# RRB NTPC CBT-I Official Paper (Held On: 1 Feb 2021 Shift 2) (Previous Year Paper)

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

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Practise under exam conditions, then review your answers after you submit.

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

**Q1.** What will the value of the following expression be?

20 – [15 – {4 – (8 – 6 + 3)}]

**(a)** 4
**(b)** 8
**(c)** 5
**(d)** 6

**Q2.** Narendra's mother is four times as old as Narendra. Four years ago, his mother was six times as old as Narendra was. What are their Present ages?

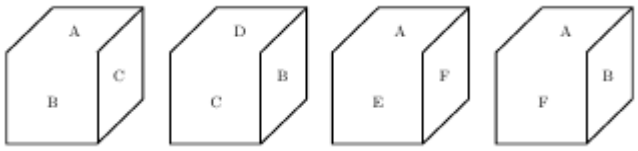
**(a)** 10 years, 40 years
**(b)** 7 years, 28 years
**(c)** 20 years, 80 years
**(d)** 5 years, 20 years

**Q3.** What will the value of the following be (correct to three decimal points)?

160.342 – 32.124

**(a)** 128.337
**(b)** 128.340
**(c)** 128.242
**(d)** 128.218

**Q4.** Four different positions of the same dice are shown. Select the letter that will be on the face opposite to the one having the letter F.




**(a)** D
**(b)** A
**(c)** C
**(d)** E

**Q5.** A lie detector apparatus is also known as a:

**(a)** Polygraph
**(b)** Seismograph
**(c)** Barograph
**(d)** Polarimeter

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**Q6.** Asiatic Society of Bengal was established in the year:

**(a)** 1734
**(b)** 1764
**(c)** 1884
**(d)** 1784

**Q7.** Select the letter from among the given options that can replace the question mark (?) in the following series.

H3K9N15Q21?

**(a)** V
**(b)** T
**(c)** S
**(d)** U

**Q8.** Our solar system is a part of which galaxy?

**(a)** Bode's
**(b)** Triangulum
**(c)** Milky Way
**(d)** Andromeda

**Q9.** If √2916 = 54 then what is the value of the following?

√29.16 + √0.2916 + √0.002916 + √0.00002916

**(a)** 5.999
**(b)** 6.00
**(c)** 5.9994
**(d)** 5.90

**Q10.** Where is Raisina Hill?

**(a)** It is the place where the Dogra rulers of Jammu and Kashmir built their fort in Jammu
**(b)** It is located in Srinagar.
**(c)** It is situated in the same location as Rashtrapati Bhavan.
**(d)** It is the rock feature at Kanyakumari where Swami Vivekananda's statue was erected.

**Q11.** Sita can clean a hotel in 20 days. Rita can clean the same hotel in 30 days. How many days will they take to clean the hotel together?

**(a)** 9 days
**(b)** 15 days
**(c)** 18 days
**(d)** 12 days

**Q12.** From among the given options, select the sequence that best arranges the following words in a meaningful order.

1. Family
2. World
3. Individual
4. Community
5. Country

**(a)** 31542
**(b)** 31452
**(c)** 51432
**(d)** 45321

**Q13.** If ABCD is a cyclic quadrilateral and ABC is an equilateral triangle find the angle of CDA.

**(a)** 60°
**(b)** 45°
**(c)** 90°

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**(d)** 120°

**Q14.** As per NASA, how much of Earth's land surface is covered by forests?

**(a)** 20%
**(b)** 35%
**(c)** 25%
**(d)** 30%

**Q15.** Four friends, Ankita, Shruti, Payal and Mahak, are sitting at a rectangular table, each at one corner. Ankita is sitting to the right of Shruti, who is sitting diagonally opposite to Payal. Where is Ankita sitting with respect to Mahak?

**(a)** Directly opposite
**(b)** Diagonally opposite
**(c)** Immediate right
**(d)** Immediate left

**Q16.** Akshay's son-in-law is married to Anisha whose brother Vijay is married to Twinkle. How is Twinkle related to Akshay?

**(a)** Brother's wife
**(b)** Sister
**(c)** Daughter-in-law
**(d)** Daughter

**Q17.** Rabindranath Tagore gave up his knighthood because of the:

**(a)** Execution of Bhagat Singh
**(b)** Chauri Chaurah Episode
**(c)** Kakori Episode
**(d)** Jaliawala Bagh Tragedy

**Q18.** The best method to dispose of biological wastes from hospitals is:

**(a)** decomposition
**(b)** sending them to a landfill
**(c)** burning
**(d)** incineration

**Q19.** In a computer, a menu contains a list of:

**(a)** data
**(b)** reports
**(c)** objects
**(d)** commands

**Q20.** As of 2020, according to the Election Commission of India, the minimum voting age in India is:

**(a)** 16 years
**(b)** 18 years
**(c)** 25 years
**(d)** 21 years

**Q21.** Who had called for Direct Action Day?

**(a)** Jay Prakash Narayan
**(b)** Muhammad Ali Jinnah
**(c)** Subhash Chandra Bose
**(d)** Mahatma Gandhi

**Q22.** The points A, B and C lie on a circle with centre O. The angle ACB = 47.5°. What is the angle AOB on the minor AB ?

**(a)** 93°
**(b)** 95°

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**(c)** 94°
**(d)** 92°

**Q23.** The angle of elevation of a lamp post changes from 30° to 60° when a person walks 30 m towards it. Find the height of the lamp post.
**(a)** √3 m
**(b)** 3√3 m
**(c)** 5√3 m
**(d)** 15 √3 m

**Q24.** Find the HCF of
12 × 15, 15 × 21, 21 × 12
**(a)** 9
**(b)** 27
**(c)** 3
**(d)** 1

**Q25.** What is the full form of EVM?
**(a)** Electronic Vending Machine
**(b)** Electronic Voting Machine
**(c)** Electric Vending Machine
**(d)** Electric Voting Machine

**Q26.** If a : b :: 3 : 4 then the value of the expression (5a -3b)/(7a+2b) is:
**(a)** 29/3
**(b)** 7/3
**(c)** 7/29
**(d)** 3/29

**Q27.** Big Mart is offering 5% discount on card payment. How much percentage above cost price should the marked price be so as to make a profit of 10%?
**(a)** 1416/19 %
**(b)** 1515/19 %
**(c)** 155/19 %
**(d)** 1614/19 %

**Q28.** In an election a candidate with 37% votes loses by a difference of 520000 votes to the winning candidate. What is the total number of votes cast in that election with two contestants?
**(a)** 2200000
**(b)** 1500000
**(c)** 1700000
**(d)** 2000000

**Q29.** Study the given grid carefully and select the option from among the given options that can replace the question mark(?).

| B3 | E4 | H7 |
|---|---|---|
| K8 | N9 | ? |
| T11 | W13 | Z24 |

**(a)** Q17
**(b)** R12
**(c)** P12
**(d)** Q21

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**Q30.** Which of the following in the air turns silver articles black (when exposed to air)?

**(a)** Carbon
**(b)** Sulphur
**(c)** Nitrogen
**(d)** Chlorine

**Q31.** In which of the following years did the Government of India initiate the National Programme of Nutritional Support to Primary Education (NP-NSPE)

**(a)** 1990
**(b)** 1995
**(c)** 2003
**(d)** 1985

**Q32.** Which of the following rural housing schemes by the Government of India is re-structured into Pradhan Mantri Gramin Awas Yojana?

**(a)** Rajiv Awas Yojana
**(b)** Indira Awas Yojana
**(c)** Deendayal Antyodaya Yojana
**(d)** Jawahar Gram Samridhi Yojana

**Q33.** Four words have been given, out of which three are alike in some manner and one is different. Select the odd one.

Valley, Plateau, Glacier, Hill

**(a)** Glacier
**(b)** Plateau
**(c)** Valley
**(d)** Hill

**Q34.** A square is inscribed in a circle which is inscribed in an equilateral triangle. If one side of the triangle is x, then the area of square is:

**(a)** $1/3\ x^2$
**(b)** $1/6\ x^2$
**(c)** $1/2\ x^2$
**(d)** $1/9\ x^2$

**Q35.** An amount becomes eight-fifth of the original amount in 5 years at what percentage rate of simple interest per annum?

**(a)** 13
**(b)** 15
**(c)** 12
**(d)** 11

**Q36.** What is the cost price of articles sold for Rs. 390 if 20% is the total gain?

**(a)** Rs. 325
**(b)** Rs. 525
**(c)** Rs. 340
**(d)** Rs. 425

**Q37.** Read the given statements and decide which of the conclusions given in the options logically follow from the statements.

Statements:

1.All guitars are instruments.

2.All instruments are bagpipes.

**(a)** All bagpipes are instruments.
**(b)** All guitars are bagpipes.
**(c)** All instruments are guitars.

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**(d)** No guitar is a bagpipe.

**Q38.** How many poles will be covered by a train in 4 hours if the train is running at a speed of 45 km/hr, given that the poles on the railway track are 50 m apart and the train crosses a pole at the beginning of its journey.

**(a)** 3601
**(b)** 3600
**(c)** 3636
**(d)** 3606

**Q39.** What is the ratio of volumes of two spheres where the curved surface areas are in the ratio of 1 : 4?

**(a)** 8 : 13
**(b)** 1 : 4
**(c)** 1 : 8
**(d)** 8 : 1

**Q40.** What is the total number of odd and even divisors of 120, respectively?

**(a)** 16, 0
**(b)** 12, 4
**(c)** 4, 12
**(d)** 8, 8

**Q41.** When was the Poona Pact signed?

**(a)** 1932
**(b)** 1930
**(c)** 1928
**(d)** 1935

**Q42.** If a shopkeeper added 20% on the cost price as marked price and gave 20% discount, then how much was his profit or loss percent?

**(a)** 6% loss
**(b)** 4% profit
**(c)** 4% loss
**(d)** 6% profit

**Q43.** M1, M2, M3, M4 and M5 are five men sitting in a line facing towards the south. L1, L2, L3, L4 and L5 are five women sitting in a second line, parellel to the first line, facing towards the north.

M2, who is to the immediate left of M4, is opposite L5.

M3 and L2 are diagonally opposite each other.

M5 is opposite L3, who is to the immediate right of L1.

L4, who is to the immediate right of L3, is opposite M4.

L1 is at one end of the line.

Which of the following pair is diagonally opposite each other?

**(a)** M1 and L1
**(b)** M3 and L1
**(c)** M5 and L3
**(d)** M1 and L2

**Q44.** Which of the following National Highway passes through the Kaziranga National Park is imposing key threat for the wildlife?

**(a)** NH-37
**(b)** NH-50
**(c)** NH-30
**(d)** NH-45

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**Q45.** John, Johnny and Janardan can finish a task in a field in 6, 12 and 24 days, respectively. In how many days will they finish the task working together?

**(a)** 53/7 days
**(b)** 63/7 days
**(c)** 23/7 days
**(d)** 33/7 days

**Q46.** The average of five students in a class test is 39.20 and the average of three of them is 41. What is the average of the remaining two students?

**(a)** 37.5
**(b)** 38.5
**(c)** 39.5
**(d)** 36.5

**Q47.** The telephone was invented in:

**(a)** 1856
**(b)** 1886
**(c)** 1879
**(d)** 1876

**Q48.** What is the compound ratio of 45 : 75, 3 : 5, 51 : 68 and 256 : 81?

**(a)** 64/75
**(b)** 75/32
**(c)** 128/75
**(d)** 32/45

**Q49.** What will the value of the following expression be?

((6+3)/3) – 5 × (4 + 5)

**(a)** –24
**(b)** 24
**(c)** 42
**(d)** –42

**Q50.** Who among the following received India's highest civilian award, Bharat Ratna, on 24 December 2014?

**(a)** Murli Manohar Joshi
**(b)** Dindayal Upadhyay
**(c)** Madan Mohan Malviya
**(d)** LK Advani

**Q51.** The Quit India movement started in:

**(a)** Karachi
**(b)** Delhi
**(c)** Lahore
**(d)** Bombay

**Q52.** Who is known as the 'Grand Old Man of India'?

**(a)** Bal Gangadhar Tilak
**(b)** Mahatma Gandhi
**(c)** Dadabhai Naoroji
**(d)** Lala Lajpat Rai

**Q53.** 'World Environment Day' is annually celebrated on _____.

**(a)** 7^(th)April
**(b)** 16^(th)June
**(c)** 5^(th)June

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**(d)** 16^(th)August

**Q54.** Narendra finishes a job in 10 days. Amit completes the same job in 12 days. How many days will it take for both of them to finish the job while working together?

**(a)** 65/11
**(b)** 56/11
**(c)** 55/11
**(d)** 66/11

**Q55.** With which of the following is the 'Green Revolution' related?

**(a)** Oil and seed production
**(b)** Milk production
**(c)** Food and grain production
**(d)** Fish production

**Q56.** 1° of latitude is equal to ___ km approximately.

**(a)** 221
**(b)** 121
**(c)** 111
**(d)** 231

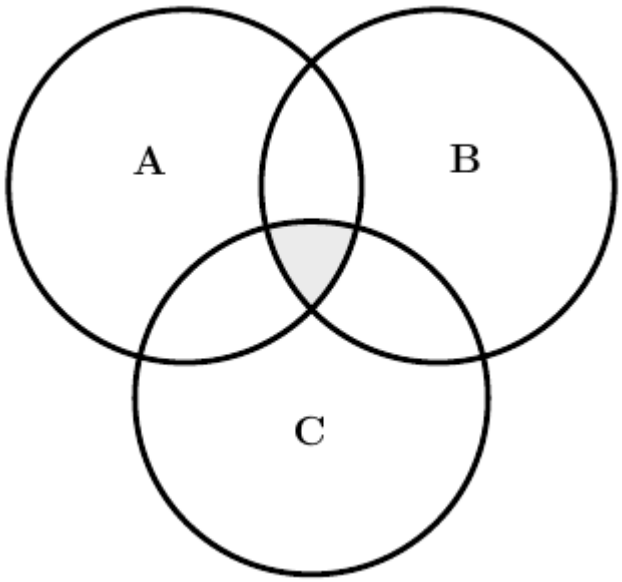
**Q57.** What is the sum of 1/3, 4/3 and 3/4 ?

**(a)** 26/12
**(b)** 27/12
**(c)** 2
**(d)** 29/12

**Q58.** Where is the headquarters of UNESCO?

**(a)** Paris
**(b)** New Delhi
**(c)** Moscow
**(d)** London

**Q59.** In the following diagram, A contains all the people who like chocolate, B contains all the people who like ice-cream and C contains all the people who like candy. What does the shaded area represent?




**(a)** People who only like chocolate and candy.
**(b)** People who only like chocolate and ice-cream.
**(c)** People who only like candy and ice-cream.

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**(d)** People who like chocolate, candy and ice-cream.

**Q60.** Sachin Tendulkar scored his 100^(th) international cricket against which team?

**(a)** Bangladesh
**(b)** England
**(c)** Australia
**(d)** Pakistan

**Q61.** A path around the inner side of a rectangular park measuring 37 m × 30 m occupies 570 m². What is the width of the path?

**(a)** 10 m
**(b)** 15 m
**(c)** 5 m
**(d)** 28 m

**Q62.** What is the value of (4+√2)/(√2+1) ?

**(a)** 3√2-2
**(b)** 3√2
**(c)** 2-3√2
**(d)** 3√2+2

**Q63.** Which one of the following books was written by Vishnu Sharma?

**(a)** Rajatarangini
**(b)** Panchatantra
**(c)** Arthashastra
**(d)** Indica

**Q64.** If $x + 1/x = 2$, then the value of $x^2 + 1/(x^2)$ =?

**(a)** 4
**(b)** 1
**(c)** 2
**(d)** 3

**Q65.** 'Mo > no' means that Mo is the daughter of No.
'Mo # No' means Mo is the father of No.
'Mo $ No' means Mo is the mother of No.
'Mo / No' means Mo is the brother of No.
Based on the above, how is Po related to Ko in the given expression?
Po $ Qo # Ro / To > Ko

**(a)** Husband's mother
**(b)** Father's sister
**(c)** Son's wife
**(d)** Husband's sister

**Q66.** Who was the first Indian to travel to Space?

**(a)** Vikram Sarabhai
**(b)** APJ Abdul Kalam
**(c)** Sunita Williams
**(d)** Rakesh Sharma

**Q67.** Atal Mission for Rejuvenation and Urban Transformation (AMRUT) is related with:

**(a)** Basic civic amenties
**(b)** Urban transport
**(c)** Urban livelihood
**(d)** Creation of smart cities

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**Q68.** Which of the following kings of the Gupta Empire was also a good Veena player?

**(a)** Chandragupta Vikramaditya
**(b)** Samudragupta
**(c)** Chandragupta I
**(d)** Kumaragupta I

**Q69.** How many neutrons are present in protium?

**(a)** 7
**(b)** 0
**(c)** 4
**(d)** 2

**Q70.** On which date is India likely to experience the shortest day of the year?

**(a)** 23 October
**(b)** 22 June
**(c)** 22 March
**(d)** 22 December

**Q71.** Who among the following is called the 'Father of Local Self Government' in India?

**(a)** Lord Ripon
**(b)** Lord Mayo
**(c)** Lord Minto
**(d)** Lord Curzon

**Q72.** What is the distance of a vehicle from a tower of 150 m, if the angle of depression to the vehicle is 45° ?

**(a)** 150 m
**(b)** 200 m
**(c)** 125 m
**(d)** 175 m

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

**(a)** Tinsukia
**(b)** Dehradun
**(c)** Jaipur
**(d)** Kohima

**Q74.** Four words have been given, out of which three are alike in some manner and one is different. Select the odd one.
Sword, Dagger, Spade, Knife

**(a)** Spade
**(b)** Dagger
**(c)** Sword
**(d)** Knife

**Q75.** As per SOFIA-2020 data of FAO, the largest producer of fish in the world is:

**(a)** China
**(b)** Alaska
**(c)** Great Britain
**(d)** Norway

**Q76.** As of November 2020, who was the Vice Chairperson of NITI Aayog?

**(a)** Urjit Patel
**(b)** Bibek Debroy
**(c)** Ravi Shankar Prasad
**(d)** Rajiv Kumar

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**Q77.** In Microsoft Excel, a workbook is a collection of:

**(a)** charts
**(b)** worksheets
**(c)** photos
**(d)** word books

**Q78.** Who among the following built the "Adhai din ka Jhopara" at Ajmer?

**(a)** Alauddin Khilji
**(b)** Qutubuddin Aibak
**(c)** Raziya Sultana
**(d)** Noor Jahan

**Q79.** Who has coined the term 'ecology'?

**(a)** Eugenius Warming
**(b)** Charles Darwin
**(c)** Ernst Haeckel
**(d)** Eugene Odum

**Q80.** Which element is essential for the synthesis of thyroxine?

**(a)** Iodine
**(b)** Manganese
**(c)** Zinc
**(d)** Iron

**Q81.** How many factors of $2^2 \times 3^1 \times 5^2 \times 7^1$ are divisible by 50 but not by 100?

**(a)** 8
**(b)** 12
**(c)** 4
**(d)** 16

**Q82.** A series is given with one term missing. Select the correct alternative from the given options that will complete the series.

EF27, GI34, IL41, KO48, ?

**(a)** LT57
**(b)** MR55
**(c)** NS51
**(d)** PQ53

**Q83.** The International Day of Light is observed on:

**(a)** 16^(th) June
**(b)** 1^(st) May
**(c)** 1^(st) June
**(d)** 16^(th) May

**Q84.** Read the given statements and decide which of the conclusions given in the options logically follows from the statements.

Statements:

1. All kitchens are bedrooms.

2. No bedroom is a hall.

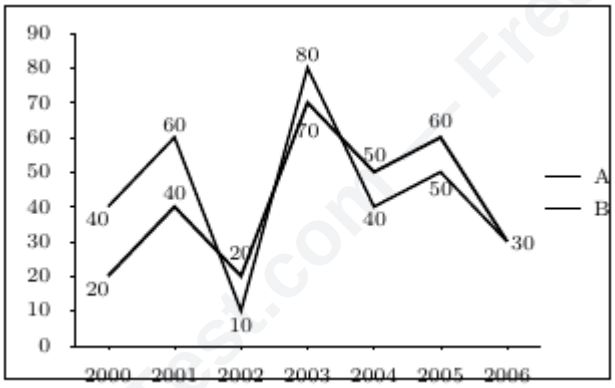
**(a)** Some bedrooms are kitchens.
**(b)** All halls are kitchens.
**(c)** No kitchen is a bedroom.
**(d)** Some kitchen are halls.

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**Q85.** Who was the Nawab of Bengal during the Battle of Plassey?

**(a)** Amichand Rajbansi
**(b)** Mir Quasim
**(c)** Mir Jafar
**(d)** Siraj ud- Daulah

**Q86.** The following graph shows the sales made by two companies, A and B, over 7 years. Answer the question below based on the graph.



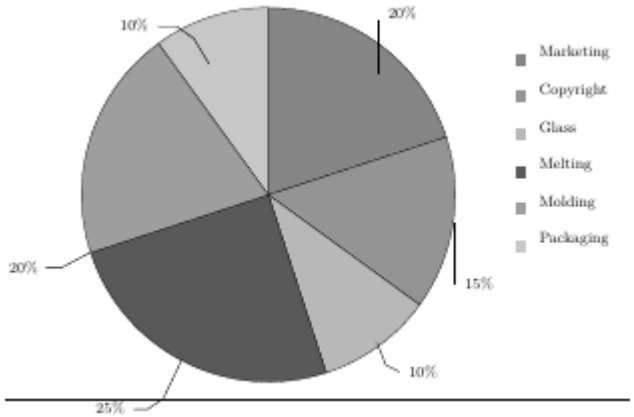

In which year was the difference between the sales made by A and that made by B the least?

**(a)** 2005
**(b)** 2002
**(c)** 2003
**(d)** 2006

**Q87.** A wristwatch reads 7.30 am. If the hour hand points south-west, then in what direction will the minute hand point after 15 minutes?

**(a)** North
**(b)** South-west
**(c)** West
**(d)** South

**Q88.** The following pie chart shows the percentage distribution of the various expenses incurred in selling an electric bulb. Answer the question given below based on the pie chart.




If, for a certain quantity of bulbs, the manufacturer incurs Rs. 28,400 as molding cost, then how much does he incur as copyright expense?

**(a)** Rs. 20,130
**(b)** Rs. 20,310
**(c)** Rs. 23,100
**(d)** Rs. 21,300

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

Six students A, B, C, D, E and F appeared in several tests. Either C or F scored the highest. Whenever C scored the highest, E scored the least. Whenever F scored the highest, B scored the least. In all the tests they got different marks. D scored higher than A but they were close competitors. A scored higher than B. C scored higher than A. E and F were close competitors. If C got the first rank, what was the rank of A?

**(a)** First
**(b)** Fourth
**(c)** Third
**(d)** Second

**Q90.** Select the option that is related to the third term in the same way as the second term is related to the first term.

Law : Order : : Crime : ?

**(a)** Peace
**(b)** Criminal
**(c)** War
**(d)** Punishment

**Q91.** Four pairs of words are listed below, out of which three pairs are alike in some manner and one is different. Select the odd pair.

Low : High
Night : Day
Soft : Delicate
Sweet : Sour

**(a)** Soft : Delicate
**(b)** Sweet : Sour
**(c)** Low : High
**(d)** Night : Day

**Q92.** Select the number from among the given options that can replace the question mark (?) in the following series.

5, 18, 39, 68, 105, ?

**(a)** 138
**(b)** 140
**(c)** 118
**(d)** 150

**Q93.** A mother is now three times as old as her daughter. 5 years ago, she was four times as old as her daughter. What is the current age of the daughter?

**(a)** 16 years
**(b)** 12 years
**(c)** 15 years
**(d)** 20 years

**Q94.** Arrange the following number in their increasing order.

(1) –0.96
(2) 0.83
(3) 0.24
(4) –0.64
(5) 0.58

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

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**Q95.** A statement is given followed by two arguments. Decide which of the arguments is/are strong with respect to the statement.

Statement:

Officers in the administrative departments should be transferred.

Arguments:

1. Yes, they get friendly with people and can be manipulated by them.

2. No, officers do not like to get transferred frequently.

**(a)** Both arguments 1 and 2 are strong.
**(b)** Only argument 2 is strong.
**(c)** Only argument 1 is strong.
**(d)** Neither argument 1 or 2 is strong.

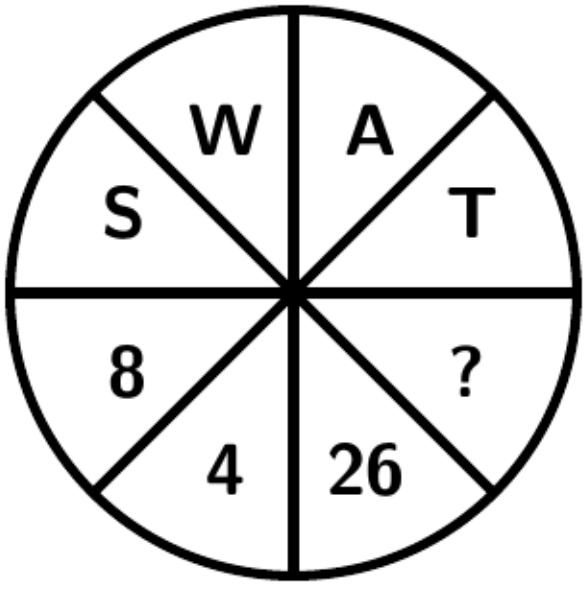
**Q96.** There is a family of five persons A, B, C, D and E. D is the father of B, who is the wife of A. C is the sister of D, and E is the wife of D. How is E related to A?

**(a)** Mother-in-law
**(b)** Son-in-law
**(c)** Mother
**(d)** Son

**Q97.** In a certain code language, 'LAUGHTER' is written as 'MBVHIUFS'. How will 'DEPRESSION' be written in that language?

**(a)** EFQSFTJPTO
**(b)** EFSFTQTJPO
**(c)** EFQSFTTJPO
**(d)** EFQSJPOFTT

**Q98.** Study the given pattern carefully and select the number from among the given options that can replace the question mark(?).




**(a)** 7
**(b)** 20
**(c)** 14
**(d)** 6

**Q99.** Consider the given statement and decide which of the given assumptions is/are implicit in the statement.

Statement:

An advertisement states that XYZ paints should be used to decorate houses.

Assumptions:

1. People want to decorate their house.
2. Only XYZ paints can make houses decorative.

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

**Q100.** Vimal and Kamal are good at piano and guitar. Rima and Sima are good at hockey and guitar. Rima, Komal and Rina are good at hockey and chess. Rina and Rima are good at piano and badminton. Komal and Sobha are good at chess and piano. Who is good at hockey, chess and badminton but NOT at guitar?

**(a)** Rina
**(b)** Komal
**(c)** Rima
**(d)** Sima

## ANSWER KEY

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

## SOLUTIONS

**Q1. Answer: (a) 4**

Given:

20 – [15 – {4 – (8 – 6 + 3)}]

Concept used:

BODMAS

B - Brackets

O - Of

D - Division

M - Multiplication

A - Addition

S - Subtraction

Preference will be done on the basis of the letter coming first in the word BODMAS.

Calculations:

20 – [15 – {4 – (8 – 6 + 3)}]

= 20 - [15 - {4 - (11 - 6)}]

= 20 - [15 - {4 - 5}]

= 20 - [15 - {- 1}]

= 20 - [15 + 1]

= 20 - 16

= 4

Hence, The value is 4.

**Q2. Answer: (a) 10 years, 40 years**

Given:

Narendra's mother is 4 times as old as Narendra.

Four years ago, his mother was six times as old as Narendra was.

Calculations:

Let the present age of Narendra be x. Then, his mother's age is 4x.

According to the question,

6(x - 4) = 4x - 4

=> 6x - 24 = 4x - 4

=> 2x = 20

=> x = 10 years

So, His mother's age= 4 × (10) = 40 years

Hence, Narendra's present age is 10 years and his mother's age is 40 years.

**Q3. Answer: (d) 128.218**

Given:

160.342 – 32.124

Concept used:

Decimal

Calculations:

160.342 - 32.124

= 160 + 0.342 - (32 + 0.124)

= 160 - 32 + 0.342 - 0.124

= 128 + 0.218

= 128.218

Hence, The Required simplified value is 128.218.

**Q4. Answer: (c) C**

Explanation:

The logic followed here is:

If any two numbers are the same in two dices irrespective of their position on the dice then the remaining third number in both the dice are opposite to each other.

According to this,

Letter A is opposite to Letter D,

Letter B is oppposite to Letter E,

Letter C is opposite to Letter F.

Hence, the correct answer is letter C.

**Q5. Answer: (a) Polygraph**

The correct answer is Polygraph.

Key Points

• A polygraph test is popularly known as a lie detector test, it is a machine that measures a person’s physiological responses when they respond to questions.

• Polygraph tests measure a person’s heart rate or blood pressure, respiration, and skin conductivity.

• The purpose of the test is usually to prove whether a person has committed a crime or not.

• These tests cannot actually test for honesty. Instead, it relies on the polygraph operator’s analysis on tested person’s responses, which can be inaccurate.

• Polygraphs are not admissible as evidence in United States courts.

Additional Information

• A seismometer is an instrument that responds to ground noises and shaking caused by earthquakes, explosions, and volcanic eruptions. They are combined with a timing device and a recording device to form a seismograph.

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• A barograph is a barometer that records barometric pressure over time in graphical form. This instrument is also used to make a continuous recording of atmospheric pressure.

• A polarimeter is an instrument used to measure the angle of rotation caused by passing polarized light through an optically active substance.

**Q6. Answer: (d) 1784**

The correct answer is 1784.

Key Points

• The Asiatic Society of Bengal was founded on Jan 15, 1784, by Sir William Jones, an Orientalist, to encourage Oriental studies.

• An outstanding scholar from the University of Oxford, arrived in Calcutta (now Kolkata) in 1783, as a supreme court judge. The society was founded after his arrival.

• The Asiatic Society had the support of Warren Hastings, the Governor-General (1772–85) of Bengal, though he declined its presidency.

• The society owns an art collection which includes paintings by Peter Paul Rubens and Joshua Reynolds.

• Indians were first admitted as members of the Asiatic Society in 1829.

• The society's library contains some 100,000 general volumes, and more than 27,000 books o Sanskrit, manuscripts, prints, coins, and engravings. The Journal of the Asiatic Society of Bengal is published regularly.

Additional Information

• West Bengal is a state in eastern India, between the Himalayas and the Bay of Bengal.

• Its capital, Kolkata (formerly Calcutta), retains architectural and cultural remnants of its past as an East India Company trading post and capital of the British Raj.

• Trinamool leader Mamata Banerjee is West Bengal's incumbent chief minister, the first woman to hold the office.

• Shri La. Ganesan assumed charge of the office of the Governor of West Bengal on 18th July 2022.

**Q7. Answer: (b) T**

The pattern follows here is :

Thus, 'T' will replace the question mark in the given series.

Hence, the correct answer is "Option 2".

**Q8. Answer: (c) Milky Way**

The correct answer is Milky Way.

Key Points

• Our planetary system is located in an outer spiral of the Milky Way galaxy.

• Our solar system consists of stars, the Sun, and everything bound to it by gravity – the planets are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune, Pluto the dwarf planet, dozens of moons, millions of asteroids, comets, and, meteoroids.

• Scientists have discovered thousands of planetary systems orbiting other stars in the Milky Way.

• The Milky Way is the galaxy that includes our Solar System, a hazy band of light seen in the night sky formed from stars that cannot be individually distinguished by the naked eye.

Additional Information

• Messier 81 (also known as Bode's Galaxy) is a grand spiral galaxy about 12 million light-years away, with a diameter of 90,000 light years, in the constellation Ursa Major.

• The Triangulum Galaxy is a spiral galaxy 2.73 million light-years from Earth in the constellation Triangulum. It is catalogued as Messier 33 or NGC 598.

• The Andromeda Galaxy, also known as Messier 31, M31, or NGC 224 and originally the Andromeda Nebula, is a barred spiral galaxy with a diameter of about 46.56 kiloparsecs approximately 2.5 million light-years from Earth and the nearest large galaxy to the Milky Way.

**Q9. Answer: (c) 5.9994**

Given:

$\sqrt{2916} = 54$

Calculations:

$\sqrt{29.16}+\sqrt{0.2916}+ \sqrt{0.002916} +\sqrt{0.00002916}$

$= 5.4 + 0.54 + 0.054 + 0.0054$

$= 5.4 + 0.54 + 0.0594$

$= 5.4 + 0.5994$

= 5.9994

Hence, The simplified value is 5.9994.

**Q10. Answer: (c) It is situated in the same location as Rashtrapati Bhavan.**

The correct answer is It is situated in the same location as Rashtrapati Bhavan.

Key Points

• Raisina Hill, is an area of New Delhi, housing India's most important government buildings, including Rashtrapati Bhavan, the official residence of the President of India and the Prime Minister's Office and several other important ministries.

• The word Raisina Hill is often used as a metonym for the seat of the Government of India.

• Surrounded by important buildings and structures, including the Parliament of India, Rajpath, and India Gate.

• The term was coined following the acquisition of land from 300 families from local villages was acquired under "1894 Land Acquisition Act" to begin the construction of the Viceroy's House.

• The "hill" is a slightly elevated 266 m (873 ft) high, about 18 m (59 ft) higher than the surrounding area.

Additional Information

• The Bahu Fort is a fortress that represents the lavishness of the Dogra kings and the royal family that resided to rule the region.

• Hari Parbat also known as Kooh-e-Maran lies on the west of Dal Lake in Srinagar, in the Union Territory of Jammu & Kashmir.

• Vivekananda Rock Memorial is a monument and popular tourist attraction in Kanyakumari.

**Q11. Answer: (d) 12 days**

Given:

Sita can clean a hotel in 20 days.

Rita can clean the same hotel in 30 days.

Concept used:

Rate of work (Efficiency) = (Total work)/(Time taken)

Calculation:

According to the question

Total work = L.C.M. of (20, 30) = 60 units

Efficiency of Sita = 60/20 = 3 units/day

Efficiency of Rita = 60/30 = 2 units/day

Combined efficiency of A and B = (3 + 2) = 5 units/day

Time is taken by A and B working together = 60/5 = 12 days

Therefore The time taken by Sita and Rita to clean the hotel together is 12 days.

**Q12. Answer: (b) 31452**

Explanation:

The order is in increasing sequential manner of person, i.e

Individual Family Community Country World

(3) (1) (4) (5) (2)

The correct answer is 31452.

**Q13. Answer: (d) 120°**

Given:

ABCD is a cyclic quadrilateral and ABC is an equilateral triangle.

Concept used:

Sum of Opposite angles of a cyclic quadrilateral is 180°.

Calculations:

According to question,

angle ABC = 60°

Now, angle ABC + angle CDA = 180°

=>60° + angle CDA = 180°

=> angle CDA = 120°

Hence, The angle of CDA is 120°.

**Q14. Answer: (d) 30%**

The correct answer is 30%.

Key Points

• Forests are considered one of the world's largest banks for all of the carbon emitted into the atmosphere through natural processes and human activities.

• They cover about 30 percent of Earth's land surface, while accounting for 50 percent of plant productivity.

• As much as 45 percent of the carbon stored on land is tied up in forests.

• Scientists estimate that humans release about nine billion tons of carbon (mostly carbon dioxide) each year by burning fossil fuels and by changing the landscape.

• About four billion tons end up in the atmosphere and two billion tons dissolve in the ocean.

• The last three billion go into ecosystems on land, but exactly where these sinks are located remains an open question.

Additional Information

• The National Aeronautics and Space Administration is an independent agency of the US federal government responsible for the civil space program, aeronautics research, and space research.NASA was established in 1958, succeeding the National Advisory Committee for Aeronautics, to give the US space development effort a distinctly civilian orientation, emphasizing peaceful applications in space science.

• Since its establishment, most American space exploration efforts have been led by NASA, including the Apollo Moon landing missions, the Skylab space station, and later the Space Shuttle.

• NASA is supporting the International Space Station and is overseeing the development of the Orion spacecraft, the Space Launch System, Commercial Crew vehicles, and the planned Lunar Gateway space station.

• The agency is also responsible for the Launch Services Program, which provides oversight of launch operations and countdown management for uncrewed NASA launches.

**Q15. Answer: (b) Diagonally opposite**

Given:

Four friends, Ankita, Shruti, Payal and Mahak, are sitting at a rectangular table, each at one corner.

Explanation:

Assuming all are facing inside.

Ankita is sitting to the right of Shruti.

Shruti is sitting diagonally opposite to Payal.

According to the arrangement, Ankita is sitting diagonally opposite to Mahak.

Hence, the correct answer is Mahak.

**Q16. Answer: (c) Daughter-in-law**

Explanation:

Preparing the family tree using the following symbols:

Akshay's son-in-law is married to Anisha.

Anisha brother Vijay is married to Twinkle.

Here, Twinkle is Vijay's wife, and Vijay is Akshay's son.

Therefore, Twinkle is Daughter-in-law of Akshay.

Hence, the correct answer is Daughter-in-law.

**Q17. Answer: (d) Jaliawala Bagh Tragedy**

The correct answer is Jaliawala Bagh Tragedy.

Key Points

• Jallianwala Bagh Massacre was the incident in which British troops fired on a large crowd of unarmed Indians in Amritsar killing several hundred people and wounding many hundreds more.

• On 13 April 1919, thousands of people were gathered at Jallianwala Bagh in Amritsar.

• General Dyer arrived there with armed troops and ordered ruthless firing on the uninformed crowd.

• Rabindranath Tagore renounced his knighthood in condemnation of the tragedy.

• The Jallianwala Bagh Massacre is the deadliest incident in India's Independence history that resulted in the death of about 1,000 freedom fighters.

• In this incident, the British soldiers under Reginald Dyer fired against a group of innocent unarmed people.

• It happened on April 13, 1919, at Jallianwala Bagh, an enclosed garden in Amritsar, Punjab.People who were trapped inside the garden got fired brutally and killed.

Additional Information

• Bhagat Singh was an Indian nationalist considered to be one of the most influential revolutionaries of the Indian independence movement.

• The Kakori Train Robbery (prapt of Kakori Conspiracy) was a train robbery that took place at Kakori, a village near Lucknow, on 9 August 1925, during the Indian Independence Movement against the British Raj. It was organised by Hindustan Republican Association (HRA).

• The Chauri Chaura incident occurred at Chauri Chaura in the Gorakhpur district of the United Province, (modern Uttar Pradesh) in British India on 4 February 1922, when a large group of protesters, participating in the Non-cooperation movement, clashed with police, who opened fire.

**Q18. Answer: (d) incineration**

The correct answer is incineration.

Key Points

• The best method to dispose of biological wastes from hospitals is incineration.

• Incineration is a waste treatment process that involves the combustion of substances contained in waste materials.

• Industrial plants for waste incineration are commonly referred to as waste-to-energy facilities.

• Incineration and other high-temperature waste treatment systems are described as "thermal treatment".

• Incineration of waste materials converts the waste into ash, flue gas and heat.

• The ash is mostly formed by the inorganic constituents of the waste and may take the form of solid lumps or particulates carried by the flue gas.

• The flue gases must be cleaned of gaseous and particulate pollutants before they are dispersed into the atmosphere.

• In some cases, the heat that is generated by incineration can be used to generate electric power.

Additional Information

• Decomposition or rot is the process by which dead organic substances are broken down into simpler organic or inorganic matter such as carbon dioxide, water, simple sugars and mineral salts.

• The daily operation at a Class 3 landfill includes dumping of waste into a specific area of the landfill - called a working face - followed by compaction (crushing) of the waste and then covering of the waste with soil. Waste is dumped into an open area of the landfill called a cell.

• Burning waste is usually an environmentally poor waste management option because potential resources are lost and it can cause air, land and water pollution.

**Q19. Answer: (d) commands**

The correct answer is Commands.

Key Points

• In telecommunications and computing, a Menu is a list of options or commands presented to the user of a computer or communications system.

• The menu may either be a system's entire user interface, or only part of a more complex one.

• A menu bar is a graphical control element which contains drop-down menus.

• The menu bar purpose is to supply a common housing for window- or application-specific menus which provide access to such functions as opening files, interacting with an application, or displaying help documentation or manuals.

• The main difference between a toolbar and a menu bar is that a toolbar contains images and icons, while a menu bar contains words.

Additional Information

• In the pursuit of knowledge, data is a collection of discrete values that convey information, describing quantity, quality, fact, statistics, other basic units of meaning, or simply sequences of symbols that may be further interpreted.

• Reports are concise summaries of data distilled from a larger set of data, intended to be presented to a specific audience, in fields such as business and science.

• An object can be a variable, a data structure, a function, or a method. As regions of memory, they contain value and are referenced by identifiers.

**Q20. Answer: (b) 18 years**

The correct answer is 18 years.

Key Points

• Voting age is a minimum age established by law that a person must attain before they become eligible to vote in a public election.

• The most common voting age is 18 years; however, voting ages as low as 16 and as high as 25 currently exist (see list below).

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• Most countries have set a minimum voting age, often set in their constitution.

• In a number of countries, voting is compulsory for those eligible to vote, while in most it is optional.

• When the right to vote was being established in democracies, the voting age was generally set at 21 or higher.

• In the 1970s many countries reduced the voting age to 18.

Additional Information

As per the Election Commission of India, citizens are eligible to become voters under the following conditions:

• Every citizen who is 18 years old on the qualifying date (January 1 of the year in case) unless disqualified, is eligible to be enrolled.

• Enrollment only at ordinary place of residence.

• Enrollment is only at one place.

• Overseas Indian are deemed to be ordinarily resident at the address given in passports.

• Service voters are deemed to be ordinarily resident at their home address.

**Q21. Answer: (b) Muhammad Ali Jinnah**

The correct answer is Muhammad Ali Jinnah.

Key Points

• Muhammad Ali Jinnah declared ‘Direct Action Day' on 16th August 1946 and called for Muslims all over the country to suspend all businesses.

• Also known as the 1946 Calcutta Killings, was a day of nationwide communal riots that led to large-scale violence between Muslims and Hindus in the city of Calcutta in the Bengal province of British India.

• The day marked the start of The Week of the Long Knives, now known as the ‘Direct Action Day’ ,16 August poised itself right next to perhaps one of the most important days in Indian history.

Additional Information

• Jayaprakash Narayan, popularly referred to as JP or Lok Nayak, was an Indian independence activist, theorist, socialist and political leader.

• Subhash Chandra Bose was an Indian nationalist whose defiance of British authority in India made him a hero among Indians, but his wartime alliances with Nazi Germany and Imperial Japan left a legacy vexed by authoritarianism, anti-Semitism, and military failure.

• Mohandas Karamchand Gandhi was an Indian lawyer, anti-colonial nationalist, and political ethicist who employed nonviolent resistance to lead the successful campaign for India's independence from British rule and to later inspire movements for civil rights and freedom across the world.

**Q22. Answer: (b) 95°**

Given:

The points A, B and C lie on a circle with centre O.

angle ACB = 47.5°

Concept used:

The angle subtended by an arc at the centre is double the angle subtended by it at any point on the remaining part of the circle.

Calculations:

According to the concept,

2angle ACB = angle AOB

=>2(47.5°) = angle AOB

=>angle AOB = 95°

Hence, The measure of the angle AOB = 95°.

**Q23. Answer: (d) 15 √3 m**

Given:

The angle of elevation of a lamp post changes from 30° to 60° when a person walks 30 m towards it.

Calculations:

Let initially the distance Between lamp and the person be x

And the height of the lamp be h.

Then, according to question,

tan30° = h/x

=> 1/√3 = h/x

=>x = h√3 ----------(1)

and tan60° = h/(x+30)

=>√3 (x - 30) = h

=>√3x - 30√3 = h

=>√3(h√3) - 30√3 = h

=>3h - 30√3 = h

=>2h = 30√3

=>h = 15√3

Hence, The height of the lamp be 15√3 m.

**Q24. Answer: (a) 9**

Given:

12 × 15, 15 × 21, 21 × 12

Concept used:

HCF = highest common factor from the given set.

Calculation:

HCF(12 × 15, 15 × 21, 21 × 12)

= HCF(3 × 4 × 3 × 5, 3 × 5 × 3 × 7, 3 × 7 × 3 × 4)

= 3 × 3

= 9

Hence, The Required HCF is 9.

**Q25. Answer: (b) Electronic Voting Machine**

The correct answer is Electronic Voting Machine.

Key Points

• EVM is an Electronic Voting Machine, to conduct free and fair elections electronically voting machines were introduced.

• EVM was first introduced in Indian elections between 1998 and 2001.

• Recently used in state elections conducted in five Indian states in 2017.

• The technology has eliminated paper ballots in the local, state, and general elections.

• It supports a smooth election with technological advancement.

• EVMs are the most excellent way to avoid election malpractices, as per the given Indian population.

Additional Information

• The Indian electronic voting machine (EVM) was developed in 1989 by the Election Commission of India in collaboration with Bharat Electronics Limited and Electronics Corporation of India Limited.

• The designers of the EVMs were the faculty members of the Industrial Design Centre, IIT Bombay.

• The EVMs were first used in 1982 in Kerala for a limited number of polling stations.

• The EVMs were first time used on an experimental basis in constituencies of Rajasthan, Madhya Pradesh, and Delhi.

• The EVMs were used first time in the general election to the assembly of Goa in 1999.

• In 2003, all by-elections and state elections were held using EVMs, encouraged by this election commission decided to use only EVMs for Lok Sabha elections in 2004.

**Q26. Answer: (d) 3/29**

Given:

a : b :: 3 : 4

Calculations:

We have,

a : b :: 3 : 4

=> a/b =3/4

Now, (5a -3b)/(7a+2b)

On dividing both the denominator and numerator by b we get:

= (5a/b - 3)/(7a/b + 2)

By substituting the value of a and b we get,

= ((5×3)/4 - 3)/((7×3)/4 + 2)

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= (3/4)/(29/4)

= 3/29

Hence, The Required value is 3/29.

**Q27. Answer: (b) 1515/19 %**

Given:

Discount on the marked price of an article for card payment = 5%

Profit = 10%

Concept used:

S.P. = C.P. × (100 + Profit%)/100

Indirect process:-

M.P. = S.P. × 100/(100 – discount%)

Calculation:

According to the question,

S.P. = C.P. × (100+10)/100

=> S.P. = C.P. × (1.1)

=> S.P. = (1.1)C.P.

Now, M.P. = S.P. × 100/(100-5)

=> M.P. = (1.1)C.P. × 100/95

=> M.P. = 110/95 × C.P.

Now, The percentage by which M.P. is more than C.P. is

= (M.P - C.P)/C.P × 100

By substituting the value of M.P. in the above equation and simplifying, we get,

= ((110 - 95)×C.P.)/(95×C.P.) × 100

= 300/19 %

= 1515/19 %

Therefore The Required percentage value is 1515/19 %.

**Q28. Answer: (d) 2000000**

Given:

Losing candidate got 37% of total votes and loses by a difference of 520000 votes to the winner.

Concept used:

% of winning candidate's vote = % of losing candidate's vote + difference margin

Calculation:

Let total number of votes cast be 100x.

So losing candidate got (100x × 37/100)

=> 37x

So, the winning candidate got (100x – 37x)

=> 63x

According to the question,

63x – 37x = 520000

=> 26x = 520000

=> x = 20000

=>Total Casted votes = 100x = 20,00,000

Therefore The total number of votes cast was 2000000.

**Q29. Answer: (a) Q17**

The logic followed here is:

Letters in a row are increased by 3

And, number in each column = sum of first number and second number to their respective letters.

So, Letters in first row:

B + 3 = E, E + 3 = H

Letter in second row:

K + 3 = N, N + 3 = Q

Letters in third row:

T + 3 = W, W + 3 = Z

Also, numbers corresponding to respective letters:

3 + 8 = 11

9 + 4 = 13

Thus, 24 - 7 = 17.

Thus, Q17will replace the question mark.

Hence, the correct answer is 'Option 1'.

**Q30. Answer: (b) Sulphur**

The correct answer is Sulphur.

Key Points

• Silver articles become black on exposure to air for sometime.

• When silver articles exposed to air silver reacts with sulphur present in the atmosphere and form a black layer of silver sulphide on the surface.

• This is because the silver metal reacts with sulphur present in the atmosphere and forms silver sulphide.

• Thus, a layer of silver sulphide is formed on the surface of silver articles, because of which they appear dull and black.

• The phenomenon is called corrosion. For silver particularly, it is called tarnishing of silver.

Additional Information

• Carbon is a chemical element with the symbol C and atomic number 6. It is nonmetallic and tetravalent—its atom making four electrons available to form covalent chemical bonds.

• Nitrogen is the chemical element with the symbol N and atomic number 7. Nitrogen is a nonmetal and the lightest member of group 15 of the periodic table, often called the pnictogens.

• Chlorine is a chemical element with the symbol Cl and atomic number 17. The second-lightest of the halogens,

**Q31. Answer: (b) 1995**

The correct answer is 1995.

Key Points

• The government of India initiated the National Programme of Nutritional Support to Primary Education (NP-NSPE) on 15 August 1995.

• The objective of the scheme is to help improve the effectiveness of primary education by improving the nutritional status of primary school children.

• Initially, the scheme was implemented in 2,408 blocks of the country to provide food to students in classes one through five of government, government-aided and local body run schools. By 1997–98, the scheme had been implemented across the country.

• Under this programme, a cooked midday meal with 300 calories and 12 grams of protein is provided to all children enrolled in classes one to five.

• In October 2007, the scheme included students in upper primary classes of six to eight in 3,479 educationally backward blocks, and the name was changed from National Programme for Nutrition Support to Primary Education to National Programme of Mid Day Meals in Schools.

• Though cooked food was to be provided, most states (apart from those already providing cooked food) chose to provide "dry rations" to students.

• "Dry rations" refers to the provision of uncooked 3 kg of wheat or rice to children with 80% attendance.

Additional Information

• The Food & Nutrition Board (FNB), set up in 1964, is an attached office of the Ministry of Women & Child Development and has a countrywide set up.

• Originally with Ministry of Food, the FNB was shifted to Ministry of Women and Child Development (then Department of WCD) in 1993.

• The current minister for the Ministry of Women and Child Development is Smriti Irani.

• The Midday Meal Scheme is a school meal programme in India designed to better the nutritional standing of school-age children nationwide.

**Q32. Answer: (b) Indira Awas Yojana**

The correct answer is Indira Awas Yojana.

Key Points

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• Indira Awas Yojana was rural housing schemes by the Government of India is re-structured into Pradhan Mantri Gramin Awas Yojana.

• Pradhan Mantri Awas Yojana- Gramin (PMAY-G) was launched to achieve the objective of Housing for All by 2022, the erstwhile rural housing scheme Indira Awaas Yojana (IAY) was restructured to Pradhan Mantri Awas Yojana-Gramin (PMAY-G) with effect from 1st April 2016.

• This scheme was launched by the Ministry of Rural Development.

• This scheme aims to provide a pucca house with basic amenities to all rural families, who are homeless or living in kutcha or dilapidated houses by the end of March 2022.

• To help rural people Below the Poverty Line (BPL) in the construction of dwelling units and the upgradation of existing unserviceable kutcha houses by assisting in the form of a full grant.

Additional Information

• The Rajiv Awas Yojana Scheme came into operation in June 2011 and was launched in two phases. It was launched with the aim to make India a slum-free country eventually.

• Deen Dayal Antyodaya Yojana or DAY is one of the Government of India scheme for helping the poor by providing skill training. It replaces Aajeevika.

• The Jawahar Rozgar Yojana (JRY) has been patched up, streamlined, and wandered into the Jawahar Gram Samridhi Yojana (JGSY). It was spread out on April 1, 1999, completely aimed at chipping away at the individual fulfilment of the rural poor by offering more helpful work.

**Q33. Answer: (a) Glacier**

Explanation:

Valley: A valley is an elongated low area often running between hills or mountains.

Plateau: Plateaus are suddenly elevated but flat land pieces in themselves.

Hill: Hills are gentler than mountains and have rounder peaks. Hills are higher and steeper than plateaus.

Glacier: A glacier is a large body of ice moving slowly down a slope.

The correct answer is Glacier.

**Q34. Answer: (b) 1/6 $x^2$**

Shortcut Trick

Inradius (r) of equilateral triangle = side ÷ 2√3 = x ÷ 2√3.

This radius (r) is the radius of the circle.

Diameter of circle = 2 × (x ÷ 2√3) = x ÷ √3.

Diagonal of inscribed square = Diameter of circle = x ÷ √3.

Area of square = $(\text{Diagonal})^2 \div 2 = (x \div \sqrt{3})^2 \div 2 = (x^2 \div 3) \div 2 = x^2 \div 6$.

Therefore The correct answer is $(1/6)\ x^2$.

Alternate Method

Given: Side of equilateral triangle = x.

Formula Used: Inradius of equilateral triangle (r) = x ÷ (2√3); Area of square = $(\text{Diagonal})^2 \div 2$.

=> Radius of the inscribed circle (r) = x ÷ (2√3)

=> Diameter of the circle (d) = 2 × r = 2 × (x ÷ 2√3) = x ÷ √3

=> Since the square is inscribed in the circle, the diagonal of the square = Diameter of the circle

=> Diagonal (D) = x ÷ √3

=> Area of the square = $D^2 \div 2$

=> Area = $(x \div \sqrt{3})^2 \div 2$

=> Area = $(x^2 \div 3) \div 2 = x^2 \div 6$

Therefore The correct answer is $(1/6)\ x^2$.

Additional Information

Equilateral Triangle Radii

Inradius (r) = side ÷ 2√3 and Circumradius (R) = side ÷ √3. Note that R = 2r.

Square in Circle

When a square is inscribed in a circle, the diagonal of the square is equal to the diameter of the circle (2r).

Area of Square

Area can be calculated as $(\text{side})^2$ or $(\text{diagonal})^2 \div 2$.

**Q35. Answer: (c) 12**

Given:

Time = 5 years

Amount = 8/5 principal

Formula used:

Simple interest = (Principal × rate × time)/100

Amount = Principal + Simple Interest

Calculation:

Amount = 8/5 P

Simple interest = 8/5 P - P = 3/5 P

3/5 P = (P×R×5)/100

=> 300P = 25 × P × R

=> 12P = P × R

=> R = 12%

Hence, The rate of interest is 12%.

**Q36. Answer: (a) Rs. 325**

Given:

The selling price of the article = Rs. 390

Gain (or) Profit percentage = 20%

Formula:

Profit percentage = (Selling price – Cost price)/(Cost price) × 100

Calculations:

According to the question,

Profit percentage = { (SP – CP)/CP }× 100

=> 20 = { (390 - CP)/CP } × 100

=> 20 × CP = 39000 – (100 × CP)

=> 120 × CP = 39000

=> Cost price (CP) = 39000/120 = Rs. 325

Therefore The Cost price of the article is Rs. 325

**Q37. Answer: (b) All guitars are bagpipes.**

Explanation:

Statements:

1.All guitars are instruments.

2.All instruments are bagpipes.

Venn Diagram:

Options:

All bagpipes are instruments => False. Because, Some instruments are bagpipes.

All guitars are bagpipes => True.

All instruments are guitars => False. Because, Some guitars are instruments.

No guitar is a bagpipe => False. Because, Some guitars are bagpipe.

The correct answer is All guitars are bagpipes.

**Q38. Answer: (a) 3601**

Given:

Speed of train = 45 km/h

Time = 4 hours

Distance between poles on the railway track = 50 m = 1/20 km

Formula used:

Speed = Distance/Time

Calculation:

According to the question,

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Total Distance travelled in 4 hrs by train = Speed × Time

Total Distance = 45 × 4 = 180 km

Total poles on the railway track in 180 km stretch = 180/(1/20)

Total poles = 180 × 20 = 3600

Adding one pole because the train crosses a pole at the beginning of its journey,

So, total poles covered = 3600 + 1

= 3601

Hence, the total number of poles covered by the train is 3601.

**Q39. Answer: (c) 1 : 8**

Given:

The ratio of curved surface area of two spheres is 1 : 4.

π = 22/7

Formula used:

Volume of sphere = (4/3 )π r3

Curved surface area = 4π r2

Calculation:

According to the question,

Let the radius be R and r of two spheres,

The ratio of curved surface area of two spheres is 1 : 4.

$= (4\pi R^2)/(4\pi r^2) = 1/4$

$= (R^2)/(r^2) = 1/4$

$= R/r = 1/2$

Ratio of Volume of spheres

$= ((4/3)\pi R^3)/((4/3)\pi r^3)=(R^3)/(r^3)$

$= (R^3)/(r^3) = (1^3)/(2^3) = 1/8$

Therefore The ratio of their volume 1 : 8.

**Q40. Answer: (c) 4, 12**

Concept used:

Let there be a composite number N and its prime factors be a, b, c, d,… etc. and p, q, r, s, … etc. be the indices (or powers) of the a, b, c, d, … etc. respectively i.e., if N can be expressed as –

N = ap. bq.cr.ds…..

If a is even prime factors and b, c, and d is odd prime factors.

=> The number of even number of factors = p (q + 1) (r + 1) (s + 1)

=> The number of odd number of factors = (q + 1) (r +1)(s +1)

Calculations:

The factors of 120,

| **2** | **120** |
|---|---|
| 2 | 60 |
| 2 | 30 |
| 3 | 15 |
| | 5 |

=> 120 = 23 × 31 × 51

=> N = 120 = 23 × 31 × 51

Therefore The number of even number of factors (A) = 3 × (1 + 1) (1 + 1) = 3 × 2 × 2 = 12

Therefore The number of odd number of factors (B) = (1 + 1) (1 + 1) = 4

Hence, The odd and even factors of 120 are 4 and 12 respectively.

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**Q41. Answer: (a) 1932**

The correct answer is 1932.

Key Points

• On 24 September 1932, the Poona Pact was sealed between Mahatma Gandhi and Dr B R Ambedkar in the Yerwada Central Jail, Pune.

• Gandhiji was undertaking a fast against the British government's decision to grant separate electorates for the 'Depressed classes'. This Pact ended the fast.

• The pact, signed at Poona, resulted from the Communal Award of August 4, 1932, a proposal by the British government which would allot seats in the various legislatures of India to the different communities in an effort to resolve the various tensions between communal interests.

• Dalit leaders, especially Bhimrao Ramji Ambedkar, supported the proposal, believing it would allow Dalits to advance their interests.

• Mahatma Gandhi, on the other hand, objected to the provision of an electorate for the Dalits separate from the Hindu electorate, which in his view would weaken India in its bid for independence.

Additional Information

• On March 12, 1930, Indian independence leader Mohandas Gandhi begins a defiant march to the sea in protest of the British monopoly on salt, his boldest act of civil disobedience yet against British rule in India.

• Simon Commission came to India in 1928. A royal commission, Simon Commission wanted to check the working of Government of India Act, 1919.

• On August 2, 1935, The Government of India Act, 1935 was passed. It laid down the constitutional framework for the governance of British India at the federal and provincial levels.

**Q42. Answer: (c) 4% loss**

Given:

MP = CP + 20% of CP

and Discount = 20%

Formula used:

Loss = (Cost price – Selling price)

Loss% = (Loss/(Cost price)) × 100

Calculation:

Let the cost price of the article be = 100

The marked price of the article be = x

According to the question,

x = 100 + 20% of 100

=> x = 100 + 20

=> x = 120

Hence, MP = 120

Now, discount is given = 20%

Selling price = (100-20)/100 of MP

=> SP = 0.8MP = 0.8 × 120 = 96

Loss = (Cost price – Selling price)

=> Profit = 100 – 96 = 4

Profit percentage = (4/100) × 100 = 4%

Therefore The Required percentage is 4% loss.

**Q43. Answer: (a) M1 and L1**

Explanation:

1st Line → M1, M2, M3, M4 and M5 are five men sitting in a line facing towards the south

2nd Line→ L1, L2, L3, L4 and L5 are five women sitting in a second line, parellel to the first line, facing towards the north.

• L1 is at one end of the line.

• M5 is opposite L3, who is to the immediate right of L1.(Case 2 gets cancelled)

• L4, who is to the immediate right of L3, is opposite M4. [Precaution: L4 is opposite M4]

• M2, who is to the immediate left of M4, is opposite L5.

• M3 and L2 are diagonally opposite each other.

According, to the arrangements M1 and L1 are diagonally opposite to each other.

Hence, the correct answer is M1 and L1.

**Q44. Answer: (a) NH-37**

The correct answer is NH-37.

Key Points

• The Centre is making plans to assemble a flyover over countrywide highway 37 (NH 37) that passes through Kaziranga National Park in Assam.

• The Kaziranga countrywide Park is traversed via national toll road 37.

• This highway was also used for cycling events in the 2016 South Asian Games.

• According to reports, the road mortality of reptiles on the highway portion that runs the southern edge of Kaziranga National Park in Assam, India, has increased.

Additional Information

• Countrywide dual carriageway 37 (NH 37) is a national highway in India.

• Country-wide Highway 50 (NH 50) is a country-wide dual carriageway in India that runs from Bidar to Hospet in Karnataka. The total duration of NH 50 is 260.Nine km (160.2 mi).

• NH-30's general period of this toll road is 1,984.Three km (1,233.Zero mi).

• Countrywide dual carriageway 47 (NH forty-seven) is the primary countrywide highway in India.

**Q45. Answer: (d) 33/7 days**

Given:

John can do the work in 6 days

Johnny can do the work in 12 days

Janardan can do the work in 24 days

Formula used:

Work done = Time taken × Efficiency

Time taken prop. to 1/Efficiency

Calculation:

The efficiency of John is 1/6

The efficiency of Johnny is 1/12

The efficiency of Janardan is 1/24

One day work of John, Johnny and Janardan together

Efficiency = 1/6 + 1/12 +1/24

= (4 + 2 + 1)/24 = 7/24

Time taken = 1/Efficiency = 1/(7/24) = 24/7

Therefore, Work completed in 24/7 days

= 33/7 days

Therefore In 33/7 days the work will be completed.

**Q46. Answer: (d) 36.5**

Given:

Average marks of 5 students = 39.20

And average of three of them is 41.

Concept used:

Average = Sum of element/Number of element

Calculation:

Total marks of 5 students

= 39.20 × 5

= 196

Total marks of 3 students

= 41 × 3

= 123

Average of the remaining 2 students
= (196-123)/2
= 73/2
= 36.5
Therefore The average of remaining 2 students is 36.5.

**Q47. Answer: (d) 1876**

The correct answer is 1876.
Key Points
• Alexander Graham Bell became provided the primary U.S. Patent for the discovery of the telephone in 1876.
• The primary phone had two components: a transmitter and a receiver.
• Within seven years of its invention, telephone exchanges were established in Bombay, Madras, and Calcutta.
Additional Information
• 1856:-
• Englishman Henry Bessemer receives a U.S. Patent for a new metal-making procedure that revolutionizes the enterprise.
• 1886:-
• Dynamite was invented by Alfred Nobel.
• Through January 1879, at his laboratory in Menlo Park, New Jersey, Edison had constructed his first high resistance, incandescent electric powered mild.

**Q48. Answer: (a) 64/75**

Given:
45 : 75, 3 : 5, 51 : 68 and 256 : 81.
Formula used:
For ratios m : n, p : q, r : s, and t : u
The compound ratio = (m × p × r × t) : (n × q × s × u)
Calculation:
According to the question:
Compound Ratio = (m × p × r × t) : (n × q × s × u)
Compound Ratio = (45 × 3 × 51 × 256) : (75 × 5 × 68 × 81) = 1,762,560 : 2,065,500 = 64 : 75
Therefore The Required compound ratio is 64/75.

**Q49. Answer: (d) –42**

Given:
((6+3)/3) – 5 × (4 + 5)
Concept used:
BODMAS
Preference for arithmetic operations will be given on the basis of letters coming first in the word BODMAS.
Calculation:
(6+3)/3 - 5 × (4 + 5)
= 3 - 5 × (9)
= 3 - 45
= - 42
Hence, The Required simplified value is - 42.

**Q50. Answer: (c) Madan Mohan Malviya**

The correct answer is Madan Mohan Malviya.
Key Points
• On 24 December 2014, Madan Mohan Malaviya was honored with Bharat Ratna, India's highest civilian honor.
• Pandit Madan Mohan Malviya become born on December 25, 1861, in Allahabad, Uttar Pradesh.
• Malaviya became one of the founders of The Bharat Scouts and courses.
Additional Information
• Malaviya strove to promote current education amongst Indians and co-based the Banaras Hindu University (BHU) at Varanasi in

1916.

• Joshi became presented with Padma Vibhushan, the second-highest civilian award, in 2017 via the government of India.

• LK Advani:-

• In 2015 he become provided the Padma Vibhushan, India's 2d highest civilian honor.

• Pandit Deendayal Upadhyaya Telecom skill Excellence Awards were instituted by using the Ministry of Communications.

**Q51. Answer: (d) Bombay**

The correct answer is Bombay.

Key Points

• On eight August 1942 at the All-India Congress Committee consultation in Bombay, Mohandas Karamchand Gandhi launched the 'quit India' motion.

• The next day, Gandhi, Nehru, and plenty of other leaders of the Indian countrywide Congress have been arrested with the aid of the British government.

• The instantaneous cause for the motion turned into the collapse of the Cripps mission

• The British assumption of unconditional support from India to the British in world battle II become no longer taken properly through the Indian countrywide Congress.

Additional Information

• Lieutenant Governor Anil Baijal, a former Union home Secretary resigned & sent his resignation letter to the President of India on 18 May 2022.

• Lahore is the capital of the Pakistani province of Punjab, is Pakistan's 2nd biggest city after Karachi, and is the 26th largest town in the global.

• Mumbai is a mixture of iconic antique-world attraction architecture, strikingly contemporary excessive rises, cultural and traditional structures, and whatnot.

**Q52. Answer: (c) Dadabhai Naoroji**

The correct answer is Dadabhai Naoroji.

Key Points

• Dadabhai Naoroji is also called the Grand old guy and "Unofficial Ambassador of India".

• Naoroji is renowned for his work in the Indian National Congress.

• He changed into additionally a member of the second international at the side of Kautsky and Plekhanov.

• In 2014, Deputy high Minister Nick Clegg inaugurated the Dadabhai Naoroji Awards for services to UK-India members of the family.

Additional Information

• Keshav Gangadhar Tilak, popularly known as Bal Gangadhar Tilak, was the primary leader of the Indian independence motion.

• Mahatma Gandhi, by way of the call of Mohandas Karamchand Gandhi, Indian attorney, baby-kisser, social activist, and author.

• Lala Lajpat Rai was an Indian author, freedom fighter, and baby-kisser.

• India publish depicted Naoroji on stamps in 1963, 1997, and 2017.

**Q53. Answer: (c) 5^(th)June**

The correct answer is 5th June.

Key Points

• United nations surroundings Programme (UNEP) and held annually on five June when considering that 1973.

• World Environment Day is the largest global platform for environmental public outreach and is widely known for using thousands and thousands of humans internationally.

• The yr 2022 marks the 50-year anniversary of the 1972 Stockholm convention.

• In 2020, the host became Colombia in partnership with Germany.

Additional Information

• It marks the anniversary of the founding of the arena fitness business enterprise (WHO) in 1948.

• The worldwide Day of mild may be held on may additionally 16th each year, the anniversary of the first successful operation of the laser in 1960 by using physicist and engineer, Theodore Maiman.

• Juneteenth country-wide Independence Day turned into signed into law by using President Joe Biden, to become the primary federal vacation set up considering Martin Luther King Jr. Day in 1983.

**Q54. Answer: (c) 55/11**

Given:

Narendra can finish a job in = 10 days

Amit can complete the same work in = 12 days

Concept used:

Efficiency = 1/(Time taken)

Calculation:

According to the question;

Narendra's 1-day work or Efficiency of Narendra = 1/10

Amit's 1-day work or Amit's efficiency = 1/12

(Narendra + Amit)'s 1-day work or Combined efficiency = 1/10 + 1/12

= (6 + 5)/60 = 11/60

So, The time taken to complete the work together is = 1/(Combined efficiency)

1/(11/60) = 60/11

= 55/11 days

Therefore They together will finish the work in 55/11 days.

**Q55. Answer: (c) Food and grain production**

The correct answer is Food and grain production.

Key Points

• The Green Revolution became a period that started out in the Nineteen Sixties throughout which agriculture in India turned converted right into a current business machine by way of the adoption of generation, which includes the usage of high-yielding range (HYV) seeds.

• In particular, led by using agricultural scientist M. S. Swaminathan in India.

• The long-time period outcomes of the inexperienced revolution have been analyzed by way of environmentalists like Vandana Shiva and others who say that it precipitated extra environmental.

• The inexperienced Revolution in India turned into first introduced in Punjab in late 1966-sixty seven as a part of an improvement program issued via worldwide donor businesses and the authorities of India.

Additional Information

• Oil-bearing seeds and nuts are broken up by using grinding, flaking, or rolling, then subjected to mechanical pressing to free up the oil.

• International milk manufacturing has multiplied with the aid of greater than fifty-nine percent, from 530 million tonnes in 1988 to 843 million tonnes in 2018.

• Fish manufacturing in India has witnessed amazing boom by means of showcasing a manufacturing growth from 0.Seventy-five million MT throughout 1950-fifty one to the contemporary production of 14.1 million MT.

• Within the financial year 2020, the nation of Uttar Pradesh had the very best production of cereals, lentils, and pulses, with over fifty-six million metric heaps.

**Q56. Answer: (c) 111**

The correct answer is 111.

Key Points

• The Equator is an extremely good circle and the circumference of a circle is the same as 3600, 10 angular distance is approximately equal to 111km.

• The range is the dimension of distance north or south of the Equator.

• These lines are known as parallels. A circle of the range is an imaginary ring linking all points sharing a parallel.

• Traces of latitude, also called parallels, are imaginary lines that divide the Earth.

Additional Information

• Hipparchus, a Greek astronomer (a hundred ninety–hundred twenty BC), became the first to specify the region through the use of range and longitude as coordinates.

• It's far measured with one hundred eighty imaginary lines that shape circles around Earth east-west, parallel to the Equator.

• At the equator, an arc-second of longitude approximately equals an arc-2nd of range, that is 1/sixtieth of a nautical mile or a hundred and one.27 feet or 30.87 meters.

• One minute of range equals one nautical mile, which is identical to at least one.15 land miles (1. Eighty-five km).

• Each minute of the range is in addition divided into 60 seconds (“).

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**Q57. Answer: (d) 29/12**

Given:

1/3, 4/3 and 3/4

Calculation:

= 1/3 + 4/3 + 3/4

= 5/3 + 3/4

= (5 × 4)+(3×3)/(LCM(3,3,4))

= 29/12

Hence, The Required sum is 29/12.

**Q58. Answer: (a) Paris**

The correct answer is Paris.

Key Points

• The headquarters of the United country's academic, clinical, and Cultural company UNESCO is located in Paris, France.

• It contributes to selling global collaboration in schooling, technological know-how, and subculture.

• UNESCO New Delhi office, the organization's first decentralized office in Asia was set up in 1948.

• Irina Bokova is a Bulgarian baby-kisser who changed into appointed as Director-popular of UNESCO from 2009-2017.

Additional Information

• UNESCO: United nations academic, clinical and Cultural enterprise.

• The United international locations academic, scientific and Cultural business enterprise (UNESCO) turned into born on sixteen November 1945.

• UNESCO has 195 members and 8 associate participants and is ruled by the general convention and the Executive Board.

• Due to the fact that may additionally 2018, Mr. Eric Falt has served because the Director and UNESCO representative for the UNESCO New Delhi office, which covers Bangladesh, Bhutan, India, Nepal, the Maldives, and Sri Lanka.

**Q59. Answer: (d) People who like chocolate, candy and ice-cream.**

Explanation:

The shaded part represents the people who like chocolate, candy and ice-cream.

The correct answer is "People who like chocolate, candy and ice-cream."

**Q60. Answer: (a) Bangladesh**

The correct answer is Bangladesh.

Key Points

• Sachin Tendulkar scripted records on this day in 2012 by becoming the primary-ever cricketer to score a hundred international centuries even as playing in the Asia Cup against Bangladesh.

• The milestone came at the Sher-e-Bangla Stadium in Dhaka towards Bangladesh inside the Asia Cup.

• Sachin Tendulkar is the simplest cricketer who has scored a hundred centuries in the cricket world.

Additional Information

• He has scored a century in at a minimum one cricket ground of all check cricket-playing countries, except Zimbabwe.

• In October 2010, Tendulkar went beyond Brian Lara's report of 19 ratings of 150 or greater by means of hitting his twentieth in opposition to Australia in Bangalore.

• He made his highest score in 2004 whilst he made 248 now not out against Bangladesh on the Bangabandhu country-wide Stadium, Dhaka.

• Tendulkar achieved his first century in opposition to England at Old Trafford, Manchester in 1990; he made 119 now not out.

**Q61. Answer: (c) 5 m**

Given:

Rectangular park measures 37 m × 30 m

There is a path of area 570 m² around the inner side of the park.

Calculation:

Let, width of the path = a

Outer length of the rectangular field = 37 m

Therefore Inner length of the rectangular field = (37 – 2a) m

Outer width of the rectangular field = 30 m

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Therefore Inner width of the rectangular field = (30 – 2a) m

Therefore Outer area of the rectangular field = 37 × 30 = 1110 m2

Therefore Inner area of the rectangular field = (37 – 2a) (30 – 2a) = 1110 + 4a2 - 134a

Therefore The area occupied by the path,

=> 1110 – (1110 + 4a2 – 134a)

=> 134a – 4a2

According to the problem,

=> 570 = 134a – 4a2

=> 2a2 – 67a + 285 = 0

=> 2a2 - 10a - 57a + 285 = 0

=> 2a(a - 5) - 57(a - 5) = 0

=> (a - 5)(2a - 57) = 0

=> a = 5, 57

As we know 57 > 37 Hence, can't be the width of the path.

Hence, The width of the path is 5 m.

**Q62. Answer: (a) 3√2-2**

Concept used:

Factorisation: Multiply and divide the irrational denominator with its conjugate pair and convert it to rational.

Conjugate pair of a + √b is a - √b.

Calculations:

(4+√2)/(√2+1)

On factorisation, we get:

= (4+√2)/(√2+1) × (√2 - 1)/(√2 -1)

= (4+√2)×(√2 -1)/(2 - 1)

= (4 + √2 )(√2 - 1)

= 4 √2 - 4 + 2 - √2

= 3 √2 - 2

Hence, The Required value is 3 √2 - 2.

**Q63. Answer: (b) Panchatantra**

The correct answer is Panchatantra.

Key Points

• Vishnu Sharma is the author of the 'Panchatantra' collection of fable.

• Vishnu Sharma was an Indian scholar.

• Panchatantra refers to the ancient Indian collection of interrelated animal fables and was originally written in the Sanskrit language.

• It was written around 200 BCE and is one of the oldest surviving texts.

• Panchatantra was translated into other languages like Persian, Syrian, and Arabic languages.

**Q64. Answer: (c) 2**

Given:

x + 1/x = 2

Formula used:

$(A + B)^2 = A^2 + B^2 + 2AB$

Calculation:

We have, x + 1/x = 2

And we know that (x + 1/x )2 = x2 + 1/(x²) + 2

=> (2)2 = x2 + 1/(x²) + 2

=> 4 = x2 + 1/(x²) + 2

So, x2 + 1/(x²) = 2

Therefore The correct answer is option (3).

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**Q65. Answer: (a) Husband's mother**

Given:

1. 'Mo > no' means that Mo is the daughter of No.
2. 'Mo # No' means Mo is the father of No.
3. 'Mo $ No' means Mo is the mother of No.
4. 'Mo / No' means Mo is the brother of No.

Explanation:

Preparing the family tree using the following symbols:

Let us first decode the symbol relation and theb draw the family chart.

| **Mo is** | | | | |
|---|---|---|---|---|
| **Symbol** | | **#** | **$** | **/** |
| Relation | Daughter | Father | Mother | Brother |
| **of No** | | | | |

Po $ Qo # Ro / To > Ko

1. Po $ Qo => Po is mother of Qo.
2. Qo # Ro => Qo is father of Ro.
3. Ro / To => Ro is brother of To.
4. To > Ko => To is daughter of Ko.

According, to the family tree diagram Po is mother-in-law of Ko.

Hence, the correct answer is Husband's mother.

**Q66. Answer: (d) Rakesh Sharma**

The correct answer is Rakesh Sharma.

Key Points

• Rakesh Sharma, (born Jan. 13, 1949, Patiala, Punjab state, India) is an Indian military pilot and cosmonaut.

• He was the first Indian citizen in space.

• In 1970 Sharma joined the Indian Air Force as a pilot.

• He flew 21 combat missions in a MiG-21 in the Bangladesh war of 1971.

Additional Information

• Vikram Ambalal Sarabhai was an Indian physicist and astronomer who initiated space research and helped develop nuclear power in India. He was honored with Padma Bhushan in 1966 and the Padma Vibhushan in 1972.

• Avul Pakir Jainulabdeen Abdul Kalam was an Indian aerospace scientist and statesman who served as the 11th President of India from 2002 to 2007. He was born and raised in Rameswaram, Tamil Nadu, and studied physics and aerospace engineering.

• Sunita Lyn Williams is an American astronaut and United States Navy officer who formerly held the records for most spacewalks by a woman and most spacewalk time for a woman. Williams was assigned to the International Space Station as a member of Expedition 14 and Expedition 15.

**Q67. Answer: (a) Basic civic amenties**

The correct answer is Basic civic amenities.

Key Points

• Atal Mission for Rejuvenation and Urban Transformation (AMRUT) is the first focused national Water Mission.

• It was launched in June 2015.

• Its motive is to facilitate ease of living to citizens in 500 cities by providing tap connections and sewer connections.

• AMRUT comes under Basic Civic amenities.

• The scope of basic amenities includes safe drinking water, sanitation, housing, the all-weather road to the village, electrification, fuel, connectivity, healthcare center, school, playground and recreational facilities, and many more.

Additional Information

• Urban transport is the movement of people within urban areas using group travel technologies such as buses and trains.

• Urban areas refer to modernized places with a huge population. There are four types of livelihood prevalent in urban livelihood, that is, street workers, factory workers, self-employed businessmen, and workers in organized sectors.

• In 2008, IBM began work on a 'smarter cities' concept as part of its Smarter Planet initiative. By the beginning of 2009, the

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concept had captivated the imagination of various nations across the globe

**Q68. Answer: (b) Samudragupta**

The correct answer is Samudragupta.

Key Points

• Samudragupta adopted the title of Kaviraja (King of poets).

• He was an expert ' Veena' player.

• Gupta King Samudragupta loved to play the flute and love poems.

• He not only penned many poems himself but also patronized the poets.

• Due to these, he was titled Kaviraj, or King of Poets.

• Samundra Gupta was also known as the 'Napoleon of India'.

Additional Information

• Chandragupta II, also called Vikramaditya, powerful emperor (reigned c. 380–c. 415 CE) of northern India. He was the son of Samudra Gupta and grandson of Chandragupta I.

• Founder of Maurya Dynasty - Chandragupt Maurya.

• Kumaragupta I founded the Nalanda University.

**Q69. Answer: (b) 0**

The correct answer is 0.

Key Points

• Protium has no neutrons in its nucleus.

• It is considered the most stable isotope of hydrogen.

• The basic hydrogen atom – a single proton circled by a single electron is also called protium.

• A neutron is a subatomic particle found in the nucleus of every atom except that of simple hydrogen.

• The charge on the neutron is zero.

Additional Information

• There are three subatomic particles: protons, neutrons, and electrons.

• Two of the subatomic particles have electrical charges:

• protons have a positive charge

• electrons have a negative charge

• These particles make up an atom.

-

**Q70. Answer: (d) 22 December**

The correct answer is 22 December.

Key Points

• Shortest Day of the Year in the Northern Hemisphere.

• The December solstice is on either December 20, 21, 22, or 23.

• The North Pole is tilted furthest from the Sun.

• It is the winter solstice in the Northern Hemisphere, where it is the shortest day of the year.

Additional Information

• In the southern hemisphere, 22nd December has the longest day and the shortest night.

• June 21 is the summer solstice, the longest day and shortest night of the year in the Northern Hemisphere.

• On 21st June sun rays fall vertically over the Tropic of Cancer. This position of the Earth is called Summer Solstice. It is the shortest day of southern hemisphere.

**Q71. Answer: (a) Lord Ripon**

The correct answer is Lord Ripon.

Key Points

• Lord Ripon remained India’s Viceroy from 1880-84.

• He introduced the Local Self Government in 1882.

• This was not enacted by any act, it was a resolution passed in 1882.

• The scheme of local self-government would develop the municipal institutions which had been under the direct control of the British Crown.

• Local self-government means that residents in towns, villages and rural settlements are the hosts in their own home.

• People elect local councils and their heads authorizing them to solve the most important issues.

Additional Information

• Lord Mayo took interest in the Prison reforms, especially the convict settlements in the Andaman Islands.

• Gilbert Elliot-Murray-Kynynmound, 4th Earl of Minto was the 17th Viceroy of India. He also served as the 8th Governor-General of Canada before becoming viceroy.

• In India Curzon appointed a number of commissions to inquire into education, irrigation, police, and other branches of administration, on whose reports legislation was based during his second term of office as viceroy.

**Q72. Answer: (a) 150 m**

Given:

Height of tower = 150 m

Angle of depression = 45°

Calculations:

Let the distance from the tower be x.

According to the question,

tan 45° = (Height of tower)/(Distance from tower)

=> 1 = 150/x

=> x = 150 m

Hence, The Required Distance is 150m.

**Q73. Answer: (a) Tinsukia**

Explanation:

Tinsukia is a town in Guwahati.

Dehradun is a capital city of Uttarakhand.

Jaipur is a capital and lalrgest city of Rajasthan.

Kohima is a capital city of Nagaland.

The correct answer is Tinsukia.

**Q74. Answer: (a) Spade**

Explanation:

Spade is a tool that you use for digging.

Dagger is a knife fighting weapon that has a very sharp point.

Sword is a large knife, or a very sharp metal weapon.

Knife is a tool with a cutting edge or blade.

The correct answer is Spade.

**Q75. Answer: (a) China**

The correct answer is China.

Key Points

• China is the ruler of the world's largest fish producer.

• This Panda country leaves far away from its competitors, including India with a distance of six times more.

• With a total global fish production of 178.8 million tons, one-third of the world's fish production comes from China.

• The Food and Agriculture Organization of the United Nations is a specialized agency of the United Nations.

• It leads international efforts to defeat hunger and improve nutrition and food security.

• It was founded on 16 October 1945.

Additional Information

• Top fish-producing countries in 2022:

• China

• India

• Indonesia

• Peru

• USA

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• Chile
• Japan
• Thailand
• Vietnam
• Russia

**Q76. Answer: (d) Rajiv Kumar**

The correct answer is Rajiv Kumar.

Key Points

• Rajiv Kumar is an Indian economist who served as the second vice-chairman of the NITI Aayog.
• He was the vice chairman of NITI Aayog from 2017-2020.
• He also serves as the Chancellor of Gokhale Institute of Politics and Economics, Pune.
• NITI Aayog is developing itself as a state-of-the-art resource center with the necessary knowledge and skills
• That will enable it to act with speed, promote research and innovation, provide a strategic policy vision for the government, and deal with contingent issues.

Additional Information

• Urjit Patel is an Indian economist, who formerly served as the 24th Governor of the Reserve Bank of India and also Deputy Governor of Reserve Bank of India.
• Bibek Debroy is an Indian economist, serving as the chairman of the Economic Advisory Council to the Prime Minister of India.
• Ravi Shankar Prasad is an Indian politician and lawyer, from the Bharatiya Janata Party. A Member of Parliament since 2000, first in the Rajya Sabha and then in the Lok Sabha.

**Q77. Answer: (b) worksheets**

The correct answer is worksheets.

Key Points

• A worksheet (also known as a spreadsheet) consists of cells in which you can enter and calculate data.
• The cells are organized into columns and rows.
• It is the working surface you interact with to enter data.
• Each worksheet contains 1048576 rows and 16384 columns and serves as a giant table that allows you to organize information.
• Excel is a spreadsheet developed by Microsoft for Windows, macOS, Android and iOS.
• Using a grid of cells arranged in numbered rows and letter-named columns to organize data manipulations like arithmetic operations.

Additional Information

• In Microsoft Excel, a workbook is a collection of one or more spreadsheets, also called worksheets, in a single file. A workbook contains several worksheets with related content and only one of the worksheets is active at a time.
• A photograph is an image created by light falling on a photosensitive surface, usually photographic film.
• In Microsoft Excel, charts are used to make a graphical representation of any set of data.

**Q78. Answer: (b) Qutubuddin Aibak**

The correct answer is Qutubuddin Aibak.

Key Points

• Aibak was the first Muslim Sultanate ruler in northern India.
• The dynasty he established is known as the Slave Dynasty or the Mamluk Dynasty.
• He built mosques in Delhi and other areas.
• He was known as a generous king in times of peace and was honoured with the title Lakhbaksh.
• Adhai Din Ka Jhonpra is a large and imposing structure in the city of Ajmer in Rajasthan, India.
• It is one of the oldest mosques in India.
• It is built by Qutubuddin Aibak.

Additional Information

• Alauddin Ghilji was an emperor of the Khalji dynasty that ruled the Delhi Sultanate in the Indian subcontinent.
• Razia Sultana was a ruler of the Delhi Sultanate in the northern part of the Indian subcontinent. She was the first female Muslim ruler of the subcontinent and the only female Muslim ruler of Delhi.
• Nur Jahan was the chief wife and empress consort of the Mughal emperor Jahangir. She was the twentieth and last wife of Jahangir

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**Q79. Answer: (c) Ernst Haeckel**

The correct answer is Ernst Haeckel.

Key Points

• The word ecology was coined by the German zoologist Ernst Haeckel.

• He was an evolutionist who was a strong proponent of Darwinism and who proposed new notions of the evolutionary descent of human beings.

• The concept of environment includes both other organisms and physical surroundings.

• It involves relationships between individuals within a population and between individuals of different populations.

• These interactions between individuals, between populations, and between organisms and their environment form ecological systems, or ecosystems.

• Ecology has been defined variously as “the study of the interrelationships of organisms with their environment and each other,” “the economy of nature,” and “the biology of ecosystems.”

Additional Information

• Eugen Warming was a Danish botanist and a main founding figure of the scientific discipline of ecology. Warming wrote the first textbook on plant ecology, taught the first university course in ecology, and gave the concept its meaning and content.

• Charles Robert Darwin was an English naturalist, geologist, and biologist, best known for his contributions to evolutionary biology. His proposition that all species of life have descended from a common ancestor is now widely accepted and considered a fundamental concept in science.

• Eugene Pleasants Odum was an American biologist at the University of Georgia known for his pioneering work on ecosystem ecology. He and his brother Howard T. Odum wrote the popular ecology textbook, Fundamentals of Ecology.

**Q80. Answer: (a) Iodine**

The correct answer is Iodine.

Key Points

• Iodine is a necessary and limiting substrate for the thyroid gland.

• It helps in the synthesis of thyroxine.

• The deficiency of Iodine can cause hypothyroidism, developmental brain disorders, and goiter.

• Thyroxine is the main hormone secreted (into the bloodstream) by the thyroid gland.

• The thyroid gland produces two types of hormones namely, T3 and T4 (Thyroxine)

• Iodine is an essential element for the synthesis of the hormone, thyroxine.

Additional Information

• Manganese activates specific enzymes such as pyruvate carboxylase, lipase, and superoxide dismutase.

• Zinc for the synthesis of tryptophan, a key amino acid in the synthesis of the auxin indoleacetic acid.

• Iron is an essential micronutrient for plants. It is required for the synthesis of chlorophyll and has several other functions also

**Q81. Answer: (c) 4**

Shortcut Trick

Number N = $2^2 \times 3^1 \times 5^2 \times 7^1$

For factors divisible by 50 ($2^1 \times 5^2$) but not by 100 ($2^2 \times 5^2$), the factor must contain exactly $2^1$ and $5^2$.

Required factors = (power of 2 is fixed at 1) × (power of 3 can be 0 or 1) × (power of 5 is fixed at 2) × (power of 7 can be 0 or 1)

Number of factors = 1 × (1 + 1) × 1 × (1 + 1) = 1 × 2 × 1 × 2 = 4

Therefore The correct answer is 4.

Alternate Method

Given: N = $2^2 \times 3^1 \times 5^2 \times 7^1$

Formula: If N = a^p × b^q × c^r, total factors = (p+1)(q+1)(r+1).

=> Divisible by 50 means the factor must have at least $2^1$ and $5^2$.

=> Not divisible by 100 means the factor cannot have $2^2$ or higher (if available) along with $5^2$.

=> In N = $2^2 \times 3^1 \times 5^2 \times 7^1$, the exponent of 2 must be exactly 1.

=> The exponent of 5 must be exactly 2 (as $5^2$ is the maximum available and minimum required).

=> The exponents of 3 and 7 can be anything from 0 to their respective maximums.

=> Possible exponents for 2: {1} → 1 choice

=> Possible exponents for 5: {2} → 1 choice

=> Possible exponents for 3: {0, 1} → 2 choices

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=> Possible exponents for 7: {0, 1} → 2 choices

=> Total factors = 1 × 1 × 2 × 2 = 4

Therefore The correct answer is 4.

Additional Information

Total Number of Factors

For a number N = p^a × q^b × r^c, total factors = (a+1)(b+1)(c+1).

Factors Divisible by a Number k

Divide N by k first: N/k = M. The number of factors of N divisible by k is equal to the total number of factors of M.

Prime Factorization

Always express the number in the form of powers of prime numbers (2, 3, 5, 7, etc.) before applying factor formulas.

**Q82. Answer: (b) MR55**

Explanation:

The position of the letters according to the English alphabet series:

The logic followed here is.

Hence, the correct answer is MR55.

**Q83. Answer: (d) 16^(th) May**

The correct answer is 16th May.

Key Points

• The International Day of Light is celebrated on 16 May each year.

• It is the anniversary of the first successful operation of the laser in 1960.

• By physicist and engineer, Theodore Maiman.

• This day is a call to strengthen scientific cooperation and harness its potential to foster peace and sustainable development.

Additional Information

• The laser is a prime illustration of how a scientific breakthrough may help society in areas such as communications, healthcare, and many others.

• This year this annual event is celebrated on the themes of Basic Sciences for Sustainable Development and Glass.

• Theodore Harold Maiman was an American engineer and physicist who is widely credited with the invention of the laser.

• Maiman's laser led to the subsequent development of many other types of lasers.

• The laser was successfully fired on May 16, 1960.

**Q84. Answer: (a) Some bedrooms are kitchens.**

Given,

Statements:

1. All kitchens are bedrooms.

2. No bedroom is a hall.

Explanation:

Venn Diagram:

Options:

1. Some bedrooms are kitchens => True

2. All halls are kitchens => False. => Because, all kitchens are bedrooms and No bedroom is hall.

3. No kitchen is a bedrooms => False. => Because, Some kitchens are bedrooms.

4. Some kitchens are halls => False. => Because, all kitchens are bedrooms and No bedroom is hall.

Hence, the correct answer is, "Some bedrooms are kitchens."

**Q85. Answer: (d) Siraj ud- Daulah**

The correct answer is Siraj ud- Daulah.

Key Points

• During the Battle of Plassey(23rd June 1757), Siraj-ud-Daulah was the Nawab of Bengal.

• In this battle Siraj-ud-Daula was betrayed by his own forces and British forces defeated him.

• After this battle he was forced to step down and British forces declared Mir Jafar the next Nawab of Bengal.

• Battle of Plassey was fought on the banks of river Bhagirathi near Murshidabad(the then capital of Bengal).

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Additional Information

• Amichand Rajbansi was a South African politician. He was a former Chairman of the Ministers' Council of the House of Delegates Tricameral parliamentary chamber for Indian people, and leader of the Minority Front. Amichand Rajbansi, nicknamed the Bengal Tiger, was born in Clairwood, Durban on 14 January 1942.

• Mir Qasim was the Nawab of Bengal from 1760 to 1763. He was installed as Nawab with the support of the British East India Company, replacing Mir Jafar.

• Sayyid Mir Jafar Ali Khan Bahadur was a military general who became the first dependent Nawab of Bengal of the British East India Company.

**Q86. Answer: (d) 2006**

Given:

This Graph shows the sales made by two companies, A and B, over 7 years. Answer the question below based on the graph.

Calculation:

Difference in sales made by A and made by B in year 2000 = 40 - 20 = 20

Difference in sales made by A and made by B in year 2001 = 60 - 40 = 20

Difference in sales made by A and made by B in year 2002 = 20 - 10 = 10

Difference in sales made by A and made by B in year 2003 = 80 - 70 = 10

Difference in sales made by A and made by B in year 2004 = 50 - 40 = 10

Difference in sales made by A and made by B in year 2005 = 60 - 50 = 10

Difference in sales made by A and made by B in year 2006 = 30 - 30 = 0

Hence, The difference in sales made by A and made by B is least in year 2006.

**Q87. Answer: (c) West**

Explanation:

The logic follows here is,

A wristwatch at 7:30 am, the hour hand is pointing South-west.

After 15 minutes, i.e. 7:45.

The hour hand points South-West and the minutes hand points West.

Hence, the correct answer is West.

**Q88. Answer: (d) Rs. 21,300**

Given:

Pie-chart showing the percentage distribution of the various expenses incurred in selling an electric bulb. Answer the question given below based on the pie chart.

For a certain quantity of bulbs, the manufacturer incurs Rs. 28,400 as molding cost.

Calculations:

Let the total amount spent be x.

According to the question,

20% of x = Rs. 28,400

=> 0.20x = 28,400

=> x = Rs. 1,42,000

Now, Copyright expense = 15% of x (given)

= 15% of 1,42,000

= 0.15 × 1,42,000

= Rs. 21,300

Hence, The Copyright expense is Rs. 21,300.

**Q89. Answer: (c) Third**

Explanation:

Six students A, B, C, D, E and F appeared in several tests.

Case 1: Whenever C scored the highest, E scored the least.

C > _ > _ > _ > _ > E

Case 2: Whenever F scored the highest, B scored the least.

F > _ > _ > _ > _ > B

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D scored higher than A but they were close competitors,
A scored higher than B,
C scored higher than A
C > D > A > B
If C got the first rank, then Case 1 follows,
Also, E and F were close competitors.
C > D > A > B > F > E
According, to the sequential order of rank, A ranks third.
Hence, the correct answer is Third.

**Q90. Answer: (d) Punishment**

Explanation:
As, Law is related to Order.
Similarly, Crime is related to Punishment.
The correct answer is Punishment.

**Q91. Answer: (a) Soft : Delicate**

Explanation:
Low : High, Night : Day, Sweet : Sour
Here, the second word is antonym of the first.
Soft : Delicate, here both the words have the similar meaning.
The correct answer is "Soft : Delicate".

**Q92. Answer: (d) 150**

Explanation:
The logic followed here is:
Hence, the correct answer is 150.

**Q93. Answer: (c) 15 years**

Given:
A mother is 3 times as old as her daughter.
5 years ago, his mother was four times as old as her daughter was.
Calculation:
Let the present age of the Daughter be x. Then, his mother's age is 3x.
According to the question,
4(x - 5) = 3x - 5
=> 4x - 20 = 3x - 5
=> x = 15
=> x = 15 years
Hence, Daughter's age is 15 years.

**Q94. Answer: (d) 1, 4, 3, 5, 2**

Given:
(1) –0.96
(2) 0.83
(3) 0.24
(4) –0.64
(5) 0.58
Concept used:
Negative < 0 < Positive
and - a < - b, where a, b are positive and a > b.
Calculation:
According to the concept, the order of the options are:
• 0.96 < - 0.64 < 0.24 < 0.58 < 0.83

=>(1) < (4) < (3) < (5) < (2)

Hence, The Required increasing order is 1, 4, 3, 5, 2.

**Q95. Answer: (c) Only argument 1 is strong.**

Explanation:

Statement:

Officers in the administrative departments should be transferred.

Argument 1, states that the officers get friendly with people and can be manipulated by the subordinate, which may be against the public interest. Due, to which argument is strong for the given statement.

Argument 2, comments about the officers transfer frequently, as it provides the solution for the given statement. Due, to which argument is weak for the given statement.

The correct answer is "Only argument 1 is strong".

**Q96. Answer: (a) Mother-in-law**

Explanation:

Preparing the family tree using the following symbols:

There is a family of five persons A, B, C, D, and E.

D is the father of B.

B is the wife of A.

C is the sister of D.

E is the wife of D

Tree Diagram:

According, to this "E is mother-in-law of A".

Hence, the correct answer is Mother-in-law.

**Q97. Answer: (c) EFQSFTTJPO**

Explanation:

The position of the letters according to the English alphabet series:

The logic followed here is,

Similarly,

Hence, the correct answer is EFQSFTTJPO.

**Q98. Answer: (a) 7**

Explanation:

The position of the letters according to the English alphabet series:

The logic follows here is,

The reverse order of the alphabet series.

| Alphabet | Positional value | Reverse analogy |
|---|---|---|
| S | 19 | 8 |
| W | 23 | 4 |
| A | 1 | 26 |
| T | 20 | 7 |

Hence, the correct answer is 7.

**Q99. Answer: (a) Only assumption 1 is implicit.**

Explanation:

From the given statement:

An advertisement states that XYZ paints should be used to decorate houses.

Now we consider the given assumptions:

1. People want to decorate their house: The advertisement is released to promote an trending product or something that will soon be in demand so this can be implied that people want to decorate their house. And thus the assumption is implicit.

2. Only XYZ paints can make houses decorative: We can not make such a strong assumption on the basis of such less

information and it is obvious that there are more paints than XYZ that some people would prefer to decorate their houses. So the assumption is not implicit.

Since only assumption 1 is implicit.

Hence the correct answer is option 1.

**Q100. Answer: (a) Rina**

Explanation:

From the given information:

Vimal and Kamal are good at piano and guitar. Rima and Sima are good at hockey and guitar. Rima, Komal and Rina are good at hockey and chess. Rina and Rima are good at piano and badminton. Komal and Sobha are good at chess and piano.

| Name | Good at |
|---|---|
| Vimal | Piano, guitar |
| Kamal | Piano, guitar |
| Rima | Hockey, guitar, chess, piano, badminton |
| Sima | Hockey, guitar |
| Rina | Hockey, chess, piano, badminton |
| Shobha | Chess, piano |
| Komal | Hockey, chess, piano |

From the table drawn we can see that,

Rina is good at hockey, chess and badminton but not guitar.

Hence the correct answer is option 1.

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