RRB NTPC CBT-I Official Paper (Held On: 9 Mar 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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Scan the QR code or click the link to open it.

Q1. In the number 76897, what is the place value of 8?

(a) 800
(b) 80
(c) 8000
(d) 8

Q2. Which pair is NOT correct regarding dams and the states they are situated in?

(a) Stanley Reservoir – Tamil Nadu
(b) Nagarjuna Sagar – Andhra Pradesh
(c) Shanti Sagara – Kerala
(d) Gobind Sagar – Himachal Pradesh

Q3. The objective of the 'Sagarmala Project' is to:

(a) reduce logistics cost for domestic cargo and EXIM cargo
(b) install equipment for gas and oil exploration
(c) Protect Indian territory from China
(d) develop Indian islands

Q4. After passing a Money Bill in the Lok Sabha, the Rajya Sabha can return the bill to the Lok Sabha within a maximum of _____ days.

(a) 28
(b) 14
(c) 22
(d) 12

Q5. Government of India accounts are kept in three parts. Which of the following is NOT one of the three?

(a) Public Account
(b) Cooperative fund
(c) Consolidated Fund
(d) Contingency Fund

Q6. Sam told Jamie, "I am the only son of your sister's husband". How is Sam related to Jamie?

(a) Father
(b) Nephew
(c) Brother
(d) Father-in-law

Q7. Select the number that can replace the question mark (?) in the following series.

5, 6, 10, 19, 35, 60, ?

(a) 95
(b) 103
(c) 96

(d) 110

Q8. If √x ÷ √6.25 =2, then the value of x is:

(a) 25
(b) 13
(c) 16
(d) 14

Q9. What is the unit of measurement used for measuring the energy requirement of the human body?

(a) Erg
(b) Ohm
(c) Joule
(d) Calories

Q10. If Seenu covers a distance of 15.5 km in 5 hours, then the distance covered by him in 6 hours is:

(a) 19.6 km
(b) 18.6 km
(c) 16.6 km
(d) 17.6 km

Q11. Select the term that can replace the question mark (?) in the following series.

wp, tm, qj, ng, kd, ?

(a) mf
(b) nh
(c) iz
(d) ha

Q12. WAN in the context of computers and networking stands for:

(a) World Access Network
(b) Wide Access Network
(c) WiFi Amended Network
(d) Wide Area Network

Q13. Which of the following is equal to 3.14 × 10^6?

(a) 31400
(b) 3140000
(c) 314000
(d) 31400000

Q14. Yohei Sasakawa was conferred with the International Gandhi Peace Prize in 2018 for his contribution to _____ eradication.

(a) jaundice
(b) tuberculosis
(c) hepatitis B
(d) leprosy

Q15. The theme of the United Nations Day Concert 2020 was:

(a) The Future We Want
(b) Potential in Diversity
(c) Greening the Blue
(d) Health for All – Everyone, Everywhere

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Q16. Which of the following movements was NOT lead by Mahatma Gandhi?

(a) Bardoli Satyagraha, 1928
(b) Quit India Movement, 1942
(c) Kheda Satyagraha, 1918
(d) Passive resistance campaigns, 1906

Q17. If A#B means 'A is the brother of B', A^B means 'A is the daughter of B', A*B means 'A is the aunt of B' and A%B means 'A is the mother of B', then, how is Z related to G in S*G%U^Z#X?

(a) Brother
(b) Father
(c) Husband
(d) Wife

Q18. What is the value of sin 90° + tan 45° + cosec 90° ?

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

Q19. If the centre of a circle (c) is (-2, 3) and its radius is 4, then find the equation of the circle.

(a) $x^2 + y^2 + 4x - 6y - 3 = 0$
(b) x2 + y2 - 4x + 6y + 3 = 0
(c) x2 + y2 - 4x + 6y - 3 = 0
(d) x2 + y2 + 4x + 6y - 3 = 0

Q20. Select the option that is related to the third term in the same way as the second term is related to the first term.

Vaccine : Prevent : : Medicine : ?

(a) Take
(b) Health
(c) Cure
(d) Avoid

Q21. 75% of 75% is equal to:

(a) 0.5662
(b) 0.5652
(c) 0.5666
(d) 0.5625

Q22. Which of the following is an open source operating system to manage computer hardware and software?

(a) Linux
(b) Microsoft Windows
(c) Macintosh
(d) Apple

Q23. Read the given statements and conclusions carefully and decide which of the conclusions logically follow(s) from the statements.

Statements:

1. Some of the topics taught by a professor in a college course are Socialism, Panchayats and Caste System.
2. None of the topics like Gender and Child Psychology are taught by the professor.
3. All the topics taught by the professor, except the topic Indian Education, are very graspable and motivating.

Conclusions:

1. The professor teaches the topic Gender in a very comprehensible manner.
2. The topics Child Psychology and Indian Education are not taught by the professor.
3. The topic Indian Education taught by the professor is not very comprehensible.

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(a) Only conclusion 1 follows.
(b) Only conclusions 1 and 3 follow.
(c) Only conclusion 3 follows.
(d) Only conclusions 1 and 2 follow.

Q24. Which of the following Central Nodal Agencies has been identified to channelise subsidy for PMAY (Urban)?
(a) CNA
(b) NHB
(c) SCB
(d) NABARD

Q25. When 0.36 is written in its simplest fractional form, the sum of the numerator and the denominator is:
(a) 34
(b) 32
(c) 33
(d) 35

Q26. What is the least number which when added to 1000 gives a number exactly divisible by 15?
(a) 7
(b) 5
(c) 6
(d) 8

Q27. The minimum value of $9 \sin^2\theta + 10 \cos^2\theta$ is:
(a) 0
(b) 1
(c) 8
(d) 9

Q28. The confluence of the Indus River and the Zanskar River occurs in:
(a) Katihar
(b) Pachnada
(c) Vijayapura (Bijapur)
(d) Ladakh

Q29. Find the value of $((0.03)^{(2)} + (0.51)^2 + (0.083)^2)/((0.003)^2 + (0.051)^2 + (0.0083)^2)$.
(a) 10
(b) 1000
(c) 100
(d) 0.1

Q30. Who is the sixth Indian cricketer to be included into the ICC Cricket Hall of Fame?
(a) Kapil Dev
(b) Sachin Tendulkar
(c) Rahul Dravid
(d) Sourav Ganguly

Q31. A mixture contains alcohol and water in the ratio of 5 : 4. If 9 litres of water is added to the mixture, the ratio of alcohol to water becomes 4 : 5. Find the quantity of alcohol in the mixture.
(a) 16 litres
(b) 24 litres
(c) 20 litres
(d) 28 litres

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Q32. Syngas is primarily a mixture of:

(a) butane and propane
(b) carbon dioxide and hydrogen
(c) carbon monoxide and hydrogen
(d) carbon dioxide and sulphur

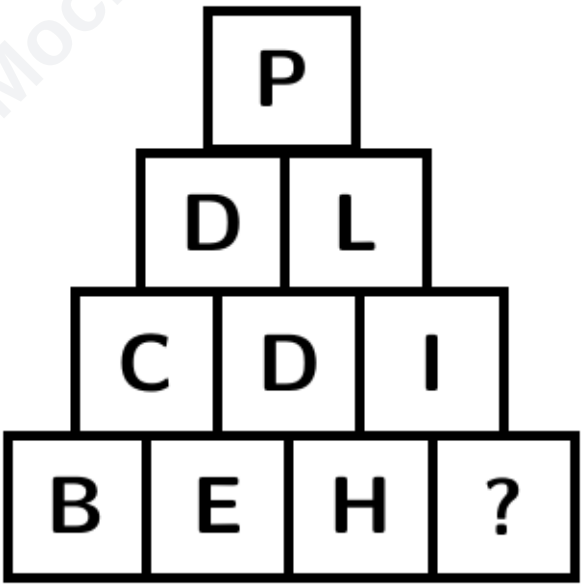
Q33. In a right circular cylinder, the ratio of curved surface area to total surface area 3 : 7. Find the ratio of height to radius of the cylinder.

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

Q34. Ranga and Raju together can complete a task in 6 days. If Ranga alone can complete the same task in 18 days, then how many days will Raju take to complete the task?

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

Q35. Study the given pattern carefully and select the letter that can replace the question mark (?) in it.



(a) C
(b) A
(c) Z
(d) T

Q36. Which Indian state was in ancient history known as Kamarupa?

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

Q37. In a frequency distribution, if the mid-value of the class is 35 and the value of the lower boundary is 30, then the value of its upper boundary is:

(a) 40
(b) 10
(c) 30

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(d) 20

Q38. If 4A = 5B and 6B = 7C, then A : C is:

(a) 35 : 24
(b) 36 : 24
(c) 34 : 24
(d) 38 : 24

Q39. Which of the following is NOT correct in the context of PSUs and their year of establishment?

(a) Oil and Natural Gas Corporation in 1956
(b) Airports Authority of India in 1995
(c) Damodar Valley Corporation in 1958
(d) Balmer Lawrie & Co. Ltd. in 1867

Q40. Read the given statement and courses of action carefully and decide which of the courses of action logically follow(s) from the statement.

Statement:

The recent survey has revealed that the construction activity for the metro in the city has increased air-pollution in the short-term by 30%.

Courses of Action:

1. The construction of the metro should be put to a halt in the city.

2. The government must seek over-the-counter measures like screening the whole construction site to check the spread of air pollution caused by the construction of the metro.

3. Dust from construction activity should be controlled by using fine water sprays to dampen down the site.

(a) Only 3 follows.
(b) 1, 2 and 3 follow.
(c) Only 1 and 2 follow.
(d) Only 2 and 3 follow.

Q41. Which of the following letters is 5^(th) to the right of the 12^(th) letter from the left of the English alphabet when written starting from the left to right?

(a) E
(b) H
(c) P
(d) Q

Q42. Arrange the following fractions in the ascending order.

2/3, 4/8, 5/9 and 9/11

(a) 4/8< 5/9< 2/3< 9/11
(b) 4/8< 5/9< 9/11< 2/3
(c) 5/9< 2/3< 9/11< 4/8
(d) 5/9< 2/3< 4/8< 9/11

Q43. Who holds the record for winning the overall maximum National Film Awards?

(a) Satyajit Ray
(b) Ajay Devgan
(c) Javed Akhtar
(d) Shabana Azmi

Q44. Which is major weed of the rice crop in India?

(a) Phalaris minor (small canary grass)
(b) Echinochloa crusgalli (barnyard grass)
(c) Elymus repens (quackgrass)
(d) Parthenium hysterophorus (congress grass)

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Q45. If $2xy\cos\theta + (x^2 - y^2)\sin\theta = x2 + y^2$, then the value of $\tan\theta$ is:

(a) $(x^2 - y^2)/2xy$
(b) $(y^2 - x^2)/2xy$
(c) $(x^2 + y^2)/2xy$
(d) $(x^2 - y^2)/(x^2 + y^2)$

Q46. Find the value of $\sqrt{144}/7 \times 14/12 \times 7/\sqrt{196}$.

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

Q47. Which of the following is NOT an alkaline solution?

(a) Sodium hydroxide
(b) Magnesium hydroxide
(c) Aluminum hydroxide
(d) Calcium hydroxide

Q48. Who is known as the founder of Himachal Pradesh?

(a) Rajkumari Amrit Kaur
(b) Virbhadra Singh
(c) Dr. Yashwant Singh Parmar
(d) Baba Kanshi Ram

Q49. How many minutes will Chandu take to cover a distance of 600 m, if he runs at a speed of 30 km/h?

(a) 21/5 min
(b) 22/5 min
(c) 12/5 min
(d) 11/5 min

Q50. Which of the following statements is not about Netaji Subhas Chandra Bose?

(a) He participated in the Non-cooperation Movement, 1921
(b) He was member of the Constitution Drafting Committee.
(c) He founded the Indian National Army (INA).
(d) He was deported to Mandalay.

Q51. According to the 2014 Rangarajan Committee regarding national poverty lines in India, which of the following statements is correct?

(a) A person who has a monthly per capita consumption expenditure of less than Rs. 872 living in the rural areas should be considered poor.
(b) A person who has a monthly per capita consumption expenditure of less than Rs. 2,407 living in the urban areas should be considered poor.
(c) A person who has a monthly per capita consumption expenditure of less than Rs. 1,407 living in the urban areas should be considered poor.
(d) A person who has a monthly per capita consumption expenditure of less than Rs. 1,272 living in the rural areas should be considered poor.

Q52. Which of the following is a greenish yellow gas with a characteristic smell at room temperature?

(a) Iodine
(b) Chlorine
(c) Hydrogen sulphide
(d) Carbon monoxide

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Q53. The normal tenure of the Comptroller and Auditor General (CAG) of India is _____ years.

(a) six
(b) four
(c) three
(d) five

Q54. Find the value of 45 ÷ 0.09.

(a) 500
(b) 50
(c) 5000
(d) 5

Q55. Which state of India is known as 'Land of Rolling Hills'?

(a) Tripura
(b) Mizoram
(c) Arunachal Pradesh
(d) Himachal Pradesh

Q56. Four words have been given, out of which three are alike in some manner and one is different. Select the odd one.

(a) Amalgam
(b) Tin
(c) Titanium
(d) Gallium

Q57. Which of the following countries will NOT be hosting the 2026 FIFA World Cup?

(a) Canada
(b) Brazil
(c) USA
(d) Mexico

Q58. The angle between two circles $x^2 + y^2 - 12x - 6y + 41 = 0$ and $x2 + y2 + kx + 6y - 59 = 0$ is 45°. Find the value of k.

(a) ±3
(b) -4
(c) 4
(d) ±4

Q59. Which of the following was NOT built by Shah Jahan?

(a) Buland Darwaza
(b) Shalimar Gardens
(c) Red Fort (Delhi)
(d) Jama Masjid (Delhi)

Q60. 'Fani' was a type of:

(a) polar cyclone
(b) tropical cyclone
(c) non-polar cyclone
(d) mesocyclone

Q61. The mean of three numbers is 53. The range of this data set is 28 while the difference between the two smallest numbers is 8. The greatest of the three numbers is:

(a) 69
(b) 71
(c) 72
(d) 73

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Q62. Which town of the Indus Valley Civilisation literally means 'mound of the dead'?

(a) Balakot
(b) Mesopotamia
(c) Harappa
(d) Mohenjo-daro

Q63. What is the value of 2/7 × [2 + {2 (11 + 4 - 2)}] - 2

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

Q64. Name the exoplanet which is considered as a pretty close cousin of Earth, and is also known as 'Earth 2.0'.

(a) Kepler-452b
(b) Europa-31
(c) Neptune
(d) Pluto

Q65. Which of the following is NOT in the list of five Sikh Takhts?

(a) Sri Damdama Sahib, Talwandi Sabo, Bathinda
(b) Sri Keshgarh Sahib, Anandpur
(c) Shri Rakab Ganj Sahib, New Delhi
(d) Sri Patna Sahib, Patna

Q66. China is planning to launch its own 'artificial moon' in _____.

(a) Shanghai
(b) Chengdu
(c) Tianjin
(d) Beijing

Q67. The simple interest on a certain sum for 5 years at 13% per annum is Rs. 650. The sum is:

(a) Rs. 1,065
(b) Rs. 1,096
(c) Rs. 1,090
(d) Rs. 1,000

Q68. Which country has launched the World's first quantum satellite to establish hack-proof communication?

(a) India
(b) USA
(c) China
(d) Japan

Q69. Which number is 40% less than 80?

(a) 38
(b) 68
(c) 58
(d) 48

Q70. "Jagritam Aharnisham" or "Always Alert" is the motto of which organization?

(a) The Indian Army
(b) The Coast Guard
(c) Intelligence Bureau
(d) Research and Analysis Wing

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Q71. In a certain code language, PIANO is written as NGYLM. How will DRUM be written as in that language?

(a) BPSK
(b) CPTK
(c) BORL
(d) CQTL

Q72. Which of the following statements is FALSE?

(a) Animal cells do not have plastids.
(b) Plant cells have cell walls, whereas animal cells do not.
(c) Plant cells are generally larger than animal cells.
(d) Plant cells have smaller vacuoles than those of animal cells.

Q73. The ratio of two numbers is 2 : 3 and their LCM is 120. What is the smallest of two numbers?

(a) 20
(b) 40
(c) 30
(d) 50

Q74. Which of the following fractions is the smallest?

(a) 9/11
(b) 8/13
(c) 11/12
(d) 10/14

Q75. The book 'Changing India' documents the work of:

(a) Dr. Manmohan Singh
(b) Narendra Modi
(c) Rajiv Gandhi
(d) Pranab Mukherjee

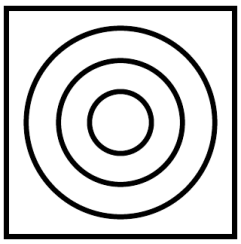
Q76. Munni walked from the park 75 m to the west, 25 m to the north, 35 m to the east and then 25 m to the south. She stopped at this point to buy bangles from the bangle stall. She walked again 35 m to the south. How far and in which direction is the park from the bangle stall?

(a) 40 m to the west
(b) 40 m to the east
(c) 75 m to the west
(d) 60 m to the south

Q77. Select the Venn diagram that best represents the relationship between the classes:

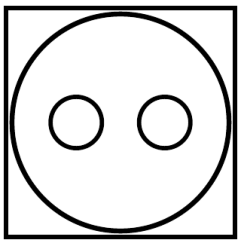
Birds, Sparrow, Pigeon

(a)

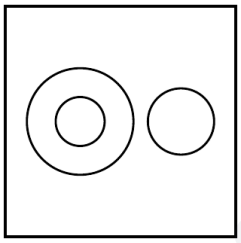


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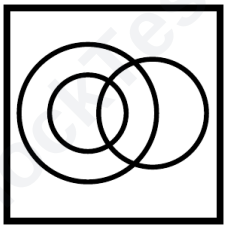
(b)



(c)



(d)



Q78. A man sells a car to his friend at a loss of 20%. Then, the friend sells it for Rs. 58,000 at a profit to 30%. The original cost price of the car (to the nearest integral value) was:

(a) Rs. 57,769
(b) Rs. 54,769
(c) Rs. 55,769
(d) Rs. 56,769

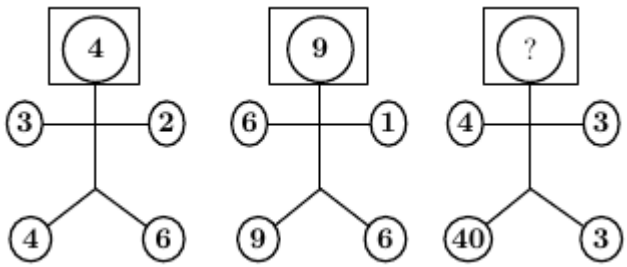
Q79. Who is NOT a Goldman Environmental Prize (Green Nobel Prize) winner?

(a) Vandana Shiva
(b) Ramesh Agrawal
(c) Champa Devi Shukla
(d) Medha Patkar

Q80. Who coined the slogan "Total Revolution"?

(a) Mahatma Gandhi
(b) Narendra Modi
(c) Ram Manohar Lohia
(d) Jayaprakash Narayan

Q81. Study the given pattern carefully and select the number that can replace the question mark (?) in it.



(a) 14

(b) 10
(c) 11
(d) 50

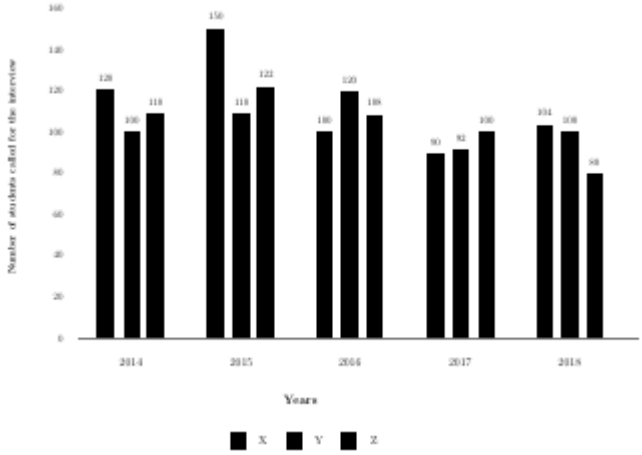
Q82. A man buys 20 articles for Rs. 16 and sells them at the rate of Rs. 1.50 per article. What is his gain in percentage?
(a) 85.5%
(b) 86.5%
(c) 84.5%
(d) 87.5%

Q83. The Ecomark logo of India is/are:
(a) cross tress
(b) a green dot
(c) a blue angel
(d) an earthen pot

Q84. Which part of the Constitution of India has been influenced by the German Constitution?
(a) Single citizenship
(b) Federal system
(c) Amendment of the Constitution
(d) Suspension of fundamental rights during Emergency

Q85. Out of the letter-clusters given below, four are alike in some manner and one is different. Select the odd one.
AF EJ IN MR QU
(a) MR
(b) QU
(c) IN
(d) EJ

Q86. Observe the bar graph below and answer the question. The bar graph shows the data for the years 2014 to 2018 of the number of students who were called for a job interview of a certain company. The interview was for the post of HR and the students were from three different institutes X, Y and Z.



What is the ratio of the average number of students called for the interview from the institute X during the period 2014 to 2016 to the average number of students from the institute Y called for the interview during the same period?
(a) 43 : 13
(b) 13 : 43
(c) 33 : 37
(d) 37 : 33

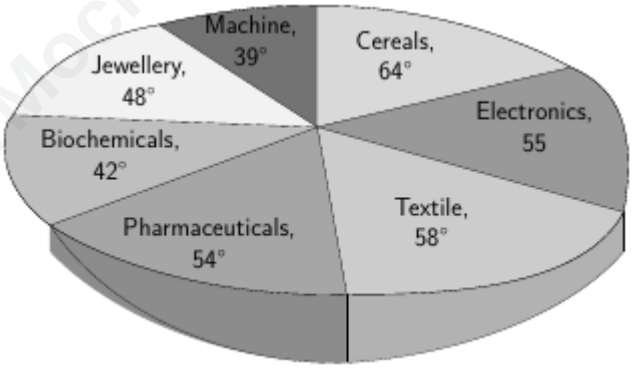
Q87. Observe the table below and answer the question. The table shows the number of candidates who attended interviews from 2012 to 2016, for the post of PO in State Bank of India from five different states of India.

States →	Bihar	UP	M.P	Punjab	Kerala
Years ↓					
2012	410	300	250	280	440
2013	500	400	280	320	400
2014	450	450	240	260	350
2015	320	500	400	400	380
2016	500	430	540	350	420

What is the average number of candidates who attended the interview from the state of Kerala for all the years?

(a) 380
(b) 400
(c) 1990
(d) 398

Q88. Observe the pie chart below and answer the question. The pie chart shows the spending of a country on importing various products from neighbouring countries during a particular year.

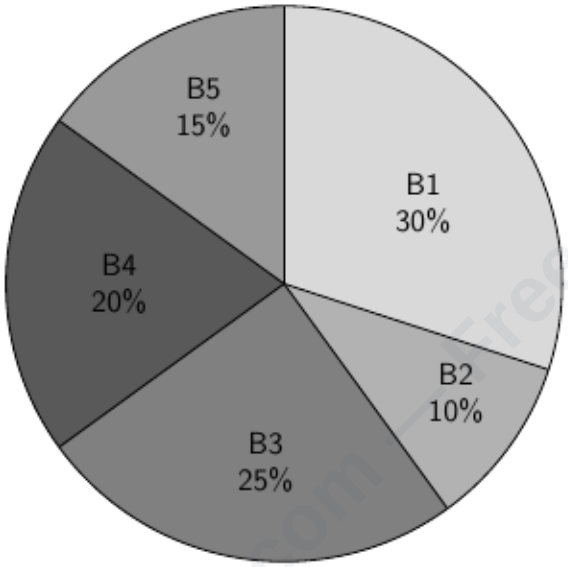


If the total amount spent on import during the year was Rs. 8 crore, then what was the approximate amount spent on textile and cereals?

(a) Rs. 2.7 crore
(b) Rs. 3 crore
(c) Rs. 2 crore
(d) Rs. 1.5 crore

Q89. Observe the pie chart below and answer the question. The pie-chart shows the percentage distribution of the sales of school bags from five branches B1, B2, B3, B4 and B5 of a company.

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What is the central angle of the sector corresponding to the sales of school bags from branch B3 of the company?

(a) 45°
(b) 90°
(c) 120°
(d) 80°

Q90. Four words have been given, out of which three are alike in some manner and one is different. Select the odd one.

(a) King
(b) Ace
(c) Jack
(d) Silver

Q91. If a cube having a side of 8 cm is divided into smaller cubes each having a side of 2 cm, then what will be the total number of smaller cubes each having a side of 2 cm?

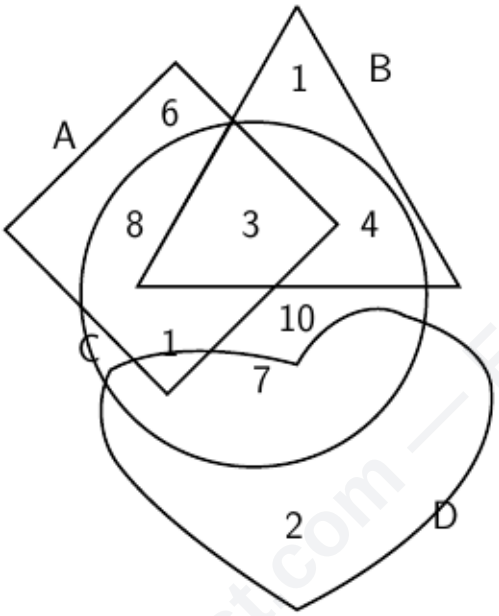
(a) 64
(b) 16
(c) 48
(d) 32

Q92. Select the letter that can replace the question mark (?) in the following series.



(a) P
(b) Q
(c) O
(d) R

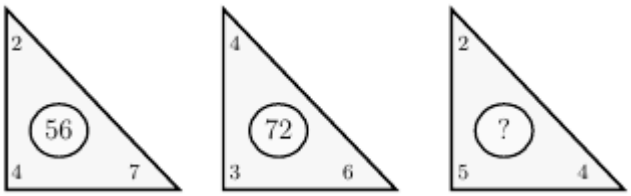
Q93. The following figure is a combination of 4 figures, A (rhombus), B (triangle), C (circle) and D (heart). Figure A represents the number of people who like to read book W. Figure B represents people who like to read book X. Figure C and D represent people who like to read books Y and Z respectively.



How many people like to read either book W or book X but not both?

(a) 22
(b) 7
(c) 23
(d) 20

Q94. Study the given pattern carefully and select the number that can replace the question mark (?) in it.



(a) 11
(b) 86
(c) 30
(d) 40

Q95. In a certain code language, PLUS is written as SOXV and LIVE is written as OLYH. How will FREE be written as in that language?

(a) JVHI
(b) IUHI
(c) JVHH
(d) IUHH

Q96. Select the option in which the words share the same relationship as that shared by the given pair of words.

Cube : Square

(a) Area : Perimeter
(b) Rectangle : Rhombus
(c) Cone : Hat
(d) Sphere : Circle

Q97. Four words have been given, out of which three are alike in some manner and one is different. Select the odd one.

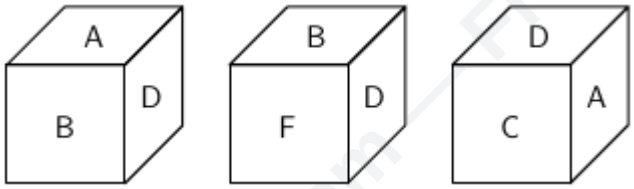
(a) Mode
(b) Range
(c) Mean
(d) Median

Q98. Select the number that can replace the question mark (?) in the following series.

9, 14, 24, 44, ?, 164, 324

(a) 84
(b) 94
(c) 64
(d) 79

Q99. Three different positions of the same dice are shown. Select the letter that will be on the face opposite to the one having D.



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

Q100. Read the statements given below. Select from the four options, the one that CANNOT be concluded from the statements.

Statement A: All dragons are starks.

Statement B: Some starks are thrones.

Statement C: Some dragons are thrones.

(a) Some thrones are both starks and dragons.
(b) Some starks are neither thrones nor dragons.
(c) Some thrones are not dragons but they are starks.
(d) All starks are either thrones or dragons.

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (a) 800

Given:

Number = 76897

Formula Used:

Place Value = Digit × Place

Calculation:

In the number 76897, the place of 8 is the hundred place.

Place Value = 8 × 100

=> Place Value = 800

The place value of 8 in the number 76897 is 800.

Q2. Answer: (c) Shanti Sagara – Kerala

The correct answer is Shanti Sagara-Kerala

Key Points

• Shanti Sagara – Kerala:

• This pair is incorrect.

• Shanti Sagara is actually located in Karnataka, not Kerala.

• It is a major reservoir formed by the Bhadra Dam on the Bhadra River.

• It's a crucial part of the state's irrigation and hydroelectric power infrastructure.

• It helps sustain crops and support the livelihoods of local farmers.

• The dam also generates hydroelectric power, contributing to the energy needs of the state.

Additional Information

• Stanley Reservoir – Tamil Nadu:

• This is a correct pair.

• Stanley Reservoir, also known as Mettur Dam, is located in Tamil Nadu.

• It is a major irrigation project on the Cauvery River.

• The construction work of this dam commenced in the year 1925 and was completed in the year 1934.

• The length of the dam is 1615 m and the maximum storage height is 120 feet.

• Nagarjuna Sagar – Andhra Pradesh:

• This is also a correct pair.

• Nagarjuna Sagar Dam is a massive hydroelectric project on the Krishna River in Andhra Pradesh.

• This is the largest and highest masonry dam in the world.

• The dam was constructed between 1955 and 1967 and has a total capacity of 11.56 km3.

• Gobind Sagar – Himachal Pradesh:

• This is another correct pair.

• Gobind Sagar is a reservoir formed by the Bhakra Nangal Dam on the Sutlej River in Himachal Pradesh.

Q3. Answer: (a) reduce logistics cost for domestic cargo and EXIM cargo

The correct answer is to reduce logistics costs for domestic cargo and EXIM cargo

Key Points

• The Sagarmala Project is an initiative by the Government of India aimed at promoting port-led development in the country.

• The Sagarmala Project is a strategic initiative launched by the Government of India in 2015, aimed at transforming India's logistics sector through port-led development.

• It seeks to leverage India's 7,500 km coastline and maritime assets for economic growth

• The key objectives of the project:

• Enhancing Port Connectivity: Improve the infrastructure and connectivity to ports to facilitate the smooth movement of goods.

• Reducing Logistics Costs:

• The project focuses on reducing the logistics cost for both domestic cargo and Export-Import (EXIM) cargo, making Indian exports more competitive globally.

• Port Modernization: Modernizing existing ports and developing new ports to accommodate larger vessels and improve operational efficiency.

• Coastal Economic Zones: Developing coastal economic zones and promoting industries along the coastline to create jobs and boost the economy.

Q4. Answer: (b) 14

The correct answer is 14

Key Points

• Rajya Sabha can detain the money bill for the maximum period of 14 days only.

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• A money bill can only be introduced in Lok Sabha, not in the Rajya sabha. It is introduced only by the minister on the recommendation of the President.

• It cannot be amended or rejected by Rajya Sabha and Rajya sabha should return the bill with or without recommendation. The recommendation can be accepted or rejected by Lok Sabha.

• It is transmitted to Rajya Sabha after the certification of the Speaker and there is no provision of joint sittings in matters of a money bill.

Additional Information

Bill	Provision
Ordinary bill	• It can be introduced in both Rajya Sabha and Lok Sabha and by either minister or a private member of parliament. - It can be amended or rejected by Rajya sabha and can be detained for a period of 6 months. - It is the bill concerned about any matter other than financial subjects. - It is having the provision of joint sittings in case of deadlock and can be returned by the President for further consideration.
Money bill (Article 110)	• It is concerned with financial matters like taxation, public expenditure, etc. - It can only introduce in Lok Sabha by the minister with the recommendation of the President. - Rajya Sabha can detain the bill for 14 days and should return the bill with or without recommendation. The recommendations are not binding on Lok Sabha. - It is having no provision of joint sitting and the President cannot return the bill.
Financial bill I (Article 117 {1})	• Financial bill is those which concerns with fiscal matters like revenue and expenditure. - This contains matters related to Article 110 and other general legislation also. - It can be introduced only in Lok Sabha after the recommendation of the President.
Financial bill II (Article 117 {3})	• This bill contains a matter of expenditure from the consolidated fund of India. - It is governed as same as ordinary bills. - It cannot be passed by either house of Parliament unless the President has recommended to that House the consideration of the bill.
Constitutional amendment bill (Article 368)	• It only concerned with the amendment of the provisions of the constitution. - It can be introduced in either house of the parliament and does not require the permission of the President. - It must be passed in each house by the special majority and separately. - It is having no provision of joint sitting and the President cannot hold or return the bill.

Q5. Answer: (b) Cooperative fund

The correct answer is Cooperative fund

Key Points

• Cooperative fund is NOT one of the three main funds of the Government of India.

• A Cooperative Fund generally refers to funds that are managed by cooperative societies or cooperative institutions.

• These funds are used for the financial management and operations of cooperative organizations, which are member-owned and operated entities aimed at mutual benefit

• The fund can be generated from membership fees, savings and contributions of members, profits from cooperative business activities, government grants, or loans.

Additional Information

• The accounts of the Government of India are maintained in three parts, which are:

• Public Account:

• This includes transactions where the government acts as a banker.

• It deals with funds like provident funds, small savings, etc., where the government holds money on behalf of others.

• Consolidated Fund:

• This is the most important account and contains all revenues (like taxes) and loans raised by the government.

• All government expenditures are made from this fund, and no amount can be withdrawn without the approval of Parliament.

• Contingency Fund:

• This fund is used to meet unforeseen expenditures.

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• The fund is at the disposal of the President of India to make urgent payments, subject to later approval by the Parliament.

Q6. Answer: (b) Nephew

Family Chart:

Given: Sam told Jamie, "I am the only son of your sister's husband".

So, Sam is 'Nephew' of Jamie.

Hence, the correct answer is "Nephew".

Q7. Answer: (c) 96

The logic followed here is:

Hence, the correct answer is "96".

Q8. Answer: (a) 25

Given:

$\sqrt{x} \div \sqrt{6.25} = 2$

Calculations:

$\Rightarrow \sqrt{x} = 2 \times \sqrt{6.25}$

$\Rightarrow \sqrt{x} = 2 \times 2.5$

$\Rightarrow \sqrt{x} = 5$

$\Rightarrow x = 5^2$

$\Rightarrow x = 25$

Therefore The value of x is 25.

Q9. Answer: (d) Calories

The correct answer is Calories

Key Points

• Calories are the unit of measurement used to quantify the amount of energy the human body requires and expends.

• It represents the amount of energy obtained from food and beverages and the energy consumed by the body for various physical activities and metabolic processes.

Additional Information

• Erg:

• A unit of energy in the centimetre-gram-second (CGS) system, but it is very small and not commonly used for measuring energy in biological systems.

• Ohm:

• A unit of electrical resistance, not related to energy or the human body's energy needs.

• Joule:

• The SI unit of energy. While joules can measure energy, calories are more commonly used to express the energy content of food and the energy requirement of the human body. (1 calorie = 4.184 joules).

Q10. Answer: (b) 18.6 km

Given:

Distance covered in 5 hours = 15.5 km

Time = 6 hours

Formula used:

Distance = Speed × Time

Speed = Distance / Time

Calculations:

Speed = 15.5 km / 5 hours

=> Speed = 3.1 km/h

Distance in 6 hours = Speed × Time

=> Distance in 6 hours = 3.1 km/h × 6 hours

=> Distance in 6 hours = 18.6 km

Therefore The correct answer is option 2.

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Q11. Answer: (d) ha

The logic followed here is:

Hence, the correct answer is "ha".

Q12. Answer: (d) Wide Area Network

The correct answer is Wide Area Network.

Key Points

• WAN:

• A wide area network (WAN) is a large computer network that connects groups of computers over large distances.

• WANs are often used by large businesses to connect their office networks; each office typically has its own local area network or LAN, and these are LANs connected via a WAN. These long connections may be formed in several different ways, including leased lines, VPNs, or IP tunnels.

• The Internet itself is considered a WAN.

Additional Information

• LAN:

• It stands for Local Area Network.

• A local area network (LAN) consists of a series of computers linked together to form a network in a circumscribed location.

• The computers in a LAN connection to each other via TCP/IP ethernet or Wi-Fi.

• A LAN is normally exclusive to an organization, such as a school, office, association, or church.

• MAN:

• It stands for metropolitan area network.

• The word MAN refers to merging several local area networks (LANs) in a city into a single, more extensive network that may connect to a vast area network efficiently.

• A MAN is larger than a LAN but smaller than a WAN.

Q13. Answer: (b) 3140000

Given:

3.14 × 10^6

Formula used:

3.14 × 10^6 = 3.14 × 1000000

Calculation:

3.14 × 1000000

=> 3.14 × 10^6 = 3140000

Therefore The correct answer is option (2).

Q14. Answer: (d) leprosy

The correct answer is leprosy

Key Points

• Yohei Sasakawa, a prominent Japanese philanthropist and businessman, has been instrumental in the global fight against leprosy.

• His tireless efforts and generous support have significantly impacted the lives of millions affected by this stigmatizing disease

• Sasakawa has supported various public health initiatives aimed at preventing the spread of leprosy and providing timely treatment to those affected.

• He has worked closely with governments, international organizations, and healthcare providers to develop effective strategies for leprosy control.

Additional Information

• Jaundice: Jaundice is a condition caused by excess bilirubin in the blood.

• Tuberculosis: Tuberculosis is a bacterial infection that primarily affects the lungs.

• Hepatitis B: Hepatitis B is a viral infection that affects the liver. It is a serious public health concern.

Q15. Answer: (b) Potential in Diversity

The correct answer is Potential in Diversity

Key Points

• The theme of the United Nations Day Concert 2020 was Potential in Diversity.

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• This theme highlighted the importance of embracing and celebrating the world's rich diversity, including cultural, ethnic, and linguistic differences.

• It emphasized the belief that by recognizing and valuing our differences, we can create a more inclusive and harmonious future for all.

Additional Information

• The Future We Want: This theme is often used by the United Nations to discuss sustainable development goals and the aspirations of people around the world for a better future. However, it was not the specific theme of the 2020 concert.

• Greening the Blue: This theme is related to environmental sustainability and the protection of our oceans.

• It is often used in discussions about climate change and marine conservation.

• While it's a relevant topic for the United Nations, it was not the theme of the 2020 concert.

• Health for All – Everyone, Everywhere: This theme is associated with the United Nations' commitment to universal healthcare and ensuring that everyone has access to quality healthcare services.

• It is a crucial global health goal, but it was not the specific theme of the 2020 concert.

Q16. Answer: (a) Bardoli Satyagraha, 1928

The correct answer is Bardoli Satyagraha, 1928

Key Points

• Bardoli Satyagraha (1928)

• The British government had imposed a significant increase in land revenue on farmers in Bardoli, Gujarat.

• This led to widespread discontent among the farmers.

• The Bardoli Satyagraha of 1928 was led by Sardar Vallabhbhai Patel.

• Although Mahatma Gandhi provided support and strategic guidance, the direct leadership of the movement was under Patel.

Additional Information

• Kheda Satyagraha (1918)

• A severe famine struck the Kheda district of Gujarat, leading to crop failures and widespread poverty.

• The British government refused to provide any relief to the affected farmers.

• Gandhi arrived in Kheda to assess the situation and galvanise the farmers into action.

• He encouraged them to refuse to pay taxes until they received adequate relief.

• The Kheda Satyagraha was another victory for Gandhi.

• The British government was forced to grant tax relief to the farmers, demonstrating the power of non-violent resistance.

• Passive Resistance Campaigns (1906)

• The British government had introduced discriminatory laws against Indian immigrants in South Africa, particularly the Transvaal.

• These laws limited the rights of Indians and subjected them to racial segregation.

• Gandhi led a series of passive resistance campaigns against these discriminatory laws.

• He encouraged Indians to refuse to obey unjust laws and to suffer the consequences peacefully.

• While the passive resistance campaigns in South Africa did not immediately achieve their goals, they helped to raise awareness of the plight of Indians and laid the foundation for Gandhi's later struggles for independence in India

• Quit India Movement, 1942:

• Mahatma Gandhi Led this movement

• The Quit India Movement was a significant mass movement launched by Mahatma Gandhi on August 8, 1942, during World War II.

• The primary goal was to demand an end to British rule in India. Gandhi gave the famous "Do or Die" speech in Mumbai (then Bombay), urging Indians to do everything possible, non-violently, to drive the British out of India.

• The movement saw widespread civil disobedience and protests, with major impacts including the arrest of Gandhi and other leaders, violent suppression by the British, and a surge in nationalist sentiment among Indians.

Q17. Answer: (c) Husband

Family Chart:

Decoding the Symbols:

Symbol	•	#	^	%
Meaning	Aunt	Brother	Daughter	Mother

Given: S*G%U^Z#X

It means: S is the aunt of G, G is the mother of U, U is the daughter of Z and Z is the brother of X.

So, Z is the 'Husband' of G.
Hence, the correct answer is "Husband".

Q18. Answer: (a) 3

Given:
sin 90º + tan 45º + cosec 90º
Formula used:
sin 90º = 1
tan 45º = 1
cosec 90º = 1
Calculation:
=> sin 90º + tan 45º + cosec 90º
=> 1 + 1 + 1
=> 3
Therefore The correct answer is option (1).

Q19. Answer: (a) $x^2 + y^2 + 4x - 6y - 3 = 0$

Given:
Centre of the circle (h, k) = (-2, 3)
Radius (r) = 4
Formula used:
Equation of a circle: $(x - h)^2 + (y - k)^2 = r^2$
Calculation:
$(x - (-2))^2 + (y - 3)^2 = 4^2$
$(x + 2)^2 + (y - 3)^2 = 16$
=> $x^2 + 4x + 4 + y^2 - 6y + 9 = 16$
=> $x^2 + y^2 + 4x - 6y + 13 - 16 = 0$
=> $x^2 + y^2 + 4x - 6y - 3 = 0$
Therefore The correct answer is option 1.

Q20. Answer: (c) Cure

The logic followed here is:
Logic: Relationship between a product and its purpose.
Here,
Vaccine : Prevent → Vaccine is used to prevent diseases.
Similarly,
Medicine : Cure → Medicine is used to cure diseases.
Hence, the correct answer is "Option 3".

Q21. Answer: (d) 0.5625

Given:
75% of 75% is equal to:
Formula used:
Percentage of a Percentage = (Percentage1 × Percentage2) / 100
Calculation:
75% of 75% = (75 × 75) / (100 × 100)
=> 75% of 75% = 5625 / 10000
=> 75% of 75% = 0.5625
Therefore The correct answer is option (4).

Q22. Answer: (a) Linux

The correct answer is Linux
Key PointsLinux:
• One of the most successful open-source products is the Linux operating system, an open-source Unix-like operating system, and

its derivative Android, an operating system for mobile devices.

• In some industries, open-source software is the norm.

Additional Information

• MS-DOS- DOS is a CUI type of Operating System. DOS is a single-tasking, single-user operating system with a command-line interface.

• iOS- Apple iOS is the operating system for iPhone, iPad, and other Apple mobile devices. Apple iOS is designed for easy, seamless networking between a range of Apple products.

• Windows- The Windows operating system (Windows OS) for desktop PCs is more formally called Microsoft Windows and is actually a family of operating systems for personal computers. Windows has traditionally dominated the personal computer world, running, by some estimates, more than 75 percent of all personal computers.

Hence, Linux is an open-source operating system.

Q23. Answer: (c) Only conclusion 3 follows.

Given,

Statements:

1. Some of the topics taught by a professor in a college course are Socialism, Panchayats, and Caste System.

2. None of the topics like Gender and Child Psychology are taught by the professor.

3. All the topics taught by the professor, except the topic Indian Education, are very graspable and motivating.

Conclusions:

I. The professor teaches the topic Gender in a very comprehensible manner - False (Because the statement clearly mentions that the topic Gender is not taught by the professor).

II. The topics Child Psychology and Indian Education are not taught by the professor - False (Because the statement mentions that the professor does not teach Child Psychology, but the topic Indian Education is taught by the professor).

III. The topic Indian Education taught by the professor is not very comprehensible - True (Because the statement mentions that all topics taught by the professor, except Indian Education, are very graspable and motivating, implying that Indian Education is not very comprehensible).

So, Only conclusion III follows.

Hence, the correct answer is Option 3.

Q24. Answer: (b) NHB

The correct answer is NHB

Key Points

•. The National Housing Bank (NHB) is the Central Nodal Agency responsible for channelling subsidies for the Pradhan Mantri Awas Yojana (Urban) (PMAY-U).

• It plays a crucial role in implementing the scheme by providing financial assistance to various stakeholders, including state governments, urban local bodies, and housing finance companies.

Additional Information

• CNA: While there are various Central Nodal Agencies (CNAs) for different government schemes, CNA is not specifically identified as the CNA for PMAY (Urban).

• SCB: SCB likely refers to the State Cooperative Bank. State Cooperative Banks are regional financial institutions that primarily cater to the needs of cooperative societies and rural areas.

• NABARD: NABARD is the National Bank for Agriculture and Rural Development.

• It is a specialized financial institution that focuses on providing credit and other financial services to rural areas and promoting agricultural development.

Q25. Answer: (a) 34

Given:

When 0.36 is written in its simplest fractional form, the sum of the numerator and the denominator is:

Formula used:

Decimal to Fraction Conversion

Calculation:

0.36 = 36/100

=> 36/100 = 9/25

Sum of numerator and denominator = 9 + 25 = 34

Therefore The correct answer is option 1.

Q26. Answer: (b) 5

Given:

1000 (given number)

Divisible by 15

Formula used:

We need to find the least number x such that (1000 + x) is divisible by 15.

Calculation:

To find x, we calculate the remainder when 1000 is divided by 15.

1000 ÷ 15 = 66 remainder 10

We need to add a number that will make the remainder 0.

=> x = 15 - 10 = 5

Therefore The correct answer is option 2.

Q27. Answer: (d) 9

Given:

$9 \sin^2 \theta + 10 \cos^2 \theta$

Formula used:

Let $\sin^2 \theta = x$, then $\cos^2 \theta = 1 - x$

Calculation:

$9 \sin^2 \theta + 10 \cos^2 \theta = 9x + 10(1 - x)$

=> $9x + 10 - 10x$

=> $10 - x$

To find the minimum value, we need to find the maximum value of x, which is $\sin^2 \theta$. The maximum value of $\sin^2 \theta$ is 1.

=> 10 - 1

=> 9

Therefore The correct answer is option (4).

Q28. Answer: (d) Ladakh

The correct answer is Ladakh

Key Points

• The confluence of the Indus and Zanskar rivers occurs in Ladakh, India, at a place called Sangam.

• The Zanskar River is a tributary of the Indus River, which originates in the Tibetan Plateau and flows through China, India, and Pakistan.

• Nimmu is situated at the point where the two rivers meet, which is known for its stunning landscapes and scenic beauty.

• The confluence is located about 35 kilometers from Leh, the capital of Ladakh.

• The confluence of the Indus River and the Zanskar River occurs in Nimmu, a village in the Leh district of Ladakh, India.

• The Indus River is one of the longest rivers in Asia, flowing through India, Pakistan, and China.

Q29. Answer: (c) 100

Given:

$((0.03)^2 + (0.51)^2 + (0.083)^2)/((0.003)^2 + (0.051)^2 + (0.0083)^2)$

Formula used:

Squaring the individual terms and summing them up:

Calculation:

$((0.03)^2 + (0.51)^2 + (0.083)^2)/((0.003)^2 + (0.051)^2 + (0.0083)^2)$

Multiplying the numerator and denominator by 100,

=> $(100\times [(0.03)^2 + (0.51)^2 + (0.083)^2])/(100\times [(0.003)^2 + (0.051)^2 + (0.0083)^2])$

=> $(100\times [(0.03)^2 + (0.51)^2 + (0.083)^2])/((0.003 \times 10)^2 + (0.051\times 10)^2 + (0.0083\times 10)^2)$

=> $(100\times [(0.03)^2 + (0.51)^2 + (0.083)^2])/((0.03)^2 + (0.51)^2 + (0.083)^2)$

=> 100

Therefore The value is 100.

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Q30. Answer: (b) Sachin Tendulkar

The correct answer is Sachin Tendulkar.

Key Points

• Sachin Tendulkar is the sixth Indian cricketer officially inducted into the ICC Hall of Fame in 2019.

• Allan Donald from South Africa and Cathryn Fitzpatrick from Australia also honoured the ICC Hall of Fame in 2019.

Sachin Tendulkar

• Sachin Tendulkar is an Indian former International cricketer and the greatest batsman in all-time history.

• His nickname is 'Little Master' and 'Master Blaster'.

• In International Cricket history, he is the highest run-scorer of all time.

• He is the record holder for the most runs in both ODI and test cricket.

• He is the first batsman to score a Double Century in a One Day International.

• He was the member of Parliament (27th April 2012- 26th April 2018) nominated by the President of India and became the first active sportsperson and cricketer to have been nominated.

• He awarded the honorary rank of Group Captain by the Indian Air Force and he was also the first sportsperson and the first person without an aviation background.

• The autobiography of Sachin is "Play it my way".

Important Points

• Headquarter of ICC - Dubai, UAE

• Founded - 15th June 1909

• Chairman of ICC - Greg Barclay

• CEO of ICC - Manu Sawhney

• ICC Men World Cup Champions 2019 - England

• ICC Men T-20 World Cup Champions 2016 - West Indies

• ICC Men World Cup 2023 Venue - India

• ICC Men T-20 World Cup 2021 Venue - India

• ICC Women World Cup Champions 2017 - England

• ICC Women T-20 World Cup Champions 2020 - Australia

• ICC Women World Cup 2021 Venue- New Zealand

• ICC Women T-20 World Cup 2023 Venue - South Africa

• ICC Under-19 Men World Cup Champions 2020 - Bangladesh

• ICC Under-19 Men World Cup 2022 Venue - West Indies

• Sourav Ganguly is the current BCCI President.

Q31. Answer: (c) 20 litres

Given:

A mixture contains alcohol and water in the ratio of 5 : 4. If 9 litres of water is added to the mixture, the ratio of alcohol to water becomes 4 : 5.

Formula used:

Let the quantity of alcohol = 5x litres

Let the quantity of water = 4x litres

After adding 9 litres of water:

New quantity of water = 4x + 9 litres

New ratio:

5x/(4x + 9) = 4/5

Calculation:

5x/(4x + 9) = 4/5

=> 5 × 5x = 4 × (4x + 9)

=> 25x = 16x + 36

=> 25x - 16x = 36

=> 9x = 36

=> x = 4

Quantity of alcohol = 5x = 5 × 4 = 20 litres

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Therefore The correct answer is option 3.

Q32. Answer: (c) carbon monoxide and hydrogen

The correct answer is carbon monoxide and hydrogen

Key Points

• Syngas, or synthesis gas, is a mixture of carbon monoxide (CO) and hydrogen (H2).

• It can also contain methane (CH4) and carbon dioxide (CO2), as well as water vapor and sulfur compounds.

• The composition of syngas can vary depending on the feedstock and gasification process used.

• Normally derived from feedstocks, Syngas contains carbon, such as biomass, natural gas, heavy oil, and coal.

• Syngas is produced as a result of the gasification of a carbon-containing fuel to a gaseous product that has heating value.

• Syngas has 50% of the energy density of natural gas and hence it can be burnt and used as a fuel source.

• Refinement of syngas before use allows CO2 to be stripped from the raw gas thereby enabling the use of CO2 in enhanced oil recovery process

Additional Information

• Applications of Syngas

• Steam for use in turbine drivers for electricity generation.

• Nitrogen for use as pressurizing agents and fertilizers.

• Ammonia for use as fertilizers and the production of plastics like polyurethane and nylon.

• Methanol for the production of plastics, resins, pharmaceuticals, adhesives, paints, and also as a component of fuels.

• Carbon monoxide for use in chemical industry feedstock and fuels.

Q33. Answer: (c) 3 : 4

Given:

In a right circular cylinder, the ratio of curved surface area to total surface area = 3 : 7

Formula used:

Curved Surface Area (CSA) = $2\pi rh$

Total Surface Area (TSA) = $2\pi rh + 2\pi r^2$

Ratio of CSA to TSA = 3/7

Calculations:

$2\pi rh/(2\pi rh + 2\pi r^2) = 3/7$

$\Rightarrow rh/(rh + r^2) = 3/7$

$\Rightarrow 7rh = 3(rh + r^2)$

$\Rightarrow 7rh = 3rh + 3r^2$

$\Rightarrow 7rh - 3rh = 3r^2$

$\Rightarrow 4rh = 3r^2$

$\Rightarrow 4h = 3r$

$\Rightarrow h/r = 3/4$

Therefore The correct answer is option 3.

Q34. Answer: (a) 9

Given:

Ranga and Raju together can complete a task in 6 days.

Ranga alone can complete the same task in 18 days.

Formula used:

Work rate of Ranga and Raju together = Work rate of Ranga + Work rate of Raju

Work rate = 1 / Number of days

Calculation:

Work rate of Ranga and Raju together = 1/6

Work rate of Ranga = 1/18

$\Rightarrow 1/6 = 1/18 + 1/Raju$

$\Rightarrow 1/Raju = 1/6 - 1/18$

$\Rightarrow 1/Raju = 3/18 - 1/18$

$\Rightarrow 1/Raju = 2/18$

=> 1/Raju = 1/9

=> Raju = 9 days

Therefore The correct answer is option 1.

Q35. Answer: (b) A

The logic followed here is:

Hence, the correct answer is "A".

Q36. Answer: (c) Assam

The correct answer is Assam

Key Points

• Kamarupa is an ancient Indian state that corresponds to the present-day state of Assam in northeastern India

• Kamarupa was ruled by multiple dynasties from around 350 to the mid-12th century.

• It was a feudatory state of the Gupta empire in the 6th century, but later became an independent kingdom.

• The region was also known as Pragjyotishpur due to the astrology practices that were prevalent there.

• The Ahom tribe of northern Myanmar (Burma) referred to the region as Assam, and this name eventually became more widely used than Kamarupa.

• Kamarupa was a center for the evolution of Tantric Hinduism, including at the Kamakhya temple complex in Guwahati.

• The Kamrup region is located in western Assam between the Manas and Barnadi rivers. It was the capital region of two of the three dynasties of Kamarupa.

Q37. Answer: (a) 40

Given:

Mid-value of the class = 35

Lower boundary of the class = 30

Formula Used:

Mid-value of the class = (Lower boundary + Upper boundary) / 2

Calculation:

Let the upper boundary be U.

Mid-value of the class = (Lower boundary + Upper boundary) / 2

35 = (30 + U) / 2

=> 35 × 2 = 30 + U

=> 70 = 30 + U

=> U = 70 - 30

=> U = 40

The value of the upper boundary is 40.

Q38. Answer: (a) 35 : 24

Given:

4A = 5B

6B = 7C

Formula used:

To find the ratio A : C, we need to express A and C in terms of a common variable.

Calculation:

4A = 5B

=> A = (5/4)B

6B = 7C

=> B = (7/6)C

Substitute B in the first equation:

A = (5/4) × (7/6)C

=> A = (35/24)C

=> A : C = 35 : 24

Therefore The correct answer is option (1).

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Q39. Answer: (c) Damodar Valley Corporation in 1958

The correct answer is Damodar Valley Corporation in 1958.

Key Points

• The Damodar Valley Corporation (DVC) was established in 1948, not in 1958, making option 3 incorrect.
• DVC is one of the oldest multipurpose river valley projects in India and it operates in the Damodar River area.
• The corporation manages activities related to flood control, irrigation, and power generation.
• DVC has played a critical role in the development of the states of West Bengal and Jharkhand.

Additional Information

• Oil and Natural Gas Corporation (ONGC)
• ONGC was established on 14th August 1956.
• It is a multinational crude oil and gas corporation and is the largest oil and gas exploration and production company in India.
• ONGC operates under the administrative control of the Ministry of Petroleum and Natural Gas.
• It contributes around 70% to India's domestic production of crude oil.
• Airports Authority of India (AAI)
• AAI was constituted by an Act of Parliament and came into existence on 1st April 1995.
• It is responsible for creating, upgrading, maintaining, and managing civil aviation infrastructure in India.
• AAI manages a total of 125 airports, including 11 international airports.
• It also provides Air Traffic Management (ATM) services over Indian airspace and adjoining oceanic areas.
• Balmer Lawrie & Co. Ltd.
• Balmer Lawrie was established in 1867.
• It is a public sector company under the Ministry of Petroleum & Natural Gas.
• The company operates in various business segments such as Industrial Packaging, Logistics, and Travel & Vacations.
• Balmer Lawrie is known for its high ethical standards and governance practices.

Q40. Answer: (d) Only 2 and 3 follow.

Given:

Statement: The recent survey has revealed that the construction activity for the metro in the city has increased air-pollution in the short-term by 30%.

Course of Action:

I. The construction of the metro should be put to a halt in the city - False (Because halting the construction may not be a feasible solution due to the long-term benefits of the metro project. It's better to find ways to mitigate the pollution.)

II. The government must seek over-the-counter measures like screening the whole construction site to check the spread of air pollution caused by the construction of the metro - True (Because this is a practical approach to control the spread of pollution without stopping the construction activity.)

III. Dust from construction activity should be controlled by using fine water sprays to dampen down the site - True (Because this is a common and effective method to control dust and minimize air pollution at construction sites.)

So, Only II and III follow.

Hence, the correct answer is "Option 4".

Q41. Answer: (d) Q

The logic followed here is:

12th letter from the left of the English alphabet = L

5th letter to the right of L + 5 = Q

Hence, the correct answer is "Option 4".

Q42. Answer: (a) 4/8< 5/9< 2/3< 9/11

Given:

Fractions to be arranged: 2/3, 4/8, 5/9, 9/11

Formula Used:

To compare fractions, convert them to decimal form or find a common denominator.

Calculation:

Convert each fraction to its decimal form:

2/3 = 0.6667

4/8 = 0.5

5/9 = 0.5556

9/11 = 0.8182

Arrange the decimals in ascending order:

0.5, 0.5556, 0.6667, 0.8182

Convert back to fractions:

4/8, 5/9, 2/3, 9/11

The fractions in ascending order are: 4/8, 5/9, 2/3, 9/11

The correct answer is option 1

Q43. Answer: (a) Satyajit Ray

The correct answer is Satyajit Ray

Key Points

• The record for winning the overall maximum National Film Awards is held by Satyajit Ray.

• He won a total of 32 National Film Awards in various categories, making him one of the most celebrated filmmakers in Indian cinema.

• His films have been recognized for their artistic and technical excellence.

• He worked across various genres, including drama, fantasy, and thrillers. His films, such as "Charulata," "Shatranj Ke Khilari," and "Ghare-Baire," are notable for their depth and cinematic craftsmanship.

Additional Information

• The National Film Awards is the most prominent film award ceremony in India.

• The National Film Awards, established in 1954, have been administered since 1973 by the Directorate of Film Festivals, Government of India, along with the International Film Festival of India and Indian Panorama.

• The event is organized by the Directorate of Film Festivals, which comes under the Ministry of Information and Broadcasting.

Q44. Answer: (b) Echinochloa crusgalli (barnyard grass)

The correct answer is Echinochloa crusgalli(barnyard grass)

Key Points

• Echinochloa crusgalli (Barnyard Grass)

• The major weed of the rice crop in India is Echinochloa crusgalli (barnyard grass)

• This is a fast-growing annual grass that thrives in wet conditions, making it particularly problematic in rice fields.

• It has broad leaves and can grow up to 1.5 meters tall.

• Barnyard grass competes aggressively with rice for nutrients, water, and light.

• It can significantly reduce rice yields by 30-50% if not controlled.

• It can also harbour pests and diseases that affect rice crops.

• Integrated weed management practices, including cultural practices (like crop rotation and proper planting dates), mechanical control (such as hand weeding), and herbicides, are commonly used to manage this weed.

Additional Information

• Phalaris minor (Small Canary Grass)

• Phalaris minor is a perennial grass that is also prevalent in various cropping systems in India.

• It can grow in a variety of soil types and conditions.

• While it can be a weed in rice, its primary impact is more significant in wheat and barley crops.

• It competes for resources but is generally less competitive with rice compared to barnyard grass.

• Similar to barnyard grass, control measures include cultural practices, mechanical weeding, and herbicides.

• Elymus repens (Quackgrass)

• Quackgrass is a perennial grass known for its extensive rhizome system, allowing it to spread aggressively.

• It is less common in rice fields in India compared to other crops.

• While it can reduce yields, its prevalence is generally lower than that of barnyard grass in rice.

• Effective management includes cultural practices to disrupt its growth, mechanical removal, and targeted herbicide applications.

• Parthenium hysterophorus (Congress Grass)

• This is an invasive herbaceous plant that can grow in a variety of environments and is known for its white flowers and ragged leaves.

• While Congress grass can affect many crops by competing for resources and causing allergic reactions in humans,

• it is not a major weed in rice fields specifically.

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• Its impact is more noticeable in other agricultural settings and wastelands.
• Management strategies include manual removal, controlled grazing, and herbicide use.

Q45. Answer: (a) $(x^2 - y^2)/2xy$

Given:
If $2xy\cos\theta + (x^2 - y^2)\sin\theta = x^2 + y^2$
Formula used:
$\cos^2\theta + \sin^2\theta = 1$
Calculation:
$2xy\cos\theta + (x^2 - y^2)\sin\theta = x^2 + y^2$
$\Rightarrow 2xy\cos\theta + (x^2 - y^2)\sin\theta = x^2 + y^2$
$\Rightarrow 2xy/(x^2 + y^2)\cos\theta + (x^2 - y^2)/(x^2 + y^2)\sin\theta = 1$
Since, $\cos2\theta + \sin2\theta = 1$
Comparing the identity with the above equation We get,
$\cos\theta = 2xy/(x^2 + y^2)$ and $\sin\theta = (x^2 - y^2)/(x^2 + y^2)$
$\Rightarrow \tan\theta = \sin\theta/\cos\theta = [(x^2 - y^2)/(x^2 + y^2)]/[2xy/(x^2 + y^2)]$
$\Rightarrow \tan\theta = (x^2 - y^2)/(2xy)$
Therefore The correct answer is option 1

Q46. Answer: (c) 1

Given:
Find the value of $\sqrt{144}/7 \times 14/12 \times 7/\sqrt{196}$.
Calculation:
$\sqrt{144} = 12$
$\sqrt{196} = 14$
Now substitute these values into the given expression:
$12/7 \times 14/12 \times 7/14$
Simplify each fraction:
$12/7 \times 14/12 \times 7/14$
$\Rightarrow 1 \times 1 \times 1$
$\Rightarrow 1$
The correct answer is option 3.

Q47. Answer: (c) Aluminum hydroxide

The correct answer is Aluminum hydroxide
Key Points
• Aluminum Hydroxide (Al(OH)3):
• Aluminum hydroxide is not considered a strong alkaline solution.
• While it can act as a base, it is amphoteric, meaning it can react with both acids and bases.
• In aqueous solution, it does not produce a significant concentration of hydroxide ions compared to strong bases.
Additional Information
• Sodium Hydroxide (NaOH):
• Sodium hydroxide is a strong base and is commonly used as an alkaline solution in various industrial and laboratory applications.
• It fully dissociates in water to produce hydroxide ions (OH^-).
• Magnesium Hydroxide (Mg(OH)2):
• Magnesium hydroxide is also a strong base and is used in antacids and as a laxative.
• It partially dissociates in water but still provides alkaline properties.
• Calcium Hydroxide (Ca(OH)2):
• Calcium hydroxide, also known as slaked lime, is a strong base that is used in various applications, including construction and agriculture.
• It dissociates in water to produce hydroxide ions.

Q48. Answer: (c) Dr. Yashwant Singh Parmar

The correct answer is Dr. Yashwant Singh Parmar

Key Points

• The title of the founder of Himachal Pradesh is often attributed to Dr. Yashwant Singh Parmar.

• He was a prominent leader and the first Chief Minister of Himachal Pradesh, serving from 1952 to 1963.

• Dr. Parmar played a significant role in advocating for the creation of Himachal Pradesh as a separate state.

• Himachal Pradesh was officially formed on March 15, 1948, as a result of the merger of several princely states.

• Dr. Parmar was instrumental in bringing together these regions and unifying them under a single administrative framework.

• After the state was established, Dr. Parmar became its first Chief Minister.

• During his tenure, he focused on the development of infrastructure, education, and agriculture in the region, laying the groundwork for the state's future growth.

Q49. Answer: (d) 11/5 min

Given:

Distance (d) = 600 m

Speed (s) = 30 km/h

Formula used:

Time (t) = Distance / Speed

Calculations:

Convert speed to m/min:

30 km/h = 30 × 1000 m / 60 min = 500 m/min

=> t = 600 m / 500 m/min

=> t = 1.2 min

=> t = 1 ¹/5 min

Therefore The correct answer is option (4).

Q50. Answer: (b) He was member of the Constitution Drafting Committee.

The correct answer is He was a member of the Constitution Drafting Committee

Key Points

• He was a member of the Constitution Drafting Committee:

• This statement is not true.

• The Constitution Drafting Committee was formed in 1947, and while Bose was a prominent leader in the Indian independence movement,

• he was not a member of this committee, as he was not in India during its formation.

• Constitution Drafting Committee

• The committee was chaired by Dr. B.R. Ambedkar, who is often referred to as the Father of the Indian Constitution.

• It was established to draft a constitution for independent India, ensuring a framework for governance and the protection of individual rights.

Additional Information

• He participated in the Non-cooperation Movement, 1921:

• This statement is true.

• Subhas Chandra Bose actively participated in the Non-cooperation Movement led by Mahatma Gandhi.

• He founded the Indian National Army (INA):

• This statement is true.

• Bose was instrumental in the formation of the Indian National Army during World War II to fight for India's independence.

• He was deported to Mandalay:

• This statement is true. Bose was arrested and interned in Mandalay (Burma) by the British authorities.

Q51. Answer: (c) A person who has a monthly per capita consumption expenditure of less than Rs. 1,407 living in the urban areas...

The correct answer is A person who has a monthly per capita consumption expenditure of less than Rs. 1,407 living in the urban areas should be considered poor.

Key Points

• The Rangarajan Committee was set up in 2012 to review the existing poverty line in India and suggest a new method to measure poverty.

• According to the 2014 Rangarajan Committee, a person with a monthly per capita consumption expenditure of less than Rs. 1,407 in urban areas should be considered poor.

• The committee's recommendations were based on a broader definition of poverty that included essential non-food requirements such as healthcare, education, and transportation.

• This new poverty line was considered to be more realistic as it better reflected the increased cost of living in both rural and urban areas.

Additional Information

• Rangarajan Committee

• The Rangarajan Committee was chaired by C. Rangarajan, a former Reserve Bank of India (RBI) governor.

• The committee was tasked with reviewing the existing poverty estimation methodology and recommending a new methodology to measure poverty in India.

• The committee proposed a poverty line based on the consumption expenditure required to meet basic needs, including food, education, health, housing, and transportation.

• Poverty Line

• The poverty line is the minimum level of income deemed adequate in a particular country. In India, it is calculated based on the per capita consumption expenditure required to meet basic needs.

• Historically, the poverty line in India was determined based on the cost of a minimum calorie intake, but this method was criticized for being too narrow and not reflecting the true cost of living.

• Monthly Per Capita Consumption Expenditure (MPCE)

• MPCE refers to the average monthly expenditure of an individual. It is used as a measure to determine the poverty line.

• The MPCE includes expenses on food, clothing, rent, transportation, healthcare, education, and other essential services.

• Poverty Estimation in India

• Poverty estimation in India has undergone several revisions, with different committees recommending different methodologies based on changing economic conditions and living standards.

• Notable committees include the Planning Commission, the Tendulkar Committee (2009), and the Rangarajan Committee (2014).

• Each committee has contributed to refining the definition and measurement of poverty to ensure more accurate and comprehensive estimates.

Q52. Answer: (b) Chlorine

The correct answer is Chlorine

Key Points

• Chlorine is a greenish-yellow gas at room temperature and atmospheric pressure while gases like hydrogen, nitrogen, and oxygen are colourless.

• Chlorine is a chemical element with symbol Cl and atomic number 17.

• The second-lightest of the halogens, it appears between fluorine and bromine in the periodic table and its properties are mostly intermediate between them

• Usage

• Sodium and chlorine react with each other in order to create a product that is common to almost all in the world: sodium chloride(table salt):

• 2Na(s) + Cl2(g) ——> 2NaCl(s)

• It is easy to see why this reaction happens so rapidly when we look at it at the atomic level: sodium has one electron in its outermost (valence) shell, while chlorine has seven electrons in its valence shell.

• When a sodium atom passes an electron to a chlorine atom, which forms a sodium cation (Na+) and a chloride anion (Cl-), all ions have full valence shells and are energetically more stable.

• The reaction is highly exothermic, creating a bright yellow light and a lot of heat energy.

Additional Information

• Iodine:

• Iodine typically appears as a solid (grayish or purplish-black) at room temperature but sublimates into a violet gas when heated.

• It does not have the characteristic greenish-yellow color of chlorine.

• Hydrogen Sulphide:

• Hydrogen sulfide (H2S) is a colorless gas known for its strong odor of rotten eggs.

• Carbon Monoxide:

• Carbon monoxide (CO) is a colorless, odorless gas that is produced from incomplete combustion of carbon-containing fuels.

• It does not have a characteristic smell and is very dangerous when inhaled due to its ability to prevent oxygen transport in the bloodstream.

Q53. Answer: (a) six

The correct answer is Six

Key Points

• Constitutional Body: Article 148 provides for an independent office of the CAG.

• It is the supreme audit institution of India.

• Appointment:

• Appointed by the President of India by a warrant under his hand and seal.

• Tenure:

• A period of six years or up to the age of 65 years, whichever is earlier.

• Removal:

• CAG can be removed by the President on the same grounds and in the same manner as a judge of the Supreme Court.

• He does not hold his office till the pleasure of the President.

• Hence, option 1 is correct.

Additional Information

• Profile in Brief:

• Head of the Indian Audit and Accounts Department - created in 1753.

• Guardian of the public purse and controls the entire financial system of the country at both the levels–the Centre and the state.

• One of the bulwarks of the democratic system of government in India.

• The others being the Supreme Court, the Election Commission, and the Union Public Service Commission.

• The accountability of the executive (i.e. Council of Ministers) to the Parliament in the sphere of financial administration is secured through audit reports of the CAG.

Important Points

• Girish Chandra Murmu has been appointed the Comptroller and Auditor General of India (CAG).

• He has replaced Rajiv Mehrishi and will have a tenure up to 20th November 2024.

Q54. Answer: (a) 500

Given:

45 ÷ 0.09

Calculation:

45 ÷ 0.09

=> 45 ÷ 0.09

multiplying numerator and denominator with 100,

=> (45 × 100)/(0.09 × 100)

=> 4500 ÷ 9)

=> 500

Therefore The correct answer is option (1).

Q55. Answer: (b) Mizoram

The correct answer is Mizoram

Key PointsMizoram

• Mizoram is known as the "Land of rolling mountains" because it has a huge number of mountains.

• It is also known as the "Molasses Basin". The state is made up of soft, unconsolidated deposits.

• Mizoram's mountainous geography contains many foreland basins, which are valley-type depressions that run parallel to mountains.

• When unconsolidated deposits fill up these depressions, it is called the Molasses Basin.

Additional Information Tripura

• It is a state in northeast India.

• It's bordered by Bangladesh, Mizoram, and Assam, and is a hilly region with a surface area of 10,486 square kilometres.

Nagaland

• It is a state in northeast India, bordering Myanmar.

• It's a mountainous state with a land area of 16,579 square kilometres.

• Nagaland is one of India's smaller states.

Important Points

Molasses basin

• The Molasses basin is a foreland basin, to the north of the Alps.

• It is formed during the Oligocene and Miocene epochs.

• The basin formed as a result of the flexure of the European plate under the weight of the Orogenic wedge of the Alps that was forming to the south.

• In geology, the name "Molasses basin" is also used in a general sense for a synorogenic (formed contemporaneously with the orogen) foreland basin of the type north of the Alps.

Q56. Answer: (a) Amalgam

The logic followed here is:

Amalgam	An alloy
Tin	Element
Titanium	Element
Gallium	Element

Tin, Titanium, Gallium all are elements,

Whereas,

Amalgam is an alloy, which is a mixture of elements..

Hence, the correct answer is "Amalgam".

Q57. Answer: (b) Brazil

The correct answer is Brazil

Key Points

• The country that will NOT be hosting the 2026 FIFA World Cup is Brazil

• 2026 FIFA World Cup Hosts:

• The 2026 World Cup will be jointly hosted by Canada, the USA, and Mexico.

• This tournament will be historic as it will be the first World Cup to feature an expanded format with 48 teams instead of the previous 32.

• While Brazil has a rich football history and has hosted the World Cup in the past (in 1950 and 2014),

• it will not be one of the host countries for the upcoming 2026 tournament.

Additional Information

• The FIFA World Cup:

• The inaugural FIFA World Cup was held in 1930 in Uruguay, with the host nation emerging as the first champion.

• Since then, the tournament has been held every four years, except during World War II (1942 and 1946).

• The World Cup features national teams from around the globe, competing in a qualification process leading up to the final tournament.

• The event has grown significantly over the years, with the 2022 edition featuring 32 teams, set to expand to 48 teams in 2026.

Q58. Answer: (d) ±4

Given:

Equation of the first circle: $x^2 + y^2 - 12x - 6y + 41 = 0$

Equation of the second circle: $x^2 + y^2 + kx + 6y - 59 = 0$

Angle between the circles: 45^o

Formula Used:

Angle between two circles = $\cos\theta = (|c1 - c2|)/(\sqrt{(1 + m1^2)(1 + m2^2)})$

Calculation:

For the first circle:

General form: $x^2 + y^2 + 2gx + 2fy + c = 0$

$2g = -12 \Rightarrow g = -6$

2f = -6 => f = -3

c = 41

For the second circle:

General form: $x^2 + y^2 + 2g'x + 2f'y + c' = 0$

2g' = k => g' = k/2

2f' = 6 => f' = 3

c' = -59

Using the formula for the cosine of the angle between the circles:

$\cos 45^o = (|c1 - c2|)/(\sqrt{(1 + m1^2)(1 + m2^2)})$

Since the slopes m1 and m2 are not given, we will use the distance between the centers and radii of the circles.

Distance between centers = $\sqrt{(g - g')^2 + (f - f')^2}$

Distance between centers = $\sqrt{(-6 - k/2)^2 + (-3 - 3)^2}$

Distance between centers = $\sqrt{(-6 - k/2)^2 + (-6)^2}$

Radii of the circles:

For the first circle:

Radius = $\sqrt{g^2 + f^2 - c}$

Radius = $\sqrt{((-6)^2 + (-3)^2 - 41)}$

Radius = $\sqrt{(36 + 9 - 41)}$

Radius = $\sqrt{4} = 2$

For the second circle:

Radius = $\sqrt{((g')2 + (f')2 - c')}$

Radius = $\sqrt{(k/2)^2 + (3)^2 - (-59)}$

Radius = $\sqrt{((k^2)/4 + 9 + 59)}$

Radius = $\sqrt{((k^2)/4 + 68)}$

Using the angle between the circles:

$\cos 45^o = (|2 - \sqrt{((k^2)/4 + 68)}|)/(\sqrt{(2)(\sqrt{((k^2)/4 + 68)})})$

$1/\sqrt{2} = (|2 - \sqrt{((k^2)/4 + 68)}|)/(\sqrt{(2)(\sqrt{((k^2)/4 + 68)})})$

Solving for k, we get:

k = ± 4

The value of k is ± 4.

Q59. Answer: (a) Buland Darwaza

The correct answer is Buland Darwaza

Key Points

• Buland Darwaza:

• This grand gateway was built by Akbar in 1576 as part of the Fatehpur Sikri complex to commemorate his victory over Gujarat.

• It is one of the highest gateways in the world and reflects Akbar's architectural style.

• So it is not built by Shah Jahan

Additional Information

• Shalimar Gardens:

• These gardens were commissioned by Shah Jahan in 1630 in Lahore (now in Pakistan).

• The Shalimar Garden is one of the finest examples of Mughal garden design, also known as "Charbagh" (four-part garden).

• Red Fort (Delhi):

• It is situated on the Banks of River Yamuna.

• The fort was designated a UNESCO World Heritage site in 2007.

• Indo-Islamic and Mughal architectural styles are present in the Red Fort Complex.

• Ustad Ahmad Lahauri was the architect of the Red Fort.

• Red Fort is the fusion of the Timurids and the Persians architectural styles.

• Shah Jahan commissioned construction of the Red Fort on 12 May 1638, when he decided to shift his capital from Agra to Delhi.

• It was built by the Mughal Emperor Shah Jahan.

• Jama Masjid (Delhi):

• It was dedicated to his daughter, Jahanara Begum.

• Jama Masjid is also known as the 'Friday mosques'.
• Jama Masjid is one of the largest mosques in India.
• The Jama Masjid is built mainly of red sandstone and marble that stand as a testimony to the magnificent Mughal architecture.
• It has a fountain at the centre and is supported by four kiosks in the courtyard.
• The interior walls have scriptures in the Persian style praising Shah Jahan and Jahan Ara.
• The inlaid panels of work here are quite similar to that of the Taj Mahal and are common to all the monuments and structures built by the Mughals in Agra.
• The Tomb of Salim Chisti is a part of the mosque compound.

Q60. Answer: (b) tropical cyclone

The correct answer is a tropical cyclone

Key Points

• Fani was a powerful tropical cyclone that formed in the Bay of Bengal in May 2019.
• It reached a peak intensity of a Category 5 cyclone on the Saffir-Simpson scale and caused significant damage in parts of India,
• particularly in Odisha, where it made landfall.
• Tropical cyclones like Fani are characterized by low-pressure systems that form over warm ocean waters,
• featuring strong winds, heavy rainfall, and the potential for storm surges along coastal areas.

Additional Information

• Polar Cyclone:
• Polar cyclones are low-pressure systems that form in polar regions, characterized by cold temperatures and a lack of warm water.
• They are usually associated with winter weather and can bring strong winds and heavy snowfall.
• These cyclones are less intense than tropical cyclones and are typically found in areas like the Arctic and Antarctic.
• Non-Polar Cyclone:
• The term "non-polar cyclone" is not a standard meteorological term but can refer to any cyclone that does not originate in polar regions,4
• including mid-latitude cyclones and tropical cyclones.
• Non-polar cyclones, particularly mid-latitude cyclones, form in temperate zones and can bring varied weather,
• including rain, snow, and strong winds, influenced by the interaction of warm and cold air masses.
• Mesocyclone:
• A mesocyclone is a localized, rotating updraft within a convective storm, particularly associated with severe thunderstorms.
• Mesocyclones can be precursors to tornadoes.
• These cyclones typically occur in the context of severe weather events, where they may cause heavy rain, hail, and tornadoes.
• They are smaller in scale compared to tropical and polar cyclones.

Q61. Answer: (a) 69

Given:

The mean of three numbers is 53.

The range of this data set is 28.

The difference between the two smallest numbers is 8.

Formula used:

Mean = (a + b + c) / 3

Range = c - a

Calculations:

Mean = 53

=> (a + b + c) / 3 = 53

=> a + b + c = 159

Range = 28

=> c - a = 28

=> c = a + 28

Difference between two smallest numbers = 8

=> b - a = 8

=> b = a + 8

Substitute b and c in the sum equation:

=> a + (a + 8) + (a + 28) = 159

=> 3a + 36 = 159

=> 3a = 123

=> a = 41

Now, find b and c:

b = a + 8

=> b = 41 + 8 = 49

c = a + 28

=> c = 41 + 28 = 69

Therefore The greatest of the three numbers is 69, which is option 1.

Q62. Answer: (d) Mohenjo-daro

The correct answer is Mohenjo-Daro

Key Points

• Mohenjo-daro is the Indus Valley Civilization town that literally translates to "mound of the dead.

• After a year of discovery of the of Harappa, the archaeological site of Mohenjo-Daro was recognized in 1922.

• Mohenjo-Daro was developed around 3,000 BCE from the prehistoric Indus culture and it was among the largest cities of the ancient Indus Valley Civilization.

• The urban planning and the unmatched civil engineering made it the most advanced and remarkably sophisticated city of its time.

• Mohenjo-Daro does mean 'Mound of the dead'.

• The modern name for the site has been interpreted as "Mound of the Dead Men" in Sindh interpreted as "Mound of the Dead Men" in Sindhi.

Q63. Answer: (a) 6

Given:

What is the value of (2)/(7) × [2 + {2 (11 + 4 - 2)}] - 2

Formula used:

BODMAS (Brackets, Orders (i.e. powers and square roots, etc.), Division and Multiplication, Addition and Subtraction)

Calculation:

(2)/(7) × [2 + {2 (11 + 4 - 2)}] - 2

=> (2)/(7) × [2 + {2 (13)}] - 2

=> (2)/(7) × [2 + 26] - 2

=> (2)/(7) × 28 - 2

=> 8 - 2

=> 6

Therefore The correct answer is option 1.

Q64. Answer: (a) Kepler-452b

The correct answer is Kepler-452b

Key Points

• The exoplanet considered a close cousin of Earth and often referred to as 'Earth 2.0' is Kepler-452b

• Kepler-452b is located about 1,400 light-years away in the constellation Cygnus.

• It orbits a star that is similar to our Sun and lies in the habitable zone, where conditions may allow for liquid water to exist, making it a candidate for hosting life.

• Kepler-452b is roughly 1.6 times the size of Earth, making it a super-Earth.

• Its size suggests that it could have a similar rocky composition, which is why it is often referred to as "Earth 2.0."

Additional Information

• Europa-31:

• Europa-31 does not refer to a specific known exoplanet;

• however, Europa is one of Jupiter's moons and is a prime candidate in the search for extraterrestrial life due to its subsurface ocean beneath an icy crust.

• Scientists believe that the conditions in Europa's ocean could support life, making it an important focus for astrobiological

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research.

• Neptune:

• Neptune is classified as an ice giant and is the eighth planet in our Solar System, well-known for its striking blue colour due to methane in its atmosphere.

• Neptune has 14 known moons, with Triton being the largest and most significant, exhibiting geysers that suggest geological activity. It also has a faint ring system.

• Pluto:

• Pluto was reclassified as a dwarf planet in 2006 by the International Astronomical Union (IAU), primarily due to its size and the fact that it does not clear its orbital path.

• Pluto has a complex surface with mountains, plains, and possible ice volcanoes.

• Its atmosphere, primarily composed of nitrogen, can expand and contract as it orbits the Sun, leading to interesting seasonal changes.

Q65. Answer: (c) Shri Rakab Ganj Sahib, New Delhi

The correct answer is Shri Rakab Ganj Sahib, New Delhi

Key Points

• In Sikhism, the Takhts are the five highest seats of authority and are considered significant spiritual and historical centers.

• Each Takht has its own unique importance and history

• Shri Rakab Ganj Sahib is a significant religious site within Sikhism, it is not classified as one of the five Takhts, which serve as the central authoritative bodies for decision-making and governance within the Sikh community.

• Shri Rakab Ganj Sahib is located in New Delhi.

• It is an important Gurdwara that commemorates the martyrdom of Guru Tegh Bahadur Ji, the ninth Guru, who was executed for defending the religious freedom of Hindus against Mughal oppression.

Additional Information

• Sri Akal Takht Sahib:

• Location: Amritsar, Punjab

• The Akal Takht is the highest of the five Takhts and serves as the spiritual and temporal authority of Sikhism.

• It was established by Guru Hargobind Ji, the sixth Guru, in 1606.

• The Akal Takht is closely associated with the Golden Temple (Harmandir Sahib) and represents the central place for making important decisions affecting the Sikh community.

• Sri Keshgarh Sahib:

• Location: Anandpur Sahib, Punjab

• This Takht was established by Guru Gobind Singh Ji, the tenth Guru, in 1709.

• It is the birthplace of the Khalsa, the collective body of initiated Sikhs.

• Keshgarh Sahib is a site of immense historical importance, especially regarding the formation of the Khalsa Panth.

• Sri Damdama Sahib:

• Location: Talwandi Sabo, Bathinda, Punjab

• This Takht is where Guru Gobind Singh Ji compiled the Zafarnama (a letter of victory) and finalized the Guru Granth Sahib.

• It is also where the Guru spent significant time during his life, making it an important place for Sikhs.

• Sri Patna Sahib:

• Location: Patna, Bihar

• This Takht is the birthplace of Guru Gobind Singh Ji.

• It holds significant historical and religious importance, as it is associated with the life of the tenth Guru and the establishment of the Khalsa.

• Sri Hazur Sahib:

• Location: Nanded, Maharashtra

• This Takht is where Guru Gobind Singh Ji passed away in 1708.

• It is a major pilgrimage site for Sikhs and is where the Guru declared the Guru Granth Sahib as the eternal Guru of the Sikhs.

Q66. Answer: (b) Chengdu

The correct answer is Chengdu

Key Points

• In 2018, it was reported that China is working on launching an artificial moon over the city of Chengdu, in the Sichuan province.

• This project involves a satellite designed to reflect sunlight, potentially replacing streetlights and providing illumination to urban

areas at night.

• The artificial moon is expected to be eight times brighter than the real moon and could light up an area of 10 to 80 kilometres in diameter.

• The artificial moon is essentially a satellite equipped with a reflective coating that can reflect sunlight onto specific areas of the Earth.

• The idea is to position the satellite to direct light to designated urban regions during nighttime, potentially replacing conventional streetlights.

• By providing additional nighttime illumination, the artificial moon could reduce energy consumption in urban areas by reducing the need for streetlights.

• The project claims that it could save an estimated $170 million annually in electricity costs for Chengdu alone.

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

Given:

Simple Interest (SI) = Rs. 650

Time (t) = 5 years

Rate (r) = 13% per annum

Formula used:

SI = (P × r × t)/100

Calculation:

650 = (P × 13 × 5)/100

=> 650 = 65P/100

=> 650 × 100 = 65P

=> 65000 = 65P

=> P = 65000/65

=> P = 1000

Therefore The correct answer is option (4).

Q68. Answer: (c) China

The correct answer is China

Key Points

• The country that launched the world's first quantum satellite to establish hack-proof communication is China

• China launched the world's first quantum satellite named "Micius" in August 2016.

• This satellite is designed to develop highly secure quantum communication networks that are theoretically impossible to hack, utilizing the principles of quantum cryptography.

• Quantum communication uses the principles of quantum mechanics, specifically quantum entanglement and quantum key distribution (QKD), to enable highly secure communication channels.

• Unlike classical encryption methods, which can be intercepted and decoded with powerful computers, quantum keys cannot be copied or intercepted without disturbing the system.

• If a hacker attempts to eavesdrop, the quantum state of the communication would collapse, immediately alerting the parties involved.

• Micius successfully conducted a series of landmark experiments, including the distribution of entangled particles between the satellite and ground stations over a distance of 1,200 kilometres, setting a record for the farthest quantum communication link.

• It also demonstrated quantum teleportation—the ability to transfer quantum states between particles over long distances, a phenomenon that could revolutionize secure communications.

• The satellite also enabled quantum-encrypted video conferencing between two cities, Beijing and Vienna, establishing secure communication through quantum key distribution.

Q69. Answer: (d) 48

Given:

Which number is 40% less than 80?

Formula used:

Number = Original Number × (1 - Percentage Decrease)

Calculation:

Number = 80 × (1 - 0.40)

=> Number = 80 × 0.60

=> Number = 48

Therefore The correct answer is option (4).

Q70. Answer: (c) Intelligence Bureau

The correct answer is the Intelligence Bureau

Key Points

• The motto “Jagritam Aharnisham” or “Always Alert” is the motto of the Intelligence Bureau (IB) of India

• The motto represents the IB's tradition of always being alert and protecting the country.

• The IB is India's domestic intelligence agency, responsible for counter-intelligence, counter-terrorism, and internal security.

Additional Information

• Indian Coast Guard

• It is an Armed Force, Search and Rescue and Maritime Law Enforcement agency under the Ministry of Defence.

• The Director-General of the Indian Coast Guard: Rakesh Pal

• Indian Coast Guard Headquarters is in New Delhi.

• Indian Army:

• The Indian Army protects the nation's land borders from external threats and aggression.

• It plays a key role in humanitarian aid and disaster relief during natural calamities.

• The Army is actively involved in counter-insurgency operations in troubled regions like Jammu & Kashmir and the Northeast.

• Research and Analysis Wing (RAW):

• RAW is India's external intelligence agency, responsible for gathering information on foreign threats.

• It plays a significant role in counter-terrorism by identifying and neutralizing external threats to India.

• RAW conducts covert operations abroad to safeguard India's national security and strategic interests.

Q71. Answer: (a) BPSK

The logic followed here is:

PIANO is written as NGYLM.

Similarly, DRUM be written

Hence, the correct answer is "BPSK".

Q72. Answer: (d) Plant cells have smaller vacuoles than those of animal cells.

The correct answer is option 4

Key Points

• Actually, plant cells typically have much larger vacuoles than animal cells.

• These vacuoles serve various functions in plant cells, including storing water, nutrients, and waste products.

• They also help maintain cell turgor (internal pressure).

• In contrast, animal cells have smaller vacuoles or none at all, and their functions are primarily related to cellular waste removal.

Additional Information

• Animal cells do not have plastids.

• It is True.

• Plastids are organelles found in plant cells that are responsible for photosynthesis and other functions

• Animal cells do not need these organelles as they do not perform photosynthesis.

• Plant cells have cell walls, whereas animal cells do not.

• It is True.

• Plant cells have a rigid cell wall made of cellulose that provides structural support and protection.

• Animal cells lack a cell wall, but they have a flexible cell membrane.

• Plant cells are generally larger than animal cells.

• It is True.

• Plant cells are often larger than animal cells due to the presence of a large central vacuole.

• This vacuole occupies most of the cell's volume and helps to maintain cell turgor.

Q73. Answer: (b) 40

Given:

The ratio of two numbers is 2 : 3 and their LCM is 120.

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Formula used:
Let the two numbers be 2x and 3x.
LCM of 2x and 3x = 6x
Calculation:
Given LCM = 120
=> 6x = 120
=> x = 20
Therefore, the two numbers are 2x and 3x, i.e., 2×20 and 3×20
=> 2×20 = 40
=> 3×20 = 60
Therefore The smallest of the two numbers is 40.
Therefore The correct answer is option (2).

Q74. Answer: (b) 8/13

Given:
9/11
8/13
11/12
10/14
Calculation:
To find the smallest fraction, we compare their decimal values:
9/11 ≈ 0.8182
8/13 ≈ 0.6154
11/12 ≈ 0.9167
10/14 = 0.7143
Clearly, 8/13 ≈ 0.6154 is the smallest fraction.
Therefore, the correct answer is option 2.

Q75. Answer: (a) Dr. Manmohan Singh

The correct answer is Manmohan Singh
Key Points
• Changing India: The book is released by former PM Manmohan Singh.
• In this book, he describes his journey from economist to the politician.
• Some facts about Manmohan Sing:
• He is an Indian economist and politician who served as the Prime Minister of India from 2004 to 2014.
• He became the first PM after Jawahar Lal Nehru to be re-elected after completing his five-year tenure.
• Now our present PM Narendra Modi become the third PM of India who was re-elected after completing his tenure.
• He was the 15th Governor of the Reserve Bank of India.

Q76. Answer: (b) 40 m to the east

According to the given information:
Munni walked from the park 75 m to the west, 25 m to the north, 35 m to the east and then 25 m to the south.
She stopped at this point to buy bangles from the bangle stall.
She walked again 35 m to the south.
The distance between park and bangle stall = 75 - 35 = 40
Now, 40 m and in the east direction is the park from the bangle stall.
Hence, the correct answer is "40 m to the east".

Q77. Answer: (b) [figure]

Given words: Birds, Sparrow, Pigeon
Both Sparrow and Pigeon are subsets of Birds, and they do not overlap with each other, as they are distinct types of birds.
Hence, the correct answer is "Option 2".

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Q78. Answer: (c) Rs. 55,769

Given:

A man sells a car to his friend at a loss of 20%. Then, the friend sells it for Rs. 58,000 at a profit of 30%.

Formula used:

Selling Price = Cost Price × (1 + Profit Percentage / 100)

Cost Price = Selling Price / (1 + Profit Percentage / 100)

Calculation:

Let the original cost price of the car be Rs. X.

After a 20% loss, the selling price to the friend = X × (1 - 20/100) = 0.8X

The friend sells it for Rs. 58,000 at a profit of 30%, so:

58000 = 0.8X × (1 + 30/100)

=> 58000 = 0.8X × 1.3

=> 58000 = 1.04X

=> X = 58000 / 1.04

=> X ≈ 55769.23

Therefore The original cost price of the car (to the nearest integral value) was Rs. 55,769. The correct answer is option 3.

Q79. Answer: (a) Vandana Shiva

The correct answer is Vandana Shiva.

Key Points

• Vandana Shiva is a renowned environmental activist, author, and food sovereignty advocate from India.

• She is known for her opposition to corporate-led globalization and her work in promoting organic farming and biodiversity.

• Despite her significant contributions to environmental activism, she has not been awarded the Goldman Environmental Prize.

• The Goldman Environmental Prize, also known as the "Green Nobel Prize," honors grassroots environmental activists, and while Shiva has received numerous accolades, this is not one of them.

Additional Information

• Goldman Environmental Prize:

• Often referred to as the "Green Nobel Prize," it was established in 1989 by philanthropists Richard and Rhoda Goldman.

• The prize is awarded annually to grassroots environmental activists from six continental regions: Africa, Asia, Europe, Islands and Island Nations, North America, and South and Central America.

• It recognizes individuals who have made significant efforts to protect and enhance the natural environment, often at great personal risk.

• Winners receive a monetary prize and international recognition for their environmental work.

• Ramesh Agrawal:

• Ramesh Agrawal, an Indian environmental activist, won the Goldman Environmental Prize in 2014.

• He was recognized for his efforts in helping villagers fight against coal mining in Chhattisgarh, India.

• His activism led to the cancellation of several coal mining projects, protecting the environment and the health of local communities.

• Champa Devi Shukla:

• Champa Devi Shukla is an Indian activist who, along with Rashida Bee, won the Goldman Environmental Prize in 2004.

• She was honored for her work in seeking justice for the victims of the 1984 Bhopal gas tragedy.

• Her efforts have focused on holding corporations accountable and advocating for environmental justice.

• Medha Patkar:

• Medha Patkar is a prominent Indian social activist known for her role in the Narmada Bachao Andolan (Save Narmada Movement).

• She has been a leading voice against large dam projects on the Narmada River, highlighting their environmental and social impacts.

• While she has received numerous awards for her activism, she has not been a recipient of the Goldman Environmental Prize.

Q80. Answer: (d) Jayaprakash Narayan

The correct answer is Jayprakash Narayan.

Key Points

• Jayprakash Narayan was born on 11 October 1902.

• Jai Prakash Narayan is known as Loknayak.
• Jai Prakash Narayan is also Known as the Hero of the Quit India Movement.
• He is a freedom Fighter, socialist, and theorist.
• He is the main leader of the Total Revolution Movement against Indira Gandhi.
• On June 5, 1974, Jayprakash Narayan gave the slogan of Sampurn Kranti (total revolution) against Indira Gandhi.
• Jai Prakash Narayan was Posthumously awarded Bharat Ratna in 1999.
Additional Information
• Ram Manohar Lohia:
• Lohia promoted socialist ideas and advocated for social and economic equality.
• He fought against the caste system and British colonial rule.
• Narendra Modi:
• Modi introduced key initiatives like "Make in India" and implemented GST.
• He strengthened India's global ties and increased its influence on the world stage.

Q81. Answer: (b) 10

The logic followed here is: Product of bottom numbers / product of middle number = Top number
Figure 1: (4 × 6) / (3 × 2) = 24 / 6 = 4
Figure 2: (9 × 6) / (6 × 1) = 54 / 6 = 9
Figure 3: (40 × 3) / (4 × 3) = 120 / 12 = 10
Hence, the correct answer is "10".

Q82. Answer: (d) 87.5%

Given:
A man buys 20 articles for Rs. 16 and sells them at the rate of Rs. 1.50 per article.
Formula used:
Gain % = (Selling Price (SP) - Cost Price (CP))/(Cost Price (CP)) × 100
Calculations:
CP of 1 article = 16/20 = Rs. 0.80
SP of 1 article = Rs. 1.50
Gain per article = SP - CP
=> Gain per article = Rs. 1.50 - Rs. 0.80 = Rs. 0.70
Gain % = 0.70/0.80 × 100
=> Gain % = 70/80 × 100
=> Gain % = 87.5%
Therefore The correct answer is option 4.

Q83. Answer: (d) an earthen pot

The correct answer is Earthen pot.
Key Points
• Eco mark scheme
• The nationwide scheme was launched by the Ministry of Environment and Forests, Government of India in 1991 through Gazette Notification no. 71, for easy identification of environment-friendly products present in the market.
• The Bureau of Indian Standards (BIS) issues the certification mark to eco-friendly products.
• Logo - The Earthen Pot is chosen as the logo for the scheme due to the following reasons
• Made up of renewable source
• Does not produce hazardous waste
• Consumes little energy in making
• Every section of society can relate to it, thus the message can be spread more efficiently
Additional Information
• Objectives
• To provide an incentive for manufacturers and importers to reduce the usage of products that have an adverse effect on the environment.
• To reward genuine initiatives taken by companies in order to reduce the adverse environmental impact of their products.

• To assist consumers to become environmentally responsible in their daily lives by providing information to take account of environmental factors in their purchase decisions.

• To encourage citizens to purchase products that have less harmful environmental impacts.

• To improve the quality of the environment and to encourage the sustainable management of resources.

• Criteria - The product should have the following features to qualify for the eco mark:

• The product must be substantially less pollution-causing than other comparable products in production, usage and disposal.

• Should be recyclable and made from recycled products or bio-degradable materials.

• The product should make a significant contribution to saving non-renewable resources.

• The product must contribute to a reduction of the adverse primary criteria which has the highest environmental impact associated with the use of the product, and which will be specifically set for each of the product categories.

Q84. Answer: (d) Suspension of fundamental rights during Emergency

The correct answer is the Suspension of fundamental rights during Emergency

Key Points

• Suspension of Fundamental Rights

• The feature of suspending Fundamental Rights during an Emergency was taken from the Weimar Constitution of Germany

• Articles 352–360 :

• These articles in Part XVIII of the Constitution outline the Emergency provisions..

• National, State, and Financial Emergencies

• The Indian Constitution, like the German Constitution, has provisions for national and state emergencies, as well as financial emergencies.

• The Indian Constitution was also influenced by other sources, including:

• The Nehru Report and the Cabinet Mission Plan

• The Universal Declaration of Human Rights

• Principles of natural justice

• Parliamentary debates

• Judicial decisions

• Conventions

Additional Information

• Single citizenship

• The concept of single citizenship in India was inspired by the British Constitution, and the procedure for amending the Constitution was adopted from the South African Constitution

• Federal System in India:

• India follows a federal system of governance, as outlined in the Constitution of India.

• This system is a balance between a strong central government and regional or state governments.

• The federal system in India is quasi-federal, meaning it is not a true federation like the United States but has features that resemble a federal structure with a strong central authority.

• Amendment of the Constitution of India:

• The Constitution of India is a living document, which means it can be amended to address changing circumstances.

• Article 368 of the Constitution deals with the process of amendments.

• The procedure to amend the Constitution is not simple and varies based on the nature of the amendment.

Q85. Answer: (b) QU

The logic followed here is: 1st letter + 5 = 2nd letter

AF => A + 5 = F(6)

EJ => E + 5 = J(10)

IN => I + 5 = N(14)

MR => M + 5 = R(18)

QU => Q + 4 = Q(17)

Thus, QU is odd one.

Hence, the correct answer is "QU".

Q86. Answer: (d) 37 : 33

Given:
Number of students called for interview (from graph):
Institute X (2014-2016): 120, 150, 100
Institute Y (2014-2016): 100, 110, 120
Formula used:
Average = Sum of values / Number of values
Ratio = Average of X / Average of Y
Calculations:
Average for X (2014-2016) = (120 + 150 + 100) / 3
=> Average for X = 370 / 3
Average for Y (2014-2016) = (100 + 110 + 120) / 3
=> Average for Y = 330 / 3
Ratio = 370 / 330
=> Ratio = 37:33
Therefore The ratio is approximately 37:33.

Q87. Answer: (d) 398

Given:
Number of candidates who attended the interview from Kerala:
2012: 440
2013: 400
2014: 350
2015: 380
2016: 420
Formula used:
Average = Sum of values / Number of years
Calculations:
Sum = 440 + 400 + 350 + 380 + 420
=> Sum = 1990
Average = 1990 / 5
=> Average = 398
Therefore The average number of candidates from Kerala for all the years is 398.

Q88. Answer: (a) Rs. 2.7 crore

Given:
Total amount spent on imports = Rs. 8 crore
Textile angle = 58°
Cereals angle = 64°
Total angle of pie chart = 360°
Formula used:
Amount spent on an item = (Item angle / Total angle) × Total amount spent
Calculations:
Textile amount = (58 / 360) × 8 crore
=> Textile amount = 1.29 crore
Cereals amount = (64 / 360) × 8 crore
=> Cereals amount = 1.42 crore
Total amount spent on textile and cereals = 1.29 + 1.42
=> Total = 2.71 crore
Therefore The approximate amount spent on textile and cereals is Rs. 2.71 crore.

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Q89. Answer: (b) 90°

Given:

Percentage of sales from branch B3 = 25%

Total angle of a pie chart = 360°

Formula used:

Central angle = (Percentage / 100) × Total angle

Calculations:

Central angle = (25 / 100) × 360°

=> Central angle = 90°

Therefore The central angle for branch B3 is 90°.

Q90. Answer: (d) Silver

The logic followed here is:

King	Playing card
Ace	Playing card
Jack	Playing card
Silver	Metal

King, Ace, Jack are all Playing cards,

Whereas,

Silver is a Metal and not a Playing card.

Hence, the correct answer is "Silver".

Q91. Answer: (a) 64

Given:

If a cube having a side of 8 cm is divided into smaller cubes each having a side of 2 cm.

Formula used:

Total number of smaller cubes = ((Volume of larger cube)/(Volume of smaller cube))

Calculation:

Volume of larger cube = 8^3 = 512 cm^3

Volume of smaller cube = 2^3 = 8 cm^3

=> Total number of smaller cubes = 512/8

=> Total number of smaller cubes = 64

Therefore The correct answer is option (1).

Q92. Answer: (b) Q

The logic followed here is:

Hence, the correct answer is "Q".

Q93. Answer: (d) 20

According to the given information:

The shaded part represent people like to read either book W or book X but not both.

Thus, people like to read either book W or book X but not both = 8 + 6 + 1 + 1 + 4 = 20

Hence, the correct answer is "20".

Q94. Answer: (d) 40

The logic followed here is:

Figure 1: 4 × 7 × 2 = 56

Figure 2: 3 × 6 × 4 = 72

Figure 3: 5 × 4 × 3 = 40

Hence, the correct answer is "40".

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Q95. Answer: (d) IUHH

The logic followed here is:

PLUS is written as SOXV

LIVE is written as OLYH.

Similarly, FREE will be written;

Hence, the correct answer is "IUHH".

Q96. Answer: (d) Sphere : Circle

The logic followed here is:

Logic: Dimensional relationship.

Here,

Cube : Square → Cube is a 3-dimensional object whose faces are Squares.

Similarly,

Sphere : Circle → Sphere is a 3-dimensional object whose cross-sections are Circles.

Hence, the correct answer is "Option 4".

Q97. Answer: (b) Range

The logic followed here is:

Mode, Mean, and Median are measures of central tendency, whereas Range measures the dispersion of the data.

• Mode: The value that appears most frequently in a data set.

• Range: The difference between the highest and lowest values in a data set.

• Mean: The average of all values in a data set.

• Median: The middle value when the data set is ordered.

Thus, the odd one is Range.

Hence, the correct answer is "Range".

Q98. Answer: (a) 84

The logic followed here is:

Hence, the correct answer is "84".

Q99. Answer: (a) E

For find the opposite surface of 'D', we need to compare the common surface in the given dices,

Now, letter 'D' is given in Dice 2 and Dice 3,

So, From Dice 2 and Dice 3,

→ D is the common surface and B, F, C, A is the adjacent surface.

So, the remaining 'E' will be the opposite face of 'D'.

Hence, the correct answer is "Option 1".

Q100. Answer: (d) All starks are either thrones or dragons.

Given:

Statement A: All dragons are starks.

Statement B: Some starks are thrones.

Statement C: Some dragons are thrones.

1. Some thrones are both starks and dragons. - This is not necessarily true since we know some starks are thrones, but we can't definitively conclude that any of those thrones are dragons.

2. Some starks are neither thrones nor dragons. - This is possible; there could be starks that do not fall into either category.

3. Some thrones are not dragons but they are starks. - This can be concluded since we know some starks are thrones and not all starks are dragons.

4. All starks are either thrones or dragons. - This cannot be concluded based on the statements given; we only know that some starks are thrones, not that all starks are covered by these two categories.

So, "All starks are either thrones or dragons" CANNOT be concluded from the statements.

Hence, the correct answer is "All starks are either thrones or dragons".

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