RRB NTPC CBT-I Official Paper (Held On: 31 July 2021 Shift 2) (Previous Year Paper)

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

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Q1. Argon is a commonly used gas to fill incandescent light bulbs because argon is _____.

(a) reactive
(b) lightest
(c) abundant
(d) inert

Q2. Formaldehyde is used in which of the following options?

(a) Perfumes
(b) Air conditioners
(c) Fire extinguishers
(d) Refrigerators

Q3. The length, breadth and height of a room are in the ratio 4 : 3 : 2. If the length and height are halved while the breadth is doubled, then the new area of the four walls of the room will:

(a) decrease approximately by 26%
(b) decrease approximately by 42.86%
(c) decrease approximately by 13.64%
(d) remain the same

Q4. On dividing 12401 by a certain number, we get 76 as quotient and 13 as remainder. What is the divisor?

(a) 136
(b) 947
(c) 163
(d) 948

Q5. Three circles of radius 3.5 cm are placed such a way that each circle touches the other two. The area of the portion enclosed by the circles is (take √3 = 1.732):

(a) 1.652 cm^2
(b) 1.967 cm2
(c) 2.56 cm2
(d) 1.856 cm2

Q6. The inside measurements of a tank shows its 25 m long, 12 m wide and 6 m deep. The cost of plastering its walls and bottom from inside at the rate of 75 paise per m^2 is:

(a) Rs. 496
(b) Rs. 558
(c) Rs. 458
(d) Rs. 512

Q7. 85L of a mixture contains milk and water in the ratio 27 : 7. How much more water should be added to get a new mixture containing milk and water in the ratio 3 : 1?

(a) 5L
(b) 8L
(c) 15L
(d) 13L

Q8. The Institute of Forest Biodiversity (IFB) is situated in _____.

(a) Rajasthan
(b) Jammu
(c) Kerala
(d) Hyderabad

Q9. Select the option that can replace the question mark (?) in the following series.

3A2, 8G7, 18M14, 33S23, 53Y34, ?

(a) 72F47
(b) 78E57
(c) 78E47
(d) 78D43

Q10. _____ introduced the famous Persian festival of 'Nauroz'.

(a) Shamsuddin Kayumars
(b) Ghiyasuddin Balban
(c) Nasiruddin Mahmud
(d) Bughra Khan

Q11. A alone can complete a task in 12 days and B alone can complete it in 10 days. Starting with A they work on alternate days. The task will be completed in _____ days.

(a) 105/6
(b) 12
(c) 11
(d) 113/4

Q12. A dairy man purchases at Rs. 6.40 per litre of milk. He adds water and sells the mixture at Rs. 8 per litre, thereby making 37.5% profit. The ratio of water to milk received by his customer is:

(a) 1 : 10
(b) 1 : 9
(c) 2 : 11
(d) 1 : 11

Q13. Which organisation is termed as 'a Child of War'?

(a) UNESCO
(b) UNO
(c) UNICEF
(d) League of Nations

Q14. What was the main reason for boycotting Simon Commission?

(a) The chairman was Sir John Simon.
(b) All members of the commission were British.
(c) All the members of the commission were inexperienced.
(d) Lala Lajpat Rai was critically injured in a lathi charge related to the commission.

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Q15. If tan θ = (√3 + 1)/2, then the value of 2√3 cot θ + 1 is:

(a) (2√3 - 1)/2
(b) (5√3 - 1)/(√3 + 1)
(c) (5√3 - 1)/(√3 - 1)
(d) (5√3 + 1)/(√3 + 1)

Q16. A man takes 5 h 45 min for walking to a certain place and riding back. He would have gained 2 h by riding both the ways. The time he will take to walk both the ways is:

(a) 7 h 45 min
(b) 11 h 30 min
(c) 11 h 45 min
(d) 7 h 30 min

Q17. In 2019, Pune-based scientist _____ bagged the second prize of ε25,000 in an international competition named 'Elsevier Foundation-ISC3 Green and Sustainable Chemistry Challenge', which is a German Chemistry prize.

(a) Tapan Mishra
(b) Amar Gupta
(c) Meghnad Saha
(d) Ankur Patwardhan

Q18. In which of the following plant groups does the seeds develop inside an ovary which then ripens to become a fruit?

(a) Thallophyta
(b) Pteridophyta
(c) Angiosperms
(d) Gymnosperms

Q19. In which year the first electric train of India was introduced?

(a) 1925
(b) 1950
(c) 1940
(d) 1920

Q20. Which of the following launched the RISAT (Radar Imaging Satellite)?

(a) PSLV-C37
(b) PSLV-C43
(c) PSLV-C46
(d) PSLV-C48

Q21. In an examination, 80% of the students passed in English, 85% passed in mathematics and 75% passed in both, English and mathematics. If 40 students failed in both the subjects, the total number of students is:

(a) 158
(b) 44
(c) 400
(d) 100

Q22. A man standing at point P is watching the top of a tower S, which makes an angle of elevation of 30^?with the man's eye. The man walks a distance of 20 m towards the tower to watch its top and the angle of the elevation becomes 45^?. What is the distance between the base of the tower and the point P (take √3 = 1.732)?

(a) 27.32 m
(b) 47.32 m
(c) 22.7 m
(d) 14.64 m

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Q23. Select the number that will come next in the following series.

541, 629, 552, 618, ?

(a) 591
(b) 563
(c) 553
(d) 673

Q24. Read the given statements and conclusions carefully and decide which of the conclusions logically follow(s) from the statements.

Statements:

a. Some photos are colour.

b. Some photos are black and white.

c. No colour is black and white.

Conclusions:

i. Some colour are black and white.

ii. Some black and white are colour.

iii. No black and white is colour.

(a) Only (ii) follows.
(b) Only (iii) follows.
(c) Both (i) and (ii) follow.
(d) Only (i) follows.

Q25. Money bill can be introduced _____.

(a) by neither Lok Sabha nor Rajya Sabha
(b) only in Lok Sabha
(c) only in Rajya Sabha
(d) by either house of Parliament

Q26. Currently, which state has the maximum number of Lok Sabha seats?

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

Q27. The introductory page of a website, typically serving as a table of contents for the site is known as the _____.

(a) Title Page
(b) Desk Page
(c) Tool Page
(d) Home Page

Q28. Hari's income is 20% more than Madhu's income. Madhu's income is less than hari's income by:

(a) 22%
(b) 20%
(c) 162/3 %
(d) 15%

Q29. The angle of elevation of a ladder leaning against a wall is 60^?and the foot of the ladder is 15 m away from the wall. The length of the ladder is:

(a) 15√3 m
(b) 30 m
(c) 7.5 m
(d) 15 m

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

Wind : Flute :: String : ?

(a) Piano
(b) Tabla
(c) Drums
(d) Guitar

Q31. Which of the following nutrients is provided to plants from soil?

(a) Nitrogen
(b) Carbon
(c) Hydrogen
(d) Oxygen

Q32. Select the option that can replace the question mark (?) in the following series.

D2Z, F7X, C22V, E67T, ?

(a) C202S
(b) B202R
(c) B102R
(d) A202Q

Q33. Satish takes a car on rent at 2:00 p.m. and drives it at the speed of 75 km/h towards a Resort Palm Beach, 800 km away from his house. He calls his neighbor Raman at 3:00 p.m. to join him at the resort. Raman immediately sets off in another car using the same route as Satish, at the speed of 90 km/h, towards the resort. When will Raman catch up with Satish?

(a) 7 p.m.
(b) 8:30 p.m.
(c) 9 p.m.
(d) 8 p.m.

Q34. Consider the given statement and decide which of the given assumptions is/are implicit in the statement.

Statement:

"If you solve this puzzle, I will buy you the moon," Radha said to Mowgli.

Assumptions:

A. Mowgli wants to buy the moon.

B. Mowgli won't be able to solve the puzzle.

(a) Either A or B is implicit.
(b) Both A and B are implicit.
(c) Only assumption A is implicit.
(d) Only assumption B is implicit.

Q35. Which two land masses does the Palk Strait separate?

(a) India and Sri Lanka
(b) Malay Peninsula and Indonesian island of Sumatra
(c) Africa and Europe
(d) North America and South America

Q36. India's first synthetic drug _____ was developed by Council of Scientific and Industrial Research (CSIR).

(a) Ergoapiol
(b) Methaqualone
(c) Norodin
(d) Laudanum

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Q37. On whose death, Jawaharlal Nehru said "The light went away from our lives"?

(a) Sardar Vallabhbhai Patel
(b) Rabindranath Tagore
(c) Subhash Chandra Bose
(d) Mahatma Gandhi

Q38. Select the option that is related to the third term in the same way as the second term is related to the first term.
Microscope : Telescope :: Magnifying Glass : ?

(a) Kaleidoscope
(b) Binoculars
(c) Projector
(d) Camera

Q39. Among the following rivers, which is a good example of a superimposed drainage system?

(a) Subarnarekha
(b) Brahmaputra
(c) Gomti
(d) Ganga

Q40. The _____ border is the world's fifth largest border.

(a) India-Bangladesh
(b) India-Bhutan
(c) India-Myanmar
(d) India-Nepal

Q41. Who was the president of Indian National Congress in 1907?

(a) Womesh Chandra Bannerjee
(b) Dadabhai Naoroji
(c) Rashbihari Ghosh
(d) Lala Lajpat Rai

Q42. As per UNESCO, Ellora caves are group of how many caves?

(a) 36
(b) 34
(c) 38
(d) 32

Q43. Fireworks get their colour from metal salts. Which of the following metal salts produces green coloured firework display?

(a) Calcium
(b) Gold
(c) Barium
(d) Sodium

Q44. If '-' means 'division', '+' means 'subtraction', '×' means 'addition' and '÷' means 'multiplication', then find the value of 15 + 32 × 4 ÷ 8 - 2.

(a) -1
(b) 1
(c) 21
(d) 15

Q45. As of December 2020 who is the governor of Sikkim?

(a) Shriniwas Dadasaheb Patil
(b) Ganga Prasad
(c) VP Singh Badnore

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(d) Banwarilal Purohit

Q46. Find the least number which when divided by 20, 25, 35 and 40 leaves remainders 15, 20, 30 and 35 respectively.

(a) 7265
(b) 1240
(c) 1395
(d) 1860

Q47. Which of the following was Asia's first nuclear reactor?

(a) ZERLINA
(b) CIRUS
(c) Dhruva
(d) Apsara

Q48. What is the traditional classical dance of Assam?

(a) Sattriya Nritya
(b) Bihu
(c) Kathak
(d) Chhau

Q49. As of December 2020, who is the Chairman of the Insurance Regulatory and Development Authority of India (IRDA)?

(a) Shubhash Chandra Khuntia
(b) Pratibha Singh
(c) V S Narendra Chandra
(d) G R Surya Kumar

Q50. Find HCF of 10.8, 28.8 and 36.

(a) 28
(b) 36
(c) 2.8
(d) 3.6

Q51. Select the number that can replace the question mark (?) in the following series.

4, 10, 22, 40, 64, ?

(a) 94
(b) 82
(c) 80
(d) 90

Q52. Which of the following does not belong to short-lived climate pollutants?

(a) Ammonia
(b) Methane
(c) Black carbon
(d) Hydroflurocarbons

Q53. If the variance of 5 values is 0.64, then what will be its standard deviation?

(a) 3.2
(b) 5.64
(c) 0.8
(d) 0.128

Q54. The value of $((54.542^2 - 45.458^2))/((61.738 - 52.654))$ is:

(a) 35.084
(b) 67.542
(c) 100

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(d) 32.458

Q55. The profit earned by selling an article for Rs. 832 is equal to the loss incurred when the article is sold for Rs. 448. What should be the selling price of the article for making 50% profit?

(a) Rs. 1,230
(b) Rs. 960
(c) Rs. 900
(d) Rs. 826

Q56. Out of the four words listed, three are alike in some manner and one is different. Select the odd one.

(a) Rain
(b) Thunder
(c) Monsoon
(d) Lightning

Q57. A sum of money doubled itself at compound interest in 15 years. In how many years will it become eight times?

(a) 75
(b) 60
(c) 30
(d) 45

Q58. In which of the following districts is the Dul Hasti Power Station situated?

(a) Poonch
(b) Anantnag
(c) Kishtwar
(d) Donda

Q59. The cost price of a commodity with selling price Rs. 40.60 and gain 16% is:

(a) Rs. 47
(b) Rs. 35
(c) Rs. 22
(d) Rs. 40

Q60. In a certain code language, PITA and FIST are written as NFPV and DFOO respectively. How will TURK be written in that language?

(a) RPLE
(b) RRNF
(c) RSNF
(d) REKL

Q61. What is Linux?

(a) Software
(b) Operating System
(c) App
(d) Hardware

Q62. White one of the following articles of Indian Constitution deals with the tenure of the President?

(a) Article 55
(b) Article 56
(c) Article 53
(d) Article 54

Q63. India's first manned space mission have been targeted to launch by Indian Space Research Organisation (ISRO) in the year _____.

(a) 2024
(b) 2022

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(c) 2027
(d) 2025

Q64. Article 280 of the Constitution of India deals with _____.
(a) Education
(b) Finance Commission
(c) Privacy
(d) Equality

Q65. Acid rains occur when the atmosphere is heavily polluted with:
(a) SO_2 and NO_2
(b) CO and CO_2
(c) NH_3 and SO_3
(d) smoke particles

Q66. Which ministry controls the 'Saubhagya Yojana' launched by the Central Government in 2017?
(a) Ministry of Agriculture & Farmers' Welfare
(b) Ministry of Petroleum & Natural Gas
(c) Ministry of Power
(d) Ministry of Finance

Q67. Arun and Sekhar have certain amounts of money. If Arun gives Rs. 30 to Sekhar, then Sekhar will have twice the amount left with Arun. If Sekhar gives Rs. 10 to Arun, then Arun will have thrice as much as is left with Sekhar. What amount (in Rs.) does each of Arun and Shekhar respectively have in the beginning?
(a) 34, 62
(b) 62, 34
(c) 56, 78
(d) 34, 72

Q68. What is the smallest natural number by which 3600 must be divided to make it a perfect cube?
(a) 450
(b) 250
(c) 300
(d) 100

Q69. A bag contains 2 red, 3 green and 2 blue balls. Two balls are drawn at random. What is the probability that none of the balls drawn in blue?
(a) 5/7
(b) 10/21
(c) 10/14
(d) 6/21

Q70. In 2018, Piyush Goyal, Minister of Railways & Coal launched a mobile app called _____. The app enables commuters to lodge complaints against Indian Railways and check real-time feedback on the status of redressal of these complaints.
(a) Rail Yatri
(b) Train App
(c) Train Madad
(d) Rail Madad

Q71. Who wrote the book 'Capital and Growth'?
(a) James Marshall
(b) AR Rodon
(c) Adam Smith
(d) John Hicks

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Q72. The system of equations 2x + ky = 11, 5x - 7y = 5 has no solution when k = _____.

(a) (- 14)/5
(b) (- 16)/5
(c) 13/5
(d) (- 13)/5

Q73. The age of Alfred in 1944 was 1/80 of his birth year. What was the age in 1952?

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

Q74. The lethal war with Kalinga transformed the vengeful Emperor Ashoka to a stable and peaceful emperor and he became a follower of _____.

(a) Buddhism
(b) Jainism
(c) Vedanta
(d) Hinduism

Q75. The sum of the numbers between 17 and 520 that are divisible by 6 is:

(a) 21912
(b) 22446
(c) 22428
(d) 22440

Q76. A, B, C, D, E, F, G and H are sitting around a circular table facing towards the centre (not necessarily in the same order). F is the neighbour of G. A sits second to the left of G. B sits third to the left of D. Only two persons sit between A and B. E sits second to the left of H. B is not neighbour of H. C is the neighbour of B. What is the position of C with respect to F?

(a) Immediate right
(b) Second to the left
(c) Third to the right
(d) Immediate left

Q77. If √40 is almost equal to 6.325, then √(8/5) is nearly equal to:

(a) 1.625
(b) 1.265
(c) 0.565
(d) 2.828

Q78. Two Men, Emmet and Ferdinand, were best friends until the daughter of Emmet's maternal aunt's only sibling got married to the only child of Ferdinand's father. How is Emmet related to Ferdinand now?

(a) Maternal Uncle
(b) Wife's brother
(c) Wife's father
(d) Paternal Uncle

Q79. The arrangement of rational numbers - 7/10,5/(- 8),2/(- 3) in ascending order is:

(a) • 7/10,5/(- 8),2/(- 3)
(b) 2/(- 3),5/(- 8), - 7/10
(c) 5/(- 8), - 7/10,2/(- 3)
(d) • 7/10,2/(- 3),5/(- 8)

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Q80. Sujal is the only son of X's mother-in-law's husband Veer. Kashish is the wife of Sujal. Sujal has only one sister named Wimra. How is X related to Wimra?

(a) Wife
(b) Maternal Uncle
(c) Paternal Uncle
(d) Husband

Q81. A wave has a frequency of 50 Hz and a speed of 36 m/s. What is the wavelength of this wave?

(a) 0.36 m
(b) 0.72 m
(c) 2.78 m
(d) 1.39 m

Q82. A pixel is:

(a) the smallest resolvable part of a picture
(b) a picture stored in secondary memory
(c) a programming language
(d) a computer program

Q83. 'Amir-al-Khayl' is an Arabic title that is usually translated 'Commander of the Faithful' or 'Leader of the Faithful'. Who among the following was given this designation?

(a) Malik Ikhtiar-ud-din Altunia
(b) Muiz ud din Bahram
(c) Naseeruddin Mohd
(d) Jamal-ud-Din Yaqut

Q84. Solve the following.

(31/4 - 4/5 × 5/6)/(41/3 ÷ 1/5 - (3/10 + 211/5)) - (12/3 × 11/2) =?

(a) 9
(b) 13
(c) 111/2
(d) 151/2

Q85. Consider the given statement and decide which of the given assumptions is/are implicit in the statement.

Statement:

Though he is a Korean, this food is too spicy for my friend.

Assumptions:

A: Koreans cannot eat spicy food.

B: Koreans can eat spicy food.

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

Q86. Which of the given options is NOT similar to the following set of numbers:

23, 29 and 31

(a) 19
(b) 37
(c) 43
(d) 27

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Q87. Read the following information carefully and answer the question that follows.

There are five friends - Param, Nikhil, Bobby, Hemu and Lalit.

Hemu is shorter than Nikhil and taller than Param.

Bobby is the tallest among the five friends.

Param is shorter than Nikhil but taller than Lalit.

Who is the second tallest?

(a) Param
(b) Bobby
(c) Nikhil
(d) Hemu

Q88. Select the option that is related to the fourth term in the same way as the first term is related to the second term.

Field : Farmer :: ? : Pilot

(a) Ship
(b) Passenger
(c) Aircraft
(d) Deck

Q89. Read the given information carefully and answer the question that follows.

Sita and Gita speak Hindi and English. Mohan and Gita speak Bengali, and Hindi. Sita, Priya and Gaurav speak English and Malayalam. Gita and Gaurav speak Odia.

Who speaks the maximum number of languages?

(a) Gaurav
(b) Mohan
(c) Sita
(d) Gita

Q90. Select the option that will fill in the blank and complete the given series.

5, 10, 8, 32, 30, 180, __

(a) 60
(b) 360
(c) 178
(d) 34

Q91. In a certain code language, HAND is written as 7194 and LEG is written as 536. How will LEAD be written as in that language?

(a) 5413
(b) 5314
(c) 5341
(d) 5431

Q92. Select the option that is related to the third term in the same way as the second term is related to the first term.

Aircraft : Cabin :: Train : ?

(a) Track
(b) Engine
(c) Platform
(d) Coach

Q93. Four numbers have been given, out of which three are alike in some manner and one is different. Select the number that is different. Select the number that is different from the rest.

(a) 300
(b) 175
(c) 250
(d) 150

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Q94. Read the following information carefully and answer question.

In an office, there are 200 employees. 130 employees have desktops, 100 have laptops and 60 have both laptops and desktops.

How many employees have only laptops?

(a) 160
(b) 40
(c) 100
(d) 60

Q95. From a coffee shop, X walked 500 m towards the east, 200 m towards the south, 50 m towards the west, 50 m towards the north, 50 m towards the west and 150 m the north. How far and in which direction is X from the coffee shop?

(a) 400 m, West
(b) 200 m, North
(c) 350 m, East
(d) 400 m, East

Q96. Select the option that is related to the third term in the same way as the second term is related to the first term.

Product : Advertisement :: Professional : ?

(a) Name
(b) Contact
(c) Qualification
(d) Resume

Q97. Read the given statements and conclusions carefully and decide which of the conclusions logically follow(s) from the statements.

Statements:

A. Some doors are rocks.

B. Some rocks are woods.

Conclusions:

A. Some doors are woods.

B. No wood is a rock.

(a) Only conclusion B follows.
(b) Either A or B follows.
(c) Neither A nor B follows.
(d) Only conclusion A follows.

Q98. In a certain code language, ROD and VET are written as TRH and XHX respectively. How will SAP be written as in that language?

(a) VMU
(b) UDT
(c) TKS
(d) UCR

Q99. Nitu is older than Sumit. Rohit is younger than Sumit, but older than Kavita. Nisha is older than Sumit but younger than Nitu. Who is the youngest among all?

(a) Kavita
(b) Nisha
(c) Sumit
(d) Rohit

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

(a) Bone
(b) Tendon
(c) Ligament
(d) Nose

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (d) inert

The correct answer is inert

Key Points

• Argon is used to fill incandescent light bulbs because it is inert, meaning it doesn't react with the bulb's tungsten filament:
• Inert:
• Argon is a noble gas that doesn't react with the filament, even at high temperatures.
• This prevents the filament from burning away in the presence of oxygen, which increases the bulb's life.
• Argon creates an inert atmosphere for growing semiconductor crystals.

Additional Information

• Argon is a chemical element with the atomic number 18.
• It is a Nobel gas.
• It is in group 18 of the periodic table.
• Argon is the third most abundant gas in the Earth's atmosphere (0.094%)
• Uses: Fluorescent Lightning, Gas Discharge Tubes, Fluorescent Glow Starters.

Q2. Answer: (a) Perfumes

The correct answer is Perfumes

Key Points

• Formaldehyde is used in perfumes.
• Formaldehyde is a toxic substance that can cause irritation to mucous membranes, allergic reactions, and various cancers.
• It is also a by-product of automobile combustion and is produced in small amounts by most living organisms, including humans.
• Formaldehyde is used in many consumer products, such as pressed-wood products, foam insulation, antiseptics, medicines, and cosmetics

Additional Information

• Formaldehyde:
• It is an organic compound, the simplest of the aldehydes, used in large amounts in a variety of chemical manufacturing processes.
• Formalin is an aqueous solution of formaldehyde.
• Formalin is used as a fungicide, germicide, and disinfectant. In mortuaries, it is used as a preservative for bodies and organs.

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• It can also increase the shelf life of fresh food.

• Exposure to it causes irritation to mucous membranes like the throat, respiratory tract causing sore throats, bronchitis and pneumonia. It can also cause an allergic reaction.

• It is considered carcinogenic and exposure for a long can cause various cancers.

• Formalin causes kidney and liver problems.

• Formaldehyde occurs naturally in plants and animals, as a result of their own metabolism.

• For instance, in vegetables, 20 to 60 mg formaldehyde per kg is present and 5 to 140 mg in a kilo of fish depending on the type.

• As the chemical is water-soluble it dissolves in water and can be removed by cleaning and cooking the vegetable or meat properly.

Q3. Answer: (b) decrease approximately by 42.86%

Given:

The length, breadth, and height of a room are in the ratio 4:3:2.

If the length and height are halved while the breadth is doubled.

Formula Used:

Area of the four walls of a room = 2 × (length + breadth) × height

Calculation:

Let the original dimensions be 4x, 3x, and 2x.

Original area of the four walls = 2 × (4x + 3x) × 2x

Original area = 2 × 7x × 2x

Original area = $28x^2$

New dimensions: length = 2x, breadth = 6x, height = x

New area of the four walls = 2 × (2x + 6x) × x

New area = 2 × 8x × x

New area = $16x^2$

Percentage decrease = ((Original area - New area) / Original area) × 100

Percentage decrease = (($28x^2$ - $16x^2$) / $28x^2$) × 100

Percentage decrease = ($12x^2$ / $28x^2$) × 100

Percentage decrease = (12 / 28) × 100

Percentage decrease = 42.86%

Therefore, the new area of the four walls of the room will decrease approximately by 42.86%.

Q4. Answer: (c) 163

Given:

Number to be divided = 12401

Quotient = 76

Remainder = 13

Formula Used:

Dividend = (Divisor × Quotient) + Remainder

Calculation:

=> 12401 = (Divisor × 76) + 13

=> 12401 - 13 = Divisor × 76

=> 12388 = Divisor × 76

=> Divisor = 12388 / 76

=> Divisor = 163

The correct answer is option 3.

Q5. Answer: (b) 1.967 cm2

Given:

Three circles of radius 3.5 cm are placed such that each circle touches the other two.

We need to find the area of the portion enclosed by the circles.

Solution:

The three circles form an equilateral triangle with their centers as the vertices, and the radius is the side length of the triangle.

Side of the equilateral triangle = 2 × radius = 2 × 3.5 = 7 cm.
Area of an equilateral triangle = (√3 / 4) × side².
Area = (1.732 / 4) × 7².
Area = (1.732 / 4) × 49 = 21.217 cm².
The area enclosed by the three circles is formed by removing three circular segments from the triangle.
Each circular segment subtends a 60° angle at the circle's center (1/6 of the circle's area).
Area of one circular segment = (1/6) × π × radius².
Area = (1/6) × (22/7) × (3.5)² = (1/6) × (22/7) × 12.25.
Area = 6.4167 cm².
Total area of three segments = 3 × 6.4167 = 19.25 cm².
Area enclosed by the circles = Area of the triangle - Area of the circular segments.
Area = 21.217 - 19.25 = 1.967 cm².
The area of the portion enclosed by the circles is approximately 1.967 cm².

Q6. Answer: (b) Rs. 558

Given:
Length of the tank = 25 m
Width of the tank = 12 m
Depth of the tank = 6 m
Rate of plastering = 75 paise per m² = 0.75 Rs per m²
Formula Used:
Total cost of plastering = Plastering area × Rate per m²
Calculation:
Plastering area = 2(lh + wh) + lw
=> Plastering area = 2(25 × 6 + 12 × 6) + 25 × 12
=> Plastering area = 2(150 + 72) + 300
=> Plastering area = 2 × 222 + 300
=> Plastering area = 444 + 300
=> Plastering area = 744 m²
Total cost of plastering = 744 × 0.75
=> Total cost of plastering = 558 Rs
The cost of plastering the tank is Rs. 558.

Q7. Answer: (a) 5L

Shortcut Trick
Initial Ratio (Milk : Water) = 27 : 7 (Total = 34 units)
New Ratio = 3 : 1; to keep Milk constant, multiply by 9 → 27 : 9
Increase in Water = 9 − 7 = 2 units
Since 34 units = 85 L, then 1 unit = 2.5 L
Added Water = 2 units × 2.5 L = 5 L
Therefore The correct answer is 5 L.
Alternate Method
Given: Total Mixture = 85 L, Initial Ratio (Milk : Water) = 27 : 7.
=> Quantity of Milk = (27 ÷ 34) × 85 = 67.5 L
=> Quantity of Water = (7 ÷ 34) × 85 = 17.5 L
=> Let x liters of water be added to the mixture.
=> According to the question: 67.5 ÷ (17.5 + x) = 3 ÷ 1
=> 67.5 = 3 × (17.5 + x)
=> 67.5 = 52.5 + 3x
=> 3x = 15 => x = 5 L
Therefore The correct answer is 5 L.
Additional Information

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Constant Quantity Concept

When only one component of a mixture is added or removed, the quantity of the other component remains unchanged throughout the process.

Alligation Rule

It is a shortcut to find the proportion in which ingredients are mixed. Quantity of cheaper ÷ Quantity of dearer = (Rate of dearer − Mean rate) ÷ (Mean rate − Rate of cheaper).

Ratio Scaling

Ratios can be multiplied or divided by the same non-zero number to equate a common component across different states of a mixture.

Q8. Answer: (d) Hyderabad

The correct answer is Hyderabad

Key Points

• The Institute of Forest Biodiversity (IFB) is situated in Hyderabad, Telangana, India.

• It Established under the Indian Council of Forestry Research and Education (ICFRE),

• IFB focuses on research and development projects related to the biodiversity of Telangana and Odisha, with particular emphasis on the Eastern Ghats.

• It was originally called the "Advanced Centre for Biotechnology and Mangrove Forests" and was later renamed the "Forest Research Centre, Hyderabad" in 1997.

Additional Information

• Important Research institute in India

Institution	Location
National Environmental Engineering Research Institute	Nagpur
Central Institute for Cotton Research	Nagpur
National Sugar Research Institute	Kanpur
Indian Institute of Pulses Research	Kanpur
Indian Agricultural Research Institute (IARI)	New Delhi
Indira Gandhi Institute of Development Research	Mumbai
Indira Gandhi Centre for Atomic Research (IGCAR)	Kalpakkam, Tamil Nadu
Institute for Plasma Research (IPR)	Gandhinagar, Gujarat
Marine Engineering and Research Institute	Kolkata
National Brain Research Centre (NBRC)	Manesar, Haryana
National Dairy Research Institute	Karnal, Haryana
Central Drug Research Institute	Lucknow, Uttar Pradesh
Central Electronics Engineering Research Institute	Pilani, Rajasthan

Q9. Answer: (c) 78E47

The logic followed here is:

Hence, the correct answer is "78E47".

Q10. Answer: (b) Ghiyasuddin Balban

The correct answer is Ghiyasuddin Balban

Key Points

• The Parsi new year, also known as Navroz, is celebrated to mark the beginning of the Iranian calendar.

• The tradition began some 3000 years ago and is observed by the Parsi community around the world.

• The day is also known as Jamshed-i-Nouroz after the Persian King, Jamshed, who introduced the Parsi calendar.

• Balban was the first who introduced the famous Persian Festival of Nauroz.

Additional Information

• The Parsi New Year is thought to have started being observed from around 3,500 BCE, according to historians and academics.

• The events commemorated the founding of the Zoroastrian religion in Iran by Prophet Zarathustra. Navroz represents the cosmos' rebirth to the adherents of this religion.

• They consider Ahura Mazda to be the name of a single invisible God. They offer fire, a representation of light, as a sacrifice to their god. The Indian Gujarati town of Udvada is the holy location for Parsis.

• On Navroz, Parsis visit the synagogue three times to worship Khorshed and Meher, the two deities who rule over the sun and moon, respectively.

Q11. Answer: (c) 11

Given:

A alone can complete a task in 12 days.

B alone can complete the task in 10 days.

Formula Used:

Work completed in 1 day = Total work / Number of days

Calculation:

Work done by A in 1 day = 1/12

Work done by B in 1 day = 1/10

In 2 days, work done = Work by A (1 day) + Work by B (1 day)

In 2 days, work done = 1/12 + 1/10

In 2 days, work done = 5/60 + 6/60 = 11/60

In 2 days, work done = 11/60

Work done in 10 days = (11/60) × 5 = 55/60

Remaining work = 1 - 55/60 = 5/60 = 1/12

A will complete the remaining work in 1 day.

Total time = 10 + 1 = 11 days

The task will be completed in 11 days.

Q12. Answer: (a) 1 : 10

Given:

Cost price of milk = Rs. 6.40 per litre

Selling price of mixture = Rs. 8 per litre

Profit = 37.5%

Formula Used:

Profit% = (Selling Price - Cost Price)/(Cost Price) × 100

Calculation:

Let the cost price of milk per litre be Rs. 6.40.

Selling price of mixture = Rs. 8 per litre

Profit = 37.5%

We need to find the ratio of water to milk.

Cost price of mixture = (Selling Price)/(1 + Profit/100)

Cost price of mixture = 8/(1 + 37.5/100)

Cost price of mixture = 8/(1 + 0.375)

Cost price of mixture = 8/1.375

Cost price of mixture = Rs. 5.82 per litre

Let the amount of milk be 1 litre and amount of water be x litres.

Total mixture = (1 + x) litres

Cost price of mixture = (Cost of milk)/(1 + x)

5.82 = 6.40/(1 + x)

=> 5.82(1 + x) = 6.40

=> 5.82 + 5.82x = 6.40

=> 5.82x = 6.40 - 5.82

=> 5.82x = 0.58

=> x = 0.58/5.82

=> x = 0.1

Ratio of water to milk = 0.1 : 1 = 1 : 10

The ratio of water to milk received by his customer is 1 : 10.

Q13. Answer: (d) League of Nations

The correct answer is the League of Nations..

Key Points

• League of Nations is termed as 'a Child of War

• The League of Nations was an international organization created after the First World War to provide a forum for resolving international disputes.

• It was first proposed by American President Woodrow Wilson as part of his Fourteen Points plan for equitable peace.

• The League of Nations has its origins in the Fourteen Points speech of President Woodrow Wilson, part of a presentation given in January 1918 outlining his ideas for peace after the carnage of World War I.

• The idea of the League was grounded in the broad, international revulsion against the unprecedented destruction of the First World War and the contemporary understanding of its origins.

• The League of Nations was established in 1919 after World War I, under the Treaty of Versailles.

• Its objective was to promote international cooperation and to achieve peace and security.

• It was supposed to be a way to solve disputes between countries before they erupted into open warfare.

• Despite some early successes, the League of Nations was not able to prevent World War II.

• As of 20 April 1946, the League of Nations ceased to exist, having handed over all of its assets to the United Nations, and having granted the new UN Secretariat full control of its Library and archives.

Additional Information

• United Nations (UN)

• It was founded in 1945.

• Members- 193

• The Charter of the United Nations is the founding document of the United Nations.

• It was signed on 26 June 1945, in San Francisco, US.

• Purposes of UN:

• To maintain international peace and security,

• To develop friendly relations among nations,

• To achieve international co-operation in solving international problems,

• To be a center for harmonizing the actions of nations in the attainment of these common ends.

• Secretary-General- António Guterres

• Secretariat- New York City, USA

Q14. Answer: (b) All members of the commission were British.

The correct answer is All members of the commission were British

Key Points

• The Simon Commission, appointed in 1927 to review the Government of India Act, 1919, did not include any Indian members.

• This exclusion was perceived as an insult to Indian self-respect and a denial of India's demand for self-governance.

• As a result, the commission faced widespread protests across the country, with the slogan "Simon Go Back!" gaining prominence.

• The absence of any Indian representation in the commission was seen as a blatant disregard for Indian aspirations for self-rule.

• This led to widespread protests, where leaders like Lala Lajpat Rai played a pivotal role in opposing the commission, further fueling the nationalistic fervor against British policies.

Additional Information

• The Simon Commission arrived in India in 1928.

• The Simon Commission was a group of seven British Members of Parliament that was sent to India in 1928 to study constitutional reform.

• It was headed by Sir John Simon and was officially known as the Indian Statutory Commission.

• The commission faced strong protests from Indian leaders and the general public as it did not include any Indian members.

• The slogan "Simon Go Back" became popular during the protests against the commission.

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Q15. Answer: (d) (5√3 + 1)/(√3 + 1)

Given:

tan θ = (√3 + 1)/2

Formula Used:

cot θ = 1/(tan θ)

Calculation:

cot θ = 1/(tan θ) = 1/((√3 + 1)/2) = 2/(√3 + 1)

Now, calculate 2√3 cot θ + 1 :

2√3 cot θ + 1 = 2√3 (2/(√3 + 1)) + 1

= 4√3/(√3 + 1) + 1

= (4√3 + (√3 + 1))/(√3 + 1)

= (5√3 + 1)/(√3 + 1)

The correct answer is option 4.

Q16. Answer: (a) 7 h 45 min

Given:

Time taken for walking to a certain place and riding back = 5 h 45 min

Time saved by riding both ways = 2 h

Formula Used:

Time taken to walk both ways = Total time taken (walking + riding) + Time saved

Calculation:

Let: Time taken to walk one way = W

Time taken to ride one way = R

Given:

W + R = 5 h 45 min = 5.75 h

2R = W + R - 2

From the first equation:

W = 5.75 - R

Substitute in the second equation:

2R = (5.75 - R) + R - 2

=> 2R = 3.75 => R = 1.875 h

Then:

W = 5.75 - 1.875 = 3.875 h

Time taken to walk both ways = 2 × W = 2 × 3.875 = 7.75 h = 7 h 45 min

The time he will take to walk both ways is 7 h 45 min.

Q17. Answer: (d) Ankur Patwardhan

The correct answer is Ankur Patwardhan

Key Points

• Ankur Patwardhan from Pune has bagged the second prize of €25,000 for a project at the ‘Elsevier Foundation-ISC3 Green and Sustainable Chemistry Challenge’.

• His project named ‘Butterfly attractant for pollination and ecosystem health’ is about the relationship between chemistry and ecosystem.

• The project aimed to enhance pollination by attracting butterflies to crops and wild plants using natural attractant formulations.

• He is also the president of a committee on Mahabaleshwar-Panchgani Eco-Sensitive Zone.

Additional Information

• Tapan Mishra

• Tapan Misra is an Indian scientist who has been the Director of Space Applications Centre and Physical Research Laboratory in ISRO.

• He later became Senior Advisor to the Chairman, of ISRO.

• In 2022, Misra founded a space-tech startup called Sisir Radar, which manufactures Synthetic Aperture Radars (SAR), a technology that he pioneered in ISRO, for drones and satellites.

• Amar Gupta

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• Amar Gupta is an Indian computer scientist based in the United States.

• Gupta has worked in academics, private companies, and international organizations in positions that involved analysis and leveraging of opportunities at the intersection of technology and business, as well as the design, development, and implementation of prototype systems that led to widespread adoption of new techniques and technologies.

• Meghnad Saha

• Meghnad Saha was an Indian astrophysicist who helped devise the theory of thermal ionisation.

• His Saha ionisation equation allowed astronomers to accurately relate the spectral classes of stars to their actual temperatures.

Q18. Answer: (c) Angiosperms

The correct answer is Angiosperms

Key Points

• Angiosperms are the plant group where seeds develop inside an ovary and ripen into a fruit

• These flowering plants produce seeds that are enclosed within a fruit, which is a ripened ovary.

• Angiosperms are vascular seed plants that make up about 80% of all known green plants.

• Fruits have evolved to attract animals that help disperse seeds.

• Eggplants, zucchini, string beans, and bell peppers are all technically fruits because they contain seeds and come from thick ovary tissue.

Additional Information

• Thallophytes is a polyphyletic group of non-motile organisms traditionally described as thalloid plants.

• They are simple or lower plants.

• Archegonium is absent in thallophyta.

• Thallophtes are an abandoned division of kingdom Plantae which includes fungi, algae, lichens, and some kinds of bacteria, bryophytes, and slime molds.

• Gymnosperms are also known as acrogymnosperms.

• It is a group of seed-producing plants.

• It includes conifers, cycads, ginkgo, and gnetophytes.

• The word gymnosperms in greek means naked seeds because they do not have an outer covering or shell around their seeds.

• They do not produce flowers i.e they are non-flowering plants and neither do they produce fruits. Its pollination is done by the wind (Anemophilous).

• Pteridophytes are known as the Vascular cryptogams because they are the first non-seeded plants to have a vascular system present.

• They are also called vascular crypto games.

• They are used for medicinal purposes.

• They are not completely differentiated into root, stem, and leaves.

Q19. Answer: (a) 1925

The correct answer is 1925.

Key Points

• The first electric train ran between Bombay and Kurla on 3rd February 1925.

• The first electric train in India operated between Bombay VT and Kurla Harbour.

• An electric train is powered by electricity from energy storage such as battery and supercapacitor.

• The train was electrified on 1500 Volt DC.

• This electric line was then extended to Nashik's Igatpuri district and then to Pune.

• The locomotives of this train were manufactured by Cammell Laird and Uerdingenwagonfabrik.

Q20. Answer: (d) PSLV-C48

The correct answer is PSLV-C48

Key Points

• RISAT-1 (Radar Imaging Satellite) was launched using the Polar Satellite Launch Vehicle (PSLV) in its C48 variant.

• On December 11, 2019, India's Polar Satellite Launch Vehicle (PSLV-C48) successfully launched RISAT-2BR1, an earth observation satellite, alongside nine commercial satellites from Israel, Italy, Japan, and the USA.

• The launch took place from Satish Dhawan Space Centre (SDSC) SHAR, Sriharikota, at 3:25 PM IST, marking the 50th flight of PSLV and the 75th launch vehicle mission from SDSC SHAR.

• PSLV-C48, configured with 4 solid strap-on motors (QL configuration), injected RISAT-2BR1 into a 576 km orbit with an

inclination of 37 degrees to the equator, about 16 minutes and 23 seconds after lift-off. RISAT-2BR1 weighs approximately 628 kg and is designed for agricultural, forestry, and disaster management services, with a mission life of 5 years.

• Additionally, nine commercial satellites were successfully launched under a commercial arrangement with NewSpace India Limited (NSIL), the commercial arm of ISR

Additional Information

• ISRO is the space agency under the Department of Space of Government of India, headquartered in the city of Bengaluru, Karnataka.

• It was established by Jawaharlal Nehru in 1962 under the Department of Atomic Energy (DAE).

• Eminent scientist Dr Vikram Sarabhai had a big role in this development.

• The INCOSPAR became ISRO in 1969.

• ISRO Chairman: Dr. S Somanath

Q21. Answer: (c) 400

Given:

Percentage of students passed in English = 80%

Percentage of students passed in Mathematics = 85%

Percentage of students passed in both subjects = 75%

Number of students failed in both subjects = 40

Formula Used:

Let the total number of students be x.

Students passed in at least one subject = Total students - Students failed in both subjects

Using the principle of inclusion and exclusion:

Students passed in at least one subject = (Passed in English) + (Passed in Mathematics) - (Passed in both subjects)

Calculation:

Let total number of students be x.

Students passed in at least one subject = x - 40

Using the principle of inclusion and exclusion:

Students passed in at least one subject = (0.80x) + (0.85x) - (0.75x)

=> x - 40 = 0.90x

=> x - 0.90x = 40

=> 0.10x = 40

=> x = 40 / 0.10

=> x = 400

The total number of students is 400.

Q22. Answer: (b) 47.32 m

Given:

A man standing at point P is watching the top of a tower S, which makes an angle of elevation of 30? with the man's eye. The man walks a distance of 20 m towards the tower to watch its top and the angle of the elevation becomes 45?. The distance between the base of the tower and point P is to be calculated (take √3 = 1.732).

Formula Used:

In a right-angled triangle, tan(θ) = Opposite / Adjacent

Calculation:

Let the initial distance between the man and the base of the tower be D meters, and let the height of the tower be H meters.

From the first observation point (angle 30^?):

tan(30^?) = H / D

H = D / √3

H = D / 1.732

From the second observation point (angle 45^?):

The man walks 20 meters towards the tower, so the new distance between the man and the base of the tower is (D - 20) meters.

tan(45^?) = H / (D - 20)

1 = H / (D - 20)

H = D - 20

Equating the two expressions for H:

D / 1.732 = D - 20

=> D = 1.732 (D - 20)

=> D = 1.732D - 34.64

=> D - 1.732D = -34.64

=> -0.732D = -34.64

=> D = 34.64 / 0.732

=> D = 47.32 meters

The distance between the base of the tower and the point P is 47.32 meters.

Q23. Answer: (b) 563

The logic followed here is:

Hence, the correct answer is "563".

Q24. Answer: (b) Only (iii) follows.

Statements:

a. Some photos are colour.

b. Some photos are black and white.

c. No colour is black and white.

The least possible Venn diagram is as follows:

Conclusions:

i. Some colour are black and white. - False (because No colour is black and white given. So, it can be possible but not definite)

ii. Some black and white are colour. - False (because No colour is black and white given. So, it can be possible but not definite)

iii. No black and white is colour. - True (because No colour is black and white given. So, No black and white is colour it is true)

Hence, the correct answer is "Only (iii) follows".

Q25. Answer: (b) only in Lok Sabha

The correct answer is only in Lok Sabha

Key Points

• Money Bill

• Article 110 of the Constitution deals with Money Bills.

• It can be introduced only in Lok Sabha with prior approval from the president.

• Rajya Sabha can only suggest amendments but Lok Sabha is not bounded to accept them.

• A Bill is said to be a Money Bill if it only contains provisions related to-

• taxation

• borrowing of money by the government

• expenditure from or receipt to the Consolidated Fund of India

Additional Information

• A Bill shall not be deemed to be a Money Bill by reason only that it provides for the imposition of fines or other pecuniary penalties, etc.

• If any question arises whether a Bill is a Money Bill or not, the decision of the Speaker of the House of the People thereon shall be final.

• There shall be endorsed on every Money Bill when it is transmitted to the Council of States under article 109.

• When it is presented to the President for assent under article 111, the certificate of the Speaker of the House of the People signed by him that it is a Money Bill.

Q26. Answer: (b) Uttar Pradesh

The correct answer is Uttar Pradesh.

Key Points

• Uttar Pradesh has the highest number of Lok Sabha seats i.e. 80.

• In Uttar Pradesh, 17 Lok Sabha seats have been reserved for Scheduled Castes.

• Lok Sabha:

• It comes under article 81.

• Its maximum strength is 550 + 2 members of its Anglo-Indian Community, which includes 530 members from States and 20 from

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Union Territories.

• The present strength of Lok Sabha is 545.

• The representatives of the States are directly elected by the people of the States on the basis of adult suffrage.

• Every citizen who is not less than 18 years of age and is not otherwise disqualified is entitled to vote at such an election.

• The normal term of the Lok Sabha is 5 years, but it may be dissolved earlier by the President.

Additional Information

State	Lok Sabha Seats
Maharashtra	48
West Bengal	42
Gujarat	26
Rajasthan	25

Q27. Answer: (d) Home Page

The correct answer is Home Page

Key Points

• A home page is a webpage that serves as the starting point of the website.

• It is the default webpage that loads when you visit a web address that only contains a domain name. For example, visiting https://www.yourmocktest.com will display the Testbook home page.

• The home page is located in the root directory of a website. Most web servers allow the home page to have one of several different filenames. Examples include index.html, index.htm, index.HTML, index.php, default.html, and home.html.

• The default filename of a website's home page can be customized on both Apache and IIS servers.

• Since the home page file is loaded automatically from the root directory, the home page URL does not need to include the filename.

Additional Information

• For most websites, the majority of visitors who visit never visit the homepage. However, it's still an important part of a website because those visitors who visit the homepage need a way to understand what your website offers. Ideally, your website homepage should include a link to all pages or for a big website (over 100 pages) all sections. Other important things to consider are including a company phone number, contact information, and the website's most popular web pages.

• If you have never created a website or blog, the above definition of a homepage may be confused with a browser homepage (home).

• A browser home is a default document displayed when you first open your browser. It can be configured to display a specific website in the browser's preferences.

• For example, you may have Google as your browser's home to open a search when you first open the browser. If you were to search for "Mock Test" from your browser's home and clicked the Testbook link, you would be directed to our website homepage.

Q28. Answer: (c) 162/3 %

Given:

Hari's income is 20% more than Madhu's income.

Formula Used:

Percentage Difference = Difference/Original × 100

Calculation:

Let Madhu's income be M.

Then Hari's income = M + 0.2M = 1.2M

Difference in income = 1.2M - M = 0.2M

Percentage by which Madhu's income is less than Hari's income:

Percentage Difference = 0.2M/1.2M × 100

Percentage Difference = 0.2/1.2 × 100

Percentage Difference = 20/1.2

Percentage Difference = 16.67%

Therefore, Madhu's income is less than Hari's income by 162/3 %.

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Q29. Answer: (b) 30 m

Shortcut Trick

In a 30°-60°-90° triangle, the sides opposite to these angles are in the ratio 1 : √3 : 2.

The base (side adjacent to 60°) corresponds to 1 unit, which is 15 m.

The ladder (hypotenuse) corresponds to 2 units.

Length of the ladder = 2 × 15 = 30 m.

Therefore The correct answer is 30 m.

Alternate Method

Given:

Distance of the foot from the wall (Base) = 15 m

Angle of elevation (θ) = 60°

Formula Used:

cos θ = Base / Hypotenuse

Calculations:

=> Let the length of the ladder be AC.

=> cos 60° = AB / AC

=> 1/2 = 15 / AC

=> AC = 15 × 2

=> AC = 30 m

Therefore The correct answer is 30 m.

Additional Information

Trigonometric Ratios

In a right-angled triangle, sin θ = Perpendicular/Hypotenuse, cos θ = Base/Hypotenuse, and tan θ = Perpendicular/Base.

Pythagoras Theorem

For any right triangle with sides a, b and hypotenuse c, the relation is $a^2 + b^2 = c^2$.

Standard Trigonometric Values

Standard values for cos include: cos 30° = √3/2, cos 45° = 1/√2, and cos 60° = 1/2.

Q30. Answer: (d) Guitar

The logic followed here is:

Logic: Type of Musical Instruments.

Here,

Wind : Flute → Flute is a type of Wind instrument.

Similarly,

String : Guitar → Guitar is a type of String instrument.

Hence, the correct answer is "Option 4".

Q31. Answer: (a) Nitrogen

The correct answer is Nitrogen

Key Points

• Nitrogen is a nutrient that plants get from soil

• Nitrogen is a vital nutrient for plant growth, structure, and metabolism.

• It's a component of chlorophyll, nucleic acids, amino acids, and proteins.

• Plants that are deficient in nitrogen will appear yellow and grow less.

Additional Information

• Other nutrients that plants get from soil include phosphorus, potassium, calcium, magnesium, and sulfur

• Phosphorus (P)

• Phosphorus helps transfer energy from sunlight to plants, stimulates early root and plant growth, and hastens maturity.

• Very few Australian soils have enough phosphorus for sustained crop and pasture production and the North Coast is no exception.

• The most common phosphorus source on the North Coast is superphosphate, made from rock phosphate and sulfuric acid. All manures contain phosphorus manure from grain-fed animals is a particularly rich source.

• Calcium (Ca)

• Calcium is essential for root health, the growth of new roots and root hairs, and the development of leaves.

• It is generally in short supply in the North Coast's acid soils. Lime, gypsum, dolomite, and superphosphate (a mixture of calcium phosphate and calcium sulfate) all supply calcium.

• Lime is the cheapest and most suitable option for the North Coast dolomite is useful for magnesium and calcium deficiencies, but if used over a long period will unbalance the calcium/magnesium ratio. Superphosphate is useful where calcium and phosphorus are needed.

• Magnesium (Mg)

• Magnesium is a key component of chlorophyll, the green colouring material of plants, and is vital for photosynthesis (the conversion of the sun's energy to food for the plant). Deficiencies occur mainly on sandy acidic soils in high rainfall areas, especially if used for intensive horticulture or dairying. Heavy applications of potassium in fertilizers can also produce magnesium deficiency, so banana growers need to watch magnesium levels because bananas are big potassium users.

• Magnesium deficiency can be overcome with dolomite (a mixed magnesium-calcium carbonate), magnesite (magnesium oxide), or Epsom salts (magnesium sulfate).

• Sulfur (S)

• Sulfur is a constituent of amino acids in plant proteins and is involved in energy-producing processes in plants.

• It is responsible for many flavours and odour compounds in plants such as the aroma of onions and cabbage.

• Sulfur deficiency is not a problem in soils high in organic matter, but it leaches easily.

• On the North Coast, seaspray is a major source of atmospheric sulfur.

• Superphosphate, gypsum, elemental sulfur, and sulfate of ammonia are the main fertilizer sources.

Q32. Answer: (b) B202R

The logic followed here is:

Hence, the correct answer is "B202R".

Q33. Answer: (d) 8 p.m.

Given:

Satish's speed = 75 km/h

Raman's speed = 90 km/h

Distance between Satish and the Resort = 800 km

Satish starts at 2:00 p.m., and Raman starts at 3:00 p.m. (1-hour head start for Satish).

Solution:

Step 1: Calculate the distance traveled by Satish in 1 hour

Distance = Speed × Time

Distance = 75 × 1 = 75 km

By 3:00 p.m., Satish is 75 km ahead of Raman.

Step 2: Relative speed of Raman and Satish

Relative speed = Raman's speed - Satish's speed

Relative speed = 90 - 75 = 15 km/h

Step 3: Time taken for Raman to catch up

Time = Distance / Relative speed

Time = 75 / 15 = 5 hours

Step 4: Determine the time Raman catches up

Raman starts at 3:00 p.m., and it takes him 5 hours to catch up.

Time = 3:00 p.m. + 5 hours = 8:00 p.m.

Raman will catch up with Satish at 8:00 p.m.

Q34. Answer: (d) Only assumption B is implicit.

Given Statement: "If you solve this puzzle, I will buy you the moon," Radha said to Mowgli.

Now,

Assumptions:

A. Mowgli wants to buy the moon - Not Implicit (The statement doesn't provide any information suggesting that Mowgli has any desire to buy the moon.)

B. Mowgli won't be able to solve the puzzle - Implicit (The statement implies that Radha believes the task of solving the puzzle is very challenging, and therefore, she makes an exaggerated promise of buying the moon.)

Here, Only assumption B is implicit.

Hence, the correct answer is "Option 4".

Q35. Answer: (a) India and Sri Lanka

The correct answer is India and Sri Lanka

Key Points

• The Palk Strait is a strait between India and Sri Lanka.

• It connects the Bay of Bengal in the northeast with the Gulf of Mannar in the southwest.

• This chain extends between Dhanushkodi on Pamban (Rameswaram) Island in Tamil Nadu and Mannar Island in Sri Lanka.

• It's about 137 kilometers long and 64 to 137 kilometers wide

Additional Information

• The Palk Strait is named after Robert Palk, who was the governor of Madras during the Company Raj period.

• The strait is made up of many islands and is full of reefs and low islands that are collectively known as Adam's Bridge or Ram Setu.

• The reefs and shallow waters make it difficult for large ships to pass through, but small craft and fishing boats can navigate the area.

Q36. Answer: (b) Methaqualone

The correct answer is Methaqualone

Key Points

• The Council of Scientific and Industrial Research (CSIR) developed India's first synthetic drug, methaqualone, in 1950.

• CSIR is an autonomous body that was established in 1942.

• It is headquartered in New Delhi and has a large network of national laboratories and field stations.

• CSIR's functions include:

• Suggesting on the management of R&D programs

• Reviewing research and development activities

• Advising on promoting linkage between the laboratory, Industry, and potential clients

Additional Information

• Some other achievements of CSIR include:

• Developing the first Indian tractor, Swaraj, in 1967

• Developing the most popular tractor of India, Sonalika, in 1987

• Designing India's first parallel processing computer, Flosolver

• Developing optical glass for defense purposes

• Developing the first transgenic Drosophila model for drug screening for cancer in humans

• Inventing the non-steroidal family planning pill Saheli

• Inventing the non-steroidal herbal pill for asthma called Asmon

Q37. Answer: (d) Mahatma Gandhi

The correct answer is Mahatma Gandhi

Key Points

• Jawaharlal Nehru said, "The light has gone out of our lives" on the death of Mahatma Gandhi.

• This statement was part of Nehru's emotional speech delivered on January 30, 1948, the day Gandhi was assassinated.

• Nehru delivered this speech on All India Radio, expressing his deep sorrow and the profound sense of loss felt by the entire nation.

• Mahatma Gandhi was assassinated by Nathuram Godse in Delhi while on his way to a prayer meeting.

• The act shocked the entire world and brought India to a standstill.

Additional Information

• Sardar Vallabhbhai Patel

• Sardar Patel was born on 31st October 1875 in Nadiad, Gujarat.

• He was the first Home Minister and Deputy Prime Minister of India.

• He played an important role in the integration of many Indian princely states to make an Indian federation.

• At the time of independence, Sardar Patel played a key role in convincing several princely states to align with the Indian Union.

• He also worked hard as a social leader for the Independence of India.

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• Women of Bardoli bestowed the title ‘Sardar’ on Vallabhbhai Patel, which means ‘a Chief or a Leader’.
• Rabindranath Tagore
• Rabindranath Tagore was born on 7th May 1861 in Kolkata.
• He was a poet, litterateur, philosopher, playwright, composer, and painter.
• He was awarded the Nobel Prize for Literature in 1913 for the creation of the world-famous epic Gitanjali.
• He is the only Indian to win the Nobel in the field of literature.
• Rabindra Nath Tagore gave up his 'Knighthood' in protest of the Jallianwala Bagh Massacre.
• He was awarded the knighthood in the year 1915 by King George V.
• He gave Gandhiji the title of Mahatma.
• Subhash Chandra Bose
• Subhas Chandra Bose was born on 23rd January 1897 in Cuttack, Orissa.
• One of the greatest freedom fighters of India popularly known as Netaji.
• Subhas Chandra Bose was elected twice as the president of the INC in the Haripura session in 1938 and the Tripuri session in 1939.
• Subhas Chandra Bose founded the All India Forward Bloc on 22nd June 1939.
• Subhash Chandra Bose is believed to have died from the 3rd-degree burn from a plane crash in Taiwan on 18th August 1945.

Q38. Answer: (b) Binoculars

The logic followed here is:

Logic: Devices used for viewing distant objects.

Here,

Microscope : Telescope → Microscope is used for viewing very small objects, while a Telescope is used for viewing very distant objects.

Similarly,

Magnifying Glass : Binoculars → Magnifying Glass is used for viewing small objects, while Binoculars are used for viewing distant objects.

Hence, the correct answer is "Option 2".

Q39. Answer: (a) Subarnarekha

The correct answer is Subarmarekha

Key Points

• The Subarnarekha is an example of a superimposed drainage system
• A superimposed drainage system is a river that flows over a softer rock layer and then reaches harder basal rocks, but continues to follow the initial slope.
• This makes it seem like the river has no relation to the harder rock bed.
• Other examples of superimposed drainage systems include the Damodar, the Chambal, the Banas, and the rivers flowing at the Rewa Plateau.

Additional Information

• Brahmaputra
• The Brahmaputra originates from the Chemayundung glacier near Manasarover lake in Tibet.
• In Bangladesh, Brahmaputra is known by the name Jamuna.
• The Yarlung Tsangpo is the Tibetan name for the upper course of Brahmaputra.
• In Arunachal Pradesh, Brahmaputra is known by the name Dihang.
• Most of its course lies outside India.
• It flows through countries such as India, China, and Bangladesh.
• The Brahmaputra is also called the "Red River".
• The major tributaries of the Brahmaputra river are Tista, Lohit, Subansiri etc.
• The Brahmaputra is the Indian river that occupies the maximum volume of water.
• The river Ganga is known as the Padma in Bangladesh.
• Gomti
• The Gomti river is a Monsoon and Groundwater fed river, which is originated from Gomat Taal (earlier known as Fulhaar jheel) near Madho Tanda, Pilibhit district of Uttar Pradesh state.
• According to Puranas, the Gomti River is the Daughter of Rishi Vashisth. It is People's belief that if we take a dip(bathing) in the

Gomti River on Ekadashi (the 11th day of the Two Lunar phases) can wash away all our Sins.

• It is a tributary of the Ganges river. Its length extends 960 km through Uttar Pradesh and meets the Ganges river near Saidpur, and Kaithi 27 km from Varanasi district of Uttar Pradesh state.

• Ganga

• It originates in the Himalaya Mountains at Gomukh, the terminus of the Gongotri Glacier. Here, it is known as the Bhagirathi.

• It cuts through the Central and the Lesser Himalayas in narrow gorges.

• At Devprayag, the Bhagirathi meets the Alaknanda; hereafter, it is known as the Ganga.

• The river has a length of 2,525 km. (Option 3 Incorrect)

• It is shared by Uttarakhand (110 km) and Uttar Pradesh (1,450 km), Bihar (445 km) and West Bengal (520 km).

• The river finally discharges itself into the Bay of Bengal near Sagar Island.

Q40. Answer: (a) India-Bangladesh

The correct answer is India- Bangladesh

Key Points

• The border between India and Bangladesh is the world's fifth-longest land border

• The Length of the border is 4,096 kilometers (2,545 miles)

• It is Also known as the Operation Zero Line, this border covers an area of 1,43,998 square kilometers and has a coastline of 580 kilometers

• Five Indian states that share their border with Bangladesh:

1. Assam.
2. Tripura.
3. Mizoram.
4. Meghalaya.
5. West Bengal.

Additional Information

• The countries sharing the land borders with India are:

1. China.
2. Bhutan.
3. Nepal.
4. Pakistan.
5. Afghanistan.
6. Bangladesh.
7. Myanmar.

• India shares the least land boundary with Afghanistan.

• China is the largest country that shares land borders with India.

• Bhutan is the smallest country that shares land borders with India.

Q41. Answer: (c) Rashbihari Ghosh

The correct answer is RasBehari Ghosh.

Key Points

• The 1907 Surat session was popularly known as Surat Split as the Congress split into two groups. i.e. Extremists and Moderates.

• It was presided by Moderate leader RasBehari Ghosh.

• Mainly there was an ideological difference between the two groups.

• The main objectives placed by the extremist were

1. Demand for the resolution of Swaraj.
2. Lala Lajpat Rai to be made the President of INC.

• These two demands were not accepted by the moderates thus initiated the split.

• The Surat Split was a victory of the British policy of Divide and Rule.

• In 1916, Lucknow session both the groups reunited again.

Additional Information

• The first session of the Indian National Congress was held in December 1885 in Bombay with seventy-two delegates.

• The first president of the Indian National Congress was W.C. Bonerjee.

• A.O Hume assumed the office of INC as General Secretary.

• More than just a political party, Congress was an assembly for politically-minded individuals who were interested in reform.

• The second session of the Congress took place under the leadership of Dadabhai Naoroji in Calcutta. The number of delegates had increased to 434.

• Some of the Presidents of INC-

• 1895, 1902- Surendranath Banerjee

• 1885, 1892- W.C. Bonnerjee

• 1886, 1893, 1906- Dadabhai Naoroji

Q42. Answer: (b) 34

The correct answer is 34

Key Points

• The Ellora Caves are a group of 34 caves

• Buddhist: Caves 1–12

• Hindu: Caves 13–29

• Jain: Caves 30–34

• The Ellora Caves are located in the Sahyadri range of Maharashtra, India, and were carved out of the Charanandri hills between the 5th and 11th centuries.

• The caves are a UNESCO World Heritage site and are known for showcasing India's religious tolerance.

• The Ellora Caves are one of the largest rock-cut monastery cave complexes in the world.

• The most remarkable cave temple is Kailasa (cave 16), which was carved out of a single rock.

Additional Information

UNESCO’s Headquarters are located in Paris, France.

• United Nations Educational, Scientific and Cultural Organization (UNESCO) is a specialized agency of the United Nations (UN).

• It seeks to build peace through international cooperation in Education, the Sciences, and Culture.

• It has 193 Members and 11 Associate Members (As of April 2020).

• Three UNESCO member states are not UN members: Cook Islands, Niue, and Palestine.

• UNESCO was founded on 16 November 1945.

• The first session of the General Conference of UNESCO was held in Paris in November-December of 1946.

Q43. Answer: (c) Barium

The correct answer is Barium

Key Points

• Barium salts are used to produce green-colored firework displays

• Barium

• Barium (Ba) compounds are used as oxidizers and to create bright green flames in fireworks.

• Barium can also help stabilize other volatile elements.

• The atomic number is 56.

• It is mostly used in drilling fluids for oil and gas wells and also used in paints and glassmaking.

• It is found in combination with other elements.

• Barite is one of the major ores of Barium.

Additional Information

• Metal salts commonly used in firework displays include calcium chloride, sodium nitrate, barium chloride, copper chloride, etc.

• The green flame produced in fireworks is due to the presence of Barium.

• The blue flame is due to the presence of Copper.

• The orange flame is due to the presence of Calcium.

• A yellow flame is due to the presence of Sodium.

• Lithium is used to impart a red colour to fireworks.

Q44. Answer: (a) -1

Given: 15 + 32 × 4 ÷ 8 - 2

Decoding the given information:

Symbol	•	•	×	÷

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Means	•	÷	•	×

Now replacing the sign from left to right using BODMAS Rule, we get:

=> 15 - 32 + 4 × 8 ÷ 2

= 15 - 32 + 32 ÷ 2

=> 15 - 32 + 16

= 15 - 32 + 16

= -17 + 16 = -1

Hence, the correct answer is "Option 1".

Q45. Answer: (b) Ganga Prasad

The correct answer is Ganga Prasad

Key Points

• Ganga Prasad Chaurasia is an Indian politician who is former governor of the states of Sikkim and Meghalaya.

• He was a member of Bihar Legislative Council and was the leader of the opposition during the RJD[citation needed] regime.

• Ganga Prasad was the governor of Sikkim.

• He is an ardent follower of Arya Samaj and served as Pradhan (Head) of the Bihar Arya Samaj Pratinidhi Sabha unit.

• He is popularly known as 'Ganga Babu' in the political circle

Additional Information

• Sikkim celebrates its statehood day on 16 May every year.

• It marks the day in 1975 when Sikkim transitioned to become the 22nd state of India from being a monarchy earlier.

• The Indo-Sikkimese treaty was signed in the year 1950.

• With this, Sikkim became a protectorate of India.

• Before this, the Namgyal dynasty ruled Sikkim till 1975.

Q46. Answer: (c) 1395

Given:

We need to find the least number which when divided by 20, 25, 35, and 40 leaves remainders 15, 20, 30, and 35 respectively.

Formula Used:

Least number = LCM of given numbers - Common Difference

Calculation:

Let's denote the least number as N.

According to the problem, we have the following equations:

N ≡ 15 mod 20

N ≡ 20 mod 25

N ≡ 30 mod 35

N ≡ 35 mod 40

We can observe that:

20 - 15 = 5

25 - 20 = 5

35 - 30 = 5

40 - 35 = 5

So, the common difference is 5.

We need to find the Least Common Multiple (LCM) of 20, 25, 35, and 40.

Prime factorizations:

$20 = 2^2 \times 5$

$25 = 5^2$

$35 = 5 \times 7$

$40 = 2^3 \times 5$

$LCM = 2^3 \times 5^2 \times 7$

LCM = 8 × 25 × 7

LCM = 200 × 7

LCM = 1400

Therefore, the least number N is:

N = LCM - Common Difference

=> N = 1400 - 5

=> N = 1395

The correct answer is option 3.

Q47. Answer: (d) Apsara

The correct answer is Apsara.

Key Points

• Apsara is the first nuclear reactor made in India.

• Apsara reactor was built in August 1956.

• The Apsara reactor was named by the then Prime Minister of India, Jawaharlal Nehru.

• It was a highly versatile swimming pool type of reactor.

• It was created to conduct basic research in nuclear physics.

• Apsara is Asia's oldest research reactor.

• Apsara was shut down in 2009 for a revamp.

• Apsara-Upgraded(Apsara-U) is the new version of Apasara reactor.

Additional Information

• KAMINI is the world's only thorium-based experimental reactor.

• KAMINI (Kalpakkam Mini reactor) research reactor is at Indira Gandhi Center for Atomic Research in Kalpakkam.

• CIRUS (Canada India Reactor Utility Services) was the second nuclear reactor to be built in India.

• It is located in Trombay near Mumbai.

• CIRUS was supplied by Canada in 1954, but used heavy water (deuterium oxide) supplied by the United States.

• The Dhruva reactor is the largest nuclear research reactor in India.

Q48. Answer: (a) Sattriya Nritya

The correct answer is Sattriya Nritya

Key Points

• The great Assamese reformer and Vaishnava saint Mahapurusha Sankaradeva established the Sattriya dancing style in the 15th century A.D. as a potent means of spreading the Vaishnava religion.

• It is one of India's eight classical dance genres.

• Sankaradeva created this dance style by fusing ideas from numerous treatises with popular dance styles, regional folk dances, and his own unique perspective.

• The Sattriya dance is a blatant example of how the former influenced the latter.

• Bihu, Bodos, and other Assamese folk dances are other clearly discernible influences on Sattriya dance.

• These dancing styles have very similar hand movements and rhythmic syllables.

Additional Information

Dance Form	Originating State
Bharatanatyam	Tamil Nadu
Kathak	Uttar Pradesh
Kathakali	Kerala
Odissi	Odisha
Manipuri	Manipur
Kuchipudi	Andhra Pradesh
Mohiniyattam	Kerala
Sattriya	Assam
Yakshagana	Karnataka
Chhau	Odisha, West Bengal, Jharkhand

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Kathakali	Kerala
Gaudiya Nritya	West Bengal
Odissi	Odisha
Kuchipudi	Andhra Pradesh
Bharatanatyam	Tamil Nadu
Kathak	Uttar Pradesh
Mohiniyattam	Kerala
Kathakali	Kerala
Manipuri	Manipur
Sattriya	Assam
Yakshagana	Karnataka
Chhau	Odisha, West Bengal, Jharkhand
Kathakali	Kerala
Gaudiya Nritya	West Bengal

Q49. Answer: (a) Shubhash Chandra Khuntia

The correct answer is Shubhash Chandra Khuntia

Key Points

• As of December 2020, Shubhash Chandra Khuntia was serving as the Chairman of the Insurance Regulatory and Development Authority of India (IRDA).

• Shubhash Chandra Khuntia took over as the Chairman of IRDAI (Insurance Regulatory and Development Authority of India) in August 2018.

• Before his appointment as Chairman, he held various key positions in the Ministry of Finance, including Secretary (Financial Sector) in the Department of Financial Services.

• His tenure at IRDAI focused on improving the insurance sector's governance, promoting financial inclusion, and enhancing customer service in the insurance industry.

Additional Information

• Insurance Regulatory and Development Authority of India:-

• It is a statutory body formed under an Act of Parliament, i.e., Insurance Regulatory and Development Authority Act, 1999 (IRDAI Act 1999) for overall supervision and development of the Insurance sector in India.

• The key objective includes the promotion of competition so as to enhance customer satisfaction through increased consumer choice and fair premiums while ensuring the financial security of the Insurance market.

• Entities regulated by IRDAI:

• Life Insurance Companies - Both public and private sector Companies

• General Insurance Companies - Both public and private sector Companies. Among them, there are some standalone Health Insurance Companies that offer health Insurance policies.

• Re-Insurance Companies

• Agency Channel

• Intermediaries

Q50. Answer: (d) 3.6

Given:

Numbers: 10.8, 28.8, and 36

Formula Used:

HCF of decimal numbers = HCF of equivalent integers / 10n10n10n10n10n10n

where nnnn is the maximum number of decimal places

Calculation:

Convert decimal numbers to integers:

10.8 × 10 = 108

28.8 × 10 = 288

36 × 10 = 360

Find HCF of 108, 288, and 360:

Prime factorization:

108 = $2^2 \times 3^3$

288 = 2^5 × 3^2

360 = $2^3 \times 3^2 \times 5$

Common prime factors:

2^2 and 3^2

HCF = $2^2 \times 3^2$

HCF = 4 × 9

HCF = 36

Convert back to decimal:

HCF of 10.8, 28.8, and 36 = 36 / 10

HCF = 3.6

The HCF of 10.8, 28.8, and 36 is 3.6.

Q51. Answer: (a) 94

The logic followed here is:

Hence, the correct answer is "94".

Q52. Answer: (a) Ammonia

The correct answer is Ammonia

Key Points

• Ammonia does not belong to short-lived climate pollutants (SLCPs)

• SLCPs

• These are greenhouse gases and air pollutants that have a short-term warming effect on the climate.

• Examples of SLCPs include black carbon, methane, hydrofluorocarbons (HFCs), and ground-level ozone.

• Ammonia is a primary source compound, but it does not have a climate forcing effect.

Additional Information

• SLCPs are more potent climate warmers than carbon dioxide, and they have a shorter lifespan in the atmosphere.

• This means that reducing SLCP emissions can lead to climate benefits in a relatively short time.

• Some ways to reduce SLCP emissions include:

• Improving municipal waste collection services, Banning open burning of municipal waste, Freezing HFC consumption, Building landfills with methane capture facilities, and Reducing black carbon emissions through energy sector measures.

Q53. Answer: (c) 0.8

Given:

Variance of 5 values = 0.64

Formula Used:

Standard Deviation = √Variance

Calculation:

Variance = 0.64

=> Standard Deviation = √0.64

=> Standard Deviation = 0.8

The standard deviation of 5 values is 0.8.

Q54. Answer: (c) 100

Given:

Expression: $((54.542^2 - 45.458^2))/((61.738 - 52.654))$

Formula used:

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

Calculation:

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$((54.542^2 - 45.458^2))/((61.738 - 52.654)) = ((54.542 - 45.458)(54.542 + 45.458))/((61.738 - 52.654))$

=> Numerator = (54.542 - 45.458) × (54.542 + 45.458)

=> Numerator = 9.084 × 100

=> Numerator = 908.4

=> Denominator = (61.738 - 52.654)

=> Denominator = 9.084

=> Value = 908.4 / 9.084

=> Value = 100

Therefore The value is 100.

Q55. Answer: (b) Rs. 960

Given:

Selling price for profit = Rs. 832

Selling price for loss = Rs. 448

Formula Used:

Profit = Selling Price - Cost Price

Loss = Cost Price - Selling Price

For 50% profit, Selling Price = Cost Price × 1.5

Calculation:

Let Cost Price be CP.

Profit = Loss

=> (832 - CP) = (CP - 448)

=> 832 + 448 = 2CP

=> 1280 = 2CP

=> CP = 640

Selling Price for 50% profit = CP × 1.5

=> Selling Price = 640 × 1.5

=> Selling Price = 960

The correct answer is option 2, Rs. 960.

Q56. Answer: (c) Monsoon

The logic followed here is:

Rain	Form of precipitation
Thunder	Sound associated with lightning
Monsoon	Seasonal wind pattern
Lightning	Electrical discharge in the atmosphere

Rain, Thunder, and Lightning are all specific weather phenomena,

Whereas,

Monsoon is a seasonal wind pattern that influences weather.

Hence, the correct answer is Monsoon.

Q57. Answer: (d) 45

Given:

A sum doubles itself in 15 years at compound interest.

We need to find the time it will take to become eight times the original amount.

Solution:

Step 1: Understand the relationship of compound interest

The amount doubles in 15 years, so:

Let the initial amount = P and the rate = R%.

After 15 years, Amount = 2P.

Compound Interest Formula: A = P(1 + R/100)^t.

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For doubling:

2P = P(1 + R/100)^(15).

Dividing by P:

(1 + R/100)^(15) = 2.

Step 2: Calculate the time for the amount to become 8 times

If the amount becomes 8 times:

8P = P(1 + R/100)^t.

Dividing by P:

(1 + R/100)^t = 8.

From the property of exponents:

8 = 2^3, so:

(1 + R/100)^t = (1 + R/100)^(3×15).

Therefore, t = 3 × 15 = 45 years.

The sum will become eight times in 45 years.

Q58. Answer: (c) Kishtwar

The correct answer is Kishtwar

Key Points

• The Dul Hasti Power Station is located in the Kishtwar district of Jammu and Kashmir, India

• The Dul Hasti Power Station is a hydroelectric power plant that uses the Chenab River's natural flow to generate electricity.

• It's a run-of-the-river project, which means it doesn't need a large reservoir to store water.

• The plant is located in a mountainous area of the Himalayas, several hundred kilometers from the larger cities in the Jammu Division

• The Dul Hasti Power Station is operated by NHPC Limited, a government-owned company that develops hydroelectric power in India.

• The Central Water and Power Commission (CWPC) first investigated the site in 1970/71.

Additional Information

• The plant was constructed between 1985 and 2007.

• It provides peaking power to the Northern Grid, which includes the states of Jammu and Kashmir, Punjab, Haryana, Uttar Pradesh, Uttarakhand, Rajasthan, Delhi, and the Union Territory of Chandigarh.

• The Dul Hasti Power Station includes a 70 m tall gravity dam, a 9.5 km long headrace tunnel, and a 10.586 km long HRT.

Q59. Answer: (b) Rs. 35

Given:

Selling price (SP) = Rs. 40.60

Gain = 16%

Formula Used:

Cost Price (CP) = SP / (1 + Gain%)

Calculation:

Gain% = 16%

=> 1 + Gain% = 1 + 16/100 = 1 + 0.16 = 1.16

CP = 40.60 / 1.16

=> CP = 40.60 / 1.16

=> CP = 35

The cost price of the commodity is Rs. 35.

Q60. Answer: (b) RRNF

The logic followed here is:

PITA and FIST are written as NFPV and DFOO respectively.

Similarly, TURK will be written as:

Hence, the correct answer is "RRNF".

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Q61. Answer: (b) Operating System

The correct answer is an operating system.

Key Points

• Linux is an operating system.
• Linux was created in 1991 by Linus Torvalds and the Free Software Foundation (FSF).
• It is an open-source Unix-like operating system.
• Linux is popular for its stability, security, and flexibility.
• It's written in C and assembly language.
• The user interface of Linux includes KDE plasma, LXDE, and elementary OS.
• An operating system helps users interact with the computer.

Additional Information

• Machine language and Assembly language are an example of a low-level language.
• Machine language is a low-level language that is comprised of binary digits i.e. ones and zeros.
• An assembly language is a language designed for a specific type of processor.

Q62. Answer: (b) Article 56

The Correct Answer is Article 56.

Key Points

• Article 56 of the Constitution of India deals with the tenure of the President of India:
• The President of India can serve a maximum term of five years
• The President can resign by writing a letter to the Vice President
• The President can be impeached for violating the Constitution
• The President continues to serve until their successor takes office, even if their term has ended
• The union executive consists of the president, the vice president, the prime minister, the council of ministers, and the Attorney General of India.
• The president (article 52) is the head of the Indian state.
• He is head of all Supreme Commander of all the armed forces.
• He is the first citizen of the country and acts as the symbol of the integrity and solidarity of the nation.

Additional Information

• Articles Related to President of India:

Article-No	Subject Matter
52	The President Of India
53	The executive power of the President
54	Election of the President
55	Manner of Election of the President
56	Term of office of president
57	Eligibility of re-election
58	Qualification for election as President
59	Conditions of the president’s office
60	Oath or affirmation by the President
61	Procedure for impeachment of the President
62	Time of holding an election to fill a vacancy in the office of President
65	Vice President to act as president or to discharge his functions
71.	Matters relating to the election of the President
72	Powers of the president to grant pardons etc. and to suspend, remit or commute sentences in certain cases

74	Council of Ministers to aid and advise the President
75	Other provisions as to ministers like an appointment, terms, salaries, etc.
76	Attorney General of India
77	Conduct of business of the government of India
78	Duties of Prime Minister with respect to the furnishing of information to the president etc.
85	Sessions of parliaments, prorogations, and dissolution
111	Assent to bills passed by the parliaments
112	Union Budget (Annual Financial statement)
123	Power of President to promulgate ordinances
143	Power of President to consult the Supreme Court

Q63. Answer: (b) 2022

The correct answer is 2022.

Key Points

• ISRO (Indian Space Research Organisation) is the space agency of the Government of India, headquartered in Bengaluru.

• India's first manned space mission, known as Gaganyaan, was initially targeted for launch in the year 2022.

• The Gaganyaan mission aims to send Indian astronauts, also known as "Vyomanauts" or "Gaganauts," into space.

• The mission is part of India's efforts to demonstrate its human spaceflight capability and establish itself as a significant player in space exploration.

Additional Information

• Gaganyaan Mission:

• Gaganyaan is the Indian crewed orbital spacecraft intended to be the basis of the Indian Human Spaceflight Programme.

• The spacecraft is being designed to carry 2-3 astronauts and will be equipped with life support and emergency escape systems.

• The mission's objective is to demonstrate human spaceflight capability by launching the spacecraft into low Earth orbit and safely returning the crew to Earth.

• ISRO has collaborated with various international space agencies, including Russia's Roscosmos and France's CNES, for training and technical support.

• ISRO (Indian Space Research Organisation):

• ISRO is the space agency of the Government of India, founded in 1969.

• It is responsible for the development of space technology and its application for national development.

• ISRO's notable achievements include the Mars Orbiter Mission (Mangalyaan), Chandrayaan missions, and the development of various satellite launch vehicles.

• ISRO aims to harness space technology for societal benefits and establish India as a significant player in space exploration.

Q64. Answer: (b) Finance Commission

The correct answer is the Finance Commission.

Key Points

• According to Article 280, the Finance Commission is established for a period of 5 years.

• The Finance Commission is a 'constitutional body' constituted by the President of India which gives its suggestion to the President on the states' share in the taxes of the Center

• Finance Commission is constituted by the President for a period of 5 years.

• The President of India establishes the Finance Commission every five years or earlier.

Additional Information

• The 14th Finance Commission was headed by Y. V. Reddy.

• The 15th Finance Commission is headed by Nand Kishore Singh.

• The Finance Commission of India was established in 1951.

• The first chairman of the Finance Commission was K. C. Neogy.

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Q65. Answer: (a) SO2 and NO2

The correct answer is SO2 and NO2

Key Points

• Acid rain occurs when the atmosphere is heavily polluted with sulfur dioxide (SO2) and nitrogen oxides (NOx)

• Acid rain is a result of a chemical reaction that develops in a localized area where the concentration of the oxides of nitrogen and sulfur is high level.

• An area where there are factories will consist of an accumulation of sulfur dioxide in the air.

• These oxides retaliate with water and precipitate in the put up of the acid rain.

• Acid rain can have harmful effects on plants, aquatic animals, and infrastructure.

Additional Information

• Acid rain is rain or any other form of precipitation that is unusually acidic, meaning that it has inflated levels of hydrogen ions.

• Most water, consisting of drinking water, has a neutral pH that exists between 6.5 and 8.5, but acid rain has a pH level lower than this and ranges from 4–5 on average.

• The more acidic the acid rain is, the lower its pH is.

Q66. Answer: (c) Ministry of Power

The correct answer is Ministry of Power

Key Points

• Saubhagya scheme is related to achieve universal household electrification till March 31, 2019.

• It is an acronym for the Pradhan Mantri Sahaj Bijli Har Ghar Yojana.

• The scheme was launched in the year 2017.

• The connections for households will be funded through the Integrated Power Development Scheme (IPDS) and Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY).

• This scheme is implemented by the Ministry of Power.

Additional Information

• The Ministry of Power is an Indian government ministry.

• The current Union Cabinet Minister is Manohar Lal Khattar.

• The ministry is charged with overseeing electricity production and infrastructure development, including generation, transmission, and delivery, as well as maintenance projects.

• The ministry acts as a liaison between the central government and state electricity operations, as well as with the private sector.

• The ministry also oversees rural electrification projects.

• The Ministry of Power became a ministry on July 2, 1992, during the P. V. Narasimha Rao government

Q67. Answer: (b) 62, 34

Given:

Let the amounts of money Arun and Sekhar have initially be A and S respectively.

Formula Used:

From the problem statement, we have two conditions:

1. If Arun gives Rs. 30 to Sekhar, Sekhar will have twice the amount left with Arun.

2. If Sekhar gives Rs. 10 to Arun, Arun will have thrice the amount left with Sekhar.

Calculation:

From the first condition:

A - 30 and S + 30

S + 30 = 2(A - 30)

S + 30 = 2A - 60

S = 2A - 90

From the second condition:

A + 10 and S - 10

A + 10 = 3(S - 10)

A + 10 = 3S - 30

A = 3S - 40

We now have two equations:

1) S = 2A - 90

2) A = 3S - 40

Substituting S from the first equation into the second equation:

A = 3(2A - 90) - 40

A = 6A - 270 - 40

A = 6A - 310

310 = 5A

A = 62

Substituting A = 62 into the first equation:

S = 2(62) - 90

S = 124 - 90

S = 34

The amounts of money Arun and Shekhar have initially are Rs. 62 and Rs. 34 respectively.

Q68. Answer: (a) 450

Given:

Number to be divided = 3600

Formula Used:

To make 3600 a perfect cube, divide it by the smallest number which makes the exponent of each prime factor a multiple of 3.

Calculation:

Prime factorization of 3600:

3600 = 2^4 × 3^2 × 5^2

To make 3600 a perfect cube, the exponents of all prime factors must be multiples of 3.

4 needs 2 more to become 6 (multiple of 3)

2 needs 1 more to become 3 (multiple of 3)

2 needs 1 more to become 3 (multiple of 3)

Therefore, the smallest number to make the exponents multiples of 3:

2 × 3^2 × 5^2 = 2 × 9 × 25 = 450

The smallest number to divide 3600 is 450.

Therefore The smallest natural number by which 3600 must be divided to make it a perfect cube is: 450

Q69. Answer: (b) 10/21

Given:

A bag contains:

2 red balls

3 green balls

2 blue balls

Total balls = 2 + 3 + 2 = 7

Formula Used:

Probability (P) = Number of favorable outcomes / Total number of outcomes

Calculation:

Number of ways to draw 2 balls from 7:

^7C2= 21

Number of ways to draw 2 balls that are not blue:

Total non-blue balls = 2 red + 3 green = 5

^5C2 = 10

Probability that none of the balls drawn is blue:

=> P = 10 / 21

The probability that none of the balls drawn is blue is 10/21.

Q70. Answer: (d) Rail Madad

The correct answer is Rail Madad

Key Points

• The Rail Madad app was launched in 2018 by Piyush Goyal, Minister of Railways & Coal, to enable commuters to lodge

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complaints related to Indian Railways and receive real-time feedback on the status of their complaints.

• Madad" stands for Mobile Application for Desired Assistance During travel.

• It Provides passengers with a fast and responsive system for grievance redressal.

• It Integrates complaint management across various departments of Indian Railways.

• It Tracks real-time status and resolution of complaints.

• Complaints lodged on social media platforms like Twitter are also addressed through the Rail Madad system.

• The app is designed for quick and intuitive use, enabling passengers to submit complaints easily during their travel

Additional Information

• Rail Yatri is a travel app designed to assist Indian railway passengers with features like train schedules, live train tracking, seat availability, and more.

• Key Features:

• Live Train Status: Provides real-time updates on the train's location and expected arrival times.

• PNR Status Check: Allows users to check the status of their ticket bookings.

• Seat Availability: Offers information on seat and berth availability for upcoming trains.

• Food Delivery: Passengers can pre-order meals for delivery at selected stations.

• Fare Calculator: Helps calculate ticket costs, including different classes and concessions.

• Bus and Cab Services: Offers integration for multi-modal travel options beyond trains.

Q71. Answer: (d) John Hicks

The correct answer is John Hicks

Key Points

• The book "Capital and Growth" is written by Sir John Richard Hicks

• The book is based upon A comparative study of methods of dynamic economics

• Sir John Richard Hicks was a British Economist and is considered one of the most important and influential economists of 20^(th) century

• In 1972 he received the Nobel Memorial Prize in Economic Sciences (jointly) for his pioneering contributions to general equilibrium theory and welfare theory.

Additional Information

Author	Books
James Marshall	George and Martha, Miss Nelson Is Missing, Fox On Stage
A.R. Radon	Critical Thinking for Strategic Intelligence
Adam Smith	The Wealth of Nations, The Theory of Moral Sentiments

Q72. Answer: (a) (- 14)/5

Given:

The system of equations:

1) 2x + ky = 11

2) 5x - 7y = 5

Formula Used:

For a system of linear equations:

a1x + b1y = c1

a2x + b2y = c2

The system has no solution if a1/a2 = b1/b2 ≠ c1/c2

Calculation:

Given equations:

2x + ky = 11

5x - 7y = 5

Here, a1 = 2, b1 = k, c1 = 11

a2 = 5, b2 = -7, c2 = 5

For no solution:

a1/a2 = b1/b2 and a1/a2 ≠ c1/c2

Calculate:

2/5 = k/(-7)

=> 2 × -7 = 5k

=> -14 = 5k

=> k = (-14)/5

The correct answer is option 1.

Q73. Answer: (d) 32 years

Given:

The age of Alfred in 1944 was 1/80 of his birth year.

Formula Used:

1944 - Birth year = Alfred's age in 1944

Calculation:

Let the birth year of Alfred be xxxxx

.

Alfred's age in 1944 = 1944 - x

Given:

1/80 × x = 1944 - x

=> x/80 = 1944 - x

=> x + x/80 = 1944

=> 80x + x = 1944 × 80

=> 81x = 155520

=> x = 1920

Alfred's birth year is 1920.

Alfred's age in 1952:

=> 1952 - 1920

=> 32 years

The correct answer is option 4.

Q74. Answer: (a) Buddhism

The correct answer is Buddhism

Key Points

• After the Kalinga War, Emperor Ashoka became a follower of Buddhism

• King Asoka, also known as Ashoka the Great, was a prominent emperor of the Mauryan Empire who ruled from 268 to 232 BCE.

• He is most famously known for his conversion to Buddhism after the Kalinga War, which led to a period of immense change in his reign.

• Asoka's embrace of Buddhism had a profound impact on the spread of the religion throughout Asia.

• He promoted the principles of non-violence, compassion, and tolerance, which were core tenets of Buddhism.

• Asoka is credited with the establishment of numerous stupas and the propagation of Buddhist teachings through edicts inscribed on pillars and rocks across his empire.

Additional Information

• The Mauryan Empire was one of the largest empires in ancient India, founded by Chandragupta Maurya.

• Asoka's reign is often considered the height of the Mauryan Empire due to his effective governance and promotion of social and moral welfare.

• The Kalinga War, fought between the Mauryan Empire and the state of Kalinga, resulted in a high number of casualties and led to Asoka's remorse and subsequent conversion to Buddhism.

• Asoka's legacy is significant in the history of Buddhism, often referred to as one of the greatest patrons of the religion.

Q75. Answer: (c) 22428

Given:

We need to find the sum of numbers between 17 and 520 that are divisible by 6.

Solution:

Step 1: Identify the first and last numbers divisible by 6

The first number divisible by 6 greater than or equal to 17 is 18.
The last number divisible by 6 less than or equal to 520 is 516.
Step 2: Form the arithmetic progression (AP)
The numbers divisible by 6 between 18 and 516 form an AP:
AP = 18, 24, 30, ..., 516.
Common difference, d = 6.
Step 3: Find the number of terms (n) in the AP
The general term of an AP is given by:
Last term = a + (n - 1) × d
516 = 18 + (n - 1) × 6
516 - 18 = (n - 1) × 6
498 = (n - 1) × 6
n - 1 = 83
n = 84
Step 4: Find the sum of the AP
Sum of an AP is given by:
Sum = (n / 2) × (First term + Last term)
Sum = (84 / 2) × (18 + 516)
Sum = 42 × 534
Sum = 22,428
The sum of the numbers between 17 and 520 that are divisible by 6 is 22,428.

Q76. Answer: (c) Third to the right

Given: A, B, C, D, E, F, G and H are sitting around a circular table facing towards the centre (not necessarily in the same order).
A sits second to the left of G.
F is the neighbour of G.
Only two persons sit between A and B.
C is the neighbour of B.
B sits third to the left of D.
Here case 2 gets eliminated.
E sits second to the left of H.
B is not neighbour of H.
So, the position of C with respect to F is "Third to the right".
Hence, the correct answer is "Third to the right".

Q77. Answer: (b) 1.265

Given:
If √40 is almost equal to 6.325, then √(8/5) is nearly equal to:
Formula Used:
√(a/b) = √a/√b
Calculation:
√40 = 6.325
We need to find √(8/5)
√(8/5) = √8/√5
We know, √40 = √(8 × 5)
√40 = √8 × √5
√8 × √5 = 6.325
=> √8 = 6.325/√5
We need √(8/5)
=> √(8/5) = √8/√5
=> √(8/5) = (6.325/√5)/√5
=> √(8/5) = 6.325/5

=> √(8/5) = 1.265

The correct answer is option 2.

Q78. Answer: (b) Wife's brother

Family Chart:

Given: Two Men, Emmet and Ferdinand, were best friends until the daughter of Emmet's maternal aunt's only sibling got married to the only child of Ferdinand's father.

So, Emmet is the "Wife's brother" of Ferdinand.

Hence, the correct answer is "Wife's brother".

Q79. Answer: (d) • 7/10,2/(- 3),5/(- 8)

Given:

Rational numbers: -7/10, 5/-8, 2/-3

Formula Used:

To arrange rational numbers in ascending order, compare their decimal values.

Calculation:

Convert each rational number to its decimal form:

-7/10 = -0.7

5/-8 = -5/8

5/(-8) = -5/8

-5/8 = -0.625

2/-3 = -2/3

2/(-3) = -2/3

-2/3 = -0.6667

Arrange the decimal values in ascending order:

-0.7, -0.6667, -0.625

Map these back to their original rational forms:

-7/10, 2/-3, 5/-8

The arrangement of rational numbers in ascending order is -7/10, 2/-3, 5/-8.

Q80. Answer: (d) Husband

Family Chart:

Given:

Kashish is the wife of Sujal.

Sujal has only one sister named Wimra.

Sujal is the only son of X's mother-in-law's husband Veer.

So, X is the "Husband" of Wimra.

Hence, the correct answer is "Husband".

Q81. Answer: (b) 0.72 m

The correct answer is 0.72 m

Key Points

• The relationship between a wave's speed (v), frequency (f), and wavelength (λ) is given by the following equation:

• v = fλ

• Where:

• v is the wave speed (measured in meters per second, m/s)

• f is the frequency (measured in Hertz, Hz, which is cycles per second)

• λ is the wavelength (measured in meters, m)

• In this problem, we are given:

• Frequency (f) = 50 Hz

• Speed (v) = 36 m/s

• We need to find the wavelength (λ).

• To do this, we can rearrange the equation above to solve for λ:

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• λ = v / f
• Now, we can plug in the given values:
• λ = (36 m/s) / (50 Hz)
• λ = 0.72 m

Q82. Answer: (a) the smallest resolvable part of a picture

The correct answer is the smallest resolvable part of a picture

Key Points

• In digital imaging, a pixel (or picture element) is the smallest item of information in an image.
• Pixels are arranged in a 2-dimensional grid, represented using squares.
• Each pixel is a sample of an original image, where more samples typically provide more accurate representations of the original.
• The word pixel was first used in 1965.

Additional Information

• some things to know about pixels:
• Resolution
• The number of pixels in an image is sometimes called the resolution.
• The more pixels in an image, the higher the resolution and the more detail it will have.
• Each pixel is made up of subpixels that emit red, green, and blue (RGB) color at different intensities.
• The RGB color components make up the range of colors that appear on a display.
• Images with more pixels will have larger file sizes.
• Larger files can slow down the loading time of a website or app.
• Dead pixels
• A dead pixel is a permanently black or colored dot on a screen that doesn't change when the image or color changes.
• Dead pixels can be caused by manufacturing flaws, physical damage, or long-term use.

Q83. Answer: (d) Jamal-ud-Din Yaqut

The correct answer is Jamal-ud-Din Yaqut

Key Points

• Jamal-ud-Din Yaqut, an Abyssinian slave, was a close associate of Razia Sultana, the first and only female ruler of the Delhi Sultanate.
• He held significant positions during Razia's reign, including that of "Amir-al-Khayl", which translates to "Commander of the Horse" or leader of the cavalry.
• This title was indicative of his authority and proximity to Razia, emphasizing his role in military affairs.
• Yaqut rose in the ranks of the Delhi court, and found favour with the first female monarch of the Mamluk dynasty, Razia Sultana.

Additional Information

• Malik Ikhtiar-ud-din Altunia
• Malik Ikhtiyar-ud-din Altunia was the governor of Bathinda in (Punjab) under the rule of the Delhi Sultanate under the Mamluk dynasty.
• He was the husband of Razia Sultana.
• He was given the charge of sharab-dar (office the care of the liquors) and after sometime when Sultan Itutmish saw the bravery and manliness in him he gave him the office of Sar Chatar-dar
• Muiz ud din Bahram
• Muiz ud-Din Bahram was the sixth sultan of the Mamluk Dynasty.
• He was the son of Shams ud din Iltutmish (1211–36) and the half-brother of Razia Sultan (1236–40)

Q84. Answer: (b) 13

Given:

We need to simplify:

(31/4 - 4/5 × 5/6)/(41/3 ÷ 1/5 - (3/10 + 211/5)) - (12/3 × 11/2).

Solution:

Step 1: Simplify each term

Numerator of the first term:

31/4 = 13/4.

4/5 × 5/6 = 20/30 = 2/3.

13/4 - 2/3 = 39/12 - 8/12 = 31/12.

Denominator of the first term:

41/3 = 13/3.

13/3 ÷ 1/5 = 13/3 × 5 = 65/3.

211/5 = 106/5 and 3/10 + 106/5 = 3/10 + 212/10 = 215/10 = 43/2.

65/3 - 43/2 = 130/6 - 129/6 = 1/6.

First term:

(31/12)/(1/6) = 31/12 × 6 = 31/2.

Second term:

12/3 = 5/3 and 11/2 = 3/2.

5/3 × 3/2 = 15/6 = 5/2.

Final expression:

31/2 - 5/2 = (31 - 5)/2 = 26/2 = 13.

The value of the given expression is 13.

Q85. Answer: (a) Only assumption B is implicit.

Given Statement: Though he is a Korean, this food is too spicy for my friend.

Now,

Assumptions:

A. Koreans cannot eat spicy food - Not Implicit (The statement does not suggest that Koreans cannot eat spicy food, it only mentions that the food is too spicy for one specific Korean.)

B. Koreans can eat spicy food - Implicit (The statement implies that it is surprising or noteworthy that the food is too spicy for the friend, suggesting that generally, Koreans are expected to handle spicy food.)

Here, Only assumption B is implicit.

Hence, the correct answer is "Option 1".

Q86. Answer: (d) 27

The logic followed here is:

23, 29 and 31 → These all numbers are prime numbers.

1) 19 → This is a prime number

2) 37 → This is a prime number

3) 43 → This is a prime number

4) 27 → This is not a prime number

Hence, the correct answer is "27".

Q87. Answer: (c) Nikhil

Given: There are five friends - Param, Nikhil, Bobby, Hemu and Lalit.

1) Hemu is shorter than Nikhil and taller than Param.

Nikhil > Hemu > Param

2) Param is shorter than Nikhil but taller than Lalit.

Nikhil > Hemu > Param > Lalit

3) Bobby is the tallest among the five friends.

Bobby > Nikhil > Hemu > Param > Lalit

So, Nikhil is the second tallest.

Hence, the correct answer is "Nikhil".

Q88. Answer: (c) Aircraft

The logic followed here is:

Logic: Occupation and associated vehicle.

Here,

Field : Farmer → Field is associated with the occupation of a Farmer.

Similarly,

? : Pilot → Aircraft is associated with the occupation of a Pilot.

Hence, the correct answer is "Option 3".

Q89. Answer: (d) Gita

As per the given information;

1. Sita and Gita speak Hindi and English.

2. Mohan and Gita speak Bengali, and Hindi.

Persons	Language
Sita	Hindi, English
Gita	Hindi, English, Bengali
Mohan	Bengali, Hindi
Priya	
Gaurav	

3. Sita, Priya and Gaurav speak English and Malayalam.

Persons	Language
Sita	Hindi, English, Malayalam
Gita	Hindi, English, Bengali
Mohan	Bengali, Hindi
Priya	English, Malayalam
Gaurav	English, Malayalam

4. Gita and Gaurav speak Odia.

Persons	Language
Sita	Hindi, English, Malayalam
Gita	Hindi, English, Bengali, Odia
Mohan	Bengali, Hindi
Priya	English, Malayalam
Gaurav	English, Malayalam, Odia

So, Gita speaks the maximum number of languages.

Hence, the correct answer is "Gita".

Q90. Answer: (c) 178

The logic followed here is:

Hence, the correct answer is "178".

Q91. Answer: (b) 5314

The logic followed here is:

HAND is written as 7194

LEG is written as 536

Similarly, LEAD will be written as:

Hence, the correct answer is "5314".

Q92. Answer: (d) Coach

The logic followed here is:

Logic: Parts of a mode of transport.

Here,

Aircraft : Cabin → Cabin is a part of an Aircraft.

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Similarly,

Train : Coach → Coach is a part of a Train.

Hence, the correct answer is "Option 4".

Q93. Answer: (b) 175

The logic followed here is:

1) 300 → Even number

2) 175 → Odd number

3) 250 → Even number

4) 150 → Even number

Thus, except 175, all other numbers are even numbers.

Hence, the correct answer is "175".

Q94. Answer: (b) 40

Given: In an office, there are 200 employees.

130 employees have desktops, 100 have laptops and 60 have both laptops and desktops.

Employees who have only laptops = 100 - 60 = 40

So, 40 employees have only laptops.

Hence, the correct answer is "40".

Q95. Answer: (d) 400 m, East

As per the given information:

From a coffee shop, X walked 500 m towards the east,

200 m towards the south,

50 m towards the west,

50 m towards the north,

50 m towards the west and 150 m the north.

Distance between the coffee shop and end point = 500 - (50 + 50) = 400

So, X is 400 m, in East direction from the coffee shop.

Hence, the correct answer is "400 m, East".

Q96. Answer: (d) Resume

The logic followed here is:

Logic: Promotion through Representation.

Here,

Product : Advertisement → Advertisement is a means of promoting a Product.

Similarly,

Professional : Resume → Resume is a means of promoting a Professional.

Hence, the correct answer is "Option 4".

Q97. Answer: (c) Neither A nor B follows.

Statements:

A. Some doors are rocks.

B. Some rocks are woods.

The least possible Venn diagram is as follows:

Conclusions:

A. Some doors are woods. - False (because there is no direct relation between doors and woods so it can be possible but not definite)

B. No wood is a rock. - False (because Some rocks are woods given. So No wood is a rock it is not definite)

Hence, the correct answer is "Neither A nor B follows".

Q98. Answer: (b) UDT

The logic followed here is:

ROD and VET are written as TRH and XHX respectively.

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Similarly, SAP will be written as:
Hence, the correct answer is "UDT".

Q99. Answer: (a) Kavita

As per the given information:
Nitu is older than Sumit.
Nitu > Sumit
Rohit is younger than Sumit, but older than Kavita.
Nitu > Sumit > Rohit > Kavita
Nisha is older than Sumit but younger than Nitu.
Nitu > Nisha > Sumit > Rohit > Kavita
So, Kavita is the youngest among all.
Hence, the correct answer is "Kavita".

Q100. Answer: (d) Nose

The logic followed here is:

Bone	Connective Tissue
Tendon	Connective Tissue
Ligament	Connective Tissue
Nose	Body Part

Bone, Tendon, Ligament all are Connective Tissues,
Whereas,
Nose is a Body Part..
Hence, the correct answer is "Nose".

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