 January 2022 = Friday
14 January 2023 = Saturday
14 January 2024 = Sunday
If an ordinary year comes immediately after a leap year, then the day on a certain date of the ordinary year will be 2 days ahead of the same date of the leap year upto February
14 January 2025 = Tuesday

From 14 January 2025 to 28 February 2025 = 45 days (42 + 3)
Number of odd days = 3 days
Therefore, 28 February = Friday (3 days ahead from Tuesday)
Hence, the correct answer is Option(1)

Q27. Answer: (b) 9842

Logic:
Here, the second number is formed by arranging the digits of the first number in descending order.
5372 : 7532
5372 → 7532 (Decreasing Order)
4928: 9842
4928 → 9842 (Decreasing Order)
9284 : ?
9284 → 9842 (Decreasing Order)
Therefore, '?' will be replaced by '9842'
Hence, the correct answer is option(2)

Q28. Answer: (d) 23

The figure is given below:
There are 23 triangles.
Hence, 'option 4' is the correct answer.

Q29. Answer: (d) 2

As per the information:
Step 1: C is taller than D. Only four people are taller than C.
_ > _ > _ > _ > C > D
Step 2: A is the shortest among all.
_ > _ > _ > _ > C > D > A
Step 3: E is taller than G but shorter than F. F is not the tallest.
_ > F > E > G > C > D > A
If F is not the tallest only B is left to place therefore,
B > F > E > G > C > D > A
From the arrangement we can see that, there are 2 people between the heights of B and G.
Hence the correct answer is option 4)

Q30. Answer: (c) Hospital

The relation in the given pair is:
ATM: Bank -- ATM is a machine that is related to a place i.e. bank.
Similarly,
Ambulance: ? -- an Ambulance a machine related to a place?
Let's consider the given options:
Option 1) Nurse: A nurse is a person and not a place.
Option 2) Patient: A patient is a person and not a place.
Option 3) Hospital: It is a place that is related to ambulance
Option 4) Doctor: A doctor is a person and not a place.
Hence the correct answer is option 3)

Q31. Answer: (c) VNUMQJZM

The logic followed here is:-
• ADDITION
• • Therefore, code = EBJEJUOP
• SUBTRACT
• • Therefore, code = VTUCBSUD
• Similarly, MULTIPLY

• • Therefore, code = VM UM QJ ZM

Hence, "option 3" is the correct answer.

Q32. Answer: (c) 5, 4, 1, 2, 3

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

5.Ascertain

4.Aspirations

1.Assertive

2.Astringent

3.Astronomy

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

Q33. Answer: (c) 60

The logic followed here is:

9 → 9 × 2 = 18

18 → 18 - 3 = 15

15 → 15 × 4 = 60

60 → 60 - 5 = 55

55 → 55 × 6 = 330

Hence, option 3) is the correct answer.

Q34. Answer: (b) 61

BODMAS RULE:

Given: I → ÷, J → ×, K → −, L → +

Equation: (18 I 9) J 12 L 22 K 41 L (36J2) K 2 J 8 = ?

Interchanging the letters with signs:

= (18 ÷ 9) × 12 + 22 − 41 + (36×2) − 2 × 8

Following the BODMAS rule,

= 2 × 12 + 22 − 41 + 72 − 2 × 8

= 24 + 22 − 41 + 72 − 16

= 46 − 41 + 72 − 16

= 61

Hence, option 2) is the correct answer.

Q35. Answer: (b) BOLU

The pattern followed here is:

Letters are increasing in the order +5, +11, +17, +23.

On continuing the same pattern, we get,

Hence, ‘BOLU’ is the correct answer.

Q36. Answer: (b) 140

The pattern in the given series is:

Hence the correct answer is 140.

Q37. Answer: (a) ZUBW

The pattern in the given series is:

Hence the correct answer is ZUBW.

Q38. Answer: (d) (34, 26, 272)

The pattern in the given sets is:

(First term - Second term) × First term = Third term

We apply the given the pattern on the given sets:

1) (45, 37, 360)

(45 - 37) × 45 = 360

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8 × 45 = 360
360 = 360
LHS = RHS
2) (17, 14, 51)
(17 - 14) × 17 = 51
3 × 17 = 51
51 = 51
LHS = RHS
Let's apply the pattern in the given options:
Option 1) (18, 10, 148)
(First term - Second term) × First term = Third term
(18 - 10) × 18 = 148
8 × 18 = 148
144 ≠ 148
LHS ≠ RHS
Option 2) (35, 22, 465)
(First term - Second term) × First term = Third term
(35 - 22) × 35 = 465
13 × 35 = 465
455 ≠ 465
LHS ≠ RHS
Option 3) (21, 17, 87)
(First term - Second term) × First term = Third term
(21 - 17) × 21 = 87
4 × 21 = 87
84 ≠ 87
LHS ≠ RHS
Option 4) (34, 26, 272)
(First term - Second term) × First term = Third term
(34 - 26) × 34 = 272
8 × 34 = 272
272 = 272
LHS = RHS
Option 3 is the only option that is following the pattern.
Hence the correct answer is option 4)

Q39. Answer: (d) 6

From the given figure we can see:
In a dice, a face is surrounded by four sides and the remaining side is opposite it.
• We can see all four sides around the face '5' which are 1, 2, 3, and 4.
• The remaining face is '6' which means 6 and 5 are opposite faces.
So the face opposite 5 is 6.
Hence the correct answer is 6.

Q40. Answer: (b) 6

In the given figure:
In a dice a face is surrounded by four sides and the remaining one side is opposite to it.
• We can see all four sides around the face '6' which are 2, 3, 4, 5.
• The remaining face is '1' which means 6 and 1 are opposite faces.
So the face opposite to 1 is 6.
Hence the correct answer is 6.

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Q41. Answer: (d) 225

The pattern in the given series is:

Hence the correct answer is 225.

Q42. Answer: (a) [figure]

When we unfold the paper step by step we get:

The pattern in the last step matches with option 1)

Hence the correct answer is option 1).

Q43. Answer: (a) 7 and 9

Given equation:

(17 × 4) – (7)2 + (63 ÷ 9) × 6 + 83 – 41 = 83

We use the hit and trial method with each option:

Option 1) 7 and 9

(17 × 4) – (9)2 + (63 ÷ 7) × 6 + 83 – 41 = 83

68 – 81 + 9 × 6 + 83 – 41 = 83

68 – 81 + 54 + 83 – 41 = 83

205 - 81 - 41 = 83

83 = 83

LHS = RHS

Since we got the answer from the first option, we can end the hit and trial method.

Hence the correct answer is 7 and 9.

Q44. Answer: (d) ÷, +, ×, –, =

Given equation:

25 * 5 * 10 * 2 * 4 * 21

Applying each option to the given equation:

Option 1) –, +, ÷, ×, =

25 - 5 + 10 ÷ 2 × 4 = 21

25 - 5 + 5 × 4 = 21

25 - 5 + 20 = 21

45 - 5 = 21

40 ≠ 21

LHS ≠ RHS

Option 2) ÷, ×, +, –, =

25 ÷ 5 × 10 + 2 - 4 = 21

5 × 10 + 2 - 4 = 21

50 + 2 - 4 = 21

52 - 4 = 21

48 ≠ 21

LHS ≠ RHS

Option 3) ×, ÷, –, +, =

25 × 5 ÷ 10 - 2 + 4 = 21

25 × 0.5 - 2 + 4 = 21

12.5 - 2 + 4 = 21

16.5 - 2 = 21

14.5 ≠ 21

LHS ≠ RHS

Option 4) ÷, +, ×, –, =

25 ÷ 5 + 10 × 2 - 4 = 21

5 + 10 × 2 - 4 = 21

5 + 20 - 4 = 21

25 - 4 = 21

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21 = 21

LHS = RHS

Hence the correct answer is option 4).

Q45. Answer: (a) [figure]

When we open the paper step by step, we get:

The pattern of the last step matches with option 1)

Hence, the correct answer is option 1).

Q46. Answer: (a) 14

The logic followed here is:

Second number = (First number)² + 7

6 : 43 → 6² + 7 = 36 + 7 = 43

20 : 407 → 202 + 7 = 400 + 7 = 407

Similarly,

14 : 203 → 142 + 7 = 196 + 7 = 203

Hence, option 1) is the correct answer.

Q47. Answer: (b) H

Here is the logic followed:

The letters -3 and -4 are decreasing alternately.

Hence option 2) is the correct answer.

Q48. Answer: (a) 2

Given two positions:

The logic applied here is:

When only one face is common between two same dice, then the number which can't be seen is the number opposite to the common face.

• So, only 5 is common between both dice.

• And we have 6, 3 on one dice and 1, 4 on other dice.

• The only number which can't be seen is 2.

• Hence, the number opposite to common face 5 is 2.

Hence, option 1) is the correct answer.

Q49. Answer: (d) (22, 17, 37)

The pattern followed in the given set is:

(First term + third term) = (Second term × 3) + 8

We apply the given pattern to the given sets:

1) (41, 24, 39)

(41 + 39) = (24 × 3) + 8

80 = 72 + 8

80 = 80

LHS = RHS

2) (10, 5, 13)

(10 + 13) = (5 × 3) + 8

23 = 15 + 8

23 = 23

LHS = RHS

Let's apply the pattern to the given options:

=>=>Option 1) (27, 19, 44)

(First term + third term) = (Second term × 3) + 8

(27 + 44) = (19 × 3) + 8

73 = 57 + 8

73 ≠ 65

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LHS ≠ RHS
=>=>Option 2) (26, 19, 35)
(First term + third term) = (Second term × 3) + 8
(26 + 35) = (19 × 3) + 8
61 = 57 + 8
61 ≠ 65
LHS ≠ RHS
=>=>Option 3) (29, 21, 6)
(First term + third term) = (Second term × 3) + 8
(29 + 6) = (21 × 3) + 8
35 = 63 + 8
35 ≠ 71
LHS ≠ RHS
=>=>Option 4) (22, 17, 37)
(First term + third term) = (Second term × 3) + 8
(22 + 37) = (17 × 3) + 8
59 = 51 + 8
59 = 59
LHS = RHS
Hence the correct answer is option 4.

Q50. Answer: (a) ALNUHC

The pattern followed by the given codes is:
• The first and second alphabets are interchanged.
• The third and fourth alphabets are interchanged.
• The fifth and sixth alphabets are interchanged.

Similarly,
Hence the correct answer is option 1)

Q51. Answer: (b) 26

Shortcut Trick
Initial Mean of 5 numbers = 18
New Mean of 4 numbers = 16
Excluded number = New Mean + (Count of initial items × Change in mean)
Excluded number = 16 + (5 × (18 − 16)) = 16 + (5 × 2)
Excluded number = 16 + 10 = 26
Therefore The correct answer is 26.
Alternate Method
Given:
Total numbers (n1) = 5, Mean (M1) = 18
Total numbers (n2) = 4, Mean (M2) = 16
Formula Used:
Sum of observations = Mean × Total number of observations
=> Sum of 5 numbers = 5 × 18 = 90
=> Sum of 4 numbers = 4 × 16 = 64
=> Excluded number = (Sum of 5 numbers) − (Sum of 4 numbers)
=> Excluded number = 90 − 64 = 26
Therefore The correct answer is 26.
Additional Information
Arithmetic Mean
Mean = (Σx) ÷ n, where Σx is the sum of all observations and n is the number of observations.

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Inclusion/Exclusion Effect

If an excluded value is greater than the mean, the new mean decreases. If smaller, the new mean increases.

Weighted Average

Combined Mean = (n1M1 + n2M2) ÷ (n1 + n2), used to find the average of two groups combined.

Q52. Answer: (b) 3 km

Shortcut Trick

Ratio of Speed (Policeman : Thief) = 12 : 10 = 6 : 5

Since Time is constant, Ratio of Distance = 6 : 5

Difference in ratio parts = 6 − 5 = 1 unit → 500 m (0.5 km)

Distance run by Policeman = 6 units = 6 × 0.5 km = 3 km

Therefore The correct answer is 3 km.

Alternate Method

Given:

=> Speed of Thief (v_t) = 10 km/h

=> Speed of Policeman (v_p) = 12 km/h

=> Initial separation (d) = 500 m = 0.5 km

Formula Used:

Relative Speed (same direction) = v_p − v_t

Time = Distance / Speed

Calculations:

=> Relative Speed = 12 − 10 = 2 km/h

=> Time taken to catch the Thief = 0.5 / 2 = 0.25 hours

=> Distance run by Policeman = Speed × Time

=> Distance = 12 × 0.25 = 3 km

Therefore The correct answer is 3 km.

Additional Information

Relative Speed in Same Direction

When two objects move in the same direction, their relative speed is the difference of their individual speeds: |u − v|.

Distance-Speed Relation

When time is constant, the distance covered is directly proportional to the speed (D1/D2 = S1/S2).

Unit Conversion

To convert meters to kilometers, divide by 1000 (1 km = 1000 m). To convert km/h to m/s, multiply by 5/18.

Q53. Answer: (b) 35

Shortcut Trick

For joint variation A prop. to BC, the ratio A/(B × C) remains constant.

A1 / (B1 × C1) = A2 / (B2 × C2)

6 / (3 × 2) = A / (5 × 7)

6 / 6 = A / 35 => 1 = A / 35 => A = 35.

Therefore The correct answer is 35.

Alternate Method

Given:

Case 1: A = 6, B = 3, C = 2

Case 2: B = 5, C = 7, A = ?

Formula Used:

A = k × B × C (where k is the constant of proportionality)

Calculations:

=> 6 = k × 3 × 2

=> 6 = 6k

=> k = 1

=> Now for the second case: A = 1 × 5 × 7

=> A = 35

Therefore The correct answer is 35.

Additional Information

Joint Variation

A quantity varies jointly as two or more other quantities if it is directly proportional to their product (e.g., A = kBC).

Direct Variation

A quantity A varies directly with B if A = kB, meaning as B increases, A increases proportionally.

Inverse Variation

A quantity A varies inversely with B if A = k/B, meaning as B increases, A decreases proportionally.

Combined Variation

A variation where one quantity varies directly with one variable and inversely with another (e.g., A = kB/C).

Q54. Answer: (a) 20 + 4 + (−8) − 2 + 3 + 6

Given:

=> 20 + 4 + (−8) − 2 + 3 + 6

=> (−22) + (−4 −7)

=> (−18) − 45 + (−3 −2)

=> (−99) + (−44) − 12

Calculations:

According to the question,

Option 1

=> 20 + 4 + (−8) − 2 + 3 + 6

=> 24 − 10 + 9

=> 23

Option 2

=> (−22) + (−4 −7)

=> -22 - 11 = - 33

Option 3

=> (−18) − 45 + (−3 −2)

=> -18 - 45 - 5 = - 68

Option 4

=> (−99) + (−44) − 12

=> -99 - 44 - 12 = -155

Therefore [20 + 4 + (−8) − 2 + 3 + 6] has the greatest value.

Q55. Answer: (d) 6 cm

Shortcut Trick

The Centroid (G) of a triangle divides each median in the ratio 2 : 1 from the vertex.

For median AD, the ratio AG : GD = 2 : 1.

=> Total units = 2 + 1 = 3 units.

=> Given 3 units = 9 cm.

=> 1 unit = 3 cm.

=> AG = 2 units = 2 × 3 = 6 cm.

Therefore The correct answer is 6 cm.

Alternate Method

Given: Median AD = 9 cm, G is the Centroid of ΔABC.

Formula Used: The Centroid of a triangle divides the median in the ratio 2 : 1 (where the segment from the vertex to the centroid is 2 parts and the segment from the centroid to the midpoint of the opposite side is 1 part).

=> Length of median AD = 9 cm

=> Property of Centroid (G): AG : GD = 2 : 1

=> AG = (2 / (2 + 1)) × AD

=> AG = (2 / 3) × 9

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=> AG = 2 × 3

=> AG = 6 cm

Therefore The correct answer is 6 cm.

Additional Information

Definition of Centroid

The point of concurrency of the three medians of a triangle is called the Centroid. It is often considered the center of mass of the triangle.

Area Property of Medians

Each median divides the triangle into two triangles of equal area. The three medians together divide the triangle into six smaller triangles of equal area.

Centroid Coordinates

If the vertices are (x1, y1), (x2, y2), and (x3, y3), the centroid G is given by ((x1+x2+x3)/3, (y1+y2+y3)/3).

Apollonius Theorem

In ΔABC, if AD is the median, then $AB^2 + AC^2 = 2(AD^2 + BD^2)$.

Q56. Answer: (d) 8

Shortcut Trick

For a 2-year Compound Interest problem, the ratio of Amount (A) to Principal (P) is $(1 + r/100)^2$.

Ratio A/P = 16767 / 14375 = 729 / 625 (dividing both by 23)

Since the time is 2 years, take the square root of the ratio: √(729 / 625) = 27 / 25

The growth factor is 27/25, which means an interest of 2 units on 25 units.

Rate (r) = (2 / 25) × 100 = 8

Therefore The correct answer is 8.

Alternate Method

Given:

Principal (P) = Rs. 14,375

Amount (A) = Rs. 16,767

Time (n) = 2 years

Formula Used:

$A = P(1 + r/100)^n$

Calculations:

=> $16767 = 14375(1 + r/100)^2$

=> $(1 + r/100)^2 = 16767 / 14375$

=> $(1 + r/100)^2 = (16767 \div 23) / (14375 \div 23)$

=> $(1 + r/100)^2 = 729 / 625$

=> $1 + r/100 = \sqrt{(729 / 625)}$

=> $1 + r/100 = 27 / 25$

=> $r/100 = 27 / 25 - 1$

=> $r/100 = 2 / 25$

=> $r = (2 / 25) \times 100$

=> $r = 8$

Therefore The correct answer is 8.

Additional Information

Standard Compound Interest Formula

The total amount A is given by $A = P(1 + r/100)^n$, where P is the principal, r is the annual interest rate, and n is the number of years.

Difference between CI and SI for 2 years

The difference (D) between compound interest and simple interest for two years is $D = P \times (r / 100)^2$.

Effective Rate of Interest

For a rate r% compounded annually for 2 years, the effective interest rate is $(2r + r^2/100)\%$.

Q57. Answer: (a) 34

Given:

In a school of 200 students.

Calculations:

According to the question,

Students playing cricket = 17% of Total Students

=> 17% × 200

=> 17 × 2 = 34

Therefore The number of students playing cricket is 34.

Q58. Answer: (c) 10

Given:

The average of 10 observations is 21.

A new observation is included and the average of these 11 numbers is 1 less than the previous average

Concept used:

Average value = Sum of the values/ Total no. of values

Calculations:

Average of 10 observations = 21

=> 21 = 10x/10

=> 10x = 210

Average of 11 observations = 20

=> 20 = (10x + x)/11

=> 220 = 210 + x

=> x = 220 - 210 = 10

Therefore The 11th observation is 10.

Q59. Answer: (c) 20

Calculations:

According to the question,

Students obtained 135 marks = 2

Students obtained 140 marks = 8

Students obtained 145 marks = 5

Students obtained 150 marks = 4

Students obtained 155 marks = 1

Total students obtained marks more than 130 = 2 + 8 + 5 + 4 + 1 = 20

Therefore 20 students obtained marks more than 130.

Q60. Answer: (a) 100068

Given:

Divisible by 93

Concept used:

If any no. is divisible by 3 and 31 then it is also divisible by 93

Divisibility of 31 = Subtract (3 × last digit) from the remaining number obtained after removing the last digit.

Repeat the above steps until a two-digit number, or zero, is obtained. If the two-digit number is divisible by 31, or it is 0, then the original number is also divisible by 31.

Calculations:

Checking divisibility by 3

=> 100068 = 1 + 6 + 8 = 15 (divisible by 3)

=> 100070 = 1 + 7 = 8 (not divisible by 3)

=> 100075 = 1 + 7 + 5 = 13 (not divisible by 3)

=> 100065 = 1 + 6 + 5 = 12 (divisible by 3)

Checking divisibility by 31

=> 100068

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10006 - 24 = 9982
998 - 6 = 992
99 - 6 = 93 (divisible by 31)
=> 100070 (not divisible by 31)
=> 100075 (not divisible by 31)
=> 100065 (not divisible by 31)
Therefore 100068 is divisible by 3 and 31 then it is also divisible by 93.

Q61. Answer: (b) 15 and 5

Given:
x = 3y
If the sum of both the numbers is 20,
Calculations:
According to the question,
x + y = 20
=> 3y + y = 20
=> 4y = 20
=> y = 5
Now the value of x
x + y = 20
=> x + 5 = 20
=> x = 20 - 5 = 15
Therefore The value of x and y is 15 and 5 respectively.

Q62. Answer: (c) 31.25%

Given:
Savings from old salary = 20%
Increase in income = 25%
Savings from new salary = Savings from old salary
Calculations:
Let his original salary be 'x'
The old savings = 20%x = 0.2x
The old expenses = 80%x = 0.8x
Increase in salary = x (1 + 25%) = 1.25x
Now, the new salary
Salary = Expenses + Savings
=> 1.25x = E + 0.2x
=> E = 1.25x - 0.2x = 1.05x
Difference in expenses = New - Old = 1.05x - 0.8x = 0.25x
Then expenses % growth = 25/80 × 100
=> 0.3125 × 100 = 31.25%
Therefore His expenditure increased by 31.25%.

Q63. Answer: (d) Rs. 3,450

Given:
Marked Price (MP) = Rs. 3750
Discount to retailer = 20%
Profit% = 15%
Concept used:
Profit% = [(SP - CP)/CP] × 100
Calculations:
According to the question,
CP = MP (1 - D%)

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=> CP = 3750 (1 - 20%)
=> CP = 3750 (1 - 0.20)
=> CP = 3750 × 0.8 = 3000
Now SP
=> 15 = [(SP - 3000)/3000] × 100
=> 15 × 30 = SP - 3000
=> SP = 3000 + 450 = Rs. 3450
Therefore The retailer sold it at Rs. 3450.

Q64. Answer: (b) 60

Given:
Ravi drove 4 hours at a speed of 70 miles per hour
And for 2 hours at a speed of 40 miles per hour.
Concept used:
Average speed = Total distance covered/Total time taken
Calculations:
Distance covered in first 4 hours = 70 × 4 = 280 miles
Distance covered in next 2 hours = 40 × 2 = 80 miles
Hence, Total distance covered = 280 + 80 = 360 miles
Total time taken in the journey = 4 + 2 = 6 hours
Now, Average speed = 360/6 = 60 miles/h.
Therefore The average speed for the whole journey is 60 miles per hour.

Q65. Answer: (a) $x^2 + (a + b)x + ab$

Concept used:
(m + n)(k + l) = m(k + l) + n(k + l) = mk + ml + nk + nl
Calculations:
According to the question,
(x + a)(x + b)
= x(x + b) + a(x+b)
= x^2 + bx + ax + ab
= x^2 + (a + b)x + ab
Hence, The Required value is x2 + (a + b)x + ab.

Q66. Answer: (c) 7 cm

Given:
Radius of right circular cylinder = 3 cm.
Total surface area of cylinder = 60π cm^2.
Formula used:
Total surface area of cylinder = $2\pi rh + 2\pi r^2 = 2\pi r(r + h)$
Let the Height of the cylinder = h cm.
Total surface area of cylinder = 2 π r (r + h) = 60π
=> 2 π × 3(3 + h) = 60π
=> (3 + h) = 10
=> h = 7 cm
Therefore Height of the cylinder is 7 cm.

Q67. Answer: (d) 15

Shortcut Trick
Use the Chain Rule formula: M1 × D1 × H1 = M2 × D2 × H2
Here, the daily working hours (6 hr) remain constant, so: M1 × D1 = M2 × D2
Substitute the values: 45 × 10 = 30 × D2
450 = 30 × D2 => D2 = 15 days

Therefore The correct answer is 15 days.

Alternate Method

Given:

Initial count (M1) = 45 people, Days (D1) = 10 days, Hours (H1) = 6 hr/day

New count (M2) = 30 people, New Hours (H2) = 6 hr/day

Formula Used:

Total Work (Man-hours) = Men × Days × Hours per day

Group	Days	Total Work (Man-hours)	Efficiency (Men × Hours)
Group 1	10	2700	45 × 6 = 270
Group 2	D2	30 × 6 = 180	

Calculations:

=> Total work required = 45 × 10 × 6 = 2700 man-hours

=> Time available per day for 30 people = 30 × 6 = 180 man-hours/day

=> Days required (D2) = Total work ÷ Daily efficiency

=> D2 = 2700 ÷ 180

=> D2 = 15 days

Therefore The correct answer is 15 days.

Additional Information

General Chain Rule Formula

For different work quantities, the relation is (M1 × D1 × H1) ÷ W1 = (M2 × D2 × H2) ÷ W2, where W is work.

Inverse Proportion in Work

When the total work is constant, the number of people (M) is inversely proportional to the time (D). If people decrease, days increase.

Work and Efficiency

If workers have different efficiency levels (E), the formula becomes M1D1H1E1 = M2D2H2E2.

Q68. Answer: (a) 100 √3

Given:

Side of equilateral triangle = 20 cm

Formula used:

Area of an equilateral triangle with side a = √3/4 a^2

Calculations:

Area of an equilateral triangle

= √3/4 $(20)^2$

= 100√3 cm^2

Hence, The Required area is 100√3 cm^2.

Q69. Answer: (d) 24

Shortcut Trick

Discounted selling price for 12 pairs = 80% of Rs. 200 = Rs. 160.

Since Rs. 320 is exactly double of Rs. 160, the quantity bought will also be double.

Number of pairs that can be bought = 12 × 2 = 24 pairs.

Therefore The correct answer is 24 pairs.

Alternate Method

Price and Quantity Proportionality

MP = Rs. 200

12 pairs

−20%

SP = Rs. 160

12 pairs

× 2

Paid = Rs. 320
24 pairs
12 pairs × 2 = 24 pairs
Given:
Quoted price (Marked Price) of 1 dozen (12 pairs) gloves = Rs. 200
Discount percentage = 20%
Formula Used:
Selling Price (SP) = Marked Price (MP) × [(100 − Discount%) ÷ 100]
Calculations:
=> SP of 12 pairs of gloves = 200 × [(100 − 20) ÷ 100]
=> SP of 12 pairs = 200 × 80 ÷ 100 = Rs. 160
=> Number of pairs available for Rs. 160 = 12
=> Number of pairs available for Rs. 320 = (12 ÷ 160) × 320
=> Number of pairs = 12 × 2 = 24
Therefore The correct answer is 24 pairs.
Additional Information
Marked Price and Discount
Discount is always calculated on the Marked Price (MP). The formula is: Selling Price (SP) = MP × (100 − D%) ÷ 100.
Successive Discounts
When two consecutive discounts of a% and b% are given, the single equivalent discount percentage is [a + b − (a × b) ÷ 100]%.
Unitary Method
A technique to find the total value of required quantity by first calculating the value of a single unit. Required Value = (Total Given Value ÷ Given Quantity) × Required Quantity.

Q70. Answer: (a) sin 13°

Given:
sin 73° + cos 137°
Formula used:
sin 73° = sin(60° + 13°) = sin 60°cos 13° + cos 60°sin 13°
cos 137°= - cos(43°)
Calculations:
sin 73° + cos 137°
= sin(60° + 13°) + {- cos(43°)}
= sin 60°cos 13° + cos 60°sin 13° - cos(30° + 13°)
= √3/2 cos 13° + 1/2 sin 13° - cos 30°cos 13° + sin 30°sin 13°
= √3/2 cos 13° + 1/2 sin 13° - √3/2 cos 13° + 1/2 sin 13°
= 1/2 sin 13° + 1/2 sin 13°
= sin 13°
Therefore The Required simplified value is sin 13°.

Q71. Answer: (d) 554.4 cm²

Shortcut Trick
Radius (r) = 12 ÷ 2 = 6 cm.
Height (h) = 2.45 × 6 = 14.7 cm.
CSA = 2 × (22/7) × 6 × 14.7
CSA = 44 × 6 × 2.1 = 554.4 cm².
Therefore The correct answer is 554.4 cm².
Alternate Method
Given:
=> Diameter (d) of the cylinder = 12 cm
=> Height (h) = 2.45 × Radius (r)
=> π = 22/7

Formula used:

=> Curved Surface Area (CSA) = 2 × π × r × h

Calculations:

=> Radius (r) = Diameter ÷ 2 = 12 ÷ 2 = 6 cm

=> Height (h) = 2.45 × 6 = 14.7 cm

=> CSA = 2 × (22/7) × 6 × 14.7

=> CSA = 2 × 22 × 6 × (14.7 ÷ 7)

=> CSA = 44 × 6 × 2.1

=> CSA = 264 × 2.1

=> CSA = 554.4 cm^2

Therefore The correct answer is 554.4 cm^2.

Additional Information

Total Surface Area of Cylinder

The total surface area includes the curved surface and the two circular bases: TSA = $2\pi r(h + r)$.

Volume of Cylinder

The capacity or volume of a right-circular cylinder is calculated as $V = \pi r^2 h$.

Base Area of Cylinder

Since the base is a circle, its area is given by $A = \pi r^2$.

Q72. Answer: (d) -50

Shortcut Trick

Use the direct Algebraic Identity: $x^3 + y^3 + z^3 - 3xyz = (x + y + z) \times [3(x^2 + y^2 + z^2) - (x + y + z)^2] \div 2$.

Substitute the given values: Sum = 10 and Sum of squares = 30.

Required value = $10 \times [3(30) - 10^2] \div 2$

Required value = $10 \times [90 - 100] \div 2 = 10 \times (-10) \div 2 = -50$.

Therefore The correct answer is -50.

Alternate Method

Given:

Sum of variables $(x + y + z) = 10$

Sum of squares $(x^2 + y^2 + z^2) = 30$

Formula Used:

1) $(x + y + z)^2 = x^2 + y^2 + z^2 + 2(xy + yz + zx)$

2) $x^3 + y^3 + z^3 - 3xyz = (x + y + z)(x^2 + y^2 + z^2 - (xy + yz + zx))$

Calculations:

=> $(10)^2 = 30 + 2(xy + yz + zx)$

=> $100 = 30 + 2(xy + yz + zx)$

=> $2(xy + yz + zx) = 100 - 30 = 70$

=> $xy + yz + zx = 35$

=> $x^3 + y^3 + z^3 - 3xyz = (10) \times (30 - 35)$

=> $x^3 + y^3 + z^3 - 3xyz = 10 \times (-5) = -50$

This result corresponds to the value provided in option (4).

Therefore The correct answer is -50.

Additional Information

Sum of Cubes Conditional Identity

If $x + y + z = 0$, then the expression $x^3 + y^3 + z^3 - 3xyz$ becomes zero, which implies $x^3 + y^3 + z^3 = 3xyz$.

Alternative Form of the Identity

The identity can also be written as: $x^3 + y^3 + z^3 - 3xyz = \frac{1}{2}(x + y + z)[(x - y)^2 + (y - z)^2 + (z - x)^2]$. This form is useful when the differences between variables are known.

Relation between Squares and Product Sum

The term $(x^2 + y^2 + z^2 - xy - yz - zx)$ is always non-negative for all real values of x, y, and z.

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Q73. Answer: (c) 20%

Given:

A pen is sold finally at a profit of 44% on its original cost price.

Profit made by the first dealer is 20%.

Formula used:

Selling Price = (100 + Profit) × (Cost price/100)

Calculations:

Let the original cost price be Rs. 100.

Then, the First dealer sold it for

= (100+20)/100 × 100

= Rs.120

And Final price is (100+44)/100 × 100 = Rs. 144.

Then, profit made made by second dealer is

= Final price - Second selling price

= 144 - 120

= Rs. 24

Now, percentage profit earned by second dealer

= 24/120 × 100

= 20%

Therefore The percentage profit made by second dealer is 20%.

Q74. Answer: (c) Rs. 1.18

Shortcut Trick

Ratio of quantities = 20000 : 15000 : 5000 = 4 : 3 : 1

Weighted Average Price = [(4 × 1) + (3 × 1.15) + (1 × 2)] ÷ (4 + 3 + 1)

Weighted Average Price = (4 + 3.45 + 2) ÷ 8 = 9.45 ÷ 8

Weighted Average Price = 1.18125 ≈ Rs. 1.18

Therefore The correct answer is Rs. 1.18.

Alternate Method

Given:

Quantity1 = 20000 units, Price1 = Rs. 1

Quantity2 = 15000 units, Price2 = Rs. 1.15

Quantity3 = 5000 units, Price3 = Rs. 2

Formula: Weighted Average = (Q1P1 + Q2P2 + Q3P3) ÷ (Q1 + Q2 + Q3)

=> Total Cost = (20000 × 1) + (15000 × 1.15) + (5000 × 2)

=> Total Cost = 20000 + 17250 + 10000

=> Total Cost = Rs. 47250

=> Total Quantity = 20000 + 15000 + 5000 = 40000 units

=> Weighted Average Price = 47250 ÷ 40000

=> Weighted Average Price = 4.725 ÷ 4 = 1.18125

=> Rounding to two decimal places, Price = Rs. 1.18

Therefore The correct answer is Rs. 1.18.

Additional Information

Weighted Average Formula

It is calculated as $\Sigma w_i x_i / \Sigma w_i$, where w is the weight (quantity) and x is the value (price) per unit.

Simple vs. Weighted Average

A simple average treats all items equally, while a weighted average accounts for the relative importance or quantity of each item.

Combined Average

When two groups with sizes n1, n2 and averages A1, A2 are combined, the new average is (n1A1 + n2A2) / (n1 + n2).

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Q75. Answer: (a) 686

Given:

Table shows the number of cakes sold by six different bakeries in a town on five different of particular week.

Calculations:

No. of cakes sold by Bakery D on monday = 221

No. of cakes sold by Bakery D on Thursday = 185

No. of cakes sold by Bakery D on Sunday = 280

The sum of total no. of cakes sold by Bakery D on Monday, Thursday and Sunday

= 221 + 185 + 280

= 686

Therefore Total number of cakes sold by Bakery D on Monday, Thursday and Sunday is 686.

Q76. Answer: (b) CV Raman

The correct answer is CV Raman.

Key Points

• Sir Chandrasekhara Venkata Raman, discovered on 28 February 1928, that when a beam of coloured light entered a liquid, a fraction of the light scattered was of a different color, dependent on material property.

• This radiation effect of molecular scattering of light bears the name of 'Raman Effect', from which many applications in photonic communications and spectroscopy evolved.

• The Raman Effect is the process of scattering light particles by molecules of a medium.

• The scattering occurs due to a change in the wavelength of light as it enters the medium.

• When a beam of light travels through a dust-free, transparent chemical, a small fraction of the light emerges in directions other than where it should.

• Light consists of particles called photons, whose energy is directly proportional to the frequency with which they travel.

• When they strike molecules in a medium at high speeds, they bounce back and scatter in different directions depending on the angle with which they hit the molecules.

Additional Information

• Lord Rayleigh's first researches were mainly mathematical, concerning optics and vibrating systems, but his later work ranged over almost the whole field of physics, covering sound, wave theory, colour vision, electrodynamics, electromagnetism, light scattering, the flow of liquids, hydrodynamics, the density of gases, viscosity, capillarity, elasticity, and photography.

• Satyendra Nath Bose FRS was an Indian mathematician and physicist specializing in theoretical physics.

• He is best known for his work on quantum mechanics in the early 1920s, in developing the foundation for Bose statistics and the theory of the Bose condensate.

• John Tyndall FRS was a prominent 19th-century Irish physicist.

• His initial scientific fame arose in the 1850s from his study of diamagnetism.

Q77. Answer: (c) My Side

The correct answer is My Side.

Key Points

• My side is an autobiography written by former English footballer, David Beckham published in 2003.

• David Robert Joseph Beckham is an English former professional footballer, the current president and co-owner of Inter Miami CF, and the co-owner of Salford City.

• He is known for his range of passing, crossing ability, and bending free-kicks as a right winger, David Beckham has been hailed as one of the greatest and most recognizable midfielders of his generation, as well as one of the best set-piece specialists of all time.

• He is the first English player to win league titles in four countries: England, Spain, the United States, and France.

Additional Information

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

• The Greatest: My Own Story is a 1975 autobiography of heavyweight boxer Muhammad Ali.

• Standing my Ground is the book written by Matthew Hayden.

Q78. Answer: (c) Khelo India

The correct answer is Khelo India.

Key Points

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• The Ministry has decided to extend the Khelo India scheme from 2021-22 to 2025-26.

• The Ministry has furnished an Expenditure Finance Committee (EFC) memorandum to the Ministry of Finance for extension/continuation of the Khelo India Scheme from 2021-22 to 2025- 26,

• A number of Rs 8750 crore has been estimated as a financial implication of the new Khelo India Scheme (2021-22 to 2025-26) in the EFC memorandum furnished to the Ministry of Finance.

• An amount of Rs 657.71 crore has been allocated in the Budget Estimate (B.E.) for the year 2021-22 under the Khelo India Scheme.

• This information was given by former Minister of State for Youth Affairs & Sports Shri Kiren Rijiju.

Additional Information

• Rajiv Gandhi Khel Abhiyan is a centrally sponsored scheme that was launched on 21st Feb 2014.

• It has been launched in the place of former Panchayat Yuva Krida and Khel Abhiyan which comes under the banner of revised Rajiv Gandhi Khel Abhiyan.

• Ministry of Youth Affairs & Sports is implementing a scheme namely, Urban Sports Infrastructure Scheme (USIS) on a pilot basis with effect from the year 2010-11.

• Under this scheme, 100% financial assistance is provided to State Governments/ Union Territories for the development of sports infrastructure.

• The National Sports Talent Search Scheme (NSTSS) has been formulated for talent identification in the age group of 8-12 years and nurturing of identified talented sports persons.

• The scheme is being implemented by the Ministry of Youth Affairs & Sports, Government of India.

Q79. Answer: (d) Rajasthan

The correct answer is Rajasthan.

Key Points

• Cactus vegetation is found in dry areas of Thorny Bushes in the form of spines in Rajasthan.

• Rajasthan is an arid area that receives less than 75 cm of annual rainfall.

• This rainfall does not support dense forests.

• The loss of moisture is also high due to transpiration as the region has a high temperature.

• Trees have needle-shaped thorns to prevent loss of moisture.

• The Thorn Forests are also found in the semi-arid areas of Gujarat, Madhya Pradesh, Chhattisgarh, Uttar Pradesh, and Haryana.

• Acacias, palms, euphorbias, and cacti are the main plants found in these forests.

Additional Information

• Rajasthan is a state in northern India. It is the largest Indian state by area and the seventh largest by population.

• Jaipur is the capital of India’s Rajasthan state. I

• Bhajan Lal Sharma is an Indian politician serving as the current Chief Minister of Rajasthan.

• Ghoomar or ghumar is a traditional folk dance of Rajasthan.

Q80. Answer: (a) Kathakali

The correct answer is Kathakali.

Key Points

• Kalamandalam Rajan is a Kathakali exponent from Kerala, India.

• He has been honored with several noted awards including the Sangeet Natak Akademi Award 2009.

• He has been also honored with the Kerala Sangeetha Nataka Akademi Gurupooja award 2006 and awards from Kerala Kalamandalam.

• In Kathakali, Kalamandalam Rajan was expert in pacha, kathi and minukku roles.

• His performances as Bahuka, Nala, and Dharmaputra have been critically acclaimed.

• He had performed on many stages in India and abroad with Margi Kathakali Vidyalayam, Thiruvananthapuram, and was part of the Kathakali Festival conducted by Sangeet Natak Akademi in New Delhi in 1993.

Additional Information

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

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

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

Q81. Answer: (a) 15 minutes

The correct answer is 15 minutes.

Key Points

• Players are entitled to an interval at half-time, not exceeding 15 minutes; a short drinks break (which should not exceed one minute) is permitted at the interval of half-time in extra time.

• Competition rules must state the duration of the half-time interval and it may be altered only with the referee's permission.

• A match lasts for two equal halves of 45 minutes which may only be reduced if agreed between the referee and the two teams before the start of the match and is in accordance with competition rules.

Additional Information

• Football in India has historically been among the top 3 most popular sport in terms of players participation and TV viewership, together with long time number one cricket and re-emerging kabaddi.

• India's current top domestic football league is Indian Super League, formed with eight teams to promote Indian football in the country and world.

• Also contested is Santosh Trophy, a knock-out competition between states (provinces) and government institutions.

• The India national football team is the national football team of India and is governed by the All India Football Federation.

Q82. Answer: (d) Aquatic sport

The correct answer is Aquatic sport.

Key Points

• Diving comes under the aquatic category of sport.

• Diving is the sport of jumping or falling into water from a platform or springboard, usually while performing acrobatics.

• Diving is an internationally recognized sport that is part of the Olympic Games.

• In addition, unstructured and non-competitive diving is a recreational pastime.

• Competitors possess many of the same characteristics as gymnasts and dancers, including strength, flexibility, kinaesthetic judgment, and air awareness.

• Some professional divers were originally gymnasts or dancers as both sports have similar characteristics to diving.

Additional Information

• In many team sports, defense or defense is the action of preventing an opponent from scoring. The term may also refer to the tactics involved in defense or a sub-team whose primary responsibility is defense.

• Martial arts are codified systems and traditions of combat practiced for a number of reasons such as self-defense; military and law enforcement applications; competition; physical, mental, and spiritual development; entertainment; and the preservation of a nation's intangible cultural heritage.

• A combat sport, or fighting sport, is a competitive contact sport that usually involves one-on-one combat.

Q83. Answer: (b) Rs. 1.25 lakh

The correct answer is Rs. 1.25 lakh.

Key Points

• The Reserve Bank of India has made the upper limit of annual household income for microfinance borrowers in rural areas Rs 1.25 lakh to improve credit availability in rural and semi-urban areas.

• It has also been taken into consideration to increase the household income limit for borrowers of non-banking financial companies-micro finance institutions.

• The important role played by a Microfinance institution in delivering credit to those at the bottom of the economic pyramid and enabling them to play their assigned role, the Reserve Bank of India (RBI) observed in its Policies.

• The RBI has also revised the definition of microfinance loans by increasing the loan cap.

Additional Information

• The Reserve Bank of India (RBI) recently released its final guidelines for microfinance institutions that will be applicable to all entities engaged in this sector.

• RBI has now set a common household limit of Rs 300,000 for loans to qualify as microfinance.

• For entities to qualify for an NBFC-MFI license, they should have at least 75% of assets in microfinance and the, and the cap on NBFCs was increased to 25% of assets as against 10% earlier.

• Besides, the maximum possible indebtedness per borrower was increased to Rs 240,000 (from half of that earlier) and, most importantly, the 10% spread cap that was applicable to NFBC-MFIs has also been done away with.

Q84. Answer: (b) Remo D'Souza

The correct answer is Remo D'Souza.

Key Points

• Remo D'Souza has been working in Bollywood for a very long time and has choreographed many iconic dance numbers.

• Most recently, he choreographed the very popular Deewani Mastani and Pinga from Sanjay Leela Bhansali's Bajirao Mastani.

• Both the dances looked fabulous and with that Remo won the most iconic award so far.

• He won the 63rd National Film Awards for the Best Choreography for Deewani Mastani's song - Bajirao Mastani.

Additional Information

• Ganesh Acharya is an Indian choreographer, film director, and actor who prominently works in Hindi films. He has choreographed for a variety of films, including Bodyguard and Singham.

• Prabhu Deva is an Indian dance choreographer, film director, producer, and actor who has worked predominantly in Tamil, Hindi, and Telugu language films. In a career spanning 32 years, he has performed and designed a wide range of dancing styles and has garnered two National Film Awards for Best Choreography.

• Farah Khan Kunder is an Indian film director, film producer, actress, dancer and choreographer who works predominantly in Hindi films.

Q85. Answer: (a) Article 226

The correct answer is Article 226.

Key Points

• Enshrined under Part VI of the Constitution of India, Article 226 provides the High Courts with the power to issue writs, including writs in the form of habeas corpus, mandamus, prohibition, quo warranto, certiorari, or any of them, to any person or authority, including the government.

• Article 226 of the Indian Constitution gives High Courts the power and ability to enforce any of the basic fundamental rights guaranteed by Part III of the Constitution of India, 1949, or for any other reason.

• Under Article 226, a writ petition can be filed before any High Court within whose jurisdiction the cause of action arises, either wholly or in part. It is immaterial if the authority against whom the writ petition is filed is within the territory or not.

Additional Information

• Article 235 of the Indian Constitution vested powers in the High Court to control subordinate courts.

• Article 230 of the Indian Constitution gives an extension of the jurisdiction of High Courts to Union territories.

• Article 242 in the original Constitution related to the power of Parliament to provide for the Legislative Council for Coorg which was State under Part D of the original First Schedule of the Constitution.

Q86. Answer: (a) Kalamandalam Kalyanikutty Amma - Mohiniyattam

The correct answer is Kalmaandalam Kalyanikutty Amma - Mohiniyattam.

Key Points

• Kalamandalam Kallyanikutty Amma (1915 – 1999) was an epoch-making Mohiniyattam danseuse from Kerala in southern India.

• A native of Thirunavaya in Malappuram district of the state.

• She was instrumental in resurrecting Mohiniyattam from a dismal, near-extinct state into a mainstream Indian classical dance

Additional Information

• Sonal Mansingh is an Indian classical dancer and Guru of Bharatanatyam and Odissi dancing style.

• Shovana Narayan is a recognised Indian Kathak dancer and a career officer with Indian Audit and Accounts Service. She performs in India and internationally, and has been awarded the Padma Shri. She trained under Birju Maharaj.

• Balasaraswati, also known as Balasaraswati, was an Indian dancer, and her rendering of Bharatanatyam, a classical dance style originated in the South Indian state of Tamil Nadu,

Q87. Answer: (b) Usain Bolt

The correct answer is Usain Bolt.

Key Points

• Usain Bolt is a retired Jamaican sprinter, widely considered to be the greatest sprinter of all time.

• He is the world record holder in the 100 meters, 200 meters, and 4 × 100 meters relay.

• Faster than Lightning details the many untold pains and sacrifices an athlete goes through to win that race against the clock.

Additional Information

• Hima Das, nicknamed Dhing Express, is an Indian sprinter from the state of Assam. She holds the current Indian national record in 400 meters.

• P.T Usha is a retired Indian track and field athlete. She is often called the "Queen of Indian track and field

• Dutee Chand is an Indian professional sprinter and current national champion in the women's 100 meters event. She is the first Indian to win a gold medal in the 100m race.

Q88. Answer: (d) Vitamin E

The correct answer is Vitamin E.

Key Points

• Vitamins A, D, E, and K are called the fat-soluble vitamins, because they are soluble in organic solvents and are absorbed and transported in a manner similar to that of fats.

• Vitamin E deficiency, which is rare and usually due to an underlying problem with digesting dietary fat rather than from a diet low in vitamin E, can cause nerve problems.

Additional Information

• Vitamin C is a water-soluble vitamin found in citrus and other fruits and vegetables. It is used to prevent and treat scurvy.

• Vitamin D is responsible for increasing intestinal absorption of calcium, magnesium, phosphate, and many other biological effects.

• Vitamin A, also known as retinol, has several important functions, helping your body's natural defense against illness

Q89. Answer: (c) Kirana Gharana

The correct answer is Kirana Gharana.

Key Points

• Kirana Gharana is the name of this school of music derives from Kirana or Kairana, a town and tehsil of Shamli District in Uttar Pradesh.

• It is the birthplace of Abdul Karim Khan (1872–1937), who was one of the most important musicians of this gharana and of Hindustani music in general in the twentieth century.

Additional Information

• The Benares gharana makes use of over 20 different compositional types and has an enormously varied repertoire of each type. Reputed players of the gharana.

• The Agra gharana is a tradition of Hindustani classical vocal music descended from the Nauhar Bani. So far, Nauhar Bani has been traced back to around 1300 AD, The first known musician of this tradition is Nayak Gopal

• The Patiala gharana is one of the vocal gharanas of Hindustani classical music, named after the city of Patiala in Punjab, India where it was established. The gharana was founded in the mid to late 19th century

Q90. Answer: (a) Shaili Singh

The correct answer is Shaili Singh.

Key Points

• Shaili Singh is an Indian athlete who competes in long jump events.

• She is the junior Indian national long jump champion in age group category.

• Ranks among the world's top 20 long jumpers in the Under-18 category.

Additional Information

• Maliakhal Anthony Prajusha is an Indian track and field athlete from Kerala who competes in the long jump and triple jump

• Nayana James is an Indian athlete competing in the long jump event. She gained a bronze medal at the 2017 Asian Athletics Champions

• Reeth Abraham is an athlete from Bengaluru, India and former Asian medalist in the long jump.

Q91. Answer: (d) 1855

The correct answer is 1855.

Key Points

• In 1855, at the age of 34, he published his now famous aphorism “omnis cellula e cellula” (“every cell stems from another cell”).

• With this approach Virchow launched the field of cellular pathology.

• He stated that all diseases involve changes in normal cells, that is, all pathology ultimately is cellular pathology.

Additional Information

• Rudolf Virchow's theory stated that just as animals are unable to arise without previously existing animals, cells are unable to arise without previously existing cells.

• This book is one of the towering classics in the history of the development of modern medicine.

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Q92. Answer: (a) Ustad Bade Ghulam Ali Khan

The correct answer is Ustad Bade Ghulam Ali Khan

Key Points

• Ustad Ghulam Ali is a Pakistani ghazal singer of the Patiala Gharana.

• He has also been a prominent playback singer in Bollywood.

• Ghulam Ali was a disciple of Bade Ghulam Ali Khan (elder Ghulam Ali Khan).

Additional Information

• Hindustani classical music is the classical music of northern regions of the Indian subcontinent.

• It may also be called North Indian classical music or, in Hindustani, shastriya sangeet. Its origins date from the 12th century CE.

• Ustad Ali Baksh Jarnail Khan was an Indian classical singer, he founded the Patiala Gharana in the 19th century

• Munawar Ali Khan was an Indian classical and light classical vocalist of Kasur Patiala Gharana.

Q93. Answer: (a) Fermentation

The correct answer is Fermentation.

Key Points

• Fermentation is a metabolic process that produces chemical changes in organic substrates through the action of enzymes.

• In biochemistry, it is narrowly defined as the extraction of energy from carbohydrates in the absence of oxygen

Additional Information

• Pasteurization is a process in which packaged and non-packaged foods are treated with mild heat.

• Condensation is the process where water vapor becomes liquid. It is the reverse of evaporation, where liquid water becomes a vapor

• Steaming is a method of cooking using steam.

Q94. Answer: (a) Paradichlorobenzene

The correct answer is Paradichlorobenzene.

Key Points

• Paradichlorobenzene is a chlorinated aromatic hydrocarbon.

• It is a fumigant insecticide and repellent.

• Paradichlorobenzene turns directly from a solid into a gas, a process called sublimation.

Additional Information

• Ethylbenzene is an organic compound with the formula C6H5CH2CH3. It is a highly flammable, colorless liquid with an odor similar to that of gasoline.

• Benzoyl chloride is mainly useful for the production of peroxides.

• Chlorobenzene is used primarily as a solvent, a degreasing agent, and a chemicals

Q95. Answer: (a) Kumar Gandharva – Guitar

The correct answer is Kumar Gandharva - Guitar

Key Points

• Pandit Kumar Gandharva, originally known as Shivaputra Siddharamayya Komkalimath was an Indian classical singer.

• Known for his unique vocal style and for his refusal to be bound by the tradition of any gharana.

Additional Information

• Zia Mohiuddin Dagar, was a North Indian classical musician, one of the 19th generation of Dagar family dhrupad musicians.

• Kadri Gopalnath is one of India's most famous saxophonists.

• Jayashri Ramnath is an Indian Carnatic vocalist, singer, and musician.

Q96. Answer: (d) Athletics

The correct answer is Athletics.

Key Points

• An athletics is a group of sporting events that involves competitive running, jumping, throwing, and walking.

• The most common types of athletics competitions are track and field, road running, cross country running, and racewalking.

• Participation in high school athletics teaches kids the importance of movement and physical fitness. When these values are emphasized to students, it's much more likely that they will stick with these habits as they grow.

• An active person will ultimately face fewer health risks in the future.

Additional Information

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• Kabaddi

• The game is played with 20-minute halves with a 5-minute half break in which the teams exchange sides. During each play, known as a "raid", a player from the attacking side, known as the "raider", runs into the opposing team's side of the court and attempts to tag as many of the seven defending players as possible.

• Cricket

• It is a bat-and-ball game played between two teams of eleven players each on a field at the center of which is a 22-yard (20-metre) pitch with a wicket at each end, each comprising two bails balanced on three stumps.

• Hockey

• It is an outdoor game played by two opposing teams of 11 players each who use sticks curved at the striking end to hit a small, hard ball into their opponent's goal. It is called field hockey to distinguish it from the similar game played on ice.

Q97. Answer: (a) 2005

The correct answer is 2005.

Key Points

• The inaugural Man Booker International Prize was judged by John Carey (Chair), Alberto Manguel and Azar Nafisi.

• He nominees were announced on 2 June 2005 at Georgetown University in Washington, D.C. Albanian novelist Ismail Kadare was named the inaugural International Prize winner in 2005.

• The International Booker Prize is an international literary award hosted in the United Kingdom. The introduction of the International Prize to complement the Man Booker Prize was announced in June 2004.

Additional Information

• Something to Answer For is a 1968 novel by the English writer P. H. Newby.

• Its chief claim to fame is that in 1969 it won the inaugural Booker Prize, which would go on to become one of the major literary awards in the English-speaking world.

• Midnight's Children is a 1981 novel by author Salman Rushdie.

• Published by Jonathan Cape with cover design by Bill Botten. It portrays India's transition from the British colonial rule to the independence and the partition of India.

Q98. Answer: (c) the number of carbon atoms in the parent chain

The correct answer is the number of carbon atoms in the parent chain.

Key Points

• The Word root indicates the total number of carbon atoms present in the longest carbon chain belonging to the compound

• For example, 'Meth' refers to a chain with 1 carbon atom and 'Pent' refers to a chain with 5 carbon atoms.

• metalloid in dictionary chemical name is Naoh.

• Nylon properties: Atomic number of iodine.

• Dobereiner Traids an Atomic compound.

Additional Information

• The name of the compound is written out with the substituents in alphabetical order followed by the base name (derived from the number of carbons in the parent chain)

• The part of IUPAC of the organic compound which denotes functional group is called Secondary suffix.

• Commas are used between numbers and dashes are used between letters and numbers. There are no spaces in the name.

Q99. Answer: (d) Kathak

The correct answer is Kathak.

Key Points

• Kathak is one of the eight major forms of Indian classical dance.

• It is the classical dance form of Uttar Pradesh

• The origin of Kathak is traditionally attributed to the traveling bards of ancient northern India known as Kathakars or storytellers.

• Native to North India, Kathak is one of six Indian classical dance forms.

• Kathak originated within Hindu temples as a storytelling device for portraying the epic tales from Hindu scriptures, Mahabharata and Ramayana.

Additional Information

• Odissi

• it is a typically a dance drama performance art from in which the artist and musician act out a narrative,a spiritual lesson, or a devotional poem from the hindu texts or a devotional poem from the hindu texts using symbolic costumes, body movements,

abhinaya, and mudras written in ancient sanskrit.

• Khathak kali

• It is a significant type of indian classical dance It is a kind of art known as "story play" but it stands out due to the lavishly colourful makeup costumes and face masks that the traditionally male actor dancers don.

• Kuchipudi

• It is originated in the 17th century with the creation by Sidhyendra Yogi of the dance-drama Bhama Kalapam, a story of Satyabhama, the charming but jealous wife of the god Krishna. The dance performance begins with the sprinkling of holy water and the burning of incense.

Q100. Answer: (b) Gwalior

The correct answer is Gwalior.

Key Points

• The Gwalior Gharana evolved during the time of the Mughal Empire (1526CE – 1857 CE).

• Among the early masters (ustad) were Naththan Khan, Naththan Pir Bakhsh and his grandsons Haddu, Hassu and Natthu Khan.

• The head musician in the imperial court was Bade Mohammad Khan, who was famous for his taan bazi style.

• Ustad Bade Inayat Hussain Khan (1837–1923) was a classical Indian vocalist who belonged to the famous Gwalior Gharana. He was the son of Haddu Khan who was the maternal grandson of Nathan Pir Bakhsh, the founder of Gwalior Gharana. He was the first person to introduce Bol Bant in Khayal Gayki.

Additional Information

• Both Dhrupad and Khyal singing evolved in Gwalior and there are many overlaps. In the khyal style there is one form, Mundi Dhrupad, that incorporates all the features of dhrupad singing but without the Mukhda. Common ragas include Alhaiya Bilawal, Yaman, Bhairav, Sarang, Shree, Hameer, Gaud Malhar, and Miya Ki Malhar.

• Three main gharanas of thumri — Benaras, Lucknow and Patiala. Begum Akhtar is one of the most popular singers of thumri style.

• Famous Hindustani Gharanas in Music

• Kirana Gharana. This is the most profuse Gharana in Indian traditional music.

• Gwalior Gharana. This is one of the most seasoned Gharanas of Indian traditional music and has decent and simple singing tune, style, and beat.

• Patiala Gharana

• Sham Chaurasia Gharana

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