RRB NTPC CBT-I Official Paper (Held On: 27 Jan 2021 Shift 2) (Previous Year Paper)

RRB NTPC • 2021 • 100 questions • 90 minutes • Answer key and solutions

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Q1. Which Indian born Scottish inventor pioneered the development of the cash machine also called Automated Teller Machine (ATM)?

(a) James Goodfellow
(b) Luther Wetzel
(c) Donald Harrier
(d) John Shepherd-Barron

Q2. Who won the purple cap for the maximum number of wickets in IPL 2020?

(a) Pat Cummins
(b) Kagiso Rabada
(c) Lasith Malinga
(d) Yuzvendra Chahal

Q3. Some amount out of Rs. 7,000 was lent at 6% p.a. and the remaining at 4% p.a. If the total simple interest received on the amount of Rs. 7,000 in 5 years was Rs. 1,600, then find the amount that was lent at 6% p .a.

(a) Rs. 2,000
(b) Rs. 4,000
(c) Rs. 5,000
(d) Rs. 3,000

Q4. Who wrote the play 'Mudrarakshasa'?

(a) Somadeva
(b) Bodhayan
(c) Vishakhadatta
(d) Kalidas

Q5. In a consignment of electric bulbs, 4% were broken and from the remainder, 25% were found to be defective. If the total number of broken and defective bulbs is 112, then find the number of bulbs in the consignment.

(a) 600
(b) 500
(c) 700
(d) 400

Q6. Which of the following birds is a critically endangered species?

(a) Great Indian Bustard
(b) Cuckoo
(c) Peacock
(d) Crow

Q7. Which of the following 'ashrams' was NOT established by Mahatma Gandhi?

(a) Paunar
(b) Sabarmati
(c) Tolstoy Farm
(d) Sevagram

Q8. What does a Hygrometer measure?

(a) Heat
(b) Force
(c) Humidity
(d) Radiation

Q9. Which of the following ports lies on the east coast of India?

(a) Kandla
(b) Nhava Sheva
(c) Kochi
(d) Tuticorin

Q10. Who was the founding President of the Indian National Congress?

(a) Dada Bhai Naoroji
(b) Surendra Nath Bannerjee
(c) Womesh Chandra Bannerjee
(d) George Yule

Q11. If one envelope requires a paper size of 18 cm × 12 cm, then how many envelopes can be made out of a sheet of paper of size 72 cm × 48 cm?

(a) 8
(b) 4
(c) 16
(d) 12

Q12. In which year was the Export-Import (EXIM) Bank of India established?

(a) 2004
(b) 1984
(c) 1982
(d) 1998

Q13. The withdrawal of United Kingdom from the European Union is referred to more commonly as:

(a) Vote leave
(b) Brexit
(c) Britain stronger
(d) Exit

Q14. In a chess tournament, there are 125 participants. The game will be played on knock out basis. How many matches are to be played in the entire tournament?

(a) 62
(b) 84
(c) 124
(d) 125

Q15. Choose the number-pair that is different from the other three.

(a) 0 : 6
(b) 12 : 28
(c) 21 : 46
(d) 5 : 14

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Q16. The area of a trapezium is 540 m². If the parallel sides are 30 m and 24 m in length, then find the distance between them.

(a) 20 m
(b) 25 m
(c) 24 m
(d) 22 m

Q17. Find the mean of the given data.

Data	10	15	20	25	30	40	45
Frequency	2	4	3	7	6	3	5

(a) 28
(b) 30
(c) 32
(d) 26

Q18. How many numbers lie between the largest three-digit number and the largest four-digit number which are divisible by 5?

(a) 2000
(b) 1700
(c) 1900
(d) 1800

Q19. Where is the headquarters of the Reserve Bank of India located?

(a) Chennai
(b) Kolkata
(c) New Delhi
(d) Mumbai

Q20. A cord is in the form of a square enclosing an area of 22 cm². If the same cord is formed into a circle, then find the area enclosed by that circle. [Take π =22/7]

(a) 28 cm²
(b) 30 cm²
(c) 26 cm²
(d) 20 cm²

Q21. The angle of elevation from a point on the ground, 120 m away from the foot of a tower, is 60°. Find the height of the tower.

(a) 120√3 m
(b) 100√3 m
(c) 100/(√3) m
(d) 120/(√3) m

Q22. Which freedom fighter started the newspaper Al-Hilal?

(a) Hakim Ajmal Khan
(b) Maulana Shaukat Ali
(c) Maulana Abul Kalam Azad
(d) Chaudhry Khaleequzzaman

Q23. Which of the following indicates 'Some hard workers are smart workers'?

(a) No smart workers are hard workers.
(b) Only some smart workers are not hard workers.
(c) All smart workers are hard workers.
(d) All hard workers are smart workers.

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Q24. Brassica Campestris is the botanical name of which plant?

(a) Corn
(b) Common wheat
(c) Buckwheat
(d) Field mustard

Q25. If all the numbers are dropped from the given arrangement, which of the following will be the ninth to the left of S?

2 R Q 4 A 5 S I ^ 9 R # E % 8 S * P

(a) I
(b) Q
(c) $
(d) A

Q26. If $x = (\sqrt{3} + 1)/(\sqrt{3} - 1)$ and $y = (\sqrt{3} - 1)/(\sqrt{3} + 1)$, then find the value of $x^2 + y^2$.

(a) 12
(b) 10
(c) 16
(d) 14

Q27. The traffic lights at three different road crossings change after every 48 seconds, 72 seconds and 108 seconds, respectively. If they all change simultaneously at 8:20 hours, then at what time will they again change simultaneously?

(a) 8:25:15 hours
(b) 8:27:12 hours
(c) 8:28:14 hours
(d) 8:29:17 hours

Q28. Who is popular for designing the Indian Flag?

(a) Mahatma Gandhi
(b) Bal Gangadhar Tilak
(c) Pingali Venkayya
(d) Lala Hansraj

Q29. An electric pole casts a shadow of length 28 m at a time when a near by tree 8 m high casts a shadow of length 14 m. Find the height of the pole.

(a) 20 m
(b) 16 m
(c) 15 m
(d) 14 m

Q30. The HCF and LCM of two numbers are 44 and 264, respectively. If the first number is divided by 2, then the quotient is 44. What is the second number?

(a) 136
(b) 134
(c) 132
(d) 130

Q31. Who among the following was NOT associated with the revolutionary organization 'Anushilan Samiti'?

(a) Rajendra Lahiri
(b) Barindrakumar Ghosh
(c) Bhupendra nath Dutta
(d) Jatindra nath Bannerji

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Q32. If 9, x, x, 49 are in proportion, then find the value of x.

(a) 21
(b) 18
(c) 98
(d) 58

Q33. Find the values of p and q when $px^3 + x^2 - 2x - q$ is exactly divisible by (x - 1) and (x + 1).

(a) p = 2 and q = 1
(b) p = 1 and q = 2
(c) p = 1 and q = 0
(d) p = 0 and q = 1

Q34. Which was the first state in India to have a communist government?

(a) Kerala
(b) Sikkim
(c) Tripura
(d) West Bengal

Q35. A question is given followed by two arguments. Decide which of the arguments is/are strong with respect to the question.

Question:

Should there be no uniform for school children like college students?

Arguments:

I. Yes, students should be given freedom to wear the clothes of their choice.

II. No, Uniform helps to create discipline and equality among students.

(a) Neither I nor II is strong.
(b) Both the arguments are strong.
(c) Only argument II is strong.
(d) Only argument I is strong.

Q36. Choose the word that is different from the other three.

(a) Hand
(b) Kidney
(c) Heart
(d) Liver

Q37. Two poles, 15 m and 30 m in height, stand upright in a playground. If their feet are 36 m apart, then find the distance between their tops.

(a) 39 m
(b) 38 m
(c) 40 m
(d) 41 m

Q38. Which of the following is NOT a component of the Microsoft Office 2019 package?

(a) OneNote
(b) Outlook
(c) Keynote
(d) Excel

Q39. In which city is Buland Darwaza located?

(a) Chittorgarh
(b) Hyderabad
(c) Delhi
(d) Fatehpur Sikri

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Q40. Which is the busiest sea port in Europe?

(a) Southampton
(b) Antwerp
(c) Le Havre
(d) Rotterdam

Q41. Where is the headquarters of the National Institute of Oceanography located?

(a) Mangalore
(b) Goa
(c) Vishakhapatnam
(d) Chennai

Q42. Select the option that will fill in the blank and complete the series.

PE11, QD2, RC9, SB4, ___

(a) TA7
(b) RA6
(c) TA6
(d) BA7

Q43. If $(2.1 \times 2.1) - (2 \times a \times 2.1) + (0.6 \times 0.6) = 1.5^2$, then find the value of a.

(a) 0.62
(b) 1.5
(c) 2.1
(d) 0.6

Q44. Which of the following is NOT a volcano?

(a) Mont Blanc
(b) Mount Vesuvius
(c) Mount Etna
(d) Cotopaxi

Q45. Two trains start from Delhi and Patna, and travel towards Patna and Delhi, respectively. After passing each other, they take 4 h 48 min and 3 h 20 min to reach Patna and Delhi, respectively. If the train starting from Delhi is moving at a speed of 45 km/h, then find the speed of the other train.

(a) 54 km/h
(b) 55 km/h
(c) 52 km/h
(d) 50 km/h

Q46. Find the cost of fencing a square plot of land with an area of 11025 m^2, at the rate of Rs. 85 per metre.

(a) Rs. 36,000
(b) Rs. 35,700
(c) Rs. 35,800
(d) Rs. 35,000

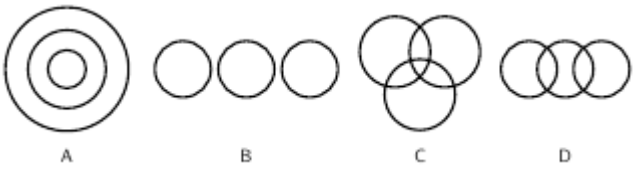
Q47. As of October 2020, who was the Chairman of the Securities and Exchange Board of India (SEBI)?

(a) UK Sinha
(b) M Damodaran
(c) Ajay Tyagi
(d) DR Mehta

Q48. Select the Venn diagram from among the given options that best represents the relationship between the following classes.

Human being, Father, Man

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(a) Diagram C
(b) Diagram B
(c) Diagram A
(d) Diagram D

Q49. If $(3\sqrt{2} - 2\sqrt{3})/(3\sqrt{2} + 2\sqrt{3}) = a + b\sqrt{6}$, then find the value of b.
(a) • 2
(b) • 5
(c) 5
(d) 2

Q50. Which is the last satellite launched by ISRO in year 2020?
(a) CMS-01
(b) Astrosat
(c) Chandrayaan - 2
(d) Gaganyaan

Q51. Which of the following is NOT a 'grassland'?
(a) Savanna
(b) Fen
(c) Prairie
(d) Steppe

Q52. Where was the last Earth Summit held?
(a) Doha
(b) Rio de Janeiro
(c) Johannesburg
(d) Kyoto

Q53. Which of the following is NOT an 'operating system'?
(a) Tally
(b) Android
(c) Mint
(d) Ubuntu

Q54. A contractor employs 45 men to dig a canal, 12 km long, in 350 days. After 200 days, he finds that only 4.5 km of the canal has been completed. Find the number of extra men he must employ in order to complete the work on time.
(a) 55
(b) 50
(c) 35
(d) 45

Q55. Select the option that will fill in the blank and complete the series.
XII, V, X, __, VIII, CXXV
(a) XX
(b) XXVI
(c) XXV
(d) XII

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Q56. Who was the first Chief Election Commissioner of India?

(a) Sukumar Sen
(b) Nagendra Singh
(c) RVS Peri Shastri
(d) TN Seshan

Q57. A boy was set to multiply 495 by 36, but reading one of the digits in the question erroneously, he obtained 16740 as his answer. Which digit did he read erroneously?

(a) 7
(b) 8
(c) 9
(d) 2

Q58. Which of the following schemes was launched in year 2006?

(a) Pradhanmantri Mudra Yojana
(b) Mahatma Gandhi National Rural Employment Guarantee Scheme
(c) Pradhamantri Jan Dhan Yojana
(d) Pradhanmantri Jeewan Jyoti Bima Yojana

Q59. Which river flows through London?

(a) Thames
(b) Potomac
(c) Rhine
(d) Hudson

Q60. Select the option that will fill in the blank and complete the series.

6, 44, 9, 42, __, 40

(a) 15
(b) 46
(c) 41
(d) 12

Q61. Find the sum of the median and mode of the given data.

28, 25, 35, 18, 38, 16, 20, 25.

(a) 25
(b) 50
(c) 38
(d) 35

Q62. What does the abbreviation SAARC stand for?

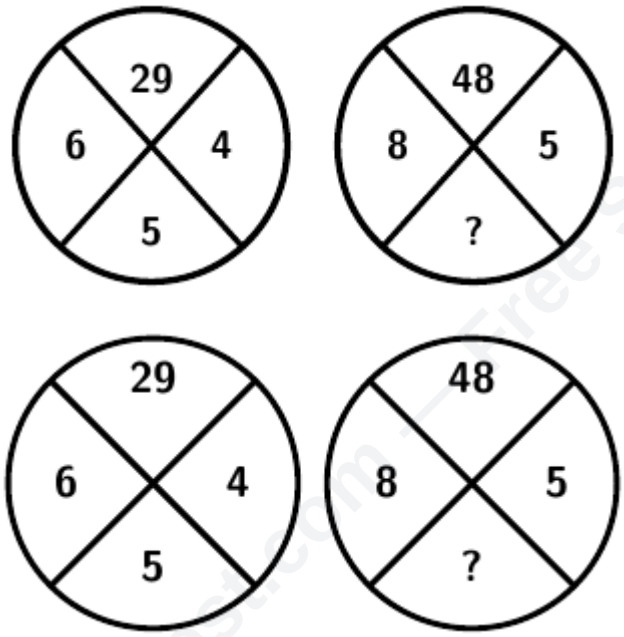
(a) South Asian Association for Regional Cooperation
(b) South Australian Asian Regional Cooperation
(c) South American African Regional Conference
(d) South Asian African Railway Corporation

Q63. Which of the following languages does NOT enjoy the status of a Scheduled language of India?

(a) Garhwali
(b) Maithili
(c) Dogri
(d) Nepali

Q64. Study the given pattern carefully and select the number from among the given options that can replace the question mark (?).

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(a) 6
(b) 12
(c) 8
(d) 7

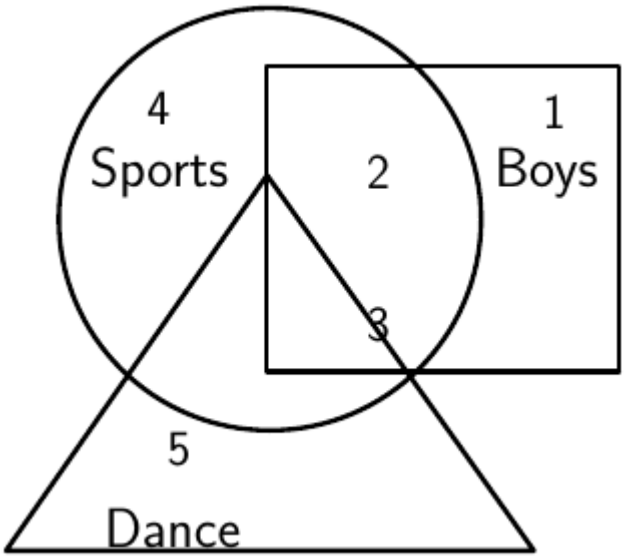
Q65. Harsh is the son of Ajeet. Vinita is the wife of Ajeet. Ajay is the brother of Harsh. Neha is the only daughter of Ajay and Kavita.

How is Vinita related to Neha?

(a) Father's Sister
(b) Sister
(c) Mother
(d) Father's mother

Q66. From the given diagram, find which number represents the following:

Boys are good at sports but not dance.



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

Q67. Find the compound interest on a sum of Rs. 25,000, for three years, if the rate of interest is 4% p.a. for the first year, 5% p.a. for the second year and 6% p.a. for the third year.

(a) Rs. 4,938
(b) Rs. 5,938
(c) Rs. 6,038
(d) Rs. 3,938

Q68. Consider the given statement and decide which of the given assumptions is/are implicit in the statement.

Statement:

X tells Y, "If you need to grow the sales of your company, you should advertise in the newspaper 'A'.

Assumptions:

I: Newspaper A has a more extensive circulation than other newspapers.

II: Sales of Y's company are down.

(a) Only assumption II is implicit.
(b) Only assumption I is implicit.
(c) Both assumption I and II are implicit.
(d) Neither assumption I nor II is implicit.

Q69. Find the HCF of 54/9,39/17 and 36/51.

(a) 7/17
(b) 8/17
(c) 6/17
(d) 5/17

Q70. Find the value of m in (2/7)^(-3) × (2/7)^(-5)= (2/7)^(-3m+1)

(a) • 3
(b) • 2
(c) 5
(d) 3

Q71. A man buys two tables for Rs. 1,350. He sells one with a loss of 6%, and sells the other to gain 71/2%. Overall, he neither loses nor gains. What is the difference between the cost price of the two tables?

(a) Rs. 100
(b) Rs. 50
(c) Rs. 150
(d) Rs. 125

Q72. What is the Chemical symbol of Lead?

(a) Mn
(b) Zn
(c) Pb
(d) Fe

Q73. Select the option that will fill in the blank and complete the series.

1/16, 1/4, 1, ___, 16

(a) 1/12
(b) 4
(c) 8
(d) 1/8

Q74. A freely suspended magnet always aligns in the _____ direction.

(a) south - west
(b) north - south
(c) east - west

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(d) north - east

Q75. A man covers a certain distance between his house and his office on a scooter. At an average speed of 30 km/h, he is late by 10 min. However, at a speed of 40 km/h he reaches his office 5 min earlier. Find the distance between his house and his office.

(a) 20 km
(b) 30 km
(c) 35 km
(d) 40 km

Q76. Lovely calculates his profit percentage on selling price, whereas Bunty calculates his on the cost price. They find that the difference in their profits is Rs. 100. If their selling price is the same, and both of them get a profit of 25%, then what is the selling price?

(a) Rs. 3,000
(b) Rs. 2,000
(c) Rs. 2,500
(d) Rs. 4,000

Q77. With which dance form is the noted dancer Pratibha Prahlad associated?

(a) Bharata Natyam
(b) Kathakali
(c) Kathak
(d) Odissi

Q78. Which of the following missile developed by DRDO is an air-to-air missile?

(a) Astra
(b) Prithvi
(c) Agni
(d) Akash

Q79. Which of the following revolutionary journals was NOT published abroad?

(a) Yugantar
(b) Talvar
(c) Free Hindustan
(d) Indian Sociologist

Q80. Find the area of a rhombus whose perimeter is 116 cm and one diagonal is 42 cm in length.

(a) 810 cm^2
(b) 830 cm^2
(c) 800 cm^2
(d) 840 cm^2

Q81. Which of the following rivers of India flows from east to west?

(a) Narmada
(b) Godavari
(c) Tungabhadra
(d) Mahanadi

Q82. In 2016, who became the second woman Prime Minister of Great Britain?

(a) Margaret Thatcher
(b) Melania Trump
(c) Angela Merkel
(d) Theresa May

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Q83. Simplify the expression (√81 + √0.81 + √0.0081)√10000.

(a) 999
(b) 0.999
(c) 9.99
(d) 99.9

Q84. Rana Tigrina is the scientific name of which animal?

(a) Tiger
(b) Wolf
(c) Leopard
(d) Asian Frog

Q85. The system that converts an IP address into an easy to remember format is called:

(a) Domain numbering system
(b) Packet-switching domain system
(c) Domains
(d) Domain name system

Directions

Sports Type	No. of Sports Participants	Total Male (%)	Total Female (%)	Selected Male (%)	Selected Female (%)
Swimming	350	40	60	10	6
Football	500	80	20	12	10
Cricket	1020	60	40	10	8
Basketball	380	50	50	20	8
Volleyball	700	30	70	6	12

The above table gives details of the number of participants and the selected participants for different sports at a sports event trial.

Q86. How many females were selected for football?

(a) 08
(b) 19
(c) 20
(d) 10

Q87. What is the ratio of selected male participants for basketball to selected male participants for swimming?

(a) 38 : 40
(b) 38 : 35
(c) 10 : 8
(d) 19 : 7

Q88. Total number of female participant its volleyball is appro×imately what percentage of total number of male participants in cricket?

(a) 90%
(b) 80%
(c) 56%
(d) 64%

Q89. If 9000 sports persons had participated in cricket and 8000 had participated in volleyball, using the same percentages given in the table, what will be the ratio of female participants selected in cricket to volleyball?

(a) 3 : 7
(b) 5 : 4
(c) 5 : 14

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(d) 12 : 19

Q90. Select the option that is related to the third term in the same way as the second term is related to the first term.

KRVI : NUYL :: AHMQ : ?

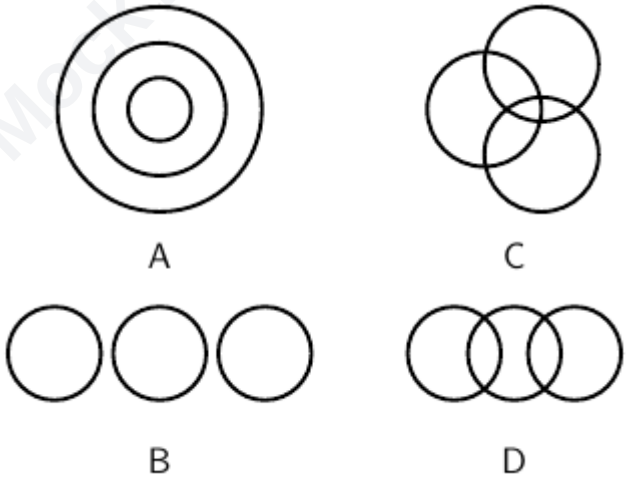
(a) DKPT
(b) FSCY
(c) WSMT
(d) BJLV

Q91. In a certain code language, Sun is written as Earth, Earth is written as Mercury, Mercury is written as Venus, Mars is written as Sun and Venus is written as Mars. How will 'Venus lies between Mercury and Earth' be written as in that language?

(a) Mars lies between Earth and Sun
(b) Mars lies between Venus and Mercury
(c) Mercury lies between Earth and Sun
(d) Mercury lies between Venus and Mars

Q92. Select the Venn diagram from among the given options that best represents the relationship between the following classes.

Girls, Students, Professional performers



(a) Diagram C
(b) Diagram A
(c) Diagram B
(d) Diagram D

Q93. Read the given statements and conclusions carefully and decide which of the conclusions logically follow(s) from the statements.

Statements:

All kings have grey hair.

Some knights become kings.

Conclusions:

I: All knights have grey hair.

II: All grey haired knights are kings.

(a) Both conclusion follow.
(b) Conclusion II follows.
(c) Conclusion I follows.
(d) Neither conclusion I nor II follows.

Q94. In a certain code language, GOLDEN CIRCLE is written as 715124514 39183125. How will ENGLAND be written as in that language?

(a) 5147112114
(b) 5147121144
(c) 5174121144
(d) 5174111114

Q95. If 1 is the code for B, what will be the code for PEANUT?

(a) 1613204019
(b) 1640201319
(c) 1540132019
(d) 151602019

Q96. Choose the number-pair that is different from the other three.

(a) 62 : 15
(b) 49 : 12
(c) 33 : 8
(d) 65 : 16

Q97. Select the option that will fill in the blank and complete the series.

CDC EFE GHG _____

(a) GHI
(b) IJI
(c) GIJ
(d) IJK

Q98. If T = 7 and Y = 2, then TUESDAY = ?

(a) 7632824262
(b) 7642823162
(c) 7622863462
(d) 7622823262

Q99. Select the option in which the words do NOT share the same relationship as that shared by the given group of words.

Patient : Surgeon : Surgery

(a) Chalk : Teacher : Students
(b) Cloth : Tailor : Stitch
(c) Clay : Potter : Pottery
(d) Vegetables : Chef : Cook

Q100. Study the given pattern carefully and select the number from among the given options that can replace the question mark (?).

202	
3	6
4	5
6	10
8	?

(a) 7
(b) 9
(c) 13
(d) 11

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ANSWER KEY

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

SOLUTIONS

Q1. Answer: (d) John Shepherd-Barron

The correct answer is John shepherd-Barron.

Key Points

• John Adrian Shepherd-Barron which was born on June 23, 1925, in Shillong, Meghalaya, India.

• John Adrian Shepherd-Barron was an Indian British inventor, who led the team that installed the first cash machine, sometimes referred to as the automated teller machine or ATM.

• The first De La Rue Automatic Cash System (DACS) machine, called Bar clay cash, was installed outside the Enfield branch of Barclays Bank in northern Greater London in June 1967.

Additional Information

• Major functions of ATM:

• Open or withdraw a fixed deposit.

• Recharge your mobile.

• Pay income tax.

• Deposit cash.

• Pay insurance premiums.

• Apply for a personal loan.

• Transfer cash.

• Pay your bills.

Q2. Answer: (b) Kagiso Rabada

The correct answer is Kagiso Rabada.

Key Points

• Kagiso Rabada was the bowler for Delhi Capitals in IPL 2020, He pick up 30 wickets in 17 matches with 2 four-wicket hauls to win the Purple Cap as the highest wicket-taker of the season.

• The South African speedster scalped 30 wickets in 17 matches at a phenomenal strike rate of 13.13.

• RR spinner Yuzvendra Chahal wins Purple Cap with 27 wickets in 2022.

Additional Information

• Bowlers participating in the Indian Premier League (IPL) will be deserving of the Purple Cap award in Cricket.

• The Purple Cap is awarded to the bowler who has emerged as the leading wicket-taker in a particular edition of the high-profile Indian Premier League (IPL).

• In case of a tie game, the Purple Cap is given to the bowler who has a superior economy rate.

Q3. Answer: (a) Rs. 2,000

Concept used:

SI = (P × R × T)/100

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P = Amount

R = Rate

T = Time

Calculations:

Let ‘x’ be the sum lent at 6% and (7000 - x) be the sum lent at 4%

Therefore Interest on x = (x × 5 × 6)/100 = 0.3x

Interest on (7000 - x) = ((7000 - x) × 5 × 4)/100 = 0.2 × (7000 - x) = 1400 - 0.2x

Now, According to the given conditions,

=> 0.3x + 1400 - 0.2x = 1600

=> 0.1x = 200

Therefore x = 2000

Therefore The money lent at the rate of 6% is Rs. 2,000.

Q4. Answer: (c) Vishakhadatta

The correct answer is Vishakhadatta.

Key Points

• The Book Mudrarakshasa is written by Vishakhadatta.

• He was an Indian Sanskrit poet and playwright.

• Only two plays of Vishakhadatta, which are the Mudrārāksasa and the Devichandraguptam are very known to us.

• Vishakhadatta was a contemporary of Chandragupta 2 and lived in the late 4th century to early 5th century in History.

• Mudrārāksasa is Vishakhadatta’s only surviving play till now, although there exist fragments of another work ascribed to him.

Additional Information

• Somadeva, a Kashmiri Brahman of the Śaiva sect and Sanskrit writer who served much of India’s ancient folklore in the form of a series of tales in verse.

• Baudhayana is said to be the original Mathematician behind the Pythagoras theorem in India.

• Kālidāsa was a Classical Sanskrit author his plays and poetry are primarily based on the Vedas, the Rāmāyana, the Mahābhārata and the Purānas.

Q5. Answer: (d) 400

Given:

4% electric bulbs were broken

25% of the remaining were defective

Total number of broken and defective bulbs is 112.

Calculations:

Let the total number of electric bulbs be x.

According to the question,

4% of (x) + 25% of (100 - 4)% of (x) = 112

=> 0.04x + 0.25 × (96)% of (x) = 112

=> 0.04x + 0.25(0.96)x = 112

=> 0.04x + 0.24x = 112

=> 0.28x = 112

=> x = 112/0.28 = 400

Hence, x = 400

Therefore The total no. of electric bulbs is 400.

Q6. Answer: (a) Great Indian Bustard

Concept:

• IUCN, International Union for Conservation of Nature, was established on 5 October 1948.

• The IUCN Red List of Threatened Species was founded in 1964.

• It is the world's most comprehensive inventory of the global conservation status of biological species.

Explanation:

Great Indian Bustard (GIB):

• The Great Indian Bustard (GIB), the State bird of Rajasthan.

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• It is considered India's most critically endangered bird.

• It is considered the flagship grassland species, representing the health of the grassland ecology.

• Its population is confined mostly to Rajasthan and Gujarat.

• Small populations occur in Maharashtra, Karnataka and Andhra Pradesh.

• The bird is under constant threats due to collision/electrocution with power transmission lines, hunting (still prevalent in Pakistan), habitat loss and alteration as a result of widespread agricultural expansion, etc.

• Insects such as locusts, crickets, and beetles make up the bulk of their diet during the summer monsoon when rainfall peaks in India and the bird's breeding season largely take place.

• Seeds (including wheat and peanuts, groundnuts), in contrast, make up the largest portions of the diet during the coldest and driest months of the year

Important Points Protection Status:

• International Union for Conservation of Nature Red List: Critically Endangered.

• Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES): Appendix1

• Convention on Migratory Species (CMS): Appendix I

• Wildlife (Protection) Act, 1972: Schedule 1

Thus, Great Indian Bustard is a critically endangered species.

Additional Information

Some of the tags of IUCN are:

Categories (IUNC Status)	Definition	Examples
Extinct (EX)	No known individuals remaining	Pink, Head Duck, Indian aurochs
Extinct in wild (EW)	Known only to survive in captivity	Alagoas curassow, Beloribitsa
Critically endangered (CR)	Extremely high risk of extinction in the wild.	Cross River Gorilla, Eastern Lowland Gorilla, Hawksbill, Turtle, Gharial
Endangered (EN)	High risk of extinction in the wild	Pygmy Hog, Northern Right Whale, The Vaquita, Amur, Leopard, Lion Tailed Macaque
Vulnerable (VU)	High risk of endangerment in the wild.	Nilgiri Marten, Nilgiri Langoor, Marbled cat
Near Threatened (NT)	Likely to become endangered in the near future	Przewalski's horse, Humpback whale
Least Concern (LC)	Lowest risk	Harp Seal, Giraffe

Q7. Answer: (a) Paunar

The correct answer is Paunar.

Key Points

• Param Dham Ashram is established by Acharya Vinoba Bhave in the year 1934 on the bank of river Dham in Paunar village five miles way from Wardha.

• Vinoba Bhave came to Wardha in 1921 to start a Satyagraha Ashram on the lines of one at Ahmedabad.

• Vinoba Bhave was the founder of the Bhoodan Yajna ("Land-Gift Movement").

• Gandhi's teachings led Bhave to a life of austerity dedicated to improving Indian village life.

Additional Information

• It was 1936 when Mahatma Gandhi left Sabarmati ashram and set up his ashram in Sevagram, a small village in Wardha town in Maharashtra.

• Mahatma Gandhi who lived at Sabarmati (Gujarat) and Sevagram (Wardha, Maharashtra) when he was not travelling across India or in prison.

• Mahatma Gandhi founded two ashrams for community living in South Africa – Phoenix Settlement in Durban and Tolstoy Farm in Johannesburg.

Q8. Answer: (c) Humidity

The correct answer is Humidity

Key Points

• A hygrometer is an instrument that is used in meteorological science for measuring the humidity or amount of water vapour in the air.

• The ideal range of humidity for Humans is between 30 and 50 percent.

• The relative humidity of the atmosphere is calculated by the hygrometer. It shows results in the percentage

• A hygrometer contains two thermometers one is called a dry bulb and the second is a wet bulb.

Additional Information

• Two classes of instruments are used for the measurement of heat, which are named, thermometers and pyrometers.

• A force gauge is a handheld instrument commonly used by professionals to measure force in various industrial and educational environments.

• Geiger counters are commonly used to measure the amount of radioactivity, but there are other types of detectors that may be used.

Q9. Answer: (d) Tuticorin

The correct answer is Tuticorin.

Key Points

• Tuticorin is traditionally known for pearl fishing and shipping activities, production of salt and other related business.

• This is a port city in the southern region of Tamilnadu.

• This is a natural port, from this place freedom fighter V.O. Chidambaranar operated the Swadeshi shipping company during British rule.

• The Union Shipping Minister, Mr G.K. Vasan, unveiled the name board, marking the change in the name of Tuticorin Port as V.O. Chidambaranar Port.

Additional Information

• Kandla Located on the Gulf of Kutch, is one of India's major ports on the west coast. It is about 256 nautical miles southeast of the Port of Karachi in Pakistan and about 430 nautical miles north-northwest of the Port of Mumbai.

• Jawaharlal Nehru Port Trust (JNPT) or JLN Port, also known as Nhava Sheva Port, is the second largest container port in India after Mundra Port.

• It is Located in Navi Mumbai's Raigad district, this port on the Arabian Sea is accessed via Thane Creek.

• Kochi is located on the southwest coast of India, in the southern state of Kerala.

• The city lies at the sea mouth of seven major rivers which start from the Western Ghats and travel through Kerala's midlands, lowlands and coastal areas, to drain out into the Arabian Sea.

Q10. Answer: (c) Womesh Chandra Bannerjee

The correct answer is Womesh Chandra Banerjee.

Key Points

• The first president of the Congress party was in the year 1885 when it was first founded by Womesh Chander Banerjee.

• Womesh Chandra Bannerjee was an Indian barrister.

• He was a student of Calcutta University and was the president of its law faculty.

• He presided over the first session of the Indian National Congress held at Bombay in 1885 from 28 to 31 December.

Additional Information

• Dadabhai Naoroji is also known as the "Grand Old Man of India" and "Unofficial Ambassador of India".

• He was an Indian political leader, merchant, scholar, and writer also who was a Liberal Party Member of Parliament in India.

• Surendranath Banerjee who is also known as Rashtraguru founded a nationalist organization known as the Indian National Association and was one of the founding members of the Indian National Congress.

• George Yule was a Scottish merchant in England and also in India who served as the fourth President of India by National Congress in 1888 at Allahabad.

Q11. Answer: (c) 16

Given:

Dimensions of paper for an envelope = 18 cm × 12 cm

Dimensions of paper available = 72 cm × 48 cm

Calculations:

Area of Paper available = 72 cm × 48 cm = 3456 cm^2

Area of one envelope = 18 cm × 12 cm = 216 cm^2

No. of envelopes = 3456/216 = 16

Hence, The required no. of envelopes is 16.

Q12. Answer: (c) 1982

The correct answer is 1982.

Key Points

• Export-Import Bank of India (India Exim Bank) was set up in 1982 India by an Act of Parliament and It is fully owned by the Government of India.

• Exim Bank was set up in 1982 in India for the purpose of financing, facilitating and promoting India's foreign trade.

• It is the principal financial institution in India for coordinating the working of institutions engaged in financing exports and imports.

Additional Information

• Harsha Bangari is the CEO of Exim Bank in India as of the year 2022.

• Exim Bank was established as a purveyor of export credit, mirroring global Export Credit Agencies.

• Exim Bank serves as a growth engine for industries and SMEs through a wide range of products and services.

Q13. Answer: (b) Brexit

The correct answer is Brexit.

Key Points

• Brexit

• Brexit, an acronym for the words "Britain" and "exit," refers to the United Kingdom's (UK) withdrawal from the European Union (EU) on January 31, 2020.

• The only sovereign nation to have left the EU is the UK.

• Since January 1, 1973, the UK has belonged to both the European Union (EU) and the European Communities (EC).

• After Brexit, British laws no longer take priority over EU law or the rulings of the European Court of Justice, with the exception of a few circumstances involving Northern Ireland.

• The relevant EU law is still domestic law under the European Union (Withdrawal) Act 2018, which the UK may now modify or repeal.

• In accordance with the terms of the Brexit withdrawal agreement, Northern Ireland is still a de facto member of the EU Customs Union and continues to trade in the European Single Market.

Additional Information

• Any Member State's withdrawal procedure is governed by Article 50 of the Treaty of the European Union.

• This principle states that any EU member may decide to leave the union in accordance with its national constitution.

• The EU will negotiate with this State about the timing and terms of its withdrawal from the EU after notifying it of its decision.

• Following the 23 June, 2016 referendum and the subsequent 29 March 2017 notification to the European Council, the United Kingdom's withdrawal process got underway.

• The cooperation agreement, which was officially ratified on 1 May 2021 and went into effect on 1 January 2021, will play a role in determining some of the effects of Brexit.

Q14. Answer: (c) 124

Given:

Number of participants in a chess tournament =125

Calculations:

Let's start the tournament with two people's which is required for a chess competition.

Here, first match held between two participants

Then, after 1st match one who gets knocked out will be replaced by left participants i.e.,123

So, 123 more matches will be played to finish the tournament.

Hence, Total match to be played in entire tournament is 1 + 123 = 124.

Q15. Answer: (a) 0 : 6

Concept Used:

First term × 2 + 4 = Second term

Calculation:

Let's apply the pattern on the given pairs:

1) 0 : 6

0 × 2 + 4 = 6

0 + 4 = 6

4 ≠ 6

2) 12 : 28
12 × 2 + 4 = 28
24 + 4 = 28
28 = 28
3) 21 : 46
21 × 2 + 4 = 46
42 + 4 = 46
46 = 46
2) 5 : 14
5 × 2 + 4 = 14
10 + 4 = 14
14 = 14
So, 0:6 is the odd one.
Hence the correct answer is option 1)

Q16. Answer: (a) 20 m

Given:
The area of a trapezium = 540 m2
The length of its parallel sides are 30 m and 24 m.
Formula Used:
Area of trapezium = 1/2 × Sum of parallel sides × Height
Calculation:
Area of trapezium = 1/2 × Sum of parallel sides × Height
=> 540 = 1/2 × (30 + 24) × Height
=> 540 = 27 × Height
=> Height = 20 m
Therefore The perpendicular distance between parallel side is 20 m.

Q17. Answer: (a) 28

Concept used:
Mean = Sum of all values / Total frequency
Calculations:
Sum of the data
= 10 × 2 + 15 × 4 + 20 × 3 + 25 × 7 + 30 × 6 + 40 × 3 + 45 × 5
= 20 + 60 + 60 + 175 + 180 + 120 + 225
= 840
Now, Total frequency
= 2 + 4 + 3 + 7 + 6 + 3 + 5
= 30
So, Mean
= 840/30
= 28
Hence, The Required mean value is 28.

Q18. Answer: (d) 1800

Formula:
Number of terms = (Last - First) / Common difference + 1
Calculation:
Largest 3-digit number = 999
Largest 4-digit number = 9999
Divisible by 5
=> First = 1000, Last = 9995, Common difference = 5
First divisible by 5 after 999 = 1000

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Last divisible by 5 before 9999 = 9995

=> (9995 - 1000) / 5 + 1 => 8995 / 5 + 1 => 1799 + 1 => 1800

Total = 1800

Q19. Answer: (d) Mumbai

The correct answer is Mumbai.

Key Points

• The Central Office of the RBI was established in Calcutta (now Kolkata) but was moved to Bombay (now Mumbai) in 1937.

• The Reserve Bank of India, chiefly known as RBI, is India's central bank and regulatory body responsible for the regulation of the Indian banking system.

• It is responsible for the control, issue, and maintaining the supply of the Indian rupee.

• Following India's independence on 15 August 1947, the RBI was nationalised on 1 January 1949.

Additional Information

• 3 Major functions of RBI (Reserve Bank of India):

• Banker to the Government.

• Custodian of the Cash Reserves of Commercial Banks.

• Custodian of the country's forex reserves.

Q20. Answer: (a) 28 cm²

Given:

Area of the square = 22 cm².

Formula used:

Area of the circle = πr²

Perimeter of the circle= 2πr

Area of the square = side2

Concept used:

The perimeter of the circle and the square will be the same when the same cord is bent to form the circle and the square.

Calculation:

Area of the square = 22 cm2

=> side, (a) = √22 = √22 cm

According to question,

Perimeter of the square

= Perimeter of the circle

= 4 × √(22)

= 4√22 cm

Now, Perimeter of the circle = 2πr

=> 2πr = 4√22

=> r = 2√22/π cm

So, Area of the circle

= πr²

= π × (2√22/π)²

= 88/π

= 88/(22/7)

= 28 cm²

Therefore The area is inclosed by the circle is 28 cm2.

Q21. Answer: (a) 120√3 m

Given:

Distance of point from basr if the building is 120 m.

Formula used :

tanθ = perpendicular/base

Calculations :

tan60° = perpendicular/Base

=>tan60° = perpendicular/120

=>√3 = perpendicular/120

=>perpendicular = 120√3

Therefore The height of the building is 120√3 meters.

Q22. Answer: (c) Maulana Abul Kalam Azad

The correct answer is Maulana Abl Kalam Azad.

Key Points

• Al-Hilal was a weekly Urdu language newspaper established by the Indian Muslim independence activist Maulana Abul Kalam Azad.

• The paper was notable for its criticism of the British Raj in India and its exhortation to Indian Muslims to join the growing Indian independence movement.

• Al-Hilal ran from 1912 to 1914, when it was shut down under the Press Act.

• The first edition of Al-Hilal was published in Calcutta in 1912.

Additional Information

• Maulana Abul Kalam Azad was an Indian independence activist, Islamic theologian, writer and senior leader of the Indian National Congress.

• He became the First Minister of Education in the Indian government.

• In October 1920, Azad was elected as a member of the foundation committee to establish Jamia Millia Islamia at Aligarh in U. P.

Q23. Answer: (b) Only some smart workers are not hard workers.

From the given statement, the Venn diagram is:

Now we consider each option:

1) No smart workers are hard workers:- It is not in accordance with the diagram.

2) Only some smart workers are not hard workers:- Since some hard workers are smart workers, some smart workers are surely not hard workers. Thus this statement is correct.

3) All smart workers are hard workers:- We can see that this will not be true in the given case.

4) All hard workers are smart workers:- We can see that this will not be true in the given case.

Hence the correct answer is option 2).

Q24. Answer: (d) Field mustard

The correct answer is Field Mustard.

Key Points

• Brassica Campestris is the botanical name of Field mustard.

• Brassica rapa is a plant species growing in various widely cultivated forms including the turnip; napa cabbage, bomdong, bok choy, and rapini; and Brassica rapa subsp.

• Oleifera, an oilseed which has many common names, including turnip rape, field mustard, bird's rape, and keyblock.

• The first part denotes the genus of the plant while the second part denotes the species.

• Brassica is a genus of plants in the cabbage and mustard family (Brassicaceae).

Additional Information

• Maize is another word for corn, the tall-growing grain that produces yellow kernels on long ears. A small farmer might grow several different types of maize.

• Common wheat also known as bread wheat, is a cultivated wheat species.

• Buckwheat or common buckwheat, is a flowering plant in the knotgrass family Polygonaceae cultivated for its grain-like seeds and as a cover crop.

Q25. Answer: (b) Q

Given series: Left side 2 R Q 4 A 5 S I ^ 9 R # E % 8 S * P Right side

If all the numbers from the given arrangement are dropped out, the new series will be as follows:

Left side R Q A S I ^ R # E % S * P Right side

Hence, the 9^(th) element to the left of S is Q.

Q26. Answer: (d) 14

Concept used:

Factorisation

Let's take an example,

1/√3 = = (√3)/3

Calculations:

We have:

x = = = = (4 + 2√3)/2 = 2 + √3

and y = = = 2 - √3

So, $x^2 + y^2$

$= (2 + √3)^2 + (2 - √3)^2$

$= 4 + 3 + 4√3 + 4 + 3 - 4√3$

= 14

Hence, The Required value is 14.

Q27. Answer: (b) 8:27:12 hours

Given:

The traffic lights at three different road crossings change after every 48 seconds, 72 seconds and 108 seconds, respectively.

They all change simultaneously at 8:20 hours.

Calculations:

The light will change simultaneously again at the lowest common possible time of all lights together,

i.e., LCM(48, 72 and 108)

= 432 seconds

= 432/60 = 7.20 minutes = 0 : 7 : 12 hours

So, The time at which all lights will change simultaneously again is

= 8 : 20 + 0 : 7 : 12

= 8 : 27 : 12 hours

Hence, the required time is 8 : 27 : 12 hours.

Q28. Answer: (c) Pingali Venkayya

The correct answer is Pengali Venakya.

Key Points

• The design of the flag of India that was firstly presented in the year 1921 to Mahatma Gandhi, leader of the All-India Congress, was created by Pingali (or Pinglay) Venkayya.

• Venkayya presented the flag design to Gandhi that Contains colours related to the two principal religions, Orange for the Hindus and green for the Muslim people of India.

• From the centre of the horizontally divided flag, Lala Hans Raj Sondhi suggested the addition of the traditional spinning wheel, which was related to Mahatma Gandhi's crusade to make Indians self-reliant by fabricating their own clothing from local fibres.

• Gandhi modified the Indian flag by adding a white strip in the centre of the flag for the other religious communities in India, thus It also provides a clearly visible background for the spinning wheel.

Additional Information

• Mahatma Gandhi led nonviolent resistance to lead the successful campaign for India's independence from British rule.

• Bal Gangadhar Tilak was one-third of the Lal Bal Pal triumvirate. Tilak was the first leader of the Indian independence movement.

• Lala Hansraj also known as Mahatama Hansraj, was an Indian educationist and a follower of Arya Samaj movement founder, Swami Dayanand.

Q29. Answer: (b) 16 m

Given:

Shadow of pole is 28 m.

Shadow of a nearby tree length 8 m is 14 m.

Concept used:

Ratio of height and shadow of a nearby object is equal at the same particular time.

Calculations:

Let the height of the pole be x.

According to the concept, we have:

Height of pole / Shadow of pole = Height of tree / Shadow of tree

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=> x/28 = 8/14

=>x = (8 × 28)/14

=>x = 16 m

Hence, The height of the Pole is 16 m.

Q30. Answer: (c) 132

Given :

The H.C.F. and L.C.M. of the two numbers are 44 and 264 respectively.

The first number is divided by 2, the quotient is 44.

Formula used :

LCM × HCF (of two numbers) = Multiplication of 2 numbers

Calculations :

First number = 2 × 44 = 88

Now according to the question

=> 88 × second number = LCM × HCF

=> 88 × second number = 44 × 264

=> Second number = 132

Therefore Hence, The second number is 132.

Q31. Answer: (a) Rajendra Lahiri

The correct answer is Rajendra Lahiri.

Key Points

• Anushilan Samiti was an Indian fitness club, which was also used as a hidden society for anti-British Indian revolutionaries.

• Anushilan Samiti was led by the nationalists Aurobindo Ghosh and his brother Barindra Ghosh, influenced by philosophies like Italian Nationalism, and the Pan-Asianism of Kakuzo Okakura.

• The organization moved from its philosophy of violence in the 1920s because of the influence of the Indian National Congress and Mahatma Gandhi's non-violent movement.

• A number of Congress leaders from Bengal, especially Subhash Chandra Bose, were accused by the British Government because of having connectivity with the organization during that time.

So we conclude that the correct answer is Rajendra Lahiri.

Additional Information

• Barindra Kumar Ghosh popularly was an Indian-birth revolutionary and journalist.

• Barindra Ghosh was one of the founding members of Jugantar Bengali Weekly, a revolutionary outfit in Bengal.

• Bhupendra Nath Datta was an Indian revolutionary and later a noted sociologist and anthropologist.

• Jatindra Nath Banerjee was one of two great Indian-birth nationalists and freedom fighters – along with Aurobindo Ghosh, who dramatically rose to prominence between 1871 and 1910.

Q32. Answer: (a) 21

Given:

9, x, x and 49 are in proportion.

Calculations:

According to question,

9/x = x/49

=> $x^2 = 9 \times 49$

=> x = √441

=> x = 21

Hence, The value of x is 21.

Q33. Answer: (a) p = 2 and q = 1

Concept used:

According to factor theorem, if f(x) is a polynomial of degree n ≥ 1 and ‘a’ is any real number, then, (x - a) is a factor of f(x), if f(a) = 0.

Calculations:

Since f(x) = px3 + x2 - 2x - q is exactly divisible by (x - 1). Therefore, (x - 1) is the factor of f(x).

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=> p(1)3 + (1)2 - 2(1) - q = 0

=> p + 1 - 2 - q = 0

=> p - q = 1 ----(1)

Also, (x + 1) is the factor of f(x)

=> p(-1)3 + (-1)2 - 2(-1) - q = 0

=> -p + 1 + 2 - q = 0

=> p + q = 3 ----(2)

On solving equations (1) & (2), we get

p = 2, q = 1

Hence, The Required value of p is 2 and q is 1.

Q34. Answer: (a) Kerala

The correct answer is Kerala.

Key Points

• Following the foremost elections to the Kerala Legislative Assembly in 1957, the Communist Party of India come out as the single largest party.

• E M S Namboodiripad formed the first elected government with the help of 5 independent legislators.

• On 26 December 1925, The Communist Party of India set up the first Party Conference in Kanpur, then Cawnpore.

• Communist Party of India is a political party in India with a powerful existence in the states of Kerala, West Bengal and Tripura.

Additional Information

• A Communist government is a structure in which goods are possessed in common and are available to all as needed.

• Communism is a far-left philosophical, social, political, and economic ideology and movement whose goal is the formation of a communist society.

• Communism is a centralized form of government led by a single party that is frequently authoritarian in its rule.

Q35. Answer: (b) Both the arguments are strong.

According to the Question:

Should there be no uniform for school children like college students?

Arguments:

I. Yes, students should be given freedom to wear the clothes of their choice.

=> Argument I is strong depending on the perspective that personal freedom and expression for students is essential, which includes the freedom to choose their own clothing. This could foster creativity, individuality, and satisfaction among students.

II. No, Uniform helps to create discipline and equality among students.

=> Argument II is also strong because a formal dress code of the school maintains discipline and equality, avoiding social division based on clothes and ensures equality among students.

Hence, 'option 2' is the correct answer.

Q36. Answer: (a) Hand

Lets check each option and identify which one is different:

1) Hand → Hand is an external organ of the body.

2) Kidney → It is an internal organ of the body.

3) Heart → It is an internal organ of the body.

4) Liver → It is an internal organ of the body.

Clearly, Hand is the odd one out because it is the only external organ while others are internal organs of the body.

Hence, 'option 1' is the correct answer.

Q37. Answer: (a) 39 m

Given:

Formula used:

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

Solution:

(Hypotenuse)2 = √(36)2 + (15)2

(Hypotenuse)2 = (1296 + 225)

(Hypotenuse)2 = 1521

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Hypotenuse = √1521

Hypotenuse = 39

Hence, the distance between the two tops is 39m.

Q38. Answer: (c) Keynote

Microsoft Office 2019 package includes:

• Microsoft OneNote

• Microsoft Outlook

• Microsoft Excel

Keynote is not its component rather it is a default Apple application used for creating presentations for the iOS.

Hence, 'option 3' is the correct answer.

Q39. Answer: (d) Fatehpur Sikri

The correct answer is Fatehpur Sikri.

Key Points

• Buland Darwaza is situated in Fatehpur Sikri which is 43 km away from Agra(Uttar Pradesh).

• Buland Darwaza, also known as the "Door of Victory", was built in the year 1575 A.D. by Mughal emperor Akbar to Memorize his victory over Gujarat.

• It is the main entry point for the Jama Masjid which is located at Fatehpur Sikri,

• Buland Darwaza is the highest gateway in the world and It is also an example of Mughal architecture.

Additional Information

• The Chittorgarh which is also known as Chittod Fort is included in one of the largest forts in India. It is a UNESCO World Heritage Site in the world.

• The Charminar was constructed upon the establishment of Hyderabad, the iconic mosques of Mecca Masjid and Hayat Bakshi Mosque were constructed during this dynasty and this style of architecture is known as Qutb Shahi Masaji.

• Humayun's Tomb is the first notable example of Mughal architecture in Delhi. Except for a few architecture like Humayun's Tomb and Purana Qila, most of the architectural work of this period was done in Shah Jahan's time or later.

Q40. Answer: (d) Rotterdam

The correct answer is Rotterdam

Key Points

• The Port of Rotterdam is the biggest port Situated in Europe. It is the sixth biggest in the world as per annual cargo throughput.

• Rotterdam is a major port city located in the Dutch province of South Holland(Europe).

• Rotterdam is the world's largest seaport which is located outside of East Asia.

• From the year 1962 until 2004, Rotterdam was the world's busiest port by annual cargo tonnage capacity.

Additional Information.

• Southampton is Europe’s second-largest seaport, after Rotterdam.

• The Port of Southampton is a passenger and cargo port also located in the central part of the south coast of England(Britain).

• A working harbour and marina, Le Havre Port stands next to converted docks with sports and entertainment venues also like the striking Bains des Docks aquatic centre and Docks Océane arena.

• Concerts are also held in a retro tent at Magic Mirrors arts space.

Q41. Answer: (b) Goa

The correct answer is Goa,

Key Points

• The National Institute of Oceanography (NIO) headquarters is located at Dona Paula, Goa.

• The regional centres are located in Kochi, Mumbai, and Visakhapatnam.

• It is one of the 37 constituent laboratories of the Indian Council of Scientific & Industrial Research (CSIR), New Delhi (India).

• Goa is a state located in western India with coastlines stretching along with the Arabian Sea.

• Goa is also known for its beaches, Baga and Palolem are the two famous beaches of Goa.

Additional Information

• NIO(National Institute of Oceanography) was established on 1 January 1966, following the International Indian Ocean Expedition (IIOE) that was undertaken from 1962 to 1965.

• The institute has a sanctioned strength of 200 scientists, 200 technical staff, and 170 administrative and support staff.

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Q42. Answer: (a) TA7

The positional values of the English alphabet is as follows:

The pattern followed here is:

The difference between numbers is odd numbers with alternate sign changes in the series.

Hence, 'option 1' is the correct answer.

Q43. Answer: (d) 0.6

Given:

$(2.1 \times 2.1) - (2 \times a \times 2.1) + (0.6 \times 0.6) = 1.52$

Concept used:

$(A + B)^2 = A^2 + B^2 + 2AB$

Calculations:

$(2.1 \times 2.1) - (2 \times a \times 2.1) + (0.6 \times 0.6) = 1.52$

$\Rightarrow (2.1)^2 - (2 \times a \times 2.1) + (0.6)^2 = (2.1 - 0.6)^2$

$\Rightarrow (2.1)2 - (2 \times a \times 2.1) + (0.6)2 = (2.1)2 - (2 \times 0.6 \times 2.1) + (0.6)2$

$\Rightarrow 2 \times a \times 2.1 = 2 \times 0.6 \times 2.1$

$\Rightarrow a = 0.6$

Hence, The Required value of a is 0.6.

Q44. Answer: (a) Mont Blanc

The correct answer is Mount Blanc.

Key Points

• Mont Blanc is the highest mountain in the Alps and Western Europe, with a height of 4,807.81 m.

• A cable car travels across the mountain range from Courmayeur to Chamonix.

• It is the second-most prominent mountain in Europe, after Mount Elbrus.

• It is the eleventh most prominent mountain in all over the world.

Additional Information

• Mount Vesuvius is a stratovolcano which is located in the Gulf of Naples in Campania, Italy.

• Mount Etna, or Etna, is an active stratovolcano on the east coast of Sicily, Italy, in the Metropolitan City of Catania.

• Cotopaxi is an active stratovolcano in the Andes Mountains, located in Latacunga city of Cotopaxi Province

Q45. Answer: (a) 54 km/h

Formula used:

$S2 = S1 \sqrt{t1/t2}$

Where, S1 = speed of first train,

S2 = speed of second train,

t1 = time taken by first train after passing other train to reach the end point,

t2 = time taken by second train after passing other train to reach the other end point.

Calculations:

According to question,

S1 = 45 km/h

t1 = 4 h 48 min = 4.8 h

t2 = 3 h 20 min = 3 + 1/3 = 10/3 h

Now, $S2 = S1 \sqrt{t1/t2}$

$\Rightarrow S2 = 45 \sqrt{4.8/(10/3)}$

$\Rightarrow S2 = 45 \sqrt{(48 \times 3)/(10 \times 10)}$

$\Rightarrow S2 = 45 \times 12/10$

$\Rightarrow S2 = 54$ km/h

Hence, The speed of the other train is 54 km/h.

Q46. Answer: (b) Rs. 35,700

Given:

Area of Square plot is 11,025 m^2

The rate of fencing is Rs. 85 per m.

Concept used:

Cost of fencing = Rate of fencing × Perimeter of the plot

Formula used:

Area of square = a^2

Perimeter of square = 4a

Calculations:

According to the question,

Area of square plot = 11,025

=> a^2 = 11,025

=> a = √(11025)

=> a = 105 m

So, Perimeter = 4a = 4(105) = 420 m

Now, Cost of fencing

= Rate × Perimeter

= 85 × 420

= Rs.35,700

Hence, The cost of fencing is Rs. 35,700.

Q47. Answer: (c) Ajay Tyagi

The correct answer is Ajay Tyagi.

Key Points

• Mr Tyagi is a senior Civil Servant of the rank of Additional Secretary to the Government of India.

• Shri Ajay Seth. Part-Time Member, SEBI.

• Ajay Tyagi, the chairman of the Securities and Exchange Board of India (SEBI) has been granted an extension for the next 18 months.

• Ajay Tyagi is a career Civil Servant with thirty years of experience.

Additional Information

• Upendra Kumar Sinha belongs to that unique kind of civil servant who has worked within and outside the government.

• M Damodaran is the world's largest professional community Career civil servant.

• Mehta is a receiver of Padma Bhushan, one of the highest Indian civilian awards, for his donation to social causes.

Q48. Answer: (c) Diagram A

As all fathers are man and all the man are human beings.

Therefore, it can be best shown as:

Hence, 'option 3' is the correct answer.

Q49. Answer: (a) • 2

Concept used:

FACTORISATION: Method to make the denominator constant.

Comparison method: coefficients of an irrational number on both sides of an equation are equal.

Calculations:

$(3\sqrt{2} - 2\sqrt{3})/(3\sqrt{2} + 2\sqrt{3}) = a + b\sqrt{6}$

$=> (3\sqrt{2} - 2\sqrt{3})/(3\sqrt{2} + 2\sqrt{3}) \times (3\sqrt{2} - 2\sqrt{3})/(3\sqrt{2} - 2\sqrt{3}) = a + b\sqrt{6}$

$=> (3\sqrt{2} - 2\sqrt{3})^2 \times 1/(18 - 12) = a + b\sqrt{6}$

$=> (18 + 12 - 12\sqrt{6}) \times 1/6 = a + b\sqrt{6}$

$=> (30 - 12\sqrt{6})\ 1/6 = a + b\sqrt{6}$

$=> 5 - 2\sqrt{6} = a + b\sqrt{6}$

Now, using the concept of comparison method, we have:

a = 5,

b = - 2

Hence, The value of b is -2.

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Q50. Answer: (a) CMS-01

The correct answer is CMS-01.

Key Points

• CMS-01 (formerly known as GSAT-12R) could be a communication satellite plan and developed by the Indian Space Research Organisation (ISRO).

• CMS-01 is examined to be a renewal of the aged satellite GSAT-12.

• It provides services like tele-education, telemedicine, disaster management support and Satellite Internet access.

• CMS-01 could be a communication satellite envisaged for providing services in the Extended-C Band of the frequency spectrum.

• CMS-01 is the 42nd Communication Satellite of India.

Additional Information

• AstroSat is the first devoted Indian astronomy mission aimed at studying celestial sources in X-ray, optical and UV spectral bands simultaneously.

• Chandrayaan-2 is the second lunar exploration mission plan by the Indian Space Research Organisation, after Chandrayaan-1.

• Gaganyaan mission would create 15,000 new employment opportunities.

Q51. Answer: (b) Fen

The correct answer is Fen.

Key Points

• The Fens, also known as the Fenlands, in eastern England are a naturally marshy region supporting a rich ecology and numerous species.

• Fen is the local term for an individual area of marshland or former marshland.

• It also designates the type of marsh typical of the area, which has neutral or alkaline water and relatively large quantities of dissolved minerals, but few other plant nutrients.

• Most of the Fens lie within a few metres of sea level.

Additional Information

• A savanna or savannah is a mixed woodland-grassland ecosystem characterised by the trees being sufficiently widely spaced so that the canopy does not close.

• Prairies are ecosystems considered part of the temperate grasslands, savannas, and shrublands biome by ecologists.

• Steppe is an ecoregion characterized by grassland plains without trees apart from those near rivers and lakes.

Q52. Answer: (b) Rio de Janeiro

The correct answer is Rio de Janeiro.

Key Points

• The 2000-2015 Millennium Development targets and the 2015-2030 Global targets are the results of these Earth Summits.

• The first summit was held in Rio de Janeiro (Brazil) in 1992.

• The last Earth Summit, called Rio+20, also took place in Rio de Janeiro in 2012.

• The United Nations Conference on Environment and Development (UNCED), also called the 'Earth Summit.

Additional Information

• The Doha Round is the latest round of trade negotiations among the WTO membership.

• The Summit was held in Johannesburg, South Africa, from August 26 to September 4, 2002.

• The motive of the Johannesburg Summit was to regenerate, at the highest political level, a global commitment to sustainable development and to accelerate action to implement Agenda 21.

• The Kyoto Protocol, also called as the Kyoto Accord, is an international treaty among industrialized nations that sets mandatory limits on greenhouse gas emissions.

Q53. Answer: (a) Tally

The correct answer is Tally.

Key Points

• TALLY full form – Transactions Allowed in a Linear Line Yards.

• Tally is strong accounting software.

• Tally could be a complete system for business accounting and inventory management.

• It provides many facilities like Govt.

• It also helps with preparing balance sheets, filing tax returns and profit/loss statements, fund flow statements, calculating GST etc.

Additional Information

• The Android platform involves an operating system based upon the Linux kernel, a GUI, an internet browser and end-user applications that may be downloaded.

• Ubuntu is an open-source Debian-based Linux distribution.

• Linux mint is a software system for desktop and laptop computers.

Q54. Answer: (a) 55

Concept used:

(M1D1H1)/W1 = (M2D2H2)/W2

Where, M = number of men, D = number of days, H = hours per day, W = total units of work

Calculation:

Part of work done in 200 days = 4.5/12 = 3/8 th part of work

Suppose the remaining 5/8 th part of the total work is completed by x men.

(M1D1H1)/W1 = (M2D2H2)/W2 (Here, H1= H2in this particular case)

=> (45 × 200)/(3/8) = (x × 150)/(5/8)

=> 45 × 200 × 5 = x × 150 × 3

=>100 = x

=> x = 100

Now, as we know x is total number of men required to complete the remaining work

So, increase in number of man = 100 - 45 = 55

Therefore The contractor has to increase 55 more men.

Q55. Answer: (c) XXV

Concept used:

Arabic	Roman
1	I
5	V
10	X
50	L
100	C
500	D
1000	M

The pattern followed here is:

Hence, 'option 3' is the correct answer.

Q56. Answer: (a) Sukumar Sen

The correct answer is Sukumar Sen.

Key Points

• Sukumar Sen was an Indian civil servant who was the first Chief Election Commissioner of India, serving from 21 March 1950 to 19 December 1958.

• The commission of India was framed in January 1950 to control the general election in India after independence.

• He was among the first recipients of the civilian honour of Padma Bhushan.

Additional Information

• Maharaj Sri Nagendra Singh was an Indian lawyer and administrator who work as President of the International Court of Justice from 1985 to 1988.

• R. V. S. Peri Sastri was a former Chief Election Commissioner of India and worked from 1 January 1986.

• Tirunellai Narayana Iyer Seshan was an Indian civil servant and bureaucrat.

Q57. Answer: (c) 9

Calculations:

Let the wrong number made due to an error in reading be x.

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According to the question,

36 × (x) = 16,740

=> x = 16,740/36

=> x = 465

Hence, x = 465 while real number is 495.

so, clearly, 9 is replaced by 6 due to error.

Hence, The digit he read erroneously is 9.

Q58. Answer: (b) Mahatma Gandhi National Rural Employment Guarantee Scheme

The correct answer is Mahatma Gandhi National Rural Employment Guarantee Scheme.

Key Points

• In 2005, India introduced a national anti-poverty program, now called the Mahatma Gandhi National Rural Employment Guarantee Scheme.

• This scheme offered up to 100 days of unskilled manual labour per year on public works projects.

• It guarantees 100 days of wage employment in the financial year to a rural household whose adult members volunteer to do unskilled manual work.

• The NREGA will be relevant to areas notified by the Central Government and will cover the whole country within five years.

Additional Information

• Pradhan Mantri Mudra Yojana is a Government of India scheme, which enables a small borrower to borrow from banks, MFIs, and NBFCs for loans up to 10 lakh for non-farm income generating activities.

• Pradhan Mantri Jan-Dhan Yojana is the National goal for Financial Inclusion to secure access to financial services, namely, basic savings & deposit accounts, remittance, credit, insurance, and pension in an affordable manner.

• Pradhan Mantri Jeevan Jyoti Bima Yojana is a Government-backed Life insurance scheme in India.

Q59. Answer: (a) Thames

The correct answer is Thames

Key Points

• River Thames, ancient Tamesis or Tamesa, also called River Isis, chief river of southern England.

• It is the longest river entirely in England and the second-longest in the United Kingdom, after the River Severn.

• The river rises at Thames Head in Gloucestershire and flows into the North Sea near Tilbury, Essex and Gravesend, Kent, via the Thames Estuary.

• The Thames also drains the whole of Greater London.

Additional Information

• The Potomac River drains the Mid-Atlantic United States, flowing from the Potomac Highlands into the Chesapeake Bay.

• The Rhine is one of the major European rivers. The river begins in the Swiss canton of Graubünden in the southeastern Swiss Alps.

• It forms part of the Swiss-Liechtenstein, Swiss-Austrian, and Swiss-German borders.

• The Hudson River is a 315-mile river that flows from north to south primarily through eastern New York.

Q60. Answer: (d) 12

The pattern followed in the given series is:

The numbers at odd places are increased by 3.

The numbers at even places are decreased by 2.

Hence the correct answer is option 4)

Q61. Answer: (b) 50

Given:

28, 25, 35, 18, 38, 16, 20, 25.

Formula Used:

Mean = Sum of all observations/Number of observation

Calculation:

Median:

Ascending order:

16 ,18, 20, 25, 25, 28, 35, 38

=> The middle value is 25, 25 hence median = (25 + 25)/2 = 25

Mode:

Observation	Frequency
16	1
18	1
20	1
25	2
28	1
35	1
38	1
Total	8

Here, 25 is repeating most i.e., 2 times so, 25 is mode.

Sum of median and mode = 25 + 25 = 50

Hence, The Required sum is 50.

Q62. Answer: (a) South Asian Association for Regional Cooperation

The correct answer is South Asian Association for Regional Cooperation.

Key Points

• The South Asian Association of Regional Cooperation (SAARC) was created in 1985.

• There are eight member countries in SAARC that are Afghanistan, Bangladesh, Bhutan, India, Nepal, Maldives, Pakistan and Sri Lanka.

• The Secretariat of the Association was set up in Kathmandu, Nepal, on 17 January 1987.

• The main motive of SAARC is to place regional cooperation on a hard foundation, quicken the pace of social and economic development of the countries, and further the cause of peace, progress and stability in the region.

Additional Information

• Countries of SAARC:-

• Afghanistan.

• Bangladesh.

• Bhutan.

• India.

• Maldives.

• Nepal.

• Pakistan

• Sri-Lanka

Q63. Answer: (a) Garhwali

The correct answer is Garhwali.

Key Points

• Garhwali is an Indo-Aryan language of the Central Pahari subgroup.

• It is firstly spoken by over 2.5 million Garhwali people in the Garhwal region of the northern Indian state of Uttarakhand in the Indian Himalayas.

• Garhwali has many regional dialects.

• Garhwali is as well spoken by Garhwali migrants to other parts of India as well as Himachal Pradesh, Delhi, Haryana, Punjab, and Uttar Pradesh.

Additional Information

• Maithili is an Indo-Aryan language spoken in parts of India and Nepal.

• Dogri is a Northern Indo-Aryan language spoken by about five million people in India, mainly in the Jammu region of Jammu and Kashmir.

• Nepali, also known as Gorkhali, is an Indo-Aryan language of the sub-branch of Eastern Pahari.

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Q64. Answer: (c) 8

Logic : In the first diagram, 6 × 4 + 5 = 29

Similarly, in the second diagram:

=> 8 × 5 + ? = 48

=> 40 + ? = 48

=> ? = 48 - 40 = 8

So the value of '?' is 8.

Hence, 'option 3' is the correct answer.

Q65. Answer: (d) Father's mother

Family chart:

Given:

• Harsh is the son of Ajeet.

• Vinita is the wife of Ajeet.

• Ajay is the brother of Harsh.

• Neha is the only daughter of Ajay and Kavita.

According to the statement:

Vinita is the father's mother of Neha i.e. her paternal grandmother.

Hence, 'option 4' is the correct answer.

Q66. Answer: (a) 2

From the given diagram,

The shaded part represents boys who are good at sports but not dance is portion 2.

Hence, 'option 1' is the correct answer.

Q67. Answer: (d) Rs. 3,938

Given:

Principal amount, P = 25000

Rate of interest for the 1st year = 4%

Rate of interest for the 2nd year = 5%

Rate of interest for the 3rd year = 6%

Formula used:

A = P[1 + (R/100)]t

Calculation:

For the 1st year,

A1 = 25000 × [1 + (4/100)]

=> A1 = 26000

For the 2nd year,

P = A1

A2 = 26000 × [1 + (5/100)]

=> A2 = 27300

For the 3rd year,

P = A2

A3 = 27300 × [1 + (6/100)]

=> A3 = 28938

CI = AMOUNT - A3 = 28938 - 25000 = Rs. 3,938

Therefore The Compound interest at the end of the three years is Rs. 3,938.

Q68. Answer: (d) Neither assumption I nor II is implicit.

Statement:

X tells Y, "If you need to grow the sales of your company, you should advertise in the newspaper 'A'.

Assumptions:

I: Newspaper A has a more extensive circulation than other newspapers → This is not implicit because a recommendation for one

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newspaper doesn't prove it has a more extensive circulation than all others; there could be other reasons for the recommendation. So assumption I is not implicit.

II: Sales of Y's company are down → X is telling Y how to grow sales, but the desire to grow sales does not logically imply that current sales are "down" or in decline. So assumption II is not implicit.

Thus, neither assumption I nor II is implicit.

Hence, 'option 4' is the correct answer.

Q69. Answer: (c) 6/17

Given:

54/9,39/17 and 36/51

Concept used:

HCF = the greatest number which divides each of the two or more numbers

HCF(a/b, c/d) = HCF(a, c)/LCM(b, d)

Calculation:

We have, 54/9 = 6

39/17 = 60/17

And, 36/51 = 12/17

LCM(1, 17 and 17) = 17

HCF(6, 60 and 12) = 6

So, HCF(6, 60/17 and 12/17) = 6/17

Therefore The required HCF is 6/17.

Q70. Answer: (d) 3

Calculations:

(2/7)^(-3) × (2/7)^(-5)= (2/7)^(-3m+1)

=> (2/7)^(-3-5)= (2/7)^(-3m+1)

=> - 8 = - 3m + 1

=> 3m = 9

=> m = 3

Hence, The Required value of m is 3.

Q71. Answer: (c) Rs. 150

Given:

CP of two tables = Rs.1350

Loss at one table = 6 %

Gain at 1 table = 71/2 % = 7.5 %

He neither loses nor gains in the whole transaction.

Concept used:

If neither gains nor loses then, Total gain = Total loss

Calculations:

Let the cost of table having loss be x.

Then, cost of other table will be (Rs.1350 - x)

According to the question,

Gain = loss

=> 7.5 % of (1350 - x) = 6 % of x

=> 0.075 (1350 - x) = 0.06x

=> 101.25 - 0.075x = 0.06x

=> 0.06x + 0.075x = 101.25

=> 0.135x = 101.25

=> x = Rs.750

Hence, the cost of the other table is 1350 - 750 = Rs.600

So, the difference between their CP = 750 - 600 = Rs.150

Hence, The Required difference is Rs.150.

Q72. Answer: (c) Pb

The correct answer is Pb.

Key Points

• Lead is a chemical element, its symbol is Pb and atomic number 82.

• Lead is mainly used for car batteries, pigments, ammunition, cable sheathing, weights for lifting, weight belts for diving, lead crystal glass, radiation protection and in some solders.

• Classified as a post-transition metal, Lead is a solid at room temperature.

• Lead poisoning is generally caused by eating or drinking (ingesting) lead.

Additional Information

• Manganese (Mn) is used to produce a variety of important alloys and to deoxidize steel and desulfurize.

• Zinc (Zn) is a transition metal, grouped with cadmium and mercury.

• Iron (Fe) is a chemical element with the symbol Fe and atomic number 26.

Q73. Answer: (b) 4

Given:

1/16, 1/4 ,1, __,16

Calculations:

1/16, 1/4, 1 are in G.P

Hence, according to the concept of GP next term will be 1 × 4 = 4

and to confirm it we can see the next term i.e., 4 × 4 = 16

Hence, The Required value is 4

Q74. Answer: (b) north - south

The correct answer is north-south.

Key Points

• A freely suspended bar magnet always aligns itself in the North-South direction.

• The magnetic north pole of the earth attracts the south pole of a magnet.

• The tip which points to the geographic North has known as the North pole and the tip which points to the geographic South is known as the South pole of the magnet.

• A magnet is an object that creates a magnetic field:

Additional Information

• The magnetic field is invisible, but it's responsible for the most obvious property of a magnet.

• The ability to attract some materials, like iron, and attract or repel other magnets.

• Magnets, hang through a string, always point towards the north-south direction.

Q75. Answer: (b) 30 km

Given:

When he travelled at an average speed of 30 km/h, he is late by 10 minutes

and at 40 km/h he is 5 minutes earlier.

Calculations:

Let, the distance between his house and office is X km.

When he covers 30 km/h

He covers X km in X/30 hours

Similarly,

When he covers 40 km/h

He covers X km in X/40 hours

(X/30) - (X/40) = 15/60 hrs

X = 30 km

Hence, The Required value is 30 Km.

Q76. Answer: (b) Rs. 2,000

Given:

Lovely calculated his profit percentage on SP while Bunty calculated on CP.

Difference in their Profits = Rs.100

SP is same for both and profit is 25% in both cases.

Calculation:

According to the question,

Profit on SP - Profit on CP = 100

=> 25% of SP - 25% of CP = 100

=> SP - CP = 100/0.25 = 400

=> (CP + Profit on CP) - CP = 400

=> Profit on SP = 400 + 100 = 500

Therefore, Profit on SP = 500

=> 25% of SP = 500

=> 0.25 × SP = 500

=> SP = Rs.2000

Therefore The selling price is Rs. 2,000.

Q77. Answer: (a) Bharata Natyam

The correct answer is Bharata Natyam.

Key Points

• Prathibha Prahlad is a Bharata Natyam dancer, educator, choreographer, arts administrator, and author.

• She was the originator director of the Delhi International Arts Festival.

• Bharatanatyam is the oldest classical dance tradition in India.

• Bharatanatyam is the state dance form of Tamil Nadu.

• Bharatanatyam is famous for its grace, purity, tenderness, and sculpturesque poses.

Additional Information

• Kathakali is a major form of classical Indian dance.

• Kathak is a member of eight major forms of Indian Classical Dance.

• Odissi is a dance form from the state of Odisha in eastern India.

Q78. Answer: (a) Astra

The correct answer is Astra.

Key Points

• Astra is an all-weather beyond-visual-range air-to-air missile developed by the DRDO, India.

• It is the first air-to-air missile made by India.

• The Astra Mk-I has a range of 80 to 110 km in a head-on chase and can travel at 4.5 Mach speed.

• The missile as well as a locally developed Ku-band active radar guidance system and a 15 kg warhead.

• Bharat Dynamics will supply 400 Astra Mk1 missiles and their associated equipment, to be delivered in four years.

•

Additional Information

• Prithvi II missile class is a single-stage liquid-fueled missile that has a warhead mounting capability of 500kg-1000kg.

• India successfully carried out a night start of the nuclear-capable Agni-4 ballistic missile from the APJ Abdul Kalam Island in Odisha.

• Akash is primarily a Short Range Surface to Air Missile built to provide air defence cover to vulnerable areas.

Q79. Answer: (a) Yugantar

The correct answer is Yugantar.

Key Points

• Yugantar Patrika was a Bengali revolutionary newspaper founded in 1906 in Calcutta by Barindra Kumar Ghosh, Abhinash Bhattacharya and Bhupendranath Dutt.

• It was founded by Madan Mohan Malviya.

• Bhupendranath Dutt served as the editor of the Yugantar newspaper till his arrest in 1907.

• It also published articles from a variety of noted Bengali revolutionaries including Barindra Kumar Ghosh and Aurobindo Ghosh.

Additional Information

• Madan's Talwar, later known as The Talvar, was an early-20th-century Indian Nationalist periodical published in Berlin.

• The Free Hindustan is described as "An Organ of Freedom, and of Political, Social and spiritual Reform," published in Vancouver.

• Shyamaji Krishnavarma, founding father of the India House organization in Highgate, began to supply and edit The Indian Sociologist in January 1905.

• The Indian Sociologist of September 1908, published in London. The journal was edited by Shyamji Krishnavarma from 1905 to 1914.

Q80. Answer: (d) 840 cm²

Given:

Perimeter of Rhombus = 116 cm

One of the diagonal = 42 cm

Formula used:

Perimeter of Rhombus= 4 × side

Area of Rhombus = product of diagonals/2

Calculations:

According to the question,

Perimeter of Rhombus= 116

=> 4 × side = 116

=> side = 29 cm

Diagonals of Rhombus are perpendicular to each other,

So, {(D1)/2}² + {(D2)/2}² = Side², where, D1 and D2 are diagonals.

=> (21)² + {(D2)/2}² = (29)²

=> 441 + {(D2)/2}² = 841

=> (D2/2)² = 400

=> D2 = 40

Now, Area of Rhombus

= Half of product of diagonals

= (42 × 40)/2

= 21 × 40

= 840 cm²

Hence, The Required area of Rhombus is 840 cm².

Q81. Answer: (a) Narmada

The correct answer is Narmada.

Key Points

• Narmada and Tapti are major West flowing rivers.

• The Narmada, the largest west-flowing river of the Peninsula, rises near the Amarkantak range of mountains in Madhya Pradesh.

• It is the fifth largest river in the country and the largest one in Gujarat.

• It is also called as the "Life Line of Madhya Pradesh and Gujarat" due to its huge contribution to the two states in many ways.

Additional Information

• The Godavari River rises from Trimbakeshwar in the Nashik district of Maharashtra.

• It is the oldest River in India.

• Tunga and Bhadra together form the Tungabhadra River, which is a sacred river in Karnataka and Andhra Pradesh.

• The Mahanadi is a major river in East Central India.

Q82. Answer: (d) Theresa May

The correct answer is Theresa May.

Key Points

• In July 2016, after David Cameron resigned, Theresa May was elected Conservative Party leader and became the UK's second female prime minister.

• She is the first and, to date, the only woman to hold two of the Great Offices of State.

• She also served as a councillor for Durnsford in Merton.

• she was elected as the MP for Maidenhead in 1997.

Additional Information

• "Iron Lady" is the nickname of Margaret Thatcher (1925–2013), the first female prime minister of the United Kingdom.

• Melania Germanized is a Slovene-American former model and businesswoman who served as First Lady of the United States from 2017 to 2021, as the wife of 45th President Donald Trump.

• Angela Dorothea Merkel is a retired German politician and scientist who served as the chancellor of Germany from 2005 to 2021.

Q83. Answer: (a) 999

Concept used:

BODMAS

B- Bracket

O- Of

D- Division

M- Multiplication

A- Addition

S- Substraction

Hence, priority of operation will be on the basis of the letter coming first in the word BODMAS.

Calculations:

$(\sqrt{81} + \sqrt{0.81} + \sqrt{0.0081})\sqrt{10000}$

$= (9 + 0.9 + 0.09)\sqrt{10000}$

$= (9.99)100$

$= 999$

Hence, The Required simplified value is 999.

Q84. Answer: (d) Asian Frog

The correct answer is Asian Frog.

Key Points

• The scientific name of the frog is Rana tigrina.

• Rana tigrina is now known as Hoplobatrachus tigerinus.

• Frogs characteristically have smooth skin, strong hind legs for leaping, and webbed feet.

• Most reproduce in water, laying eggs that grow into larvae (tadpoles).

Additional Information

• The tiger is the largest living cat species and a member of the genus Panthera.

• The scientific name of the tiger is Panthera Tigris.

• The wolf (Canis lupus), also known as the gray wolf or grey wolf, is a large canine native to Eurasia and North America.

• Leopard, (Panthera pardus),, also known panther, large cat closely related to the lion, tiger, and jaguar.

Q85. Answer: (d) Domain name system

The correct answer is Domain name system.

Key Points

• Domain Name System, DNS is a web service that translates domain names into IP addresses.

• Because domain names are alphabetic, they're easier to recollect.

• DNS servers convert URLs and domain names into IP addresses that computers can understand and use.

• They translate what a user types into a browser into something the machine can use to seek out a webpage.

• This procedure of translation and lookup is termed DNS resolution.

Additional Information

• The naming system (DNS) is a naming database in which internet domain names are located and translated into Internet Protocol (IP) addresses.

• Packet switching is an approach utilized by some computer network protocols to deliver data across a neighbourhood or long-distance connection.

• A domain, in the context of networking, refers to any group of users, workstations, devices, printers, computers and database servers that share different kinds of knowledge via network resources.

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Q86. Answer: (d) 10

Given:

Table showing the details of the number of participants and the selected participants for different sports at a sports event trial.

Calculations:

Total number of participants in Football

= 500

Total Female participants in football

= 20% of 500

= 0.20 × 500

= 100

Number of Females selected for Football

= 10% of 100

= 0.10 × 100

= 10

Hence, The number if selected females is 10.

Q87. Answer: (d) 19 : 7

Given:

Table showing the details of the number of participants and the selected participants for different sports at a sports event trial.

Calculations:

Total number of participants for basketball = 380

The number of male participants for basketball = 50% of 380

The number of selected male participants in basketball

= 20% of 50% of 380

= 0.2 × 0.5 × 380

= 38

Total number of participants for Swimming = 350

The number of male participants for Swimming = 40% of 350

The number of selected male participants in swimming

= 10% of 40% of 350

= 0.1 × 0.4 × 350

= 14

Now, The Required ratio = 38 : 14 = 19 : 7

Hence, The Required ratio is 19 : 7.

Q88. Answer: (b) 80%

Given:

Table showing the details of the number of participants and the selected participants for different sports at a sports event trial.

Calculations:

Total number of participants in volleyball = 700

The number of female participants for volleyball

= 70% of 700

= 0.7 × 700

= 490

Total number of participants for cricket = 1020

The number of male participants for Cricket

= 60% of 1020

= 0.6 × 1020

= 612

Now, The Required percentage = 490/612 × 100 = 80.065% ~ 80%

Hence, The Required percentage value is 80%.

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Q89. Answer: (a) 3 : 7

Given:

9000 participants participated in cricket while 8000 in volleyball and the remaining details are as same as in the table.

Calculations:

Total number of participants for cricket = 9000

The number of female participants for cricket

= 40% of 9000

= 0.4 × 9000

= 3600

The number of selected female participants for cricket

= 8% of 3600

= 0.08 × 3600

= 288

Total number of participants for volleyball = 8000

The number of female participants for volleyball

= 70% of 8000

= 5600

The number of selected female participants for volleyball

= 12% of 5600

= 0.12 × 5600

= 672

Now, The Required ratio = 288 : 672 = 3 : 7

Hence, The Required ratio is 3 : 7.

Q90. Answer: (a) DKPT

The positional values of the English alphabet is as follows:

The pattern followed here is:

• KRVI : NUYL

Similarly, AHMQ : DKPT

Hence, 'option 1' is the correct answer.

Q91. Answer: (b) Mars lies between Venus and Mercury

From the given information,

Word	Called
Sun	Earth
Earth	Mercury
Mercury	Venus
Venus	Mars
Mars	Sun

Thus, 'Venus lies between Mercury and Earth' will be written as:

Mars lies between Venus and Mercury.

Hence, 'option 2' is the correct answer.

Q92. Answer: (a) Diagram C

A girl can be a student and a professional performer.

A student can be a girl and a professional performer.

A professional performer can be a girl as well as a student.

The correct Venn diagram representation is:

Hence, 'option 1' is the correct answer.

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Q93. Answer: (d) Neither conclusion I nor II follows.

Statements:

All kings have grey hair.

Some knights become kings.

Possible Venn diagram:

Conclusions:

I: All knights have grey hair → False (Since some knights become kings and all kings have grey hair)

II: All grey haired knights are kings → False (It may not be true because all grey haired knights are not kings)

Hence, 'option 4' is the correct answer.

Q94. Answer: (b) 5147121144

The positional values of the English alphabet is as follows:

The pattern followed here is:

GOLDEN CIRCLE is written as 715124514 39183125

Similarly,

From the above respective codes ENGLAND can be written as:

Hence, 'option 2' is the correct answer.

Q95. Answer: (c) 1540132019

The positional values of the English alphabet is as follows:

The pattern followed here is: Positional value of the letter - 1

1 is the code for B

=> Since positional value of B is 2

But, it is coded as (2 - 1) = 1

Similarly,

PEANUT will be written according to its positional value as:

Thus, it is coded as:

=> (16 - 1) (5 - 1) (1 - 1) (14 - 1) (21 - 1) (20 - 1)

=> 15 4 0 13 20 19

Hence, 'option 3' is the correct answer.

Q96. Answer: (a) 62 : 15

Logic : (Second number × 4) + 1 = First number

Lets check each option and identify which one is different:

1) 62 : 15

=> (15 × 4) + 1

=> 60 + 1 = 61 ≠ 62

2) 49 : 12

=> (12 × 4) + 1

=> 48 + 1 = 49

3) 33 : 8

=> (8 × 4) + 1

=> 32 + 1 = 33

4) 65 : 16

=> (16 × 4) + 1

=> 64 + 1 = 65

Hence, 'option 1' is the correct answer.

Q97. Answer: (b) IJI

The positional values of the English alphabet is as follows:

The pattern followed here is:

Hence, 'option 2' is the correct answer.

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Q98. Answer: (d) 7622823262

The positional values of the English alphabet are as follows:

The pattern followed here is: Opposite positional value of the letter.

• T = 7

The positional value of T is 20. Its opposite is 7.

• Y = 2

The positional value of Y is 25. Its opposite is 2.

Similarly, TUESDAY = ?

Hence, 'option 4' is the correct answer.

Q99. Answer: (a) Chalk : Teacher : Students

Logic :

• Second term represents occupation

• Third term represents the function performed in that occupation

• First term represents on whom/what is the function performed

Given : Patient : Surgeon : Surgery

=> Surgeon does the surgery of patients.

Lets check the option and identify which one is different:

1) Chalk : Teacher : Students

=> It does not follow the pattern. As the teacher teaches the students so it should be Students : Teacher : Teach

2) Cloth : Tailor : Stitch

=> Tailor stitches clothes.

3) Clay : Potter : Pottery

=> Potter does pottery with clay.

4) Vegetables : Chef : Cook

=> Chef cooks vegetables.

Hence, 'option 1' is the correct answer.

Q100. Answer: (c) 13

The pattern followed here is:

$(3 \times 6) + (4 \times 5) + (6 \times 10) + (8 \times ?) = 202$

$18 + 20 + 60 + (8 \times ?) = 202$

$98 + (8 \times ?) = 202$

$(8 \times ?) = 202 - 98$

$(8 \times ?) = 104$

$? = 104 \div 8$

$? = 13$

Hence, 'option 3' is the correct answer.

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