RRB NTPC Tier I Official Paper (Held On: 22 Apr 2016 Shift 3) (Previous Year Paper)

RRB NTPC • 2016 • 100 questions • 90 minutes • Answer key and solutions

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Scan the QR code or click the link to open it.

1 question is in Hindi and not printed here. Each one links to the online version, where you can read it.

Q1. Rakesh invests 10,000 rupees in a fixed deposit scheme for 2 years at 5% per annum compound interest. How much amount will he receive on maturity of fixed deposit?

A. Rs. 10,000

B. Rs. 8500

C. Rs. 11,050

D. Rs. 11,025

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

Q2. Find the missing term (?) from the series.

WUT, SQP, ?, KIH, GED

A. LOM

B. OML

C. MOL

D. OLH

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

Q3. Blu-ray Disc is a

A. Musical instrument

B. Medical equipment

C. Data storage system

D. Educational Kit

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

Q4. Read the given statements carefully and answer the questions.

Statement: Sunil has only Rs 100. He has to buy a soap, an oil bottle, a kilo of potatoes and a chocolate.

Which of the following combinations would Sunil buy?

A. An oil bottle of Rs 44, chocolate of Rs 23, soap of Rs 2 and half kg of potatoes of Rs 16.

B. An oil bottle of Rs 40, chocolate of Rs 20, soap of Rs 17 and a kg of potatoes for Rs 34.

C. Half a kilo potato of Rs 12, soap of Rs 23, chocolate of Rs 5 and an oil bottle of Rs 39.

D. Chocolate of Rs 50, soap of Rs 7, an oil bottle of Rs 30 and a kg of potato of Rs 29 per kg.

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

Q5. _____ is not a type of heat exchanger flow.

A. Cross flow
B. Counter flow
C. Parallel flow
D. Consecutive flow

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

Q6. The first two-wheeler public transport service for all women started in Gurgaon was called _____.

A. Bikxie Blue
B. Bikxie Pink
C. Bikxie Green
D. Bikxie Red

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

Q7. If the ratio of the angles of a triangle is 2 : 3 : 5, find the ratio of the sum of the largest angle and the smallest angle to the smallest angle.

A. 7 : 2
B. 2 : 3
C. 7 : 1
D. 3 : 5

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

Q8. The first Indian spacecraft entered the orbit of Mars in its _____ effort.

A. First
B. Second
C. Third
D. Fourth

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

Q9. If the number 732XY is divided by 70, then (X - Y)

A. 2
B. 5
C. 6
D. 3

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

Q10. The International Renewable Energy Agency is headquartered in _____.

A. Abu Dhabi
B. Dubai
C. Sharjah
D. Kuwait

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

Q11. If the mathematical signs '-' and '÷' are interchanged then the value of 20 × 7 + 15 - 21 × 105 ÷ 95 will be

A. 135
B. 120
C. 180
D. 140

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

Q12. P is mother of Q who is sister of R. S is the son of R. How is P related to S?

A. Maternal Grandmother
B. Mother
C. Mother-in-law
D. Cannot be determined

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

Q13. Find the elevation angle when the height of the tree is $16\sqrt{3}$ m and the length of the shade of the tree is 16 m.

(a) 60°
(b) 90°
(c) 45°
(d) 30°

Q14. _____ was Mahatma Gandhi's first successful satyagraha in India.

A. Kheda
B. Bardoli
C. Champaran
D. Salt march

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

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Q15. In the context of computer, 'online' does not mean which of the following?

A. Connectivity status in the network

B. Connectivity status in a non-functional unit.

C. A situation where transactions can be done in real-time.

D. Remote server access

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

Q16. What is Vitamin A related to?

A. Cobalamin

B. Retinol

C. Ascorbic acid

D. Amino acid

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

Q17. Swiping a credit card is based on the principle of _____.

A. Electromagnetic induction

B. Frictional force

C. Photoelectric effect

D. Dynamic technology

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

Q18. The World Series Cup in the format of ODI cricket was originally organized by _____.

A. Australian Cricket Board

B. International Cricket Conference

C. Kerry Francis Bullmore Packer

D. Test and Country Cricket Board

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

Q19. Rearrange the cluttered letters to make meaningful words and choose the one that is different from the rest.

A. ACETREH

B. UETSTND

C. YIBLRRA

D. KRTMAE

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

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Q20. India had _____ during the period between 2009 and 2014.

A. All party government
B. Coalition government
C. Single party government
D. National party government

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

Q21. The value of tan24.tan48.tan42.tan66 is.

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

Q22. The Prime Minister's Climate Change Council consists of _____ members.

A. 13
B. 5
C. 18
D. 8

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

Q23. Currently, the ratio of the age of Seema and Reema is 2: 3. Seema is 6 years younger than Reema, after 6 years the ratio of the age of Seema and Reema will be.

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

Q24. The shape of Milky Way is _____.

A. Regular
B. Irregular
C. Spiral
D. Elliptical

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

Q25. Excessive amount of calcium oxalate in the body causes _____.

A. Bronchitis
B. Diabetes
C. Stones
D. Meningitis

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

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Directions

Consider the following information and answer the questions based on it.

Out of a group of 100 naturalists, 15 want to see only butterflies, 30 want to see only birds, 10 want to see both bees and butterflies, 20 want to see both birds and bees, 5 want to see both bees and bats and the rest of the people only want to see bats.

Q26. The number of naturalists who only want to see bats is

A. 15
B. 20
C. 30
D. No one

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

Q27. The ratio of naturalists who want to see only bats is to those who want to see only butterflies.

A. 3 : 4
B. 2 : 3
C. 4 : 3
D. 3 : 2

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

Q28. How many naturalists want to see at least two of the four species?

A. 15
B. 25
C. 30
D. 35

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

Q29. Which was the first bank in India?

A. Reserve Bank of India
B. State Bank of India
C. Central Bank of India
D. Bank of Hindustan

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

Q30. If the average of x and 1/x (x≠0) is P, then what will be the average of x^3 and $1/x^3$?

(a) $8p^3 – 3p^2$
(b) $16p^3$
(c) $4p^3 – 3p$
(d) $– 44p^2$

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Q31. If $5x^2 - 6x - 5 = 0$, then find the value of $(x - 1/x)^2$.

(a) 16/25
(b) 64/25
(c) 81/25
(d) 36/25

Q32. Contact lenses are normally made of?

A. Teflon
B. Hydrogel
C. Nylon
D. Mica

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

Q33. _____ is not one of the ingredients of toothpaste.

A. Fluoride
B. Sodium carbonate
C. Calcium carbonate
D. Magnesium carbonate

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

Q34. In the 15th century, Babur made the game _____ popular in India.

A. Golf
B. Polo
C. Kabaddi
D. Karate

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

Q35. Lieutenant Governor in India _____

A. is appointed by the army.
B. act as the nominal head of the union territory.
C. they are elected by the people of India.
D. is accountable to the Council of Ministers of The Chief Minister.

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

Q36. _____ is not a form of carbon.

A. Diamond
B. Silicon
C. Fullerene
D. Graphene

(a) D

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

Q37. Which of the following is not a historical monument in Fatehpur Sikri?

A. Buland Darwaza
B. Ibadat Khana
C. Gol Gumbaj
D. Panch Mahal

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

Q38. What is the ratio of the speed of light in a vacuum to a medium?

A. Reflective index
B. Refractive index
C. Mediweek index
D. Air quality index

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

Q39. In a fruit shop, the cost price of 40 apples is equal to the selling price of 30 apples. The profit percentage earned by the shopkeeper is

(a) 30%
(b) 33.3%
(c) 35.5%
(d) 35%

Q40. Four pairs of words are given. Select the odd one.

A. Equator : Hot
B. Pole : Cold
C. River : Hot
D. Winter : Cold

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

Q41. If 35% of 9/5 of a number is 252, then find the number.

(a) 255
(b) 360
(c) 400
(d) 410

Q42. A drug supervisor dismisses 0.05% of the drugs as defective drugs. How many drugs will be tested to dismiss 4 drugs?

A. 5000
B. 8000
C. 6000
D. 8500

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

Q43. _____ is not a board game.

A. Snake and ladder
B. Chess
C. Bridge
D. Checkers

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

Q44. Geographic Indication (GI) status provides legal protection to agricultural _____ of unique geographic origin and development.

A. Product
B. Land
C. Tools
D. Waste

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

Q45. Phosphorus is kept in water so that it _____.

A. Avoid spoilage
B. Avoid catching fire.
C. Ensure durability.
D. Stay out of reach of children.

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

Q46. If E means '+', F means '×', G means '÷' and H means '-'.
then the value of 81 H 1 G 17 F 102 G 6 F 34 H 6 is

A. -40
B. 26
C. 41
D. 29

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

Q47. Find the odd with respect to encoding.

A. Transform data into any other format.
B. Transformation of coded data.
C. Placing the characters in coded format in a sequence.
D. This helps in program compilation and execution.

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

Q48. Ritesh, Gaurav and Jugnu invest in the ratio 2 : 5 : 7. The ratio of their investment return percentage is 5 : 3 : 2. If Gaurav earns more than Rs 150 from Ritesh, find the total income.

A. Rs. . 1170
B. Rs. . 1050
C. Rs. . 1240
D. Rs. . 1370

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

Q49. If the letters of prime, even and odd places are coded by 4, 5 and 3 respectively, then the code for EDUCATION will be-

A. 453454345
B. 454534345
C. 453435335
D. 453434545

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

Q50. The amount of a sum of Rs 1500 becomes Rs 1800 in 2 years at simple interest. If the rate of interest is increased by 5%, what will be the amount?

A. Rs. . 1500
B. Rs. . 1900
C. Rs. . 1950
D. Rs. . 2000

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

Q51. If the standard deviation of the population is 11, what will be the variance of the population?

A. 44
B. 121
C. 22
D. 33

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

Q52. The average temperature of human body is _____.

A. 34°C
B. 35°C
C. 36°C

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D. 37°C

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

Q53. The acid and water in the two containers are mixed in the ratio of 3 : 1 and 5 : 3 respectively. In order to obtain a new mixture, in which the ratio of acid and water is 2 : 1, in what ratio should the two types be mixed?

A. 1 : 2
B. 2 : 1
C. 2 : 3
D. 3 : 2

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

Q54. What is not true with the word 'hub'?

A. It is used to connect parts of a LAN.
B. Hub is software.
C. Common point of connecting in PC.
D. It contains multiple ports.

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

Q55. The product of Sapna and Anubha's age is 150. If 4 times the age of Anubha is 10 years less than the age of Sapna, find the age of Sapna.

A. 30
B. 27
C. 19
D. 17

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

Q56. A seller expects a 32% return on his purchase price. If its sales in one day were 528. What was his profit amount?

A. Rs. 120
B. Rs. 128
C. Rs. 132
D. Rs. 140

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

Directions

The following table shows the list of subject wise books available in 3 branches of a library.

Subject	Branch I	Branch II	Branch III

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Fiction	130	70	240
Science	260	140	120
IT	65	280	180
History	195	210	60

Q57. The difference between the total number of fiction literature and science books of branch I and the total number of IT and history books of branch II is _____.

A. 90

B. 100

C. 110

D. 120

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

Q58. The ratio of the number of science books of branch I to the number of books of fiction literature of branch II is _____.

A. 13 : 24

B. 26 : 7

C. 12 : 13

D. 13 : 12

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

Q59. The number of history books of branch III is how much less than the average number of history books of all the three branches.

A. 100

B. 115

C. 95

D. 85

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

Q60. If the factor of $3x^4 - (a + 2)x^3 - x^2 - 4$ is $(x - 2)$, then the value of a is-

A. 5

B. -1

C. 3

D. 4

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

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Q61. Read the given statements carefully and answer the questions.

Statement: Some squares are triangles while some are rectangles. Each circle is a triangle and each hexagon is a rectangle.

Which of the following options is correct according to the given statements?

A. At least one circle is square.

B. All rectangles are hexagons.

C. There is at least one hexagon that is square.

D. At least one rectangle is square.

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

Q62. Choose the option that shows a different relation to the given pairs.-

Pressure : Barometer

A. Current : Ammeter

B. Liquid Density : Odometer

C. Temperature : Pyrometer

D. Earthquake : Seismograph

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

Q63. _____ is not a folk dance of India.

A. Mohiniattam

B. Lavani

C. Kalbelia

D. Rouff

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

Q64. S's mother is the daughter of K, whose husband is the father of their only son C. How is S related to K?

A. Daughter

B. Sister

C. Niece

D. Cannot be determined

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

Q65. The mean of a distribution is 80 and the standard deviation is 16. What is the value of variance coefficient?

A. 10%

B. 20%

C. 40%

D. 60%

(a) B
(b) D

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(c) A
(d) C

Q66. Following are some of conclusions of the statements.

Statement:

1. The digital age is quietly contributing to humanity's carbon footprint.

2. The manufacture and use of computers, smartphones etc. are also involved in the production of greenhouse gases.

Conclusions:

I. The virtual world is quietly becoming harmful to humanity.

II. Smartphone use produces greenhouse gases.

Find out which of the given conclusions logically follows from the given statements.

A. Only conclusion I follows.

B. Only conclusion II follows.

C. Both I and II follow.

D. Neither I nor II follows.

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

Q67. Find the value of 1093 ? 1093.

A. 1194649

B. 1162481

C. 1424649

D. 1428481

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

Q68. Rupal and Shanu are partners in a business. Rupal invests 15000 rupees for 4 months and Shanu invests 10000 rupees for 3 months. Find the share of Rupal in the total profit of Rs. 90000.

A. Rs. 35000

B. Rs. 75000

C. Rs. 55000

D. Rs. 60000

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

Directions

P, Q, R, S and T are sitting facing you in a row. Answer the following questions based on the following information.

1. S is just after T.
2. R is second from the right and after Q.
3. P is at the last place and after T.

Q69. Who is in the middle?

A. P

B. Q

C. R

D. S

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

Q70. Who is second from the left?

A. R

B. T

C. Q

D. P

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

Q71. Who is at the right end?

A. P

B. Q

C. S

D. T

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

Q72. P and Q can complete a work in 12 days, Q and R in 15 days, R and P in 20 days. In how many days can they work together?

A. 10

B. 12

C. 5

D. 14

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

Q73. Victoria Waterfalls are located in _____.

A. United States of America

B. Britain

C. France

D. Africa

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

Q74. If Miser : Spendthrift then Night : _____

A. Moon

B. Sunlight

C. Day

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D. Darkness

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

Q75. Four sons and an unmarried daughter live with their parents. A son has a daughter and a son. Each of the other sons has 2 daughters. How many female members are there in the family?

A. 7
B. 8
C. 9
D. 10

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

Q76. Read the following excerpt and answer the questions based on it.

The tiger is the apex predator of the Indian forests. He is at the top of the food chain. The forests are important for the survival of these predators. By conserving forests, we must ensure the protection of their wild habitat. Tiger areas should also be protected from hunters. The forest department should establish preventive measures to stop poaching. These will help in maintaining their numbers in the forest.

Which of the following statements is not appropriate in the context of the above statement?

A. Protection of forests is needed for tigers to survive.
B. Poaching is a threat to tiger conservation.
C. Wild tigers are in small numbers.
D. Tigers are at the top of the food chain.

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

Q77. The mean of 19 observations is 13. Three more observations are included and the new mean becomes 13.5. Mean of three new observations

A. 15
B. 16.66
C. 18.88
C. 19

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

Q78. Where is Okhla Bird Sanctuary located?

A. Himachal Pradesh
B. NCR Region
C. Haryana
D. Punjab

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

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Q79. A bus runs at 80 km per hour and reaches its destination 40 minutes late. If it had moved at a speed of 90 kilometers per hour, it would have reached only 8 minutes late. The right time in which the bus completes it's journey is:

A. 248 minutes

B. 340 minutes

C. 212 minutes

D. 315 minutes

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

Q80. _____ was/is the first Indian to enter space.

A. Kalpana Chawla

B. Rakesh Sharma

C. Sunita Williams

D. Ravish Malhotra

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

Q81. The 88th Academy Award winner for Best Actor was _____.

A. Michael Fassbender

B. Leonardo DiCaprio

C. Eddie Redmayne

D. Bryan Cramston

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

Q82. Find the similarity in the following:

Silver, copper, gold, aluminum

A. All these are good insulator.

B. All these are precious metals.

C. All these are good conductors.

D. There is no similarity.

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

Q83. Find the missing term (?) in the series

2, 6, 12, 20, 30, 42, 56, ?

A. 66

B. 68

C. 72

D. 74

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

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(d) D

Q84. If COCKPIT is written as CPTCOKI then CAPTAIN will be written as

A. PANACTI

B. PANCAIT

C. APNCATI

D. PANCATI

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

Q85. Where is the famous Somnath temple located?

A. Tamil Nadu

B. Uttar Pradesh

C. Gujarat

D. Rajasthan

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

Q86. The LCM of two numbers is 6 times their HCF. If one of them is 45 and the sum of HCF and LCM is 315, find the other number.

A. 190

B. 360

C. 270

D. 300

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

Q87. if 'rub' is 'eraser', if 'pen' is 'pencil', if 'rubber' is 'box', if 'box' is 'pen', then where will you keep the 'pen'?

A. Box

B. pencil

C. Rubber

D. Pen

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

Q88. Which is not true for the Government of India Act 1919?

A. The Act had a separate preamble.

B. This Act has made the Central Legislature liable.

C. The Act has provided the Public Service Commission in India.

D. The Act covered 20 years from 1919 to 1939.

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

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Q89. This question is in Hindi. Read it online.

Q90. On which rank was India's billionaire Mukesh Ambani in the Forbes 2016 ranking list of world's billionaires?

A. 24
B. 36
C. 19
D. 47

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

Q91. _____ can dissolve gold.

A. Glycerin
B. Petroleum ether
C. Methanol
D. Aqua Regia

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

Q92. 1/3 part of a work can be completed in 8 days by 30 men. How many more men will be required to finish the rest in the next 10 days?

A. 10
B. 18
C. 12
D. 9

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

Q93. The triangle PQR is such that PQ = 8 cm, QR = 7 cm, PR = 7.5 cm and triangle PQR is similar to triangle XYZ. If XY = 16 cm, find the value of YZ.

A. 15 cm
B. 18 cm
C. 12 cm
D. 14 cm

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

Q94. _____ was the first Indian woman boxer to receive a gold medal at the Asian Games in 2014.

A. Pinki Rani
B. Mary Kom
C. Renu Gora
D. Shorty Laura

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

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(d) B

Q95. 'Malleable' refers to the property of _____.

A. Non-metal

B. Metal

C. Gas

D. Non-metal compounds

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

Q96. Which of the following is not a part of the main topographic regions of Nepal?

A. lowland

B. Hills

C. Deccan

D. Mountains

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

Q97. If 'this is done' is coded as 792; 'that is remaining' is coded as 824 and 'remaining is done' is coded as 298, which number represents 'done'?

A. 4

B. 7

C. 2

D. 9

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

Q98. The complementary angle of 45° 45' is _____.

A. 45° 55'

B. 44° 25'

C. 44° 15'

D. 46° 25'

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

Q99. Neelam and Manisha start running from the same place at the speed of 7 km/h and 9 km/h respectively. If they move in the same direction, how long will they take to go 16 km away from each other?

A. 7 hours

B. 8 hours

C. 10 hours

D. 12 hours

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

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(d) B

Q100. Find the largest number which on dividing 60, 150, and 285 leaves equal remainder in each.

A. 30
B. 25
C. 45
D. 55

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

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (d) D

Given:

Rakesh invests 10,000 rupees in a fixed deposit scheme for 2 years at 5% per annum compound interest.

Formula used:

Amount = P × (1 + R/100)^T

P = Principal

R = rate %

T = time

Calculation:

According to the question,

P = Rs. 10,000, R = 5%, T = 2 years

Amount = P × (1 + R/100)^T

=> Amount = 10,000 × (1 + 5/100)²

=> 10,000 × 105 × 105/10,000

=> Rs. 11,025

Therefore He will receive Rs. 11,025 on maturity of fixed deposit amount.

By using ladder system

P = Rs. 10000, R = 5%, T = 2 years

Amount = principal + compound interest

=> 10000 + 1025

=> Rs. 11025

Therefore He will receive Rs. 11,025 on maturity of fixed deposit amount.

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Q2. Answer: (c) B

The pattern followed here is:

According to the alphabetical positions of the letters,

Hence, ‘OML’ is the correct answer.

Q3. Answer: (a) C

The correct answer is Data Storage System.

Blu-Ray Disc is a Data storage system.

Key Points

• Blu-ray is an optical disc format such as CD and DVD.

• It was developed for recording and playing back high-definition (HD) video and for storing large amounts of data back in 2006.

• A CD can hold 700 MB of data and a basic DVD can hold 4.7 GB of data, whereas a single Blu-ray disc can hold up to 25 GB of data.

• While a double-sided, dual-layer DVD (which is not common) can only hold 17 GB of data. Dual-layer Blu-ray discs will be able to store 50 GB of data. That is equivalent to 4 hours of HDTV.

• A group of the world's leading consumer electronics, personal computer, and media manufacturers like Apple, Dell, Hitachi, HP, JVC, LG, Mitsubishi, Panasonic, Pioneer, Philips, Samsung, Sharp, Sony, etc.

Additional Information

Medical equipment:-

• It is used for the specific purposes of diagnosis and treatment of disease or rehabilitation following disease or injury, it can be used either alone or in combination with any accessory, consumable or other pieces of medical equipment.

Musical instrument:-

• It is any device for producing a musical sound.

• The principal types of such instruments, classified by the method of producing sound are percussion, string instruments, keyboard, wind, and electronic.

Q4. Answer: (a) C

Given:

Sunil has only Rs 100.

Calculation:

According to the question, we have to check the combination

He has to buy a soap, an oil bottle, a kilo of potatoes and a chocolate.

A. An oil bottle of Rs 44, chocolate of Rs 23, soap of Rs 2 and half kg of potatoes of Rs 16.

=> 44 + 23 + 2 + 16 × 2

=> Rs. 101

B. An oil bottle of Rs 40, chocolate of Rs 20, soap of Rs 17 and a kg of potatoes for Rs 34.

=> 40 + 20 + 17 + 34

=> Rs. 111

C. Half a kilo potato of Rs 12, soap of Rs 23, chocolate of Rs 5 and an oil bottle of Rs 39.

=> 12 × 2 + 23 + 5 + 39

=> Rs. 91

D. Chocolate of Rs 50, soap of Rs 7, an oil bottle of Rs 30 and a kg of potato of Rs 29 per kg.

=> 50 + 7 + 30 + 29

=> Rs. 116

Therefore Sunil buy 'C' combination.

Q5. Answer: (d) D

The correct answer is Consecutive flow.

Key Points

• A heat exchanger is a device used to transfer heat between two or more fluids.

• The fluids can be single or two-phase and, depending on the exchanger type, may be separated or indirect contact.

• Devices involving energy sources such as nuclear fuel pins or fired heaters are not normally regarded as heat exchangers although many of the principles involved in their design are the same.

• Classification of Heat Exchangers by Flow Configuration:-

• There are four basic flow configurations:
• Counter Flow
• Concurrent Flow
• Crossflow
• Hybrids such as Cross Counterflow and Multi-Pass Flow

Q6. Answer: (a) B

The correct answer is Bikxie Pink.

• The first two-wheeler public transport service for all women started in Gurgaon was called Bikxie Pink.

Key Points

• Bikxie - a bike taxi - is a service that has been playing on congested Gurgaon roads to get you to work and other engagements on time.

• Bikxie, a two-wheeler taxi service provider, has announced the 'soft launch' of its women-only service Bikxie Pink in Delhi, on the occasion of International Women's Day 2018.

• A first-of-its-kind service in the national capital, Bikxie Pink offers a fleet of electric scooters exclusively driven by women and for women.

• The service was earlier launched in Gurugram in January 2016 and claims to have received immense popularity from women commuters in the city.

• Bikxie Pink will initially be rolled out with 10 women pilots, but the numbers shall increase to more than 100 female pilots in the next few months across Delhi NCR.

• On the Bikxie mobile app, female customers will be able to opt for Bikxie Pink pilots, or they may hail the scooties from key metro stations.

• The app-based service is segmented into Bikxie Blue for men and Bikxie Pink for women - a safe solution where the driver is the same sex as the customer.

Q7. Answer: (c) A

Given:

The ratio of a triangle = 2 : 3 : 5

Concept:

The sum of the three angles of a triangle is 180°

Calculation:

Let, the smallest angle be 2x

The medium angel be 3x

The largest angle be 5x

According to the question:

=> 2x + 3x + 5x = 180°

=> 10x = 180°

=> x = 18°

Now,

The smallest angle = 2x = 2 × 18 = 36°

The medium angel = 3x = 3 × 18 = 54°

The largest angle = 5x = 5 × 18 = 90°

Again,

(The largest angle + The smallest angle) : The smallest angle.

=> (90° + 36°) : 36°

=> 126° : 36° = 7 : 2

Therefore The ratio of the sum of the largest angle and the smallest angle to the smallest angle 7 : 2.

Shortcut Trick

The ratio of the given ratios will be equal to the ratio of the actual values of the angles.

According to the question:

(The largest angle + The smallest angle) : The smallest angle

=> (5 + 2) : 2 = 7 : 2

Therefore The ratio of the sum of the largest angle and the smallest angle to the smallest angle 7 : 2.

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Q8. Answer: (a) A

The correct answer is First.

• The first Indian spacecraft entered the orbit of Mars in its first effort.

Key Points

• Mars Orbiter Mission (MOM), the maiden interplanetary mission of ISRO, launched on November 5, 2013, by PSLV-C25 got inserted into Martian orbit on September 24, 2014, in its first attempt.

• MOM completes 1000 Earth days in its orbit, well beyond its designed mission life of six months.

• 1000 Earth days corresponds to 973.24 Mars Sols (Martian Solar day) and MOM completed 388 orbits which were more than enough.

Additional Information

• ISRO:

• Founded:- 15 August 1969

• Chairman:- Dr. K Sivan

Q9. Answer: (d) A

Given:

Number = 732XY

Divisor = 70

Concept used:

Divisibility Rule:

10 → Last digit should be zero.

7 → [Last three digit – remaining digits] should be divisible.

Calculation:

Number = 732XY

Divisor = 10 × 7

According to the divisibility rule of 10,

Y should be zero.

Then the value of Y = 0

And number = 732X0

Now, we check, divisibility of 7,

And we can see 732X

According to the divisibility rule of 7,

32X – 7,

Here, possible value of X is 1, 2, 3, 4, 5, 6, 7, 8, 9, 0

Put X = 1,

321 – 7 = 314

=> 314/7 not divisible by 7

Put X = 2,

322 – 7 = 315

=> 315/7 = 45, so it is divisible by 7

Our required value of X = 2, Y = 0

=> X – Y = 2 – 0 = 2

Therefore The value (X – Y) is 2.

Q10. Answer: (a) A

The correct answer is Abu Dhabi.

Key Points

• International Renewable Energy Agency (IRENA):

• It is the first international organization to focus exclusively on renewable energy, addressing needs in both industrialized and developing countries.

• It was founded in 2009 and its statute entered into force on 8 July 2010.

• It is headquartered in Masdar City, Abu Dhabi.

Additional Information

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• IRENA is an official United Nations observer.

• IRENA aims to become the main driving force in promoting a transition towards the use of renewable energy on a global scale:

• Acting as the global voice for renewable energies, IRENA provides advice and support to governments on renewable energy policy, capacity building, and technology transfer.

• IRENA will also co-ordinate with existing renewable energy organizations, such as REN15.

Important Points

• India has become the 77th founding member of IRENA.

Q11. Answer: (b) B

Given equation: 20 × 7 + 15 - 21 × 105 ÷ 95

When the mathematical signs '-' and '÷' are interchanged in the equation given, we get:

20 × 7 + 15 ÷ 21 × 105 – 95

= 140 + 75 – 95

= 215 – 95

= 120

Hence, ‘120’ is the correct answer.

Q12. Answer: (b) D

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

P is grandmother of S, but as the gender of R is not known, it is not definite if P is the maternal grandmother or paternal grandmother of S.

So, the exact relation between P and S cannot be determined.

Hence, ‘Cannot be determined’ is the correct answer.

Q13. Answer: (a) 60°

Given:

Height of the tree = 16√3 m

The shade of the tree = 16 m

Formula used:

tan60° = √3

tanθ = Opposite side/Adjacent side

Calculation:

tanθ = (16√3)/16

=> tanθ = √3 = tan60°

Therefore The elevation angle is 60°.

Q14. Answer: (d) C

The Correct Answer is C- Champaran.

Key Points

• Champaran was Mahatma Gandhi's first successful satyagraha in India.

• The Champaran Satyagraha was the combination of elements of extra-constitutional struggle as well as the employment of moral force against an adversary, an exemplar of the rule of law; and the use of compromise as a gambit.

• It is marked as India’s First Civil Disobedience Movement launched by Mahatma Gandhi to protest against the injustice meted out to tenant farmers in the Champaran district of Bihar.

Additional Information

• Kheda Satyagraha:

• It is a peasant struggle against the British government's demand for the full realization of the land tax by the peasants despite famine and crop losses.

• Hence, the peasants of Kheda demanded non-payment of land taxes.

• Bardoli Satyagraha:

• 1928 was a movement in the independence struggle led by Sardar Vallabhai Patel for the farmers of Bardoli against the unjust raising of taxes.

• Salt March:

• It took place from March to April 1930 in India, was an act of civil disobedience led by Mohandas Gandhi to protest British rule in

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India.

• During the march, thousands of Indians followed Gandhi from his religious retreat near Ahmedabad to the Arabian Sea coast, a distance of some 240 miles.

Q15. Answer: (c) B

The correct answer is Connectivity status in a non-functional unit.

In the context of computers, 'online' does not mean Connectivity status in a non-functional unit.

Key Points

• Online means that the equipment or subsystem is connected, or that it is ready for use.

• "Online" has come to describe activities performed on and data available on the Internet,

• Example: "online identity", "online predator", "online gambling", "online shopping", "online banking", and "online learning".

• .Online means:-

• Connectivity status in the network

• A situation where transactions can be done in real-time.

• Remote server access

Q16. Answer: (c) B

The correct answer is Retinol.

Vitamin A is related to Retinol.

Key Points

• Retinol, also known as vitamin A1-alcohol, is a vitamin in the vitamin A family found in food and used as a dietary supplement.

• As a supplement it is ingested to treat and prevent vitamin A deficiency,

• Vitamin A is essential to maintain intact epithelial tissues as a physical barrier to infection, it is also involved in maintaining a number of immune cell types from both the innate and acquired immune systems.

• These include the lymphocytes (B-cells, T-cells, and natural killer cells), as well as many myelocytes (neutrophils, macrophages, and myeloid dendritic cells).

Additional Information

Cobalamin:-

• It is also called vitamin B12.

• A vitamin important for the normal formation of red blood cells and for the health of the nerve tissues.

Ascorbic Acid:-

• It is a natural water-soluble vitamin (Vitamin C).

• Ascorbic acid is a potent reducing and antioxidant agent that functions in fighting bacterial infections, in detoxifying reactions, and in the formation of collagen in fibrous tissue, teeth, bones, connective tissue, skin, and capillaries.

Amino acid:-

• It is an organic molecule that is made up of a basic amino group (−NH2), an acidic carboxyl group (−COOH), and an organic R group (or side chain) that is unique to each amino acid.

Q17. Answer: (a) A

The Correct Answer is Electromagnetic induction.

• Swiping a credit card is based on the principle of Electromagnetic induction

Key Points

• Electromagnetic or magnetic induction is the production of an electromotive force across an electrical conductor in a changing magnetic field

• Example: When we swipe the card, the credit card machine's coil of wires causes a change in the magnetic field. This is called electromagnetic induction.

• The change in magnetic field induces a voltage that creates a current that is used to signal your account information to the machine.

• When we swipe a magnetic-strip card, the technology transmits the bank information to the card reader, which sends it to Square. Then it is passed along that information to the acquiring bank. Square's magstripe reader plugs into your iOS or Android device's headset jack so we can take credit card payments anywhere.

Additional Information

• Frictional force refers to the force generated by two surfaces that contacts and slide against each other.

• Rubbing both hands together to create heat is an example of frictional force.

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• Photoelectric effect, phenomenon in which electrically charged particles are released from or within a material when it absorbs electromagnetic radiation.

• Applications of the photoelectric effect brought us "electric eye" door openers, light meters used in photography, solar panels and photostatic copying.

Q18. Answer: (c) C

The correct answer is Kerry Francis Bullmore Packer.

• The World Series Cup in the format of ODI cricket was originally organized by Kerry Francis Bullmore Packer.

Key Points

• Packer was best known for founding World Series Cricket.

• Kerry Francis Bullmore Packer was an Australian media tycoon and a business figure who, at the time of his death in 2005, was one of the richest and most influential men in Australia.

• Kerry Packer was born on December 17, 1937, in Sydney, Australia.

• He inherited the Australian Consolidated Press (ACP) group from his father, Sir Frank Packer. In the 1977–1978 season, he created World Series Cricket, contracting the leading test cricketers for a knock-out series of one-day matches and “Super Tests”.

Q19. Answer: (a) D

The cluttered letters when arranged to make meaningful words is shown below:

A. ACETREH → TEACHER

B. UETSTND → STUDENT

C. YIBLRRA → LIBRARY

D. KRTMAE → MARKET

All options except 'MARKET' are terms associated with School.

Hence, 'KRTMAE' is the odd one out.

Q20. Answer: (a) B

The correct answer is the Coalition government.

• India had a Coalition government during the period between 2009 and 2014.

Key Points

• A coalition government is a cabinet of a parliamentary government in which several political parties cooperate to reduce or to avoid the dominance of any one party within that coalition.

• The usual reason given for this arrangement is that no party on its own can achieve a majority in the parliament.

• The coalition might also be created in a time of national difficulty or economic crisis.

• As the elections were held in 2009, the UPA came back to power. Congress also improved its seats from 145 to 206 seats, while the BJP could only win 116 seats. Manmohan Singh was elected as the prime minister for a second term.

• The Narendra Modi government, which has been in power since 2014, is also a coalition government since the BJP’s alliance partners are also part of the government. But the BJP won 282 seats in the 2014 elections and was above the half-way mark on its own.

Additional Information

• All-Party Government:

• It is also a type of Coalition Government. A coalition government is a form of government in which political parties cooperate to form a government.

• The usual reason for such an arrangement is that no single party has achieved an absolute majority after an election.

• A one-party state, single-party state, one-party system, or single-party system

• It is a type of unitary state in which one political party has the right to form the government, usually based on the existing constitution.

• All other parties are either outlawed or allowed to take only a limited and controlled participation in elections.

Q21. Answer: (d) 1

Given:

tan24.tan48.tan42.tan66

Formula used:

$\tan\theta = \cot(90 - \theta)$

$\tan\theta = 1/(\cot\theta)$

Calculation:

tan48 = cot(90 – 48) = cot42

tan66 = cot (90 – 66) = cot24

Now we have

tan24.cot24.tan42.cot42

=> tan24.(1/tan24).tan42.(1/tan42) = 1

Therefore The value of tan24.tan48.tan42.tan66 is 1.

Q22. Answer: (c) C

The correct answer is 18.

Key Points

• The Government has decided to re-constitute the Prime Minister's Council on Climate Change to coordinate National Action for Assessment, Adaptation and Mitigation of Climate Change.

• The composition of the reconstituted Prime Minister's Council on Climate Change, as approved by Prime Minister consists of 18 members including Prime minister as its Chairperson.

• The Committee would focus on the following tasks:

• Evolve a coordinated response to issues relating to climate change at the national level.

• Provide oversight for formulation of action plans in the area of assessment, adaptation and mitigation of climate change.

• Periodically monitor key policy decisions.

• The Ministry of Environment, Forests and Climate Change will assist PMO in facilitating the work of this Committee.

Q23. Answer: (c) 3 : 4

Shortcut Trick

Ratio of Seema and Reema = 2 : 3. Difference in ratio units = 3 − 2 = 1 unit.

Given difference in age = 6 years. So, 1 unit = 6 years.

Present ages: Seema = 2 × 6 = 12 years; Reema = 3 × 6 = 18 years.

After 6 years: Seema = 12 + 6 = 18 years; Reema = 18 + 6 = 24 years.

New Ratio = 18 : 24 = 3 : 4.

Therefore The correct answer is 3 : 4.

Alternate Method

Given: Current ratio = 2 : 3. Age difference = 6 years. Time interval = 6 years.

=> Let ages be 2x and 3x.

=> 3x − 2x = 6

=> x = 6

=> Seema age = 2 × 6 = 12 years

=> Reema age = 3 × 6 = 18 years

=> Ages after 6 years: Seema = 12 + 6 = 18, Reema = 18 + 6 = 24

=> Required Ratio = 18 : 24 = 3 : 4

Therefore The correct answer is 3 : 4.

Additional Information

Constant Difference Rule

The difference between the ages of two people remains constant regardless of how many years pass.

Ratio Balancing

If the age difference is given, find the difference in ratio parts and equate it to the actual age difference to find the value of one unit.

Future/Past Ratios

To find age after 'n' years, add 'n' to current age. To find age 'n' years ago, subtract 'n' from current age.

Q24. Answer: (d) C

The correct answer is Spiral.

• Shape of Milky way is Spiral.

Key Points

• Our Sun is a star and all the planets around it are part of a galaxy known as the Milky Way Galaxy.

• A galaxy is a large group of stars, gas, and dust bound together by gravity.

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• They come in a variety of shapes and sizes.

• The Milky Way is a large barred spiral galaxy. All the stars we see in the night sky are in our own Milky Way Galaxy.

• The first clue to the shape of the Milky Way comes from the bright band of stars that stretches across the sky.

• This band of stars can be seen with the naked eye in places with dark night skies. That band comes from seeing the disk of stars that forms the Milky Way from inside the disk, and tells us that our galaxy is basically flat.

Important Points

• Our galaxy is called the Milky Way because it appears as a milky band of light in the sky when you see it in a really dark area.

Q25. Answer: (c) C

The correct answer is Stones.

Key Points

• An excessive amount of Calcium causes Stones Oxalate in the Kidney.

• Calcium oxalate stones are the most common type of kidney stone.

• Kidney stones are solid masses that form in the kidney when there are high levels of calcium, oxalate, cystine, or phosphate and too little liquid.

• Calcium oxalate stones are caused by too much oxalate in the urine.

• Some foods that are very high in oxalate are:

• Nuts, Rhubarb, Beets, Chocolate soy milk, All-Bran, Buckwheat flour, Sesame seeds, Swiss chard, etc.

Additional Information

Bronchitis:-

• Bronchitis is an infection of the tubes that lead to the lungs.

• It can be acute or chronic.

• Symptoms include a cough and wheezing.

Diabetes:-

• It is a metabolic disease that causes high blood sugar.

• The hormone insulin moves sugar from the blood into your cells to be stored or used for energy.

Meningitis:-

• It is an inflammation of the meninges.

• The meninges are the three membranes that cover the brain and spinal cord.

• It can occur when fluid surrounding the meninges becomes infected.

• Causes of meningitis are viral and bacterial infections.

Q26. Answer: (b) B

Total naturalist = 100

15 want to see only butterflies, 30 want to see only birds

=> Remaining naturalist = (100 - 30 - 15) = 55

10 want to see both bees and butterflies, 20 want to see both birds and bees, 5 want to see both bees and bats and the rest of the people only want to see bats.

People want to see only bat is 55 - (10 + 20 + 5)

=> 20

Therefore The number of naturalists who only want to see bats is 20

Q27. Answer: (b) C

Number of naturalist want to see only bat is 100 - (15 + 30 +10 + 20 + 5)

=> 20

Number of naturalists who wants to see only butterfly is 15

Required ratio is 20 : 15

=> 4 : 3

Therefore The ratio of naturalists who want to see only bats is to those who want to see only butterflies is 4 : 3

Q28. Answer: (b) D

Out of all naturalists10 want to see both bees and butterflies, 20 want to see both birds and bees, 5 want to see both bees and bats.

Rest are want to see only one species

=> Number of naturalists want to see at least two of the four species is (10 + 20 + 5)

=> 35

Therefore The naturalists want to see at least two of the four species is 35.

Q29. Answer: (a) D

The correct answer is the Bank of Hindustan.

Key Points

• Moving towards modern India, the first bank of India was the Bank of Hindustan.

• This bank was established in the year 1770 but the bank was liquidated after 50 years of operations.

• Additionally, the second oldest bank in India was established in the year 1786 and the bank could only operate till 1791 before it collapsed. The name of this bank was Bank of India.

• Later in 1806, the Bank of Calcutta was incepted and this bank was later renamed as Bank of Bengal. After many orders to rename this bank, the State Bank of India came into existence.

• State Bank is Bank of Calcutta and this final change in the name went through in 1955.

• State Bank of India is also the largest public sector bank in India

• Now all the banks in India are governed by the Reserve Bank of India which is the central banking agency of India.

• RBI was established in 1935 and it is one of the most powerful institutions in India.

Q30. Answer: (c) $4p^3 – 3p$

Given:

Average of {x + (1/x)} is P

Formula used:

$(a + b)^3 = a^3 + b^3 + 3ab(a + b)$

Calculation:

{x + (1/x)}/2 = P

=> {x + (1/x)} = 2P ----(1)

Cubing both sides

$\{x + (1/x)\}^3 = (2P)^3$

$=> x^3 + (1/x)^3 + 3 \times x \times (1/x) \times \{x +(1/x)\} = 8(P)^3$

Putting eq. (1) we get

$=> x^3 + (1/x)^3 + 3 \times 2P = 8(P)^3$

$=> x^3 + (1/x)^3 = 8(P)^3 – 6P$

Dividing both sides by 2

$\{x^3 + (1/x)^3\}/2 = \{8(P)^3 – 6P\}/2$

$=> \{x^3 + (1/x)^3\}/2 = 4(P)^3 – 3P$

Therefore The value of $[\{x^3 + (1/x)^3\}/2]$ is $4(P)^3 – 3P$

Shortcut Trick

If x + (1/x) = k

Then $\{x^3 + (1/x)^3\} = k^3 – 3k$

{x + (1/x)} = 2P

$=> \{x^3 + (1/x)^3\} = 8(P)^3 – 6P$

Average of $\{x^3 + (1/x)^3\} = \{8(P)^3 – 6P\}/2$

=> 4(P)3 – 3P

Therefore The value of [{x3 + (1/x)3}/2] is 4(P)3 – 3P

Q31. Answer: (d) 36/25

Given:

$5x^2 – 6x – 5 = 0$

Calculation:

$5x^2 – 5 = 6x$

$=> 5(x^2 – 1) = 6x$

$=> x^2 – 1 = 6x/5$

Dividing x on both sides

=> x – (1/x) = 6/5

=> {x – (1/x)}² = 36/25

Therefore The value of {x – (1/x)}² is 36/25.

Alternate Method

=> 5x2 – 6x – 5 = 0

divide the equation by 5:-

=> x² - (6x)/5 - 1 = 0

now divide the equation by x:-

x - (6/5) - 1/x = 0

=> x - 1/x = 6/5

=> (x - 1/x)² = 36/25

Q32. Answer: (a) B

The correct answer is Hydrogel.

Contact lenses are normally made of Hydrogel.

Key Points

• Contact lenses we wear for better eyesight are made of a plastic material that is able to mix with the water in your eye.

• Each brand manufactures lenses that are made from different plastic materials but not the waste plastic which we use in our daily life but it is made up of Hydrogel, Silicone Hydrogel, and Hypergel.

Important Points

• Silicone is the name used to describe plastic materials with a gel-like consistency that contains silicone, as well as oxygen, carbon, and other elements.

• It's an extremely flexible material, which makes it excellent for making contact lenses.

Q33. Answer: (d) B

The correct answer is Sodium carbonate.

Key Points

• A toothpaste is defined as a semi-solid material for removing naturally occurring deposits from teeth and is supposed to be used simultaneously with a toothbrush.

• Toothpaste generally contains the following components:

• Water (20–40%)

• Abrasives (50%) including aluminum hydroxide, calcium hydrogen phosphates, calcium carbonate, magnesium carbonate, silica, and hydroxyapatite.

• Fluoride (usually 1450 ppm) mainly in the form of sodium fluoride.

Q34. Answer: (b) B

The correct answer is Polo.

In the 15th century, Babur made the Polo game popular in India.

Key Points

• India is said to have set a base for modern Polo.

• In the 15th century, Babur made the sport popular when he founded the Mughal Empire.

• Later on, the Britishers globalised the sport which was played in the various parts of India like Manipur, Jammu and Kashmir etc.

Additional Information

Karate:-

• Ancient India has been the origin of Judo Karate it was called Kalaripayate. The art has travelled to the east along with the Buddhist religion.

• Buddhist monks, who have travelled barefoot from India to the east to spread the gospel of Buddha, possess this skill. This technique of defence was very helpful for them as they travelled individually or in small groups.

Kabaddi:-

• Kabaddi is a combative sport with seven players on each side. The game originated from Ancient India and the modern Kabaddi became popular in 1930.

Golf:-

• Golf in India was first played by Britishers. Since Golf is especially popular among the wealthier classes, it has not yet caught on with others due to the expenses involved in playing.

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Q35. Answer: (a) B

The correct answer is to act as the nominal head of the union territory.

Key Points

• Lieutenant Governor in India acts as the nominal head of the union territory.

• The Governors of the states of India have similar powers and functions at the state level as those of the President of India at the Union level.

• Governors exist in the states while lieutenant-governors or administrators exist in union territories.

• The governor acts as the nominal head whereas the real power lies with the Chief ministers of the states and his/her councils of ministers.

• Although, in UT's, the real power lies with the lieutenant governor or administrator, except in NCT of Delhi and Puducherry where they share power with a council of ministers headed by a chief minister.

• In India, a lieutenant governor is in charge of a union territory. However, the rank is present only in the union territories of Andaman and Nicobar Islands, Ladakh, Jammu and Kashmir, Delhi, and Puducherry.

• However, the governor of Punjab acts as the administrator of Chandigarh.

• Lieutenant governors do not hold the same rank as a governor of a state in the list of precedence.

• The governors and lieutenant governors are appointed by the president for a term of five years.

Q36. Answer: (b) B

Silicon is NOT correct.

• Silicon is not a form of carbon.

Key Points

• Carbon has the property of catenation which is absent in silicon.

• Catenation - Property to form a bond with itself. i.e carbon can form bonds with another carbon atom while silicon can't. (It can but to a lesser extent not as strong as carbon.)

• Pure silicon is too reactive to be found in nature, but it is found in practically all rocks as well as in sand, clays, and soils, combined either with oxygen as silica (SiO_2, silicon dioxide) or with oxygen and other elements (e.g., aluminium, magnesium, calcium, sodium, potassium, or iron) as silicates.

Additional Information

• Diamond is a well-known allotrope of carbon that exhibits hardness and high dispersion of light. It is the hardest known natural mineral and finds applications in cutting, drilling, and jewellery, and as a potential semiconductor material.

• Graphene is a single layer of carbon atoms arranged in one plane; layers of graphene make up graphite. Graphene is a material of interest due to its high electron mobility and its possible applications in electronics.

• Fullerenes are a class of carbon allotropes in which carbon takes the form of a hollow sphere, ellipsoid, or tube. This class of materials includes carbon nanotubes, buckyballs, and the newly discovered nanobuds.

Q37. Answer: (c) C

The correct answer is Gol Gumbaj.

Key Points

• Gol Gumbaz is the most famous monument in Vijayapura located in Bijapur, Karnataka.

• It is the tomb of Mohammed Adil Shah (ruled 1627–1657). It is the second largest dome ever built, next in size only to St Peter's Basilica in Rome.

• A particular attraction in this monument is the central chamber, where every sound is echoed seven times.

Additional Information

• Buland Darwaza or the loft gateway at Fatehpur Sikri was built by the great Mughal emperor, Akbar in 1601. Akbar built the Buland Darwaza to commemorate his victory over Gujarat.

• The Ibadat Khana was a meeting house built in 1575 CE by the Mughal Emperor Akbar at Fatehpur Sikri to gather spiritual leaders of different religious grounds so as to conduct a discussion on the teachings of the respective religious leaders.

• Panch Mahal is a palace in Fatehpur Sikri, Uttar Pradesh, India. The Panch Mahal meaning 'Five level Palace' was commissioned by Akbar This structure stands close to the Zenana quarters which supports the supposition that it was used for entertainment and relaxation.

Q38. Answer: (b) B

The correct answer is Refractive index.

Key Points

• The ratio of the speed of light in a vacuum to the speed of light in a medium is called the refractive index.

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• If i is the angle of incidence and r is the angle of refraction, then
• (Sin i)/(Sin r)= Constant
• This constant value is called the refractive index of the second medium with respect to the first.
• The medium having a larger value of the refractive index is an optically denser medium than the other.
• The medium of the lower refractive index is optically rarer than the other.
• The speed of light is higher in a rarer medium than a denser medium.

Additional Information

The refractive index of some important mediums

Material Medium	Refractive index
Air	1.0003
Ice	1.31
Water	1.33
Kerosene	1.44
Benzene	1.50
Rock salt	1.54
Sapphire	1.77
Diamond	2.42

Q39. Answer: (b) 33.3%

Given:

Cost price of 40 apples = Selling price of 30 apples

Calculation:

Profit = Selling price – Cost price

Profit percentage = (Profit/Cost price) × 100

Calculation:

Let the cost price be CP

Let the selling price be SP

CP of 40 apples = SP of 30 apples

=> CP × 40 = SP × 30

=> CP × 4 = SP × 3

=> CP/SP = 3/4

In terms of ratio

CP : SP = 3 : 4

=> Profit = 4 – 3 = 1

=> Profit percent = 1/3 × 100 = 33.3%

Therefore The profit percentage earned by shopkeeper is 33.3%.

Q40. Answer: (a) C

The logic is:

A. Equator : Hot → Equator is hot.

B. Pole : Cold → Poles are cold.

C. River : Hot → Rivers are cold, not hot.

D. Winter : Cold → Winters are cold.

Hence, ‘River : Hot’ is the odd one out.

Q41. Answer: (c) 400

Given:

35% of 9/5 of a number = 252

Calculation:

Let the number be x

(35/100) × (9/5) × x = 252

=> (7/20) × (9/5) × x = 252

=> x = (252 × 20 × 5)/(7 × 9)

=> x = 4 × 20 × 5 = 400

Therefore The number is 400.

Q42. Answer: (c) B

Given:

A drug supervisor dismisses 0.05% of the drugs as defective drugs.

Concept Used:

The value = percentage%/100 × Total value

Calculation:

A drug supervisor dismisses 0.05% of the drugs as defective drugs.

Let the total tested drugs be x

Then, The drugs will tested to dismiss 4 drugs

=> x × 0.05/100 = 4

=> x = 8000

Therefore The drugs will tested to dismiss 4 drugs is 8000.

Q43. Answer: (b) C

Bridge is NOT correct.

• Among the options, only bridge is NOT a board game.

Key Points

• Bridge is a card game.

• Card games do not require a board to play.

• Bridge has been one of the most popular card games in the world since the 1930s.

• Bridge is played with four people sitting at a card table using a standard deck of 52 cards (no jokers).

• In a Bridge game, each player is dealt with 13 cards.

• Board games are tabletop games that typically use a board to play.

• Important examples of board games are:

• Snake and ladder.

• Battle Sheep.

• Chess.

• Checkers.

• Connect Four.

• Ludo.

Q44. Answer: (b) A

The correct answer is Product.

Key Points

• A geographical indication (GI) is a sign used on products that have a specific geographical origin and development.

• It enables those who have the right to use the indication to prevent its use by a third party whose product does not conform to the applicable standards.

• It is typically used for agricultural products, foodstuffs, wine and spirit drinks, handicrafts, and industrial products.

• GI tag confers legal protection to Geographical Indications in India.

• It prevents unauthorised use of a Registered Geographical Indication by others

Additional Information

• In India GI tag came into force with effect from 15^(th) September 2003.

• Darjeeling Tea was the first Indian product to get a GI tag.

• Some important examples of Geographic Indication are:

• Aranmula Kannadi(Kerala).

• Chanderi Sarees(Madhya Pradesh).

• Katarni Rice(Bihar).
• Kancheepuram Silk(Tamil Nadu).
• Kullu Shawl (Kullu Shawl).
• Kasuti Embroidery(Karnataka).
• Bastar Dhokra(Chhattisgarh).
• Kutch Embroidery(Gujarat).

Q45. Answer: (a) B

The correct answer is Avoid catching fire.

Key Points

• Phosphorus is kept in water so that it avoids catching fire through contact from atmospheric oxygen.
• Phosphorus is the element that literally means "I carry light".
• Phosphorus is a chemical element with an atomic number 15.
• It was discovered by Hennig Brand in 1669.
• Phosphorus has the smell of garlic.
• Phosphorus is never found as a free element on earth due to its high reactivity.

Important Points

• Elemental phosphorus exists in two different forms namely white phosphorus and red phosphorus.
• The element kept in water is white phosphorus.
• White phosphorus emits green light on the exposure to the atmosphere.
• White phosphorus burns in the atmosphere at 30º C.
• Red phosphorus is used for making safety matches.
• Phosphorus is used in the fertilizer industry.

Q46. Answer: (a) C

Letter	E	F	G	H
Meaning	•	×	÷	•

Given equation: 81 H 1 G 17 F 102 G 6 F 34 H 6

After replacing the letters by their meaning, we get:

81 - 1 ÷ 17 × 102 ÷ 6 × 34 – 6

= 81 – 34 – 6

= 81 – 40

= 41

Hence, ‘41’ is the correct answer.

Q47. Answer: (c) B

Encoding is the process of converting data from one format to another format and this transform data is also called coded data. There are many types of encoding process like placing the characters in the coded format in a sequence. This encoding also helps in program compilation and execution. But transformation of coded data is not the part of encoding.

Hence, option 3(B) is the odd on out.

Q48. Answer: (a) A

Given:

Ritesh, Gaurav and Jugnu invest in the ratio 2 : 5 : 7.

The ratio of their investment return percentage is 5 : 3 : 2.

Gaurav earns more than Rs 150 from Ritesh.

Calculation:

Let the Ritesh, Gaurav and Jugnu invest be 2x, 5x, 7x.

The ratio of their investment return percentage is 5 : 3 : 2.

The profit of Ritesh = 2x × 5/100 = 1/10x

The profit of Gaurav = 5x × 3/100 = 3/20x

The profit of Jugni = 7x × 2/100 = 7/50x

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The ratio of Ritesh, Gaurav and Jugnu profit = 1/10x : 3/20x : 7/50x

The ratio of Ritesh, Gaurav and Jugnu profit =10 : 15 : 14

According to the question:

Gaurav earns more than Rs 150 from Ritesh.

Then, 15 - 10 = 150

=> 5 = 150

=> 1 = 30

The total income = 30 × 39 = 1170

Therefore The total income is Rs.1170.

Q49. Answer: (c) C

Classification	Prime	Even	Odd
Code	4	5	3

According to the alphabetical positions of the letters,

Letter	E	D	U	C	A	T	I	O	N
Position Value	5	4	21	3	1	20	9	15	14
Code	4	5	3	4	3	5	3	3	5

Hence, '453435335' is the correct answer.

Q50. Answer: (a) C

Given:

The sum of the investment is Rs.1500.

The amount after two years is Rs.1800.

Formula Used:

SI = P × R × T/100

SI = Simple interest

P = Principal

R = Rate

T = Time

Calculation:

Let the rate of interest be R.

SI = 1800 - 1500 = 300

Then, 1500 × R × 2/100 = 300

=> R = 10%

According to the question;

New rate of interest = 10 + 5 = 15%

New SI = 1500 × 15 × 2/100 = 450

The amount = 1500 + 450 = Rs.1950

Therefore The amount is Rs.1950.

Q51. Answer: (c) B

Given:

The standard deviation of the population is 11.

Formula Used:

Variance = (Standard deviation)^2

Calculation:

The standard deviation of the population is 11.

The Variance = $(11)^2$ = 121

Therefore The Variance of the population is 121.

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Q52. Answer: (b) D

The correct answer is 37°C.

• The temperature of a human body is measured by using a thermometer.

• The thermometer that measures our body temperature is called a clinical thermometer.

Additional Information

• The average temperature of a human body is 37 degrees Celsius.

• This is the reason why a clinical thermometer is made with a temperature range from 35°C to 42°C.

• The average temperature of a human body on a Fahrenheit scale is 98.6 degrees Fahrenheit.

• A clinical thermometer consists of a long, narrow, uniform glass tube.

• It has a bulb that contains mercury at one end.

• The clinical thermometer is designed to measure the temperature of the human body only.

• The range of a laboratory thermometer is generally from –10°C to 110°C.

Q53. Answer: (d) A

Given:

The acid and water in the two containers are mixed in the ratio of 3 : 1 and 5 : 3 respectively.

The ratio of acid and water in the new mixture is 2 : 1.

Calculation:

The acid in the first mixture = 3/4

The acid in the second mixture = 5/8

The acid in the new mixture = 2/3

The ratio of the mixture = 1/24 : 1/12 = 1 : 2

Therefore The ratio of the two mixture is 1 : 2.

Q54. Answer: (d) B

Hub is software is NOT correct.

Key Points

• Hub is a device that is used to connect more than one computer together in a network.

• It is a physical layer networking device.

• It contains multiple ports.

• It operates in the physical layer of the OSI model.

• It takes data that comes from one channel and sends it out to all other channels on the hub.

• Hub is a common point of connecting in PC.

• It is generally used to connect computers in a LAN

• It is also known as a concentrator.

Q55. Answer: (c) A

Given:

The product of Sapna and Anubha's age is 150.

4 times the age of Anubha is 10 years more than the age of Sapna.

Calculation:

Let the age of Sapna be x.

Let the age of Anubha be y.

According to the question;

The product of Sapna and Anubha's age is 150.

=> xy = 150

4 times the age of Anubha is 10 years less than the age of Sapna.

=> 4y = x - 10

=> x = 4y + 10

On putting the value of x

=> xy = 150

=> (4y + 10)y = 150

=> $4y^2 + 10y - 150 = 0$

=> y = - 30/4, 5
The age of Sapna = 150/5 = 30 years
Therefore The age of Sapna is 30 years.
xy = 150
and 4x = y - 10
=> xy = 5 × 30
Means x = 5 and y = 30
Also 4 times of x = 20 is 10 less than y
So condition satisied
Therefore The age of Sapna (y) = 30 years

Q56. Answer: (b) B

Given:
The seller expects 32% return on his purchase price.
The seller sell in one day was 528.
Concept Used:
Purchase price = 100/(100 + Return%) × Selling price
Calculation:
The seller expects 32% return on his purchase price.
The seller sell in one day was 528.
The purchase price = 100/(100 + 32) × 528 = 100/132 × 528 = 400
The profit amount = 528 - 400 = Rs.128
Therefore The profit amount is Rs.128.

Q57. Answer: (c) B

Given:
The number of fiction literature books of branch I = 130
The number of science books of branch I = 260
The number of IT books of branch II = 280
The number of history books of branch II = 210
Calculation:
The total number of required books of branch I = 130 + 260
=> The total number of required books of branch I = 390
The total number of required books of branch II = 280 + 210
=> The total number of required books of branch II = 490
Required difference = 490 - 390
=> Required difference = 100
Therefore The required difference is 100.

Q58. Answer: (d) B

Given:
The number of science books of branch I = 260
The number of books of fiction literature of branch II = 70
Calculation:
Required ratio = The number of science books of branch I : The number of books of fiction literature of branch II
=> Required ratio = 260 : 70
=> Required ratio = 26 : 7
Therefore The required ratio is 26 : 7.

Q59. Answer: (c) C

Given:
Number of history book in branch III = 60
Total history book = 195 + 210 + 60 = 465

Calculation:

Average of history book = 465/3

=> Average = 155

Required difference = Average - history book in branch III

=> Required difference = 155 - 60

=> Required difference = 95

Therefore The history books of branch III is 95 less than the average number of history books of all the three branches.

Q60. Answer: (c) C

Given:

f(x) = 3x4 - (a + 2)x3 - x2 - 4

p(x) = (x - 2)

Concept used:

Using concept of factor theorem,

If (x - a) is a factor of f(x), then f(a) = 0

calculation:

(x - 2) is factor of f(x) = 3x4 - (a + 2)x3 - x2 - 4

using factor theorem,

f(2) = 0

=> 3 × 24 - (a + 2) × 23 - 22 - 4 = 0

=> 3 × 16 - (a + 2) × 8 - 4 - 4 = 0

=> 48 - 8a - 16 - 4 - 4 = 0

=> -8a = -24

=> a = 3

Therefore The value of a is 3.

Q61. Answer: (d) D

The least possible Venn diagram is:

A. At least one circle is square. → False (As, there is no definite relation between circle and square. Hence, false)

B. All rectangles are hexagons. → False (As, each hexagon is a rectangle → Some rectangles are hexagons)

C. There is at least one hexagon that is square. → False (As, there is no definite relation between hexagon and square. Hence, false)

D. At least one rectangle is square. → True (As, some squares are rectangles)

Hence, ‘D’ is the correct answer.

Q62. Answer: (d) B

The logic is:

Pressure : Barometer → A barometer is a scientific instrument that is used to measure air pressure.

Similarly,

1. Ammeter is used to measure current.

2. Pyrometer is used to measure temperature.

3. Seismograph is used to detect and record earthquake.

4. Odometer is used to measure distance travel by vehicle.

Hence, ‘Liquid Density : odometer’ is the correct answer.

Q63. Answer: (a) A

The correct answer is Mohiniattam.

• Among the options, only Mohiniattam is NOT a folk dance.

Key Points

• Mohiniattam is one of the classical dance forms in India.

• Mohiniattam is originated from the state of Kerala.

• Mohiniyattam derives its name from the word ‘Mohini’, a female avatar of Lord Vishnu

• It is performed by women in honor of the Hindu god Vishnu in his incarnation as the enchantress Mohini.

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• Music for Mohiniattam is provided by a Karnatak (South Indian) classical music ensemble.
• It follows two performance categories namely, ‘Nritta’ and ‘Nritya’ mentioned in ‘Natya Shastra’.
• Mohiniattam was patronized by Travancore ruler Maharaja Swathi Thirunal.
• Vallathol Narayana Menon is the poet who revived Mohiniattam.
• The main exponents of Mohiniattam are:
• Kalamandalam Kalyanikutty Amma.
• Sunanda Nair.
• Gopika Varma.
• Pallavi Krishnan.
Additional Information
• Lavani is a folk dance in Maharashtra.
• Kalbelia is a folk dance in Rajasthan.
• Rouff is a folk dance in Jammu and Kashmir.
• Important folk dance of India are:
• Bihu,
• Bichhua.
• Natpuj.
• Nautanki.
• Raslila.
• Parichakali.
• Jhora.

Q64. Answer: (b) D

By using the symbols in the table given below, we can draw the following family tree:
S is either grandson or granddaughter of K.
The definite relation between S and K cannot be determined as gender of S is not given.
Hence, ‘Cannot be determined’ is the correct answer.

Q65. Answer: (a) B

Given:
Mean distribution = 80
Standard deviation = 16
Formula Used:
Coefficient variation = (Standard deviation ÷ Mean) × 100
Calculation:
Coefficient variation = (16 ÷ 80) × 100
=> (1/5) × 100 = 20
Therefore Variance coefficient = 20%

Q66. Answer: (d) C

Conclusion I follows. (As, in the digital age the use of computers and smartphones have increased and these devices are involved in the production of greenhouse gases which is harmful to humanity)
Conclusion II follows. (As, the manufacture and use of computers, smartphones etc. are also involved in the production of greenhouse gases)
Hence, Both I and II follow.

Q67. Answer: (d) A

The given equation is:
1093 × 1093
=> The square of 1093 is 1194649
Therefore The correct answer is option A.

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Q68. Answer: (a) D

Given:

Investment of Rupal = Rs.15000

Time period of Rupal = 4 months

Investment of Shanu = Rs.10000

Time period of Shanu = 3 months.

Calculation:

=> Ratio of Rupal : Shanu

=> 150000 × 4 : 10000 × 3

=> 2 : 1

=> Share of Rupal = (2/3) × 90000 = Rs.60000

Therefore Share of Rupal in total profit = Rs.60000.

Q69. Answer: (b) D

Persons - P, Q, R, S and T are sitting facing you in a row.

1. S is just after T.

2. R is second from the right and after Q.

3. P is at the last place and after T.

S is in the middle.

Hence, 'S' is the correct answer.

Q70. Answer: (b) B

Persons - P, Q, R, S and T are sitting facing you in a row.

1. S is just after T.

2. R is second from the right and after Q.

3. P is at the last place and after T.

T is second from the left.

Hence, 'T' is the correct answer.

Q71. Answer: (a) B

Persons - P, Q, R, S and T are sitting facing you in a row.

1. S is just after T.

2. R is second from the right and after Q.

3. P is at the last place and after T.

Q is at the right end.

Hence, 'Q' is the correct answer.

Q72. Answer: (d) A

Given:

(P + Q)'s 1 day's work = 1/12

(Q + R)'s 1 day's work = 1/15

(R + P)'s 1 day's work = 1/20

Calculation:

2 (P + Q + R)'s 1 day's work = (1/12) + (1/15) + (1/20)

=> (5 + 4 + 3)/60 = 1/5

=> (P + Q + R)'s 1 day's work 2 × (1/5) = 1/10

Therefore They can complete the work in 10 days.

Q73. Answer: (c) D

The correct answer is Africa.

Key Points

• Victoria Waterfalls is a fall located on the borders of Zambia and Zimbabwe in Africa

• Victoria Waterfalls are located in Africa.

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• It is located on the Zambezi river.
• It was named after Queen Victoria.
• It is the only waterfall in the world with a length of more than a kilometer and a height of more than a hundred meters.
• It was designated as a World Heritage site in 1989.
• It is a Cataract type waterfall.
• The highest waterfall is Angel falls of Venezuela in South America.
• Niagara falls located on the border between Canada and the USA in North America.

Additional Information

Important waterfalls in the world	
Location	Waterfalls
Africa	Tugela Falls. Kalambo Falls. Lisbon Falls. Kongou Falls. Murchison Falls.
Britain	Pistyll Rhaeadr. Aira Force Waterfall. Canonteign Falls. Cauldron Snout. Cautley Spout.
France	Gavarnie Falls. Sillans waterfall. Sautadet Falls.
United States of America	Niagara Falls. Havasu Falls. Multnomah Falls. McWay Falls. Snoqualmie Falls.

Q74. Answer: (b) C

The logic is:

Miser : Spendthrift → Both the words are antonyms of each other.

Similarly,

Night : _____ → Night is antonym of Day.

Hence, 'Day' is the correct answer.

Q75. Answer: (a) C

Given: Four sons and an unmarried daughter live with their parents. A son has a daughter and a son. Each of the other sons has 2 daughters.

3 sons has 2 daughter,

Therefore number of female = 6

One son has one daughter and one son,

Number of female = 1

Four sons and an unmarried daughter live with their parents,

So, total number of female = 6 + 1 + 1(mother) + 1(unmarried daughter) = 9

Hence, number female member are 9.

Q76. Answer: (c) C

A. Protection of forests is needed for tigers to survive. → True (As, the forests are important for the survival of these predators)

B. Poaching is a threat to tiger conservation. → True (As, tiger areas should also be protected from hunters. The forest department should establish preventive measures to stop poaching.)

C. Wild tigers are in small numbers. → False (As, these will help in maintaining their numbers in the forest. The statement does not suggests or implies if wild tigers are in small numbers)

D. Tigers are at the top of the food chain. → True (As, The tiger is the apex predator of the Indian forests. He is at the top of the food chain)

hence, 'C' is the correct answer.

Q77. Answer: (b) B

Given:

Mean of 19 observation = 13

After adding 3 more observation new mean becomes 13.5

Calculation:

Sum of all observations = 19 × 13 = 247

After adding 3 more observation total observation = 19 + 3 = 22

Now, sum of 22 observation = 22 × 13.5 = 297

Sum of new observation = 297 - 247 = 50

Mean of 3 new observations = 50/3 = 16.66

Q78. Answer: (b) B

The correct answer is NCR Region.

Key Points

• Okhla Bird Sanctuary is located in the NCR region.

• Okhla Bird Sanctuary is officially known as Shaheed Chander Shekhar Azad Sanctuary.

• It is one among 15 bird sanctuaries in the state.

• It was notified as a bird sanctuary in the year 1990.

• It is located on the banks of the river Yamuna.

• At present, it is one of the 466 IBAs (Important Bird Areas) in India.

• Okhla Bird Sanctuary is the home for around 300 different species of birds.

Additional Information

State	Bird Sanctuaries
Uttar Pradesh	• Lakh Bahosi Sanctuary. - Nawabganj Bird Sanctuary. - Patna Bird Sanctuary. - Saman Sanctuary. - Sandi Bird Sanctuary. - Samaspur Sanctuary.
Himachal Pradesh	• Gamgul. - Maharana Pratap Sagar Bird Sanctuary. - Kalatop Khajjiar Bird Sanctuary.
Haryana	• Bhindawas Wildlife Sanctuary. - Khaparwas Wildlife Sanctuary.
Punjab	• Harike Pattan Bird Sanctuary. - Gurdaspur Bird Sanctuary.

Q79. Answer: (c) A

Given:

In 1st case when bus runs at 80km per hour it reaches its destination 40 minutes late

In 2nd case when bus runs at 90km per hour it reaches its destination only 8 minutes late.

Formula used:

Time = Distance/speed

Calculation:

Let the correct time for the train to complete the journey is X minutes.

Then the train cover distance in X + 40 minutes at speed 80 km per hour

=> 80 × (X + 40)/60

Now the train cover X + 8 minutes at speed 90km per hour

=> 90 × (X + 8)/60

Now,

80 × (X + 40)/60 = 90 × (X + 8)/60

=> 80X + 3200 = 90X + 720

=> 10X = 2480

=> X = 248

Therefore The correct answer is 248 min.

Q80. Answer: (b) B

The correct answer is Rakesh Sharma.

Key Points

• Rakesh Sharma is the first Indian to enter space.

• He was selected as a cosmonaut for a joint Soviet-Indian spaceflight in 1982.

• He made history by becoming the first Indian to travel to space in 1984.

• He flew on Soyuz T-11 with commander Yury Malyshev and flight engineer Gennady Strekalov, to the space station Salyut 7 on 3^(rd) April 1984.

• Rakesh Sharma and his crewmates landed in Kazakhstan on 11^(th)April 1987 after the successful completion of the mission.
• He is the only Indian citizen to travel in space.

Additional Information

• Kalpana Chawla was the first Indian-origin woman to enter space.
• She was killed in the space shuttle Columbia disaster on 1st February 2003.
• Sunita Williams is the second Indian-origin woman to enter space.
• The first marathon in space was run by Sunita Williams.
• Yuri Gagarin is the first man to enter space.
• Ravish Malhotra was an Air Force test pilot in India.
• He served as a backup for Rakesh Sharma on the Soyuz T-11 mission.

Q81. Answer: (c) B

The correct answer is Leonardo DiCaprio.

Key Points

• The 88th Academy Awards ceremony honored the best films of 2015.
• It was presented by the Academy of Motion Picture Arts and Science.
• Academy Awards is popularly known as the Oscars.
• It took place on 28^(th) February 2016 in Los Angeles.
• Leonardo DiCaprio won the best actor award.
• Leonardo DiCaprio is an American actor.
• It was his first win after 5 previous nominations spanning 2 decades.
• He won this award for his performance in "The Revenant".
• He also won a BAFTA, and a Golden Globe Award for his performance in "The Revenant".
• He has won 99 awards from 248 nominations in his career.

Additional Information

• Alejandro G. Inarritu won the Best Director award for his movie "The Revenant".
• Brie Larson won Best Actress for her performance in "Room".
• "Spotlight" won the Best Picture award in 88th Academy Awards.
• Michael Fassbender, Eddie Redmayne, and Bryan Cramston are the other three nominations for the best actor award in 88th Academy Awards.

Q82. Answer: (c) C

The correct answer is All these are good conductors.

• Silver, copper, gold, and aluminum are examples of metals.
• All these four metals are good conductors.
• Among these only gold and silver are precious metals.
• Gold is a chemical element with an atomic number 79.
• Gold is also called the "king of metals".
• The melting point of gold is 1064°C
• Gold is used to make ornaments.
• Pure gold is 24 carat.
• Silver is a chemical element with an atomic number 47.
• Silver is the best conductor of electricity.
• Gold and silver can be separated by the cyanide process.
• Copper is a chemical element with an atomic number 29.
• Copper is the first metal used by man.
• Copper is the metal used in gold ornaments.
• Aluminum is a chemical element with an atomic number 13.
• It was first isolated by Hans Oersted.
• Commercially Aluminum is extracted from Bauxite.

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Q83. Answer: (a) C

Given:

2, 6, 12, 20, 30, 42, 56, ?

Calculation:

=> 2 + 4 = 6

=> 6 + 6 = 12

=> 12 + 8 = 20

=> 20 + 10 = 30

=> 30 + 12 = 42

=> 42 + 14 = 56

=> 56 + 16 = 72

Therefore The value of ? is 72.

Q84. Answer: (b) D

The logic is:

Similarly,

Hence, 'PANCATI' is the correct answer.

Q85. Answer: (d) C

The correct answer is Gujarat.

Key Points

• Somnath temple is one of the twelve Aadi Jyotirlingas of India.

• It is located at Veraval in Gujarat.

• It is believed to be the first among the Aadi Jyotirlingas in India.

• It is also mentioned in Rigveda.

• It was reconstructed many times in the past due to the repeated destruction by several invaders and rulers.

• The present form of the Somnath temple was reconstructed in the Chaulukya style of Hindu temple architecture during 1951.

• The reconstruction work was started under the orders of then Home Minister Vallabhbhai Patel.

• Mahmud Ghazni from Afghanistan invaded and looted the Somnath temple in 1024.

Additional Information

State	Temples
Gujarat	• Dwarkadhish Temple. - Swaminarayan Akshardham Temple. - Bala Hanuman Mandir, Jamnagar. - Galteshwar Temple. - Navlakha temple.
Tamil Nadu	• Ramanathaswamy Temple. - Nataraja Temple. - Meenakshi Temple. - Ranganathaswamy Temple. - Brihadeeswara Temple.
Rajasthan	• Karni Temple. - Salasar Balaji Temple. - Parshuram Mahadev Temple. - Ranakpur Jain Temple. - Dilwara Temples.
Uttar Pradesh	• Kashi Vishwanath Temple. - Vrindavan Chandrodaya Mandir. - Banke Bihari Temple. - Sarnath Temple. - Dwarkadheesh Temple Mathura.

Q86. Answer: (c) C

Given:

The LCM of two numbers is 6 times their HCF.

One of them is 45 and the sum of HCF and LCM is 315.

Formula used:

LCM × HCF = N1 × N2

LCM = least common factor, HCF = Heighest common factor

N1 = first number, N2 = second number

Calculation:

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According to the question,
N1 = 45
LCM = 6 HCF
LCM + HCF = 315
=> 6 × HCF + HCF = 315
=> 7 HCF = 315
=> HCF = 315/7
=> HCF = 45
=> LCM = 6 × HCF
=> LCM = 6 × 45 = 270
Then,
LCM × HCF = N1 × N2
=> 270 × 45 = 45 × N2
=> N2 = 270
Therefore The other number is 270.

Q87. Answer: (d) D

We keep pen in a box and box is called pen.
So, according to code, we keep pen in a 'pen'.
Rubber → Box
Box → Pen
Pen → Pencil
Rub → Eraser.
Hence, 'Pen' is the correct answer.

Q88. Answer: (c) D

The Act covered 20 years from 1919 to 1939 is NOT correct.
• The Government of India Act 1919 is popularly called Montague- Chelmsford reforms.
• The Act came into force in 1921.
• The Act had a separate preamble.
• This Act has made the Central Legislature liable.
• The Act has provided for the establishment of the Public Service Commission in India in 1926.
• The Act introduced dyarchy in provinces.
• The Act provided the right to vote for women in India.
• The Act divided the provincial subjects into transferred and reserved.

Q89. Answer: (b)

Conclusion I follows from statement 2.
"cows and buffaloes living in very unhealthy conditions' implies that the welfare of milking animals is equally important.
Conclusion II follows from statement 1.
A lot of efforts are made to test milk for the supply of public implies sources supplying milk remain highly contaminated.
Hence, both I and II follow.

Q90. Answer: (b) B

The correct answer is 36.
Key Points
• Mukesh Ambani is an Indian billionaire businessman.
• He is the chairman, managing director of Reliance Industries Ltd.
• He was ranked at 36^(th) position in the Forbes 2016 list of the world's billionaires.
• He retained his position as India's richest person.
• As of 28 December 2020, he is the 14th richest in the world.
Important Points
• Mukesh Ambani was followed by Indian pharma magnate Dilip Shanghvi.

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• According to the 2016 Forbes World's Billionaires List, the total number of billionaires worldwide is 1,810.
• Co-founder of Microsoft Corporation, Bill Gates became the worlds richest businessman in Forbes 2016 world's billionaires list.
• The list consists of 84 Indian billionaires.

Q91. Answer: (a) D

The correct answer is Aqua Regia.
Key Points
• Aqua Regia is the liquid in which noble metals are soluble.
• It can dissolve gold. platinum etc.
• It is also known as 'royal water'.
• Aqua Regia is prepared using the mixture of concentrated hydrochloric acid and concentrated nitric acid in the ratio of 3:1.
• It is a highly corrosive, fuming liquid.
• It is mainly used for the manufacture of chloroauric acid.
• The first recorded batch of aqua regia was prepared by Jabir ibn Al-Hayyan.
Additional Information
• Glycerin is used in film industries to avoid the quick drying of wet areas.
• Methanol is the simplest form of alcohol.
• Alcohol poisoning is due to the presence of methanol.

Q92. Answer: (b) B

Given:
30 men completed (1/3)rd part in 8 days
Formula used:
(Men1 × Days1)/Work = (Men2 × Days2)/Work
Calculation:
1/3 part of a work can be completed in 8 days by 30 men
Remaining work = 1 – (1/3) = 2/3
Let number of men be P
So remaining work complete by (P + 30) men in 10 day
(30 × 8)/(1/3) = [(P + 30) × 10]/(2/3)
=> 240 × 3 = (30P + 900)/2
=> 1440 = 30P + 900
=> 30P = 540
=> P = 18
Therefore 18 men required to finish work.
Alternate Method
1/3 = 8 × 10 = 80
2/3 = 16 × 5 = 80
5 unit = 30
1 unit = 6
8 unit = 6 × 8 = 48
Time = 48 – 30 = 18 days

Q93. Answer: (c) D

Given
In triangle PQR,PQ = 8 cm QR = 7 cm PR = 7.5 cm
Triangle PQR is similar to triangle XYZ and XY = 16 cm
Concept used
If two triangles are similar then ratio of their correspondent sides are equal
Calculation
IF triangle PQR and XYZ is similar then
=> PQ / XY = QR / YZ = PR / XZ
=> 8 / 16 = 7 / YZ

=> 1 / 2 = 7 / YZ

=> YZ = 7 × 2 = 14

Therefore Length of YZ = 14cm

Q94. Answer: (d) B

The correct answer is Mary Kom.

Key Points

• Mary Kom is an Indian amateur boxer.
• She was the first Indian woman boxer to receive a gold medal at the Asian Games in 2014.
• The Asian Games in 2014 were held at Incheon, South Korea.
• She is the only woman to become a world amateur boxing champion for a record six times.
• Only boxer to win eight world championship medals.
• First Indian female boxer to win gold at the 2018 Commonwealth Games.
• She is currently serving as a member of parliament, Rajya sabha.
• She was honored with the Padma Vibhushan award in 2020.
• The famous book 'Unbreakable' is the autobiography of Mary Kom.

Additional Information

• Pinki Rani is an Indian boxer from Haryana.
• She won a bronze medal in the 2014 Commonwealth Games held at Glasgow in Scotland.
• Renu Gora is an Indian boxer.
• She was a part of India's first Women's Amateur Boxing championship.

Q95. Answer: (d) B

The correct answer is Metal.

Key Points

• Elements which loose electron in a chemical reaction are called metals.
• 'Malleable' refers to the property of metal.
• The property of metals by which they can be beaten into thin sheets is called malleability.
• This is a characteristic property of metals
• Metals are ductile in nature.
• The property of metal by which it can be drawn into wires is called ductility.
• The important properties of metals are:
• Hard.
• Lustrous.
• Malleable.
• Ductile.
• Sonorous.
• Good conductors of heat and electricity.
• Metals like sodium and potassium are soft and can be cut with a knife.
• Mercury is the only metal that is found in the liquid state at room temperature.

Additional Information

• Elements which accept electron in a chemical reaction are called non-metals.
• Non-metals do not conduct electricity and heat.

Q96. Answer: (b) C

Deccan is NOT correct.

• Nepal is a landlocked country in Asia.
• Nepal falls in the temperate zone north of the Tropic of Cancer.
• Nepal is divided into three geographical regions namely:

1. Himalayan region.
2. Mid hill region.
3. Lowland Terai.

• The Tarai region has a width ranging from 26km to 32 km.

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• It covers around 17% of the total area of Nepal
• The mountainous region begins at 3000m.
• Mt. Everest is the highest point in Nepal.
• The mid-hill region is a major portion of Nepal.
• It covers around 43% of the total land area.
• Around 3.6% of Nepal's total area covered by glaciers.

Q97. Answer: (a) D

The code for each word is shown below:
So, '9' represents 'Done'.
Hence, '9' is the correct answer.

Q98. Answer: (b) C

Given:
Angle 45° 45' is a complementry angle
Concept used:
Sum of complementary angles is 90°
1° = 60 minutes
Calculation:
Let the other angle is x
=> x + 45° 45' = 90°
=> x = 90° – 45° 45'
=> x = 44° 15'
Therefore Complementry angle of 45° 45' is 44° 15'.

Q99. Answer: (d) B

Given:
Speed of Neelam = 7 km/h
Speed of Manisha = 9 km/h
Concept used:
When two bodies move in same direction then the relative speed is difference of speed.
Formula used:
Distance = Speed × Time
Speed = Distance/Time
Time = Distance /Speed
Calculation:
Let they will take be t hours to 16 km apart,
According to the question:
Distance travelled by Neelam = (7 × t)km = 7t km
Distance travelled by Neelam = (9 × t)km = 9t km
Now, Relative speed = (9t – 7t) = 16
=> 2t = 16
=> t = 8
Therefore They will take time 8 hours.

Q100. Answer: (c) C

Given:
Numbers are 60, 150, and 285
Concept Used:
To find the HCF of bigger numbers take the difference between the numbers and find the HCF of differences.
Solution:
The largest which divides the given numbers
i.e. We need to find the HCF of given numbers.

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=> 150 – 60 = 90
=> 285 – 150 = 135
=> 285 – 60 = 225
Now finding the HCF of 90, 135, and 225
=> 90 = 3 × 3 × 5 × 2
=> 135 = 3 × 3 × 5 × 3
=> 225 = 3 × 3× 5 × 5
=> HCF of given numbers = 3 × 3 × 5
=> HCF = 45
Therefore The largest number which will give the same remainder is 45.
By using options we can solve this question,
Option 1,
=> 30 exactly divides 60 and 150 but does not divide 285
=> Option 1 is incorrect.
Option 2,
=> 25 exactly divides 150 but does not divide 60 and 285
=> Option 2 is incorrect.
Option 4,
=> When we divide 60 by 55, we get the remainder as 5
=> When we divide 150 by 55, we get the remainder as 40
=> We get the different remainder
=> Option 4 is incorrect.
Option 3,
=> When we divide 60 by 45, we get the remainder as 15
=> When we divide 150 by 45, we get the remainder as 15
=> When we divide 285 by 45, we get the remainder as 15
=> Option 3 is correct
Therefore The largest number which will give the same remainder is 45.

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