RRB NTPC Tier I Official Paper (Held On: 19 Apr 2016 Shift 3) (Previous Year Paper)

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

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Q1. Read the following excerpt and answer the questions.

Mosquitoes spread various types of diseases. They thrive in tropical climates. Stagnant water, rotten waste in the open and open drains contribute significantly to the development of mosquitoes. For the prevention of mosquito-borne diseases, we must ensure that garbage is collected regularly and properly managed, prevent water logging and keep the surrounding area clean.

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

A. Most diseases are spread by mosquitoes.

B. It should be divided into biodegrable and non-biodegrable wastes before disposal of waste.

C. The condition of the drainage system is very poor.

D. Stagnant water is a breeding ground for mosquitoes.

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

Q2. Find the value of 5231405 × 99999.

A. 523135278595

B. 723135268595

C. 523135268595

D. 623135268595

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

Q3. Automobile exhaust is an important element involved in automobile exhaust.

A. Fluorine

B. Sodium

C. Magnesium

D. Lead

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

Q4. Heat is not directly transmitted to _____.

A. Measurement of thermal energy

B. Speed of molecules

C. Transfer via electromagnetic waves

D. Thermodynamic properties of substances

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

Q5. The Newton-Bhabha Fund Program was a joint initiative of

A. America and Pakistan
B. India and Britain
C. India and America
D. America and UK

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

Directions

The following table shows the number of students who selected four subjects in four colleges VP, DJ, KS and GB.

	Electronics	Computer	Economics	Statistics
VP	220	150	200	150
DJ	240	125	200	220
KS	200	130	250	170
GB	225	150	180	125

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

Q6. What percent of the total students chose Economics at KS College?

A. 30%
B. 17.33%
C. 22.67%
D. 33.33%

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

Q7. There is a difference in the number of computer and statistics students

A. 210
B. 110
C. 155
D. 275

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

Q8. Which college has the maximum number of students?

A. VP
B. KS
C. GB
D. DJ

(a) C

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

Q9. The holy city of Mecca is located in _____.

A. UAE
B. Saudi Arab
C. Qatar
D. Abu Dhabi

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

Q10. Table granulated sugar is commonly known as _____.

A. Sucrose
B. Dextrose
C. Glucose
D. Fructose

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

Q11. _____ is not a human bone joint.

A. Ball & socket
B. Gliding
C. Macro
D. Saddle

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

Q12. Four pairs of words are given below. Select the odd.

A. Pole : Cold
B. Summer : Temperature
C. Winter : Cold
D. Monsoon : Rain

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

Q13. If A + B = 90° and A : B = 2 : 1, Then tan A : tan B = ?

(a) 4 : 5
(b) 2 : 3
(c) 3 : 1
(d) 1 : 3

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Q14. If '×' means '-', '÷' means '+', '+' means '÷', and '-' means '×' then
19 ÷ 63 + 21 × 2 - 3 = ?
A. 19
B. 16
C. 8
D. 9
(a) C
(b) D
(c) B
(d) A

Q15. If the angles of a triangle are in the ratio 4 : 5 : 6, find the value of the smallest angle?
A. 36°
B. 48°
C. 12°
D. 24°
(a) B
(b) D
(c) A
(d) C

Q16. The instrument used for ancient mathematical calculations is called _____.
A. Calculator
B. Abacus
C. Table
D. Graphing
(a) B
(b) D
(c) C
(d) A

Q17. The Government of India has classified _____ rivers as major rivers in India.
A. 9
B. 10
C. 11
D. 12
(a) B
(b) A
(c) D
(d) C

Q18. U and B are the daughters of G and M respectively. L is the mother of G and M. S is the sister of U. L has only two daughters. How is M related to S?
A. Sister
B. Daughter
C. Aunt
D. Cousin
(a) C
(b) D
(c) B
(d) A

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Q19. Sumit's salary was reduced by 40% and thereafter it was increased by 40%. Find the final loss% in his salary.

A. 16%
B. 45%
C. 44%
D. 66%

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

Q20. _____ is used to make microchips.

A. Graphite
B. Polyvinyl
C. Silicon
D. Bakelite

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

Q21. Choose the option that shows a different relation to the given pair.-

India : Indian Rupee

A. Pakistan : Pakistani Rupee
B. Nepal : Nepalese Rupee
C. Bangladesh : Bangladeshi Rupee
D. Sri Lanka : Sri Lankan Rupee

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

Q22. If $(2a - 3)^2 + (3b - 5)^2 + (4c - 7)^2 = 0$, then find the value of $\sqrt{(4a + 3b + 4c)}$.

A. $6\sqrt{2}$
B. $9\sqrt{2}$
C. $12\sqrt{2}$
D. $3\sqrt{2}$

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

Q23. MRI is an abbreviation for

A. Medical Research Information
B. Magnetic Resonance Imaging
C. Media Research Information
D. Medical Research Imaging

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

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Q24. What is not true about Soil Health Card?

A. It is a state government-sponsored scheme.

B. Provides basic input on soil nutrients.

C. Helps farmers improve productivity.

D. Recommends fertilizers in terms of the crop.

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

Q25. Which of the following years was not happened the Indo-Pak war?

A. 1947

B. 1962

C. 1971

D. 1999

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

Q26. If 5A = 6B and 6A = 4C, the ratio of B : C is:

A. 4 : 3

B. 5 : 6

C. 5 : 9

D. 10 : 15

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

Q27. Sara's mother is Rama who is Rahul's sister. Sunil's father is Rahul whose brother is Tatya. How is Tatya related to Sara?

A. Cousin

B. Son

C. Uncle

D. Brother

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

Q28. In 1928, the Bardoli Satyagraha was finally led by _____.

A. Mahatma Gandhi

B. Vallabh Bhai Patel

C. Lokmanya Tilak

D. Gopal Krishna Gokhale

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

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Q29. ICICI Bank's 'iwork@home' initiative is for _____.

A. Roadside seller
B. Small Industry
C. Bank's female employees
D. Savings account holder

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

Q30. In 'CT Scan', 'CT' means _____.

A. Cathode-ray Tube
B. Computerized Testing
C. Computed Tomography
D. Compartment Tracking

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

Q31. In a family, three married sons and two unmarried daughters live with their parents. Each son has two daughters and a son. How many female members are there in the family?

A. 7
B. 8
C. 9
D. 12

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

Q32. Cryogenic refers to _____.

A. Low temperature
B. High temperature
C. Low pressure
D. High pressure

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

Q33. _____ is not a sport of martial arts of India.

A. Thang-Ta
B. Silambam
C. Pari-Khanda
D. Jailhouse Rock

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

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Q34. _____ served twice as Acting Prime Minister of India.

A. Charan Singh

B. Vishwanath Pratap Singh

C. Indra Kumar Gujral

D. Gulzarilal Nanda

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

Q35. If 'branches have leaves' is coded as 673, 'trees have branches' is coded as 746 and 'mangoes all trees' is coded as 491 then which digit will represent 'trees'?

A. 2

B. 5

C. 3

D. 4

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

Q36. The mean of 7 observations is 18. Another observation is included and the new mean becomes 18.5. The 8th observation is:

A. 20

B. 21

C. 22

D. 23

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

Q37. Name the capital of Pakistan.

A. Rawalpindi

B. Islamabad

C. Karachi

D. Lahore

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

Q38. The supplementary angle of 113°25' is _____.

A. 67°35'

B. 66°35'

C. 67°15'

D. 46°25'

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

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Q39. In 2009, the Central Government assigned the task of a unique identification project to _____ with cabinet rank.

A. S. Jaipal Reddy

B. Nandan M. Nilekani

C. N. R. Narayana Murthy

D. S. Ramadorai

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

Q40. Suresh covers a distance of 49 kilometers in 4 hours 5 minutes in the direction of the stream and 19 kilometers in 3 hours 10 minutes in the opposite direction of the stream in a luxury boat. What is the speed of river stream at present?

A. 3 Km/h

B. 2 Km/h

C. 1 Km/h

D. 5 Km/h

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

Q41. Find the missing term (?) from the series-

SRT, VUW, YXZ, ?

A. AZB

B. BAC

C. ABC

D. ABZ

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

Q42. If tanA + cotA = 2, then tan3A + cot3A = ?

A. –(2)

B. 1

C. 0

D. 3

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

Q43. Read the given statements and answer the questions based on it.

Statement:

1. All players are cooks.

2. Some singers are sportsmen and some cooks are dancers.

Which of the given conclusions logically follows from the given statements.

A. All singers are cooks.

B. Some dancers are cooks.

C. There is no cook who is not player.

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D. There are some singers who are cooks.

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

Q44. The mean of a distribution is 22 and the standard deviation is 10. What is the value of variance coefficient?

A. 45.45%
B. 35.35%
C. 25.25%
D. 55.55%

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

Q45. Name the memory of the smallest unit from the following.

A. Yottabyte
B. Zettabyte
C. Exabyte
D. Terabyte

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

Q46. Following are some of his conclusions following the statements.

Statement:

1. Through constant physical exercise a weight lifter increases his capacity to lift more weight.

2. Similarly, through continuous breathing exercises, the ancient sages had the ability to acquire extraordinary mental abilities.

Conclusions:

I. Constant mental exercise enables you to lift more weight.

II. Physical exercise is only for the body, not the brain.

Decide which of the following conclusions logically follows from the given statement(s).

A. Only conclusion I follows
B. Only conclusion II follows.
C. Both I and II follow.
D. Neither I nor II follows

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

Q47. Which of the following is not a river with inland drainage?

A. Rupen
B. Banas
C. Periyar
D. Saraswati

(a) D
(b) C

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(c) A
(d) B

Q48. Find the value of 374 × 374 – 374 × 174.

A. 57500
B. 60500
C. 74800
D. 74550

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

Q49. Triangle PQR is such that PR = 12 cm and triangle PQR is similar to triangle XYZ. If XY = 20 and YZ = 28 cm, then find the ratio of PQ : QR.

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

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

Q50. A sum of money becomes triple of itself in 10 years at the rate of simple interest, find the annual rate of interest.

A. 5%
B. 8%
C. 10%
D. 20%

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

Q51. _____ is associated with 'Zend Avesta'.

A. Zoroastrianism
B. Sikhism
C. Buddhism
D. Jainism

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

Q52. _____ is a classical dance style of India.

A. Raut Nacha
B. Chhau
C. Kuchipudi
D. Kalbelia

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

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(d) B

Q53. _____ was the notable personality behind the historic Mars orbiter space program.

A. Kiran Kumar

B. G. Madhavan Nair

C. K. Radhakrishnan

D. K. Kasturirangan

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

Q54. Find the similarity in the following:

Oil, Fur, Silk, Wool

A. They are all derived from the same source.

B. These are all good conductors.

C. All these are good insulator.

D. There is no similarity.

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

Q55. If $x = ((a^2 - 25))/((a^2 - 36)), x/y = (a - 5)/(a - 6)$, then find the value of Y.

A. $(a + 6)/(a + 5)$

B. $((a + 6)^2)/((a + 5)^2)$

C. $((a + 5))/((a + 6))$

D. $((a + 5))/((a + 6)^2)$

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

Directions

There are six members K, L, M, N, O and P in a family. Answer the following questions based on the following information.

1. K and L are the most senior couple.
2. O and P are children of the banker.
3. P is the granddaughter of a retired person.
4. N, who is the daughter of L, is married to a banker.
5. K is the mother-in-law of M.

Q56. How many female members are there in the family?

A. 2

B. 3

C. 1

D. Cannot be determined

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

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Q57. Who is the banker?

A. K
B. L
C. M
D. N

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

Q58. About which one of the following we do not know for sure whether it is male or female?

A. L
B. O
C. M
D. K

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

Q59. 6 boys or 10 girls can do a job in 25 days. How many days will it take 12 boys and 30 girls to do the same work?

A. 10
B. 5
C. 15
D. 20

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

Q60. Rearrange the cluttered letters to make meaningful words and choose the one that is different from the rest.

A. AREY
B. URHO
C. NMHTO
D. OKRF

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

Q61. If the standard deviation of a population is 12, what will be the variance of the population?

A. 144
B. 24
C. 72
D. 36

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

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Q62. The last Arjuna Award winner for Kho-Kho in 1998 was _____.

A. Shobha Narayan
B. S. B. Kulkarni
C. Veen Narayan Parab
D. H. M. Thakalkar

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

Q63. _____ was the world's first female astronaut.

A. Svetlana Savitskaya
B. Valentina Tereshkova
C. Sally Ride
D. Judith Resnik

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

Q64. Find the compound interest of Rs 30,000 for 2 years 73 days at the rate of 35/4% per annum.

A. Rs. 2929
B. Rs. 3000
C. Rs. 6101
D. Rs. 3635

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

Q65. Find the missing number (?) from the series.:

3, 12, 39, 120, ?
A. 296
B. 275
C. 263
D. 363

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

Q66. If P means '+', Q means '×', R means '÷' and K means '-' then the value of 42 K 1 R 14 Q 30 R 12 Q 28 P 110 will be

A. 105
B. 110
C. 147
D. 115

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

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Q67. If P is the largest number that divides 60, 150 and 285, then there is the same remainder in each case, then P is the sum of digits.

A. 7
B. 5
C. 4
D. 9

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

Directions

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

Out of 200 students, 20 have only red balloons, 30 have only blue balloons, 25 have only black balloons, 15 have both black and green balloons, 15 have both red and yellow balloons, 40 have only green balloons, 20 have both blue and black balloons, 25 have only yellow balloons, 5 have both red and black balloons and the rest of the students do not have any balloons.

Q68. What will be the ratio of those students who have green balloons to those who have red balloons?

A. 1
B. 1/2
C. 11/8
D. 7/8

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

Q69. Number of students who do not have black balloons

A. 45
B. 65
C. 115
D. 135

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

Q70. How many students have at least two colored balloons?

A. 50
B. 55
C. 40
D. 45

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

Q71. X can copy 60 pages in 4 minutes, X and Y together can copy 750 pages in 30 minutes. In how many minutes can Y copy 100 pages?

A. 8
B. 16
C. 10

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D. 5

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

Q72. The National Green Tribunal is a _____.

A. Fast Track Court
B. Non-Gajeted Organization
C. Central Government Department
D. Private Company

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

Q73. In 1884, the Deccan Education Society was founded by whom in Pune?

A. Vishnushastri Chiplunkar and Bal Gangadhar Tilak
B. Bal Gangadhar Tilak and Gopal Ganesh Agarkar
C. Mahadev Ballal Namjoshi and Bal Gangadhar Tilak
D. Bal Gangadhar Tilrak and V.B. Kelkar

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

Q74. _____ is not one of the basic types of galaxies.

A. Regulars
B. Spirals
C. Ellipticals
D. Irregulars

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

Q75. Following are some of the conclusions following the statements.

Statement:

1. Global warming is resulting in an increase in temperature.
2. Melting glaciers will cause water-level rise that will affect coastal areas.

Conclusions:

I. The only effect of global warming is the melting of glaciers.
II. Global warming will affect people living in coastal areas.

Decide which of the following conclusions logically follows from the given statement(s).

A. Only conclusion I follows.
B. Only conclusion II follows.
C. Both I and II follow.
D. Neither I nor II follows.

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

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(d) B

Q76. The present-day _____ used to be the capital of the Vijayanagara Empire.

A. Hampi
B. Mysore
C. Belur
D. Srirangapattanam

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

Q77. Of the following, CEC means _____.

A. Chief Election Controller
B. Central Election Commission
C. Chief Election Commissioner
D. Common Election Code

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

Q78. Multi-use plastic water bottles are made of _____.

A. Bakelite
B. Polystyrene
C. Polyethylene
D. Silicon

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

Q79. If 'ROCKET' is written as 'CEROKT' then 'HURDLE' will be written as

A. RLHUED
B. RLHDUE
C. RLUHDE
D. RLHUDE

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

Q80. An Assertion (A) and a Reason (R) are given below.

Assertion (A): Water is a universal solvent.
Reason (R): Water can dissolve more substances than any other.
Choose the right option.

A. Both A and R are correct and R is the proper explanation of A.
B. Both A and R are correct but R is not a proper explanation of A.
C. A is correct but R is false.
D. A is false but R is correct.

(a) D
(b) A

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(c) B
(d) C

Q81. _____ orbit did not have a space station.

A. Mir
B. Salyut 7
C. Skylab
D. Voyager 1

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

Q82. After five years, Mayank's age will be 3/5th of his father's age. Five years ago their age ratio was 2 : 5. Find the present age of Mayank.

A. 17
B. 13
C. 19
D. 15

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

Q83. The 88th Academy Award for Best Film was taken for _____.

A. Brooklyn
B. Room
C. The Big Short
D. Spotlight

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

Q84. In a certain code language ACE = 9 and AGE = 13 then what will be the value of FACE?

A. 17
B. 14
C. 15
D. 18

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

Q85. The ratio of the present ages of X and Y is 2 : 1. After 14 years their age ratio will be 29 : 18. What is the difference between the present age of the two?

A. 22 years
B. 11 years
C. 9 years
D. 13 years

(a) C
(b) A

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(c) D
(d) B

Q86. A person covers the first 176 kilometers at a speed of 16 kilometers/hour and the next 64 kilometers at a speed of 32 kilometers/hour. What would be the approximate average speed for the first 240 kilometers of the journey?

A. 13 Km/h
B. 27 Km/h
C. 18.5 Km/h
D. 21 Km/h

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

Q87. Excluding the stoppage of the metro station, the speed of the metro train is 60 kilometers per hour and including the station stop, it is 48 kilometers per hour. How many minutes does the metro train stop every hour?

A. 9 minutes
B. 8 minutes
C. 12 minutes
D. 14 minutes

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

Q88. John buys four old tractors for Rs 2 lakh. He spent a total of 3 lakhs in the maintenance and repair of these four tractors. If he already sells one tractor out of four tractors for Rs. 1 lakh, then what is the average selling price of the remaining 3 tractors to get 40% total profit?

A. Rs. 1.5 lakh
B. Rs. 1.2 lakh
C. Rs. 2 lakh
D. Rs. 2.3 lakh

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

Q89. A man bought two TV sets for Rs. 47,908. By selling one TV at 7% profit and the other at 11% loss, he did not make any profit or loss in the entire transaction. The cost price of each TV is:

A. Rs. 18,821, Rs. 29,187
B. Rs. 18630.88, Rs. 29277.11
C. Rs. 18,821, Rs. 29,887
D. Rs. 18,781, Rs. 29,837

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

Q90. Hands : Gloves :: Feet : _____

A. Shorts
B. Pants
C. Caps
D. Socks

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

Q91. Find the largest number by which when 270, 675 and 1215 are divided, leave equal remainder in each case.

A. 45
B. 135
C. 270
D. 75

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

Q92. If $(x^2 + 1/16x^2) = 19/2$, then find the value of $(2x – 1/2x)$.

A. 6
B. 12
C. 32
D. 41

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

Q93. Accessing data stored in offsite centers over the internet is known as _____.

A. Local area network
B. Cloud computing
C. Intranet
D. Global network

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

Q94. How much is the remainder when Anubha divides 15^(300) by 16?

A. 7
B. 1
C. 5
D. 9

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

Q95. The concept of _____ is based on superstitious beliefs.

A. Checker
B. Solitaire
C. Chess
D. Snake and Ladder

(a) C
(b) D

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(c) A
(d) B

Q96. In 2014, India sent 200 tonnes of drinking water to _____ through Indian Air Force aircraft (IAF) and naval warship.

A. Mauritius
B. Maldives
C. Taiwan
D. South Korea

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

Q97. Ranjan sells a Pendrive for Rs 910 at 30% profit and another for Rs 180 at 10% loss. His total profit or loss % is:

A. 27.95%
B. 24.50%
C. 21.11%
D. 22.11%

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

Q98. If SQUARE = RPTZQD then RECTANGLE = _____

A. QDBFKDSZM
B. QSBDZMFKD
C. QDBSZMFKD
D. QDBSZMDKF

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

Q99. What is not true with data conversion?

A. Upgrading from one version to another version
B. Receiving data from a legacy system
C. Receiving data from another module
D. It may use a standard import program

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

Q100. The most important component of glass is _____.

A. Mica
B. Quartz
C. Silica
D. Sodium Borate

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

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ANSWER KEY

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

SOLUTIONS

Q1. Answer: (a) D

Only option 4 is the correct answer. Stagnant water is a breeding ground for mosquitoes because they thrive in tropical climates. Stagnant water, rotten waste in the open and open drains contribute significantly to the development of mosquitoes even small quantities of water can serve as a perfect breeding ground for mosquitoes that transmit virus causing dengue, malaria, and other life-threatening vector-borne diseases.

Hence, the correct answer is "Option (1)".

Additional Information

• It is the anopheles mosquitoes that carry parasites that cause malaria, dengue, and chikungunya. Furthermore, viral diseases are transmitted by the Aedes Aegypti mosquito, and the virus which causes Japanese Encephalitis is transmitted by Culex genus mosquitoes.

• If they are filled with debris, they will trap water during the next rainfall instead of letting it drain. Mosquitoes will then breed in this standing water. Prevent other sources of standing water. Standing water is the number one breeding spot for mosquitoes.

Q2. Answer: (c) C

Given:

5231405 × 99999.

Calculation:

5231405 × 99999.

=> 5231405 × (100000 – 1)

=> 523140500000 – 5231405

=> 523135268595

Therefore The value of 5231405 × 99999 is 523135268595.

Q3. Answer: (b) D

The correct answer is Lead.

Key Points

• The exhaust manifold is the first important element.

• The catalyst is another element of the exhaust system.

• It uses chemical reactions to reduce harmful gases by converting them into carbon dioxide, water vapor, and pure nitrogen.

Additional Information

• The toxic elements present in automobile exhausts are carbon monoxide (CO), nitrogen oxides, and particulate matter (fine carbon particles).

• The toxic elements lead to various respiratory diseases, cancer, and allergic reactions in humans and animals.

• Exhaust gas or flue gas is emitted as a result of the combustion of fuels such as natural gas, gasoline (petrol), diesel fuel, fuel oil, biodiesel blends, or coal.

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Q4. Answer: (c) A

The correct answer is the Measurement of thermal energy.

• Heat should not be confused with temperature. Temperature describes the internal state of an object, while heat refers to the energy transferred to or from the object.

• Heat is transferred via solid material (conduction), liquids and gases (convection), and electromagnetic waves (radiation). Heat is usually transferred in a combination of these three types and seldomly occurs on its own.

• Clay absorbs heat but does not conduct it.

• It absorbs the sun's radiation, trapping it in the center rather than letting it pass through to the cool house.

• Builders also use clay to make walls in structures such as adobe huts. Water, mud, and dirt do not easily conduct heat.

Additional Information

• There are materials called "insulators" that do not allow energy to pass through easily.

• These materials include plastic, cork, wood, Styrofoam, and rubber.

• Thermal insulators are thus good at maintaining a consistent level of heat — whether hot or cold.

Q5. Answer: (b) B

The correct answer is India and Britain.

• India-UK Joint Team wins Newton-Bhabha Fund for Groundwater Arsenic Research project.

• India-United Kingdom (UK) Joint Team has won Newton-Bhabha Fund for a project on Groundwater Arsenic Research in Ganga River Basin.

Additional Information

• The Newton Fund builds research and innovation partnerships with 18 partner countries to support economic development and social welfare, and to develop research and innovation capacity for long-term sustainable growth.

• It has a total UK Government investment of £735 million up until 2021, with matched resources from the partner countries.

• The Newton Fund is managed by the UK Department for Business, Energy and Industrial Strategy (BEIS), and delivered through 15 UK delivery partners, which include the Research Councils, the UK Academies, the British Council, Innovate the UK, and the Met Office.

Q6. Answer: (b) D

Given:

	Electronics	Computer	Economics	Statistics
VP	220	150	200	150
DJ	240	125	200	220
KS	200	130	250	170
GB	225	150	180	125

Formula used:

Percentage = (given value/total value)× 100

Calculation:

According to the question,

The total students at KS College,

=> 200 + 130 + 250 + 170

=> 750

The total students chose Economics at KS College

=> 250

Percent of the total students chose Economics at KS College = (given value/total value)× 100

=> (250/750)× 100

=> 33.33%

Therefore Percent of the total students chose Economics at KS College is 33.33%.

Q7. Answer: (a) B

Given:

	Electronics	Computer	Economics	Statistics
VP	220	150	200	150
DJ	240	125	200	220
KS	200	130	250	170
GB	225	150	180	125

Calculation:

According to the question,

Total number of Computer students

=> 150 + 125 + 130 + 150

=> 555

Total number of Statistics students

=> 150 + 220 + 170 + 125

=> 665

Difference in the number of computer and statistics students

=> 665 – 555

=> 110

Therefore Difference in the number of computer and statistics students is 110.

Q8. Answer: (b) D

Given:

Maximum number of student in DJ college 785

	Electronics	Computer	Economics	Statistics	Total
VP	220	150	200	150	720
DJ	240	125	200	220	785
KS	200	130	250	170	750
GB	225	150	180	125	680

Calculation:

Total student in VP college is 720

=> Total student in DJ college is 785

=> Total student in KS college is 750

=> Total student in GB college is 680

Therefore Maximum number of student is in DJ college.

Q9. Answer: (b) B

The correct answer is Saudi Arab.

Key Points

• Mecca, Arabic Makkah, ancient Bakkah, city, western Saudi Arabia, located in the Sirat Mountains, inland from the Red Sea coast.

• It is the holiest of Muslim cities.

Additional Information

• In the Islamic tradition, the Kaaba in Mecca is considered the holiest site, followed by the Prophet's Mosque in Medina, and Qadian Darul-Aman, Al-Aqsa Mosque in Jerusalem is held in high esteem.

• There are sacred sites located in Mecca; Mina, Arafat, and Muzdalifah.

• In the City of Medina, non-Muslims are not allowed to enter the Nabawi Square, where the Al-Masjid Al-Nabawi is located.

Q10. Answer: (a) A

The correct answer is Sucrose.

• White sugar, also called table sugar, granulated sugar, or regular sugar, is a commonly used type of sugar, made either of beet sugar or cane sugar, which has undergone a refining process.

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Additional Information

• Granulated sugar is also sometimes known as white sugar, or “regular” sugar.

• It is the sugar that is most commonly used in baking.

• The fine crystals in granulated sugar don't cake together, which makes it perfect for measuring, sprinkling onto food, and dissolving into drinks.

• Sucrose is the most common type of sugar. Often called “table sugar,” it's a naturally occurring carbohydrate found in many fruits and plants.

Q11. Answer: (b) C

The correct answer is Macro.

• Ball and socket joint

• The ball and socket joint is made up of one bone's rounded head sitting in the cup of another bone, allowing movement in all directions.

• Gliding joint

• This joint allows two or more round or flat bones to freely move together without rubbing or crushing.

• This joint is primarily seen in areas where two bones connect and glide on one another.

• Saddle joint

• Although the saddle joint does not allow for rotation, it does allow for back and forth movement as well as side to side movement.

• Hence Macro Joint is not the type of joint.

Additional Information

Type of Joint	Movement	Location in Human Body
Ball and socket joint	• The ball and socket joint is made up of one bone's rounded head sitting in the cup of another bone, allowing movement in all directions.	Shoulder and hip
Hinge joint	• Hinge joints are similar to door hinges in that they can only move back and forth.	Elbows and knees
Saddle joint	• Although the saddle joint does not allow for rotation, it does allow for back and forth movement as well as side to side movement.	The base of your thumb
Pivot Joint	• The pivot joint, also known as the rotary or trochoid joint, is made up of one bone that may swivel in a ring formed by another bone.	Neck
Gliding joint	• This joint allows two or more round or flat bones to freely move together without rubbing or crushing. - This joint is primarily seen in areas where two bones connect and glide on one another.	Wrist
Fixed joint	• These joints are either fixed or fibrous. - They're characterized as two or more bones that are in close touch yet don't move.	Upper Jaw, Skull, Pelvic

Q12. Answer: (b) B

The logic follows here is :

The second word is the climatic condition in/at the first word.

Place / Season	Climate	Given Word
Pole	Cold	Cold
Summer	Hot	Temperature
Winter	Cold	Cold

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Monsoon	Rain	Rain

Summer : Temperature doesn't follow the logic.

Hence, the correct answer is "Summer : Temperature".

Temperature is the measurement of hotness or coldness. It is not a climate.

Q13. Answer: (c) 3 : 1

Given

A + B = 90°

A : B = 2 : 1

Calculation

A be 2x and B be 1x

=> 2x + 1x = 90

=> 3x = 90

=> x = 30

=> A = 30 × 2 = 60°

=> B = 30 × 1 = 30°

=> TanA = Tan60°

=> Tan60 = √3

=> TanB = Tan30°

=> TanB = 1/√3

Therefore TanA : TanB = √3 : 1/√ 3

Therefore TanA : TanB = √3 × √3 : 1 = 3 : 1

Important Points

The following table is used for obtaining the values of trigonometric functions:

Q14. Answer: (c) B

The logic follows he

Symbol	Interchanged meaning
×	•
÷	•
•	÷
•	×

Given equation is,

19 ÷ 63 + 21 × 2 - 3

After changing signs as per given :

19 + 63 ÷ 21 - 2 × 3

= 19 + 3 - 2 × 3

= 19 + 3 - 6

= 22 - 6

= 16.

Hence, the correct answer is "16".

Q15. Answer: (a) B

Given

The angles of a triangle are in the ratio 4 : 5 : 6

Concept used

Sum of all angles of triangle is 180°

Calculation

Let the angles of triangle be 4x, 5x, 6x

=> 4x + 5x + 6x = 180°

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=> 15x = 180

=> x = 12°

Therefore Smallest angle is 4 × 12 = 48°

Q16. Answer: (a) B

The correct answer is Abacus.

• The abacus is one of the counting devices invented in ancient times to help count large numbers, but it is believed that the abacus was first used by the Babylonians as early as 2,400 B.C.

• The abacus was used in Europe, China, and Russia, centuries before the adoption of the written Hindu-Arabic numeral system.

Additional Information

• The abacus (plural abaci or abacuses), also called a counting frame, is a calculating tool that has been used since ancient times and is still in use today.

• It was used in the ancient Near East, Europe, China, and Russia, centuries before the adoption of the written Arabic numeral system.

Q17. Answer: (c) D

The correct answer is 12.

• The rivers of India can be classified into four groups viz., Himalayan rivers, Deccan rivers, Coastal rivers, and Rivers of the inland drainage basin.

Additional Information

• The Himalayan Rivers are formed by melting snow and glaciers and therefore, continuously flow throughout the year.

• During the monsoon months, Himalayas receive very heavy rainfall and rivers swell, causing frequent floods.

• The Deccan Rivers on the other hand are rain-fed and therefore fluctuate in volume. Many of these are non-perennial.

• The Coastal streams, especially on the west coast are short in length and have limited catchment areas.

• Most of them are non-perennial. The streams of the inland drainage basin of western Rajasthan are few.

• Most of them are of an ephemeral character.

Q18. Answer: (a) C

Family Chart :

Family Tree :

M is the maternal Aunt of S.

Hence, the correct answer is "Aunt".

Q19. Answer: (a) A

Given:

salary reduced = 40%

salary increased = 40%

Calculation:

Let initial salary be 100%

After reduction = 100 - (40/100) ×100 = 60%

Taking the reduced salary for increament

After increment = 60 + (40/100) × 60 = 84%

Loss % in salary = Initial salary - Final salary = 100 - 84 = 16%

Therefore The final loss% in his salary is 16%

Q20. Answer: (c) C

The correct answer is Silicon.

• Silicon is the element used in making microchips.

Additional Information

• Chips are made in multibillion-dollar fabrication plants called fabs. Fabs melt and refine sand to produce 99.9999% pure single-crystal silicon ingots.

• Saws slice the ingots into wafers about as thick as a dime and several inches in diameter.

• A microchip (sometimes just called a "chip") is a unit of packaged computer circuitry (usually called an integrated circuit) that is manufactured from a material such as silicon at a very small scale.

• Microchips are made for program logic (logic or microprocessor chips) and for computer memory (memory or RAM chips).

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Q21. Answer: (d) C

The logic follows here is :

The second word is the Currency of the first word (Country).

Country	Currency	Given word
Pakistan	Pakistani Rupee	Pakistani Rupee
Nepal	Nepalese Rupee	Nepalese Rupee
Bangladesh	Bangladesh Taka	Bangladeshi Rupee
Sri Lanka	Sri Lankan Rupee	Sri Lankan Rupee

Bangladesh : Bangladeshi Rupee doesn't follow the logic.

Hence, the correct answer is "Bangladesh : Bangladeshi Rupee".

Q22. Answer: (d) D

Given:

(2a - 3)2 + (3b - 5)2 + (4c - 7)2 = 0

Formula Used:

If $(a - b)^2 + (b - c)^2 + (c - a)^2 = 0$ then

a = b, b = c, c = a

Calculation:

(2a - 3)2 + (3b - 5)2 + (4c - 7)2 = 0

by using the Formula

2a - 3 = 0

=> a = 3/2 ----(i)

3b - 5 = 0

=> b = 5/3 ----(ii)

4c - 7 = 0

=> c = 7/4 ----(iii)

Substituting the (i) (ii) (iii) in the √(4a + 3b + 4c).

√(4a + 3b + 4c) = √(4 × 3/2 + 3 × 5/3 + 4 × 7/4).

√(4a + 3b + 4c) = √(6 + 5 + 7) =√18 => 3√2

Therefore The value of √(4a + 3b + 4c) is 3√2

Q23. Answer: (b) B

The correct answer is Magnetic Resonance Imaging.

• Magnetic resonance imaging (MRI) uses a large magnet and radio waves to look at organs and structures inside your body.

• Health care professionals use MRI scans to diagnose a variety of conditions, from torn ligaments to tumors.

• MRIs are very useful for examining the brain and spinal cord.

Additional Information

• The results from an MRI scan are typically interpreted within 24 hours, and the scans themselves are usually given immediately to the patient on a disc after the MRI is complete.

• MRI can be used to detect brain tumors, traumatic brain injury, developmental anomalies, multiple sclerosis, stroke, dementia, infection, and the causes of headache.

Q24. Answer: (d) A

The correct answer is It is a state government-sponsored scheme.

• A Soil Health Card is used to assess the current status of soil health and, when used over time, to determine changes in soil health that are affected by land management.

• A Soil Health Card displays soil health indicators and associated descriptive terms.

Additional Information

• Soil Health Card (SHC) is centrally sponsored scheme launched by Prime Minister Narendra Modi on 19th February 2015 at Suratgarh in Rajasthan.

• The scheme aims to issue soil health cards to farmers every two years so as to provide a basis to address nutritional deficiencies in the soil.

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• Soil Health Card helps farmers to increase crop production by using a balanced amount of fertilizers.
• Farmers realize the fertile strength, status, and capacity of their farm soil through the Soil Health Card.
• This day highlights all these benefits to the farmers.
• It is also important to know the type of soil.

Q25. Answer: (c) B

The correct answer is B.

Key Points

• In 1962:-

• The Sino-India war began on October 20, 1962, when the People's Liberation Army of China invaded Ladakh and Arunachal Pradesh (then known as the North-East Frontier Agency) in a synchronized move.

• The war lasted till 21 November 1962, when China unilaterally withdrew from Indian territories before the snow could block safe passage to its forces.

• Hence, this year 1962 does not belong to the Indo-Pak war.

Additional Information

Year	Name	Result
1947	First Indo-Pakistan War	Partitioning of Kashmir between India and Pakistan
1971	Bangladesh Liberation War or Third Indo-Pak War	Independence of Bangladesh
1999	Kargil War	India regains possession of Kargil.

Q26. Answer: (c) C

Given:

5A = 6B and 6A = 4C

Concept used:

Ratio method use

Calculation:

5A = 6B

=> A/B = 6/5 ----(1)

6A = 4C

=> A/C = 4/6 = 2/3

=> C/A = 3/2 ----(2)

Multiplying (1) and (2) get,

(A/B) × (C/A) = (6/5) × (3/2)

=> C/B = 9/5

=> B/C = 5/9

=> B : C = 5 : 9

Therefore The ratio of B : C is 5 : 9.

Q27. Answer: (b) C

Family Chart :

Family Tree :

Tatya is the maternal Uncle of Sara.

Hence, the correct answer is "Uncle".

Q28. Answer: (b) B

The correct answer is Vallabh Bhai Patel.

• The movement was eventually led by Vallabhbhai Patel, and its success gave rise to Patel becoming one of the main leaders of the independence movement.

Additional Information

• The Bardoli Satyagraha, launched 94 years ago in February 1928, is one such episode in India's national movement which not just elevated Sardar Vallabhai Patel to a new pinnacle of glory and greatness.

• A meeting of representatives of 60 villages at Bamni in the Kadod division invited Sardar Patel to lead the campaign.

• The local leaders also contacted Gandhiji and after having assured him to observe non-violence, seriously launched the movement.

• Sardar Patel assumed the leadership and went to Bardoli.

Q29. Answer: (b) C

The correct answer is Bank's female employees.

• ICICI Bank has launched iWork @home an initiative that allows women employees to work from home for up to one year.

• This initiative allows female employees to have access to their required operating systems in a safe and secure manner, that creates a seamless office-like environment.

Additional Information

• iWork@home, a first-of-its-kind program, allows women employees to work from home.

• This unique program replicates the work environment at home by providing employees access to their work applications in a safe and secure manner.

• Women can work from home for one year, which can be further extended.

• The other initiative aids women managers who travel on business, by covering the travel and stay of young children and their caregivers.

Q30. Answer: (c) C

The correct answer is Computed Tomography.

• A computed tomography (CT or CAT) scan allows doctors to see inside your body.

• It uses a combination of X-rays and a computer to create pictures of your organs, bones, and other tissues.

• It shows more detail than a regular X-ray. You can get a CT scan on any part of your body.

Additional Information

• A computerized tomography (CT) scan uses X-rays and a computer to create detailed images of the inside of the body. CT scans are sometimes referred to as CAT scans or computed tomography scans.

• The term “computed tomography”, or CT, refers to a computerized x-ray imaging procedure in which a narrow beam of x-rays is aimed at a patient and quickly rotated around the body, producing signals that are processed by the machine's computer to generate cross-sectional images—or “slices”—of the body.

Q31. Answer: (a) D

Family Chart :

Family Tree :

Here, W is Wife, S is Son and D is Daughter.

Wives = 3

Mother = 1

Daughters = 8.

Total females = 3 + 1 + 8 = 12.

Hence, the correct answer is "12".

Q32. Answer: (c) A

The correct answer is Low temperature.

• Cryogenic liquids are liquefied gases that are kept in their liquid state at very low temperatures.

• The word "cryogenic" means "producing, or related to, low temperatures," and all cryogenic liquids are extremely cold.

• These gases must be cooled below room temperature before an increase in pressure can liquefy them.

Additional Information

• Cryogenics is the production of and behavior of materials at very low temperatures.

• Ultra-cold temperatures change the chemical properties of materials, which provides an interesting area of study for researchers who wish to examine the materials as they transition from gas to liquid to a solid-state.

• Cryogenic liquids have boiling points below minus 130°F (minus 90°C) and are used in research to provide extremely low temperatures for frozen storage and experimentation.

• Common cryogenic liquids of concern include nitrogen, helium, hydrogen, argon, methane, and carbon monoxide.

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Q33. Answer: (d) D

The correct answer is Jailhouse Rock.

• A name used to describe several improvisational fighting styles developed within the US penal system, some of the most common types include Brick City Rock, 52 Handblocks, and Stato.

Additional Information

• Martial arts are codified systems and traditions of combat practiced for a number of reasons such as self-defense; military and law enforcement applications; competition; physical, mental, and spiritual development; entertainment; and the preservation of a nation's intangible cultural heritage.

• Although Kalaripayattu is not as old as other forms of martial arts on this list, it is often cited as being the oldest martial art discipline.

• Its history can be traced back over 3000 years to the Vedas, which are a large body of knowledge texts from the ancient Indian subcontinent.

Q34. Answer: (a) D

The correct answer is Gulzarilal Nanda.

• Since 1947 India has had 14 prime ministers, 15 including Gulzarilal Nanda who twice acted in the role, of which 6 have at least one full term, ruling the country for about 60 years.

Additional Information

• Nanda was the Acting Prime Minister of India twice for thirteen days each: the first time after the death of Prime Minister Jawaharlal Nehru in 1964, and the second time after the death of Prime Minister Lal Bahadur Shastri in 1966.

• An Acting Prime Minister is a cabinet member (often in Westminster system countries) who is serving in the role of Prime Minister, whilst the individual who normally holds the position is unable to do so.

Q35. Answer: (b) D

The pattern follows here is :

Word	Code
branches	6 or 7
have	7 or 6
leaves	3
trees	4
mangoes	9 or 1
all	1 or 9

Code for trees is 4.

Hence, the correct answer is "4".

Q36. Answer: (c) C

Given:

Mean of 7 observation =18

Mean of 8 obsevation = 18.5

Formula used:

Mean = Sum of observation/number of observation

Calculation:

Mean = Sum of observation/number of observation

=> 18 = Sum of 7 observation/7

=> Sum of 7 observation = 18 × 7

=> Sum of 7 observation = 126

Let 8^(th) observation be P

=> (Sum of 7 observation + 8^(th) observation)/8 = 18.5

=> (126 + P) = 18.5 × 8

=> 126 + P = 148

=> P = 148 – 126

=> P = 22

Therefore The 8th observation is 26.

Alternate method:

For 8^(th) observation = (18.5 × 8 – 18 × 7)

=> For 8^(th) observation = 148 – 126

=> For 8^(th) observation = 22

Q37. Answer: (c) B

The correct answer is Islamabad.

Key Points

• Newly-independent Pakistan had chosen Karachi as its capital in 1947.

• However, a decade later, President Ayub Khan chose to move the capital nearly 1,500 kilometers to the north, to the new city of Islamabad.

Additional Information

• Islamabad officially became the capital of Pakistan on 14 August 1967, exactly 20 years after the country's independence.

• The first capital of Pakistan was the coastal city of Karachi in Sindh, which was selected by Muhammad Ali Jinnah.

• Karachi was and still is the largest city and economic capital of Pakistan.

• The city is known for the presence of several parks and forests, including the Margalla Hills National Park and the Shakarparian.

• The city is home to several landmarks, with the most notable one being the Faisal Mosque − the largest mosque in South Asia and the fifth largest in the world.

Q38. Answer: (a) B

Given:

113°25'

Concept used:

angle A + angle B = 180°

1° = 60'

Calculation:

(180° – 113°25')

=> (179°60' – 113°25')

=> 66°35'

Therefore The supplementary angle of 113°25' is 66°35'

Q39. Answer: (a) B

The correct answer is Nandan M. Nilekani.

Key Points

• Nandan Nilekani was appointed as Chairman of an Authority with Cabinet minister's rank to steer the ambitious scheme for creating a multi-purpose unique identification database of citizens.

• 54-year-old Nilekani, the co-founder of the leading IT firm along with N R Narayana Murthy 28 years ago, will head the Unique Identification Database Authority of India (UIDAI) under the aegis of the Planning Commission.

• The scheme is aimed at providing a unique identity to the targeted population of the flagship schemes to ensure that the benefits reach them,

• A visionary and a thinker, Nilekani, who gets an annual compensation of over USD 1.75 lakh and whose net worth is USD 1.3 billion, resigned his membership of Infosys Board of Directors following his appointment.

Q40. Answer: (a) A

Given:

Downstream distance = 49km

Upstream distance = 19km

Time taken in downstream = 4 hours 5 minutes

Time taken in upstream = 3 hours 10 minutes

Concept used:

Downstream speed = (x + s)

Upstream speed = (x – s)

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x = speed of the boat

s = speed of the stream

Calculation:

[49/(x + s)] = 41/12

=> [49/(x + s)] = 49/12

=> [1/(x + s)] = 1/12

=> (x + s) = 12

Downstream speed = 12 km/h

[19/(x – s)] = 31/6

=> [19/(x – s)] = 19/6

=> [1/(x – s)] = 1/6

=> (x – s) = 6

Upstream speed = 6 km/h

x + s + x – s = 12 + 6

=> 2x = 18

=> x = 9

=> s = 3

Therefore The speed of river stream at present is 3km/h

Q41. Answer: (c) B

The logic follows here is :

Hence, the correct answer is "BAC".

Q42. Answer: (a) A

Given:

tanA + cotA = 2

Calculation:

tanA + cotA = 2

=> (sinA/cosA + cosA/sinA) = 2

=> ($sin^2A + cos^2A$)/sinAcosA = 2

=> 1 = 2sinAcosA

=> 1 = sin2A

=> sin2A = sin90°

=> 2A = 90°

=> A = 45°

tan3A + cot3A = ?

=> tan135° + cot135° = ?

=> We know, tan135° = cot135° = –(1)

=> –(1) + –(1) = ?

=> –(2) = ?

Therefore The value of tan3A + cot3A is –(2)

Alternate Method

Put A = 45°

tan45° + cot45° = 2

tan135° + cot135° = –(1) + –(1)

=> –(2)

Therefore The value of tan3A + cot3A is –(2)

Q43. Answer: (c) B

The least possible Venn diagram for the given statements is :

Conclusions :

A. All singers are cook → False (There is no direct relation given between singers and cooks. This statement is not definite hence, false).

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B. Some dancers are cooks → True (Some cooks are dancers is given so definitely some dancers are cooks, so, it is true).

C. There is no cook who is not player → False (Clearly, the shaded part in the below Venn diagram shows that there are some cooks who are not players. Hence, it is false).

D. There are some singers who are cooks → False (There is no direct relation given between singers and cooks. This statement is not definite hence, false).

Thus, only conclusion B follows.

Hence, the correct answer is "B".

Q44. Answer: (c) A

Given:

Mean of a distribution = 22

Standard deviation = 10

Formula used:

Coefficient of variance = (SD/M) × 100

Calculation:

(SD/M) × 100

=> (10/22) × 100

=> (5/11) × 100

=> 500/11

=> 45.45

=> Coefficient of variance = 45.45%

The value of variance coefficient is 45.45%

Q45. Answer: (d) D

The correct answer is Terabyte.

Key Points

• 1 Bit = Binary Digit

• 8 Bits = 1 Byte

• 1024 Bytes = 1 Kilobyte

• 1024 Kilobytes = 1 Megabyte

• 1024 Megabytes = 1 Gigabyte

• 1024 Gigabytes = 1 Terabyte

• 1024 Terabytes = 1 Petabyte

• 1024 Petabytes = 1 Exabyte

• 1024 Exabytes = 1 Zettabyte

• 1024 Zettabytes = 1 Yottabyte

• 1024 Yottabytes = 1 Brontobyte

• 1024 Brontobytes = 1 Geopbyte.

Important Points

• A group of 4 bits is called a nibble.

• A group of 8 bits is called byte.

• A byte is the smallest unit, which can represent a data item or a character.

• Bits are the basic building blocks of not only data storage but all computers.

• Computers work in binary digits, combining 0’s and 1’s in countless patterns.

• These binary digits are known as bits and are the smallest possible unit for data storage.

• When 8 bits are combined, you get a byte. Bytes are used to store a single character; whether’s it a letter, number, or punctuation.

• All memory storage is expressed in terms of bytes, so although bits might be the foundation upon which data storage is built, bytes are the building blocks that truly denote the usability of any one storage solution.

Q46. Answer: (b) D

Statements :

1. Through constant physical exercise a weight lifter increases his capacity to lift more weight.

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2. Similarly, through continuous breathing exercises, the ancient sages had the ability to acquire extraordinary mental abilities.

Conclusions :

Here, we can conclude by combining both the statements that, physical exercise increases weight lifting capacity and breathing exercise increases mental abilities.

None of the conclusions is justifying the given statements to be true as Conclusion (1) relates mental exercise to weight lifting and Conclusion (2) relates physical exercise with mental abilities which are totally opposite to the statements given.

Hence, the correct answer is "Neither I nor II follows".

Q47. Answer: (b) C

The correct answer is Periyar.

• Rann of Kutch is an inland drainage area.

• Inland drainage is that drainage in which rivers do not reach an ocean or sea but empty their waters in a lake or an inland sea.

• Additional Information

• Narmada flows between Vindhya and Satpura range. Rivers Luni, Ghaggar, Rupnarain, Medha, etc have inland drainage.

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

• It is a seasonal stream that rises on the lower slopes of the Himalayas and forms a boundary between Haryana and Punjab.

• It gets lost in the dry sands of Rajasthan near Hanumangarh after traversing a distance of 465 km.

Q48. Answer: (d) C

Given:

374 × 374 – 374 × 174 = ?

Concept used:

Distributive property

(a × b) + (a × c) = a × (b + c)

Calculation:

374 × 374 – 374 × 174

=> 374 × (374 – 174)

=> 374 × 200

=> 74800

Therefore The value of 374 × 374 – 374 × 174 is 74800.

Q49. Answer: (a) A

Given:

PR = 12 cm

Triangle PQR is similar to triangle XYZ.

XY = 20

YZ = 28 cm

Concept used:

If two triangle are similar to each other.

Ratio of their sides is equal to each other.

Calculation:

If two triangle are similar to each other.

Ratio of their sides is equal to each other.

ΔPQR and ΔXYZ are similar to each other

So, PQ/XY = QR/YZ = PR/XZ

=> PQ/XY = QR/YZ

=> PQ/QR = XY/YZ

=> PQ/QR = 20/28

=> PQ/QR = 5/7

=> PQ : QR = 5 : 7

Therefore The ratio of PQ : QR is 5 : 7.

Q50. Answer: (a) D

Given:

Time = 10 years

Money triple in 10 years.

Formula used:

Simple interest = (P × R × T)/100

Where P → Principal

T → Time

R → Rate

Calculation:

Let the principal be 'x'.

So, Amount = 3x

Simple interest = 2x

Simple interest = (P × R × T)/100

=> 2x = (x × R × 10)/100

=> R = (2 × 100)/10

=> R = 20%

Therefore The annual rate of interest is 20%.

Q51. Answer: (c) A

The correct answer is Zoroastrianism.

• Avesta, also called Zend-Avesta, the sacred book of Zoroastrianism containing its cosmogony, law, and liturgy, the teachings of the prophet Zoroaster (Zarathushtra).

• The extant Avesta is all that remains of a much larger body of scripture, apparently Zoroaster's transformation of a very ancient tradition.

Additional Information

• The Zoroastrian sacred writings, comprising the Avesta (the text) and Zend (the commentary).

• 'When the Jews came in contact with the Persian priests they were made acquainted with the heaven and hell of the Zend-Avesta.

• Its first mention in this context is in the Zoroastrian Zend-Avesta.

• This religion was likely similar to early forms of Hinduism.

• According to Zoroastrian tradition, Zoroaster had a divine vision of a supreme being while partaking in a pagan purification rite at age 30. Zoroaster began teaching followers to worship a single god called Ahura Mazda.

Q52. Answer: (a) C

The correct answer is Kuchipudi.

Additional Information

• Classical dance is more demanding and is usually strict with technical aspects.

• Folk dances are all about energy, enthusiasm, and power. Classical dances are performed by professional or highly trained dancers who have studied their form for many years.

• Folk dances are not performed by professional dancers.

• The Sangeet Natak Akademi recognizes eight – Bharatanatyam, Kathak, Kuchipudi, Odissi, Kathakali, Sattriya, Manipuri, and Mohiniyattam.

Q53. Answer: (d) C

The correct answer is K. Radhakrishnan.

• Radhakrishnan was the man behind the Mars Orbiter Mission or Mangalyaan, India's most audacious exploration into space which took off on November 5.

Additional Information

• Indian Space Research Organisation (ISRO) head Koppili Radhakrishnan, 64, is a deeply religious man.

• None of his major missions kick off without a visit to temples at Guruvayur or Tirumala.

• Radhakrishnan was the man behind the Mars Orbiter Mission or Mangalyaan, India's most audacious exploration into space which took off on November 5.

• A mere 22 of the 52 Mars-bound missions have succeeded so far. Come September 2014 and ISRO, if it pulls off the mission,

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will join an exclusive club of three agencies that have gone that far-European Space Agency, Russian Space Agency, and NASA.

Q54. Answer: (c) C

The logic follows here is :

Word	Derived from	Conductor / Insulator
Oil	Plants, animals	Insulator
Fur	Animals	Insulator
Silk	Larvae	Insulator
Wool	Animals	Insulator

The Similarity in the given words is that they all are Insulators.

Hence, the correct answer is "All these are good insulators".

Oil is a good insulator of ELECTRICITY but a good conductor of HEAT.

Additional Information

This is the reason, oil is used as a coolant in transformers because it doesn't conduct electricity, so, there is no chance of short-circuiting. And oil is a good conductor of heat, so, it can transfer heat from the transformer to the atmosphere effectively.

Q55. Answer: (a) C

Given:

$x = ((a^2 - 25))/((a^2 - 36)), x/y = (a - 5)/(a - 6)$

Formula used:

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

Calculation:

$x = (a + 5)(a - 5)/(a + 6)(a - 6)$

Also,

$x = (y)(a – 5)/(a – 6)$

From both the equations,

$\Rightarrow (y)(a – 5)/(a – 6) = (a + 5)(a - 5)/(a + 6)(a - 6)$

$\Rightarrow y = (a + 5)/(a + 6)$

Therefore The value of y is $((a + 5))/((a + 6))$

Q56. Answer: (a) D

Family Chart :

Family Tree :

Gender of O is unknown.

Thus, we can't determine the number of females in the family.

Hence, the correct answer is "Cannot be determined".

Q57. Answer: (c) C

Symbols used to draw family tree

Drawing the family tree from the given statements

So, M is the banker.

Hence, the correct answer is "C".

Q58. Answer: (b) B

Symbols used to draw family tree

Drawing the family tree from the given statements

So, the gender of O is not known.

Hence, the correct answer is "B".

Q59. Answer: (d) B

Given:

6 boys or 10 girls can do a job in 25 days

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Fromula used:

If M1 persons can do W1 work in D1 days and M2 persons can do W2 work in D2 days, then the relationship between them is given below

M1D1W2 = M2D2W1

Calculation:

6 boys = 10 girls

=> 1 boy = 10/6 = 5/3 girls

=> 12 boys = 12 × 5/3 = 20 girls

=> 12 boys + 30 girls = 20 + 30 = 50 girls

Now, M1 = 10, M2 = 50, W1 = W2 = 1, D1 = 25

=> 10 × 25 × 1 = 50 × D2 × 1

=> D2 = 10 × 25/50 = 5 days

Therefore They will complete the work in 5 days.

Q60. Answer: (b) D

Rearranging the cluttered letters to make meaningful words:

A. AREY → YEAR

B. URHO → HOUR

C. NMHTO → MONTH

D. OKRF → FORK

YEAR, HOUR, and MONTH are units of time.

Whereas,

FORK is cutlery.

So, FORK is different from other words.

Hence, the correct answer is "D".

Q61. Answer: (d) A

Given:

Standard deviation of population = 12

Formula used:

(Standard deviation)² = Variance

Calculation:

Variance = $(12)^2$

Variance = 144

Therefore The variance of the population is 144.

Q62. Answer: (b) A

The correct answer is Shobha Narayan.

• The Arjuna Awards are given by the Ministry of Youth Affairs and Sports, Government of India to recognize outstanding achievement in National sports. Instituted in 1961, the award carries a cash prize of Rs 500,000, a bronze statue of Arjuna, and a scroll.

Additional Information

• In 2020, for the Arjuna Award 27 sportspersons have been selected for consistently outstanding performance for four years. - Dhyan Chand Award is awarded for the contribution to sports development life-time.

• This year 15 sportspersons have been selected for Dhyan Chand Award.

• Rajiv Gandhi Khel Ratna is the country's highest sporting honor, conferred on sportspersons for displaying outstanding performance for over a period of four years.

Q63. Answer: (b) B

The correct answer is Valentina Tereshkova.

• On 16 June 1963, Soviet Cosmonaut Valentina Tereshkova became the first woman to travel into space.

Additional Information

• By convention, an astronaut employed by the Russian Federal Space Agency (or its Soviet predecessor) is called a cosmonaut in English texts.

• Valentina Tereshkova was the first female cosmonaut and the first and youngest woman to have flown in space with a solo mission on the Vostok 6 in 1963.

• On July 20, 1969, Neil Armstrong became the first human to step on the moon.

• He and Aldrin walked around for three hours. They did experiments.

Q64. Answer: (a) C

Given:

Principal = Rs. 30,000

Time = 2 years 73 days

Rate = 35/4% per annum

Concept Used:

Interest on the interest is known as compound interest

Formula Used:

Amount = Principal + Interest

For Compound Interest

Amount = Principal[1 + Rate/100]^(Time)

For Simple Interest

Interest = Principal × Rate/100 × Time

Calculation:

Time = 2 years 73 days

Converting it into years

=> 2 years + 73/365 years

=> 2 + 1/5 years

Now, we are calculating compound interest for 2 years

Amount = Rs. 30,000[1 + 35/400]²

=> Amount = Rs. 30,000[1 + 7/80]²

=> Amount = Rs. 30,000[87/80]²

=> Amount = Rs. 30,000 × 87/80 × 87/80

=> Amount = Rs. 35,479.7

The Amount is principal for the 1/5 year

Interest = Rs. 35,479.7 × 35/400 × 1/5

=> Interest = Rs. 620.9

Compound interest of 2 years = Rs. 35,479.7 – Rs. 30,000

=> Rs. 5,479.7

Compound interest of Rs. 30,000 in 2 years and 73 days = Compound interest of 2 years + interest of 1/5 year

=> Rs. 5,479.7 + Rs. 620.9

=> Rs. 6,100.6 ≈ Rs. 6,101

Therefore The compound interest of Rs. 30,000 for 2 years 73 days at the rate of 35/4% per annum is Rs. 6,101

Q65. Answer: (b) D

Given:

3, 12, 39, 120, ?

Calculation:

3 × 3 + 3 = 12

12 × 3 + 3 = 39

39 × 3 + 3 = 120

120 × 3 + 3 = 363

Therefore The missing number is 363

Q66. Answer: (c) C

Given equation:

42 K 1 R 14 Q 30 R 12 Q 28 P 110

Decoding the given information

Letter	Denotes
P	•
Q	×
R	÷
K	•

Substituting the letters with the operations:

42 - 1 ÷14 × 30 ÷ 12 × 28 + 110

BODMAS Rule:

Solving the equation using BODMAS rule

42 - 1 ÷14 × 30 ÷ 12 × 28 + 110

= 42 - 0.0714 × 30 ÷ 12 × 28 + 110

= 42 - 0.0714 × 2.5 × 28 + 110

= 42 - 0.1785 × 28 + 110

= 42 - 5 + 110

= 152 - 5

= 147

Hence, the correct answer is "147".

Q67. Answer: (a) D

Given:

60, 150, 285

Concept Used:

For same remainder in each case we have to find the HCF of the difference of the numbers

Calculation:

The largest number P is the HCF of the difference of 60, 150, 285

285 – 150 = 135

285 – 60 = 225

150 – 60 = 90

Now, HCF of 90, 135, 225

$90 = 2 \times 3^2 \times 5$

$135 = 3^3 \times 5$

$225 = 3^2 \times 5^2$

Highest Common Factor(HCF) P of 90, 135, 225 is $3^2 \times 5$

=> P = 45

Sum of digits of P = 4 + 5

=> 9

Therefore The Sum of digits of P is 9

Q68. Answer: (c) C

Given:

Total number of students = 200

Color Of balloon	Red	Green	Blue	Black	Yellow	Red and Yellow	Red and Black	Black and Green	Black and Blue
Number of students	20	40	30	25	25	15	5	15	20

Calculation:

Number of students having green balloons = Number of students having only green balloons + Number of students having Green and Black balloons

=> Number of students having green balloons = 40 + 15

=> 55

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Number of students having red balloons = Number of students having only red balloons + Number of students having red and Black balloons + Number of students having red and Yellow balloons

=> Number of students having red balloons = 20 + 5 + 15

=> 40

Ratio of students having green balloons to red balloons = 55/40

=> 11/8

Therefore The ratio of those students who have green balloons to those who have red balloons is 11/8

Q69. Answer: (d) D

Given:

Total number of students = 200

Color Of balloon	Red	Green	Blue	Black	Yellow	Red and Yellow	Red and Black	Black and Green	Black and Blue
Number of students	20	40	30	25	25	15	5	15	20

Calculation:

Number of students who do not have black balloons = Total number of students – Number of students having black balloons

=> Total number of students – (Number of students having only black balloons + number of students having black and red balloons + Number of students having black and Green balloons + Number of students having black and Blue balloons)

=> 200 – (25 + 5 + 15 + 20)

=> 200 – 65

=> 135

Therefore 135 students do not have black balloons.

Q70. Answer: (c) B

Given:

Total number of students = 200

Color Of balloon	Red	Green	Blue	Black	Yellow	Red and Yellow	Red and Black	Black and Green	Black and Blue
Number of students	20	40	30	25	25	15	5	15	20

Calculation:

At least two colored balloons = Red and Black + Black and Green + Red and Yellow + Blue and Black

=> 5 + 15 + 15 + 20

=> 55

Therefore 55 students have at least two colored balloons.

Q71. Answer: (c) C

Given:

X can copy 60 pages in 4 minutes and X, Y together copy 750 pages in 30 minutes

Formula Used:

Efficiency = Work done/Time Taken

Calculation:

By using the above formula

The efficiency of X is = 60/4 = 15 pages/min

The efficiency of X + Y = 750/30 = 25 pages/min

=> The effi of Y = 25 – 15 = 10 pages/min

The time taken by Y to copy 100 pages will be

=> Time taken by Y = 100/10 = 10 minutes

Therefore The Time taken by Y is 10 minutes.

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Q72. Answer: (c) A

The correct answer is Fast Track Court.

• The government of India has formed National Green Tribunal (NGT) during the year 2010.

• NGT is a 'quasi-judicial' body that exclusively deals with environment-related civil litigations.

• These were the National Environment Tribunal Act, of 1995 (META) and the National Environment Appellate Authority Act, of 1997 (NEAA).

Additional Information

• The NGT is a specialized forum for effective and speedy disposal of cases pertaining to environmental protection and conservation of forests.

• Most conservationists would have heard of the National Green Tribunal (NGT), and some may have already filed applications before it.

• While tribunals are formed to deal with specific matters, courts deal with all types of cases.

• The tribunal can be a party to the dispute, whereas a court cannot be a party to the dispute.

• A court is impartial in the sense that it acts as an arbitrator between the defendant and prosecutor.

Q73. Answer: (d) B

The correct answer is Bal Gangadhar Tilak and Gopal Ganesh Agarkar.

Key Points

• The Deccan Education Society (DES) was established in 1884 by the stalwarts of India's freedom struggle, like GOPAL GANESH AGARKAR and LOKMANYA TILAK and later built by great personalities of the era, like GOPAL KRISHNA GOKHALE and DHONDO KESHAV KARVE (honoured with Bharat Ratna).

Additional Information

• Deccan education society is an organization that runs 43 education establishments in Maharastra, Pune founded by Bal Gangadhar Tilak.

• The two leaders also vied for the control of the Poona Sarvajanik Sabha and the founding of the Deccan Sabha by Gokhale in 1896 was the consequence of Tilak coming out ahead.

• Gokhale was deeply concerned with the future of Congress after the split in Surat.

Q74. Answer: (d) A

The correct answer is Regulars.

• Irregular galaxies have no regular or symmetrical structure. They are divided into two groups, Irr I and IrrII.

• Irr I type galaxies have HII regions, which are regions of elemental hydrogen gas, and many Population I stars, which are young hot stars.18-Apr-2000

• Astronomers classify galaxies into three major categories: elliptical, spiral, and irregular.

• These galaxies span a wide range of sizes, from dwarf galaxies containing as few as 100 million stars to giant galaxies with more than a trillion stars.

• Elliptical galaxies, such as M87, are the oldest and roundest galaxies in the universe.

Q75. Answer: (d) B

Conclusions:

I. The only effect of global warming is the melting of glaciers. → False

Melting of glaciers is one of the effect of global warming but not the only effect. Hence, Conclusion I does not follow.

II. Global warming will affect people living in coastal areas.

From the given statements, global warming results in increase in temperature which causes melting of glaciers and melting of glaciers will cause water-level rise that will affect coastal areas,

So, global warming will affect people living in coastal areas.

Hence, Conclusion II follows.

Hence, the correct answer is "Only Conclusion II follows".

Q76. Answer: (c) A

The correct answer is Hampi.

• The empire is named after its capital city of Vijayanagara, whose ruins surround present-day Hampi, now a World Heritage Site in Karnataka, India.

Additional Information

• Hampi (hastinavati) is the present name of Vijayanagar which was also the capital of the Vijayanagar empire.

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• Other capitals of Vijayanagar were- Anegondi, Benugonda, and Chandragiri. Hampi is a village in northern Karnataka state, India.

• By 1564 at least four of the five sultans (Berar is questionable) had begun their march on Vijayanagar, which resulted early in 1565 in the disastrous defeat of the Vijayanagar forces in the Battle of Talikota and in the subsequent sack and destruction of much of the city of Vijayanagar.

Q77. Answer: (a) C

The correct answer is Chief Election Commissioner.

Key Points

• Chief Election Commissioner heads the election commission of India.

• The election commission of India conducts the election for the center and state legislature and of the President and Vice president.

• Article 324 lists the powers and functions of the Election Commission of India.

• Chief Election Commissioner is appointed by the President and can only be voted out by 2⁄3 of the Lok Sabha and Rajya Sabha members together.

• The salary of the Chief Election Commission is the same as the supreme court Judge which is close to 2.5 lakh per month.

• Rajeev Kumar appointment as Election Commissioner.

Q78. Answer: (a) C

the correct answer is Polyethylene.

Key Points

• Multi-use water bottles can be made from high-density polyethylene (HDPE), low-density polyethylene (LDPE), copolyester, or polypropylene.

• All offer the advantage of being durable, lightweight, dishwasher-safe, and BPA-free.

• Typically, the plastic bottles used to hold potable water and other drinks are made from polyethylene terephthalate (PET), because the material is both strong and light.

• Polyethylene terephthalate (PET or PETE) plastic – the source material of water bottles, soda bottles, and more — makes up 10.2 percent of global plastic production.

Additional Information

• Bakelite is a polymer obtained by the polymerization of phenol and formaldehyde.

• Bakelite was the first FRP discovered by Dr. Baekeland.

• Polystyrene is a synthetic polymer made from styrene monomer which is a liquid petrochemical.

• It is a thermoplastic polymer that softens when heated and can reshaped again.

Q79. Answer: (b) D

The logic followed for ROCKET is

Similarly, for HURDLE,

Hence, the correct answer is "RLHUDE".

Q80. Answer: (b) A

Assertion (A): Water is a universal solvent.

Reason (R): Water can dissolve more substances than any other.

Water is capable of dissolving a variety of different substances, which is why it is such a good solvent. And, water is called the "universal solvent" because it dissolves more substances than any other liquid.

So, the assertion and reason are true and the reason is the proper explanation of assertion.

Hence, the correct answer is "A".

Additional Information

It is water's chemical composition and physical attributes that make it such an excellent solvent. Water molecules have a polar arrangement of the oxygen and hydrogen atoms—one side (hydrogen) has a positive electrical charge and the other side (oxygen) has a negative charge. This allows the water molecule to become attracted to many other different types of molecules. Water can become so heavily attracted to a different molecule, like salt (NaCl), that it can disrupt the attractive forces that hold the sodium and chloride in the salt molecule together and, thus, dissolve it.

Q81. Answer: (a) D

The correct answer is Voyager 1.

• Voyager 1 is a space probe that was launched by NASA on September 5, 1977.

• Real-time distance and velocity data are provided by NASA and JPL. At a distance of 152.2 AU (22.8 billion km; 14.1 billion mi) from Earth as of January 12, 2020, it is the most distant human-made object from Earth.

Additional Information

• Voyager 1 is the first human-made object to venture into interstellar space.

• Voyager 1 discovered a thin ring around Jupiter and two new Jovian moons: Thebe and Metis.

• At Saturn, Voyager 1 found five new moons and a new ring called the G-ring.

• Voyager 1 and Voyager 2 are still functioning today, making them the longest-running and most-distant space mission in history.

• Though they are each taking different paths, both spacecraft are still screaming their way out of the solar system.

Q82. Answer: (c) B

Given:

Five years ago the ratio of the age of Mayank to his father was 2 : 5.

After 5 years their ages will be in the ratio of 3 : 5.

Calculation:

Let the present age of Mayank be M years and his father's be F years

As given after 5 years their ages will be in the ratio of 3:5

=> (M + 5)/(F + 5) = 3:5

=> 5(M + 5) = 3(F + 5)

=> 5M + 25 = 3F + 15

=> 3F – 5M = 10 ----(1)

As given 5 years before their ages are in the ratio of 2:5

=> (M – 5)/(F – 5) = 2:5

=> 5(M – 5) = 2(F – 5)

=> 5M – 25 = 2F – 10

=> 5M – 2F = 15 ----(2)

From (1) & (2)

=> 3F – 5M = 10 (Add them)

=> 5M – 2F = 15

=> F = 25 years, By putting F in any of the above equations we get, M = 13 years

Therefore The present age of Mayank is 13 years

Q83. Answer: (b) D

The correct answer is Spotlight.

Key Points

• Spotlight won Best Picture at the 88th Annual Academy Awards.

• It was handed out at the Dolby Theatre in Hollywood.

• Best Actor - Leonardo DiCaprio, The Revenant

• Best Actress -Brie Larson, Room

• Best Directing - Alejandro G. Iñárritu, The Revenant,

• Best Original Song - "Writing's On The Wall" from Spectre

• Music and Lyric by Jimmy Napes and Sam Smith.

Additional Information

• This award presented annually by the Academy of Motion Picture Arts and Sciences.

• It is located in Beverly Hills, California, U.S., to recognize achievement in the film industry.

• The awards were first presented in 1929, and winners receive a gold-plated statuette commonly called Oscar.

Q84. Answer: (a) C

The logic followed is:

Code = Sum of the positional values

For ACE,

A + C + E = 1 + 3 + 5 = 9

For AGE,

A + G + E = 1 + 7 + 5 = 13

Similarly,
For FACE,
F + A + C + E = 6 + 1 + 3 + 5 = 15
So, the code for "FACE" is "15".
Hence, the correct answer is "C".

Q85. Answer: (b) A

Given:
The ratio of the present ages of X and Y is 2 : 1. Their ratio after 14 years will be 29:18.
Calculation:
Let the present age of X and Y be 2x and 1x
As given after 14 years their ratios are 29:18
=> (2x + 14/x + 14) = 29:18
=> 18(2x + 14) = 29(x + 14)
=> 36x + 252 = 29x + 406
=> 7x = 154, x = 22
The present age of X is 2 × 22 which is 44 years and present age of Y is 22 years
The difference between their ages is 44 – 22 = 22 years
Therefore Age difference is 22 years

Q86. Answer: (d) C

Given:
Total distance = 240 km
Speed for 176 km = 16 km/hour
Speed for 64 km = 32 km/hour
Formula used:
Speed = Distance/Time
Average speed = Total distance/total time
Calculation:
According to question
Time required to cover 176 km,
Time = Distance/speed
=> 176/16 = 11 hour
Time required to cover 64 km,
Time = Distance/speed
=> 64/32 = 2 hour
Total time required to cover 240 km = 11 + 2 = 13 hour
Average speed = Total distance/total time
=> 240/13
=> 18.46 km/hour
Therefore The approximate average speed for the first 240 kilometers is 18.5 km/hour

Q87. Answer: (b) C

Given:
Speed of the metro train excluding stoppages = 60 km/hour
Speed of the metro train including stoppages = 48 km/hour
Formula used:
Speed = Distance/Time
Calculation:
According to question
Loss in speed when including stoppages = 60 − 48 = 12 km/hour
=> In 1-hour train covers 12 km less due to stoppages
Hence, the time in which the Train stops per hour

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=> Time is taken to cover 12 km
Speed = Distance/Time
=> 60 = 12/Time
=> Time = 12/60 = 1/5 hour
=> Time = 1/5 × 60 = 12 minutes
Therefore The metro train stops 12 minutes every hour

Q88. Answer: (d) C

Given:
C.P = 2 lakh
Repair and maintenance = 3 lakh
Profit % = 40%
Formula used:
Profit % = {(S.P – C.P)/C.P} × 100
Calculation:
Initial CP = 2 lakh
According to questions
=> Total C.P = 2 + 3 = 5 lakh
To get 40% profit on all four tractor the S.P will be
Profit % = {(S.P – C.P)/C.P} × 100
=> 40 = {(S.P – 5)/5} × 100
=> 0.4 × 5 = S.P – 5
=> S.P = 7 lakh
But he sale one tractor for 1 lakh So, the remaining amount to get 40% profit
=> 7 – 1 = 6 lakh
Now average amount of S.P of remaining 3 tractor = 6/3 = 2 lakh
Therefore The average selling price of the remaining 3 tractors to get 40% total profit is 2 lakh.

Q89. Answer: (d) B

Given:
C.P of two TV sets = Rs. 47908
Profit% on 1st TV set = 7%
Loss% on second TV set = 11%
Calculation:
Let C.P of 1st TV be x.
So, C.P of second TV = 47908 – x
=> S.P of 1^(st) TV = {(100 + 7)/100} × x
=> 1.07x ----(1)
=> S.P of 2^(nd)TV = {(100 – 11)/100} × (47908 – x)
=> 0.89 × (47908 – x) ----(2)
But a man does not make a profit or loss so, equating equation (1) and (2),
=> 1.07x + 0.89 × (47908 – x) = 47908
=> 1.07x + 42638.12 – 0.89x = 47908
=> 0.18x = 47908 – 42638.12
=> x = 5269.88/0.18
=> x = Rs. 29277.11
Cost price of second TV = 47908 – 29277.11
=> Rs. 18630.88
Therefore The cost price of each TV is Rs. 18630.88 and Rs. 29277.11
Shortcut Trick
CP of 1^(st)TV = (11/18) × 47908 = Rs. 29277.11
CP of 2^(nd) TV = (7/18) × 47908 = Rs. 18630.88

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Therefore The cost price of each TV is Rs. 18630.88 and Rs. 29277.11

Q90. Answer: (a) D

The logic followed is

'Gloves' are garments covering the 'hands'.

Similarly,

'Socks' are garments covering the 'feet'.

Hence, the correct answer is "Socks".

Q91. Answer: (b) B

Given:

Numbers are 270, 675, 1215

Calculation:

Let us assume that the remainder left is m

So, numbers that are completely divisible are

=> 270 – m, 675 – m, 1215 – m

Now subtract the pair

=> 675 – m – 270 + m = 405 ----1

=> 1215 – m – 675 + m = 540 ----2

Now find the HCF of 405 and 540

=> 405 = 135 × 3

=> 540 = 135 × 4

HCF of 405 and 540 = 135

Therefore The largest number by which 270, 675 and 1215 are divided, leave the equal remainder in each case is 135

Q92. Answer: (b) A

Given:

(x2 + 1/16x2) = 19/2

Formula used:

$(a – b)^2 = a^2 + b^2 – 2ab$

Calculation:

Let (2x – 1/2x) be y

=> (2x – 1/2x) = y

Squaring both sides,

$=> (2x – .1/2x)^2 = y^2$

$=> [(2x)^2 + (1/2x)^2 – (2 × 2x × 1/2x)] = y^2$

$=> 4x^2 + 1/4x^2 – 2 = y^2$

$=> 4 × (x^2 + 1/16x^2) – 2 = y^2$

According to the question:

=> 4 × (19/2) – 2 = y2

=> 38 – 2 = y2

=> 36 = y2

=> y = √36

=> y = 6

Therefore The value of (2x – 1/2x) is 6.

Q93. Answer: (c) B

The correct answer is Cloud computing.

Key Points

• Cloud storage is a cloud computing model in which data are stored on remote servers accessed from the Internet, or “cloud.” For most PACS manufacturers, cloud storage is primarily utilized as a long-term storage solution only.

• Cloud computing is the delivery of computing services—including servers, storage, databases, networking, software, analytics, and intelligence—over the Internet (“the cloud”) to offer faster innovation, flexible resources, and economies of scale.

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• One such example is Google cloud – It is a suite of public cloud services offered by Google.

• There are three main service models of cloud computing – Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS).

Additional Information

• A local area network (LAN) is a group of computers and peripheral devices that share a common communications line or wireless link to a server within a distinct geographic area.

• An intranet is a private network contained within an enterprise that is used to securely share company information and computing resources among employees.

Q94. Answer: (d) B

Given:

Number = 15^(200)

Divisor = 16

Formula used:

If $(a – 1)^n$ divide by a, Then Remainder will be $(+1)^n$, where n is even power.

Calculation:

Now, (15^(300))/16 = [(16 – 1)^(300)]/16

Remainder of (15300)/16 = $(1)^n$

=> 1^(300) = 1

Therefore The remainder is 1.

Q95. Answer: (b) D

The correct answer is D (Snake and ladder).

Key Points

• The concept of the snake and ladder is based on superstitious beliefs.

• Superstitious beliefs

• It generally means a belief in supernatural forces – such as fate – the desire to influence unpredictable factors and a need to resolve uncertainty.

Additional Information

• Snakes and ladders:-

• It is known originally as Moksha Patam, is an ancient Indian board game for two or more players.

• It is played on a game board with numbered, gridded squares.

• A number of "ladders" and "snakes" are pictured on the board, each connecting two specific board squares.

• Checkers:

• It is a group of strategy board games for two players which involve diagonal moves of uniform game pieces and mandatory captures by jumping over opponent pieces.

• Chess:-

• It is a recreational and competitive board game played between two players.

• It is sometimes called Western or international chess to distinguish it from related games such as xiangqi.

Q96. Answer: (b) B

The correct answer is the Maldives.

• The city of Male on 04 Sep 14, suffered a major drinking water crisis with a breakdown of its main RO plant.

• The city had to be sustained with over 100T of drinking water per day till the plant was re-operationalised. Based on a request by the Govt of Maldives, the IAF responded with alacrity and deployed three C-17 and three IL-76 aircraft to airlift packaged water from Delhi to Arakkonam, and thereon to Male.

• Between 05-07 Sep 14, IAF airlifted 374 Tonnes of drinking water to Male.

Additional Information

• Male is the capital of Maldives.

• Maldivian Rufiyaa is the currency of Maldives.

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Q97. Answer: (a) C

Given:

Selling price = Rs. 910

And profit = 30%

Another Selling price = Rs. 180

And loss = 10%

Formula used:

Profit = Cost price – Selling price

Profit% = (Profit × 100)/Cost price

Cost price = [{100/(100 + profit %)} × Selling price]

Cost price = [{100/(100 – loss %)} × Selling price]

Calculation:

According to the question:

=> CP of first Pen drive = [{100/(100 + 30%)} × 910

=> CP = [(100/130) × 910]

=> CP = Rs. 700

Again,

=> CP of second Pen drive = [{100/(100 – 10%)} × 180

=> CP = [(100/90) × 180]

=> CP = Rs. 200

Total CP = (700 + 200) = Rs. 900

Total SP = (910 + 180) = Rs. 1090

Profit = (1090 – 900) = Rs. 190

Profit % = (190/900) × 100

=> 19/9 = 21.11%

Therefore Total profit is 21.11%.

Q98. Answer: (d) C

The logic followed for SQUARE is:

Similarly, for RECTANGLE:

Hence, the correct answer is "QDBSZMFKD".

Q99. Answer: (c) A

The correct answer is Upgrading from one version to another version.

• Converting data into formats that help you understand, analyze, and present information is required in all fields of work.

• Viewing data in a different format can help to unlock new insights that may otherwise go unnoticed.

• While data isn't necessarily "hidden" in any format, by converting and restructuring data into something new, you often are exposed to the equivalent of a new perspective.

• It is this unique perspective that can give you a better and more well-rounded understanding of the data you have.

Additional Information

• Data conversion is widely used for reasons related to accessibility. Often data is stored in a specific file format that only certain software can access and read.

• This is due to the innate structure of the file itself. While this was once a limitation, there are now many strategies for converting data that allow for greater flexibility and enable you to use the data in any way you'd like.

• With more and more data being collected, it is inevitable that data conversion will be a task that you complete, no matter how simple or complex the conversion.

Q100. Answer: (c) C

The correct answer is Silica.

Key Points

• Glass is made from silicon, which is the second most common element in Earth's crust.

• The main constituent of glass is silicon dioxide (SiO 2).

• The most common form of silica used in glassmaking has always been sand.

- Glass is a translucent object.
- Glass is a significant material used in lightbulbs.
- Glass is made from natural and abundant raw materials (sand, soda ash and limestone) that are melted at very high temperatures to form a new material: glass.
- At high-temperature glass is structurally similar to liquids, however, at ambient temperature, it behaves like solids.
- As a result, glass can be poured, blown, press and moulded into plenty of shapes.

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