RRB NTPC CBT-I Official Paper (Held On: 4 Mar 2021 Shift 1) (Previous Year Paper)

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

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Q1. A card is drawn at random from a pack of playing cards. What is the probability of getting a face card?

(a) 1/13
(b) 4/13
(c) 3/13
(d) 5/13

Q2. Who founded the Servants of India Society?

(a) Gopal Krishna Gokhale
(b) Swami Dayanand Saraswati
(c) Bal Gangadhar Tilak
(d) Jyotiba Phule

Q3. Who has been appointed as the Deputy Executive Director of United Nations Entity for Gender Equality and the Empowerment of Women (UN-Women) in June 2019?

(a) Indra Nooyi
(b) Anita Bhatia
(c) Lakshmi Puri
(d) Arpita Singh

Q4. Select the letter-cluster that can replace the question mark (?) in the following series.

OQS, ?, ACE, GIK, MOQ

(a) UYW
(b) RTV
(c) TVW
(d) UWY

Q5. If A exceeds B by 25% and B is less than C by 30%, then the ratio of A and C is :

(a) 8 : 7
(b) 4 : 5
(c) 3 : 2
(d) 7 : 8

Q6. Read the given statement rod conclusions carefully, assuming that the information given in the statements is true even if it appears to be a variance with commonly known facts, decide which of the given conclusions logically follows from the statements.

Statements:

Every hospital has patients

Conclusions:

I. Patients are available only in hospitals.

II. Hospitals do not have patients.

(a) Neither conclusion I nor II follows

(b) Either conclusion I or II follows.
(c) Only conclusion I follows
(d) Only conclusion II follows.

Q7. Which bio-reserves of India are NOT included in the world network biosphere-reserve?
(a) Gulf of Mannar
(b) Sunderbans
(c) Nanda Devi
(d) Manas

Q8. If two liters of water is evaporated from a 5 liter solution containing 3% salt, then what is the percentage of salt in the remaining solution?
(a) 6%
(b) 3%
(c) 2%
(d) 5%

Q9. The value of 27 × 4.15 + 30.8 ÷ 22 is:
(a) 110.25
(b) 113.45
(c) 126.05
(d) 149.85

Q10. the product of two positive numbers is 0.60. If one number is a 1/15 ^(th) of the other, then what are the two numbers?
(a) 0.2, 3.0
(b) 0.3, 2.0
(c) 0.4, 1.5
(d) 0.6, 1.0

Q11. Who among the following is NOT related to Apple Inc. as its co-founder?
(a) Ronald Wayne
(b) Mark Zuckerberg
(c) Steve Wozniak
(d) Steve Jobs

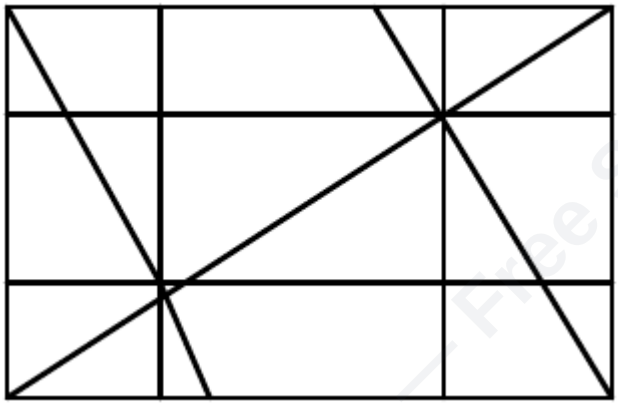
Q12. On which date is the National Voters' Day celebrated in India?
(a) 21^(st)January
(b) 26^(th) January
(c) 25^(th) January
(d) 24^(th) January

Q13. Who was the first Indian poet who was invited to record his poems at the Library of Congress in Washington DC?
(a) Abhay K
(b) Ravindra Bhattacharya
(c) Gopalakrishna Adiga
(d) Vinay Kumar

Q14. The concept of 'directive principles' in Indian Constitution has been taken from:
(a) Canada
(b) USA
(c) Ireland
(d) Great Britain

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Q15. Find the total number of straight lines in the following figure.



(a) 11
(b) 9
(c) 16
(d) 12

Q16. What is the minimum amount of monthly pension permissible under Atal Pension Yojana?
(a) Rs. 1,500
(b) Rs. 1,000
(c) Rs. 2,000
(d) Rs. 500

Q17. She wrote in English as Kamala Das but when she wrote in her mother tongue what was the name she used?
(a) Vasanthi
(b) Ambai
(c) Arundhati Roy
(d) Madhavikutty

Q18. Who is the 46^(th) Chief Justice of India?
(a) Justice Chelameshwar
(b) Justice Ranjan Gogoi
(c) Justice Dipak Mishra
(d) Justice Kurian Joseph

Q19. Who was the Englishman who came to India, taught Philosophy in St Stephen's College and later was known as 'Deenbandhu'?
(a) William Pitt
(b) Lord Russell
(c) CF Andrews
(d) Michael Madhusudan Dutt

Q20. Consider the given statement and decide which of the given assumptions is are implicit in the statement.
Statement:
"Invest in cur schemes and double your money" - Statement by a marketing executive
Assumptions:
1. The statement is an unrealistic assurance
2. People want to invest their savings to increase their income.
(a) Only assumption 1 is implicit.
(b) Neither assumption 1 nor 2 is implicit.
(c) Both assumptions 1 and 2 are implicit.
(d) Only assumption 2 is implicit.

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Q21. Which metal is used in electroplating on iron to protect it from corrosion and formation of rust?

(a) Rhodium
(b) Zinc
(c) Chromium
(d) Tin

Q22. 'Nirmala' was a fiction novel written by:

(a) Vaikom Muhammad Basheer
(b) Kamala Das
(c) Munshi Premchand
(d) Rabindranath Tagore

Q23. Which is NOT an agency of United Nations?

(a) Red Cross International Committee
(b) World Health Organization
(c) International Labour Organization.
(d) Food and Agriculture Organization

Q24. In a certain code language, AGE is written as 13 and SEX is written as 48. How will COME be written as in that language?

(a) 61
(b) 36
(c) 63
(d) 92

Q25. Expenses made by a company (in millions) under different heads of expenditures are given below. Study the table carefully and answer the question.

Year	Head of Expenditure				
Raw Materials	Loans & interests	Salary	Miscellaneous	Taxes	
2014	452	167	340	56	47
2015	569	174	398	62	56
2016	659	189	409	73	61
2017	706	193	456	77	63
2018	783	203	479	81	69

What was the approximate average expenditure incurred by the company under the head of Taxes from 2014 to 2018?

(a) 61
(b) 59
(c) 63
(d) 70

Q26. Who was the President of Indian National Congress on 15 August 1947?

(a) Pandit J L Nehru
(b) Rajendra Prasad
(c) J.B. Kripalani
(d) Sardar Patel

Q27. Which is NOT correct in the context of environmental accidents and their locations?

(a) Three Mile Island nuclear disaster - Tokyo
(b) Union Carbide Gas Leak - Bhopal
(c) Nuclear Power Plant explosion - Chernobyl

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(d) Italian dioxin crisis - Seveso

Q28. The capacity of a 3.5-inch floppy disk is:

(a) 1 GB
(b) 2.44 MB
(c) 1.44 MB
(d) 1.40 MB

Q29. To complete a given task, Imran takes 11 days, Tahir takes 15 days and Amla takes 13 days. Working together they finish the task and get Rs. 2,012. What will be the share of Imran provided the daily wage is the same for all?

(a) Rs. 880
(b) Rs. 680
(c) Rs. 780
(d) Rs. 580

Q30. Which of following is an incorrect statement about payment banks?

(a) They cannot issue loans
(b) They can issue debit cards
(c) They can accept demand deposits
(d) They can issue credit cards

Q31. If the cost price of an article is Rs. 5,340, then what should be the selling price of the article so that there is a profit of 5%?

(a) Rs. 5,840
(b) Rs. 6,795
(c) Rs. 5,607
(d) Rs. 6,300

Q32. Three prime numbers are arranged in descending order. If the product of the first two is 323 and that of the last two is 221, then what is the value of the biggest prime number?

(a) 23
(b) 13
(c) 19
(d) 17

Q33. If (3^x)(3^y) = 9 and (25^x)(5y) = 625, then what is (x, y)?

(a) (2, 4)
(b) (2, 0)
(c) (3, -5)
(d) (1, 2)

Q34. The name of the active volcano in India is:

(a) Neill island
(b) Ross island
(c) Barren island
(d) Sentinel Island

Q35. The concentration of which plant hormone is highest at the top of the plant and decreases as you get closer to the roots?

(a) Auxin
(b) Cytokinin
(c) Gibberellin
(d) Ethylene

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Q36. The four sides of a quadrilateral are in the ratio of 4 : 5 : 6 : 7 and its perimeter is 176 cm. Find the length of its longest side.

(a) 57 cm
(b) 65 cm
(c) 75 cm
(d) 56 cm

Q37. Which of the following is NOT an output device for a computer?

(a) Monitor
(b) Printer
(c) Projector
(d) Scanner

Q38. Who was the ruler of the Vijayanagara dynasty who ruled in the 16^(th) century?

(a) Krishnadeva Raya
(b) Pulakeshin II
(c) Raja Raja Chola
(d) Adi Shankara

Q39. Western Ghats and Eastern Ghats meet at_____ hills.

(a) Nilgiri
(b) Shivalik
(c) Maikal
(d) Amarkantak

Q40. Read the given statement and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statement.

Statement:

The teacher scolded Amit in the presence of the whole class.

Conclusions:

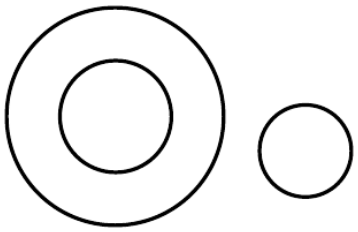
I. The teacher dislikes Amit.

II. The class did not like Amit.

(a) Only conclusion I follows.
(b) Neither conclusion I nor II follows
(c) Either concluision I or II follows.
(d) Only conclusion II follows.

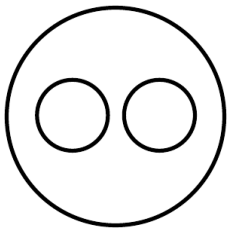
Q41. Select the Venn diagram that best represents the relationship between computers, desktops and laptops.

(a)

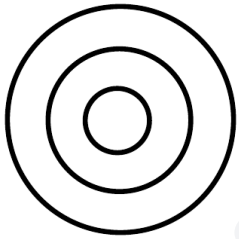


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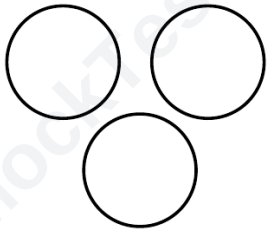
(b)



(c)



(d)



Q42. DISHA is an initiative under the Ministry of:

(a) Culture
(b) Urban Development
(c) Micro, Small and Medium Enterprises
(d) Rural Development

Q43. The sum of two numbers is 434 and their H.C.F is 31. How many pairs of numbers can satisfy the above conditions?

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

Q44. A sum of Rs. 2480 amounts to Rs. 2600 in 5 years at simple interest. If the interest rate was 2% higher, by how much would the interest amount increase?

(a) Rs. 285
(b) Rs. 250
(c) Rs. 248
(d) Rs. 264

Q45. Select the option that will fill in the blank and complete the given letter series.

A, B, D, G, K, P, _____

(a) V
(b) W
(c) X
(d) Z

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Q46. If X^4 + 1/(X^4) = 322 and x > 1, then what is the value of X - 1/X ?

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

Q47. India and France signed an implementation agreement on “MOBILISE YOUR CITY” (MYC) to reduce:

(a) Traffic in the city
(b) Sewage
(c) Particulate matter
(d) Green House Gas (GHG) emissions

Q48. Select the option that is related to the third term in the same way as the second term is related to the first term.
Finger : Ring :: Wrist : ?

(a) Bangle
(b) Solitaire
(c) Brooch
(d) Anklet

Q49. The square root of 182.25 is:

(a) 11.25
(b) 13.5
(c) 12.5
(d) 9.25

Q50. The value of sin 60^? cos 60^? is equal to:

(a) 3/√2
(b) 1/2
(c) (√3)/4
(d) √3/2

Q51. 15 men can do a piece of work in 30 days. How many days would 9 men need to complete the work?

(a) 50
(b) 65
(c) 35
(d) 70

Q52. If X + 1/X = 2 Cos θ, then what is the value of $X^2 + 1/(X^2)$?

(a) 2 Cos 2 θ
(b) 2 Sin 2 θ
(c) Sin 2 θ
(d) Cos 2 θ

Q53. The value of $((56+34)^2 -(56-34)^2)/(4\times 56 \times 34)$ is:

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

Q54. In tossing three coins at a time, the probability of getting at least one heads is:

(a) 3/8
(b) 1/8
(c) 7/8
(d) 1/2

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Q55. The scores of four cricket players are as follows:

Mohan scored more than Narender but less than Pankaj. Kamal scored more than Narender but less than Mohan.

Who scored the highest?

(a) Narender
(b) Pankaj
(c) Mohan
(d) Kamal

Q56. Who introduced the Vernacular Press Act in India?

(a) Lord Willingdon
(b) Lord Lytton
(c) Lord Dalhousie
(d) Lord Ripon

Q57. Find the simple interest for an amount of Rs. 2,500 at 8 1/4 % per annum for the period from 1st March 2018 to 12^(th) May 2018.

(a) Rs. 41.25
(b) Rs. 23.25
(c) Rs. 32.25
(d) Rs. 38.25

Q58. The Financial Literacy Week is an initiative by:

(a) Central Government
(b) Punjab National Bank
(c) Reserve Bank of India
(d) State Bank of India

Q59. Which of the following was founded by Sir Stamford Raffles?

(a) Singapore
(b) Hong Kong
(c) Mumbai
(d) Kuala Lumpur

Q60. The headquarters of UN is located at:

(a) London
(b) New York City
(c) Washington DC
(d) Geneva

Q61. A retailer buys 20 pens at the marked price of 15 pens from a wholesaler. If he sells these 20 pens giving a discount of 1%, then what is the profit percent of the retailer?

(a) 32%
(b) 30%
(c) 35%
(d) 25%

Q62. The atomic number of an element is the number of_____ in the nucleus of each atom of that element.

(a) protons
(b) mesons
(c) neutrons
(d) electrons

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Q63. Which of the following comes under the ‘amphibia’ class of animals?

(a) Pigeon
(b) Turtle
(c) Toad
(d) Cat

Q64. The distance from the origin to the line $4x + 3y + 6 = 0$ is:

(a) 4/5
(b) 6/5
(c) 7/5
(d) 3/5

Q65. If $2a = 3b = 4c$ and $a + b + c = 13\sqrt{2}$, then $a^2 + b^2 + c^2$ is:

(a) 72
(b) 104
(c) 122
(d) 68

Q66. Durand line divides which two countries?

(a) India- Bangladesh
(b) Afghanistan-Pakistan
(c) India-Nepal
(d) Pakistan-China

Q67. What is the name of the research station set up by India in Antarctica in the year 2012?

(a) Hind
(b) Bharati
(c) Sagarika
(d) Dhruva

Q68. Find the radius of the circle $x^2 + y^2 + 7x + 4y + 9 = 0$.

(a) $\sqrt{23}/2$
(b) $\sqrt{19}/2$
(c) $\sqrt{29}/2$
(d) $\sqrt{13}/2$

Q69. A man covered a distance of 32 km. After 1 hour 20 minutes he noticed that the distance he covered is 5/7 ^(th) of the remaining distance. What was his speed in km/hr?

(a) 12 km/hr
(b) 24 km/hr
(c) 10 km/hr
(d) 16 km/hr

Q70. If the perimeter of a square is 160 cm. What is the diagonal of the square (in cm)?

(a) $60\sqrt{2}$ cm
(b) $80\sqrt{2}$ cm
(c) $40\sqrt{2}$ cm
(d) $20\sqrt{2}$ cm

Q71. Three numbers are in the ratio 1 : 2 : 3. If their HCF is 8, then what is their LCM?

(a) 96
(b) 24
(c) 48
(d) 120

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Q72. Where will you find the 'Forbidden City'?

(a) China
(b) Myanmar
(c) Vietnam
(d) Greece

Q73. Four words have been given, out of which three are alike in some manner and one is different. Select the odd one.

(a) Chair
(b) Bed
(c) Stool
(d) Tablet

Q74. Who was the first President of Constituent Assembly of independent India?

(a) Dr B.R.Ambedka
(b) Pandit Jawaharlal Nehru
(c) Dr Rajendra Prasad
(d) Dr Sachchidananda Sinha

Q75. The value of{ {3/5 × [3 + {3 +(11 + 5 + 6)}]} } is:

(a) 114/5
(b) 126/5
(c) 102/5
(d) 164/5

Q76. R is the father of a girl S and brother of a man A. C is mother of S and sister-in-law of A. What is relationship between S and A?

(a) Father and daughter
(b) Brother and sister
(c) Maternal uncle and niece
(d) Niece and paternal uncle

Q77. A son is 24 years younger than his father, and in 2 years, he will be half of the age of his father. What is the age of the father?

(a) 48 Years
(b) 44 Years
(c) 46 Years
(d) 50 Years

Q78. The Department of Telecommunication Govt. of India has permitted the manufacture of mobile handsets with _____W/kg as maximum SAR value.

(a) 2.6
(b) 3.6
(c) 1.6
(d) 0.6

Q79. In Banking field, SLR means:

(a) Statutory Liquidity Ratio
(b) State Liquidity Ratio
(c) Statutory Lending Rate
(d) Simple Lending Rate

Q80. A sum of money doubles itself at compound interest in 12 years. In how many years will it become 4 times?

(a) 36
(b) 24
(c) 18

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(d) 20

Q81. Details of the number of students from various schools playing different sports is given in the table below. Study the table and answer the question.

Games	School				
A	B	C	D	E	
Badminton	34	67	23	78	56
Table Tennis	21	40	26	32	29
Football	12	22	19	16	21
Basketball	09	13	07	12	06
Cricket	98	121	78	84	67

Name the sports that have the minimum and maximum participation respectively, of students from all the schools.

(a) Basketball and Cricket
(b) Football and Basketball
(c) Basketball and Football
(d) cricket and Basketball

Q82. Which BIMSTEC members are NOT participating in China's Belt and Road Initiative (BRI)?

(a) India and Nepal
(b) India and Bhutan
(c) India and Myanmar
(d) Nepal and Bhutan

Q83. The measure of the greatest length which can measure 24 m, 32 m and 42 m completely is:

(a) 8 m
(b) 2 m
(c) 5 m
(d) 4 m

Q84. In which of following satyagraha's did Vallabh Bhai Patel get the title "Sardar"?

(a) Champaran
(b) Abmedabad mill strike
(c) Kheda
(d) Bardoli

Q85. The Narora Atomic Power Station is situated in:

(a) Maharashtra
(b) Haryana
(c) Madhya Pradesh
(d) Uttar Pradesh

Q86. Select the combination of operators that when sequentially placed in the blanks of the given equation will complete the equation correctly.

8_ 7 _ 6_ 3 = 19

(a) -, +, ×
(b) -, -, ×
(c) -, ÷, ×
(d) +, +, ×

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Q87. With the given interchanges, which of the following equations is correct?

Interchange + and × and number 4 and 6.

(a) 4 + 6 ÷ 3 - 3 × 2 = 7
(b) 4 + 6 ÷ 3 - 3 × 2 = 12
(c) 4 + 6 ÷ 3 - 3 × 2 = 13
(d) 4 + 6 ÷ 3 - 3 × 2 = 11

Q88. Study the given information in the table and answer the question that follows.

The following table shows the details of the number of people who booked a ticket and travelled from Punjab, during the years 2015 to 2018.

Year	Punjab	
Tickets booked	Actually Travelled	
2015	2400	2200
2016	2300	2000
2017	2600	2500
2018	2800	2450
Total	10100	9150

In which year was the number of people who travelled as a percentage of those who booked tickets, the minimum?

(a) 2015
(b) 2018
(c) 2017
(d) 2016

Q89. The table below gives the details of maximum marks and marks obtained by different students in the subjects Mathematics, English, Physics, Chemistry, Computer Science, and Photography.

Students	Pandir	Anil	Devesh	Ramit	Naman	
Subjects	Max. Marks	Marks Obtained				
Mathematics	100	67	84	65	90	46
Physics	100	56	89	72	88	67
Chemistry	100	87	79	62	92	69
English	100	72	69	80	82	56
Computer Sc.	50	33	39	34	41	32
Photography	50	40	45	47	45	40
Total	500	355	405	360	440	310

What is approximate average percentage of marks of all the students?

(a) 80%
(b) 75%
(c) 70%
(d) 85%

Q90. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follows from the statements.

Statements:

1. Some guns are metals.
2. Some metals are leathers.

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3. Some leathers are papers.

Conclusions:

1. Some guns are not leathers.
2. Some metals are not papers.
3. Some papers are leathers.
4, Some papers are not metals.

(a) Only conclusion 2 follows.
(b) Only conclusion 1 follows
(c) Only conclusion 4 follows.
(d) Only conclusion 3 follows.

Q91. Hari is the father-in-law of Ram and husband of Kanchan. Kanchan is the mother of her only daughter Suman. If Sarita is the daughter of Suman, then what is the relationship between Sarita and Ram?

(a) Sister and brother
(b) Niece and Maternal uncle
(c) Nephew and Maternal uncle
(d) Daughter and father

Q92. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

1. No bag is a poem.
2. Some books are bags.

Conclusions:

1. Some books are not poems.
2. Some poems are bags.

(a) Only conclusion 1 follows.
(b) Only conclusion 2 follows
(c) Neither conclusion 1 nor 2 follows.
(d) Both conclusions 1 and 2 follow.

Q93. Select the option that is related to the third term in the same way as the second term is related to the first term.

Fruits : Food :: Tea : ?

(a) Refresher
(b) Tasty
(c) Leaf
(d) Beverage

Q94. Select the number that can replace the question mark (?) in the following series.

47, 194, ?, 782, 1223, 1762

(a) 439
(b) 501
(c) 480
(d) 489

Q95. Consider the given statement and decide which of the given assumptions is/are implicit in the statement.

Statement:

“Please do not use medicines during pregnancy” — Medical advice by a doctor.

Assumptions:

1. Use of medicine will cause problems during pregnancy.
2. Medicines taken during pregnancy are very costly.

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(a) Only assumption 2 is implicit.
(b) Neither assumption 1 nor 2 is implicit.
(c) Only assumption 1 is implicit.
(d) Either assumption 1 or 2 is implicit.

Q96. Five children A, B, C, D and E ate mangoes. A ate 8 mangoes less then B. C and E together ate 37 mangoes. D ate 8 mangoes more than C. B ate 5 mangoes more than C. B and A together ate 40 mangoes. Considering the above information, which of the following statements is correct?

(a) E ate 18 mangoes and C ate 19 mangoes.
(b) C ate 11 mangoes and B ate 16 mangoes.
(c) D ate 19 mangoes and C ate 27 mangoes.
(d) A ate 24 mangoes and B ate 16 mangoes.

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

(a) Window
(b) Wall
(c) Door
(d) Carpenter

Q98. In a certain code language, MAY is written as 123, RULE is written as 4567 and FUND is written as 8590, How will LAND be written as in that language?

(a) 6209
(b) 6290
(c) 6431
(d) 4632

Q99. Four words have been given, out of which three are alike in some manner and one is different. Select the odd one.

(a) Head-band
(b) Tiara
(c) Bangle
(d) Hairpin

Q100. The table below gives the details of computer printers sold by XYZ company over a period of 5 years.

Year	**Types of Printers**					
L-1100	L-1101	L-1102	L-1103	L-1104	Total	
2014	523	345	678	340	740	2626
2015	673	451	822	235	905	3086
2016	567	389	907	423	867	3153
2017	590	562	1022	548	913	3635
2018	623	677	1245	674	988	4207
Total	2976	2424	4674	2220	4413	16707

What is the approximate share of the sales of printer model L-1102 as a percentage of total sales of printers in the year 2015?

(a) 24%
(b) 29%
(c) 27%
(d) 23%

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ANSWER KEY

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

SOLUTIONS

Q1. Answer: (c) 3/13

Given:

A card is drawn at random from a pack of playing cards. What is the probability of getting a face card?

Formula used:

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

Calculation:

Total number of cards = 52

Number of face cards = 12 (4 Jacks, 4 Queens, 4 Kings)

=> Probability (P) = 12/52

=> Probability (P) = 3/13

Therefore The correct answer is option 3.

Q2. Answer: (a) Gopal Krishna Gokhale

The correct answer is Gopal Krishna Gokhale.

Key Points

• Gopal Krishna Gokhale founded the 'Servants of India Society.

• It was formed in Pune, Maharashtra in 1905.

• Gokhale left the Deccan Education Society to form this association.

• This association was formed with a small group of educated Indians.

• To promote social and human development and overthrow British rule in India was the objective of forming this association.

• The organization promoted many campaigns for education, sanitation, and healthcare.

• Untouchability, discrimination, alcoholism, poverty, and oppression of women issues were raised.

• Hitavada was the magazine, which was published through the association.

Additional Information

• Indian National Congress

• On December 28, 1885, the Indian National Congress was founded in Bombay by Scottish resident Alan Octavian Hume. Hence, Option 4 is correct.

• Allan Octavian Hume was a British member of the Imperial Civil Service and one of the founders of the Indian National Congress.

• He also founded the journal Stray Feathers in which he and his subscribers recorded notes on birds from across India.

• He left India in 1894 and found the South London Botanical Institute towards the end of his life.

• List of the Birds of India, My Scrap Book: Or Rough Notes on Indian Oology and Ornithology, and Hints on Esoteric Theosophy are his important works.

• The first president of the Congress was Vyomesh Chandra Banerjee.

• The youngest president of the Congress was Abdul Kalam Azad, who presided over the special session of Delhi in 1925.

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• The 1888 session of the Congress was presided over by the first Englishman George Yule.
• Motilal Nehru presided over the 1919 Amritsar session of the Congress.
• Swami Dayanand Saraswati
• A religious leader and founder of the Arya Samaj, a socio-religious reform movement
• His ideas were accessible to the people of Northern India through the use of Hindi.
• He believed that the practices of many religions and communities, such as idol worship, animal sacrifice, and child marriage, were contrary to the wisdom of the Vedas.
• His political message was "India for the Indians
• Bal Gangadhar Tilak
• A political thinker and activist who was involved in the Boycott and Swadeshi movement
• He condemned the British efforts to control the Bubonic plague in Bombay and was sentenced to 18 months in prison.
• He started the Boycott and Swadeshi movement to boycott Western goods and use Indian-produced goods and services
• Jyotirao Phule
• His work focused on women's rights, child rights, caste politics, literacy, and eradicating superstition.

Q3. Answer: (b) Anita Bhatia

The correct answer is Anita Bhatia

Key Points

• United Nations Secretary-General António Guterres announced on 30 May 2019 the appointment of Anita Bhatia of India as Deputy Executive Director of the United Nations Entity for Gender Equality and the Empowerment of Women (UN Women).
• She was also appointed as the Assistant Secretary-General for Resource Management, Sustainability and Partnerships.
• She served for several years as Director of Global Partnerships for the International Finance Corporation (IFC), the World Bank Group's private sector arm.
• Ms. Bhatia holds a Bachelor of Arts in History from Calcutta University, a Master of Arts in Political Science from Yale University and a Juris Doctor in Law from Georgetown University.

Q4. Answer: (d) UWY

The logic followed here is:

Hence, "Option 4" is the correct answer.

Q5. Answer: (d) 7 : 8

Given:

If A exceeds B by 25% and B is less than C by 30%

Formula used:

A = 1.25B

B = 0.7C

Calculation:

We need to find the ratio of A to C.

From the given information:

A = 1.25B

B = 0.7C

=> A = 1.25 × 0.7C

=> A = 0.875C

The ratio of A to C is:

=> A/C = 0.875/1

=> A/C = 7/8

Therefore The correct answer is option 4.

Q6. Answer: (a) Neither conclusion I nor II follows

Given,

Statement:

Every hospital has patients

Conclusions:

I. Patients are available only in hospitals - False (Because, the statement only specifies that hospitals have patients but does not state that patients can only be found in hospitals).

II. Hospitals do not have patients - False (Because, the statement explicitly states that every hospital has patients, which contradicts this conclusion).

So, Neither conclusion I nor II follows.

Hence, the correct answer is "Option 1".

Q7. Answer: (d) Manas

The correct answer is Manas.

Key Points

• It is situated in Assam, covering parts of the districts of Kokrajhar, Chirang, Baksa, Udalguri, and Darrang.

• It is a core part of the biosphere reserve and a UNESCO World Heritage Site.

• It was designated as a Tiger Reserve in 1973 under Project Tiger.

• It lies along the banks of the Manas River, which flows into Bhutan.

Additional Information

• Gulf of Mannar Biosphere Reserve:

• It is included in the UNESCO World Network of Biosphere Reserves (2001).

• It is known for its rich marine biodiversity, including coral reefs and endangered species like the dugong.

• Sunderbans Biosphere Reserve:

• It is part of the UNESCO World Network of Biosphere Reserves (2001).

• It is famous for the Royal Bengal Tiger and is one of the largest mangrove ecosystems in the world.

• Nanda Devi Biosphere Reserve:

• It is recognized by the UNESCO World Network of Biosphere Reserves (2004).

• It is known for the Nanda Devi and Valley of Flowers National Parks, which harbor rare Himalayan flora and fauna.

Q8. Answer: (d) 5%

Given:

Initial volume of solution = 5 liters

Salt percentage = 3%

Volume of water evaporated = 2 liters

Formula used:

Final percentage of salt = (Initial mass of salt / Final volume of solution) × 100

Calculation:

Initial mass of salt = 5 liters × 3% = 5 × 0.03 = 0.15 liters

Final volume of solution = 5 liters - 2 liters = 3 liters

=> Final percentage of salt = (0.15 liters / 3 liters) × 100

=> Final percentage of salt = (0.15 / 3) × 100

=> Final percentage of salt = 0.05 × 100

=> Final percentage of salt = 5%

Therefore The correct answer is option (4).

Q9. Answer: (b) 113.45

Given:

The value of 27 × 4.15 + 30.8 ÷ 22 is:

Formula used:

Use basic arithmetic operations (multiplication, addition, and division).

Calculation:

27 × 4.15 + 30.8 ÷ 22

=> 27 × 4.15 = 112.05

=> 30.8 ÷ 22 = 1.4

=> 112.05 + 1.4 = 113.45

Therefore The correct answer is option 2.

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Q10. Answer: (a) 0.2, 3.0

Shortcut Trick

Ratio of the two numbers = 1 : 15

Product of the ratio parts = 1 × 15 = 15 units²

15 units² = 0.60 => 1 unit² = 0.60 ÷ 15 = 0.04

1 unit = √0.04 = 0.2

Numbers = 1 × 0.2 and 15 × 0.2 = 0.2 and 3.0

Therefore The correct answer is 0.2, 3.0.

Alternate Method

Given:

Product of numbers = 0.60

Relation: One number = (1/15) × other number

Calculations:

Let the larger number be y.

The smaller number is y/15.

=> y × (y/15) = 0.60

=> y² ÷ 15 = 0.60

=> y² = 0.60 × 15

=> y² = 9.00

=> y = √9 = 3.0

The smaller number = 3.0 ÷ 15 = 0.2

Therefore The correct answer is 0.2, 3.0.

Additional Information

Square Root of Decimals

When calculating the square root of a decimal, ensure the number of decimal places is even. For example, √0.04 = 0.2 and √0.0009 = 0.03.

Ratio Product Rule

If two numbers are in ratio a:b and their product is P, the numbers are a × √(P/(a×b)) and b × √(P/(a×b)).

Successive Multiplication

If x = k × y and x × y = P, then k × y² = P. This quadratic relation is common in ratio-based product problems.

Q11. Answer: (b) Mark Zuckerberg

The correct answer is Mark Zuckerberg.

Key Points

• He launched Facebook in 2004 while studying at Harvard University, which later became one of the largest social media platforms.

• He currently serves as the CEO of Meta (formerly Facebook, Inc.), which also owns Instagram, WhatsApp, and Oculus.

• Facebook's headquarters are located in Menlo Park, California.

Additional Information

• Ronald Wayne:

• He co-founded Apple Inc. in 1976 along with Steve Jobs and Steve Wozniak but sold his shares shortly after for $800.

• He provided administrative oversight and created the original Apple logo.

• Steve Wozniak:

• He co-founded Apple Inc. and was the chief designer of the Apple I and Apple II computers.

• He is known for his contributions to the personal computer revolution in the late 1970s and early 1980s.

• Steve Jobs:

• He co-founded Apple Inc. and played a crucial role in the development of products like the iPhone, iPad, and Mac computers.

• He is recognized for his marketing skills and vision, transforming Apple into a leading technology company.

Q12. Answer: (c) 25^(th) January

The correct answer is 25th January.

Key Points

• It is celebrated to encourage voter participation and awareness of electoral processes.

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• It was first observed in 2011, promoting the importance of voting among citizens.

• The day was first observed by the initiative of the Election Commission of India.

• The theme for National Voters' Day 2024 is "Nothing Like Voting, I Vote for Sure."

Additional Information

• 21 January

• Abolition of the Slave Trade Act: In 1807, the British Parliament passed this act, making it illegal to engage in the slave trade within the British Empire.

• 26 January:

• It is celebrated as the day when the Constitution of India came into effect in 1950, marking the transition of India to a republic.

• International Customs Day: It is observed globally, this day highlights the importance of customs officials and agencies in maintaining border security and facilitating trade.

• 24 January:

• National Girl Child Day (India): It is observed to raise awareness about the rights of girls and the importance of their education and health.

• International Day of Education: It is declared by the United Nations to celebrate the role of education in achieving peace and development.

Q13. Answer: (a) Abhay K

The correct answer is Abhay K.

Key Points

• Abhay K was the first Indian poet to be invited to record his poems at the prestigious Library of Congress in Washington, D.C.

• He is not only a poet but also a diplomat, serving in various Indian embassies, enhancing his global literary presence.

• Abhay K is well-known for writing the "Earth Anthem," which promotes environmental awareness and is translated into several languages.

• He has been awarded the SAARC Literary Award for his contribution to South Asian poetry.

Additional Information

• Ravindra Bhattacharya:

• Ravindra Bhattacharya is an Indian poet and literary critic known for his works in Hindi and Bengali.

• He has contributed significantly to Indian literature but was not invited to the Library of Congress.

• Gopalakrishna Adiga:

• A prominent Kannada poet and a major figure in modern Kannada literature, often regarded as the 'pioneer of modern Kannada poetry.'

• Though influential in Indian literature, he was not the first Indian poet invited to the Library of Congress.

• Vinay Kumar:

• An Indian poet known for his work in contemporary Hindi literature.

• He has made significant contributions to Hindi poetry but has no record of being invited to the Library of Congress.

Q14. Answer: (c) Ireland

The correct answer is Ireland.

Key Points

• Ireland borrowed the Directive Principles of State Policy (DPSP) from the Spanish Constitution.

• DPSP is included in Part IV of the Indian Constitution, from Articles 36 to 51, and outlines the guidelines for creating a just society.

• Unlike Fundamental Rights, DPSPs are not legally enforceable in a court of law, meaning they cannot be challenged.

• Article 37 declares that they are fundamental in the governance of the country.

Additional Information

• Canada:

• The concept of a federal system with a division of powers between the center and the states was inspired by Canada.

• In Canada, the residual powers (powers not listed in the constitution) rest with the central government, which was adopted in the Indian Constitution as well.

• USA:

• The idea of Fundamental Rights, which protect citizens' individual freedoms, was borrowed from the U.S. Bill of Rights.

• The concept of Judicial Review in India, allowing courts to review the constitutionality of laws, is inspired by the U.S. system.

• Great Britain:

• The Parliamentary system of government, where the executive is responsible to the legislature, was taken from Britain.

• The concept of the Rule of Law, which means that law applies equally to all individuals, regardless of their position or status, was also adopted from British law.

Q15. Answer: (a) 11

The number of straight lines in the given figure is shown below:

Thus, as marked there are a total of 11 straight lines.

Hence, "Option 1" is the correct answer.

Mistake PointsStraight Lines - A straight line is always a straight path between two points.

Simple Lines - It can be straight and also intersect themselves.

Q16. Answer: (b) Rs. 1,000

The correct answer is Rs 1,000.

Key Points

• Atal Pension Yojana was launched in 2015 by the Government of India to provide a guaranteed pension to workers in the unorganized sector.

• The scheme is open to all Indian citizens aged 18 to 40 years who have a savings account in a bank or post office.

• Subscribers can receive a fixed monthly pension ranging from Rs. 1,000 to Rs. 5,000, depending on their contribution and age at entry.

• Government Co-contribution: For eligible subscribers, the government co-contributes 50% of the total contribution or Rs. 1,000 annually, whichever is lower, for a period of 5 years (2015-2020).

Additional Information

• Pradhan Mantri Shram Yogi Maan-Dhan (PM-SYM)

• It was launched in 2019, the scheme aims to provide a monthly pension of Rs. 3,000 to unorganized sector workers after the age of 60.

• It is targeted at workers in the unorganized sector aged 18 to 40 years with a monthly income of up to Rs. 15,000, requiring contributions ranging from Rs. 55 to Rs. 200 per month, depending on the age at entry.

• Pradhan Mantri Jan Dhan Yojana (PMJDY)

• It was launched in 2014, PMJDY aims at ensuring access to financial services, including bank accounts, credit, insurance, and pensions, especially for the underprivileged sections of society.

• Under PMJDY, people can open zero-balance savings accounts with no minimum balance requirement, and they also get benefits like a RuPay debit card and accidental insurance coverage.

• Pradhan Mantri Fasal Bima Yojana (PMFBY):

• It was launched in 2016, PMFBY aims to provide affordable crop insurance to farmers against natural calamities, pests, and diseases to ensure financial security and risk mitigation.

• The scheme offers low premium rates: 2% for Kharif crops, 1.5% for Rabi crops, and 5% for commercial and horticultural crops, with the rest of the premium subsidized by the government.

Q17. Answer: (d) Madhavikutty

The correct answer is Madhavikutty.

Key Points

• She wrote as Madhavikutty in Malayalam, highlighting her cultural roots.

• She authored the autobiographical book "My Story" (1973), discussing her life and struggles.

• She focused on themes of love, identity, and women's issues in her literary works.

• She received several accolades, including the Kerala Sahitya Akademi Award, recognizing her contributions to literature.

Additional Information

• Ambai:

• Ambai is the pen name of Sangita D. Kalyanraman, a contemporary Indian author known for her short stories and novels in Tamil.

• Her works often explore themes of feminism, identity, and the experiences of women in modern Indian society, paralleling some themes found in Kamala Das's writings.

• Arundhati Roy:

• Arundhati Roy is an acclaimed Indian author best known for her debut novel, "The God of Small Things," which won the Booker Prize in 1997.

• In addition to her literary work, she is a vocal activist, addressing issues such as environmental concerns and human rights in

India, making her a significant figure in contemporary Indian literature.

Q18. Answer: (b) Justice Ranjan Gogoi

The correct answer is Justice Ranjan Gogoi.

Key Points

• The Chief Justice of India is the head of the Indian judiciary and the Supreme Court and is responsible for overseeing judicial functions and administration.

• The CJI is appointed by the President of India, following the convention of appointing the senior-most judge of the Supreme Court.

• The CJI serves until the age of 65, as mandated by the Constitution of India.

• The CJI heads the Collegium system, which plays a key role in the appointment and transfer of judges to the higher judiciary.

Additional Information

• Article 124: Establishes the Supreme Court of India, outlines the appointment of the Chief Justice and other judges, and specifies their qualifications and tenure.

• Article 126: Provides for the appointment of an Acting Chief Justice when the position of the CJI is vacant or when the CJI is unable to discharge their duties.

• Article 127: Allows the appointment of ad hoc judges in the Supreme Court when there is a lack of quorum among the judges due to vacancies or inability to perform duties.

• Article 129: Declares the Supreme Court to be a court of record, giving it the authority to punish for contempt of itself, under the leadership of the Chief Justice.

• Dhananjaya Yeshwant Chandrachud is an Indian jurist, who is the 50th and current chief justice of India serving since November 2022.

Q19. Answer: (c) CF Andrews

The correct answer is CF Andrews.

Key Points

• C.F. Andrews arrived in India in 1904.

• He began teaching at St. Stephen's College in 1911.

• He became closely associated with Mahatma Gandhi in the 1910s and supported various movements until India gained independence in 1947.

• Andrews earned the title 'Deenbandhu' (friend of the poor) for his commitment to social justice, focusing on the rights and welfare of the underprivileged.

Additional Information

• William Pitt:

• William Pitt the Younger served as Prime Minister of Great Britain during the late 18th and early 19th centuries, playing a key role in the politics of the time.

• He was instrumental in passing the India Act of 1784, which aimed to reform the governance of British territories in India.

• Lord Russell:

• Lord John Russell was a British statesman and a prominent Liberal Party leader, serving twice as Prime Minister in the 19th century.

• He advocated for reforms in India, especially concerning governance and civil rights, but did not have a direct role in education like C.F. Andrews.

• Michael Madhusudan Dutt:

• Michael Madhusudan Dutt was a prominent Bengali poet and playwright known for his contributions to Bengali literature, particularly in the 19th century.

• He is credited with introducing the sonnet form to Bengali poetry and is often regarded as a precursor to modern Bengali literature.

Q20. Answer: (d) Only assumption 2 is implicit.

Given Statement: "Invest in our schemes and double your money" - Statement by a marketing executive.

Now,

Assumptions:

1. The statement is an unrealistic assurance - Not Implicit (The statement doesn't provide enough evidence to conclude that it is unrealistic; it could be a genuine offer.)

2. People want to invest their savings to increase their income - Implicit (The marketing executive assumes that people are looking for opportunities to invest their money to gain more returns, hence the promise of doubling money.)

Here, Only assumption 2 is implicit.

Hence, the correct answer is "Option 4".

Q21. Answer: (b) Zinc

The correct answer is Zinc.

Key Points

• Zinc is widely used for galvanization, a process where a protective layer of zinc is applied to iron or steel to prevent rusting and corrosion.

• Electroplating is a technique that uses electric current to deposit a thin layer of metal onto a surface.

• In electroplating, zinc acts as a sacrificial anode, meaning it will corrode preferentially to protect the underlying metal (iron) from corrosion.

• Zinc coatings are commonly used in various industries, such as construction and automotive, to enhance the durability of steel products exposed to harsh environments.

• Zinc is an essential trace element in human nutrition, playing a crucial role in immune function, protein synthesis, and wound healing.

Additional Information

• Rhodium:

• Rhodium is a highly reflective and corrosion-resistant metal often used for plating jewelry and high-end automotive parts to enhance appearance and durability.

• Rhodium plating is commonly applied over silver or white gold to provide a bright, reflective finish and to prevent tarnishing.

• Chromium:

• Chromium is known for its high hardness and resistance to corrosion, making it ideal for plating automotive parts and tools to enhance their lifespan.

• Chromium plating provides a shiny finish, commonly used in decorative applications like faucets, bumpers, and household fixtures.

• Tin:

• Tin plating is often used on iron and steel to prevent rust, especially in food packaging to ensure the safety of canned goods.

• Tin is commonly used in electronics for soldering components due to its excellent conductivity and ability to resist corrosion.

Q22. Answer: (c) Munshi Premchand

The correct answer is Munshi Premchand.

Key Points

• Munshi Premchand, born as Dhanpat Rai on July 31, 1880, in Lamhi, near Varanasi, is considered one of the greatest Hindi and Urdu writers.

• He wrote over 300 short stories and 14 novels, including famous works like Godaan, Nirmala, and Gaban.

• His stories focus on social issues, rural life, and the struggles of common people.

• He initially wrote in Urdu but later shifted to Hindi, contributing significantly to modern Hindi literature with a simple and direct style that resonated with the masses.

Additional Information

• Vaikom Muhammad Basheer

• Vaikom Muhammad Basheer, born on January 21, 1908, in Thalayolaparambu, Kerala, is one of the most prominent literary figures in Malayalam literature.

• His works tackled a range of themes, including poverty, social justice, love, and humanism, with novels like Balyakalasakhi and Pathummayude Aadu being celebrated for their portrayal of human emotions and social issues.

• Kamala Das

• Kamala Das, also known as Madhavikutty, was born on March 31, 1934, in Punnayurkulam, Kerala. She was a prominent Indian poet and writer who wrote in both English and Malayalam.

• Kamala Das wrote autobiographical works like My Story and poetry collections such as Summer in Calcutta, where she explored themes of love, identity, and womanhood.

• Rabindranath Tagore

• Rabindranath Tagore was born on May 7, 1861, in Calcutta (Kolkata), India. He was a polymath—poet, novelist, playwright, philosopher, and composer—deeply influential in both Indian and global cultural spheres.

• Tagore became the first non-European to win the Nobel Prize in Literature in 1913 for his collection of poems, Gitanjali, which explored spiritual and humanistic themes

• Tagore wrote extensively in Bengali and English, producing works across genres, including poetry (Gitanjali), novels (Gora), and

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short stories (Kabuliwala), along with over 2,000 songs, including the national anthems of India and Bangladesh.

Q23. Answer: (a) Red Cross International Committee

The correct answer is Red Cross International Committee.

Key Points

• The International Committee of the Red Cross (ICRC) was founded in 1863 in Geneva, Switzerland, by Henry Dunant, inspired by the need to assist those wounded in war.

• The ICRC works worldwide in areas affected by conflict, disaster, and violence, often coordinating with Red Cross and Red Crescent Societies in over 190 countries.

• The ICRC has been awarded the Nobel Peace Prize three times (in 1917, 1944, and 1963), recognizing its tireless efforts to mitigate human suffering in times of war.

• The ICRC operates under the principles of neutrality, impartiality, and independence, ensuring it can provide assistance in conflict zones without taking sides.

Additional Information

• World Health Organization

• The World Health Organization (WHO) was established on April 7, 1948, as a specialized agency of the United Nations, focused on global public health.

• The World Health Organization (WHO) has its headquarters in Geneva, Switzerland.

• Its goal is to promote health, prevent diseases, and ensure universal health coverage.

• The WHO Country Office for India is located in New Delhi, working with the government on health programs and disease control efforts.

• International Labour Organization.

• The International Labour Organization (ILO) was established in 1919 as a specialized agency of the United Nations, focusing on promoting social justice and fair labor practices.

• The ILO focuses on setting international labor standards, promoting rights at work, enhancing social protection, and fostering decent employment opportunities.

• The ILO develops conventions and recommendations that member states are encouraged to adopt, addressing issues like child labor, forced labor, and workplace safety

• .Food and Agriculture Organization

• The FAO was established in 1945 to combat hunger and improve global food security.

• It aims to enhance agricultural productivity and promote sustainable food systems through technical assistance and policy support.

• The FAO leads initiatives like the State of Food Security and Nutrition report and the Food Loss and Waste Protocol to reduce waste and promote sustainability.

Q24. Answer: (b) 36

The logic followed here is:

AGE is written as 13

And,

SEX is written as 48

Similarly,

COME will be written as

Hence, "Option 2" is the correct answer.

Q25. Answer: (b) 59

Given:

Expenses made by a company (in millions) under the head of Taxes from 2014 to 2018:

2014: 47

2015: 56

2016: 61

2017: 63

2018: 69

Formula used:

Average Expenditure = (Sum of expenditures) / (Number of years)

Calculation:

Sum of expenditures = 47 + 56 + 61 + 63 + 69

=> Sum = 296

Number of years = 5

=> Average Expenditure = 296 / 5

=> Average Expenditure = 59.2

Therefore The correct answer is option (2).

Q26. Answer: (c) J.B. Kripalani

The correct answer is J.B. Kripalani.

Key Points

• J.B. Kripalani was born on August 24, 1888, in Vallabhipur, Gujarat, and studied at the University of Mumbai and the University of London.

• He was a key figure in the Indian independence movement and a close associate of Mahatma Gandhi.

• Kripalani served as the President of the Indian National Congress in 1947, during the critical period of India's independence.

• He became the first Speaker of the Lok Sabha from 1952 to 1957, advocating for rural development and social reform.

Additional Information

• Pandit J L Nehru

• Pandit Jawaharlal Nehru was a prominent leader in the Indian independence movement, closely associated with the Indian National Congress and a key disciple of Mahatma Gandhi.

• He became the first Prime Minister of India after independence on, serving until his death in 1964, and played a crucial role in shaping modern India's political landscape.

• Nehru is known for his vision of a secular, democratic nation and emphasized industrialization, scientific advancement, and education as vital components for India's development.

• Rajendra Prasad

• Dr. Rajendra Prasad served as the first President of India from 1950 to 1962, playing a key role in the establishment of the Indian Republic.

• He was a prominent leader in the Indian independence movement, actively participating in the Indian National Congress and working alongside Mahatma Gandhi.

• Prasad was a strong advocate for education and rural development, emphasizing the importance of agriculture and self-reliance in post-independence India.

• Sardar Patel

• Sardar Patel was a key leader in the Indian independence movement, serving as the Deputy Prime Minister and Minister of Home Affairs after independence in 1947.

• He is best known for his crucial role in the integration of over 500 princely states into the Indian Union, earning him the title Iron Man of India.

• Patel was instrumental in the Kheda Satyagraha of 1918 and the Bardoli Satyagraha of 1928, which helped him earn the title "Sardar" (leader) from the farmers for his leadership in their struggles against oppressive taxation.

Q27. Answer: (a) Three Mile Island nuclear disaster - Tokyo

The correct answer is Three Mile Island nuclear disaster - Tokyo.

Key Points

• The Three Mile Island nuclear disaster occurred in the United States, not Tokyo. It happened on March 28, 1979, at the Three Mile Island Nuclear Generating Station in Pennsylvania.

• The incident was caused by a combination of mechanical failure and human error. Though no direct injuries or deaths were attributed to the accident, it led to widespread fear and public concern about nuclear energy safety.

• The Three Mile Island disaster caused a significant decline in the development of nuclear power in the U.S., as public concern over nuclear safety grew.

• It led to stricter regulations on reactor safety and emergency preparedness worldwide, influencing the design and operation of nuclear plants.

Additional Information

• Union Carbide Gas Leak - Bhopal

• The Bhopal gas tragedy occurred on December 2-3, 1984, when a toxic gas, methyl isocyanate (MIC), leaked from the Union Carbide plant in Bhopal, India, causing one of the world's worst industrial disasters.

• The disaster led to significant legal battles and raised concerns about industrial safety, corporate responsibility, and environmental regulations in India, resulting in reforms like the Environment Protection Act of 1986.

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• Nuclear Power Plant explosion - Chernobyl

• The Chernobyl disaster occurred on April 26, 1986, when Reactor No. 4 at the Chernobyl Nuclear Power Plant in Ukraine exploded, releasing a massive amount of radioactive material into the atmosphere.

• The explosion led to 31 immediate deaths and exposed thousands to radiation, causing long-term health issues like cancer and birth defects across Europe.

• The disaster severely contaminated large areas, particularly in Ukraine, Belarus, and Russia, leading to the creation of the Chernobyl Exclusion Zone and prompting worldwide changes in nuclear safety standards.

• Italian dioxin crisis - Seveso

• The Seveso disaster occurred on July 10, 1976, when a chemical plant near Seveso, Italy, released a cloud of dioxin (TCDD), a highly toxic compound, into the environment.

• The incident caused widespread health issues, including skin conditions like chloracne, and raised long-term concerns about cancer and reproductive health among exposed populations.

• The crisis resulted in the Seveso Directive (1982), an EU law focused on enhancing industrial safety and preventing chemical accidents, strengthening environmental regulations.

Q28. Answer: (c) 1.44 MB

The correct answer is 1.44 MB.

Key Points

• A typical 3.5-inch floppy disk has a storage capacity of 1.44 MB (megabytes).

• Earlier versions of 3.5-inch floppy disks had lower capacities, such as 720 KB, used primarily before the 1.44 MB version became the standard.

• Floppy disks were primarily used for transferring small files, such as documents and program files, due to their limited storage capacity.

• They were eventually replaced by more advanced storage devices like CDs and USB drives, which offered significantly higher capacities.

Additional Information

• One gigabyte (GB) is equal to 1,024 megabytes (MB) or approximately 1 billion bytes of data, used as a standard unit of measurement for digital information storage.

• Memory in computers primarily includes RAM (Random Access Memory), which is volatile and used for temporary data storage during operation, and ROM (Read-Only Memory), which is non-volatile and stores essential firmware.

• Memory capacity is measured in bytes, with common units including kilobytes (KB), megabytes (MB), gigabytes (GB), and terabytes (TB), indicating the amount of data that can be stored and accessed.

Important Points

Memory Size	Equivalent Bytes
1 Byte	8 bits
1 Kilobyte (KB)	1,024 Bytes
1 Megabyte (MB)	1,024 Kilobytes (KB)
1 Gigabyte (GB)	1,024 Megabytes (MB)
1 Terabyte (TB)	1,024 Gigabytes (GB)
1 Petabyte (PB)	1,024 Terabytes (TB)
1 Exabyte (EB)	1,024 Petabytes (PB)
1 Zettabyte (ZB)	1,024 Exabytes (EB)
1 Yottabyte (YB)	1,024 Zettabytes (ZB)

Q29. Answer: (c) Rs. 780

Given:

Imran's time = 11 days

Tahir's time = 15 days

Amla's time = 13 days

Total earnings = Rs. 2012

Formula used:

Work rate = 1 / Time taken

Share of earnings = (Individual's work rate / Total work rate) × Total earnings

Calculations:

Imran's work rate = 1/11

Tahir's work rate = 1/15

Amla's work rate = 1/13

Total work rate = 1/11 + 1/15 + 1/13

=> Total work rate = (15×13 + 11×13 + 11×15) / (11×15×13)

=> Total work rate = (195 + 143 + 165) / 2145

=> Total work rate = 503 / 2145

Imran's share = (1/11) / (503/2145) × Rs. 2012

=> Imran's share = (2145 / (503×11)) × Rs. 2012

=> Imran's share = (2145 / 5533) × Rs. 2012

=> Imran's share = 0.3875 × Rs. 2012

=> Imran's share ≈ Rs. 780

Therefore The correct answer is option (3).

Q30. Answer: (d) They can issue credit cards

The correct answer is They can issue credit cards.

Key Points

• Credit cards provide a revolving line of credit, allowing users to borrow money for purchases, repay it later, and often incur interest on outstanding balances.

• Credit cards typically charge higher interest rates compared to other forms of credit, along with fees like annual fees, late payment fees, and cash advance charges.

• Responsible use of credit cards, such as timely payments and maintaining a low credit utilization ratio, can positively affect one's credit score.

• Many credit cards offer reward points, cashback, or discounts on purchases, incentivizing usage for travel, shopping, or other categories.

Additional Information

• Payment banks are a type of niche bank in India that provide limited financial services, primarily focusing on deposit acceptance and remittance services.

• These banks can accept deposits up to Rs. 2 lakh per customer (as of current regulations), but cannot offer loans or issue credit cards.

• They offer basic banking services like savings accounts, current accounts, mobile banking, and digital payments but focus on underserved segmements.

• Payment banks are regulated by the Reserve Bank of India (RBI) and must adhere to strict guidelines regarding capital adequacy and other operational norms.

• Telecom companies, retail chains, and non-banking financial companies (NBFCs) are among the typical promoters of payment banks, leveraging their networks for outreach.

• Payment banks aim to enhance financial inclusion by providing banking services to rural and unbanked populations, making basic financial services more accessible.

Q31. Answer: (c) Rs. 5,607

Given:

Cost Price (CP) = Rs. 5,340

Profit = 5%

Formula used:

Selling Price (SP) = CP × (1 + Profit%)

Calculations:

SP = 5340 × (1 + 5/100)

=> SP = 5340 × 1.05

=> SP = 5607

Therefore The correct answer is option (3).

Q32. Answer: (c) 19

Given:

Three prime numbers in descending order: a, b, c

Product of first two primes (a × b) = 323

Product of last two primes (b × c) = 221

Formula used:

Prime factorization to find the prime numbers.

Calculation:

Prime factorization of 323:

323 = 17 × 19

=> a = 19, b = 17

Prime factorization of 221:

221 = 13 × 17

=> b = 17, c = 13

Since the primes are in descending order:

a = 19, b = 17, c = 13

Therefore The biggest prime number is 19. The correct answer is option (3).

Q33. Answer: (b) (2, 0)

Given:

(3^x)(3^y) = 9

(25^x)(5^y) = 625

Formula used:

a^m × aⁿ = a^(m+n)

Calculations:

(3^x)(3^y) = 9

=> 3^(x+y) = 3²

=> x + y = 2

(25^x)(5^y) = 625

=> (5²)^x × 5^y = 5^4

=> 5^(2x + y) = 5^4

=> 2x + y = 4

Solving the system of equations:

x + y = 2

2x + y = 4

Subtracting the first equation from the second:

(2x + y) - (x + y) = 4 - 2

=> x = 2

Substituting x = 2 into the first equation:

2 + y = 2

=> y = 0

Therefore, the correct answer is option (2).

Q34. Answer: (c) Barren island

The correct answer is Barren island.

Key Points

• Barren Island is home to India's only active volcano, located in the Andaman Sea.

• It lies about 135 km northeast of Port Blair in the Andaman and Nicobar Islands.

• It has experienced several eruptions since the first recorded one in 1787, with the most recent eruptions occurring in the 21st century.

• Despite being volcanic, the surrounding waters are popular for scuba diving due to rich marine biodiversity and unique geological formations.

• The island is uninhabited by humans, though some flora and fauna, like birds, bats, and rodents, exist.

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Additional Information

• Neill island

• Neil Island is part of the Andaman and Nicobar Islands, situated 36 km northeast of Port Blair.

• Known for its fertile soil, it is referred to as the "vegetable bowl" of the Andamans due to its extensive agriculture.

• The island is a popular tourist destination, famous for its coral reefs, clear waters, and tranquil beaches like Bharatpur, Laxmanpur, and Sitapur.

• Ross Island

• Ross Island served as the administrative headquarters of the British in the Andaman and Nicobar Islands from 1858 to 1941.

• It was abandoned after an earthquake in 1941 and subsequent Japanese invasion during World War II.

• The island now attracts tourists with its ruins of British-era buildings, including a church, bakery, and cemetery, and is home to wildlife like deer and peacocks.

• Sentinel Island

• North Sentinel Island is home to the Sentinelese, one of the world's last uncontacted indigenous tribes, known for resisting outside contact.

• The Indian government has declared the island off-limits to outsiders, ensuring the tribe's isolation for their protection and cultural preservation.

• Located in the Andaman and Nicobar Islands, North Sentinel Island is surrounded by shallow reefs, making access difficult, contributing to its isolation.

Q35. Answer: (a) Auxin

The correct answer is Auxin.

Key Points

• Auxins are plant growth hormones that help in promoting cell elongation, which is essential for plant growth.

• Aid in fruit set and maturation, can induce fruit development without fertilization.

• The most commonly referenced auxin is indole-3-acetic acid (IAA), which is the primary natural auxin in plants.

• Its chemical formula is $C_{11}H_9N_3O_2$.

• Auxins are involved in the development of fruits, influencing processes such as fruit set, growth, and maturation.

Additional Information

• Cytokinin

• Cytokinins are used to promote cell division and shoot development, making them valuable in agricultural practices to enhance crop yields.

• They stimulate the growth of lateral buds and enhance shoot development, counteracting apical dominance exerted by auxins.

• They are used to extend the shelf life of cut flowers and fruits by delaying leaf and flower senescence, thus maintaining their freshness for longer periods.

• The most common naturally occurring cytokinin is zeatin, it's chemical formula $C_{11}H_{13}N_5O$.

• Gibberellin

• Gibberellins promote seed germination by breaking dormancy, enhancing the growth of seedlings.

• Gibberellins can be applied to promote fruit set, improve fruit size, and prevent premature fruit drop, particularly in grapes and apples.

• Gibberellins are often used in agriculture to enhance overall crop yields, increase size and quality of fruits, and improve harvest efficiency.

• he most well-known gibberellin is gibberellic acid (GA3), which has the following chemical formula: $C_{19}H_{22}O_6$.

• Ethylene

• Ethylene is widely used to promote the ripening of fruits. It accelerates the ripening process in climacteric fruits like bananas, tomatoes, and apples.

• Ethylene regulates the shedding of leaves, flowers, and fruits (abscission), playing a role in plant development and life cycle management.

• Ethylene is also used in the production of various chemicals and plastics, such as polyethylene, which is a widely used polymer.

• The chemical formula of ethylene is C_2H_4.

Q36. Answer: (d) 56 cm

Given:

The four sides of a quadrilateral are in the ratio of 4 : 5 : 6 : 7 and its perimeter is 176 cm.

Formula used:

Let the sides be 4x, 5x, 6x, and 7x.

Perimeter = Sum of all sides

Calculations:

Perimeter = 4x + 5x + 6x + 7x

176 = 22x

=> x = 176/22

=> x = 8

Longest side = 7x

=> Longest side = 7 × 8

=> Longest side = 56 cm

Therefore The correct answer is option 4.

Q37. Answer: (d) Scanner

The correct answer is Scanner.

Key Points

• A scanner converts physical documents or images into digital format for electronic storage or manipulation.

• Common types of scanners include flatbed, sheet-fed, handheld, and drum scanners, each serving different purposes.

• Measured in DPI (dots per inch), a higher DPI indicates better image clarity and detail in the scanned output.

• Optical resolution is the actual capability of the scanner's sensor, while software resolution can enhance image quality through interpolation techniques.

Additional Information

• Monitor

• A monitor is an output device used to display images, videos, and text generated by a computer or other electronic devices.

• Common types of monitors include LCD (Liquid Crystal Display), LED (Light Emitting Diode), and OLED (Organic LED), with varying energy efficiency and display quality.

• Monitor resolution is measured in pixels (e.g., 1920x1080), with higher resolutions providing clearer and more detailed images.

• Printer

• Printer is an output device that transfers digital text and images onto paper or other physical media.

• Common printer types include inkjet (suitable for high-quality color printing), laser (fast and efficient for text-heavy documents), and 3D printers (used for creating three-dimensional objects).

• Print quality is measured in DPI (dots per inch), with higher DPI providing sharper and more detailed printed output.

• Projector

• A projector is an output device that projects images, videos, or presentations onto a larger screen or surface, making it suitable for classrooms, meetings, and home theaters.

• Common types of projectors include LCD (Liquid Crystal Display), DLP (Digital Light Processing), and LED projectors, each with different technologies and use cases.

• Projector quality is often measured in terms of resolution (e.g., 1080p) and brightness (measured in lumens), with higher values providing clearer images in various lighting conditions.

Q38. Answer: (a) Krishnadeva Raya

The correct answer is Krishnadeva Raya.

Key Points

• Krishnadeva Raya was the most powerful ruler of the Vijayanagara Empire.

• Raya expanded Vijayanagara through victories like the Battle of Raichur (1520).

• He supported literature in Telugu, Kannada, Sanskrit, and Tamil, and wrote Amuktamalyada.

• He improved irrigation, agriculture, and tax systems for economic prosperity, he built temples and promoted religious harmony

• His death led to the gradual decline of Vijayanagara, which fell after the 1565 Battle of Talikota.

Additional Information

• Pulakeshin II

• Pulakeshin II expanded the Chalukya Empire (609–642 CE), defeating Harshavardhana and other regional powers.

• He made Vatapi (Badami) the capital and promoted architecture, including rock-cut temples.

• Pulakeshin II was defeated and killed by Pallava king Narasimhavarman I in 642 CE, leading to the fall of Vatapi.

• Raja Raja Chola

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• Raja Raja Chola expanded the empire through conquests in South India, Sri Lanka, and the Maldives, making the Cholas a dominant naval power.

• He commissioned the construction of the Brihadeshwara Temple in Thanjavur, a masterpiece of Dravidian architecture.

• Raja Raja Chola reformed administration by organizing the empire into provinces (mandalams) and revamping revenue collection systems.

• Adi Shankara

• Adi Shankara is renowned for consolidating the Advaita Vedanta philosophy, which emphasizes the non-duality of the soul (Atman) and Brahman (the ultimate reality).

• He founded four major mathas (monastic centers) in Sringeri, Dwaraka, Puri, and Jyotirmath to spread and preserve Vedic knowledge.

• Adi Shankara wrote influential commentaries on key Hindu scriptures, including the Upanishads, Bhagavad Gita, and Brahmasutras, promoting the Vedantic school of thought.

Q39. Answer: (a) Nilgiri

The correct answer is Nilgiri.

Key Points

• The Nilgiri Hills are located at the junction of the Western Ghats and Eastern Ghats in Tamil Nadu, Karnataka, and Kerala.

• The popular hill station Ooty (Udhagamandalam), also known as the "Queen of Hill Stations," is situated in the Nilgiri Hills.

• The Nilgiri Hills are part of the Western Ghats, recognized as a UNESCO World Heritage Site and a biodiversity hotspot with rich flora and fauna.

• The Nilgiri region is famous for its tea plantations, producing a significant portion of India's tea, which is a key economic activity here.

Additional InformationShivalik Hills:

• The Shivalik Hills, also known as the Outer Himalayas, are the lowest range of the Himalayan mountain system, stretching from Jammu and Kashmir to Arunachal Pradesh.

• They are composed of unconsolidated sediments brought down by rivers, making them prone to erosion and landslides.

Maikal Hills:

• The Maikal Hills are part of the Satpura Range, located in central India, mainly in Madhya Pradesh and Chhattisgarh.

• This region is known for its dense forests and is home to several tribal communities, including the Gond and Baiga tribes.

Amarkantak Hills:

• Amarkantak Hills are the origin point of major rivers like the Narmada and Son rivers.

• Amarkantak is a popular religious and pilgrimage site, known for its scenic beauty and religious significance in Hinduism.

Q40. Answer: (b) Neither conclusion I nor II follows

Given,

Statement:

The teacher scolded Amit in the presence of the whole class.

Conclusions:

I. The teacher dislikes Amit. - False (Because, the statement does not provide any information regarding the teacher's personal feelings towards Amit).

II. The class did not like Amit. - False (Because, the statement does not provide any evidence to support the claim that the class did not like Amit).

So, Neither conclusion I nor II follows.

Hence, the correct answer is "Option 2".

Q41. Answer: (b) [figure]

The Venn diagram that best represents the relationship between computers, desktops and laptops is shown below:

Laptop are subset of computers generally referred as portable computers.

Desktop are subsets of computer generally referred as stationary computers.

Laptop and desktop are different type of computers.

Hence, "Option 2" is the correct answer.

Q42. Answer: (d) Rural Development

The correct answer is Rural Development

Key Points

• DISHA (District Development Coordination and Monitoring Committee) is an initiative under the Ministry of Rural Development.

• It aims to coordinate and ensure the effective implementation of various central government schemes and programs at the district level.

• The committees formed under DISHA include members of Parliament,

• elected representatives and government officials to monitor and promote the development activities

• The committee is chaired by a Member of Parliament (MP) from the district,

• ensuring that elected representatives have a direct role in overseeing the development work.

Additional Information

• Ministry of Rural Development

• It is a key government ministry in India responsible for the formulation and implementation of policies, programs, and schemes aimed at promoting rural development and poverty alleviation.

• One of the primary objectives of the ministry is to generate employment in rural areas

• Programs like the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) aim to provide guaranteed wage employment to rural households, ensuring income security.

• Programs like Pradhan Mantri Gram Sadak Yojana (PMGSY) aim to provide all-weather roads,

• while Pradhan Mantri Awas Yojana – Gramin (PMAY-G) focuses on providing affordable housing to rural households.

Q43. Answer: (b) 3

Given:

Sum of two numbers = 434

H.C.F of the numbers = 31

Formula used:

Let the two numbers be 31a and 31b (since H.C.F is 31)

31a + 31b = 434

Calculation:

31a + 31b = 434

=> 31(a + b) = 434

=> a + b = 434314343143431434314343143431434314343143431

=> a + b = 14

Now, we need to find the pairs (a, b) such that a + b = 14

Possible pairs are:

1. (1, 13)

2. (2, 12)

3. (3, 11)

4. (4, 10)

5. (5, 9)

6. (6, 8)

So, correct pairs are (1, 13) (3, 11) (5, 9) of (a, b) that satisfy the equation.

Therefore The correct answer is option (2).

Q44. Answer: (c) Rs. 248

Given:

Principal (P) = Rs. 2480

Amount (A) = Rs. 2600

Time (t) = 5 years

Formula used:

Simple Interest (SI) = (P × R × T)/100

Where, R = Rate of Interest

Calculations:

SI = A - P

=> SI = 2600 - 2480

=> SI = Rs. 120

Using the formula for Simple Interest:

120 = (2480 × R × 5)/100

=> 120 = (2480 × R × 5)/100

=> 120 = 124R

=> R = 120/124 = 31/30 %

New Rate (R_(new)) = R + 2%

=> R_(new) = 30/31% + 2%

=> R_(new) = 92/31%

New Simple Interest (SI_(new)):

SI_(new) = (2480 × 92 × 5)/31×100

=> SI_(new) = (2480 × 15)/100

=> SI_(new) = 368

Increase in Interest Amount:

Increase = SI_(new) - SI

=> Increase = 368 - 120

=> Increase = Rs. 248

Therefore The correct answer is option (3).

Q45. Answer: (a) V

The logic followed here is:

Hence, "Option 1" is the correct answer.

Q46. Answer: (c) 4

Given:

X^4 + 1/X^4 = 322

Let:

Y = X - 1/X

We know:

$X^2 + 1/X^2 = (X - 1/X)^2 + 2 = Y^2 + 2$

Now, squaring this gives:

$X^4 + 1/X^4 = (X^2 + 1/X^2)^2 - 2 = (Y^2 + 2)^2 - 2$

Substituting into the equation:

$(Y^2 + 2)^2 - 2 = 322$

Calculation:

$(Y^2 + 2)^2 = 324$

Taking the square root of both sides:

$Y^2 + 2 = 18$

$Y^2 = 16$

Y = 4 (since X > 1)

The value of X - 1/X is 4.

Q47. Answer: (d) Green House Gas (GHG) emissions

The correct answer is Green House Gas (GHG) emissions.

Key Points

• India and France signed an implementation agreement on the “MOBILISE YOUR CITY” (MYC) initiative primarily to reduce Green House Gas (GHG) emissions.

• The MYC program aims to help cities develop sustainable urban mobility plans that reduce carbon emissions

• It also promote cleaner, more efficient public transportation systems

• It supports three Indian cities (Nagpur, Kochi, and Ahmedabad) to reduce Green House Gas (GHG) emissions.

• It helps urban transport by implementing urban mobility plans at the local level and national level to improve their sustainable transport policy.

Additional Information

• 21st Conference of Parties (COP21): Popularly known as the Paris Agreement.

• In 1992 United Nations Framework Convention on Climate Change (UNFCCC)

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• and the 11th session of the Meeting of the Parties to the 1997 Kyoto Protocol (CMP 11).

• It aims to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius.

Important Points

• The MYC agreement was signed by Mukund Kumar Sinha, OSD & Ex-Officio Joint Secretary in the Urban Affairs Ministry and the Regional Director of Agence Française de Développement (AfD), Nicolas Fornage.

Q48. Answer: (a) Bangle

The logic followed here is:

Logic: Accessory worn on a specific body part.

Here,

Finger : Ring → Ring is an accessory worn on the Finger.

Similarly,

Wrist : ? → Bangle is an accessory worn on the Wrist.

Hence, the correct answer is "Option 1".

Q49. Answer: (b) 13.5

Given:

The square root of 182.25 is:

Formula used:

√x, where x is the number

Calculations:

√182.25

=> 13.5

Therefore The correct answer is option 2.

Q50. Answer: (c) (√3)/4

Given:

The value of sin 60° cos 60° is equal to:

Formula used:

sin 60° = √3/2

cos 60° = 1/2

Calculation:

sin 60° × cos 60° = (√3/2) × (1/2)

=> (√3/2) × (1/2)

=> √3/4

Therefore The correct answer is option (3)

Q51. Answer: (a) 50

Given:

15 men can do a piece of work in 30 days

We need to find how many days 9 men would need to complete the same work

Formula used:

Work = Men × Days

Calculation:

Let the total work be W

W = 15 men × 30 days

W = 450 man-days

Now, let D be the number of days 9 men need to complete the work

W = 9 men × D days

=> 450 = 9 × D

=> D = 450 / 9

=> D = 50 days

Therefore The correct answer is option (1).

Q52. Answer: (a) 2 Cos 2 θ

Given:

$X + 1/X = 2 \text{ Cos } \theta$

Formula used:

$X^2 + 1/X^2 = (X + 1/X)^2 - 2$

Calculations:

We know that $(X + 1/X)^2 = X^2 + 1/X^2 + 2$

Now substitute the given value:

$(2 \text{ Cos } \theta)^2 = X^2 + 1/X^2 + 2$

$\Rightarrow 4 \text{ Cos}^2 \theta = X^2 + 1/X^2 + 2$

$\Rightarrow X^2 + 1/X^2 = 4 \text{ Cos}^2 \theta - 2$

Using the double angle identity for cosine:

$\text{Cos } 2\theta = 2 \text{ Cos}^2 \theta - 1$

$\Rightarrow 2 \text{ Cos}^2 \theta = \text{Cos } 2\theta + 1$

$\Rightarrow 4 \text{ Cos}^2 \theta = 2 (\text{Cos } 2\theta + 1)$

$\Rightarrow 4 \text{ Cos}^2 \theta - 2 = 2 \text{ Cos } 2\theta$

$\Rightarrow X^2 + 1/X^2 = 2 \text{ Cos } 2\theta$

Therefore The value of $X^2 + 1/X^2$ is $2 \text{ Cos } 2\theta$.

Q53. Answer: (c) 1

Given:

$((56+34)^2-(56-34)^2)/(4 \times 56 \times 34) = ?$

Formula used:

$(a + b)^2 - (a - b)^2 = 4ab$

Calculation:

$((56+34)^2-(56-34)^2)/(4 \times 56 \times 34) = ?$

$(a + b)2 - (a - b)2 = 4ab$

$\Rightarrow ? = (4 \times 56 \times 34)/(4 \times 56 \times 34)$

$\Rightarrow ? = 1$

Therefore The correct answer is option (3).

Q54. Answer: (c) 7/8

Given:

In tossing three coins at a time, the probability of getting at least one heads

Formula used:

Probability of getting at least one heads = 1 - Probability of getting no heads

Calculations:

Probability of getting no heads = Probability of getting all tails

Total possible outcomes when tossing three coins = $2^3 = 8$

Only one outcome is all tails (TTT)

$\Rightarrow$ Probability of getting no heads = 1/8

$\Rightarrow$ Probability of getting at least one heads = 1 - 1/8

$\Rightarrow$ Probability of getting at least one heads = 7/8

Therefore The correct answer is option 3.

Q55. Answer: (b) Pankaj

Given: Four cricket players

Mohan scored more than Narender but less than Pankaj.

Pankaj > Mohan > Narender

Kamal scored more than Narender but less than Mohan.

Pankaj > Mohan > Kamal > Narender

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So, 'Pankaj' scored the highest run.

Hence, the correct answer is "Option 2".

Q56. Answer: (b) Lord Lytton

The correct answer is Lord Lytton.

Key Points

• Vernacular Press Act

• The Vernacular Press Act was passed in 1878 by Lord Lytton.

• According to this law, the editor of a vernacular newspaper had to get the content reviewed by the police before publishing.

• The Vernacular Press Act was enacted in an effort to silence those who were critical of the government.

• The Act allowed the government to confiscate the assets of newspapers including their printing presses.

• If the newspapers published anything that was found “objectionable”.

• The act excluded English-language publications.

Additional Information

• Lord Ripon(1880-1884)

• Lord Ripon is often called the "Father of Local Self-Government" in India.

• He introduced the Ilbert Bill in 1883, which aimed to allow Indian judges to try British offenders.

• Ripon expanded access to education through the Hunter Commission, which focused on improving primary and secondary education in India.

• Lord Dalhousie (1848-1856)

• Lord Dalhousie is known for enforcing the Doctrine of Lapse, which allowed the British to annex Indian states if a ruler died without a male heir.

• Dalhousie is credited with establishing India's first railway lines and telegraph system, which significantly improved communication and transport.

• He introduced a uniform postage system, known as the Indian Postal Service, making mail more accessible and organized throughout the country.

• Lord Willingdon (1931-1936)

• Lord Willingdon was the Viceroy during a critical period of India's freedom struggle

• particularly during the Civil Disobedience Movement led by Mahatma Gandhi.

• During his tenure, the Government of India Act 1935 was passed,

• which laid the foundation for a federal system in India and increased provincial autonomy.

• He hosted the second and third Round Table Conferences,

• which aimed to discuss constitutional reforms in India, though they were largely unsuccessful.

Q57. Answer: (a) Rs. 41.25

Given:

Principal (P) = Rs. 2,500

Rate (R) = 8¼% per annum

Time (t) = 1st March 2018 to 12th May 2018

Formula used:

Simple Interest (SI) = (P × R × t)/100

Calculation:

Time from 1st March 2018 to 12th May 2018 = 31 (March) + 30 (April) + 12 (May) = 73 days

=> t = 73/365 years

=> t = 1/5 years

Rate (R) = 8¼% = 8.25%

Simple Interest (SI) = (2500 × 8.25 × 1/5)/100

=> SI = (2500 × 8.25 × 0.2)/100

=> SI = 41250/100

=> SI = Rs. 41.25

Therefore The correct answer is option (1).

Q58. Answer: (c) Reserve Bank of India

The correct answer is Reserve Bank of India

Key Points

• Financial Literacy Week is an initiative of RBI to promote awareness on various key topics every year through a focused campaign.

• Financial Literacy Week 2019 was observed from June 3-7 on the theme of “Farmers” and how they benefit by being a part of the formal banking system.

• To build awareness and disseminate financial literacy messages to the farming community,

• It focused content in the form of posters and leaflets has been prepared for dissemination.

• Banks have been advised to display the posters and content in their rural bank branches, Financial Literacy Centers, ATMs and websites.

• RBI undertook a centralized mass media campaign during the month of June on Doordarshan and All India Radio to disseminate essential financial awareness messages to farmers.

Additional Information

• Reserve Bank of India

• The RBI is the central bank of India, established in 1935 under the Reserve Bank of India Act, 1934

• It regulates and controls the monetary policy of the country, ensuring financial stability and managing inflation.

• The RBI manages India’s monetary policy by setting key interest rates

• like the Repo Rate and Reverse Repo Rate to control inflation and stabilize the economy

• The RBI is responsible for issuing and managing the currency in India.

• Punjab National Bank (PNB)

• PNB is one of India’s oldest and largest nationalized banks.

• It was founded in Lahore (now in Pakistan) and is known for serving millions of customers across various sectors.

• After its merger with Oriental Bank of Commerce and United Bank of India in 2020,

• PNB became the second-largest public sector bank in India, in terms of business and branch network.

• State Bank of India (SBI)

• SBI is India’s largest public sector bank in terms of assets, deposits, branches, and employees.

• It was founded as the Bank of Calcutta in 1806, later becoming SBI in 1955.

• SBI has a significant international footprint, with branches and offices in over 30 countries

Q59. Answer: (a) Singapore

The correct answer is Singapore

Key Points

• The city of Singapore was founded by Sir Stamford Raffles in 1819.

• He is known for establishing Singapore as a key British trading post and a strategic location for maritime trade between the East and the West.

• His vision helped transform Singapore into a major port city, laying the foundation for its future development.

• Raffles recognized the strategic importance of Singapore’s location at the southern tip of the Malay Peninsula,

• which was ideal for controlling trade routes between India, China, and the rest of Southeast Asia.

Additional Information

• Sir Stamford Raffles

• Sir Stamford Raffles was a British statesman and an official of the British East India Company.

• Raffles had a vision for Singapore as a free port, meaning it would have low tariffs and open trade policies.

• In 1819, Raffles negotiated with the local Malay ruler, Sultan Hussein Shah, to establish a British settlement in Singapore.

Q60. Answer: (b) New York City

The correct answer is New York City

Key Points

• The headquarters of the United Nations (UN) is located in New York City, USA.

• The complex sits along the East River in the Turtle Bay area of Manhattan.

• While New York hosts the main headquarters, the UN also has major offices in Geneva (Switzerland), Vienna (Austria), and Nairobi (Kenya).

Additional Information

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• United Nations (UN)
• The United Nations (UN) is an international organization founded in 1945, after World War II
• It was organised to promote peace, security, and cooperation among countries.
• The UN aims to prevent conflicts, foster international cooperation, and address global issues such as poverty, health, education, and human rights.
• The UN works with various specialized agencies and programs that focus on specific areas, such as:
• World Health Organization (WHO): Addresses global health issues.
• United Nations Educational, Scientific and Cultural Organization (UNESCO): Promotes education, science, and culture.
• United Nations Children's Fund (UNICEF): Focuses on the welfare of children and mothers.

Q61. Answer: (a) 32%

Given:
A retailer buys 20 pens at the marked price of 15 pens from a wholesaler.
If he sells these 20 pens giving a discount of 1%, then what is the profit percent of the retailer?
Formula used:
Profit % = (Selling Price - Cost Price)/(Cost Price) × 100
Calculations:
Let the marked price of 1 pen be Rs. 1
Cost Price (CP) of 20 pens = Cost Price of 15 pens = Rs. 15
Discount given = 1%
Selling Price (SP) of 1 pen = Rs. 1 - 1% of Rs. 1
=> SP of 1 pen = Rs. 1 - Rs. 0.01 = Rs. 0.99
SP of 20 pens = 20 × Rs. 0.99 = Rs. 19.80
Profit = SP - CP
=> Profit = Rs. 19.80 - Rs. 15 = Rs. 4.80
Profit % = 4.80/15 × 100
=> Profit % = 32%
Therefore The correct answer is option (1).

Q62. Answer: (a) protons

The correct answer is protons
Key Points
• The number of protons in the nucleus of an atom of a given element is called the atomic number of that element.
• This number uniquely identifies the element and determines its position in the periodic table.
• For example, hydrogen has an atomic number of 1 (one proton), while carbon has an atomic number of 6 (six protons)
• The atomic number also indicates the number of electrons in a neutral atom of the element, balancing the positive charge of the protons.
Additional Information
• Neutrons
• Neutrons are subatomic particles found in the nucleus of an atom, alongside protons.
• They have no electrical charge (neutral) and are slightly more massive than protons.
• Neutrons contribute to the mass of the atom and play a crucial role in stabilizing the nucleus
• Neutrons are essential in nuclear reactions, such as fission and fusion.
• Electrons
• Electrons are negatively charged subatomic particles that orbit the nucleus of an atom in electron shells or energy levels.
• They are much less massive than protons and neutrons.
• The number and arrangement of electrons determine an element's chemical properties and behavior.
• Electrons are responsible for electrical conductivity.
• Mesons
• Mesons are a type of subatomic particle composed of a quark and an antiquark.
• They are part of the family of particles known as hadrons, which also include baryons (like protons and neutrons).
• Mesons mediate the strong nuclear force that holds protons and neutrons together in the nucleus
• There are several types of mesons, including pions (π mesons) and kaons (K mesons).

Q63. Answer: (c) Toad

The correct answer is Toad

Key Points

• Amphibia

• As the name indicates (Gr., Amphi: dual, bios, life), amphibians can live in aquatic as well as terrestrial habitats.

• Most of them have two pairs of limbs.

• The body is divisible into the head and trunk.

• The tail may be present in some.

• The amphibian skin is moist (without scales).

• The eyes have eyelids.

• A tympanum represents the ear.

• The alimentary canal, urinary and reproductive tracts open into a common chamber called cloaca which opens to the exterior.

• Respiration is by gills, lungs, and through the skin.

• The heart is three-chambered (two auricles and one ventricle).

• These are cold-blooded animals.

• Sexes are separate.

• Fertilization is external.

• They are oviparous and development is indirect.

• Examples:

• Bufo (Toad)

• Rana (Frog)

• Hyla (Tree frog)

• Salamandra (Salamander)

• Ichthyophis (Limbless amphibia).

Q64. Answer: (b) 6/5

Given:

The equation of the line is $4x + 3y + 6 = 0$

Formula used:

The distance (d) from a point $(x1, y1)$ to a line $Ax + By + C = 0$ is given by:

$d = (|Ax1 + By1 + C|)/(\sqrt{(A^2 + B^2)})$

Calculations:

The point is the origin (0, 0), so $x1 = 0$ and $y1 = 0$.

$\Rightarrow d = (|4(0) + 3(0) + 6|)/(\sqrt{(4^2 + 3^2)})$

$\Rightarrow d = (|6|)/(\sqrt{(16 + 9)})$

$\Rightarrow d = 6/\sqrt{25}$

$\Rightarrow d = 6/5$

Therefore The correct answer is option (2).

Q65. Answer: (c) 122

Given:

$2a = 3b = 4c$

$a + b + c = 13\sqrt{2}$

Formula used:

Express a, b, and c in terms of a constant k and use the given sum to find k.

$a = k$, $b = (2/3)k$, $c = (1/2)k$

Calculation:

$k + (2/3)k + (1/2)k = 13\sqrt{2}$

$\Rightarrow k (1 + 2/3 + 1/2) = 13\sqrt{2}$

$\Rightarrow k (1 + 0.6667 + 0.5) = 13\sqrt{2}$

$\Rightarrow k (2.1667) = 13\sqrt{2}$

$\Rightarrow k = 13\sqrt{2} / 2.1667$

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=> k ≈ 8.4853

Now find $a^2 + b^2 + c^2$:

a = k = 8.4853

b = (2/3)k ≈ 5.6569

c = (1/2)k ≈ 4.2426

$a^2 + b^2 + c^2$

=> $8.4853^2 + 5.6569^2 + 4.2426^2$

=> 72 + 32 + 18

=> 122

Therefore The correct answer is option (3).

Q66. Answer: (b) Afghanistan-Pakistan

The correct answer is Afghanistan-Pakistan

Key Points

• The Durand Line is the 2640-kilometer (1,640-mile) border between Afghanistan and Pakistan.

• It's the result of an agreement between Sir Mortimer Durand, a secretary of the British Indian government, and Abdur Rahman Khan, the emir, or ruler, of Afghanistan.

Additional Information

• The Khunjerab Pass is the crossing border between China and Pakistan.

• Land borders of India

Country	Length (Km)	Force
Bangladesh	4096 (2,545 miles)	Border Security Force
China (McMahon Line)	3488 (2,167 miles)	Indo-Tibetan Border Police
Pakistan (Radcliffe Line)	3310 (2,060 miles)	Border Security Force
Nepal	1752 (1,089 miles)	Sashastra Seema Bal
Myanmar	1458 (906 miles)	Assam Rifles and Indian Army
Bhutan	578 (359 miles)	Sashastra Seema Bal
Afghanistan	106 (66 miles)	Border Security Force

Q67. Answer: (b) Bharati

The correct answer is Bharati

Key Points

• Bharati is the name of the research station established by India in Antarctica in the year 2015.

• It is India's third Antarctic research facility and one of two active Indian research stations, alongside Maitri.

• India's first committed research facility, Dakshin Gangotri, is being used as a supply base.

• The research station has been operational since 18 March 2012, though it is still being run on a trial basis.

• Since its completion, India has become one of nine nations to have multiple stations within the Antarctic Circle.

Additional Information

• Research stations in Antarctica are:

• Dakshin Gangotri:

• The first permanent settlement was built in 1983 and named Dakshin Gangotri.

• In 1989 it was excavated and is being used again as a supply base and transit camp.

• Dakshin Gangotri was decommissioned in the year 1990 after half of it got buried under the ice.

• Maitri:

• The second permanent settlement, Maitri, was put up in 1989 on the Schirmacher Oasis and has been conducting experiments in geology, geography, and medicine.

• India built this station close to a freshwater lake around Maitri known as Lake Priyadarshini.

• Maitri accomplished the mission of geomorphologic mapping of Schirmacher Oasis.

• Bharati:

• Located beside Larsmann Hill at 69°S, 76°E, Bharati is established in 2015.

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• This newest research station for oceanographic research will collect evidence of continental breakup to reveal the 120-million-year-old ancient history of the Indian subcontinent.

Important Point

• Bharati's research mandate focuses on oceanographic studies and the phenomenon of continental breakup.

• It also facilitates research to refine the current understanding of the Indian subcontinent's geological history.

• Lieutenant Ram Charan, an Indian Navy meteorologist, was the first Indian to visit Antarctica when he accompanied an Australian polar expedition in 1960.

Q68. Answer: (c) √29/2

Given:

Equation of the circle: $x^2 + y^2 + 7x + 4y + 9 = 0$

Formula used:

The standard form of the circle equation: $(x - h)^2 + (y - k)^2 = r^2$

Where, (h, k) is the center and r is the radius.

Calculation:

Rewrite the given equation in the standard form:

$x^2 + y^2 + 7x + 4y + 9 = 0$

$\Rightarrow x^2 + 7x + y^2 + 4y = -9$

Complete the square for x and y terms:

$x^2 + 7x + (7/2)^2 - (7/2)^2 + y^2 + 4y + (4/2)^2 - (4/2)^2 = -9$

$\Rightarrow (x + 7/2)^2 - (7/2)^2 + (y + 2)^2 - 2^2 = -9$

$\Rightarrow (x + 7/2)^2 + (y + 2)^2 = -9 + (7/2)^2 + 2^2$

$\Rightarrow (x + 7/2)^2 + (y + 2)^2 = -9 + 49/4 + 4$

$\Rightarrow (x + 7/2)^2 + (y + 2)^2 = -9 + 49/4 + 16/4$

$\Rightarrow (x + 7/2)^2 + (y + 2)^2 = -36/4 + 65/4$

$\Rightarrow (x + 7/2)^2 + (y + 2)^2 = 29/4$

So, the radius r is:

$r^2 = 29/4$

$\Rightarrow r = \sqrt{(29/4)}$

$\Rightarrow r = \sqrt{(29)}/2$

Therefore The correct answer is option (3).

Q69. Answer: (c) 10 km/hr

Shortcut Trick

Ratio of Covered Distance to Remaining Distance = 5 : 7

Total units = 5 + 7 = 12 units → 32 km

Covered Distance = (5 ÷ 12) × 32 = 40/3 km

Time = 1 hr 20 min = 4/3 hours

Speed = (40/3) ÷ (4/3) = 10 km/hr

Therefore The correct answer is 10 km/hr.

Alternate Method

Given:

Total Distance = 32 km

Time = 1 hour 20 minutes

Ratio condition: Covered = (5/7) × Remaining

Let the Remaining Distance be x km.

$\Rightarrow$ Covered Distance = (5/7)x

$\Rightarrow$ Total Distance = (5/7)x + x = 32

$\Rightarrow$ (12/7)x = 32

$\Rightarrow$ x = (32 × 7) ÷ 12 = 56/3 km

$\Rightarrow$ Covered Distance = 32 − 56/3 = (96 − 56) ÷ 3 = 40/3 km

$\Rightarrow$ Time in hours = 1 + 20/60 = 1 + 1/3 = 4/3 hours

$\Rightarrow$ Speed = (40/3) ÷ (4/3) = 10 km/hr

Therefore The correct answer is 10 km/hr.

Additional Information

Speed, Distance, and Time Formula

The basic relationship is Speed = Distance ÷ Time. Ensure all units are consistent (e.g., km and hours).

Unit Conversion

To convert minutes to hours, divide by 60. To convert km/hr to m/s, multiply by 5/18.

Ratio and Proportion in Distance

If distance is divided in ratio a:b, the first part is [a/(a+b)] × Total and the second part is [b/(a+b)] × Total.

Average Speed

Average Speed = Total Distance Traveled ÷ Total Time Taken. For two equal distances at speeds x and y, it is 2xy/(x+y).

Q70. Answer: (c) 40√2 cm

Given:

Perimeter of the square = 160 cm

Formula used:

Perimeter of square = 4 × side

Diagonal of square = side √2

Calculation:

160 = 4 × side

=> side = 160 / 4

=> side = 40 cm

Diagonal = side √2

=> Diagonal = 40 √2

=> Diagonal = 40√2 cm

Therefore The correct answer is option (3).

Q71. Answer: (c) 48

Given:

Three numbers are in the ratio 1 : 2 : 3

HCF = 8

Formula used:

LCM = HCF × (Product of the ratios)

Calculation:

Let the numbers be 8x, 16x, and 24x

Since their HCF is 8, x = 1

Numbers are: 8, 16, 24

LCM = 8 × (1 × 2 × 3)

=> LCM = 8 × 6

=> LCM = 48

Therefore The correct answer is option 3.

Q72. Answer: (a) China

The correct answer is China

Key Points

• The Forbidden City is located in China

• It is a historic palace complex in Beijing, China, which served as the imperial palace for Chinese emperors for almost 500 years during the Ming and Qing dynasties.

• It was the imperial palace for 24 emperors of the Ming and Qing dynasties,

• serving as the political and ceremonial centre of the Chinese government from 1420 to 1912.

• The palace is a masterpiece of traditional Chinese architecture.

• It is known for its symmetrical layout, golden roofs, red walls, and intricate decorations

• It is one of the best-preserved ancient palaces in the world and was declared a UNESCO World Heritage Site in 1987.

• It now functions as the Palace Museum, where visitors can explore the vast collection of artefacts from China's imperial history.

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Additional Information

• China

• China, officially known as the People's Republic of China (PRC), is a vast and historically rich country located in East Asia.

• China is the third-largest country in the world by land area, covering about 9.6 million square kilometers.

• It features a diverse geography, including vast deserts like the Gobi, high mountains like the Himalayas, plateaus, plains, and coastal regions. The longest river in Asia, the Yangtze River, flows through China.

• China shares borders with 14 countries, including India, Russia, Mongolia, and Vietnam.

Q73. Answer: (d) Tablet

The logic followed here is:

Chair	Furniture
Bed	Furniture
Stool	Furniture
Tablet	Electronic Device

Chair, Bed, and Stool are all types of furniture,

Whereas,

Tablet is an electronic device.

Hence, the correct answer is "Tablet".

Q74. Answer: (c) Dr Rajendra Prasad

The correct answer is Dr Rajendra Prasad

Key Points

• Rajendra Prasad was elected as the first President of India on 24th January 1950 and the vice-president was Harendra Coomar Mookerjee.

• Major appointments of the Constituent Assembly were as follows

• Temporary President - Sachchidananda Sinha

• President - Rajendra Prasad

• Vice President - HC Mookerjee and VT Krishnamachari

• Chairman of Drafting Committee - BR Ambedkar

• Constitutional Advisor - BN Rau

Additional Information

• The Assembly met for the first time in New Delhi on 9 December 1946, and its last session was held on 24 January 1950.

• Major Committees of Constitution Assembly were

• Drafting Committee – B. R. Ambedkar

• Union Power Committee – Jawaharlal Nehru

• Union Constitution Committee – Jawaharlal Nehru

• Provincial Constitution Committee – Vallabhbhai Patel

• Advisory Committee on Fundamental Rights, Minorities and Tribal and Excluded Areas – Vallabhbhai Patel.

Q75. Answer: (d) 164/5

Given:

3/5 × [3 + {3 + (11 + 5 + 6)}]

Formula used:

Order of operations (BODMAS/BIDMAS): Brackets, Orders (i.e. powers and square roots, etc.), Division and Multiplication, Addition and Subtraction

Calculation:

3/5 × [3 + {3 + (11 + 5 + 6)}]

= 3/5 × [3 + {3 + 22}]

= 3/5 × [3 + 25]

= 3/5 × 28

= (3 × 28)/5

= 84/5

= 164/5

Therefore The correct answer is option (4).

Q76. Answer: (d) Niece and paternal uncle

Given:

1) R is the father of a girl S and brother of a man A.

2) C is mother of S and sister-in-law of A.

Thus, S is the niece of A and A is the paternal uncle of S.

Hence, the correct answer is "Option 4"

Q77. Answer: (c) 46 Years

Given:

Son is 24 years younger than his father.

In 2 years, the son will be half of the age of his father.

Formula used:

S = F - 24

S + 2 = 1/2(F + 2)

Calculations:

=> F - 24 + 2 = 1/2(F + 2)

=> F - 22 = 1/2F + 1

=> F - 1/2F = 23

=> 1/2F = 23

=> F = 46

Therefore The father's current age is 46 years.

Q78. Answer: (c) 1.6

The correct answer is 1.6

Key Points

• As per the standards set by the Department of Telecom, Government of India, for all the new designs of mobile handsets, the permissible Specific Absorption Rate (SAR) limit is 1.6 W/kg averaged over 1 gram of human tissue with effect from 1st September 2012.

• India has adopted one of the most stringed Electro Magnetic Field (EMF) exposure norms in the world.

• The measures are taken by the Department of Telecommunications, Government of India, are:

• Mobile Towers- EMF Radiation Norms:

• EMF exposure limit (Base Station Emissions) is lowered to 1/10th of the existing ICNIRP exposure level effective from 1st Sept. 2012.

• India now has one of the most stringent EMF exposure norms in the world.

• Telecom Enforcement Resource & Monitoring (TERM) Cells of DOT have been entrusted with the job of conducting audits on the self-certification furnished by the Service Providers.

• TERM Cell shall carry out test audits up to 10% of the BTS site on a random basis and on all cases where there is a public complaint.

• Telecom Engineering Centre (TEC) has revised the Test Procedure for measurement of EMF for verification of EMF compliance for BTS towers per new standards effective from 1st Sept. 2012.

• For non-compliance with EMF standards, a penalty of Rs. 5 lakh is liable to be levied per BTS per Service Provider.

• Mobile Handsets

• All the new designs of mobile handsets shall comply with the SAR values of 1.6 W/kg averaged over 1 gram of human tissue w.e.f. 1st Sept. 2012.

• The mobile handsets with existing designs which are compliant with 2.0 W/kg averaged over 10 grams of human tissue, continue to co-exist up to 31st August 2013. From 1st Sept. 2013, only the mobile handsets with a revised SAR value of 1.6 W/kg would be permitted to be manufactured or imported in India.

• Specific Absorption Rate (SAR) value information is displayed on the mobile handsets like IMEI (International Mobile Equipment Identity) display.

• The information on SAR values is to be made available to the consumer at the point of sale.

• Mobile handsets manufactured and sold in India or imported from other countries shall be checked on a random basis for compliance with the SAR limit after TEC SAR Laboratory is set up by end of the year 2012.

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• Test results from international accredited labs shall be acceptable in the interim period.

• All cell phone handsets sold in the market in India shall comply with relevant standards and shall be available in hand-free mode.

Q79. Answer: (a) Statutory Liquidity Ratio

The correct answer is Statutory Liquidity Ratio

Key Points

• In the banking field, SLR stands for Statutory Liquidity Ratio.

• It is a minimum percentage of a bank's net demand and time liabilities (NDTL) that the bank must maintain in the form of liquid assets,

• such as cash, gold, or government-approved securities, before providing credit to customers.

• SLR is mandated by the central bank of a country (for example, the Reserve Bank of India in India)

• to ensure that banks have sufficient liquidity to meet customer withdrawals and other obligations.

• The main objective of maintaining the SLR is to ensure the solvency and financial stability of banks and to prevent them from over-lending.

Additional Information

• Some important Banking Terms

• CRR (Cash Reserve Ratio)

• The Cash Reserve Ratio is the percentage of a bank's net demand and time liabilities (NDTL) that must be maintained as cash reserves with the central bank (e.g., the Reserve Bank of India in India).

• It ensures that banks have a minimum level of liquidity to safeguard customer deposits and manage liquidity risks.

• A higher CRR reduces the amount of funds available for lending, while a lower CRR increases banks' ability to lend.

• Repo Rate

• The Repo Rate is the interest rate at which the central bank lends money to commercial banks in exchange for government securities.

• It is used by central banks to control inflation and manage liquidity in the economy.

• When the repo rate is high, borrowing becomes more expensive for banks, which can lead to higher interest rates for consumers.

Q80. Answer: (b) 24

Given:

A sum of money doubles itself in 12 years.

Formula used:

For compound interest, if a sum doubles in t years, it becomes 2^n times in n × t years.

Calculation:

Given it doubles in 12 years, we need to find in how many years it becomes 4 times (which is 2^2 times).

=> n = 2

=> Time required = n × t

=> Time required = 2 × 12

=> Time required = 24 years

Therefore The correct answer is option (2).

Q81. Answer: (a) Basketball and Cricket

Formula used:

Total participation in a sport = Sum of students from all schools for that sport

Calculation:

Total participation in Badminton = 34 + 67 + 23 + 78 + 56

=> 258

Total participation in Table Tennis = 21 + 40 + 26 + 32 + 29

=> 148

Total participation in Football = 12 + 22 + 19 + 16 + 21

=> 90

Total participation in Basketball = 09 + 13 + 07 + 12 + 06

=> 47

Total participation in Cricket = 98 + 121 + 78 + 84 + 67

=> 448

Minimum participation = Basketball = 47

Maximum participation = Cricket = 448

Therefore The correct answer is option (1).

Q82. Answer: (b) India and Bhutan

The correct answer is India and Bhutan

In News

• India and Bhutan are the only BIMSTEC members that are not participating in China's Belt and Road Initiative (BRI).

Key Points

• India has opposed the BRI, particularly due to concerns about the China-Pakistan Economic Corridor (CPEC),\

• which passes through the disputed region of Pakistan-occupied Kashmir (PoK). India views this as a violation of its sovereignty.

• Bhutan is also not part of the BRI.

• It has no formal diplomatic relations with China and maintains a cautious approach due to its territorial disputes with China and its strong relationship with India.

• The remaining BIMSTEC members — Bangladesh, Nepal, Sri Lanka, Myanmar, and Thailand — are participants in China's BRI to varying extents.

Additional Information

• BIMSTEC (Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation)

• BIMSTEC was established in 1997 with the aim of promoting regional cooperation and development.

• The organization consists of seven member countries: Bangladesh, Bhutan, India, Nepal, Myanmar, Sri Lanka, and Thailand.

• These nations share geographical, economic, and cultural ties.

• BIMSTEC aims to enhance cooperation in various sectors, including trade, investment, technology, energy, transport, tourism, and agriculture.

• The member countries are located around the Bay of Bengal, which is strategically significant for trade routes and regional security.

Q83. Answer: (b) 2 m

Given:

Lengths: 24 m, 32 m, 42 m

Formula used:

Greatest Common Divisor (GCD)

Calculation:

Find GCD of 24, 32, 42

Prime factorization:

$24 = 2^3 \times 3$

32 = 2^5

$42 = 2 \times 3 \times 7$

Common factor: 2

=> GCD = 2

Therefore The correct answer is option 2.

Q84. Answer: (d) Bardoli

The correct answer is Bardoli

Key Points

• Sardar Vallabh Bhai Patel was given the title of ‘Sardar’ during the Bardoli satyagraha (1928) by women.

• He was a social leader who played a leading role in the country's struggle for independence and guided its integration into a united, independent nation.

• In India and elsewhere, he was often addressed as Sardar.

• The movement was initiated to protest against the unjust increase in land revenue by 22% imposed by the British government.

• Vallabhbhai Patel led the peasants in non-violent resistance against the increased taxes, encouraging them to refuse to pay the inflated taxes.

Additional Information

• Champaran Satyagraha (1917)

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• The movement was initiated to address the plight of indigo farmers in Champaran, Bihar,

• who were forced by British planters to grow indigo under the oppressive Tinkathia system (compulsory cultivation on 3/20th of the land).

• Mahatma Gandhi led the movement after being approached by local farmers. It was his first major involvement in India's freedom struggle.

• Champaran marked the first practical application of Gandhi's Satyagraha

• Ahmedabad Mill Strike (1918)

• Workers at the cotton mills in Ahmedabad were demanding better wages due to rising inflation, while mill owners were unwilling to give a fair wage increase

• The dispute centered around the demand for a 35% wage hike.

• Gandhi intervened and advised the workers to go on a peaceful strike.

• He also went on a hunger strike to strengthen the workers' resolve.

• Kheda Satyagraha (1918)

• Farmers in Kheda district, Gujarat, were suffering due to crop failure and famine, yet the British government insisted on collecting full land revenue.

• Led by Mahatma Gandhi, with support from Sardar Vallabhbhai Patel,

• this movement saw widespread participation from farmers who refused to pay taxes

• The Kheda Satyagraha further demonstrated the effectiveness of nonviolent resistance

Q85. Answer: (d) Uttar Pradesh

The correct answer is Uttar Pradesh

Key Points

• Narora Atomic Power Station (NAPS):

• Narora Atomic Power Station (NAPS) is a nuclear power plant located in Bulandshahar District in Uttar Pradesh, India.

• The plant houses two reactors, each a pressurized heavy-water reactor (PHWR) capable of producing 220 MW of electricity.

• Commercial operation of NAPS-1 began on 1 January 1991, NAPS-2 on 1 July 1992.

• The reactors were not originally under IAEA safeguards.

• But after the signing of the 1-2-3 agreement, they have been placed under IAEA monitoring with effect from 2014

• 31 May 1993 after 28 months of operation two steam turbine blades in NAPS-1 malfunctioned causing a major fire.

• This in combination with problems in the reactor's cabling system nearly lead to a nuclear meltdown.

Additional Information

• Nuclear energy can be used to create electricity, but it must first be released from the atom. In the process of nuclear fission, atoms are split to release that energy.

• A nuclear reactor, or; power plant, is a series of machines that can control nuclear fission to produce electricity.

• As of November 2020, India has 22 nuclear reactors in operation in 7 nuclear power plants, with a total installed capacity of 6,780 MW.

Power Station	Operational year
Narora Atomic Power Station	1992
Kaiga Atomic Power Station	2000
Tarapur Atomic Power Station	1969
Kakrapar Atomic Power Station	1993
Kudankulam Nuclear Power Plant	2013

Q86. Answer: (a) -, +, ×

Given : 8_ 7 _ 6_ 3 = 19

According to the question, after replacing the blanks :

Option 1) -, +, ×

8_ 7 _ 6_ 3 = 19 => 8 - 7 + 6 × 3 = 19

=> 8 - 7 + 6 × 3 = 19

=> 8 + 18 - 7 = 19

=> 26 - 7 = 19

=> 19 = 19 (LHS = RHS)

Option 2) -, -, ×

8_ 7 _ 6_ 3 = 19 => 8 - 7 - 6 × 3 = 19

=> 8 - 7 - 6 × 3 = 19

=> 8 - 7 - 18 = 19

=> -17 ≠ 19 (LHS ≠ RHS)

Option 3) -, ÷, ×

8_ 7 _ 6_ 3 = 19 => 8 - 7 ÷ 6 × 3 = 19

=> 8 - 7 ÷ 6 × 3 = 19

=> 8 - 1.17 × 3 = 19

=> 8 - 3.5 = 19

=> 4.5 ≠ 19 (LHS ≠ RHS)

Option 4) +, +, ×

8_ 7 _ 6_ 3 = 19 => 8 + 7 + 6 × 3 = 19

=> 8 + 7 + 6 × 3 = 19

=> 8 + 7 + 18 = 19

=> 33 ≠ 19 (LHS ≠ RHS)

Hence, "Option 1" is the correct answer.

Q87. Answer: (a) 4 + 6 ÷ 3 - 3 × 2 = 7

According to the question, after Interchanging + and × and number 4 and 6:

As LHS of all the options is same, thus we can find the RHS accordingly

4 + 6 ÷ 3 - 3 × 2 = ? => 6 × 4 ÷ 3 - 3 + 2 = ?

=> 6 × 4 ÷ 3 - 3 + 2 = ?

=> 6 × 1.33 - 3 + 2 = ?

=> 8 + 2 - 3 = ?

=> 10 - 3 = ?

=> 7 = ?

As RHS is '7', therefore option 1 equation is correct.

Hence, "Option 1" is the correct answer.

Q88. Answer: (d) 2016

Formula used:

Percentage of people who travelled = (Actually Travelled / Tickets Booked) × 100

Calculations:

For 2015:

=> Percentage = (2200 / 2400) × 100

=> Percentage = 91.67%

For 2016:

=> Percentage = (2000 / 2300) × 100

=> Percentage = 86.96%

For 2017:

=> Percentage = (2500 / 2600) × 100

=> Percentage = 96.15%

For 2018:

=> Percentage = (2450 / 2800) × 100

=> Percentage = 87.50%

Therefore The correct answer is option (4).

Q89. Answer: (b) 75%

Given:

Pandir's Total Marks = 355

Anil's Total Marks = 405

Devesh's Total Marks = 360

Ramit's Total Marks = 440

Naman's Total Marks = 310

Max Marks = 500

Formula used:

Average Percentage = (Sum of Total Marks of all students)/(Number of students × Max Marks) × 100

Calculation:

Sum of Total Marks of all students = 355 + 405 + 360 + 440 + 310

=> Sum of Total Marks = 1870

Number of students = 5

Max Marks = 500

=> Average Percentage = 1870/(5 × 500) × 100

=> Average Percentage = 1870/2500 × 100

=> Average Percentage = 0.748 × 100

=> Average Percentage ≈ 74.8%

Therefore The correct answer is option (2).

Q90. Answer: (d) Only conclusion 3 follows.

The least possible Venn diagram for the given statements is as shown below :

Conclusions:

1. Some guns are not leathers. → Does not follow (As some guns are metals and some metals are leathers. As no direction relation is given between guns and leathers, therefore it is is false.)

2. Some metals are not papers. → Does not follow (As some metals are leathers and some leathers are papers. As no direction relation is given between metals and papers, therefore it is is false.)

3. Some papers are leathers. → Follow (As some leathers are papers. As some part of leathers is common with papers, therefore it is true.)

4, Some papers are not metals. → Does not follow (As Some leathers are papers and some metals are leathers. As no direction relation is given between guns and leathers, therefore it is is false.)

Therefore Here, Only conclusion 3 follows.

Hence, the correct answer is "Option 4"

Q91. Answer: (d) Daughter and father

Given:

1) Hari is the father-in-law of Ram and husband of Kanchan.

2) Kanchan is the mother of her only daughter Suman.

3) Sarita is the daughter of Suman

Thus, Sarita is the daughter of Ram and Ram is the father of Sarita.

Hence, the correct answer is "Option 4"

Q92. Answer: (a) Only conclusion 1 follows.

The least possible Venn diagram for the given statements is as shown below :

Conclusions:

1. Some books are not poems. → Follow (As no bag is a poem and some books are bags. As some part of books is common with bags which cannot be poems, therefore it is is false.)

2. Some poems are bags. → Does not follow (As no bag is a poem. As it is given that bag cannot be poem and not poem cannot be bags thus cannot be proved, therefore it is is false.)

Therefore Here, Only conclusion 1 follows.

Hence, the correct answer is "Option 1"

Q93. Answer: (d) Beverage

The logic followed here is:

Logic: Categories and Subcategories.

Here,

Fruits : Food → Fruits is a subcategory of Food.

Similarly,

Tea : Beverage → Tea is a subcategory of Beverage.

Hence, the correct answer is "Option 4".

Q94. Answer: (a) 439

The logic followed here is:

Hence, "Option 1" is the correct answer.

Q95. Answer: (c) Only assumption 1 is implicit.

Given Statement: “Please do not use medicines during pregnancy” — Medical advice by a doctor.

Now,

Assumptions:

1. Use of medicine will cause problems during pregnancy - Implicit (The doctor advises against the use of medicines during pregnancy due to potential problems)

2. Medicines taken during pregnancy are very costly - Not Implicit (The statement does not mention the cost of medicines as a factor)

Here, Only assumption 1 is implicit.

Hence, the correct answer is "Option 3".

Q96. Answer: (a) E ate 18 mangoes and C ate 19 mangoes.

Given:

We have five children: A, B, C, D, and E. Their mango consumption is related as follows:

A ate 8 mangoes less than B

C and E together ate 37 mangoes

D ate 8 mangoes more than C

B ate 5 mangoes more than C

B and A together ate 40 mangoes

Formula used:

Let the number of mangoes eaten by C = x

B = C + 5 = x + 5

A = B - 8 = (x + 5) - 8 = x - 3

D = C + 8 = x + 8

C + E = 37 => E = 37 - C = 37 - x

A + B = 40 => (x - 3) + (x + 5) = 40

Calculation:

=> x - 3 + x + 5 = 40

=> 2x + 2 = 40

=> 2x = 38

=> x = 19

So, C = 19

B = C + 5 = 19 + 5 = 24

A = B - 8 = 24 - 8 = 16

D = C + 8 = 19 + 8 = 27

E = 37 - C = 37 - 19 = 18

Conclusion:

A ate 16 mangoes

B ate 24 mangoes

C ate 19 mangoes

D ate 27 mangoes

E ate 18 mangoes

Therefore The correct statements is:

E ate 18 mangoes and C ate 19 mangoes.

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Q97. Answer: (d) Carpenter

The logic followed here is:

Window	Part of a building
Wall	Part of a building
Door	Part of a building
Carpenter	Profession

Window, Wall, Door all are parts of a building,
Whereas,
Carpenter is a profession..
Hence, the correct answer is "Carpenter".

Q98. Answer: (b) 6290

The logic followed here is:
MAY is written as 123

Letter	M	A	Y
Code	1	2	3

RULE is written as 4567

Letter	R	U	L	E
Code	4	5	6	7

FUND is written as 8590

Letter	F	U	N	D
Code	8	5	9	0

Therefore, LAND will be written as:

Letter	L	A	N	D
Code	6	2	9	0

Hence, "Option 2" is the correct answer.

Q99. Answer: (c) Bangle

The logic followed here is:

Head-band	Hair Accessory
Tiara	Hair Accessory
Bangle	Wrist Accessory
Hairpin	Hair Accessory

Head-band, Tiara, Hairpin all are Hair Accessories,
Whereas,
Bangle is a Wrist Accessory.
Hence, the correct answer is "Bangle".

Q100. Answer: (c) 27%

Given:
Total sales of printer model L-1102 in 2015 = 822
Total sales of all printers in 2015 = 3086
Formula used:
Percentage share = ((Sales of specific model)/(Total sales)) × 100
Calculation:

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Percentage share = (822/3086) × 100
=> Percentage share = 0.2663 × 100
=> Percentage share ≈ 26.63%
Therefore The correct answer is option (3).

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