RRB NTPC CBT-I Official Paper (Held On: 4 Jan 2021 Shift 2) (Previous Year Paper)

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

Take this paper as a timed mock test

Practise under exam conditions, then review your answers after you submit.

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Q1. A rhombus has one of its diagonal 65% of the other. A square is drawn using the longer diagonal as side. What will be the ratio of the area of the rhombus to that of the square?

(a) 15 : 18
(b) 40 : 13
(c) 13 : 40
(d) 18 : 15

Q2. How many members are nominated by the President of India in the Lok Sabha from the Anglo-Indian community?

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

Q3. GSAT-31 is an/a _____

(a) Telecommunication Satellite
(b) Experimental Satellite
(c) Polar Satellite
(d) Navigational Satellite

Q4. Simplify:

25÷10-{7/4×1/3}×6/5+14/3×9/10-{1/5÷1/25}

(a) 11
(b) 10
(c) 5
(d) 1

Q5. By default, how many worksheets are present in the workbook of Excel MS Office- 2010?

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

Q6. A number is first decreased by 20% and then increased by 15%. The number so obtained is 64 less than the original number. The original number is:

(a) 700
(b) 800
(c) 850
(d) 600

Q7. Ram Kumar bought two LED TV sets for Rs. 41,000. By selling one at a profit of 20% and the other at a loss of 15%, he found that the selling prices of both the TV sets are the same. Find his overall gain or loss.

(a) Rs. 200 loss
(b) Rs. 400 loss
(c) Rs. 200 gain
(d) Rs. 400 gain

Q8. Find the greatest number of five digits, which is exactly divisible by 468.

(a) 99468
(b) 99486
(c) 99864
(d) 99684

Q9. The English Language continued to be used for official purposes of the Union via section 3 of the Official Language Act which came into force in the year :

(a) 1963
(b) 1965
(c) 1970
(d) 1960

Q10. 24 mango trees, 56 apple trees and 72 orange trees have to be planted in rows such that each row contains the same number of trees of one variety only. Find the minimum number of rows in which the above mentioned trees may be planted.

(a) 17
(b) 15
(c) 19
(d) 18

Q11. Two cars start from Ahmadabad and run in opposite directions with one car's speed being 200 km/h more than the other. If they are 4500 km apart after 9 h, then the sum of the speeds of both the cars is:

(a) 150 km/h
(b) 500 km/h
(c) 250 km/h
(d) 350 km/h

Q12. Select the alphanumeric cluster from among the given options that can replace the question mark (?) in the following series.

D4C3B2A1, H8G7F6E5, L12K11J10I9, ?

(a) QITPIGOLSNI4
(b) PIORISSI4T13
(c) P16O15N14M13
(d) MISNI6O17P18

Q13. Ina certain code language, DESTINY is written as YNITSED. How will DIGNITY be written as in that language?

(a) YGITNID
(b) YTINGID
(c) YINGTID
(d) YIGTIND

Q14. Which is the fat-storing tissue in our body?

(a) Areolar tissue
(b) Adipose tissue
(c) Epithelial tissue
(d) Vascular tissue

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Q15. The captain of a cricket team of 11 members is 35 years old and the wicket-keeper is 5 years older than the captain. If the ages of these two are excluded, the average age of the remaining players is three years less than the average age of the whole team. What is the average age of the whole team?

(a) 24 years
(b) 28 years
(c) 26 years
(d) 25 years

Q16. The law that permitted widows to remarry (Hindu Widows' Remarriage Act) was passed in the year:

(a) 1858
(b) 1855
(c) 1856
(d) 1854

Q17. The Southernmost tip of Indian territory is _____.

(a) Indira point
(b) Kanyakumari
(c) Karondi
(d) Cape Comorin

Q18. Which city was the cleanest city of India (in category Cities >10 Lakh) as per Swachh Survekshan 2020?

(a) Bhopal
(b) Indore
(c) Chandigarh
(d) Jaipur

Q19. Find the rate of interest for a sum that becomes 14641/10000 times of itself in 4 years compounded annually.

(a) 20%
(b) 10%
(c) 15%
(d) 12%

Q20. Eminent Social reformer and Women’s education activist Pandita Ramabai Sarasvati was a great scholar of _____

(a) English
(b) Marathi
(c) Sanskrit
(d) Hindi

Q21. When was the first Passenger train run in India?

(a) 1857
(b) 1854
(c) 1853
(d) 1856

Q22. In Telecom field, ISP stands for:

(a) Internet Speed Protocol
(b) Internet Speed Provider
(c) Internet Service Provider
(d) Internet Service Protocol

Q23. What is the other name of Newton's first law of motion?

(a) Law of movement
(b) Law of displacement
(c) Law of inertia
(d) Law of momentum

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Q24. Who has won the Nine Dots Prize Award 2019?

(a) Chetan Bhagat
(b) James Williams
(c) Sandeep Maheshwari
(d) Annie Zaidi

Q25. Find the sum of the numbers between 400 and 500 such that when 8, 12, and 16 divide them, it leaves 5 as remainder in each case.

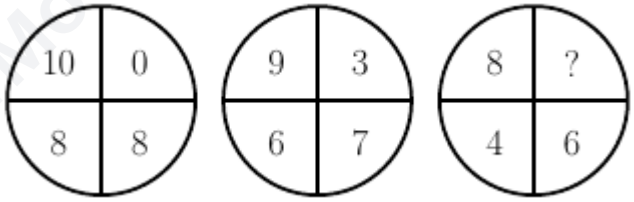
(a) 922
(b) 932
(c) 942
(d) 912

Q26. Simplify.

$17 - 4 \times (5.4 \div 9) + 6 \times 1.9$

(a) 26
(b) 22
(c) 24
(d) 28

Q27. Study the given pattern carefully and select the number from among the given options that can replace the question mark (?).



(a) 8
(b) 9
(c) 7
(d) 5

Q28. Sushil Kumar won the Olympic medal for:

(a) Wrestling
(b) Boxing
(c) Weightifting
(d) Shooting

Q29. By selling a car for Rs. 1,20,000, David makes a profit of 20%. What will be the selling price of the car if he sells it at 30% profit?

(a) Rs. 1,40,000
(b) Rs. 1,30,000
(c) Rs. 1,25,000
(d) Rs. 1,35,000

Q30. As of 2020, the only person who has received the Nobel prize for physics twice is:

(a) Marie Curie
(b) John Bardeen
(c) Arthur Ashkin
(d) Lawrence Bragg

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Q31. Which acid is present in the ant sting?

(a) Tartaric acid
(b) Methanoic acid
(c) Lactic acid
(d) Acetic acid

Q32. If a + b + c = 14, ab + bc + ca = 47 and abc = 15 then find the value of $a^3 + b^3 + c^3$.

(a) 815
(b) 825
(c) 835
(d) 845

Q33. Find the value of tan 15° + cot 15°

(a) 4
(b) 2
(c) 6
(d) 8

Q34. Where was the first British presidency established in India?

(a) Surat
(b) Kolkata
(c) Mumbai
(d) Goa

Q35. Anil lent Rs. 7,200 to Dubey for 3 years and Rs. 8,400 to Raghav for 4 years on simple interest at the same rate of interest and received Rs. 4,968 in total from them as interest. Find the rate of interest p.a.

(a) 9%
(b) 10%
(c) 12%
(d) 8%

Q36. 20 men and 15 boys can do a piece of work in 10 days. 25 men and 10 boys can do it in 9 days. Find the ratio of the daily work done by a man to that of a boy.

(a) 5 : 12
(b) 5 : 14
(c) 12 : 5
(d) 14 : 5

Q37. If x + x^(-1) = 7, then, find the value of $x^3 + x^{(-3)}$.

(a) 332
(b) 312
(c) 342
(d) 322

Q38. A few lead spheres of diameter 6 cm are dropped into a cylindrical beaker containing some water such that they are fully submerged. If the diameter of the beaker is 9 cm and the water level has risen by 32 cm, find the number of lead spheres dropped into the beaker.

(a) 14
(b) 18
(c) 15
(d) 16

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Q39. Find the smallest number by which 35280 must be divided so that the quotient is a perfect square.

(a) 7
(b) 3
(c) 5
(d) 4

Q40. The sum of two numbers is 288 and their HCF is 16. How many pairs of such numbers can be formed?

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

Q41. If x and y are two positive numbers such that

$\sqrt{x} = 8$ and $x^2 + y = 4112$, then the find the value of $\sqrt{y}$.

(a) 6
(b) 4
(c) 2
(d) 16

Q42. Simplify.

$15 - 6.3 \div 7 + 3 \times 1.3 - 2$

(a) 17
(b) 18
(c) 16
(d) 19

Q43. When was the Atomic Energy amendment bill passed by parliament to allow joint ventures between public sector undertakings in nuclear power generation?

(a) 2015
(b) 2012
(c) 2014
(d) 2010

Q44. Inventor of Bluetooth is _____

(a) Charles Simonyi
(b) Bill gates
(c) Jaap Haartsen
(d) Paul Allen

Q45. Which of the following gases is a noble gas?

(a) Nitrogen
(b) Argon
(c) Fluorine
(d) Oxygen

Q46. If ‘all philosophers are rationalists’ and ‘Socrates is a philosopher’, then which of the given conclusions follow?

(a) Socrates is not a rationalist.
(b) Socrates is a rationalist.
(c) All rationalists are philosophers.
(d) No philosophers are rationalists.

Q47. If 'A' represents ‘subtraction’, “B” represents ‘multiplication’, ‘C’ represents ‘division’ and “D” represents ‘addition’, then what is the value of (3 B 4 D 5 A 6) C 1?

(a) 1
(b) 10

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(c) 0
(d) 11

Q48. The average weight of P, Q and R is 58 kg. If the average weight of P and Q is 54 kg and that of Q and R is 48 kg, then the weight of Q is:
(a) 28 kg
(b) 26 kg
(c) 30 kg
(d) 32 kg

Q49. As of November 2020, how many nuclear power reactors are operating in India?
(a) 22
(b) 21
(c) 20
(d) 23

Q50. When the integer n is divided by 9, the remainder is 4. What is the remainder if 12n is divided by 9?
(a) 2
(b) 4
(c) 5
(d) 3

Q51. As on Nov, 2020, where is India's newest high court built?
(a) Amravati
(b) Nellore
(c) Warangal
(d) Vishakhapatnam

Q52. ABC is a right-angled triangle. A circle is inscribed in it. The length of the two sides containing the right angle are 10 cm and 24 cm. Find the radius of the circle.
(a) 3 cm
(b) 5 cm
(c) 2 cm
(d) 4 cm

Q53. The ratio of the incomes of Amar and Komal is 5 : 4 and the ratio of their expenditure is 2 : 1. If each of them saves Rs. 6,000 per month, find Amar’s income.
(a) Rs. 12000
(b) Rs. 8000
(c) Rs. 6000
(d) Rs. 10000

Q54. Who founded the Muhammdan Anglo-Oriental college in 1875 which later became Aligarh Muslim University?
(a) Zakir Hussain
(b) Maulana Abul Kalam Azad
(c) Syed Ahmed Khan
(d) Mohammad Ali Jinna

Q55. If A is the father of B and B is the father of C, then how is C related to A?
(a) Granddaughter
(b) Grandson
(c) Grandfather
(d) Grandchild

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Q56. Select the option that is related to the third term in the same way as the second term is related to the first term.

Virus : Disease :: Exercise : ?

(a) Walking
(b) Cycling
(c) Health
(d) Jogging

Q57. Select the number from among the given options that can replace the question mark (?) in the following series.

156, 182, 210, ?

(a) 202
(b) 210
(c) 240
(d) 236

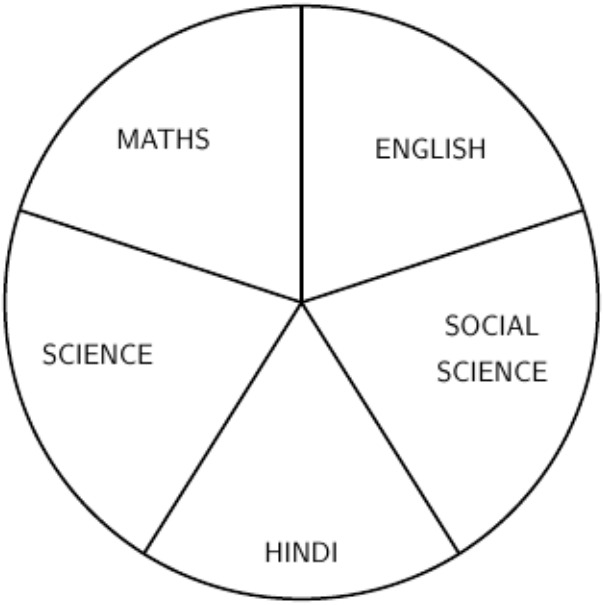
Q58. Who is considered the father of white revolution in India?

(a) Arun Krishnan
(b) MS Swaminathan
(c) Verghese Kurien
(d) Indira Gandhi

Q59. When was Reserve Bank of India established?

(a) April 1948
(b) April 1935
(c) April 1945
(d) April 1936

Q60. Observe the figure given and answer the question below.



If the total number of students is 120, and the number of students is distributed equally across all the subjects, how many students study languages?

(a) 36
(b) 12
(c) 24
(d) 48

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Q61. The Buland Darwaza at Fatehpur Sikri was erected by Akbar to celebrate his conquest of _____.

(a) Gujarat
(b) Bengal
(c) Mewar
(d) Kashmir

Q62. When was Project Tiger launched in India?

(a) 1970
(b) 1973
(c) 1975
(d) 1980

Q63. Which year was the construction of Jama Masjid of Delhi completed?

(a) 1652
(b) 1656
(c) 1655
(d) 1653

Q64. Who has written the narrative history 'India after Gandhi'?

(a) Malathi Rao
(b) Ramachandra Guha
(c) Rupa Bajwa
(d) Arundhati Roy

Q65. E is older than C. D is older than C but younger than E. A is younger than B and C. C is older than B. Who is the youngest?

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

Q66. Second Vande Bharat Express is running between _____

(a) New Delhi to Lucknow
(b) New Delhi to Katra
(c) New Delhi to Mumbai
(d) New Delhi to Kanpur

Q67. Currently, how many languages are listed in the eighth schedule of the Constitution?

(a) 24
(b) 21
(c) 22
(d) 20

Q68. When was Gandhi Smriti and Darshan Samiti (GSDS) formed?

(a) September 1985
(b) September 1986
(c) September 1984
(d) September 1987

Q69. Which of the following bodies recommends minimum support price for crops?

(a) NITI Ayog
(b) NABARD
(c) CACP
(d) FCI

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Q70. The table gives the pass percentage of class X students of five government schools in Delhi on the basis of gender.

School	Pass Percentage	Ratio of boys and girls
A	35	5 : 6
B	32	3 : 5
C	24	1 : 2
D	19	3 : 2
E	15	5 : 3

What is the ratio of the pass percentage of boys of school B to the pass percentage of boys of school C?

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

Q71. Driving his car at the speed of 30 km/h Vinod reaches his office 5 min late. If his speed is 40 km/h, he reaches the office 3 min early. Find the distance he travels between his residence and his office.

(a) 16 km
(b) 18 km
(c) 20 km
(d) 15 km

Q72. What is the term of Non- permanent members of UN Security council?

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

Q73. Taxol is extracted from which plant?

(a) Pine
(b) Yew
(c) Chir
(d) Neem

Q74. Where is the Sambhar Lake situated?

(a) Uttar Pradesh
(b) Rajasthan
(c) Gujarat
(d) Madhya Pradesh

Q75. Select the option that is related to the third term in the same way as the second term is related to the first term.

Hospital : Health :: School : ?

(a) Economy
(b) Books
(c) Education
(d) Society

Q76. In an isosceles triangle ABC, if AB = AC = 26 cm and BC = 20 cm, find the area of triangle ABC.

(a) 180 cm^2
(b) 240 cm^2
(c) 220 cm^2
(d) 260 cm^2

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Q77. The Right to Free and Compulsory Education Act was passed by Parliament in the year _____

(a) 2006
(b) 2009
(c) 2010
(d) 2011

Q78. What was the sex ratio of India as per 2011 census?

(a) 930
(b) 960
(c) 943
(d) 925

Q79. Select the assumption that can be drawn from the given statement.

'Doctors who charge high consultation fees are good'.

(a) A doctor's proficiency is directly related to consultation fees.
(b) The doctor has many patients.
(c) A doctor who charges less consultation fee is unpopular.
(d) The doctor is a good practitioner.

Q80. As per Inland Waterways Authority of India, what is the approximate total length of navigable Inland waterways of India?

(a) 12400 km
(b) 15600 km
(c) 13600 km
(d) 14500 km

Q81. Where is the headquarters of UNICEF situated?

(a) Washington DC
(b) Paris
(c) zurich
(d) New York

Q82. For every 18 eggs that Noori buys, three eggs turn out to be rotten. At the same rate, how many good eggs will Noori have if she buys 690 eggs?

(a) 585
(b) 565
(c) 475
(d) 575

Q83. Eight people are sitting at a square table. Tina is sitting opposite Urmila, who is sitting between Sharda and Nita. Sharda is diagonally opposite Priya, who is sitting to the right of Vijaya. Vijaya is facing Madhu, who is to the right of Rita. Who is sitting diagonally opposite Nita?

(a) Priya
(b) Rita
(c) Sharda
(d) Madhu

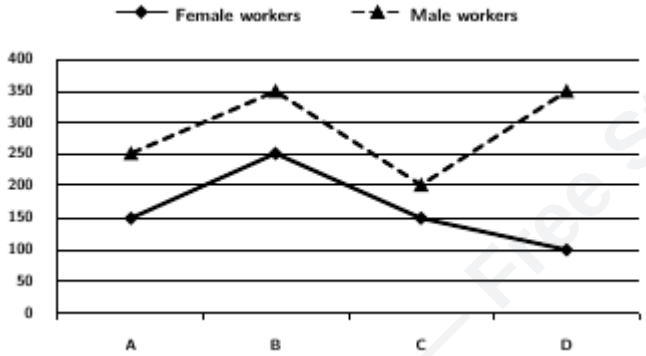
Q84. If $\sec\theta = 5x$ and $\tan\theta = 5/x$, then the value of $10(x^2 - 1/x^2)$ is:

(a) 2/5
(b) 1/5
(c) 2
(d) 3/5

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Q85. Observe the graph and answer the question below.

The graph represents the number of male and female workers in four different companies.



Which company has the maximum difference in the number of male and female employees?

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

Q86. A question and three statements labelled (I), (II) and (III) are given. You have to decide which statement(s) is/are sufficient to answer the question.

Question: Who is the shortest among A, B, C, D and E?

Statements:

I. A is taller than E but shorter than D.

II. B is shorter than C but taller than E.

III. D is taller than C and A is taller than B.

(a) Statements I and III together are sufficient.
(b) Statements I and II together are sufficient.
(c) Statements I, II and III are sufficient.
(d) Statements I, II and III are insufficient.

Q87. Select the letter-cluster from among the given options that can replace the question mark (?) in the following series.

ACDF, GIJL, MOPR, ?

(a) STVX
(b) SVUX
(c) SVTX
(d) SUVX

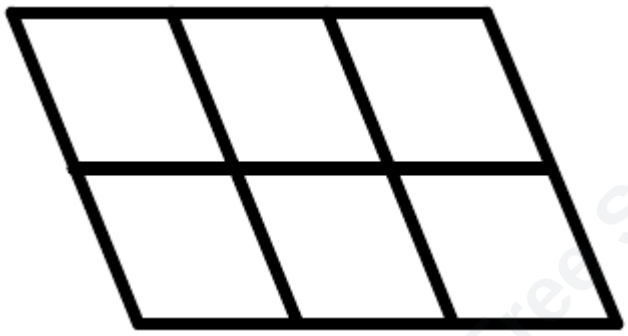
Q88. Select the number from among the given options that can replace the question mark (?) in the following series.

5, 12, 26, 54, ?, 222, 446

(a) 108
(b) 116
(c) 112
(d) 110

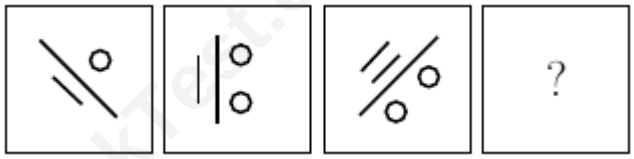
Q89. Count the number of parallelograms in the following figure.

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(a) 14
(b) 16
(c) 18
(d) 20

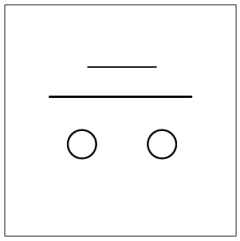
Q90. Select the pattern from among the given options that will come next in the following series.



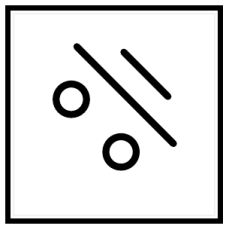
(a)



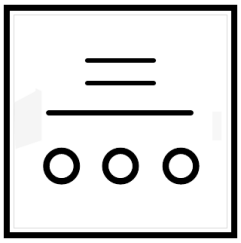
(b)



(c)



(d)



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Q91. Select the option that is closest to the given shapes?

Square, Rhombus, Rectangle, Parallelogram

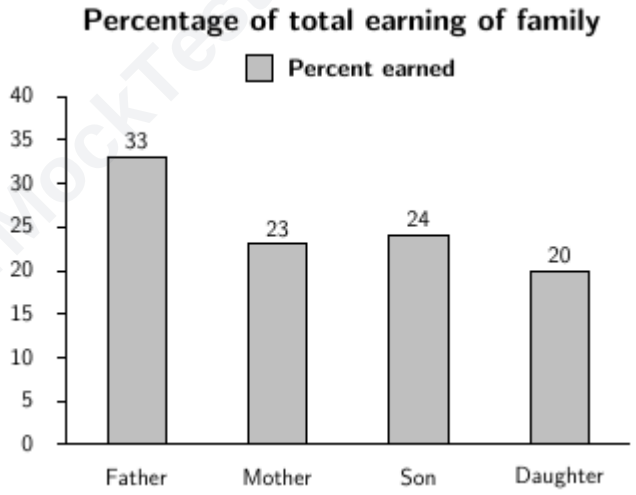
(a) Equilateral
(b) Equiangular
(c) Scalene
(d) Quadrilateral

Q92. In a certain code language. VAGABOND is written as NDVABOGA. How will PRACTICE be written as in that language?

(a) PRCETIAC
(b) CERPTIAC
(c) CEPRTIAC
(d) CEACTIPR

Q93. Observe the bar graph and answer the question below.

The total annual earnings of a family of four members is Rs. 12 lakhs. The bar graph shows the percentage of contribution of each family member.



What is the difference in the salary of the highest and the lowest earning members?

(a) Rs. 15,600
(b) Rs. 1,560
(c) Rs. 11,60,000
(d) Rs. 1,56,000

Q94. Study the given table carefully and select the number from among the given options that can replace the question mark (?).

9	8
17	8
25	16
?	8
49	8
57	16

(a) 41
(b) 33
(c) 49
(d) 32

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Q95. How many straight lines does a cuboid have?

(a) 16
(b) 12
(c) 10
(d) 24

Q96. Select the number from among the given options that can replace the question mark (?) in the following series.

214, 197, 179, 160, ?

(a) 147
(b) 159
(c) 140
(d) 149

Q97. If some artists are celebrities' and 'all celebrities are millionaires', then which of the given conclusions follow?

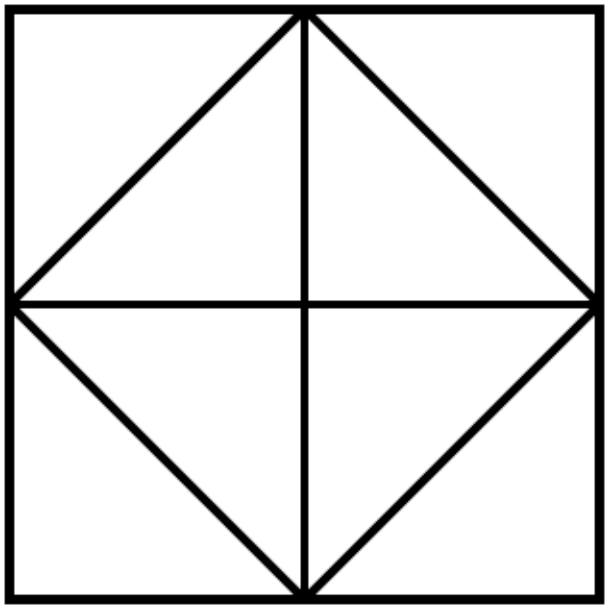
(a) No millionaires are celebrities.
(b) All artists are millionaires.
(c) No celebrities are millionaires.
(d) Some artists are millionaires.

Q98. Select the option that best describes the given units?

Dollar, Rupee, Yen, Taka

(a) Economy
(b) Finance
(c) Wealth
(d) Currency

Q99. Count the number of triangles in the following figure.



(a) 10
(b) 16
(c) 12
(d) 9

Q100. Out of the four materials listed, three are alike in some manner and one is different. Select the odd one.

(a) Gold
(b) Iron
(c) Silver
(d) Steel

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ANSWER KEY

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

SOLUTIONS

Q1. Answer: (c) 13 : 40

Given:

A rhombus has one of its diagonal 65% of the other.

A square is drawn using the longer diagonal as a side.

Concept used:

Area of rhombus = ½(diagonals product)

Area of square = side × side

Calculations:

Let diagonal(larger) of rhombus be 100 cm

Let the diagonal(smaller) diagonal be 65 cm (65% of larger diagonal)

Area of Rhombus = ½(100 × 65) = 3250

Side of square = 100 cm (equal to larger diagonal)

Area of square = (100 × 100) = 10000

Ratio,

=> Rhombus : Square = 3250 : 10000

=> 13 : 40

Therefore The correct choice is option 3.

Q2. Answer: (c) 2

The correct answer is 2.

Important Points

• The 104 Constitutional Amendment Act ceased the reservation of the members of the Anglo-Indian community to the Lok Sabha and State Legislative assemblies.

Key Points

• The right to nominate members of the Anglo-Indian community by the President is granted by the Indian Constitution.

• Article 331-

• The President may, if he is of opinion that the Anglo-Indian community is not adequately represented in the House of the People, nominate not more than two members of that community to the House of the People.

• Simply put, the President can nominate up to two members from the Anglo-Indian community.

Additional Information

• Article 333-

• It provides for the representation of the Anglo-Indian community in the Legislative Assemblies of the States.

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Q3. Answer: (a) Telecommunication Satellite

The correct answer is Telecommunication Satellite.

Key Points

• GSAT-31 is a Telecommunication Satellite.

• It was launched by an Ariane 5 rocket on Wednesday from the spaceport in French Guiana in Feb. 2019.

• It aims to provide continuity to operational services on some of the in-orbit satellites and augment the Ku-band transponder capacity in Geostationary Orbit.

• The mission life is 15 years.

• The satellite provides Indian mainland and island coverage.

• As per ISRO, the GSAT-31 will be used for supporting VSAT networks, television uplinks, digital satellite news gathering, DTH television services, cellular backhaul connectivity and many such applications.

• It will also provide wide beam coverage to facilitate communication over a large oceanic region comprising vast swathes of the Arabian Sea, the Bay of Bengal and the Indian Ocean using a wideband transponder.

Q4. Answer: (d) 1

Calculations :

Solve as per the above-given steps

25÷10-{7/4×1/3}×6/5+14/3×9/10-{1/5÷1/25}

=> 25 ÷ 10 - (7/12) × (6/5) + (14/3) × (9/10) - 5

=> (5/2) - (7/10) + (21/5) - 5

=> 67/10 - 7/10 - 5

=> 67/10 - 57/10

=> 10/10

=> 1

Therefore The correct choice is option 4.

Q5. Answer: (b) 3

The correct answer is 3.

Key Points

• In Excel MS Office- 2010, there are three worksheets present by default.

• These default worksheets are named Sheet1, Sheet2, and Sheet3.

• However, one can always add more worksheets when required.

• The maximum limit in Excel 2010-

• Open workbooks- Limited by available memory and system resources

• Total number of rows and columns on a worksheet- 1,048,576 rows by 16,384 columns

• Column width- 255 characters

• Row height- 409 points

• Page breaks- 1,026 horizontal and vertical

• Total number of characters that a cell can contain- 32,767 characters

• Maximum number of line feeds per cell- 253

• Colors in a workbook- 16 million colors (32 bit with full access to 24 bit color spectrum)

Q6. Answer: (b) 800

Shortcut Trick

Successive change % = a + b + (ab/100)

Net change = −20 + 15 + [(−20 × 15) / 100] = −5 − 3 = −8%

A decrease of 8% is equal to 64 units.

8% → 64

100% → (64 ÷ 8) × 100 = 800

Therefore The correct answer is 800.

Alternate Method

Given:

First decrease = 20%

Second increase = 15%

Difference from original = 64

Formula Used:

Final Value = Initial Value × (100 − d%)/100 × (100 + i%)/100

100%

Original

−20%

80%

+15%

92%

Final

Difference = 8% = 64

Let the original number be x.

=> Number after 20% decrease = x × (80/100) = 0.8x

=> Number after 15% increase = 0.8x × (115/100)

=> Final number = 0.8x × 1.15 = 0.92x

=> Given: x − 0.92x = 64

=> 0.08x = 64

=> x = 64 ÷ 0.08

=> x = 6400 ÷ 8 = 800

Therefore The correct answer is 800.

Additional Information

Successive Percentage Change

When a value is changed by a% and then by b%, the effective change is (a + b + ab/100)%. Use positive for increase and negative for decrease.

Fraction Method

Percentages can be converted to fractions: 20% decrease means 4/5 of value, and 15% increase means 23/20 of value. Multiply these fractions for the net effect.

Base Value Rule

In successive changes, the second percentage change is always applied to the value obtained after the first change, not the original value.

Q7. Answer: (a) Rs. 200 loss

Given:

Ram Kumar bought two LED TV sets for Rs. 41,000, selling one at a profit of 20% and the other at a loss of 15%

Calculations:

Let the cost price of items be Rs. ‘x’ and Rs '41000-x’

He got 20% profit on Rs x & 15% loss on Rs ‘41000 - x’

Selling price (at profit) = x + 20% of x = 120% of x

Selling price (at loss) = 41000 - x - 15% of 41000 - x = 85% (41000 - x)

According to the question

120% of x = 85% (41000 - x) (selling price are the same)

=> 120x = 85 × (41000 - x)

=> 24x = 17 × (41000 - x)

=> 41x = 17 × 41000

=> x = 17000 and 41000 - x = 24000

Total selling price = 120% of x + 85%(41000 - x)

=> 120% of 17000 + 85% of 24000

=> 20400 + 20400

=> 40800

So,

Loss = Cost Price - Selling Price

=> 41000 - 40800

=> 200 Rupees

Therefore The correct choice is option 1.

Q8. Answer: (d) 99684

Calculations:

Number = Divisor × Quotient + Remainder

Let the number be 99999 in this case

99999 = 468 × 213 + 315

99999 - 315 = 468 × 213

So,

Highest 5 digit number divisible by 468 = 99999 - 315

=> 99684

Therefore The correct choice is option 4.

Q9. Answer: (b) 1965

The correct answer is 1965.

• Official Languages Act, 1963:

• This Act may be called the Official Languages Act, 1963.

• Section 3 shall come into force on the 26th day of January, 1965 and the remaining provisions of this Act shall come into force on such date as the Central Government may, by notification in the Official Gazette, appoint and different dates may be prescribed for different provisions of this act.

Important Points

• Definitions - In this Act, unless the context otherwise requires -

• (a) "appointed day", in relation to section 3, means the 26th day of January 1965 and in relation to any other provision of this Act, means the day on which that provision comes into force;

• (b) "Hindi" means Hindi in Devanagari Script.

• The continuance of the English language for the official purposes of the Union and for use in Parliament.

Q10. Answer: (c) 19

Given:

24 mango trees, 56 apple trees and 72 orange trees have to be planted in rows such that each row contains the same number of trees of one variety only.

Calculations:

There are 24 mangoes trees, 56 apple trees & 72 Orange trees.

To get the minimum number of rows, we need maximum trees in each row.

In each row, we need the same number of trees

So we need to calculate HCF

HCF of 24, 56 & 72

=> $24 = 2^3 \times 3$

=> $56 = 2^3 \times 7$

=> $72 = 2^3 \times 3^2$

HCF = $2^3 = 8$

Number of minimum rows = (24 + 56 + 72)/8 = 152/8

=> 19

Therefore The correct choice will be option 3.

Q11. Answer: (b) 500 km/h

Given:

Two cars start from Ahmadabad and run in opposite directions with one car’s speed being 200 km/h more than the other.

They are 4500 km apart after 9 h.

Concept used:

Distance = Speed × Time

Calculations:

Let the speed of one car be ‘x’ km/h & other be '200 + x' km/h

Distance = Distance by 1^(st) car + Distance by 2^(nd) car

4500 = (x) × 9 + (200 + x) × 9 (time = 9 hours)

=> 500 = x + 200 + x

=> 2x = 300

=> x = 150 & (200 + x) = 350

Sum of speeds = 350 + 150

=> 500

Therefore The correct choice is option 2.

Q12. Answer: (c) P16O15N14M13

The pattern followed here is:

According to the alphabetical positions of the letters,

Hence, ‘PI6O15N14M13’ is the correct answer.

Q13. Answer: (b) YTINGID

The logic is:

Similarly,

Hence, ‘YTINGID’ is the correct answer.

Q14. Answer: (b) Adipose tissue

The correct answer is Adipose tissue.

Key Points

• Adipose tissue

• It is the fat-storing tissue in our body.

• It is a central metabolic organ in the regulation of whole-body energy homeostasis.

• It helps to store energy in the form of fat, cushion internal organs, and insulate the body.

• There are three types of adipose tissue: white, brown, and beige adipose.

• Areolar tissue

• It is a connective tissue in which fibres are loosely arranged in a net or meshwork.

• The function includes the support and binding of other tissues.

• It also helps in defending against infection.

• When a body region is inflamed, the areolar tissue in the area soaks up the excess fluid like a sponge and the affected area swells and becomes puffy, a condition called Edema.

• Epithelial tissue

• They are the major tissue in glands.

• They form the covering of all body surfaces, line body cavities and hollow organs.

• The four major classes of simple epithelium are: simple squamous; simple cuboidal; simple columnar; and pseudostratified

• Vascular tissue

• It is the main transport system of plants.

• It is comprised of the xylem and the phloem.

• These two tissues transport fluid and nutrients internally.

Q15. Answer: (a) 24 years

Given:

The captain of a cricket team of 11 members is 35 years old and the wicket-keeper is 5 years older than the captain. If the ages of these two are excluded, the average age of the remaining players is three years less than the average age of the whole team.

Concept used:

Average = Sum of all observation/No.of observations

Calculations:

Age of captain = 35

Age of wicketkeeper = 35 + 5 = 40

Let the average age of all players be x

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When captain & wicketkeeper excluded average age is 'x – 3' years

Age of whole team = 11 × x = 11x

Age of team when captain and wicket keeper excluded = 9(x- 3)

So,

=> 11x - (35 + 40) = 9(x - 3)

=> 11x = 9x - 27 + 75

=> 2x = 75 - 27

=> 2x = 48

=> x = 24

Therefore The average age of whole team is 24 years.

Alternate MethodLet the average age be x

let the average age be 'x - 3' when captain and wicket keeper are exclude

Total age of team = 11 × x = 11x

According to the question

[11x - (35 + 40)]/9 = x - 3

=> 11x - 75 = 9x - 27

=> 2x = 48

=> x = 24

Q16. Answer: (c) 1856

The correct answer is 1856.

Key Points

• Hindu Widows' Remarriage Act

• It was passed on 16th July 1856.

• It legalised the remarriage of Hindu widows in all jurisdictions of India under East India Company rule.

• It was drafted by Lord Dalhousie and passed by Lord Canning.

• It said that no marriage contracted between Hindus shall be invalid, and the issue of no such marriage shall be illegitimate, by reason of the woman having been previously married.

• Ishwar Chandra Vidyasagar was the most prominent campaigner for Hindu widow remarriage and petitioned the Legislative council despite severe opposition from Radhakanta Deb and the Dharma Sabha.

Q17. Answer: (a) Indira point

The correct answer is Indira point.

Key Points

• The Southernmost tip of Indian territory is Indira point.

• It comes under the Nicobar district and Great Nicobar Tehsil in Andaman and Nicobar Islands.

• The point was earlier known as Pygmalion Point and Parsons Point.

• This was renamed after Indira Gandhi visited the point in 1984.

• It was officially renamed in October 1985.

• There is a lighthouse situated there which was commissioned in 1972.

• In the 2004 Indian Ocean earthquake, this tip subsided 4.25 metres after the earthquake.

• Many of the inhabitants went missing in the tsunami that followed.

Q18. Answer: (b) Indore

The correct answer is Indore.

Key Points

• Swachh Survekshan is an annual survey of cleanliness, hygiene, and sanitation in cities and towns across India. It was launched as part of the Swachh Bharat Abhiyan of India.

• It is conducted by the Ministry of Housing & Urban Affairs.

• The surveys are carried out by the Quality Council of India. The criteria and weightage for different components of sanitation-related aspects used for the survey were:

• Municipal documentation (solid waste management including door-to-door collection, processing, and disposal, and open defecation free status

• Citizen feedback

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• Independent observation

• Indore was the cleanest city of India (in category Cities >10 Lakh).

• Chhattisgarh won the title of the Cleanest State of India in the > 100 ULB category while Jharkhand was adjudged the Cleanest State of India in the <100 ULB category.

Q19. Answer: (b) 10%

Given:

A sum becomes (14641/10000) times in 4 years.

Concept used:

Principle [1+(Rate)/100]^t = Amount (where t is time)

Calculations:

Let the principle be 10000,

Amount = 10000 × (14641/10000) = 14641

So,

10000[1+(R/100)^4 = 14641

=> [1+(R/100)4 = 14641/10000

=> [1+(R/100)]^4 = (11/10)^4

=> [1+(R/100)] = 11/10

=> R = 10%

Therefore The correct choice is option 2.

Q20. Answer: (c) Sanskrit

The correct answer is Sanskrit.

Key Points

• Pandita Ramabai Sarasvati

• She was a Sanskrit scholar.

• At the age of 12, she had memorized thousands of sacred verses from the Hindu sacred scriptures and gained exceptional knowledge of the Hindu language.

• She was at the age of 16 during the Great Famine (1876–78).

• She and her brother travelled across India reciting Sanskrit scriptures.

• At the age of twenty, she became the first woman in India to earn the title of Pandita after an examination conducted by the faculty of the University of Calcutta.

• She later founded the Arya Mahila Samaj, a society of high-caste Hindu women working for the education of girls and against child marriage.

• She also testified before the Hunter Commission and suggested that teachers be trained, women school inspectors are appointed, and that Indian women should be admitted to medical colleges.

Q21. Answer: (c) 1853

The correct answer is 1853.

Key Points

• The first Passenger train ran in 1853 in India.

• On 16th April 1853, the first passenger train ran between Bori Bunder (Bombay) and Thane covering a distance of 34 km.

• It was operated by three locomotives- Sahib, Sultan and Sindh, and had thirteen carriages.

• It carried 400 people.

• The passenger line was built and operated by the Great Indian Peninsula Railway.

• Lord Dalhousie is credited for the introduction of railways in India.

• Presently, India manages the fourth largest railway network in the world by size after US, Russia and China.

Q22. Answer: (c) Internet Service Provider

The correct answer is Internet Service Provider.

Key Points

• Internet Service Provider (ISP)

• It refers to a company that provides access to the Internet to both personal and business customers.

• Data may be transmitted using several technologies, including dial-up, DSL, cable modem, wireless or dedicated high-speed

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interconnects.

• An ISP is considered to be an information service provider, storage service provider, Internet network service provider (INSP), or a mix of all of them.

• An Internet service provider is also known as an Internet access provider (IAP).

• Today, ISPs are usually cable companies or mobile phone companies that offer Internet subscriptions in addition to TV or mobile communications services.

• The technology was developed to provide access to the general public through the World Wide Web in the late 1980s.

• Initially, consumers were able to gain limited access through a few ISPs—America Online (AOL) being one of the most recognized names at the time—that used dial-up connections using a phone line.

Q23. Answer: (c) Law of inertia

The correct answer is Law of inertia.

Key Points

• Law of inertia

• It is the other name of Newton's first law of motion.

• It states that an object at rest remains at rest, and an object in motion remains in motion at a constant speed and in a straight line unless acted on by an unbalanced force.

• This tendency to resist changes in a state of motion is inertia.

Additional Information

• Second law of motion- The acceleration of an object depends on the mass of the object and the amount of force applied.

• Third law of motion-Whenever one object exerts a force on another object, the second object exerts an equal and opposite on the first.

• Newton’s laws together with Kepler’s Laws explained why planets move in elliptical orbits rather than in circles.

Q24. Answer: (d) Annie Zaidi

The correct answer is Annie Zaidi.

Key Points

• Annie Zaidi won the Nine Dots Prize Award 2019.

• The Nine Dots Prize seeks to reward original thinking in response to contemporary societal issues.

• Each Prize cycle lasts two years, with a new question being announced every other October.

• The winner of each cycle is supported to develop their response into a full-length book, which is published by Cambridge University Press, and given the opportunity to spend a term at CRASSH (CENTRE FOR RESEARCH IN THE ARTS, SOCIAL SCIENCES AND HUMANITIES).

• Annie Zaidi is a freelance writer. Her entry was- Bread, Cement, Cactus.

• It combines memoir and reportage to explore concepts of home and belonging rooted in her experience of contemporary life in India, where migration - within the country, especially from villages to cities - is high.

Q25. Answer: (a) 922

Shortcut Trick

Find the LCM of 8, 12, and 16 = 48.

Numbers are of the form 48k + 5.

For k = 9, Number = 48 × 9 + 5 = 437.

For k = 10, Number = 48 × 10 + 5 = 485.

Sum = 437 + 485 = 922.

Therefore The correct answer is 922.

Alternate Method

Given: Divisors are 8, 12, and 16; Remainder = 5; Range = 400 to 500.

Formula Used: Number = (LCM of divisors × k) + Remainder

=> LCM of (8, 12, 16):

=> 8 = 2^3

=> 12 = $2^2 \times 3$

=> 16 = 2^4

=> LCM = 2^4 × 3 = 16 × 3 = 48

=> Numbers in range 400 < 48k + 5 < 500

=> Subtracting 5: 395 < 48k < 495

=> For k = 9: 48 × 9 = 432; Number = 432 + 5 = 437

=> For k = 10: 48 × 10 = 480; Number = 480 + 5 = 485

=> Sum = 437 + 485 = 922

Therefore The correct answer is 922.

Additional Information

LCM (Least Common Multiple)

The smallest positive integer that is perfectly divisible by all the numbers in a given set.

Common Remainder Property

When a number N is divided by a, b, and c leaving the same remainder r, then N = LCM(a, b, c) × k + r.

Different Remainder Property

If divisors are a, b, c and remainders are r1, r2, r3 such that (a−r1) = (b−r2) = (c−r3) = d, then N = LCM(a, b, c) × k − d.

Q26. Answer: (a) 26

Calculations:

Solve as per above given method

=> 17 – 4 × (5.4 ÷ 9) + 6 × 1.9

=> 17 - 4 × 0.6 + 11.4

=> 17 - 2.4 + 11.4

=> 17 + 9

=> 26

Therefore The correct choice is option 1.

Q27. Answer: (a) 8

The logic follows here is: Cross relation,

Figure (1) → 10 × 8 = 80

Figure (2) → 9 × 7 = 63

Similarly,

Figure (3) → 8 × 6 = 48

implies, ? = 8

Hence, 8 is the correct answer.

Q28. Answer: (a) Wrestling

The correct answer is Wrestling.

Key Points

• Sushil Kumar won the Olympic medal in wrestling.

• In the 2008 Beijing Olympics, Sushil Kumar finished third and won bronze for India.

• In the 2012 London Olympics, he finished with a silver medal in wrestling.

• In July 2009, he received the Major Dhyan Chand Khel Ratna award.

• On 3 October 2010, Kumar handed the Queen's Baton to Prince Charles in the Queen's Baton Relay for the 2010 Commonwealth Games Opening Ceremony.

• He won the gold medal in the 74 kg division at the 2014 Commonwealth Games.

• He also won the gold medal in the 74 kg division at the 2018 Commonwealth Games.

Q29. Answer: (b) Rs. 1,30,000

Given:

By selling a car for Rs. 1,20,000, David makes a profit of 20%.

Calculations:

Let the cost of car be x

Selling price = cost price + 20% of cost price

By selling a car for Rs. 1,20,000, David makes a profit of 20%

=> 120% of x = 120000

=> x = 100000

Selling price (at 30% profit) = 100000 + 30% of 100000

=> 130000

Therefore The correct choice is option 2

Alternate MethodLet the selling price at 30% profit be x rupees,

At 20% profit value becomes 120%, Similarly at 30% it becomes 130%

So,

120% : 130% = 120000 : x

=> x = 130000 rupees

Selling price at 30% profit will be Rs. 130000.

Q30. Answer: (b) John Bardeen

The correct answer is John Bardeen.

Key Points

• John Bardeen is the only person to be awarded the Nobel Prize in Physics twice.

• John Bardeen received the Nobel prize for physics in 1956 for amplifying electric signals proved decisive for telephony and radio.

• He received the Nobel prize for physics in 1972 for formulating a theory based on quantum mechanics.

• Please note that the 1956 nobel prize in physics was awarded jointly to William Bradford Shockley, John Bardeen and Walter Houser Brattain "for their researches on semiconductors and their discovery of the transistor effect."

• The 1972 nobel prize in physics was awarded jointly to John Bardeen, Leon Neil Cooper and John Robert Schrieffer "for their jointly developed theory of superconductivity, usually called the BCS-theory."

Q31. Answer: (b) Methanoic acid

The correct answer is Methanoic acid.

Key Points

• Methanoic acid is present in the ant sting.

• Chemical formula- HCOOH.

• The sting causes a burning sensation.

• Methanoic acid is also known as formic acid.

• A mild base such as baking soda or soap may be applied to neutralize the effect.

• In 1671, the English naturalist John Ray describe the isolation of the active ingredient.

• He collected and distilled a large number of dead ants, and the acid he discovered later became known as formic acid.

• Formic acid is also present in a natural state in stinging nettles.

• Formic acid is a colourless, fuming liquid that is miscible with water. It is produced as a by-product in the manufacture of acetic acid.

Q32. Answer: (a) 815

Shortcut Trick

Use the direct algebraic shortcut: $a^3 + b^3 + c^3 = S(S^2 - 3P) + 3Q$

Where Sum (S) = 14, Sum of Products (P) = 47, and Product (Q) = 15.

$a^3 + b^3 + c^3 = 14 \times (14^2 - 3 \times 47) + 3 \times 15$

$a^3 + b^3 + c^3 = 14 \times (196 - 141) + 45 = 14 \times 55 + 45 = 770 + 45 = 815$

Therefore The correct answer is 815.

Alternate Method

Given: $a + b + c = 14$, $ab + bc + ca = 47$, $abc = 15$

Formula Used: $(a + b + c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca)$ and $a^3 + b^3 + c^3 - 3abc = (a + b + c)(a^2 + b^2 + c^2 - (ab + bc + ca))$

=> $(14)^2 = a^2 + b^2 + c^2 + 2(47)$

=> $196 = a^2 + b^2 + c^2 + 94$

=> $a^2 + b^2 + c^2 = 196 - 94 = 102$

=> $a^3 + b^3 + c^3 - 3(15) = 14(102 - 47)$

=> $a^3 + b^3 + c^3 - 45 = 14(55)$

=> $a^3 + b^3 + c^3 - 45 = 770$

=> $a^3 + b^3 + c^3 = 770 + 45 = 815$

Therefore The correct answer is 815.

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Additional Information

Special Case of Sum of Cubes

If a + b + c = 0, then the identity simplifies to $a^3 + b^3 + c^3 = 3abc$.

Squared Differences Identity

$a^3 + b^3 + c^3 - 3abc = 1/2(a + b + c)[(a - b)^2 + (b - c)^2 + (c - a)^2]$.

Sum of Squares

$a^2 + b^2 + c^2 = (a + b + c)^2 - 2(ab + bc + ca)$ is useful for finding squared terms when the sum and pair products are known.

Q33. Answer: (a) 4

Calculations:

cot15° + tan15°

=> (cos15°/sin15°) + (sin15°/cos15°)

=> $(\cos^2 15° + \sin^2 15°)/(\sin 15° \cos 15°)$ ($\sin^2\theta + \cos^2\theta = 1$)

=> 1/(sin15° cos15°)

Multiply and divide equation by 2

=> 2/(2 sin15° cos15°) ($2 \sin\theta \cos\theta = \sin 2\theta$)

=> 2/sin30° (sin30° = 1/2)

=> (2/1/2) = 2 × 2

=> 4

Therefore The correct choice is option 1.

Q34. Answer: (a) Surat

The correct answer is Surat.

Key Points

• The first British presidency was established in Surat in India.

• John Midnall was the first British explorer who had an overland journey to India.

• After the Indian Rebellion of 1857, British administration governance started on 28th June 1858.

• Thereafter, the first Indian factory was established in 1612 at Surat by the Britishers.

• Surat became the hub of business due to major textile industries, shipbuilding and exporting of cloth and gold.

• British had also set up the East India Company in Masulipatnam. They traded cotton, indigo dye, silk, salt, saltpetre, opium and tea.

Q35. Answer: (a) 9%

Given:

Anil lent Rs. 7,200 to Dubey for 3 years and Rs. 8,400 to Raghav for 4 years on simple interest at the same rate of interest and received Rs. 4,968 in total from them as interest

Formula used:

Interest = Principle × Rate × Time/100

Calculations:

Interest (on Rs. 7200) = (7200 × 3 × R)/100 = 216 R

Interest (on Rs. 8400) = (8400 × 4 × R)/100 = 336R

According to the question

=> 216 R + 336 R = 4968

=> 552 R = 4968

=> R = 9%

Therefore The correct choice is option 1.

Q36. Answer: (c) 12 : 5

Given:

20 men and 15 boys can do a piece of work in 10 days and 25 men and 10 boys can do it in 9 days.

Concept used

Work = Working capacity × total time

Calculations:

Let the working capacity of men be ‘m’
Let the working capacity of boys be ‘b’
According to the question
=> (20 m + 15 b) × 10 = (25 m + 10 b) × 9
=> 200 m + 150 b = 225 m + 90 b
=> 60 b = 25 m
=> 12 b = 5 m
=> b/m = 5/12
So,
=> m : b = 12 : 5
Therefore The correct choice is option 3.

Q37. Answer: (d) 322

Given:
x + x^(-1) = 7
Formula used:
$x^3 + x^{(-3)} = (x + x^{(-1)})^3 - 3(x + x^{(-1)})$
Calculations:
$X^3 + x^{(-3)} = (7)^3 - 3 \times 7$
=> 343 - 21
=> 322
Therefore The correct choice is option 4.

Q38. Answer: (b) 18

Given:
The radius of the sphere is 3 cm
Radius & height of cylinder are 4.5 cm & 32cm
Formula used:
The volume of sphere = $4/3\pi r^3$
The volume of cylinder = $\pi r^2 h$
Calculations:
The volume of sphere inserted = volume of water risen
Radius of sphere = 6/2= 3 cm
Radius of cylinder = 9/2 = 4.5
So,
$(4/3)\pi \times (3)^3 \times$ Number of sphere = $\pi (4.5) \times (4.5) \times 32$
=> Number of sphere = 18
Therefore The correct choice is option 2.

Q39. Answer: (c) 5

Calculations:
Checking to get quotient for each option
35280/7 = 5040
35280/3 = 11760
35280/5 = 7056
35280/4 = 8820.
We can see only 7056 (84^2) is a perfect square
Therefore The correct choice is option 3

Q40. Answer: (a) 3

Given:
The sum of two numbers is 288 and their HCF is 16
Calculations:

Let the ratio of number be x : y

So the numbers will be 16x & 16y (HCF is an integral part of a number)

According to the question

16x + 16y = 288

=> 16(x + y) = 288

=> x + y = 18

Pairs of x, y can be (1, 17) (5, 13) (7, 11)

So there can be only 3 pairs.

Therefore The correct choice is option 1.

Q41. Answer: (b) 4

Given:

√x = 8 and x2 + y = 4112

Calculations:

$x^2 + y = 4112$

=> $64^2 + y = 4112$ (√x = 8, x = 64)

=> 4096 + y = 4112

=> y = 16

=> √y = 4

Therefore The correct choice is option 2.

Q42. Answer: (c) 16

Concept used:

Calculations:

Solve as per above given order

15 - 6.3 ÷ 7 + 3 × 1.3 - 2

=> 15 - 0.9 + 3.9 - 2

=> 15 + 3 - 2

=> 16

Therefore The correct choice is option 3.

Q43. Answer: (a) 2015

The correct answer is 2015.

Key Points

• In 2015, the Atomic Energy amendment bill passed by parliament to allow joint ventures between public sector undertakings in nuclear power generation.

• The said Bill was passed by Parliament in the Winter Session of 2015 and enacted on 31.12.2015.

• The bill sought to amend the Atomic Energy Act of 1962.

• The amendment will enable NPCIL (Nuclear Power Corporation of India) to form joint ventures with other government companies whilst ensuring the government retains control over such joint ventures.

• It does not extend to private sector companies, nor does it allow direct foreign investment in India's nuclear power sector, although there is no restriction on direct foreign investment in supply chain industries.

• The security of nuclear power plants is governed by detailed codes and guides prescribed by Atomic Energy Regulatory Board

• AERB has rigorous process for reviewing safety and security aspects of nuclear power projects through multi-tier reviews, apart from periodic regulatory inspections, to ensure adherence to these requirements.

Q44. Answer: (c) Jaap Haartsen

The correct answer is Jaap Haartsen.

Key Points

• Inventor of Bluetooth is Jaap Haartsen.

• Jaap Haartsen is a Dutch electrical engineer, researcher, inventor and entrepreneur.

• He led the development team that designed and created the Bluetooth in 1994.

• He began by taking up a project related to indoor wireless systems and tried to find ways to enable short-range radio connections.

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• Bluetooth is a wireless technology that uses a radio frequency to share data over a short distance, eliminating the need for wires.

• Most Bluetooth devices have a maximum connectivity range of about 30 feet, and that distance is reduced when obstacles (such as a wall) are present.

• Presently, Jaap is a wireless expert at Plantronics. In 2015, he was inducted into the National Inventors Hall of Fame.

Q45. Answer: (b) Argon

The correct answer is Argon.

Key Points

• Argon is a noble gas.

• Argon is used as the inert atmosphere in many light bulbs – an electric current is passed through a wire to heat it up so that it gets so hot it emits light.

• At these temperatures, the metal would react with any oxygen present which is why an inert gas is needed.

• The noble gases are the chemical elements in group 18 of the periodic table.

• They are odourless and colourless.

• They are the most stable due to having the maximum number of valence electrons their outer shell can hold.

• Therefore, they rarely react with other elements since they are already stable.

• The noble gases are present in the atmosphere in small amounts, Argon being 0.934%.

• Most of the noble gases are extracted from the air, except for helium. Helium is a product of radioactive decay (the alpha particle) and is found naturally in rocks.

Q46. Answer: (b) Socrates is a rationalist.

The correct answer is Socrates is a rationalist.

• Socrates was a Greek philosopher from Athens who is credited as a founder of Western philosophy and the first moral philosopher of the ethical tradition of thought.

• Socrates is not a rationalist. → False (As, all philosophers are rationalists and Socrates is a philosopher → Socrates is a rationalist)

• Socrates is a rationalist. → True (As, all philosophers are rationalists and Socrates is a philosopher → Socrates is a rationalist)

• All rationalists are philosophers. → False (As, all philosophers are rationalists → Some rationalists are philosophers)

• No philosophers are rationalists. → False (As, all philosophers are rationalists)

• Hence, ‘option 2’ is the correct answer.

Q47. Answer: (d) 11

Letters	A	B	C	D
Meaning	•	×	÷	•

Given equation: (3 B 4 D 5 A 6) C 1?

After replacing the symbols by their meaning, we get:

(3 × 4 + 5 - 6) ÷ 1

= (12 + 5 - 6) ÷ 1

= (17 - 6) ÷ 1

= 11 ÷ 1

= 11

Hence, ‘11’ is the correct answer.

Q48. Answer: (c) 30 kg

Given:

The average weight of P, Q and R is 58 kg.

The average weight of P and Q is 54 kg and that of Q and R is 48 kg.

Concept used:

Average = Total sum of observations/ Number of observations

Calculations:

(P + Q + R) /3 = 58

=> P + Q + R = 174 kgs

Now

(P + Q)/2 = 54
=> P + Q = 108
=> (Q + R)/2 = 48
=> Q + R = 96
Weight of Q = weight of (Q + R) + weight of (P + Q) – weight of (P + Q + R)
=> 96 + 108 – (174)
=> 204 – 174
=> 30 kg
Therefore The correct choice is option 3.

Q49. Answer: (a) 22

The correct answer is 22.
Key Points
• The nuclear energy programme in India was launched around the time of independence under the leadership of Homi J. Bhabha.
• Nuclear power is the fifth-largest source of electricity in India after coal, gas, hydroelectricity and wind power.
• As of November 2020, India has 22 reactors with a total capacity of 6780 MW in operation and one reactor.
• KAPP-3 (700 MW) has been connected to the grid on January 10, 2021.
• Operational nuclear power plants in India-
• Kaiga-Karnataka
• Kakrapar-Gujarat
• Kudankulam-Tamil Nadu
• Kalpakkam-Tamil Nadu
• Narora-Uttar Pradesh
• Tarapur-Maharastra
• Rajasthan Atomic Power Project-Rajasthan

Q50. Answer: (d) 3

Given:
When the integer n is divided by 9, the remainder is 4
Calculations:
n = 9k + 4 (remainder is 4)
Now,
12n = 12(9k + 4)
=> 12n = 108k + 48
=> 12n = 108k + 45 + 3
=> 12n = 9(12k + 5) + 3
So, Remainder is 3
Therefore The correct choice is option 4.

Q51. Answer: (a) Amravati

The correct answer is Amravati.
Key Points
• As on Nov, 2020, India's newest high court is built in Amravati.
• Prashant Kumar Mishra is the Chief Justice of High Court of Andhra Pradesh.
• Article 214- Each state of India shall have a High Court.
• Article 217- It deals with the appointment of Judges of the High Courts in India
• Article 231- It mentions that there can be a common High Court for two or more States or for two or more states and a union territory.
• The High Court is the supreme judicial body in a state.
• Every High Court comprises of a Chief Justice and other judges appointed by President.

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Q52. Answer: (d) 4 cm

Given:

ABC is a right-angled triangle. A circle is inscribed in it.

The length of the two sides containing the right angle are 10 cm and 24 cm

Calculations:

Hypotenuse² = 10² + 24² (Pythagoras theorem)

Hypotenuse = √676 = 26

Radius of the circle (incircle) inside a triangle = (Sum of sides containing right angle – Hypotenuse)/2

=> (10 + 24 - 26)/2

=> 8/2

=> 4

Therefore The correct choice is option 4.

Q53. Answer: (d) Rs. 10000

Given:

Ratio of income of Amar & Komal is 5 : 4

Ratio of expenditure of Amar & Komal is 2 : 1

They both saves 6000 Rupees

Calculations:

Let the income of Amar & Komal be 5x & 4x

Let the expenditure of Amar and Komal be 2y & y.

We know that

Savings = Income - Expenditure

So

=> 5x – 2y = 6000 ----(1) (saving of Amar)

=> 4x – y = 6000 ----(2) (saving of Komal)

Solving both equations, we get

=> x= 2000 & y = 2000

Amar’s income = 5x = 10000

Therefore The correct choice is option 4.

Q54. Answer: (c) Syed Ahmed Khan

The correct answer is Syed Ahmed Khan.

Key Points

• Syed Ahmed Khan founded the Muhammdan Anglo-Oriental college in 1875 which later became Aligarh Muslim University.

• He considered competence in English and "Western sciences" necessary skills for maintaining Muslims' political influence, especially in Northern India.

• Mahendra Pratap Singh gave land for the university.

• On 9th September 1920 the Mohammedan Anglo-Oriental College became the Aligarh Muslim University.

• Sultan Shah Jahan Begum was the first Chancellor of the University.

• The work of Syed Ahmed Khan gave rise to a new generation of Muslim intellectuals and politicians who composed the Aligarh movement to secure the political future of Muslims in India.

• He also was a jurist for the British East India Company.

Q55. Answer: (d) Grandchild

By using the symbols in the table given below, we can draw the following family tree:

Clearly, C is the grandchild of A.

Hence, ‘Grandchild’ is the correct answer.

Q56. Answer: (c) Health

The logic is:

Virus : Disease → Virus causes diseases.

Similarly,

Exercise : ? → Regular excercise leads to good health.

Hence, 'Health' is the correct answer.

Q57. Answer: (c) 240

The logic is:

Hence, '240' is the correct answer.

Q58. Answer: (c) Verghese Kurien

The correct answer is Verghese Kurien.

Key Points

• Verghese Kurien is considered the father of the white revolution in India.

• The White Revolution, known as Operation Flood, was launched in 1970.

• It was an initiative by India's National Dairy Development Board (NDDB) and was the world's biggest dairy development programme.

• It transformed India from a milk deficient nation into the world's largest milk producer.

• Operation Flood was based on the experimental pattern set up by Verghese Kurien, chairman and founder of AMUL.

• Kurien, along with his friend H. M. Dalaya invented the process of making milk powder and condensed milk from buffalo milk.

• Under Verghese Kurien, the programme created a national milk grid linking producers throughout India with consumers in over 700 towns and cities, reducing seasonal and regional price variations and ensuring that the milk producers get a major share of the income generated from end consumers, by forming co-operatives.

Q59. Answer: (b) April 1935

The correct answer is April 1935.

Key Points

• The Reserve Bank of India was established in April 1935.

• The RBI was nationalised on 1 January 1949.

• The Reserve Bank of India controls the issue and supply of the Indian rupee.

• It is basically the regulator of the Banking system in India. It strategizes monetary policy in India to control Inflation and money supply.

• The primary functions of the RBI include-

• Formulates, implements and monitors the monetary policy

• Regulator and supervisor of the financial system

• Manager of Foreign Exchange

• Issuer of currency

• Regulator and Supervisor of Payment and Settlement Systems

• Sir Osborne A Smith was the first governor of the Reserve Bank of India.

• He held the post of governor from 1 April 1935 to 30 June 1937.

• Shri Shaktikanta Das is the present Governor of the RBI.

• He assumed charge as the 25th Governor of the Reserve Bank of India effective from December 12, 2018.

Q60. Answer: (d) 48

Given:

All 5 subjects have equal number of students

Calculations:

Number of students in each subject = Total students/ Total subjects

Number of students in each subject = 120/5 = 24

Number of students in each language = Students of English + Students of Hindi = 24 + 24

=> 48

Therefore The correct choice is option 4.

Alternate Method

Each subject has 20% students (given)

Language subject are english and hindi

Students in hindi and english = 20% + 20% = 40%

Students in languages = 40% of 120

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=> 48

Q61. Answer: (a) Gujarat

The correct answer is Gujarat.

Key Points

• Buland Darwaza- "Door of victory".

• The Buland Darwaza at Fatehpur Sikri was erected by Akbar to celebrate his conquest of Gujarat.

• It was built in 1575 A.D.

• It is the main entrance to the Jama Masjid at Fatehpur Sikri.

• It is made of red and buff sandstone and decorated by carving and inlaying of white and black marble.

• An inscription on the central face of the Buland Darwaza throws light on Akbar's religious tolerance and broadmindedness.

• It is semi-octagonal in plan and is topped by pillars and chhatris, echoing early Mughal design with simple ornamentation, carved verses from the Quran and towering arches.

• A Persian inscription on the eastern archway of the Buland Darwaza records Akbar's conquest over Deccan in 1601 A.D.

Q62. Answer: (b) 1973

The correct answer is 1973.

Key Points

• The Govt. of India had launched “Project Tiger” on 1st April 1973 to promote the conservation of the tiger.

• Project Tiger has been the largest species conservation initiative of its kind in the world.

• The Project Tiger Directorate of the Ministry of Environment and Forests was mandated with the task of providing technical guidance and funding support.

• The field implementation of the project, protection and management in the designated reserves is done by the project States.

• Project Tiger has been converted into a statutory authority (NTCA) by providing enabling provisions in the Wild Life (Protection) Act, 1972 through an amendment, viz. Wild Life (Protection) Amendment Act, 2006.

• The NTCA addresses the ecological as well as administrative concerns for conserving tigers, by providing a statutory basis for the protection of tiger reserves, apart from providing strengthened institutional mechanisms for the protection of ecologically sensitive areas and endangered species.

• The Authority also ensures enforcing of guidelines for tiger conservation and monitoring compliance of the same, apart from the placement of motivated and trained officers having a good track record as Field Directors of tiger reserves.

Q63. Answer: (b) 1656

The correct answer is 1656.

Key Points

• Jama Masjid

• It was built by the Mughal emperor Shah Jahan between 1644 and 1656.

• It is maintained by Delhi Waqf Board.

• Ustad Khalil was the chief architect.

• It is primarily made of red stone.

• The main courtyard has an ablution tank made of marble where the devotees wash before settling for the prayers.

• The mosque houses collection of relics of Muhammad- the Quran written on deerskin, the red beard hair of the Prophet and also his sandals and footprints on the Northern gate placed in a cabinet.

• It is said that Lutyens incorporated the mosque into his design in such a way that the mosque along with Connaught Place and the Parliament House falls in direct line of sight.

Q64. Answer: (b) Ramachandra Guha

The correct answer is Ramachandra Guha.

Key Points

• India after Gandhi: The History of the World's Largest Democracy is a non-fiction book.

• It is written by Ramchandra Guha.

• It covers the history of India after it gained independence from the British in 1947.

• Please note that Guha added two chapters based entirely on new material (Progress and its Discontents & The Rise of the BJP Systems), and rewrote the epilogue (A 50 - 50 Democracy) for the 10th-anniversary edition of the book.

• Ramachandra Guha is an Indian historian, writer and public intellectual.

• His latest book is Gandhi: The Years That Changes the World (2018) which is a follow-up to the acclaimed Gandhi Before India

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(2013).

• He won the 2011 Sahitya Akademi Award for India after Gandhi.

Q65. Answer: (d) A

1. E is older than C.

E > C

2. D is older than C but younger than E.

E > D > C

3. A is younger than B and C.

B > A and C > A

4. C is older than B.

C > B

Combining all the statements together, we get:

E > D > C > B > A

Clearly, A is the youngest.

Hence, ‘A’ is the correct answer.

Q66. Answer: (b) New Delhi to Katra

The correct answer is New Delhi to Katra.

Key Points

• The first Vande Bharat Express was flagged off by Prime Minister Narendra Modi on 15 February 2019 on the New Delhi-Varanasi route.

• Second Vande Bharat Express is running between New Delhi to Katra.

• Vande Bharat Express is India's first Semi High-Speed Train equipped with world-class passenger amenities.

• This train set has been manufactured by Integral Coach Factory (ICF) in the period of 18 months under the 'Make in India' program.

• It can achieve high speeds (max speed of 160 kmph) due to faster acceleration & deceleration and will be reduced journey time by 25% to 45%.

• It has been provided with ‘State of the Art’ passenger amenities like onboard wifi entertainment, GPS based passenger information system, CCTVs, bio-vacuum toilets, rotating chairs in executive class, etc. at par with global standards.

• It also has the provision of Divyang-friendly facilities.

Q67. Answer: (c) 22

The correct answer is 22.

Key Points

• The Eighth Schedule to the Constitution of India consists of the following 22 languages:

• Assamese, Bengali, Gujarati, Hindi, Kannada, Kashmiri, Konkani, Malayalam, Manipuri, Marathi, Nepali, Oriya, Punjabi, Sanskrit, Sindhi, Tamil, Telugu, Urdu, Bodo, Santhali, Maithili and Dogri.

Important Points

• Scheduled languages are the languages other than the official languages of a country that have been assigned a place in the constitution of the country.

• There are 12 schedules in our constitution.

Q68. Answer: (c) September 1984

The correct answer is September 1984.

Key Points

• The GSDS is the union of Gandhi Smriti at 5 Tees January Marg and Gandhi Darshan at Rajghat as an independent body.

• It runs under the Ministry of Culture, Government of India.

• It's former name is Birla House or Birla Bhavan.

• It is the place where Mahatma Gandhi spent the last 144 days of his life and was assassinated on 30 January 1948.

Important Points

• Gandhi Smriti is one of the biggest museums of Gandhi.

• It consists of a library where around 60,000 books are kept and comprise bookshops selling books of Gandhi.

• Around 6000 original photos of Gandhiji has been preserved here.

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Q69. Answer: (c) CACP

The correct answer is CACP.

Key Points

• The full form of CACP is The Commission for Agricultural Cost and Prices.

• It is a decentralized agency and the advisory body to the Ministry of Agriculture & Farmers Welfare of the Government of India.

Important Points

• It was established in 1965 as the Agricultural Prices Commission and was renamed with the present name in 1985.

• CACP recommends Minimum Supporting Price to Cabinet Committee on Economic Affairs (CCEA) which is not binding on it.

Additional Information

• NITI Ayog

• It is a public policy think tank of the Government of India.

• It is established with the aim to achieve sustainable development goals with cooperative federalism by fostering the involvement of State Governments of India in the economic policy-making process.

• NABARD

• It stands for National Bank for Agriculture and Rural Development.

• It is an apex regulatory body for the overall regulation of regional rural banks and apex cooperative banks in India.

• It comes under the jurisdiction of the Ministry of Finance, Government of India.

• FCI

• The FCI stands for The Food Corporation of India.

• It is a statutory body created and run by the Government of India.

• It comes under the jurisdiction of the Ministry of Consumer Affairs, Food and Public Distribution.

Q70. Answer: (c) 3 : 2

Calculations:

Pass percentage of school B = 32%

Pass percentage of boy in school B = (3/8) of 32%

=> 12%

Pass percentage of school C = 24%

Pass percentage of boys in school C = (1/3) of 24%

=> 8%

Boys percentage of school B : Boys percentage of school C = 12 : 8

=> 3 : 2

Therefore The correct choice is option 3.

Q71. Answer: (a) 16 km

Given:

Driving his car at the speed of 30 km/h Vinod reaches his office 5 min late and at speed of 40 km/h, he reaches the office 3 min early.

Concept used:

Time = Distance/Speed

Calculations:

Let the time be ‘t’ minutes to reach office

Let the distance be D.

Time for 30km/h

=> (t + 5)/60 = D/30 ----(1) (1 minute = 1/60 hours)

Time for 40 km/h

=> (t – 3)/60 = D/40 ----(2)

Subtract equation (2) from (1)

=> [t + 5 - (t - 3)]/60 = D/30 - D/40

=> (D/30) - (D/40) = 8/60

=> (4D - 3D)/120 = 8/60

=> D/120 = 8/60

=> D = 16 km

Therefore The correct choice is option 1.

Shortcut Trick

Difference in time = Distance/Speed

=> [5 - (-3)]/60 = D/30 – D/40 (8 minutes = 8/60 in hours)

=> 8/60 = D/30 – D/40

=> D/120 = 8/60

Therefore D = 16 km

Q72. Answer: (c) 2 years

The correct answer is 2 years.

Key Points

• The United Nations Security Council is one of the six principal organs of the United Nations with the aim of keeping International Peace and Security.

• There are 5 permanent members of the UNSC which are also referred to as Permanent Five, Big Five, or P5.

• China, France, Russia, the United Kingdom, and the United States are the permanent members of the UNSC.

Important Points

• Non-Permanent Members

• There are 10 non-permanent members of the security council.

• The non-permanent members of the Security Council are elected by a two-thirds majority out of which 5 for African and Asian countries.

• India is been the eighth time non-permanent member of the UNSC.

• Non-permanent members are elected by the United Nations General Assembly for two-year terms starting on 1 January, with five replaced each year.

Q73. Answer: (b) Yew

The correct answer is Yew.

Key Points

• It is the well-known natural-source cancer(Breast, lung, and ovarian) drug in the USA and is one of the best plant-based treatments available.

• Taxol is obtained from the bark of the Yew tree.

• The process was invented by Robert Holton of Florida State University was licensed and developed to produce taxol by Bristol Myer.

Additional Information

• It is an evergreen timber tree of the yew family (Taxaceae) found from Alaska to California.

• It is given in combination with other chemotherapy medicines and is used post-surgery to reduce the risk of early-stage breast cancer coming back.

Q74. Answer: (b) Rajasthan

The correct answer is Rajasthan.

Key Points

• Sambhar Salt Lake is situated in east-central Rajasthan state, west of Jaipur.

• It represents a depression of the Aravalli Range with 230 square km in area.

• It is also known as the salt lake of Rajasthan.

Important Points

• It taps water from four seasonal rivers; the Mendha, the Rupangarh, the Kharian, and the Khandel, and other numerous streams.

• It is also declared as one of the Ramsar sites in 1990 by the Government of India and the Ramsar Bureau.

• It is also the source of Rajasthan's most salt production and produces about 9% of total India's salt per year.

Additional Information

• There are two salt lakes in Rajasthan:

1. Sambhar Lake.

2. Pachpadra Lake.

• Freshwater lakes of the Rajasthan:

1. Jaisamand Lake

2. Rajsamand Lake

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3. Lake Pichola
4. Ana Sagar Lake
5. Silishedh Lake
6. Nakki Lake
7. Fatehsagar Lake
8. Pushkar Lake
9. Lake Foy Sagar
10. Rangsagar Lake
11. Balsamand Lake
12. Swaroop Sagar Lake
13. Gajner Lake
14. Kolayat Lake
15. Dugari Lake
16. Talwara Lake
17. Buddha Johad Lake
18. Kadila and Mansarovar Lakes
19. Pithampuri Lake

Q75. Answer: (c) Education

The logic is:
Hospital : Health → We go to Hospital to get cure for Health related issue.
Similarly,
School : ? → We go to School to get Educated.
Hence, 'Education' is the correct answer.

Q76. Answer: (b) 240 cm²

Shortcut Trick
Height of isosceles triangle = √(side² − (base/2)²)
Height = √(26² − 10²) = √(676 − 100) = √576 = 24 cm
Area = 1/2 × Base × Height = 1/2 × 20 × 24 = 240 cm²
Therefore The correct answer is 240 cm².
Alternate Method
Given: AB = AC = 26 cm, BC = 20 cm
Formula Used: Area of Δ = 1/2 × base × height; In isosceles Δ, altitude to base bisects the base.
Let AD be the altitude from A to BC. Therefore BD = DC = 20/2 = 10 cm.
In right-angled ΔADC, by Pythagoras Theorem:
=> $AD^2 + DC^2 = AC^2$
=> $h^2 + 10^2 = 26^2$
=> $h^2 + 100 = 676$
=> $h^2 = 576$
=> h = 24 cm
Area of ΔABC = 1/2 × BC × AD
=> Area = 1/2 × 20 × 24
=> Area = 10 × 24 = 240 cm²
Therefore The correct answer is 240 cm².
Additional Information
Heron's Formula
For any triangle with sides a, b, c, Area = √(s(s−a)(s−b)(s−c)) where s = (a+b+c)/2.
Isosceles Triangle Properties
Two sides are equal, and the angles opposite to the equal sides are also equal.
Pythagorean Triplet
The set (10, 24, 26) is a multiple of the (5, 12, 13) triplet, which simplifies height calculation.

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Q77. Answer: (b) 2009

The correct answer is 2009.

Key Points

• The Right to Education (RTE) Act 2009 was enacted in the Parliament of India on 4 August 2009.

• The title RTE incorporates free and compulsory.

• It comes under Article 21(A) of the Constitution of India.

• This act states the primary vision and the importance of free and compulsory education for children aged between 6-14 years.

Important Points

• This act came into force on 1 April 2010.

• With this act's enforcement, India became one of the 135 countries; making education a fundamental right.

• Compulsory education' casts an obligation on the appropriate Government and local authorities to provide and ensure admission, attendance and completion of elementary education by all children in the 6-14 age group.

Q78. Answer: (c) 943

The correct answer is 943.

Key Points

• The sex ratio is defined as the ratio of women per thousand males.

• According to the population census of 2011, the sex ratio of India is 943 females per thousand males.

• Census 2011 is indeed an upward trend as in census 2003 it was 933 females per thousand males.

Important Points

• Source - censusindia.gov.in

• 2011 Census Data.

State with Highest Female Sex Ratio	**Kerala**	**1,084**
State with Lowest Female Sex Ratio	Haryana	879
UT with Highest Female Sex Ratio	Pondicherry	1,037
UT with Lowest Female Sex Ratio	Daman & Diu	618
District with Highest Female Sex Ratio	Mahe (Pondicherry)	1,147
District with Lowest Female Sex Ratio	Daman (Daman & Diu)	534

Q79. Answer: (a) A doctor's proficiency is directly related to consultation fees.

1. A doctor's proficiency is directly related to consultation fees.

The assumption can be drawn from the given statement as it is clearly stated that Doctors who charge high consultation fees are good.

2. The doctor has many patients.

The assumption cannot be drawn from the given statement as the statement mentions nothing about the number of patients.

3. A doctor who charges less consultation fee is unpopular.

The assumption cannot be drawn from the given statement as the statement mentions nothing about those doctors who charge less.

4. The doctor is a good practitioner.

The assumption cannot be drawn from the given statement as we only know about those doctors who charge high consultation fees but not about a particular doctor as given in the assumption 'The doctor'.

Hence, 'option 1' is the correct answer.

Additional Information

1. Read the statement with an approach that the assumptions would be true with regard to the statement.

2. Do not go too logical with the statements. Analyze the given information and the assumption must only be made based on the information in the statement. Do not over-complicate it.

3. Common assumptions can always be followed but other than that do not align the statement with General Knowledge or other facts

4. Use the elimination method if you are unable to apprehend the answer. Read the statement and then the assumptions given in the options, you shall notice that a few of them will most definitely not follow. Eliminate them and then choosing from lesser options may prove to be more convenient

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5. One thing to make a note of is that the assumption is something that the author believes to be true so while choosing the correct option, keep this thought in mind as well. If any option contradicts the statement, then that assumption will not follow.

Q80. Answer: (d) 14500 km

The correct answer is 14500 km.

Key Points

• The total navigable length is 14,500 km, out of which about 5200 km of the river and 4000 km of canals can be used by mechanised crafts.

• The headquarters of the Inland Waterways Authority of India is in NOIDA.

• Our country has an extensive network of inland waterways in the form of rivers, canals, backwaters and creeks.

Important Points

• West Bengal, with approximate 4.6 thousand km has the largest navigable waterways state in the country (Surveyed at the end of the fiscal year 2020).

• Major navigable rivers - Ganges - Bhagirathi - Hooghly.

• Ghaggar river of India is the most important river of inland drainage.

Q81. Answer: (d) New York

The correct answer is New York.

Key Points

• UNICEF stands for United Nations International Children's Emergency Fund.

• It was established post World War II in the General Assembly of the United States on 11 December 1946 to provide supplies and assistance to children after World War II.

• Basically, it provides humanitarian and developmental aid to children worldwide.

• Its headquarters are in New York.

• This agency is one of the most recognizable social welfare organizations in the world comprised of 192 countries and territories.

Important Points

• India signed a master plan of operation with UNICEF and its co-agencies like WHO(World Health Organization) and FAO(The Food and Agriculture Organization); UNICEF assisted ANP(Atrial Natriuretic Peptide) with equipment and supplies.

• In the 1970s, UNICEF became a key partner with the Government of India in the world's largest rural water supply programme.

Q82. Answer: (d) 575

Given:

For every 18 eggs, 3 are rotten.

Calculations:

3 eggs are rotten & 15 eggs are good (given)

Rotten eggs : Good eggs = 3 : 15 = 1 : 5

Good eggs = 5/6 of all eggs

Good eggs = (5/6) of 690

=> 575 eggs

Therefore The correct choice will be option 4.

Q83. Answer: (b) Rita

1. Eight people are sitting at a square table.

2. Tina is sitting opposite Urmila, who is sitting between Sharda and Nita.

3. Sharda is diagonally opposite Priya, who is sitting to the right of Vijaya.

Condition 3 is violated in Case I, so it is eliminated.

4. Vijaya is facing Madhu, who is to the right of Rita.

Clearly, Rita is sitting diagonally opposite Nita.

Hence, ‘Rita’ is the correct answer.

Q84. Answer: (a) 2/5

Given:

$\sec\theta = 5x$ & $\tan\theta = 5/x$

Concept used:

$Sec^2\theta - tan^2\theta = 1$

Calculations:

$Sec\theta = 5x$

$Sec^2\theta = 25x^2$

$Tan\theta = 5/x$

$Tan^2\theta = 25/x^2$

Now,

$10[x^2 - (1/x^2)] = 10[(sec^2\theta/25) - (tan^2\theta/25)]$

$\Rightarrow (10/25) [sec^2\theta - tan^2\theta]$

$\Rightarrow 10/25$

$\Rightarrow 2/5$

Therefore The correct choice will be option 1.

Q85. Answer: (d) D

Calculations:

Male members of A, B, C and D are respectively

Members of A => Female = 150 & Males = 250

Members of B => Female = 250 & Male = 350

Members of C => Female = 150 & Male = 200

Members of D => Female = 100 & Male = 350

Difference of female & male members

=> Difference in A = 250 - 150 = 100

=> Difference in B = 350 - 250 = 100

=> Difference in C = 200 - 150 = 50

=> Difference in D = 350 - 100 = 250

Therefore The correct choice will be option 4.

Q86. Answer: (b) Statements I and II together are sufficient.

Persons: A, B, C, D, and E.

I. A is taller than E but shorter than D.

D > A > E

II. B is shorter than C but taller than E.

C > B > E

III. D is taller than C and A is taller than B.

D > C and A > B

Option 1: combining statements I and III:

D > A > E and D > C and A > B

D > _ > _ > _ > _

We will not get any result by combining the two statements.

Option 2: combining statements I and II:

D > A > E and C > B > E

_ > _ > _ > _ > E

E is the shortest among all the five. So this is sufficient to answer.

Option 3: combining statements I, II, and III:

D > C/A > A/C > B > E

Now, we can say that E is the shortest among A, B, C, D and E. Statements I, II, and III are sufficient.

Note: There is a discrepancy in the original question and marked options.

When statements 1 and 2 combinedly give the answer then obviously with the help of statement 3 we can also give the answer, but we need to choose the minimum statement required to give the answer.

Hence, Statements I and II together are sufficient is the correct answer.

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Q87. Answer: (d) SUVX

The pattern followed here is:

According to the alphabetical positions of the letters,

Hence, ‘SUVX’ is the correct answer.

Q88. Answer: (d) 110

The logic follows here is:

Step-by-step explanation: 5, 12, 26, 54, ?, 222, 446

5

5 × 2 + 2 = 12

12 × 2 + 2 = 26

26 × 2 + 2 = 54

Therefore, 54 × 2 + 2 = 110

110 × 2 + 2 = 222

222 × 2 + 2 = 446

Hence, the correct answer is "110".

Additional Information

The logic is:

5

(5 + 1) × 2 = 6 × 2 = 12

(12 + 1) × 2 = 13 × 2 = 26

(26 + 1) × 2 = 27 × 2 = 54

(54 + 1) × 2 = 55 × 2 = 110

(110 + 1) × 2 = 111 × 2 = 222

(222 + 1) × 2 = 223 × 2 = 446

Hence, ‘110’ is the correct answer.

Q89. Answer: (c) 18

The number of parallelograms in the figure is shown below:

Hence, ‘18’ is the correct answer.

Shortcut Trick

Therefore, the number of parallelograms will be 6 × 3 = 18

Hence, the correct answer should be "18".

Q90. Answer: (d) [figure]

The pattern followed here is:

In first figure, there is one straight line and one circle and a partition between them.

In second figure, one more circle is added in the figure and the partition between two circles and one straight line now shifts its position by rotating 45º clockwise.

In third figure, one straight line is added as compared to second figure, and the number of circles is same and the and the partition between them shifts its position by rotating 45º clockwise.

So, in the fourth figure, one more circle will be there and two lines and the partition will be a horizontal line, as shown in option 4.

The pattern that will one next in the given series, is shown below:

Hence, 'option 4' is the correct answer.

Q91. Answer: (d) Quadrilateral

The logic follows here is:

Square → Square is a quadrilateral.

Rhombus → Rhombus is a quadrilateral.

Rectangle → Rectangle is a quadrilateral.

Parallelogram → Parallelogram is a quadrilateral.

Quadrilateral is closest to the given shapes.

Hence, ‘Quadrilateral’ is the correct answer.

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Q92. Answer: (c) CEPRTIAC

The logic is:

Similarly,

Hence, ‘CEPRTIAC’ is the correct answer.

Q93. Answer: (d) Rs. 1,56,000

Calculations:

Highest salary = 33% of 1200000

Lowest salary = 20% of 1200000

Difference in height & lowest salary = 33% of 1200000 – 20% of 1200000

=> 13% of 1200000

=> 156000 Rupees

Therefore The correct choice is option 4.

Q94. Answer: (a) 41

The logic is:

9 + 8 = 17

17 + 8 = 25

25 + 16 = 41

41 + 8 = 49

49 + 8 = 57

57 + 16 = 73

Hence, ‘41’ is the correct answer.

Q95. Answer: (b) 12

The number of straight lines in a cuboid is shown below:

Hence, ‘12’ is the correct answer.

Alternate Method

The number of straight lines in a cuboid is shown below:

Hence, ‘12’ is the correct answer.

Important Points

The cuboid has 6 rectangular faces. The opposite rectangular plane surfaces are identical (equal in all respects). It has 8 vertices and 12 edges.

In a cuboid there are 6 rectangular plane surfaces. There are 8 vertices and 12 edges.

A cube is also a cuboid having all its 6 faces equal and square. Thus, a cube has all the six faces identical, whereas a cuboid has the opposite faces identical

Q96. Answer: (c) 140

The logic is:

Hence, ‘140’ is the correct answer.

Q97. Answer: (d) Some artists are millionaires.

The least possible Venn diagram is:

1. No millionaires are celebrities. → False (As, all celebrities are millionaires given so some millionaires can be celebrities, it is definite)

2. All artists are millionaires. → False (As, some artists are celebrities and all celebrities are millionaires → some artists are millionaires)

3. No celebrities are millionaires. → False (As, all celebrities are millionaires so some celebrities are also millionaires)

4. Some artists are millionaires. → True (As, some artists are celebrities and all celebrities are millionaires so which part of the artists is celebrities will be also millionaires, hence, true)

Hence, ‘option 4’ is the correct answer.

Q98. Answer: (d) Currency

Dollar → Dollar is the currency of USA.

Rupee → Rupee is the currency of India.

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Yen → Yen is the currency of Japan.

Taka → Taka is the currency of Bangladesh.

Clearly, currency is the option that best describes the given units.

Hence, 'Currency' is the correct answer.

Q99. Answer: (c) 12

The number of triangles in the following figure is shown below:

Hence, '12' is the correct answer.

Q100. Answer: (d) Steel

The description is as follows:

Option	Description	
1.	Gold	Gold is a metal.
2.	Iron	Iron is a metal.
3.	Silver	Silver is a metal.
4.	Steel	Steel is an alloy of iron with carbon and usually other elements.

Hence, 'Steel' is the odd one out.

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