RRB NTPC Tier I Official Paper (Held On: 5 Apr 2016 Shift 1) (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.

Q1. According to the Human Development Index report released on 14 December 2015, which is the place of India?

A. 188
B. 130
C. 151
D. 105

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

Q2. 37 : 65 :: 51 : _____

A. 75
B. 76
C. 78
D. 79

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

Q3. The law of Inertia was propounded by

A. Isaac Newton
B. Albert Einstein
C. John Dalton
D. Stephen Hawking

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

Q4. 2 dozen books and 16 notebooks are to be distributed among the students in such a way that no one remains after distribution. How many maximum number of sets of books and notebooks can be made?

A. 4
B. 6
C. 8
D. 10

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

Q5. According to the Indian Forest Report 2015, _____ part of the total geographical area is covered by forests and trees.

A. 22.16%

B. 25.16%

C. 23.16%

D. 24.16%

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

Q6. Find the compound interest for 3 years at 10% annual interest rate of Rs. 10,000.

A. Rs. 2,100

B. Rs. 3,310

C. Rs. 4,741

D. Rs. 1,100

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

Q7. Which is the national sport of USA?

A. Water Polo

B. Rugby

C. Polo

D. Baseball

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

Q8. Car : Petrol :: Locomotive : _____

A. Engine

B. Fire

C. Coal

D. Smoke

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

Q9. Statements and some of their conclusions are given below.

Statements:

1. The court has passed an order banning new construction until the municipal body brings in an effective way to manage the city's waste.

2. Experts have welcomed this order.

Conclusions:

I. Construction is the only reason for the city's waste.

II. Experts believe that the municipal body is not currently doing waste management.

Decide which of the following conclusion logically follow (s) from the given statement (s).

A. Only conclusion I follows.

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B. Only conclusion II follows.

C. Both I and II follow.

D. Neither I nor II follows.

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

Q10. What is the name of the designated cricketer for the ICC's Anti-Corruption Monitoring Team?

A. Anil Kumble

B. Sunil Gavaskar

C. Ravi Shastri

D. Rahul Dravid

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

Q11. When did ISRO launch India's first dedicated astronomy satellite mission named ASTROSAT?

A. 2012

B. 2013

C. 2014

D. 2015

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

Q12. An item was sold for 12.5% at Rs. 2,250. What was the amount of profit?

A. Rs. 275

B. Rs. 250

C. Rs. 225

D. Rs. 300

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

Directions

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

In a class of 100 students, 20 students like only Spanish, 30 students like only French, 15 students like only German, 10 students like both Spanish and French, 5 students like both German and French and the remaining students like only English.

Q13. How many students like french?

A. 30

B. 35

C. 40

D. 45

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

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Q14. What is the ratio of students who like Spanish to those who like German?

A. 2/3
B. 1/2
C. 3/2
D. 4/9

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

Q15. How many students like only one language?

A. 65
B. 70
C. 75
D. 85

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

Q16. What does Net neutrality mean?

A. Stop people from using the Internet.
B. Pricing of subsidized internet services.
C. Internet companies provide free data.
D. Differential pricing of Internet services.

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

Q17. RMAb medicine - the world's first fast-acting drug in its class is related to?

A. Anti-malarial drug
B. Anti-Rabies drug
C. Anti-dengue drug
D. Anti-diabetic drug

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

Q18. Rearrange the disorganized letters to make meaningful words and choose the odd ones.

A. NEEVS
B. ENNI
C. IVFE
D. ENP

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

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Q19. Find the value of the mean of 2, 2, 3, 4, 5, 5, 7, 8.

A. 4.5
B. 5.4
C. 5.5
D. 5

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

Q20. What was invented by Alfred Nobel?

A. Radium
B. X-ray
C. Dynamite
D. The Solar System

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

Q21. Find the smallest of the following decimals.

A. 0.1 × 0.1 × 0.1
B. 0.03/3
C. 0.01/2
D. 0.1 × 0.02 × 0.2

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

Q22. F's father is brother of L's mother who is the daughter of G. How is L related to F?

A. Brother
B. Paternal Uncle
C. Maternal Uncle
D. Cousin

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

Q23. A certain prize money is to be given to P, Q and R in the ratio of 3 : 5 : 7. If R got 1000 rupees more than P, then what is the share of Q?

A. Rs. 750
B. Rs. 1250
C. Rs. 1750
D. Rs. 1500

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

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Q24. A packet of 2 pens was purchased for Rs. 340 after 15% discount. Find the marked price of each pen.

A. Rs. 200
B. Rs. 150
C. Rs. 170
D. Rs. 180

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

Q25. The Constitution of India came into force on _____?

A. 26.01.1950
B. 15.08.1947
C. 22.08.1947
D. 01.01.1950

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

Q26. Which of the following does not represent a zone of Indian Railways?

A. SECR
B. ECoR
C. NWR
D. EWR

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

Q27. Which of the following is not compatible with the other options in the group?

A. twitter.com
B. facebook.com
C. whatsapp
D. youtube.com

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

Q28. If the length of the diagonal of a rectangle and half its perimeter are 11 cm and 13 cm respectively, what is its area?

A. 12 square cm
B. 48 square cm
C. 36 square cm
D. 24 square cm

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

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Q29. $(x^2 - y^2)/(x - y)$ =?

A. x - y

B. x + y

C. xy

D. 2xy

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

Q30. A woman has no siblings. Pointing to a photo, the woman says, "This woman's mother is my mother's daughter". Who is in the photo?

A. Woman's daughter

B. Woman's mother

C. The woman's grandmother

D. Woman

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

Q31. The selling price of an article is Rs 1,458 and its cost price is Rs 1,350. Find the profit percentage.

A. 5%

B. 6%

C. 7%

D. 8%

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

Q32. Where was Dadabhai Naoroji appointed as Professor of Mathematics and Physics?

A. Presidency College, Chennai

B. Presidency College, Kolkata

C. St. Xavier's College, Mumbai

D. Elphinstone College, Mumbai

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

Q33. What is called conversion from a liquid state to a gaseous state?

A. Oxidization

B. Sublimation

C. Evaporation

D. Condensation

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

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Q34. Which of the following is the largest planet, compared to the size of Earth?

A. Mars
B. Jupiter
C. Uranus
D. Saturn

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

Q35. Statements and some of their conclusions are given below.

Statement:
1. An economist said with uncertainty that he welcomes the Union Budget.
2. He knew whether the estimate was based on reliable data.

Conclusion:
I. In giving his views, the economist has crossed his two fingers.
II. He is not confident about the accuracy of estimates.

Decide which of the following conclusions logically follow(s) 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 follow.

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

Q36. If the mathematical symbol '÷' means '×', '+' means '-', '×' means '+' and '-' means '÷' then 12 + 16 - 4 × 4 ÷ 2 = ?

A. 16
B. 20
C. 12
D. 24

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

Q37. Find the odd in relation to genetic engineering.

A. Bt Cotton
B. Golden rice
C. Amphlora
D. Lady finger

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

Q38. If 12tan A = 5, cosec A =?

A. 13/5
B. 12/13
C. 5/13

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D. 12/5

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

Q39. Who among the following has not been awarded the Padma Vibhushan Award?

A. Viswanathan Anand
B. Edmund Hillary
C. Sachin Tendulkar
D. Sunil Gavaskar

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

Q40. Which oxide of nitrogen is used in chloroform solution?

A. Nitric oxide
B. Nitrogen dioxide
C. Nitrous oxide
D. Nitrogen Pentoxide

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

Q41. What is the computer program that converts source code into object code?

A. Processor
B. Interpreter
C. Compiler
D. Editor

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

Q42. Husband and wife earn Rs 45,000 and Rs 35,000 per month. They donate Rs 5,000 every month to the orphanage. If we withdraw the donation, then what percentage of the husband's income is their combined income?

A. 56.25%
B. 50%
C. 57.14%
D. 53.33%

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

Q43. Which key combination in MS word is used to perform a task as before?

A. Ctrl + v
B. Ctrl + z
C. Ctrl + y
D. Ctrl + x

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

Q44. Bakery : Bread :: _____ : Milk
A. Cattle
B. Sweet
C. Dairy
D. Can
(a) C
(b) A
(c) D
(d) B

Q45. In a certain code language if 'mine' = 3214, 'talk' = 8456, and 'tame' = 1654 then _____ represents 'm'.
A. 1
B. 3
C. 5
D. 9
(a) B
(b) A
(c) D
(d) C

Q46. What does a water refinery come under?
A. IOCL
B. HPCL
C. BPCL
D. ONGC
(a) D
(b) B
(c) C
(d) A

Q47. Read the given statements carefully and answer the questions.
Fear of danger is more dangerous than danger itself. Risk is directly proportional= to danger
Which of the following are true according to the given statements?
A. Fear is worse than any fearful threat.
B. There is a trade-off between risk and danger.
C. There should be fear of danger.
D. There is no need to take risks to overcome any danger.
(a) B
(b) A
(c) C
(d) D

Q48. If the circumference of a circle is 18π cm, then the area of the circle is
A. 18π square cm
B. 18π2 square cm
C. 81π square cm
D. 9π square cm

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

Directions

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

Five fruits - banana, mango, apple, plum and orange are placed in a tray. Five children - Fu, Moo, Ku, Hu and Lu - pick one fruit randomly in such a way that -

1. Moo neither takes banana nor orange.
2. Lu likes the apple and picks it up.
3. Ku neither takes plum nor banana.
4. Fu wants to take apples but takes mangoes.

Q49. Who takes a banana?

A. Hu
B. Ku
C. Moo
D. Cannot be determined

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

Q50. Which fruit does Ku take?

A. Orange
B. Plum
C. Banana
D. Mango

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

Q51. Which is the correct combination?

A. Moo - Banana
B. Hu - Plum
C. Hu - Orange
D. Moo - Plum

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

Q52. Through which of the following processes does food pass into the alimentary canal?

A. Ingestion
B. Digestion
C. Assimilation
D. Elimination

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

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(d) D

Q53. Before 1971,in which year did the India-Pakistan war take place?

(a) 1962
(b) 1963
(c) 1964
(d) 1965

Q54. Entertainment : Theater :: Justice : _____

A. Litigation
B. Lawyer
C. Conflict
D. Court

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

Q55. It is better to spend the leftovers after saving. Financial discipline and self-control can make you rich. Saving money after spending is not a good habit. Which among the following statements is true as per the statement?

A. If you spend first then you will be spendy.
B. If you save before spending, you will become rich.
C. If you spend before saving, you will be poor.
D. Saving by borrowing is a bad habit.

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

Q56. Starting from her home, a woman walks 10 km towards the west. She turns left and walks 25 km. Again she turns left and walks 10 km. After that, she again turns left and walks 5 km. How far is she from her house now?

A. 35
B. 20
C. 25
D. 40

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

Q57. K says that M is the daughter of the only brother-in-law of her grandmother's only son. How is K related to M?

A. Cousin Sister
B. Maternal aunt
C. Daughter
D. Mother

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

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Q58. When was Leprosy Day celebrated?

(a) 25 December
(b) 17 January
(c) 25 January
(d) 30 January

Q59. ACB, DFE, GIH, _____.

A. JKL
B. KLJ
C. LJK
D. JLK

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

Q60. Which of the following statements about the movement of planets is true?

A. A planet's orbit is elliptical with the Sun at one of two focal points.
B. The orbit of a planet is circular with the sun in the center.
C. The orbit of a planet is elliptical with another planet in one of the two center-points.
D. The orbit of a planet is circular with another planet in the center.

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

Q61. $5\cos^2 0° - 4\sin^2 30° + 6\operatorname{cosec}^2 45° = ?$

A. 12
B. 8
C. 4
D. 16

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

Q62. The speed of one motorcycle M is twice that of the other motor L cycle. If M covers a distance of 100 km in 1 hour and 15 minutes, then what is the speed of L?

A. 50 km/h
B. 40 km/h
C. 80 km/h
D. 30 km/h

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

Q63. In which of these countries, the smallest coin is not called paisa?

A. India
B. Pakistan
C. Nepal
D. Sri Lanka

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

Q64. How many gold medals did India win in the XII South Asian Games?

A. 166
B. 174
C. 188
D. 198

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

Q65. Find the HCF of 69, 96 and 138.

A. 9
B. 6
C. 3
D. 2

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

Q66. If 'he will go back' is written as 'ca ki ja vo', 'I go to office' is written as 'ta df ja mi' and 'office to home' is written as 'he ta df' then how will 'go back home' be written:

A. vo ja ca
B. mi ta ki
C. he ca ja
D. df ta vo

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

Q67. Nuclear fission is a process of _____.

A. Nuclear conversion
B. Subdivision of a heavy nuclear nucleus
C. Collision of two or more nuclei to form a new nucleus
D. Subdivisions of molecules.

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

Q68. According to the census of India (2011), which is the most populous state?

A. West Bengal
B. Bihar
C. Uttar Pradesh
D. Maharashtra

(a) B

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

Q69. One of the 27 nurses in a nursing home has resigned. If the ratio of staff nurse to the patients is 1 : 6, how many maximum patients can be admitted?

A. 156
B. 162
C. 150
D. 168

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

Q70. What is the total number of World Heritage Sites in India selected by UNESCO?

A. 25
B. 7
C. 38
D. 18

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

Q71. To get a balanced equation from 12 ? 3 ? 2 ? 6, choose the correct option from the following options to replace the ? symbol with the mathematical signs '+', '÷' and '-'.

A. + ÷ =
B. ÷ + =
C. ÷ = +
D. + = ÷

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

Q72. If 4(3x - 2) = 2(3x + 8), Then x = ?

A. 1
B. 2
C. 3
D. 4

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

Q73. Toxicology is the study of

A. Human Behavior
B. Poison
C. Soil Erosion
D. Rocks

(a) A

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

Q74. Z paid Rs 10,920 after 4 years with 10% annual simple interest. How much did he borrow?

A. Rs 7,600
B. Rs 7,800
C. Rs 8,200
D. Rs 7,400

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

Q75. If $a^2 + b^2 = 80$ and $a - b = 4$, then $ab = ?$

A. 20
B. 24
C. 28
D. 32

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

Q76. What is the full form of ISI?

A. Inter-Services Intelligence
B. International Services Intelligence
C. International Space Intelligence
D. International Scientific Infrastructure

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

Q77. Where is Tawang Math located?

A. Assam
B. Nagaland
C. Arunachal Pradesh
D. Mizoram

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

Q78. In a certain code language if 723 means 'we feel good', 728 means 'feel good factor' and 9731 means 'we definitely feel so' then which number represents 'definitely'?

A. 8
B. 9
C. 7
D. Cannot be determined

(a) D
(b) B

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(c) A
(d) C

Q79. M can do a work in 5 days. R can do the same work in 20 days. In how many days will they finish the same work together?

A. 4 days
B. 3 days
C. 2 days
D. 1 days

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

Q80. Select the related word from the given alternatives.

Clothes : Tailor :: Wood : _____

A. Table
B. Chair
C. Carpenter
D. Axe

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

Q81. Find out the odd in relation to the Indian Parliament.

A. Budget Session
B. Summer Session
C. Monsoon Session
D. Winter Session

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

Q82. Which of the following is not a member of the group of programming languages?

A. Assembly Language
B. POP3
C. C++
D. Java

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

Q83. If MOBILE = OQDKNG then TELEVISION = ?

A. VGNGXKUQKP
B. VGNGXKUKPQ
C. VGNGXKUKQP
D. VGNGXKUPQK

(a) D
(b) B

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(c) A
(d) C

Q84. Read the given statement carefully and answer the question.

The Indian telecom regulator has ordered all companies to provide voluntary compensation of Rs 1 to their consumers, with a cap of three per day for every call drop on their network.

Which of the following is true according to the given statement?

A. Compensation is automatically payable by the network operator.
B. Consumers should get a compensation of Rs 1 for all call drops.
C. Customers cannot claim call drop compensation.
D. This rule is not binding on network operators.

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

Q85. 4 out of 5 cricketers have played 13, 9, 5, 11 innings respectively. If the mean of the data set is 9, then the number of innings played by the 5th player is

A. 9
B. 8
C. 7
D. 6

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

Q86. A man starts his journey at 8.00 am at a speed of 8 km/h and reaches the destination 24 km away. What time does it reach the destination?

A. 12.00 pm
B. 11.00 am
C. 12.00 am
D. 11.00 pm

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

Q87. The ratio of science and arts students is 5 : 3. If their total number is 1,328, find the number of art students.

A. 830
B. 664
C. 498
D. 580

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

Q88. $(2 \times 4^3 \times 3^2) / (3 \times 16) = ?$

A. 24
B. 8
C. 12

D. 16

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

Q89. Who is known as the 'Father of White Revolution' in India?

(a) Tatyasaheb Kore
(b) Kurien Chacko
(c) Varghese Kurien
(d) Vishwas Nangare Patil

Q90. Indian Railways has introduced biodiesel locomotives in its _____ (zone).

A. Southern Railway
B. South Western Railway
C. South Central Railway
D. South Eastern Railway

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

Q91. Since a student's marks were mistakenly typed 86 instead of 68, the mean of the class increased by 1/2. What is the total number of students.

A. 34
B. 36
C. 38
D. 40

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

Q92. _____ facilitates short-range wireless connectivity.

A. Modem
B. Firewall
C. Bluetooth
D. Set-Top box

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

Q93. In which quadrant is the point (–4, –3) located?

A. I
B. II
C. III
D. IV

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

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Q94. What is the name of the Indian soldier who survived an avalanche at Siachen Glacier in February 2016, but later died in hospital due to serious injuries?

A. B. Sudhish

B. M. Goswami

C. H. Kopped

D. Sudhakar Singh

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

Q95. If 5 men can do a work in 9 days, then in how many days will 3 men finish the same work?

A. 12

B.15

C. 13

D. 18

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

Q96. Find the sum of the prime numbers between 50 and 80.

A. 392

B. 390

C. 463

D. 396

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

Directions

Direction: The following table shows the distance (in km) traveled by four tourist buses 1, 2, 3 and 4 from Friday to Tuesday towards their destination.

	Friday	Saturday	Sunday	Monday	Tuesday
1	450	500	490	510	700
2	500	500	550	600	400
3	475	500	525	600	700
4	500	550	600	600	500

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

Q97. Which bus averaged the lowest in all five days?

A. Bus 1

B. Bus 2

C. Bus 3

D. Bus 4

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

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(d) A

Q98. Which bus has seen a gradual increase in the distance covered from Friday to Tuesday?

A. Bus 1
B. Bus 2
C. Bus 3
D. Bus 4

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

Q99. On which day was the total distance covered by the four buses the maximum?

A. Sunday
B. Saturday
C. Monday
D. Tuesday

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

Q100. Where did the Portuguese explorer Vasco de Gama first land in India by sea?

A. Kappad, Kerala
B. Alibaug, Maharashtra
C. Miramar, Goa
D. Mandvi, Gujarat

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

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (c) B

The correct answer is 130.

Key Points

• India's rank in Human Development Index (HDI) for the year 2015 is 130.

• India's HDI rank value in 2015 is 0.624.

• This rank is published by the United Nations Development Programme headquartered in New York.

• HDI was first published in 1990.

Additional Information

• India jumped by 5 ranks this year since it was 135 in 2014.

• Factors included in the calculation of HDI:

• Life expectancy at birth.

• Mean year of schooling.

• GNI per capita income.

• 188 - Niger.

• 151 - Tanzania.

• 105 - Samoa.

Important Points

• India's rank in 2020 is 131.

• Norway topped the list while Niger got 188^(th) rank.

Q2. Answer: (a) D

Given: 37 : 65 :: 51 : _____

37 + 28 = 65

Similarly,

51 + 28 = 79

Hence, 79 is correct.

Q3. Answer: (a) A

The correct answer is Isaac Newton.

Key Points

• The law of inertia was first given by Galileo Galilei for horizontal motion on Earth.

• According to Galileo, a body in motion would remain in motion unless a force caused it to come to rest.

• Later, it was propounded by Newton in the first law of motion.

Additional Information

• Galileo's discoveries are majorly based on the Solar system.

• Newton developed the three laws of motion.

• Also, Newton discovered Gravity when he saw a falling apple.

• Dalton given the postulates of atomic theory.

• Albert Einstein developed the theory of relativity.

• Hawking is best known for his discovery that black holes emit radiation which made the detailed study of black holes possible.

• It was Galileo who gave the law of inertia first, not Newton.

Q4. Answer: (c) C

Given:

Number of books = 2 dozen = 24 books

Number of notebooks = 16

Concept used:

Maximum number of sets that can be made will be HCF of number of books and number of notebook to be distributed.

Calculations:

HCF of 24 and 16 can be find as,

$24 = 2^3 \times 3$

16 = 2^4

$HCF = 2^3 = 8$

Therefore Maximum number of sets that can be made is 8.

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Q5. Answer: (d) D

The correct answer is 24.16%

Key Points

• The Total Forest and Tree cover is 79.42 million hectares, 24.16% of the geographical area of the country.

• The Total Forest cover is 7,01,673 sq km which is 21.34 % of the geographical area of the country.

• The Tree cover is 2.82% of the geographical area of the country.

Additional Information

• It is the 14th biennial assessment of India's forests by the Forest Survey of India.

• FSI is an organization under the Ministry of Environment, Forest, and Climate Change (MoEFCC).

• The top three States (UT) in terms of the increase in forest cover:

• Tamil Nadu – 2, 501 sq km

• Kerala – 1, 317 sq km

• Jammu & Kashmir – 450 sq km.

Important Points

• In the 16th biennial assessment of 2019:

• Total Forest and Tree cover is 24.56% of the geographical area of the country.

• The Total Forest cover is 7,12,249 sq km which is 21.67%.

• The Tree cover is 2.89%.

Q6. Answer: (b) B

Given:

Principal = Rs. 10,000

Rate = 10% per annum

Time = 3 years

Formula used:

For Compound interest,

(i) $A = P\{1 + (R/100)\}^n$

where,

A = Amount

P = Principal

R = Rate

n = Time

(ii) A = P + CI

where,

CI = Compound interest

Calculations:

A = P{1 + (R/100)}n

=> $A = 10,000\{1 + (10/100)\}^3$

=> A = 10,000(11/10)3

=> A = 10,000 × (1331/1000)

=> A = Rs. 13,310

A = P + CI

=> 13,310 = 10,000 + CI

=> CI = 13,310 – 10,000

=> CI = Rs. 3,310

Therefore The compound interest is Rs. 3,310.

1000 → Rs. 10,000

=> 1 → Rs. 10

=> 331 → Rs. 3,310

Therefore The compound interest is Rs. 3,310.

Q7. Answer: (b) D

The correct answer is Baseball.

Key Points

• Baseball has been the National Sport for the last 77 years.

• The current ranking of the USA in Baseball is 2.

• Important terms:

• Around the Horn

• Backdoor Slider

• Balk

• Baltimore Chop

• Base H it

Additional Information

• The national sport of India is Hockey.

• India is currently holding 4th rank in Hockey.

• India will host the 2023 Men's Hockey World Cup.

• India's largest hockey stadium planned in Rourkela, to host 2023 World Cup.

Q8. Answer: (a) C

Given: Car : Petrol :: Locomotive : _____

Petrol in used for running the Car.

Similarly,

Coal is used for running the Locomotives.

Hence, Coal is correct.

Q9. Answer: (d) D

Given conclusions:

I. Construction is the only reason for the city's waste => False

(It is one of the reasons for the city's waste but not the only one)

II. Experts believe that the municipal body is not currently doing waste management => False

(It is not evident from the given statements)

Hence, Neither I nor II follows.

Q10. Answer: (b) D

The correct answer is Rahul Dravid.

Key Points

• Indian batsman Rahul Dravid included in ICC's newly appointed Anti-Corruption Monitoring Group.

• Greg Barclay appointed to the board as the chairman of the International Cricket Council.

• The headquarter of ICC is in Abu Dhabi, Dubai.

Additional Information

• Board of Control for Cricket in India (BCCI) is the cricket board of India.

• BCCI is headquartered in Mumbai and the current President is Roger Binni.

• Also, BCCI is the richest cricket board in the world.

• United Kingdom's most senior former policeman Ronnie Flanagan is the Chairman of the ICC ACU.

Q11. Answer: (c) D

The correct answer is 2015.

Key Points

• ASTROSAT was launched on September 28, 2015.

• It is India's first space observatory class satellite dedicated to Astronomy.

• launched onboard PSLV from Satish Dhawan Space Centre SHAR, Sriharikota.

Additional Information

• The Current chairman of ISRO is S. Somnath.

Important Points

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• India's communication satellite CMS-01 was successfully launched by PSLV-C50 on December 17, 2020, from the Satish Dhawan Space Centre (SDSC) SHAR, Sriharikota.

• It replaced the former communication satellite GSAT-12.

Q12. Answer: (a) B

Given:

Selling price = Rs. 2,250

Profit percentage = 12.5%

Formula used:

(i) Profit Percentage = {(SP - CP)/CP} × 100

(ii) Profit = SP - CP

where,

SP = Selling price

CP = Cost price

Calculations:

Profit Percentage = {(SP - CP)/CP} × 100

=> 12.5 = {(2,250 - CP)/CP} × 100

=> 1/8 = {(2,250 - CP)/CP}

=> CP = (2,250 - CP) × 8

=> CP = 18,000 - 8CP

=> 9CP = 18,000

=> CP = Rs. 2,000

Profit = SP - CP

=> 2,250 - 2,000

=> Rs. 250

Therefore The amount of profit was Rs. 250.

CP × 112.5% = 2,250

=> CP × 9/8 = 2,250

=> CP = Rs. 2,000

Profit = 2,250 - 2,000

=> Rs. 250

Therefore The amount of profit was Rs. 250.

Q13. Answer: (a) D

Total number of students = 100

Students, who like only Spanish = 20

Students, who like only French = 30

Students, who like only German = 15

Students, who like both Spanish and French = 10

Students, who like both German and French = 5

Below given diagram shows the distribution of students, who like different subjects:

Students, who like English = 100 - (20 + 30 + 15 + 10 + 5)

100 - 80 = 20

According to question,

Students, who like French = 30 + 10 + 5 = 45

Hence, 45 is correct.

Q14. Answer: (a) C

Total number of students = 100

Students, who like only Spanish = 20

Students, who like only French = 30

Students, who like only German = 15

Students, who like both Spanish and French = 10

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Students, who like both German and French = 5

Below given diagram shows the distribution of students, who like different subjects:

Students, who like English = 100 - (20 + 30 + 15 + 10 + 5)

100 - 80 = 20

According to question,

Students, who like Spanish = 20 + 10 = 30

Students, who like German = 15 + 5 = 20

Ratio of students, who like Spanish to those who like German = 30 : 20 = 3 : 2

Hence 3/2 is correct.

Q15. Answer: (a) D

Total number of students = 100

Students, who like only Spanish = 20

Students, who like only French = 30

Students, who like only German = 15

Students, who like both Spanish and French = 10

Students, who like both German and French = 5

Below given diagram shows the distribution of students, who like different subjects:

Students, who like English = 100 - (20 + 30 + 15 + 10 + 5)

100 - 80 = 20

According to question,

Students, who like only one language = 20 + 30 + 15 + 20 = 85

Hence, 85 is correct.

Q16. Answer: (b) D

The correct answer is Differential pricing of Internet services.

Key Points

• Net neutrality is the principle that must be followed by all internet service providers (ISPs).

• It instructs all ISPs to provide all online content equally without favoring or blocking specific companies or products, websites, or types of content.

• In simple terms, it means that all traffic on the internet is equal and is accessible equally by the users.

Important Points

• It ensures:

• Equal access to all sites

• Cost to access data on a site should be the same (no price differential)

• Zero-rating should not be offered, which means no free access would be provided for sites that are paid.

Q17. Answer: (c) B

The correct answer is Anti-Rabies drug.

Key Points

• Rabies Human Monoclonal Antibody (RMAb) is world's first fast-acting anti-rabies drug which was launched in India in 2016.

• Pune-based Serum Institute of India (SII) and US-based MassBiologics of the University of Massachusetts Medical School jointly developed this drug.

• RMAb drug is a human IgG1 monoclonal antibody which immediately deactivates rabies virus by specifically combining with a conformational epitope of G glycoprotein of the virus.

Important Points

• Serum Institute has also developed Covishield Vaccine for Covid-19.

• Drugs Controller General of India DCGI gave emergency-use approval to Covaxin, Covishield vaccines.

Q18. Answer: (a) D

The correct order of words is as follows:

A. NEEVS => SEVEN

B. ENNI => NINE

C. IVFE => FIVE

D. ENP => PEN

Except PEN, all other options are numbers.

Hence, ENP is correct.

Q19. Answer: (d) A

Given:

Given values are 2, 2, 3, 4, 5, 5, 7, 8

Formula used:

Mean = (Sum of values)/(Number of values)

Calculations:

Mean = (2 + 2 + 3 + 4 + 5 + 5 + 7 + 8)/8

=> 36/8

=> 4.5

Therefore The mean of 2, 2, 3, 4, 5, 5, 7, 8 is 4.5

Q20. Answer: (b) C

The correct answer is Dynamite.

Key Points

• Alfred Nobel born in Stockholm invented Dynamite in 1866.

• Nobel Prize was also stared on his name from 1901 in the following fields :

• Physics

• Chemistry

• Physiology or Medicine

• Literature

• Peace Prize

• Economics (From 1968)

Additional Information

• Physics, Chemistry, Physiology or Medicine and Literature are awarded in Stockholm, Sweden.

• Nobel Peace Prize is awarded in Oslo, Norway.

Important Points

• Radium was discovered by Marie Curie and Pierre Curie in 1898.

• Marie Curie was awarded the Nobel Prize for Physics in 1903.

• Wilhelm Roentgen, Professor of Physics discovered X-rays in 1895.

• Galileo Galilei was the discoverer of the Solar system.

Q21. Answer: (c) D

Given:

A. 0.1 × 0.1 × 0.1

B. 0.03/3

C. 0.01/2

D. 0.1 × 0.02 × 0.2

Calculations:

Considering option A,

0.1 × 0.1 × 0.1

=> 0.001

Considering option B,

0.03/3

=> 0.01

Considering option C,

0.01/2

=> 0.005

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Considering option D,
0.1 × 0.02 × 0.2
=> 0.0004
On comparing all values,
0.0004<0.001<0.005<0.01
Therefore The smallest value is 0.0004.

Q22. Answer: (a) D

From the given statement:
F's father is brother of L's mother who is the daughter of G.
(F's father and L's mother are siblings.
The below given diagram shows the relation:
L is the cousin of F.
Hence, Cousin is correct.

Q23. Answer: (d) B

Given:
Ratio of prize money = 3 : 5 : 7
R got 1000 rupees more than P.
Calculations:
Let the money received by P, Q and R be 3x, 5x and 7x respectively.
7x - 3x = 1000
=> 4x = 1000
=> x = 250
Share of Q = 5x
=> 5 × 250
=> Rs. 1250
Therefore The share of Q is Rs. 1250.

Q24. Answer: (c) A

Given:
Cost price of 2 pens = Rs. 340
Discount percentage = 15%
Calculations:
Cost price of 2 pens = Rs. 340
Cost price of 1 pen = Rs. 170
Let the marked price be Rs. x
After giving 15% discount, the price of each pen is Rs. 170.
x × 85% = 170
=> x = Rs. 200
Therefore The marked price of each pen is Rs. 200.

Q25. Answer: (d) A

The correct answer is 26.01.1950.
Key Points
• The constitution of India was commenced on 26 Jan 1950.
• 26 Jan is celebrated as Republic day in our country.
• Earlier India was referred to as 'Union of India', but from this day it became 'Republic of India'.
• 26 Jan was selected to inaugurate the constitution because on this date, in the Lahore session of INC in 1929, the demand for complete Independence was raised for the first time by Pt. Jawahar Lal Nehru.
Additional Information
• Republic - A country that has an elected government and an elected leader.
• Father of Indian Constitution - Dr. Bhimrao Ambedkar, was the Chairman of the Drafting Committee.

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Important Points

• On 26th Jan 2021, India will celebrate 72nd Republic Day.

• Boris Johnson was invited as the chief guest, but later he withdrew it in the wake of the new strain of Covid-19 in Britain.

Q26. Answer: (a) D

The correct answer is EWR.

Key Points

• Currently total 18 Zone Available on the Indian Railway.

• SECR- South East Central Railway & Headquarter in Bilaspur

• ECOR- East Coast Railway and Headquarter in Bhubaneshwar.

• NWR- North Western Railway and Headquarter in Jaipur.

• Some Important Railway zone is

• Central Railway

• Eastern Railway.

• East Central Railway.

• East Coast Railway.

• Northern Railway.

• North Central Railway.

• North Eastern Railway.

Important Points

• Northern Railways is the largest zone in India Established in Year 1952.

• Jaipur railway station has India's most clean railway station.

• The smallest railway zone in India is North East.

Q27. Answer: (c) C

Except whatsapp, all other options are given in the form of websites.

Whatsapp is an application.

Hence, whatsapp is correct.

Q28. Answer: (a) D

Given:

Length of diagonal of rectangle = 11 cm

Half of perimeter = 13 cm

Formula used:

(i) Area of rectangle = l × b

(ii) Perimeter of rectangle = 2(l + b)

(iii) Diagonal of rectangle = √(l2 + b2)

where,

l = length of rectangle

b = breadth of rectangle

(iv) (a + b)2 = a2 + b2 + 2ab

Calculations:

Diagonal = $\sqrt{(l^2 + b^2)}$

=> 11 = √(l2 + b2)

=> l2 + b2 = 121 ----(i)

Perimeter = 2(l + b)

Half of perimeter = 2(l + b)/2

=> 2(l + b)/2 = 13

=> l + b = 13 ----(ii)

On squaring both sides,

=> $(l + b)^2 = (13)^2$

=> l2 + b2 + 2lb = 169

=> 121 + 2lb = 169

=> 2lb = 169 - 121

=> 2lb = 48

=> lb = 24 square cm

Therefore The area is 24 square cm.

Q29. Answer: (c) B

Given:

(x2 - y2)/(x - y) =?

Formula used:

(a2 - b2) = (a - b)(a + b)

Calculations:

(x2 - y2)/(x - y) =?

=> (x - y)(x + y)/(x - y) =?

=> x + y = ?

Therefore The value of ? is x + y.

Additional Information

(i) $(a + b)^2 = (a^2 + b^2 + 2ab)$

(ii) (a - b)2 = (a2 + b2 - 2ab)

(iii) $(a^3 - b^3) = (a - b)(a2 + b2 + ab)$

(iv) (a3 + b3) = (a + b)(a2 + b2 - ab)

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

(vi) (a - b)3 = a3 - b3 - 3ab(a - b)

Q30. Answer: (b) A

Given statement: A woman has no siblings. Pointing to a photo, the woman says, "This woman's mother is my mother's daughter".

The woman is pointing towards her daughter's photograph. In this way only, we can say that the women in the photograph's mother is the daughter of the that women's mother.

Below given diagram shows the above relation:

Hence, Women's daughter is correct.

Q31. Answer: (b) D

Given:

Selling price = Rs. 1,458

Cost price = Rs. 1,350

Formula used:

Profit Percentage = {(SP - CP)/CP} × 100

where,

SP = Selling price

CP = Cost price

Calculations:

Profit Percentage = {(SP - CP)/CP} × 100

=> {(1,458 - 1,350)/1,350} × 100

=> (108 /1,350) × 100

=> (2/25) × 100

=> 8%

Therefore The profit percentage is 8%.

Q32. Answer: (b) D

The correct answer is Elphinstone College, Mumbai.

Key Points

• October 1852, Naoroji appointed as acting professor of Mathematics and natural philosophy at the Elphinstone Institution, upon the departure of the previous professor, John Patton, due to severe illness.

• 1854, Naoroji appointed as full professor of mathematics and natural philosophy at Elphinstone Institution.

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• Poverty and UnBritish Rule, a compilation of Naoroji's writings from the past thirty years, published.

Q33. Answer: (a) C

The correct answer is Evaporation.

Key Points

• Evaporation is the process by which water changes from a liquid to a gas or vapor. Evaporation is the primary pathway that water moves from the liquid state back into the water cycle as atmospheric water vapor.

• The oceans, seas, lakes, and rivers provide nearly 90 percent of the moisture in the atmosphere via evaporation, with the remaining 10 percent being contributed by plant transpiration.

Important Points

• Sublimation is the conversion between the solid and the gaseous phases of matter, with no intermediate liquid stage. an example of sublimation is naphthalene, dry ice.

• Condensation is the process by which water vapor in the air is changed into liquid water. Condensation is crucial to the water cycle because it is responsible for the formation of clouds. Condensation is the opposite of evaporation.

Q34. Answer: (a) B

The correct answer is Jupiter.

• Jupiter, the most massive planet in the solar system.

• It is fifth in distance from the Sun.

• It takes nearly 12 Earth years to orbit the Sun, and it rotates once about every 10 hours, more than twice as fast as Earth.

Important Points

• Mars, fourth planet in the solar system in order of distance from the Sun and seventh in size and mass. Mars are also known as a red planet.

• Uranus is the seventh planet in distance from the Sun and the least massive of the solar system's four giant, or Jovian planets, which also include Jupiter, Saturn, and Neptune.

• Saturn, second largest planet of the solar system in mass and size and the sixth nearest planet in distance to the Sun.

• Total eight planets orbiting the Sun, in order of increasing distance, are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune.

Q35. Answer: (d) B

Given conclusions:

Conclusion:

I. In giving his views, the economist has crossed his two fingers => False

(It is not necessary that he has crossed his fingers, while giving his views)

II. He is not confident about the accuracy of estimates => True

(As statements says he did not know whether the estimate was based on reliable data)

Hence, Only conclusion II follows.

Q36. Answer: (b) A

Given:

Sign	**÷**	**•**	**×**	**•**
Means	×	•	•	÷

Given statement:

12 + 16 - 4 × 4 ÷ 2 = ?

Decoding the signs:

12 - 16 ÷ 4 + 4 × 2

12 - 4 + 4 × 2

12 - 4 + 8

8 + 8

16

Hence, 16 is correct.

Q37. Answer: (b) D

Except Lady finer, all other options can be modified through the process of genetic engineering.

NOTE:

Genetic Engineering - Genetic engineering, also called genetic modification or genetic manipulation, is the direct manipulation of an organism's genes using biotechnology.

Hence, Lady Finger is correct.

Q38. Answer: (c) A

Given:

12tan A = 5

Concept used:

Using the concept of trigonometric ratios,

tanθ = Perpendicular/Base

cosecθ = Hypotenuse/ Perpendicular

Calculation:

12tanA = 5

=> tanA = 5/12

tanA = BC/AB

BC/AB = 5/12

In ΔABC,

By using Pythagoras theorem,

$BC^2 + AB^2 = AC^2$

$=> 5^2 + 12^2 = AC^2$

$=> 25 + 144 = AC^2$

$=> AC = \sqrt{169}$

=> AC = 13

cosecA = AC/BC

=> cosecA = 13/5

Therefore The value of cosecA is 13/5.

Q39. Answer: (d) D

The correct answer is Sunil Gavaskar.

Key Points

• Sunil Gavaskar is an Indian cricket player who is considered one of the sport’s greatest opening batsmen of all time.

• He was inducted into the International Cricket Council’s Hall of Fame in 2009.

Important Points

• Viswanathan Anand Indian chess master who won the FIDE; International chess federation world championship in 2000, 2007, 2008, 2010, and 2012.

• Anand, who first earned the nickname of the Lightning Kid in India. In 1998 Anand published a collection of his games, Vishy Anand, My Best Games of Chess.

• Edmund Hillary his autobiography, Nothing Venture, Nothing Win, was published in 1975. he was the first to reach the summit of Mount Everest (8,850 meters) the highest mountain in the world.

• In 2012 Tendulkar became a member of the Rajya Sabha, the upper chamber of the Indian parliament, the first active athlete to join that body.

• Sachin is the first sportsman to receive India’s highest civilian honour, the Bharat Ratna In 2014, and inducted into the International Cricket Council Hall of Fame in 2019. He received India's second-highest civilian honour in May 2008

Q40. Answer: (d) D

The correct answer is Nitrogen Pentoxide.

Key Points

• Nitrogen pentoxide is produced by dehydration of nitric acid by phosphorus Pentoxide.

• Nitrogen pentoxide, Molecular weight is 108.02.

• The Pentoxide Molecular formula is N_2O_5.

• The boiling point of Pentoxide is 47.0°C & the Melting point 30°C.

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• Pentoxide is Sublimes at -32.4°C but undergoes moderately rapid decomposition into O2 and the NO2/N2O4.

• Equilibrium mixture at temperatures above -10°C. Freely soluble in chloroform without appreciable decomposition.

Important Points

• Nitric oxide Burns when heated with hydrogen. It combines with oxygen to

form nitrogen dioxide and with halogens to form nitrosyl halides, Ex. NOC.

• Nitrous oxide supports combustion. Very stable and rather inert chemically at room temperatures. Dissociation begins above 300°C when the gas becomes a strong oxidizing agent.

• Nitrogen dioxide It has an irritating odour and is highly poisonous. Under normal atmospheric conditions, it exists in equilibrium with nitrogen tetroxide (N2O4) Heavier than air. Nitrogen dioxide produces nitrous acid (HNO2) and nitric acid (HNO3) on contact with water.

Q41. Answer: (a) C

The correct answer is Compiler.

Key Points

• Compiler, Computer software that translates source code written in a high-level language into a set of machine-language instructions that can be understood by a digital computer's CPU.

Important Points

• Interpreters have executed a program sequentially, translating at each step.

• In modern computers, the CPU is contained on an integrated circuit chip called a Microprocessor.

Additional Information

• Analog computers use continuous physical magnitudes to represent quantitative information.

• Digital computers represent information in discrete form, generally as sequences of 0s and 1s (binary digits, orbits).

• The CPU provides the circuits that implement the computer's instruction set its machine language. It is composed of an arithmetic-logic unit (ALU) and control circuits.

Q42. Answer: (c) C

Given:

Husband's income = Rs. 45000

Wife's income = Rs. 35000

Donation amount = Rs. 5000

Concept used:

Percentage = Given value/Sum of total value × 100

Calculation:

Husband's income = Rs. 45000

Husband's new income = Husband's income – Donation

=> Husband's new income = 45000 – 5000

=> Husband's new income = Rs. 40000

Wife's income = Rs. 35000

Wife's new income = Wife's income – Donation

=> Wife's new income = 35000 – 5000

=> Wife's new income = 30000

Total income after donation = Husband's new income + Wife's new income

=> Total income = 40000 + 30000

=> Total income = 70000

Required percentage = (Husband's new income)/(Total income) × 100

=> Required percentage = 40000/70000 × 100

=> Required percentage = 57.14%

Therefore The percentage of the husband's income is 57.14% of their combined income.

Q43. Answer: (d) B

The correct answer is Ctrl+Z.

Key Points

• Ctrl+Z shortcut use for Reverse your previous action & called is Undo.

• Ctrl + V shortcut use for any copy data paste using that key.
• Ctrl+Y shortcut use for reverse action of undo.
• Ctrl+x shortcut use for cut any data and paste that data anywhere else.
Additional Information
• Ctrl+A shortcut use for Select all data.
• Ctrl+C shortcut use for copy data.

Q44. Answer: (a) C

Given: Bakery : Bread :: _____ : Milk
Bread is made in Bakery.
Similarly,
Milk is made in Diary.
Hence, Dairy is correct.

Q45. Answer: (b) A

Given:
We have to find the code for 'm'.
'm' is common in the words 'mine' and 'tame' and the common letter in both the words is '1'.
Thus, '1' represents the letter 'm'.
Hence, 1 is correct.

Q46. Answer: (d) A

The correct answer is IOCL.
Key Points
• IOCL controls 11 of India's 23 refineries with a combined refining capacity of 80.7 million metric tonnes per annum.
Important Points
• Hindustan Petroleum Corporation Limited (HPCL) was formed on July 15, 1974. HPCL owns and operates Refineries at Mumbai (west coast) & Visakhapatnam (East coast) with designed capacities of 7.5. MMTPA (Million Metric Tonnes Per Annum) & 8.3 MMTPA respectively.
• HPCL also owns the largest Lube Refinery in the country at Mumbai for producing Lube Oil Base Stock with a capacity of 428 TMTPA.
• Bharat Petroleum, India's 'best performing' Maharatna Public Sector Undertaking, and its journey from being an Oil and Gas Company in India to a Fortune 500 oil refining, exploration, and marketing conglomerate.
• Maharatna ONGC is the largest crude oil and natural gas company in India, contributing around 75 percent to Indian domestic production. This largest natural gas company ranks 11th among global energy majors (Platts).

Q47. Answer: (b) A

Except option statement A, other option statements are irrelevant to the above given statement.
"Fear is worse than any fearful threat" conveys the similar meaning the as statement "fear of danger is more dangerous than danger itself" conveys.
Hence, Option 2 is correct.

Q48. Answer: (d) C

Given:
Circumference of circle = 18π cm
Formula used:
Circumference of circle = 2πr
Area of circle = πr^2
Calculation:
Circumference of circle = 2πr
=> 18π = 2πr
=> r = 9 cm
Area of circle = πr^2
=> Area = $9^2 \times \pi$
=> Area = 81π sq. cm

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Therefore The area of circle is 81π square cm.

Q49. Answer: (d) A

From the given statements, we'll first place the confirmed ones.
Lu likes the apple and picks it up.
Fu wants to take apples but takes mangoes.
Moo neither takes banana nor orange.
(This means she takes plum)
Ku neither takes plum nor banana.
(This means she takes orange)
And the remaining person Hu takes the remaining fruit i.e. banana.

Name of children	Fruits
Fu	Mangoes
Moo	plum
Ku	orange
Hu	banana
Lu	Apple

Thus, we can say that, Hu takes banana.
Hence, Hu is correct.

Q50. Answer: (c) A

From the given statements, we'll first place the confirmed ones.
Lu likes the apple and picks it up.
Fu wants to take apples but takes mangoes.
Moo neither takes banana nor orange.
(This means she takes plum)
Ku neither takes plum nor banana.
(This means she takes orange)
And the remaining person Hu takes the remaining fruit i.e. banana.

Name of children	Fruits
Fu	Mangoes
Moo	plum
Ku	orange
Hu	banana
Lu	Apple

Thus, we can say that, Ku takes orange.
Hence, Orange is correct.

Q51. Answer: (d) D

From the given statements, we'll first place the confirmed ones.
Lu likes the apple and picks it up.
Fu wants to take apples but takes mangoes.
Moo neither takes banana nor orange.
(This means she takes plum)
Ku neither takes plum nor banana.
(This means she takes orange)
And the remaining person Hu takes the remaining fruit i.e. banana.

Name of children	Fruits

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Fu	Mangoes
Moo	plum
Ku	orange
Hu	banana
Lu	Apple

Thus, we can say that, Moo - Plum is the correct combination among the given combinations.

Hence, Moo - Plum is correct.

Q52. Answer: (a) A

The correct answer is Ingestion.

Key Points

• Ingestion is the first step, taking in food through the mouth. Once in the mouth, the teeth, saliva, and tongue play important roles in mastication (preparing the food into bolus).

Important Points

• Digestion is the process of enzymatic splitting of large and complex molecules into smaller ones is effective only if the enzyme molecules come into direct contact with the molecules of the material they are to digest.

• Assimilation is the movement of digested food molecules into the cells of the body where they are used For:

• Glucose is used in respiration to provide energy.

• Amino acids are used to build new proteins.

• The elimination of indigestible food such as feces. Feces contain indigestible food and gut bacteria. It is stored in the rectum until it is expelled through the anus via defecation.

Additional Information

• The liver is important in assimilation. For example, it converts glucose into glycogen.

• Human digestion begins in the mouth.

• The first section of the small intestine, where the greatest part of digestion takes place.

Q53. Answer: (d) 1965

The correct answer is 1965.

Important Points

• The Tashkent Declaration was a peace agreement between India and Pakistan signed on 10 January 1966 that resolved the Indo-Pakistani War of 1965.

Key Points

• The 1965 Indo-Pak war took place between April 1965 and September 1965.

• The conflict began following Pakistan's Operation Gibraltar, which was designed to infiltrate forces into Jammu and Kashmir to precipitate an insurgency against Indian rule.

• The actual war was seventeen-day that caused thousands of casualties on both sides and witnessed the largest engagement of armored vehicles and the largest tank battle since World War II.

• The war was ended with the UNSC Resolution 211 following diplomatic intervention by the Soviet Union and the United States.

Additional Information

• Since Independence 4 wars took place between India and Pakistan.

• 1947 (Kashmir Conflict)

• 1965

• 1971 (Bangladesh Liberation War)

• 1999 (Kargil Conflict)

Q54. Answer: (a) D

Given: Entertainment : Theater :: Justice : _____

We go to the theater for Entertainment.

Similarly,

We go to Court for Justice.

Hence, Court is correct.

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Q55. Answer: (c) B

Except option statement B, all other option statements are irrelevant to the above given statements.

Statement B conveys the same meaning as the above given statement.

Hence, Option 3 is correct.

Q56. Answer: (c) B

The below given diagram shows the women's movement:

Distance between women's home and the her end point:

25 km - 5 km = 20 km

Hence, 20 km is correct.

Q57. Answer: (c) A

According to the given information:

Symbols and their meaning is as follows:

The possible family tree will be;

Hence, K is M's Cousin sister

Q58. Answer: (d) 30 January

The correct answer is 30 January.

Important Points

• The World Leprosy Day in India is observed on 30th January.

Key Points

• Leprosy is an infectious disease caused by a bacillus, Mycobacterium leprae.

• Symptoms may occur within 1 year but can also take as long as 20 years or even more to occur.

• The disease mainly affects the skin, the peripheral nerves, mucosa of the upper respiratory tract, and the eyes.

• Leprosy is curable with multidrug therapy (MDT).

• Leprosy is likely to be transmitted via droplets, from the nose and mouth, during close and frequent contact with untreated cases.

• Untreated, leprosy can cause progressive and permanent damage to the skin, nerves, limbs, and eyes.

Additional Information

• List of important days in January

January 12	**National Youth Day**
January 15	Army Day
January 24	International Day of Education, National Girl Child Day
January 25	National Voters Day, National Tourism Day
January 30	Martyrs' Day/Shaheed Diwas

Q59. Answer: (c) D

Given series: ACB, DFE, GIH, _____.

Pattern: The second and third letters are succeeded by two and one places from the first letter respectively following an alphabet series.

Hence, JLK is correct.

Q60. Answer: (a) A

The correct answer is A planet's orbit is elliptical with the Sun at one of the two focal points.

Important Points

• Johannes Kepler gave the laws of planetary motion.

• The orbit of every planet is an ellipse with the Sun at one of the two foci.

• A line joining a planet and the Sun sweeps out equal areas during equal intervals of time.

• The square of the orbital period of a planet is directly proportional to the cube of the semi-major axis of its orbit.

Additional Information

• Newton's Gravitational law on Planets:

• The first law describes how, once in motion, planets remain in motion.

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• The second law describes that to move in a curved path, a planet must have an acceleration toward the center of the circle.

Q61. Answer: (c) D

Given:

5cos20° – 4sin230° + 6cosec245° = ?

Concept used:

using the concept of trigonometric ratios

Calculation:

5cos20° – 4sin230° + 6cosec245° = ?

=> 5 × $(1)^2$ – 4 × $(1/2)^2$ + 6 × $(\sqrt{2})^2$ = ?

=> 5 – 4 × 1/4 + 6 × 2 = ?

=> 5 – 1 + 12 = ?

=> 4 + 12 = ?

=> ? = 16

Therefore The value of ? is 16.

Q62. Answer: (a) B

Given:

Speed of M = 2 × Speed of L

Distance covered by M = 100 km

Time taken to cover a distance by M = 1 hour 15 min. = 5/4 hr

Concept used:

Speed = Distance/Time

Calculation:

Speed of M = (Distance covered by M)/(Time taken to cover a distance by M)

=> Speed of M = 100/(5/4)

=> Speed of M = 80 km/h

According to the question,

Speed of M = 2 × Speed of L

=> 80 = 2 × Speed of L

=> Speed of L = 40 km/h

Therefore Speed of L is 40 km/h.

Q63. Answer: (c) D

The correct answer is Sri Lanka.

Important Points

• The smallest coin of Sri Lanka is called Cent.

• The currency of Sri Lanka is called Sri Lankan Rupee.

Key Points

• Formerly known as Ceylon.

• Capital of Sri Lanka- (legislative capital: Sri Jayawardenepura Kotte) (Executive and judicial capital is Colombo).

• Official languages- Sinhala and Tamil.

• Current President- Anura Kumara Dissanayake

Additional Information

1 Indian Rupee	**2.58 Sri Lankan Rupee**
1 Pakistani Rupee	1.18 Sri Lankan Rupee
1 Nepalese Rupee	1.62 Sri Lankan Rupee

Q64. Answer: (c) C

The correct answer is 188.

Important Points

• The South Asian Games (SAG), and formerly known as the South Asian Federation Games (SAFG or SAF Games) is a biennial

multi-sport event held among athletes from South Asia.

Key Points

• The 12th South Asian games took place from 5 February to 16 February 2016 in Guwahati and Shillong, India.
• This event took place in Indira Gandhi Athletic Stadium(Guwahati) and Jawaharlal Nehru Stadium (Shillong).
• Indian Prime Minister Narendra Modi inaugurated the 12thSouth Asian Games on 5 February 2016.
• Participating nations in South Asian Games
• Afganistan
• Bangladesh
• Bhutan
• India
• Maldives
• Nepal
• Pakistan
• Srilanka

Additional Information

• India was at the top of the medals tally with a total of 308.
• 188 Gold
• 90 Silver
• 30 Bronze
• Srilanka was at 2nd place and Pakistan was at 3rd.

Q65. Answer: (c) C

Concept used:

Using concept of HCF,

Calculation:

Prime factorization of:

69 = 3 × 23

96 = 2 × 2 × 2 × 2 × 2 × 3

138 = 2 × 3 × 23

HCF = 3

Therefore The HCF of 69, 96 and 138 is 3.

Q66. Answer: (a) C

Given:

Codes for the given words are given below:

Words	Codes
go	ja
to	ta / df
office	df / ta
home	he
I	mi
he	ca / ki / vo
will	ca / ki / vo
back	ca / ki / vo

As per the options, the code for 'go back home' is: 'ja he ca'.

Hence, 'ja he ca' is correct.

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Q67. Answer: (a) B

The correct answer is the Subdivision of a heavy nuclear nucleus.

Key Points

• Nuclear fission is a process in nuclear physics in which the nucleus of an atom splits into two or smaller nuclei as fission products, and usually some by-product particles.

• The by-products include free neutrons, photons usually in the form of gamma rays, and other nuclear fragments such as beta particles and alpha particles.

• Nuclear fission produces energy for nuclear power and drives the explosion of nuclear weapons.

• Nuclear fission is an exothermic reaction.

• Examples:

• Splitting of Uranium-235

• Splitting of Plutonium-239

• The common use of Nuclear fission is for producing electricity in the Nuclear Power Plant.

Additional Information

• There are four main types of nuclear reactions as follows.

• Nuclear Fission

• Nuclear Fusion

• Nuclear Decay

• Transmutation

Q68. Answer: (c) C

The Correct answer is Uttar Pradesh.

Important Points

• As per the 2011 Census

• Most Populous State- Uttar Pradesh.

• Least Populous State- Sikkim.

• Highest Sex Ratio- Kerala.

• Highest Literacy- Kerala.

• Highest Population Density- Bihar

Key Points

• The Census of India is conducted after every 10 years.

• The first Census began in the year 1872 under the Viceroy Lord Mayo.

• The first complete census was taken in 1881.

Additional Information

• As per the 2011 Census

• Total Population of India- 1,210,854,977

• Males- 623,724,568

• Females- 586,469,294

• Population Density- 382 per sq Km

• Sex Ratio- 1000:940

• Literacy- 74%

• Males- 82.10%

• Females- 65.46%

Q69. Answer: (d) A

Given:

Original Number of nurses = 27

Ratio of nurse to the patients = 1 : 6

Concept used:

Using the concept of ratio

Calculation:

Let the maximum number of patient be x.

Original Number of nurses = 27

New number of nurses = 27 – 1

=> New number of nurses = 26

According to the question,

Nurse : Patient = 1 : 6

=> 26/x = 1/6

=> x = 156

Therefore The maximum patients can be admitted is 156.

Q70. Answer: (a) C

The correct answer is 38.

Important Points

• UNESCO stands for United Nations Educational, Scientific and Cultural Organization.

• Headquarters: Paris, France.

• Founded: 16 November 1945.

Key Points

• A World Heritage Site is a landmark or area with legal protection by an international convention administered by the United Nations Educational, Scientific, and Cultural Organization. World Heritage Sites are designated by UNESCO for having cultural, historical, scientific, or other forms of significance.

• Convention concerning the Protection of the World's Cultural and Natural Heritage was signed on 16 November 1972.

• This Convention was Effective on 17 December 1975.

Additional Information

• There are 40 UNESCO World Heritage Sites in India in 2022.

• Dholavira and Ramappa Temple are the latest addition to the list under the ‘Cultural’ category.

• List of 40 UNESCO World Heritage sites.

Agra Fort (1983), UP	**Hill Forts of Rajasthan, Rajasthan**
Ajanta Caves (1983), Maharastra	Rani-ki-Vav (The Queen’s Stepwell) at Patan (2014), Rajasthan
Ellora Caves (1983), Maharastra	Archaeological Site of Nalanda Mahavihara (Nalanda University) at Nalanda (2016), Bihar
Taj Mahal (1983), UP	Mountain Railways of India (Darjeeling,1999), Nilgiri (2005), Kalka-Shimla(2008)
Group of Monuments at Mahabalipuram (1984), Tamil Nadu	Chhatrapati Shivaji Terminus (formerly Victoria Terminus) (2004), Maharastra
Sun Temple, Konarak (1984), Odisha	Mahabodhi Temple Complex at Bodh Gaya, (2002), Bihar
Churches and Convents of Goa (1986), Goa	The Jantar Mantar, Jaipur (2010), Rajasthan
Fatehpur Sikri (1986), UP	The Architectural Work of Le Corbusier, an Outstanding Contribution to the Modern Movement (2016), Chandigarh
Group of Monuments at Hampi (1986), Karnataka	Historic City of Ahmedabad (2017), Gujarat
Khajuraho, Group of Temples (1986), MP	Victorian and Art Deco Ensemble of Mumbai (2018), Maharastra
Elephanta Caves (1987), Maharastra	Jaipur City, Rajasthan (2019)
Great Living Chola Temples at Thanjavur, Gangaikondacholapuram, and Darasuram (1987 & 2004), Tamil Nadu	Kaziranga National Park (1985), Assam
Group of Monuments at Pattadakal (1987), Karnataka	Keoladeo National Park (1985), Rajasthan
Buddhist Monuments at Sanchi (1989), MP	Manas Wildlife Sanctuary (1985), Assam
Humayun’s Tomb, Delhi (1993)	Sunderbans National Park (1987), West Bengal
Qutb Minar and its Monuments, Delhi (1993	Nanda Devi and Valley of Flowers National Parks (1988, 2005), Uttrakhand
Rock Shelters of Bhimbetka (2003), Madhya Pradesh	Western Ghats (2012)

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Champaner-Pavagarh Archaeological Park (2004), Rajasthan	Great Himalayan National Park (2014), Himachal Pradesh
Red Fort Complex, Delhi (2007)	Khangchendzonga National Park (2016), Sikkim
Dholavira, Gujarat (2021)	Kakatiya Rudreshwara (Ramappa) Temple, Telangana (2021)

Q71. Answer: (c) B

Given equation: 12 ? 3 ? 2 ? 6

Let us check through options:

A. + ÷ =

12 + 3 ÷ 2 = 6

12 + 1.5

13.5 ≠ 6

B. ÷ + =

12 ÷ 3 + 2 = 6

4 + 2

6 = 6

Hence, '÷ + =' is correct.

Q72. Answer: (b) D

Given:

4(3x – 2) = 2(3x + 8)

Concept used:

Using the concept of linear equation in 1 variable.

Calculation:

4(3x – 2) = 2(3x + 8)

=> 12x – 8 = 6x + 16

=> 6x = 24

=> x = 4

Therefore The value of x is equal to 4.

Q73. Answer: (d) B

The correct answer is Poison.

Key Points

• Toxicology is a scientific discipline, overlapping with biology, chemistry, pharmacology, and medicine, that involves the study of the adverse effects of chemical substances on living organisms and the practice of diagnosing and treating exposures to toxins and toxicants.

• Types of Toxicology.

• Medical toxicology

• Clinical toxicology

• Forensic toxicology

• Computational toxicology

• A toxicologist is a scientist or medical personnel who specializes in the study of symptoms, mechanisms, treatments, and detection of venoms and toxins; especially the poisoning of people.

Important Points

• Botulinum toxin is the deadliest poison in the world.

Additional Information

Study of Human Behaviour	**Psychology**
Study of Rocks	Petrology

Q74. Answer: (b) B

Given:

Amount = Rs. 10920

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Rate of interest = 10%

Time = 4 years

Formula used:

SI = P × R% × T

where, P = Principal, R = Rate of interest, T = Time

Amount = P + SI

Calculation:

Let the principal sum be Rs. P.

Amount = Principal + SI

=> 10920 = P + P × R% × T

=> 10920 = P(1 + 10/100 × 4)

=> 10920 = P(1 + 2/5)

=> 10920 = 7P/5

=> P = Rs. 7800

Therefore The sum of money he borrowed is Rs. 7800.

Q75. Answer: (c) D

Given:

a2 + b2 = 80

a – b = 4

Formula used:

$(a – b)^2 = a^2 + b^2 – 2ab$

Calculation:

a – b = 4

=> $(a – b)^2 = 4^2$ [Squaring both sides]

=> a2 + b2 – 2ab = 16

=> 80 – 2ab = 16

=> -2ab = 16 – 80

=> -2ab = -64

=> ab = 32

Therefore The value of ab is 32.

Q76. Answer: (a) A

The correct answer is Inter-Services Intelligence.

Important Points

• The ISI is the premier intelligence agency of Pakistan.

• It was formed n the year January 1, 1948.

• Its headquarters is in Islamabad, Pakistan.

Key Points

• An intelligence agency is a government agency responsible for the collection, analysis, and exploitation of information in support of law enforcement, national security, military, and foreign policy objectives.

Additional Information

Name of the Country	Name of the Intelligence Agency
India	Research and Analysis Wing (RAW)
Israel	Mosaad
USA	Central Intelligence Agency (CIA)
UK	Military Intelligence, Section 6 (MI6)
Australia	Australian Secret Intelligence Service
France	Directorate General External Security
China	Ministry of State Security

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Russia	Federal Security Service of the Russian Federation

Q77. Answer: (a) C

The correct answer is Arunachal Pradesh.

Key Points

• Tawang Math or Tawang monastery is located in Tawang city of Arunachal Pradesh.

• It is the largest monastery in India and the second largest monastery of the world.

• It belongs to Buddhism.

Additional Information

• Arunachal Pradesh is the largest state area wise in the north-eastern region, even larger than Assam which is the most populous north-eastern state.

• It is endowed with wide topographical variations, vegetation and wild life. Rivers and streams originating in the higher Himalayas and Arakan Ranges flow down to form the tributaries of Brahmaputra as they flow across the state.

• Kameng, Subansiri, Siang, Lohit and Tirap are the river of Arunachal Pradesh.

• All these rivers are fed by snows from the Himalayas and countless rivers and rivulets except Tirap which is fed by Patkai Range.

• Arunachal Pradesh became a full-fledged State on 20 feb 1987. Till 1972, it was known as the North-East Frontier Agency (NEFA).

• Capital :- Itanagar

• Chief Minister:- Pema Khandu

• Governor:- B. D. Mishra

Q78. Answer: (a) D

Given:

We have to find the code for the word 'definitely'.

Possible codes for the word 'definitely' - 9, 1

Hence, Can't be determined is correct.

Q79. Answer: (c) A

Given:

M can do work in 5 days

R can do work in 20 days

Concept used:

If a man can complete a work in x days then the man can complete 1/x work in 1 day.

Calculation:

Work done by M in 1 day = 1/5

Work done by R in 1 day = 1/20

Total work done by them together in 1 day = 1/5 + 1/20

=> Total work done by them together in 1 day = 5/20 = 1/4

Together they can complete the work in 1/(1/4) days

Therefore M and R together can finish the work in 4 days.

If M can do work in x days and R can do work in y days, then together they can complete the work in (x × y)/(x + y) days

M and R together can do the work in (5 × 20)/(5 + 20) = 100/25

Therefore M and R together can finish the work in 4 days.

Q80. Answer: (a) C

Given: Clothes : Tailor :: Wood : _____

Tailor's work is related to Clothes (The clothes are stitched by a Tailor).

Similarly,

Carpenter's work is related to Wood.

Hence, "Carpenter" is correct.

Q81. Answer: (d) B

The correct answer is Summer Session.

Key Points

• There is no such session as the Summer session in the Indian Parliament.

Important Points

• A Session of Parliament is the period spanning between the first sitting of a House and its prorogation

• There are three types of Sessions.

• Budget Session (February to May)

• Monsoon Session (July to September)

• Winter Session (November to December)

• The Houses of Parliament (i.e. Lok Sabha & Rajya Sabha) meet every day during the sessions to transact business.

• The maximum gap between two sessions of Parliament cannot be more than six months.

• The president from time to time summons each House of Parliament to meet.

Q82. Answer: (a) B

The correct option is POP3.

Key Points

• Post Office Protocol version 3 (POP3) is a message access protocol that enables the client to fetch an e-mail from the remote mail server.

Additional Information

• Program is a set of instructions that can be executed by a computer to perform a specific task.

• The languages used by programmers to write such a program is known as programming language.

• Assembly Language is a low-level programming language.

• Java, C++, PHP, C, Pascal, Python, Visual Basic, etc. are high-level programming languages.

Q83. Answer: (d) C

Given: MOBILE = OQDKNG

According to the English Alphabet series and its positional value:

Pattern: The coded letters have been obtained by succeeding the letters of the given word by two places.

Similarly, the code for the word 'TELEVISION' is:

Hence, VGNGXKUKQP is correct.

Q84. Answer: (d) A

Only option statement numbered A is in true with the above given statement.

The consumer can claim for call drop.

The rule is binding on network operators as apex authority telecom regulatory has ordered

Compensation of Rs 1 with a cap of three per day for call drop.

As network operator companies start providing compensation, the same would be given automatically to the customers.

Hence, Option 4 is correct.

Q85. Answer: (a) C

Given:

4 cricketers played 13, 9, 5, and 11 innings

Mean = 9

Formula used:

Mean = Sum of all observations/Number of observations

Calculation:

Let the 5_(th)player played x innings.

Sum of all innings played by 5 players = 13 + 9 + 5 + 11 + x

=> Sum of all innings = 38 + x

Total players = 5

Mean = Sum of all innings played by 5 players/Total players

=> 9 = (38 + x)/5

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=> 45 = 38 + x

=> x = 45 – 38 = 7

Therefore Innings played by 5_(th)player is 7

Q86. Answer: (d) B

Given:

Speed = 8 km/hr

Distance = 24 km

Formula used:

Time = Distance/Speed

Calculation:

Time = 24/8 = 3 hours

As he started his journey at 8 : 00 am

He will reach his destination at 8 : 00 am + 3 hours

Therefore He will reach his destination at 11 : 00 am

Q87. Answer: (b) C

Given:

Ratio of science and arts students = 5 : 3

Total students = 1,328

Calculation:

Let the number of science students be 5x and the number of arts students be 3x

Total students = 5x + 3x

=> 1328 = 8x

=> x = 1328/8 = 166

The number of arts students = 3x = 3 × 166

Therefore The number of arts students are 498

Q88. Answer: (b) A

Concept used:

Follow BODMAS rule to solve this question, as per the order given below

Now,

Calculation:

(2 × 43 × 32) / (3 × 16)

=> (2 × 64 × 9)/48

=> 1152/48

Therefore 24

Q89. Answer: (c) Varghese Kurien

The correct answer is Varghese Kurien.

Key Points

• Varghese Kurien was a social entrepreneur known for his "billion-liter idea", Operation Flood.

• He is known as the Father of the White Revolution.

• Operation Flood was launched on 13 January 1970, was the world's largest dairy development program and a landmark project of India's National Dairy Development Board (NDDB).

• He was the recipient of Ramon Magsaysay Award for Community Leadership (1963), Padma Shri (1965), Padma Bhushan (1966), Krishi Ratna Award (1986), World Food Prize (1989), Padma Vibhushan (1999), and Economic Times award for Corporate Excellence (2001).

Additional Information

• Vishwas Nangare Patil is currently serving as the Additional Director General of Police in the Anti-corruption Bureau, Maharashtra. Previously he was the Joint Commissioner of Police (Law &Order), Mumbai City.

• He is the author of the books Mann Mein Hai Vishwas and Kar Har Maidan Fateh in the Marathi language.

• Tatyasaheb Kore was the founder of Shree Warana Industrial & Educational Complex, Warananagar, Kolhapur.

• The Warana Group consists of more than 55 organizations.

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• The Warana Co-operative Sugar factory initiated this movement that has resulted in the formation of over 55 cooperative societies related to sugar, milk, and poultry production.

Q90. Answer: (c) B

The correct answer is South Western Railway.

Key Points

• South Western Railways Zone has introduced biodiesel for trains, operating under its zone.

• South Western Railways Zone is headquarters in Hubli, Karnataka.

• First train Hubballi-Bengaluru Janshatabdi Express powered by 5% biodiesel blended with High-Speed Diesel was flagged off from Hubli.

• Indian Railways initially attempted blending of High-Speed Diesel (HSD) with Bio-Diesel extracted from the Jatropha plant. Jatropha oil had been used in India as biodiesel in remote rural and forest communities; Jatropha oil can be used directly after extraction i.e. without refining in diesel generators and engines.

• Indian Railways have also set up an Indian Railways Organization for Alternate Fuels (IROAF) to promote Bio-Diesels and other environmentally benign alternate fuels.

• Bio-Diesel is a type of fuel that provides energy for cleaner alternatives as sustainable fuel for diesel locomotives and reduces dependency on fossil fuel especially diesel.

Additional Information

• The management and governance of the Indian Railway are in the hands of the Railway Board.

• The Indian Railway network is divided into 18 zones.

Zone	Headquarter
Central Railway	Mumbai
Eastern Railway	Kolkata
Western Railway	Mumbai
Northern Railway	Delhi
Southern Railway	Chennai Central
North Central Railway	Prayagraj
North Eastern Railway	Gorakhpur
Northeast Frontier Railway	Guwahati
North Western Railway	Jaipur
South Central Railway	Secunderabad
South Coast Railway	Visakhapatnam
South Eastern Railway	Kolkata
South East Central Railway	Bilaspur
South Western Railway	Hubballi
West Central Railway	Jabalpur
Kolkata Metro Railway	Kolkata
East Central Railway	Hajipur
East Coast Railway	Bhubaneswar

• The Konkan Railway is operated by the Konkan Railway Corporation- is a Union Government Company. Its headquarters is in Navi Mumbai.

• "Train-18" also known as Vande Bharat Express is India's first indigenously designed higher-speed rail intercity electric multiple units made under the Indian government's Make in India initiative.

• The first rail in India was started on 16 April 1853, from Bombay to Thane.

Q91. Answer: (a) B

Given:

Correct marks of the student = 68

Marks typed by mistake = 86

Mean is increased by 1/2

Formula used:

Mean = Sum of all observations/Number of observations

Number of observations = Sum of all observations/Mean

Calculation:

Let the total number of students be x, and total marks scored by them be y

Mean = Total marks scored/Total number of students

=> Mean = y/x

According to question 68 is mistakenly taken as 86

New total score = y – 68 + 86 = y + 18

New mean = y/x + 1/2

=> y/x + 1/2 = (y + 18)/x

=> y/x + 1/2 = y/x + 18/x

=> 1/2 = 18/x

=> x = 18 × 2 = 36

Therefore Total number of students are 36

If new sum of all observation is S more than initial sum, then change in mean is S/(Total number of observations)

As new sum is 86 – 68 = 18 more than initial sum

1/2 = 18/x

=> x = 36

Therefore Total number of students are 36

Q92. Answer: (d) C

The correct answer is Bluetooth.

Key Points

• Bluetooth facilitates short-range wireless connectivity.

• It uses ultra-high-frequency radio waves in the industrial, scientific and medical radio bands, from 2.402 GHz to 2.480 GHz, and building personal area networks (PANs).

Additional Information

• Modem stands for modulator-demodulator, is a hardware device that converts data from a digital format.

• A modem modulates one or more carrier wave signals to encode digital information for transmission and demodulates signals to decode the transmitted information.

• A firewall is a software used to maintain the security of a private network.

• It is used to protect internal networks and private or sensitive data. A firewall also logs information about network traffic, which can help an administrator understand and prevent attacks.

• The set-Top box is an information appliance device that contains a TV-tuner input and displays output to a television set.

Q93. Answer: (d) C

Calculation:

Therefore (–3, –4) lies in Third Quadrant

Q94. Answer: (c) C

The correct answer is H. Kopped.

Key Points

• Lance Naik Hanumanthappa Koppad was Indian soldier of 9th battalion of the Madras Regiment of the Indian Army.

• Hanumanthappa died on 11 February 2016 due to multiple organ failure at the military Hospital in New Delhi.

• He was rescued from 35 feet beneath the snow in −45 °C temperatures, six days after an avalanche hit an Indian Army post in Siachen, at an altitude of 19,600 feet.

• Total 10 Indian soldiers died in this incident.

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Q95. Answer: (a) B

Given:

5 men can do work in 9 days

Concept used:

If n person can do work in x days, then 1 person can do the work in (n × x) days.

Calculation:

5 men can do work in 9 days

=> 1 man can do the same work in 9 × 5 = 45 days

3 men can do the same work in 45/3 days

Therefore 3 men can do the work in 15 days

Q96. Answer: (c) C

Calculation:

Prime numbers between 50 and 80 are 53, 59, 61, 67, 71, 73, and 79

Sum of prime numbers between 50 and 80 = 53 + 59 + 61 + 67 + 71 + 73 + 79

Therefore Sum of prime numbers between 50 and 80 is 463

Q97. Answer: (b) B

Formula used:

Average = Sum of all observations/Total number of observations

Calculation:

	Friday	Saturday	Sunday	Monday	Tuesday	Total	Average
1	450	500	490	510	700	2650	530
2	500	500	550	600	400	2550	510
3	475	500	525	600	700	2800	560
4	500	550	600	600	500	2750	550

Therefore Bus 2 has the lowest average

Note:

We can directly calculate the total and see which is the lowest among all total.

Bus B has the lowest total, so it will have the lowest average.

Q98. Answer: (d) C

Calculation:

We have to check the gradual increase in distance covered from Friday to Tuesday

In Bus 1

Friday = 450, Saturday = 500, Sunday = 490, Monday = 510, Tuesday = 700

On Sunday the decrease in distance covered.

In Bus 2

Friday = 500, Saturday = 500, Sunday = 550, Monday = 600, Tuesday = 400

On Friday and Saturday, there is no increase in distance travelled and on Tuesday the decrease in distance travelled.

In Bus 3

Friday = 475, Saturday = 500, Sunday = 525, Monday = 600, Tuesday = 700

The gradual increase in distance travelled on each day

In Bus 4

Friday = 500, Saturday = 550, Sunday = 600, Monday = 600, Tuesday = 500

On Tuesday the decrease in distance travelled from the previous day

Therefore The gradual increase in distance travelled is on Bus 3.

Q99. Answer: (b) C

Given:

Distance covered on Sunday

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Bus 1 = 490, Bus 2 = 550, Bus 3 = 525, Bus 4 = 600
Distance covered on Saturday
Bus 1 = 500, Bus 2 = 500, Bus 3 = 500, Bus 4 = 550
Distance covered on Monday
Bus 1 = 510, Bus 2 = 600, Bus 3 = 600, Bus 4 = 600
Distance covered on Tuesday
Bus 1 = 700, Bus 2 = 400, Bus 3 = 700, Bus 4 = 500
Calculation:
Distance covered on Sunday
=> 490 + 550 + 525 + 600
=> 2165
Distance covered on Saturday
=> 500 + 500 + 500 + 550
=> 2050
Distance covered on Monday
=> 510 + 600 + 600 + 600
=> 2310
Distance covered on Tuesday
=> 700 + 400 + 700 + 500
=> 2300
Therefore The maximum distance covered by all buses is on Monday.

Q100. Answer: (c) A

The correct answer is Kappad, Kerala.

Key Points

• Kappad, also known as Kappakadavu is a beach near Koyilandy, in the district Kozhikode, Kerala.

• There is a stone monument installed by the government that marks the arrival of Vasco de Gama with the inscription, 'Vasco da Gama landed here, Kappakadavu, in the year 1498'.

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