# RRB NTPC CBT-I Official Paper (Held On: 9 Jan 2021 Shift 1) (Previous Year Paper)

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

**Take this paper as a timed mock test**

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.** Which is called as brain of any computer system?

**(a)** CPU
**(b)** UPS
**(c)** ALU
**(d)** Monitor

**Q2.** Solve the following:

80 ÷ (16 ÷ 2) + [{(6 × 5) – 15 × 2 + 4} – 12]

**(a)** – 62
**(b)** 2
**(c)** – 17
**(d)** 148

**Q3.** How many schedules are there in the Wildlife Protection Act, 1972 of India?

**(a)** VII
**(b)** VI
**(c)** IV
**(d)** V

**Q4.** Which public sector enterprise has the status of Maharatna?

**(a)** Indian Oil Corporation Limited
**(b)** Indian Railway Catering & Tourism Corporation Limited
**(c)** Garden Reach Shipbuilders & Engineers Limited
**(d)** Airport Authority of India

**Q5.** Zamir buys an article with off-season discount of 40% and sells at 25% discount on the marked price. Find his percentage profit loss.

**(a)** 25% profit
**(b)** 15% profit
**(c)** 15% loss
**(d)** 25% loss

**Q6.** Select the option that is related to the third term in the same way as the second term is relaxed to the first term.

Rat : Hole : : Horse : ?

**(a)** Den
**(b)** Burrow
**(c)** Cage
**(d)** Stable

**Q7.** Select the option that is related to the third number in the same way as the second number is related to the first number.

23 : 529 : : 27 : ?

**(a)** 625
**(b)** 576
**(c)** 676
**(d)** 729

**Q8.** _____ is a communication protocol.

**(a)** HTTP
**(b)** HTP
**(c)** CP
**(d)** TP

**Q9.** Which of the following Viceroy of India did take the initiative to create elected local government bodies?

**(a)** Lord Wavell
**(b)** Lord Irwin
**(c)** Lord Rippon
**(d)** Lord Reading

**Q10.** A wheel of a cycle makes 7000 revolutions in moving 11 km. What is the diameter of the wheel?

**(a)** 50 cm
**(b)** 25 cm
**(c)** 10 cm
**(d)** 100 cm

**Q11.** Which river stretch is known as National Waterways-2?

**(a)** Brahmaputra
**(b)** Mahanadi
**(c)** Ganga
**(d)** Godavari

**Q12.** The Sum of the digits of a two-digit number is 6. If the digit is reversed, the new number equals double of the original number decreased by 6. Find the number.

**(a)** 24
**(b)** 15
**(c)** 42
**(d)** 51

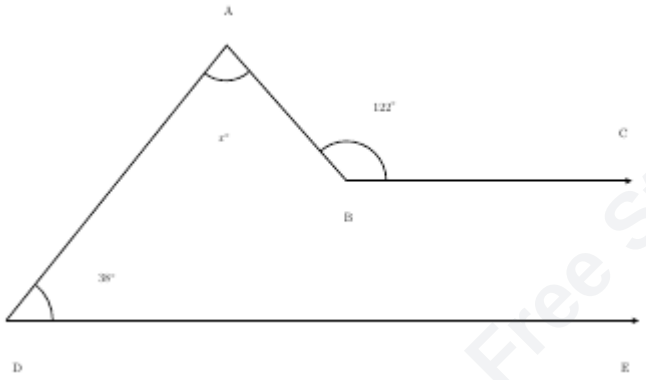
**Q13.** How many numbers between 300 and 1000 are divisible by 7?

**(a)** 101
**(b)** 301
**(c)** 994
**(d)** 100

**Q14.** In the given figure, BC || DE.

Find the value of x.

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**(a)** 20
**(b)** 84
**(c)** 142
**(d)** 38

**Q15.** Four number-pairs have been given, out of which three are alike in some manner and one is different. Select the number-pair that is different from the rest.

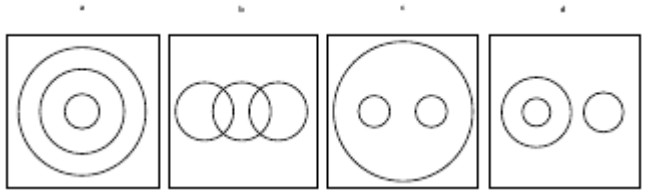
**(a)** 12 : 15
**(b)** 17 : 19
**(c)** 11 : 13
**(d)** 21 : 23

**Q16.** Dalip Rai borrowed Rs. 24000 from Amarjeet at simple interest of 9% per annum. Find the sum he will have to return after 3 years.

**(a)** Rs. 4,800
**(b)** Rs. 6,480
**(c)** Rs. 28,800
**(d)** Rs. 30,480

**Q17.** Select the Venn diagram that best represents the relationship between the given set of classes.

Bronze, Brass, Alloys



**(a)** c
**(b)** d
**(c)** a
**(d)** b

**Q18.** Sum of four consecutive multiples of 3 is 78. The largest of these number is:

**(a)** 18
**(b)** 27
**(c)** 24
**(d)** 21

**Q19.** The speed of a boat in still water is 14 km/h. It goes 28 km downstream in 1 h 45 min. Find the speed of the stream.

**(a)** 7 km/h
**(b)** 12 km/h
**(c)** 2 km/h
**(d)** 16 km/h

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**Q20.** Demographic Transition is describe as _____.

**(a)** a stage in which the population growth of the country is zero
**(b)** a process where there is a decline in the birth-rate
**(c)** a process of change in a society's population over time
**(d)** a process where there is a decline in the death rate

**Q21.** Where is the headquarters of OPEC located?

**(a)** Vienna
**(b)** Geneva
**(c)** Brussels
**(d)** Zurich

**Q22.** The top of two towers of heights x and y standing on level ground, subtend angles of 60º and 30º respectively at the midpoint of the line joining their feet. The value of x : y is:

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

**Q23.** The difference between 82% and 73% of the same number is 72. What is 48% of that number?

**(a)** 418
**(b)** 360
**(c)** 1440/31
**(d)** 384

**Q24.** A box contains 6 white, 2 black and 3 red balls. If a ball is drawn randomly, what is the probability that it will not be white?

**(a)** 5/6
**(b)** 5/11
**(c)** 6/11
**(d)** 6/5

**Q25.** In which city/district of India was the first cash-and-carry store opened by CSC to promote rural marketing?

**(a)** Haridwar
**(b)** Bhopal
**(c)** Surat
**(d)** Moradabad

**Q26.** A man and a woman can complete a task in 8 and 12 days respectively. In how many days will 2 men and 3 women be able to complete the task?

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

**Q27.** Zaved borrowed Rs. 10,000 for 2 years on compound interest, compounded annually and paid Rs. 12,544 at the end of 2 years. If he had borrowed the amount on simple interest, then how much money he would have saved?

**(a)** Rs. 12,400
**(b)** Rs. 2,400
**(c)** Rs. 144
**(d)** Rs. 4,944

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**Q28.** What is the rank of India in World Economic Forum's (WEF) global competitiveness index for 2019?

**(a)** 52^(nd)
**(b)** 71^(st)
**(c)** 68^(th)
**(d)** 50^(th)

**Q29.** Select the option that is related to the third term in the same way as the second term is related to the first term.

EFGH : VUTS : : JKLM : ?

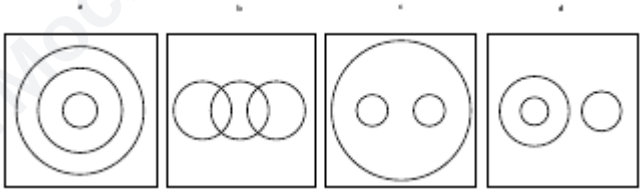
**(a)** QNPO
**(b)** QPNO
**(c)** QPON
**(d)** QOPN

**Q30.** The Ayushman Bharat Scheme was started in _____ in the year 2018.

**(a)** Jharkhand
**(b)** Chandigarh
**(c)** Orissa
**(d)** Madhya Pradesh

**Q31.** Select the Venn diagram that best represents the relationship between the given set of classes.

Mars, Venus, Planets



**(a)** d
**(b)** c
**(c)** a
**(d)** b

**Q32.** Name the compendium of Digital India which was released in 2019?

**(a)** Digital Bharat, Unnat Bharat
**(b)** Digital Bharat, Saksham Bharat
**(c)** Nayi Udaan, Digital Bharat
**(d)** Digital India, Educated India

**Q33.** What is the name of India's first manned space flight?

**(a)** Gaganyaan
**(b)** Vayuyaan
**(c)** Pushpakyaan
**(d)** Gagan Viman

**Q34.** In 2019, the Uttar Pradesh government created a world record by planning over 22 crore saplings in one day on 77^(th) anniversary of the _____.

**(a)** Chipko Andolan
**(b)** Quit India Movement
**(c)** Narmada Bachao Andolan
**(d)** Dandi March

**Q35.** Solve the following.

5 + 3 × 72 ÷ 24 – 12 = ?

**(a)** 12
**(b)** – 22

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**(c)** 113
**(d)** 2

**Q36.** Which organisation has been the successor of GATT?
**(a)** ILO
**(b)** ECOSOC
**(c)** UNCTAD
**(d)** WTO

**Q37.** Twelve men can complete a task in 16 days. Thirty-two women can complete the same task in 12 days. Eight men and eight women together worked for 12 days, after which the women dropped and 8 men joined. In how many days the men will be able to complete the remaining task?
**(a)** 3 days
**(b)** 9 days
**(c)** 10 days
**(d)** 2 days

**Q38.** If 140 g brass is mixed with copper to prepare an alloy having brass and copper in the ratio 4 : 3, then how much copper has been taken to prepare the alloy?
**(a)** 245 g
**(b)** 105 g
**(c)** 60 g
**(d)** 80 g

**Q39.** The 5^(th) volume of which dictionary was released by Prime Minister Narendra Modi in 2019?
**(a)** Dictionary of Terms
**(b)** Dictionary of Vedas
**(c)** Dictionary of Idioms and Phrases
**(d)** Dictionary of Martyrs

**Q40.** Between which two countries has an MOU been signed on co-operation in the field of peaceful use of outer space in January 2019?
**(a)** India and Germany
**(b)** India and Iran
**(c)** India and Finland
**(d)** India and Denmark

**Q41.** Name the monument which is a testimony to successful restoration and preservation of an archaeological site.
**(a)** Sanchi Stupa
**(b)** Palika Bazaar
**(c)** Gateway of India
**(d)** India Gate

**Q42.** Elements in the modern periodic table are arranged in _____ vertical columns.
**(a)** 9
**(b)** 12
**(c)** 18
**(d)** 16

**Q43.** In the following series, how many times is the number 0 immediately followed by number 2?
2 1 3 2 5 0 2 7 8 0 2 0 3 4 5 2 0 2 0 7 8
**(a)** 4
**(b)** 5
**(c)** 6
**(d)** 3

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**Q44.** International day of Multilateralism and Diplomacy is celebrated on _____.

**(a)** 21^(st) June
**(b)** 4^(th) January
**(c)** 3^(rd) May
**(d)** 24^(th) April

**Q45.** Who is the author of 'Politics of Jugaad: The Coalition Handbook'?

**(a)** Saba Naqvi
**(b)** Chetan Bhagat
**(c)** Jhumpa Lahiri
**(d)** Tom Hanks

**Q46.** Who was the Governor General at the time of sepoy mutiny?

**(a)** Lord Hastings
**(b)** Lord Dalhousie
**(c)** Lord Canning
**(d)** Lord Cornwallis

**Q47.** Solve the following.

3.03 + 31.003 + 13.33 + 3.331

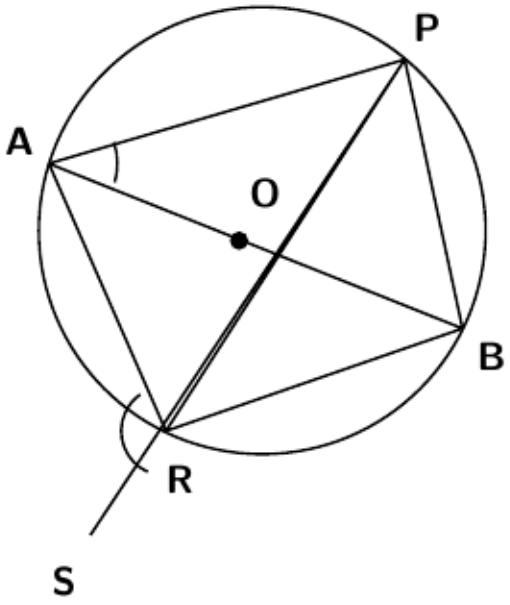
**(a)** 3.597
**(b)** 35.97
**(c)** 50.694
**(d)** 50.370

**Q48.** Select the number from among the given options that can replace the question mark (?) in the following series.

3, E, 8, L, ?

**(a)** 11
**(b)** 17
**(c)** 19
**(d)** 23

**Q49.** In the figure, O is the centre of the circle. If angle ARS = 125°, then find the measure of angle PAB.




**(a)** 35º
**(b)** 125º
**(c)** 55º
**(d)** 145º

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**Q50.** Grandfather of Sukhdev and Baldev divided an amount of Rs.2,150 among them in the ratio 20 : 23. They both donated Rs.100 each for charity out of their shares. What will be the ratio of their respective amounts?

**(a)** 6 : 7
**(b)** 19 : 22
**(c)** 80 : 77
**(d)** 120 : 123

**Q51.** Express 0.0377... in the form of p/q, where p is a whole number and q is a natural number.

**(a)** 17/45
**(b)** 34/99
**(c)** 37/1000
**(d)** 17/450

**Q52.** Which of the following shapes is most similar to rectangle and square?

**(a)** Rhombus
**(b)** Triangle
**(c)** Circle
**(d)** Sphere

**Q53.** How many numbers from 3 to 60 are odd numbers that are exactly divisible by 5?

**(a)** 6
**(b)** 5
**(c)** 8
**(d)** 7

**Q54.** Which was the venue of final match of ICC Men's Cricket World Cup 2019?

**(a)** Edgbaston, Birmingham
**(b)** Bristol County Ground, Bristol
**(c)** Lord's London
**(d)** The Oval, London

**Q55.** If SUN is coded as 54, then how will MOON be coded as?

**(a)** 55
**(b)** 56
**(c)** 57
**(d)** 58

**Q56.** After independence, during the second Five Year Plan (1956-61), which steel plant was set up with the collaboration of west Germany

**(a)** Rourkela Steel Plant
**(b)** Durgapur Steel Plant
**(c)** Bhilai Steel Plant
**(d)** Bokaro Steel Plant

**Q57.** International Gandhi Peace Prize 2018 was awarded by the President of India to _____.

**(a)** Akshay Patra Foundation
**(b)** Sulabh International
**(c)** Vivekananda Kendra
**(d)** Yohei Sasakawa

**Q58.** Solve the following.

$\sqrt{(37+\sqrt{(130+2\sqrt{(56-\sqrt{16}-\sqrt{9})})})}=?$

**(a)** 252
**(b)** 200
**(c)** 229

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**(d)** 7

**Q59.** The length of a rectangle is 2 m less than thrice its breadth. If its perimeter is 28 m, find its breadth.

**(a)** 10 m
**(b)** 4 m
**(c)** 6 m
**(d)** 7.5 m

**Q60.** Which of the following leaders signed the Tashkent Agreement?

**(a)** Vallabhbhai Patel and Jinnah
**(b)** Jawaharlal Nehru and Ayub Khan
**(c)** Lal Bahadur Shastri and Ayub Khan
**(d)** Jawaharlal Nehru and Jinnah

**Q61.** Why do stars twinkle in the sky at night?

**(a)** Due to atmospheric refraction of starlight
**(b)** Due to hot air
**(c)** Due to advance light
**(d)** Due to dispersion of light

**Q62.** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

Some apples are grapes.

Some grapes are mangoes.

Conclusions:

I. All apples are mangoes.

II. Some mangoes are apples.

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

**Q63.** If the letters of the word UNIVERSITY are arranged in alphabetical order, then which letter will be seventh from the left end?

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

**Q64.** In the respiration process, complex organic compounds such as glucose are broken down to provide energy in the form of _____

**(a)** PTA
**(b)** NAC
**(c)** CAL
**(d)** ATP

**Q65.** Which ministry of Government of India has published Goods and Service Tax (GST) Act, 2017 ?

**(a)** Office of the Prime Minister
**(b)** Ministry of Finance
**(c)** Ministry of Corporate Affairs
**(d)** Ministry of Law and Justice

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**Q66.** _____ deciphered Brahmi and Kharosthi scripts that were used for earlier inscriptions.

**(a)** James Princep
**(b)** Cunningham
**(c)** Wheeler
**(d)** Marshall

**Q67.** By selling an article for Rs.1,360, a dealer losses 15%. At what price should be sell the article to gain 10%?

**(a)** Rs. 1,360
**(b)** Rs. 1,760
**(c)** Rs. 1,560
**(d)** Rs. 1,600

**Q68.** Artificial fertilizers were first created during the _____ century.

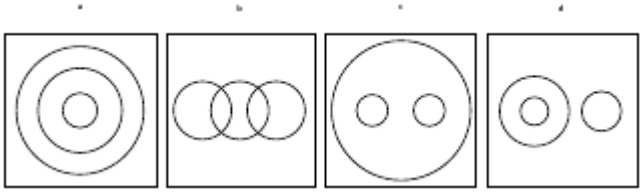
**(a)** 19^(th)
**(b)** 16^(th)
**(c)** 18^(th)
**(d)** 17^(th)

**Q69.** Which of the following, like the Chipko Movement, aims to protect forests in the Uttara Kannada district?

**(a)** Narmada Bachao Andolan
**(b)** Al Baydha Project
**(c)** Appiko Movement
**(d)** Delhi Chalo Movement

**Q70.** Select the Venn diagram that best represents the relationship between the given set of classes.

Year, Month, Day



**(a)** b
**(b)** a
**(c)** d
**(d)** c

**Q71.** What is the HCF of 52 and 100?

**(a)** 44
**(b)** 4
**(c)** 52
**(d)** 48

**Q72.** Which type of mirror is used by dentists to see large images of patients' teeth?

**(a)** Convex mirror
**(b)** Spherical and Convex mirror
**(c)** Concave mirror
**(d)** Spherical mirror

**Q73.** If $\sqrt{3}\sin\theta - \cos\theta = 0$ ($\theta$ is an acute angle), then the value of $\cos^3\theta - \sqrt{3}\sin^3\theta$ will be:

**(a)** –1
**(b)** $(\sqrt{3})/4$
**(c)** $(\sqrt{3})/2$
**(d)** 3/8

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**Q74.** Solve the following.

{1-1/4} {1-2/4} ...{1-5/4} {1-6/4} = ?

**(a)** 3/64
**(b)** 3/256
**(c)** 0
**(d)** -3/256

**Q75.** What protects the earth from the ultra violet radiation of the sun?

**(a)** Magnesium
**(b)** Nitrogen
**(c)** Ozone
**(d)** Oxygen

**Q76.** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

Some shirts are pants.

All pants are coats.

Some coats are shoes.

Conclusions:

I. Some pants are shoes.

II. Some shirts are coats.

III. All shirts are coats.

IV. No pants are shoes.

**(a)** Either conclusion I or II follows.
**(b)** Either conclusion I or II and IV follow.
**(c)** Only conclusion III follows.
**(d)** Only conclusion II follows.

**Q77.** The LCM of two numbers is 91 times their HCF. The sum of the HCF and LCM is 2760. If one of the numbers is 210, the other number will be:

**(a)** 2730
**(b)** 420
**(c)** 30
**(d)** 390

**Q78.** The mean of ages of 9 children in a joint family is 14 years. The ages of their grandfather and grandmother are 71 years and 67 years respectively. Find the mean of the ages of children and grandparents.

**(a)** 16 years
**(b)** 51 years
**(c)** 25 years
**(d)** 24 years

**Q79.** In which of the following cities was the 45^(th) G7 summit held in 2019?

**(a)** New York
**(b)** London
**(c)** Biarritz
**(d)** Tokyo

**Q80.** Which of the United Nation's organization has the International Institute of Educational Planning at Paris as its Part?

**(a)** UNICEF
**(b)** ILO
**(c)** UNESCO

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**(d)** UNU

**Q81.** Ribosomes make _____.

**(a)** starch
**(b)** fats
**(c)** proteins
**(d)** lipids

**Q82.** Who among the following won the Nobel Peace Prize in the year 2019?

**(a)** Abiy Ahmed
**(b)** Barack Obama
**(c)** John Bardeen
**(d)** Rainer Weiss

**Q83.** Information and Communication Technology(ICT), now integrated under RMSA, was launched in the year _____.

**(a)** 2006
**(b)** 2004
**(c)** 2002
**(d)** 2009

**Q84.** The sum of the zeros of the polynomial

$5x^2 + (5p – 1)x – (2p + 5)$ is the same as one fourth of their product. Find the value of p.

**(a)** -1/2
**(b)** 2
**(c)** – 2
**(d)** 1/2

**Q85.** Which is the Sixth largest country of the world in terms of area?

**(a)** Brazil
**(b)** China
**(c)** India
**(d)** Australia

**Q86.** The following are the weights (in kg) of 25 students:

58, 55, 53, 50, 53, 51, 52, 54, 53, 52, 54, 53, 58, 53, 59, 55, 53, 52, 51, 54, 53, 59, 55, 53, 52 What is the weight (in kg) of the heaviest student?

**(a)** 56
**(b)** 58
**(c)** 59
**(d)** 55

**Q87.** The following are the weights (in kg) of 25 students:

58, 55, 53, 50, 53, 51, 52, 54, 53, 52, 54, 53, 58, 53, 59, 55, 53, 52, 51, 54, 53, 59, 55, 53, 52 What is the most commonly observed weight (in kg)?

**(a)** 53
**(b)** 54
**(c)** 52
**(d)** 55

**Q88.** The following are the weights (in kg) of 25 students:

58, 55, 53, 50, 53, 51, 52, 54, 53, 52, 54, 53, 58, 53, 59, 55, 53. 52, 51, 54, 53, 59, 55, 53, 52

Among the following options, what is the weight (in kg) that appears least number of times in the given data?

**(a)** 52
**(b)** 50
**(c)** 58

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**(d)** 54

**Q89.** The following are the weights (in kg) of 25 students:

58, 55, 53, 50, 53, 51, 52, 54, 53, 52, 54, 53, 58, 53, 59, 55, 53, 52, 51, 54, 53, 59, 55, 53, 52

What is the range of the given data?

**(a)** 7
**(b)** 8
**(c)** 6
**(d)** 9

**Q90.** Select the letter-cluster from among the given options that can replace the question mark (?) in the following series.

WAK, TDH, QGE, ?

**(a)** NJA
**(b)** MJA
**(c)** MJB
**(d)** NJB

**Q91.** Four publications have been listed, out of which three are alike in some manner and one is different. Select the odd one.

**(a)** Hindustan Times
**(b)** India Today
**(c)** The Indian Express
**(d)** The Hindu

**Q92.** Select the combination of letters that when sequentially placed in the blanks will create a repetitive pattern.

c_bca_c_bc_b

**(a)** abcc
**(b)** abbc
**(c)** abac
**(d)** abaa

**Q93.** Select the letter-cluster from among the given options that can replace the question mark (?) in the following series.

ADG, BEH, CFI, ?

**(a)** DGJ
**(b)** DGH
**(c)** DGK
**(d)** DFH

**Q94.** 'Church' is related to 'Christians' in the same way 'Synagogue' is related to '_____'.

**(a)** Jews
**(b)** Muslims
**(c)** Jains
**(d)** Parsis

**Q95.** If 'P' means '+', 'Q' means '–', 'R' means '×' and 'S' means '÷', then find the value of the following expression.

2/3S1/3 Q7 P7 R5

**(a)** 10
**(b)** 50
**(c)** 30
**(d)** 40

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**Q96.** In a row of 12 students, when Karan was shifted by three places towards the right, he became fifth from the right end. What was his earlier position from the left end?

**(a)** Sixth
**(b)** Fifth
**(c)** Seventh
**(d)** Eighth

**Q97.** Select the number from among the given options that can replace the question mark (?) in the following series.
37, 21, 13, 9, ?

**(a)** 7
**(b)** 8
**(c)** 10
**(d)** 12

**Q98.** Introducing a girl to his son-in-law, Bhola said, "Her brother is the only son of my brother-in-law." How is the girl related to Bhola?

**(a)** Daughter
**(b)** Sister-in-law
**(c)** Sister
**(d)** Niece

**Q99.** 'Manipur' is related to 'Imphal' in the same way as 'Nagaland' is related to '_____'.

**(a)** Aizawl
**(b)** Gangtok
**(c)** Shillong
**(d)** Kohima

**Q100.** Select the fraction from among the given options that can replace the question mark (?) in the following series.
3/4,7/4,5/4,9/4,?

**(a)** 7/4
**(b)** 9/4
**(c)** 5/4
**(d)** 13/4

## ANSWER KEY

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

## SOLUTIONS

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

The correct answer is CPU.

Key Points

• The central processing unit is abbreviated as CPU.
• CPU is referred to as the brain of any computer system.
• The CPU is responsible for all data processing.
• CPU is the part of a computer that performs the main function of information processing.
• The computer supplies the processed information back to the users using special output devices.
• CPU makes all the required calculations and processes data.
• A higher data width means the computer is capable of processing data faster.
• A CPU with higher data width is more powerful.
• The speed of a CPU is known as clock speed.
• The main three parts of the CPU are:
1. Arithmetic and Logic Unit.
2. Control Unit.
3. Memory Unit.

Additional Information

• The Arithmetic and logic unit performs all the mathematical and logical operations on the information supplied to the CPU.
• An Uninterruptible Power Supply (UPS) supplies emergency power to a load when the input power source or mains power fails.
• A computer monitor is a display device that shows information in the form of graphics or text.

**Q2. Answer: (b) 2**

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

Given:

$80 \div (16 \div 2) + \{[(6 \times 5) – 15 \times 2 + 4] – 12\}$

Calculation:

$80 \div (16 \div 2) + \{[(6 \times 5) – 15 \times 2 + 4] – 12\}$

$\Rightarrow 80 \div 8 + \{[30 – 30 + 4] – 12\}$

$\Rightarrow 10 + \{4 – 12\}$

$\Rightarrow 10 - 8$

$\Rightarrow 2$

Therefore The required result is 2.

**Q3. Answer: (b) VI**

The correct answer is VI.

Key Points

• The Wild Life (Protection) Act, 1972 is an Act for the protection of plants and animal species.
• The Wild Birds Protection Act, 1887, was the first such regulation passed by the British Indian Government in 1887.
• Forests and Protection of Wild Animals and Birds were transferred from State to Concurrent List through the 42nd Amendment Act, 1976.
• India has only five recognised national parks prior to this legislation.
• As of 2021, there are 104 national parks in India.
• Schedule I deals with the endangered species that need rigorous protection.
• The Wildlife (Protection) Act, 1972, originally contained 6 schedules.

**Q4. Answer: (a) Indian Oil Corporation Limited**

The correct answer is Indian Oil Corporation Limited.

Important Points

• In India, Central Public Sector Enterprises (CPSEs) are classified under three different categories.
1. Maharatna.
2. Navratna.
3. Miniratna.
• The eligibility criteria for a company to be listed under Maharatna status are:

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• Three years with an average annual net profit of over Rs. 2,500 crores.

• The average annual Net worth of Rs. 10,000 crores for 3 years.

• Average annual Turnover of Rs. 20,000 crores for 3 years

• The Ministry of Heavy Industries and Public Enterprises is in charge of Central Public Sector Enterprises.

• The Ministry of Finance's Department of Public Enterprises (DPE) is the nodal department for all Central Public Sector Enterprises (CPSEs).

• Maharatna CPSEs:

1. Bharat Heavy Electricals Limited
2. Bharat Petroleum Corporation Limited
3. Coal India Limited
4. GAIL India Limited
5. Hindustan Petroleum Corporation Limited
6. Indian Oil Corporation Limited
7. NTPC Limited
8. Oil & Natural Gas Corporation Limited,
9. Power Finance Corporation
10. Power Grid Corporation of India Limited
11. Steel Authority of India Limited
12. Rural Electrification Corporation Limited
13. Oil India Ltd
14. Hindustan Aeronautics Limited

Key Points

• IOCL (Indian Oil Corporation Limited) is the country's largest commercial oil corporation.

• Indian Oil Corporation Limited is listed under Maharatna CPSEs.

• It is owned by the Ministry of Petroleum and Natural Gas.

• Indian Oil has branched out into alternative energy and downstream operations globalisation.

• It has subsidiaries in Sri Lanka, Mauritius, the United Arab Emirates, Singapore, Sweden, the United States of America, and the Netherlands.

Additional Information

• The Indian Railway Catering and Tourism Corporation (IRCTC) is a government-owned company in India that offers ticketing, catering, and tourism services to Indian Railways.

• IRCTC is listed under Navratna CPSEs.

• Garden Reach Shipbuilders & Engineers Limited (GRSE) is a shipbuilding company under the Ministry of Defence company.

• Garden Reach Shipbuilders & Engineers Limited is listed under Minratna CPSEs.

• The Airports Authority of India (AAI) is a statutory agency that is governed by the Directorate General of Civil Aviation of the Ministry of Civil Aviation of the Government of India.

• The Airports Authority of India (AAI) is listed under Miniratna CPSEs.

**Q5. Answer: (a) 25% profit**

Given:

Discount percentage at which Zamir bought the article on the Marked Price = 40%

Discount percentage at which Zamir sold the article on the Marked Price = 25%

Formulas used:

Discount is calculated on the Marked Price.

Discount = Marked Price × Discount/100

Selling Price = Marked Price × (100 - Discount)%

Profit = Selling Price - Cost Price

Profit percentage = Profit/Cost Price × 100

Calculation:

Let the Marked Price be = 100a

As per the question;

Price at which Zamir bought the article (Cost Price) = 100a × (100 - 40)%

=> 100a × 60/100 = 60a

Price at which Zamir sold the article (Selling Price) = 100a × (100 - 25)%

=> 100a × 75/100 = 75a

Profit = 75a - 60a = 15a

Therefore Profit Percent = 15a/60a × 100 = 25%

Shortcut Trick40% = 40/100 = 2/5

25% = 25/100 = 1/4

As per the question;

Therefore Profit percent = (15 - 12)/12 × 100 = 25%

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

The logic followed here is:

• A rat lives in a hole.

Similarly,

• A horse lives in a stable.

Additional Information

• Rabbit lives in a burrow

• A bird lives in a cage

• A lion lives in a den.

Hence, "stable" is the correct answer.

**Q7. Answer: (d) 729**

The logic followed here is:

The second number is the square of the first number.

$23^2 = 529$

Similarly,

$27^2 = 729$

Hence, "729" is the correct answer.

**Q8. Answer: (a) HTTP**

The correct answer is HTTP.

Key Points

• Hypertext Transfer Protocol (HTTP) is the foundation of data communication for the worldwide web.

• Hypertext Transfer Protocol is a set of rules which is used to retrieve linked web pages across the web.

• It's more secure and advanced version is HTTPS.

• It is a stateless protocol.

• HTTP is the basic structure for the World Wide Web, which consists of data communication.

• HTTP uses a quality level to improve web browser communication, allowing individuals to access information over the internet.

• To access any link or file, most websites use HTTP.

• It is a request-response protocol.

Important Points

• The client computer's web browser sends an HTTP request for a page containing the desired data or service.

• The web server then accepts, understands, looks for, and responds to the web browser's request (HTTP response).

• The requested web page is subsequently shown in the client's browser.

• If the server is unable to discover the page, it delivers a page to the client's browser with the error message (Error 404 - page not found).

**Q9. Answer: (c) Lord Rippon**

The correct answer is Lord Rippon.

Key Points

• Lord Rippon was the viceroy and Governor-General of India between 1880 and 1884.

• Lord Ripon was the Viceroy of India who took initiative to create elected local government bodies called the local boards.

• He is popularly called the 'father of local self-government in India'.

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• He passed the local self-government act in 1882.
• The 'Ilbert bill controversy' was during the period of Lord Rippon.
• Lord Rippon raised the age limit of civil service from 19 to 21.
• Hunter commission(education) was appointed by Lord Rippon in 1882.
• "Judge me by my acts and not by my words" was the famous quote said by Lord Rippon.

Additional Information

• Lord Reading served as viceroy of India from 1921 to 1926.
• He abolished the Devadasi system in India.
• Hilton Young commission was appointed by Lord Reading.
• Chauri Chaura incident was during the tenure of Lord Reading.
• Lord Irwin served as viceroy of India from 1926 to 1931.
• He was the viceroy during the arrival of the Simon Commission.
• He is popularly known as the "Christian viceroy".
• He is the first occupant of Rashtrapathi Bhavan.
• Lord Wavell served as viceroy of India from 1943 to 1947.
• The Royal naval mutiny was during the tenure of Lord Wavell.
• Simla conference was held under the leadership of Lord Wavell.
• Constituent Assembly was formed during the period of Lord Wavell.

**Q10. Answer: (a) 50 cm**

Given:

No of revolutions made by a wheel in moving 11 km = 7000

Formulas used:

The distance covered by a wheel in one revolution is its perimeter.

Diameter of circle = 2 × radius

Perimeter of a circle = 2πr

Calculation:

Distance covered in 7000 revolutions by a wheel of cycle = 11 km

=> 7000 revolutions = 11 × 1000 m × 100 cm

=> 7000 revolutions = 1100000 cm

=> 1 revolution = 1100000/7000 cm

=> 2πr = 1100/7 cm

=> 2 × 22/7 × r = 1100/7

=> r = 1100/7 × 7/44

=> r = 100/4

=> 2r = 100/4 × 2

=> 2r = 50 cm

Therefore The diameter of the circle is 50 cm.

**Q11. Answer: (a) Brahmaputra**

The correct answer is Brahmaputra.

Key Points

• Brahmaputra river stretch is known as National Waterways-2.
• Between Bangladesh's border and Sadiya, the river Brahmaputra runs for 891 kilometres.
• On September 1, 1988, it was designated as National Waterway No. 2 (NW-2).
• National Waterway-1 (Prayagraj-Haldia) is the longest National waterway in India(1620 km).
• It passes through Uttar Pradesh, Bihar, Jharkhand, and West Bengal.
• According to The National Waterways Act, 2016, there are 111 officially notified Inland National Waterways (NWs) in India for inland water transport reasons.

Important Points

• The Brahmaputra is one of the major rivers in the Himalayan river system.
• The Brahmaputra originates from the Chemayundung glacier near Manasarover lake in Tibet.

• The Brahmaputra is known as Dihang in Arunachal Pradesh.
• The Brahmaputra River enters India west of Sadiya, Arunachal Pradesh.
• The Brahmaputra is the Indian River with the greatest volume of water.
• The Brahmaputra is also called the "Red River".

Additional Information

• The Ganges is the national river of India.
• The river Ganga is known as the Padma in Bangladesh.
• The Godavari is India's largest peninsular river.
• It is the second-longest river in India after the Ganga.
• It rises from the Western Ghats' foothills in Maharashtra's Triambakeshwar.
• Its length is about 1500 km.
• Due to its length and the area it covers, it is also known as the ‘Dakshin Ganga’.
• Flows through the states of Maharashtra, Chhattisgarh, Telangana, and Andhra Pradesh.
• Mahanadi is the longest river in Odisha.
• The Mahanadi river originates from the Maikala range in Chattisgarh.
• The Mahanadi river is known as the sorrow of Odisha.
• Paradeep port is located at the mouth of the Mahanadi river.

**Q12. Answer: (a) 24**

Given:

Sum of the digits of a two-digit number = 6

Calculation:

Let the unit digit of the number be = a

Ten's digit be = 6 - a

The original number = 10(6 - a) + a = 60 - 10a + a

=> 60 - 9a

New number after the digits are reversed = 10a + (6 - a) = 9a + 6

As per the question;

9a + 6 = 2 × (60 - 9a) - 6

=> 9a + 6 = 120 - 18a - 6

=> 9a + 18a = 114 - 6

=> 27a = 108

=> a = 108/27

=> a = 4

Therefore The original number = 60 - 9a = 60 - 9 × 4

=> 90 - 36 = 24

Alternate Method

Let the original number be (10x + y) where x and y are 2 digits.

1st condition: x + y = 6 --- (1)

2nd condition:

(10y + x) = 2(10x + y) - 6

10y + x = 20x + 2y - 6

8y = 19x - 6

19x - 8y = 6 ---- (2)

Solving eq (1) and (2), we get

x = 2 and y = 4

Therefore The original number is 24.

Shortcut Trick

By Hit and Trial Method:

Option 1: 42 = 2 × 24 - 6

Option 2: 51 ≠ 2 × 15 - 6

Option 3: 24 ≠ 2 × 42 - 6

Option 4: 15 ≠ 2 × 52 - 6

**Q13. Answer: (d) 100**

Given condition:

Numbers between 300 and 1000 are divisible by 7.

Concept:

Arithmetic Progression

$a_n = a + (n - 1)d$

Calculation:

The first number that is divisible by 7 (300 - 1000) = 301

Likewise: 301, 308, 315, 322.....994

The above series makes an AP,

Where a = 301, Common Difference/d = 308 - 301 = 7 and Last term (an) = 994

=> an = a + (n - 1)d

=> 994 = 301 + (n - 1)7

=> (994 - 301)/7 = n - 1

=> 693/7 + 1 = n

=> 99 + 1 = n

=> n = 100

Therefore There are 100 numbers between 300 and 1000 which are divisible by 7.

**Q14. Answer: (b) 84**

Shortcut Trick

In geometry, when two lines are parallel (BC || DE), the angles in identical relative positions at each intersection where a straight line (transversal) crosses them are equal.

These are called corresponding angles.

Since BC || DE, the angle at B and the angle at D are corresponding angles.

Therefore x = 84

Therefore The correct answer is 84.

Alternate Method

Given: BC || DE in the provided figure.

Property used: When a transversal intersects two parallel lines, the corresponding angles are equal in measure.

=> In the figure, triangle ABC is intersected by line segment DE such that DE || BC.

=> Line AB acts as a transversal for the parallel lines DE and BC.

=> angle ADE and angle ABC are corresponding angles because they are on the same side of the transversal and in corresponding positions.

=> By the Corresponding Angles Postulate, angle ADE = angle ABC.

=> x = 84

Therefore The correct answer is 84.

Additional Information

Corresponding Angles

When two parallel lines are cut by a transversal, the angles in the same relative position at each intersection are equal.

Basic Proportionality Theorem (Thales Theorem)

If a line is drawn parallel to one side of a triangle to intersect the other two sides in distinct points, the other two sides are divided in the same ratio: AD/DB = AE/EC.

Similarity of Triangles

If DE || BC, then triangle ADE is similar to triangle ABC (ΔADE ~ ΔABC) by the AA (Angle-Angle) similarity criterion.

**Q15. Answer: (a) 12 : 15**

The logic followed here is:

• Second number - 2 = First number

1. 15 - 12 = 3

2. 19 - 17 = 2

3. 11 - 13 = 2

4. 23 - 21 = 2

• In options 2, 3, and 4, the difference is 2 but in option 1 the difference is 3 which is different from others.

Hence, "option 1" is the correct answer.

**Q16. Answer: (d) Rs. 30,480**

Given:

Money borrowed by Dalip from Amarjeet = Rs.24000

Rate of simple interest = 9% per annum for 3 years

Formulas used:

Simple Interest = Principal × Rate/100 × Time

Amount = Principal + Simple Interest

Calculation:

Amount = Rs.24000 + Rs.24000 × 9/100 × 3

=> Rs.24000 + Rs.6480

=> Rs.30480

Therefore The amount to be returned after 3 years by Dalip is Rs.30480.

Alternate Method

Simple interest is calaculated on Principal, that is 100% of itself.

Amount = (100% + 9% × 3) of Principal = 127% of Principal

Therefore Amount = Rs.24000 × 127/100 = Rs.30480

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

• Bronze and Brass are Alloys but no Bronze is Brass.

The Venn diagram that best represents the relationship between the given set of classes:

Hence, "option 1" is the correct answer.

Additional Information

• Bronze - Alloy of copper and tin

• Brass - Alloy of copper and zinc

**Q18. Answer: (c) 24**

Shortcut Trick

Average of 4 consecutive multiples of 3 = 78 ÷ 4 = 19.5

The average lies exactly between the 2nd and 3rd numbers in the sequence.

Since the gap between consecutive multiples is 3, the 3rd number = 19.5 + (3 ÷ 2) = 21

The 4th (largest) number will be the next multiple = 21 + 3 = 24

Therefore The correct answer is 24.

Alternate Method

Given:

Sum of four consecutive multiples of 3 = 78

Calculations:

=> Let the four consecutive multiples of 3 be x, x + 3, x + 6, and x + 9.

=> According to the question, Sum = 78

=> x + (x + 3) + (x + 6) + (x + 9) = 78

=> 4x + 18 = 78

=> 4x = 78 − 18

=> 4x = 60

=> x = 60 ÷ 4 = 15

=> We need to find the largest of these numbers, which is x + 9.

=> Largest number = 15 + 9 = 24

Therefore The correct answer is 24.

Additional Information

Consecutive Multiples

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Consecutive multiples of any number n always maintain a constant common difference of n between them. They form an Arithmetic Progression (AP).

Average of an Arithmetic Progression

The average (mean) of any Arithmetic Progression is simply the average of its first and last terms. For an even number of terms, it lies exactly halfway between the two middle terms.

Sum of an AP

The sum of terms in an AP can be calculated as: Sum = Number of terms × Average. Therefore, finding the average first is often the fastest method to solve such series.

**Q19. Answer: (c) 2 km/h**

Given:

Speed of a boat in still water = 14 km/h

Distance covered = 28 km

Time taken while doing downstream = 1 hour 45 minutes

Formulas used:

Speed downstream = Speed of boat + Speed of stream

Time = Distance/Speed

Calculation:

Let the speed of stream be = b

28 km/(14 + b) = 1 + 45/60 hours

=> 28/(14 + b) = 1 + 3/4

=> 28/(14 + b) = 7/4

=> 4/(14 + b) = 1/4

=> 14 + b = 4 × 4

=> 14 + b = 16

=> b = 16 - 14 = 2 km/h

Therefore The speed of stream is 2 km/h.

**Q20. Answer: (c) a process of change in a society's population over time**

The correct answer is a process of change in a society's population over time.

Key Points

• Demographic Transition is a process of change in a society's population over time.

• It can be used to describe and predict the future population of any area.

• It shows changes in birth rate and death rate and consequently on the growth rate of population.

• It is the relationship between economic development and population growth.

• Demographer Warren Thompson first introduced the demographic transition model in 1929.

Important Points

• The three stages of demographic transition are:

1. The first stage has high fertility and high mortality because people reproduce more to compensate for the deaths due to epidemics and variable food supply.

• It is characterised by a high birth rate, death rate and low rate of population growth.

2. The Second Stage is called the stage of Population Explosion.

• Fertility is still high at the start of the second stage, but it gradually decreases.

3. Fertility and mortality both drop dramatically in the third stage.

• It has a declining birth rate, a low and stable mortality rate, and a rapidly growing population.

**Q21. Answer: (a) Vienna**

The correct answer is Vienna.

Key Points

• The Organization of Petroleum Exporting Countries (OPEC) is a group of countries that export oil.

• OPEC is a 13-country cartel or intergovernmental organization.

• Founded on 14 September 1960 in Baghdad.

• It was formed to coordinate the petroleum policies of its members and to provide member states with technical and economic aid

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• It was founded by its first five members namely, Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela.

• OPEC now has 12 members.

• It has been headquartered in Vienna, Austria, since 1965.

• Even though Vienna is the headquarters of OPEC, Austria is not an OPEC member state.

• OPEC's establishment signaled a shift toward national sovereignty over natural resources, and OPEC policies have come to dominate the global oil market and international relations.

• A new member country must be approved by three-quarters of OPEC's current members, including all five of the founding members.

• Sudan formally made an application to join in October 2015, however it is still not a member.

Confusion Points

• OPEC had its headquarters in Geneva, Switzerland, in the first five years of its existence. This was moved to Vienna, Austria, on September 1, 1965.

Additional Information

• The World Health Organization's headquarters is located in Geneva.

• Brussels is the European Union's headquarters.

• The headquarters of FIFA is in Zurich.

**Q22. Answer: (a) 3 : 1**

Given:

The lengths of two towers are x and y respectively.

Angles subtended by the tops of the towers at the midpoint of the line are 60º and 30º respectively.

Calculation:

BC = CD

In triangle ABC, AB/BC = tan 60°

=> x/BC = √3

=> BC = x/√3 (1)

In triangle CDE, ED/CD = tan 30°

=> y/CD = 1/√3

=> CD = √3y (2)

(1) = (2)

=> BC = CD

=> x/√3 = √3y

=> x = 3y

=> x/y = 3/1

Therefore The required ratio, x : y = 3 : 1

**Q23. Answer: (d) 384**

Shortcut Trick

Difference in Percentage = 82% − 73% = 9%

Given that 9% of the number = 72

Then, 1% of the number = 72 ÷ 9 = 8

Required value (48% of the number) = 48 × 8 = 384

Therefore The correct answer is 384.

Alternate Method

Given:

Difference between 82% and 73% of a number = 72

Formula Used:

Value = (Percentage ÷ 100) × Number

0%100%73%82%Difference 9% = 72Target: 48% of the total number

Calculations:

=> Let the number be x.

=> (82% × x) − (73% × x) = 72

=> (82 − 73)% × x = 72

=> 9% × x = 72

=> (9 ÷ 100) × x = 72

=> x = (72 × 100) ÷ 9

=> x = 800

=> Required value = 48% of 800

=> Value = (48 ÷ 100) × 800

=> Value = 48 × 8 = 384

Therefore The correct answer is 384.

Additional Information

Percentage Difference Rule

When two percentages of the same base are subtracted, the result is equal to the difference of the percentages applied to that base: a% of x − b% of x = (a−b)% of x.

Finding the Whole Number

If p% of a number is v, then the total number is calculated as (v × 100) ÷ p.

Fractional Conversion

Converting common percentages to fractions can speed up calculations: 25% = 1/4, 50% = 1/2, 75% = 3/4, and 20% = 1/5.

**Q24. Answer: (b) 5/11**

Shortcut Trick

Total balls = 6 White + 2 Black + 3 Red = 11

Non-white balls = 2 Black + 3 Red = 5

Probability = Non-white balls ÷ Total balls = 5/11

Therefore The correct answer is 5/11.

Alternate Method

Given:

Number of white balls = 6

Number of black balls = 2

Number of red balls = 3

Formula Used:

Probability = Favorable Outcomes ÷ Total Outcomes

6 White

2 Black

3 Red

Total 11 Balls

5 Not White

Calculations:

=> Total possible outcomes = 6 + 2 + 3 = 11

=> Favorable outcomes (not white) = 2 (Black) + 3 (Red) = 5

=> Probability (Not White) = 5 ÷ 11 = 5/11

Therefore The correct answer is 5/11.

Additional Information

Probability Bounds

The probability of any event E always lies between 0 and 1, inclusive: 0 ≤ P(E) ≤ 1. A probability of 0 means the event is impossible, and 1 means the event is certain.

Complement of an Event

The complement of an event A, denoted as A', is the event that A does not occur. The sum of probabilities of an event and its complement is always 1: P(A) + P(A') = 1.

Equally Likely Outcomes

When outcomes in a sample space are equally likely, the theoretical probability of an event is calculated directly as the number of favorable outcomes divided by the total number of possible outcomes.

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**Q25. Answer: (d) Moradabad**

The correct answer is Moradabad.

Key Points

• India's first cash-and-carry store was opened in Moradabad.

• It was launched by Common Services Centres(CSC) to promote rural marketing.

• The first Cash and Carry Store was launched in Kanth, Muradabad (Uttar Pradesh).

• Each cash and carry establishment will, directly and indirectly, employ at least four people.

• The stores also offer free membership benefits to other CSC village-level entrepreneurs and government employees.

Important Points

• Citizen-Centric Services are provided by Common Services Centres (CSCs) as part of the Digital India initiative.

• CSCs are delivering many government and non-government services to citizens in rural India across the country.

• The store currently has products of Godrej, Patanjali, JIVA, Crompton, i-Ball.

• Common Services Centres (CSCs) are also selling IFFCO fertilizers and seeds through its vast network in the country.

• In recent months, CSCs have evolved into a "one-stop-shop" for the rural population, providing services such as passports, pensions, railway tickets, LPG cylinder booking and delivery, and banking, among other things.

Additional Information

• Haridwar is a city in Uttarakhand.

• The Kumbha Mela, which takes place every 12 years at Haridwar, is a Hindu festival.

• Bhopal is a city in Madhya Pradesh.

• Bhopal is also known as the City of Lakes.

• Surat is a city n Gujarat.

• According to the Swachh Survekshan 2020, Surat is India's second cleanest city as of August 21, 2020.

**Q26. Answer: (d) 2**

Shortcut Trick

Total Work = LCM(8, 12) = 24 units.

Efficiency of 1 man = 24 ÷ 8 = 3 units/day.

Efficiency of 1 woman = 24 ÷ 12 = 2 units/day.

Combined efficiency of 2 men and 3 women = (2 × 3) + (3 × 2) = 12 units/day.

Time required = Total Work ÷ Combined efficiency = 24 ÷ 12 = 2 days.

Therefore The correct answer is 2 days.

Alternate Method

Given:

Time taken by 1 man = 8 days

Time taken by 1 woman = 12 days

Formula Used:

Total Work = LCM of given days

Efficiency = Total Work ÷ Days

| Person | Days | Total Work | Efficiency |
|---|---|---|---|
| 1 Man | 8 | 24 | 24 ÷ 8 = 3 |
| 1 Woman | 12 | 24 ÷ 12 = 2 | |

Calculations:

=> Efficiency of 2 men = 2 × 3 = 6 units/day

=> Efficiency of 3 women = 3 × 2 = 6 units/day

=> Total efficiency of 2 men and 3 women = 6 + 6 = 12 units/day

=> Time required = Total Work ÷ Total Efficiency

=> Time required = 24 ÷ 12 = 2 days

Therefore The correct answer is 2 days.

Additional Information

Work and Wages

Wages are distributed in proportion to the total work done by each person. If people work for the same duration, wages are

distributed in the ratio of their efficiencies.

MDH Rule

If M1 men do W1 work in D1 days for H1 hours per day, and M2 men do W2 work in D2 days for H2 hours per day, then: (M1 × D1 × H1) ÷ W1 = (M2 × D2 × H2) ÷ W2.

Pipes and Cisterns

Calculations are the same as Time and Work. A pipe filling a tank has positive efficiency, while a leak or a pipe emptying the tank has negative efficiency.

**Q27. Answer: (c) Rs. 144**

Given:

Sum borrowed by Zaved for 2 years = Rs.10000

Amount paid by Zaved at the end of 2 years = Rs.12544

Formulas used:

When interest compounded annually;

Amount = Principal × $(1 + r/100)^n$

Amount at simple interest;

Amount = Principal + Principal × Rate/100 × Time

Calculation:

$12544 = 10000 \times (1 + r/100)^2$

=> 12544/10000 = (1 + r/100)2

=> √(784/625) = 1 + r/100

=> 28/25 - 1 = r/100

=> 3/25 = r/100

=> 25r = 300

=> r = 300/25 = 12%

Amount at the end of 2 years at 12% per annum simple interest;

Amount = 10000 + 10000 × 12/100 × 2

=> 10000 + 2400

=> 12400

Therefore The Amount saved by Zaved = Rs.12544 - Rs.12400 = Rs.144

**Q28. Answer: (c) 68^(th)**

The correct answer is 68th.

Key Points

• India slipped to the 68th position in the Global Competitiveness Index 2019.

• It was released by the World Economic Forum (WEF).

• India scored poorly in eight of the twelve categories.

• India is ranked below 100 in five categories and just in the top 50 in four.

• In this year's(2019) survey, Colombia, Azerbaijan, South Africa, and Turkey outperformed India.

• Singapore has surpassed the United States to claim the top spot.

• India's neighbour country China remained unchanged from last year’s survey at 28.

• The Global Competitiveness Report series was first launched in 1979.

• The Global Competitiveness Index (GCI) uses 103 indicators organised into 12 pillars to depict the competitiveness landscape of 141 economies.

**Q29. Answer: (c) QPON**

The logic followed here is:

Similarly,

Hence, "QPON" is the correct answer.

**Q30. Answer: (a) Jharkhand**

The correct answer is Jharkhand.

Key Points

• The Government of India's Ayushman Bharat Scheme is a national public health insurance fund that intends to provide

low-income Indians with free health insurance coverage.

• The Ayushman Bharat Scheme was launched on 23rd September 2018 in Ranchi, Jharkhand.

• It was launched by the Prime Minister of India, Narendra Modi.

• It was launched as recommended by the National Health Policy 2017, to achieve the vision of Universal Health Coverage (UHC).

• The scheme was extended to the Union Territories of Jammu Kashmir and Ladakh by December 26, 2020.

• It is the largest government-sponsored healthcare programme in the world.

• The Pradhan Mantri Jan Arogya Yojna(PM-JAY) is the second component of Ayushman Bharat.

• The scheme will have a defined benefit cover of Rs.5 lakh per family per year.

• Benefits are available in both public and private facilities that have been empanelled.

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

• Mars and Venus are planets. So we can say that all Mars and Venus are Planets but no Mars is Venus.

• The Venn diagram that best represents the relationship between the given set of classes.

• Hence, "option 2" is the correct answer.

**Q32. Answer: (b) Digital Bharat, Saksham Bharat**

The correct answer is Digital Bharat, Saksham Bharat.

Key Points

• A Digital India Compendium on Digital Bharat, Saksham Bharat was released in 2019.

• It was released by former Electronics &Information Technology and Law &Justice, Sh. Ravi Shankar Prasad in New Delhi.

• The document's purpose is to share and publicise the success of Digital India among the general public.

• The document is divided into two sections namely, the Digital profile of India and the Digital profile of States & UTs.

1. The digital profile of India comprises an in-depth analysis, comparative study of the implementation of the Digital India Programme and the transformation it has brought out in the lives of citizens.

• It has simplified the way citizens avail various Government services and has brought transparency and accountability.

2. The digital profile of States/ UTs reflects the State/ UT wise implementation of various initiatives taken under the Digital India Programme.

Important Points

• The document highlights Digital India initiatives, which aim to turn India into a knowledge-based economy and a digitally empowered society by assuring digital access, inclusion, empowerment, and bridging the digital divide.

• It also addresses the digital infrastructure of the country.

• It stated that one of the primary vision areas of Digital India is to provide digital infrastructure as a utility to every citizen, beginning with supplying digital identities to 1.3 billion inhabitants and connecting around 250,000 village councils via optical fibres.

Additional Information

• The Government of India's flagship programme, Digital India, aims to turn India into a digitally enabled society and knowledge economy.

• The objective of Unnat Bharat Abhiyan is to bring about transformative change in rural development processes by using knowledge institutions to assist in the construction of an inclusive India's architecture.

• Nai Udaan is a Scheme to provide financial support to the minority candidates clearing Prelims conducted by Union Public Service Commission, Staff Selection Commission and State Public Service Commissions.

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

The correct answer is Gaganyaan.

Key Points

• ISRO's Gaganyaan mission is India's maiden manned space mission.

• Gaganyaan is an Indian crewed orbital spacecraft that will serve as the foundation for the country's human spaceflight programme.

• The spaceship will be able to carry three people, and an updated version will be able to rendezvous and dock with other spacecraft.

• The mission was scheduled to launch on ISRO's GSLV Mk III in December 2021, but it has now been pushed back to no earlier than 2023.

• The Indian Space Research Organisation is developing Vyommitra, a humanoid robot that will serve onboard the Gaganyaan.

• As part of this programme, two unmanned missions and one manned mission are approved by the Government of India (GoI).

Important Points

• The objective of the Gaganyaan programme is to demonstrate the indigenous capability to undertake human space flight missions to Low Earth Orbit.

• Three Indian astronauts, including a woman, will be aboard the Gaganyaan system module, dubbed the Orbital Module.

• The total cost of the Gaganyaan Programme is around Rs. 9023.00 crores.

• Following the completion of the Gaganyaan programme, the next phase will be to develop the capability for a long-term human presence in space.

**Q34. Answer: (b) Quit India Movement**

The correct answer is Quit India Movement.

Key Points

• Uttar Pradesh launched the 'Vriksharopan Mahakumbh' campaign to commemorate the 77th anniversary of the Quit India movement.

• It was a massive greenery initiative with the goal of planting a state-record 22 crore saplings.

• Yogi Adityanath, the chief minister, launched the campaign by planting Harishankari in Lucknow, which is a hybrid of three sacred trees (peepul, pakar, and banyan).

• The state has set a Guinness World Record for concurrently distributing 76,823 saplings in six hours.

Important Points

• On August 8, 1942, at the Bombay session of the Indian National Congress, the 'Quit India' demand was made.

• At the Gowalia tank maidan in Mumbai, Mahatma Gandhi delivered the Quit India address.

• The failure of the Cripps mission was the immediate cause of the Quit India movement.

• On August 9, 1942, the Quit India movement began.

• The hero of the Quit India movement is Jayaprakash Narayan.

• Aruna Asaf Ali is regarded as the Quit India movement's heroine.

• The Muslim League's slogan during the Quit India movement was "Divide and Quit."

• The iconic slogan linked with the Quit India movement is "Do or Die."

• During the Quit India movement, Lord Linlithgow served as Viceroy.

Additional Information

• The Chipko movement was a peaceful social and environmental movement led by rural villagers, mainly women In India in the Himalayan state of Uttarakhand (then a part of Uttar Pradesh) and swiftly spread across India's Himalayas.

• Appiko Movement is an environment protection movement like the Chipko Movement, which aims to protect forests in the Uttara Kannada district.

• Dandi March was a nonviolent protest action in India led by Mahatma Gandhi in March–April 1930 to protest against the steep tax the British levied on salt.

**Q35. Answer: (d) 2**

Given:

5 + 3 × 72 ÷ 24 – 12 = ?

Calculation:

5 + 3 × 72 ÷ 24 – 12 = ?

=> 5 + 3 × 3 - 12 = ?

=> 5 + 9 - 12 = ?

=> 14 - 12 = ?

Therefore 2 = ?

**Q36. Answer: (d) WTO**

The correct answer is WTO.

Key Points

• GATT stands for General Agreement on Tariffs and Trade.

• It was established by a multilateral treaty of 23 countries in 1947.

• It was founded in the aftermath of World War II.

• The World Trade Organization (WTO) is the successor to the General Agreement on Tariffs and Trade (GATT).

• The GATT was conceived at the 1947 United Nations Conference on Trade and Employment (UNCTE) when the International Trade Organization (ITO) was one of the concepts suggested.

• GATT is a legal agreement between many countries with the goal of promoting international trade by lowering or eliminating

trade obstacles like tariffs and quotas.

Important Points

• In 1995, the World Trade Organization (WTO) was established.

• It is one of the world's newest organisations.

• The World Trade Organization's headquarters are in Geneva, Switzerland.

• WTO officially commenced operations on 1 January 1995.

Additional Information

• The International Labour Organization (ILO) is a UN organisation tasked with promoting social and economic fairness by establishing international labour standards.

• The headquarters of the ILO is located in Geneva, Switzerland.

• The United Nations Economic and Social Council(ECOSOC) is one of the UN's six main organs, in charge of overseeing the organization's economic and social activities.

• The headquarters of the ECOSOC is located in New York City and Geneva.

• The United Nations Conference on Trade and Development (UNCTAD) is an intergovernmental organisation whose mission is to promote developing countries' interests in global trade.

• The headquarters of UNCTAD is located in Geneva, Switzerland.

**Q37. Answer: (a) 3 days**

Given:

Time taken by 12 men to do a task = 16 days

Time taken by 32 women to do the same task = 12 days

Formulas used:

Total work = (No of persons) × Time

Calculation:

12 men × 16 days = 32 women × 12 days

=> 1 Man = 2 Women

Total work in terms of men = 12 × 16 = 192 units

Work done by (8 men + 8 women) in 12 days = (8 men + 4 men) × 12 = 12 × 12 = 144 units

Remaining work after which women left = 192 units - 144 units = 48 units

Now, 8 more men joined, total men will be (8 + 8) = 16

Therefore No of days taken by 16 men to complete the remaining task = 48 units/16

=> 3 days

**Q38. Answer: (b) 105 g**

Given:

Quantity of brass mixed with copper = 140 g

Desired ratio of brass and copper = 4 : 3

Calculation:

Let the quantity of brass and copper be 4a and 3a respectively.

4a = 140g

=> a = 140/4 g

=> a = 35 g

Therefore The quantity taken of copper to prepare the alloy = 3a = 3 × 35

=> 105 g

**Q39. Answer: (d) Dictionary of Martyrs**

The correct answer is Dictionary of Martyrs.

• The fifth volume of "Dictionary of Martyrs" was released by Prime Minister Narendra Modi in 2019.

Key Points

• The fifth volume is the final part of a project launched by the Ministry of Culture in 2009 under the UPA-II government to commemorate the 150th anniversary of the first war of independence in 1857.

• It is executed by the Indian Council of Historical Research and focuses on 15,000.

• Martyrs sacrificed their lives from the first war of independence till 1947.

• Each section covers a different geographical area.

• The first three volumes were released between 2011 and 2014. Sections 4 and 5, issued under the NDA government, cover East India and South India.

**Q40. Answer: (c) India and Finland**

The correct answer is India and Finland.

Key Points

• India and Finland signed an MOU on co-operation in the field of peaceful use of outer space in January 2019.

• The Memorandum of Understanding(MOU) was approved by the Union Cabinet, chaired by Prime Minister Narendra Modi.

• The MoU has been signed on 10th January 2019 in New Delhi.

• The Memorandum of Understanding will serve as a springboard for new research activities and application possibilities in the fields of earth remote sensing, satellite communication, satellite navigation, space science, and space exploration.

• Cooperation with the Finnish government would lead to the development of a collaborative effort in the sphere of space technology application for the benefit of humanity.

• Under the terms of this MoU, the Participants, or the implementing agencies acting on their behalf, may form project teams to oversee specific cooperative initiatives undertaken under implementing arrangements.

Important Points

• The Memorandum of Understanding will enable cooperation in the following prospective areas of mutual interest:

• Earth-based remote sensing.

• Satellite communication and satellite-based navigation.

• Planetary exploration and space science

• Development, testing and operation of space objects and ground systems.

• Indian launch vehicles are used to launch Finnish space objects.

• Processing and use of space data

• Creating cutting-edge applications and solutions based on space technologies and artificial intelligence.

• Collaboration on new New Space prospects and data ecosystems, as well as the long-term usage of space.

• 2019 marked 70 years of diplomatic relations between India and Finland.

**Q41. Answer: (a) Sanchi Stupa**

The correct answer is Sanchi Stupa.

Key Points

• Sanchi Stupa is one of the best-preserved and studied Buddhist sites in India.

• It is situated in Madhya Pradesh.

• In the third century BC, Ashoka constructed the Great Stupa.

• There are numerous stupas at the site, the most renowned of which is the Sanchi Stupa, also known as the Great Stupa.

• It houses sacred relics or the ashes of the Buddha and his most illustrious disciples.

Important Points

• Sanchi Stupa was neglected and overlooked from the thirteenth century forward.

• By unearthing its ruins in 1818, General Taylor brought it to the notice of the public.

• The arrival of H.H. Cole to Sanchi in 1869 was a significant forerunner to the conservation and preservation efforts at Sanchi.

• Shahjehan Begum and her successor Sultan Jehan Begum, the rulers of Bhopal, also contributed money to the preservation of the old site.

• Between 1912 and 1919, Sir John Marshall worked on conserving the monument and bringing it to its current state.

• Sanchi Stupa now remains as a testament to the Archaeological Survey of India's outstanding restoration and preservation of a significant archaeological site.

Additional Information

• Palika Bazaar is an underground market in Connaught Place, Delhi, located between the inner and outer circles

• The Gateway of India is an arch-monument in Mumbai to commemorate the arrival of George V and Mary of Teck.

• The India Gate is a war memorial located in New Delhi as a memorial to 90,000 soldiers of the British Indian Army who died between 1914 and 1918 in the First World War.

**Q42. Answer: (c) 18**

The correct answer is 18.

Key Points

• Henry Moseley is the father of the modern periodic table.

• In 1913, Henry Moseley proved that an element's atomic number (abbreviated as Z) is a more fundamental property than its atomic mass.

• In the modern periodic table, elements are organised into 18 vertical columns.

• Modern Periodic Law can be stated as the physical and chemical properties of the elements are periodic functions of their atomic numbers.

• Modern Periodic Table arranges the elements in the order of their atomic numbers in:

• Seven horizontal rows (periods).

• Eighteen vertical columns (groups or families).

Important Points

• Each period begins with the filling of a new energy shell.

• In the modern periodic table, the first period is the shortest.

• Hydrogen and Helium are the elements in the first period.

• Elements are grouped in the modern periodic table in order of increasing atomic numbers, which is connected to their electrical configuration.

• The chemical reactivity of an element is determined by its location in the Periodic Table.

• Elements of group 18 of the modern periodic table are considered as 'noble gas'.

**Q43. Answer: (d) 3**

In this question, number 0 immediately followed by number 2 is (02) -

2 1 3 2 5 0 2 7 8 0 2 0 3 4 5 2 0 2 0 7 8

The number 0 is immediately followed by the number 2 three times as is highlighted above in bold.

Hence, "3" is the correct answer.

**Q44. Answer: (d) 24^(th) April**

The correct answer is 24th April.

Key Points

• International day of Multilateralism and Diplomacy is celebrated on 24th April.

• The day was first observed on 24th April 2019.

• The day was established on 12 December 2018 through resolution A/RES/73/127.

• The International Day of Multilateralism and Diplomacy for Peace aims to reaffirm the United Nations Charter and its principles of peaceful resolution of international issues.

• The Day honours the use of multilateral decision-making and diplomacy in resolving international problems peacefully.

• The day's main goal is to promote and advance the United Nations' main goal of saving future generations from the scourge of war,' which is to be accomplished by 'peaceful resolution of disputes.'

Additional Information

• January 4 is celebrated as World Braille Day.

• June 21 is celebrated as International Day of Yoga, Music day.

• May 3 is celebrated as Press Freedom Day.

**Q45. Answer: (a) Saba Naqvi**

The correct answer is Saba Naqvi.

Key Points

• Saba Naqvi is the best-known journalist in India.

• She was the former political editor of Outlook magazine.

• 'Politics of Jugaad: The Coalition Handbook' is a book written by Saba Naqvi.

• The book examines the possibility of a coalition government after the 2019 Lok Sabha polls.

• Notable works of Saba Naqvi are:

• In Good Faith.

• Capital Conquest.

• Shades of Saffron: From Vajpayee to Modi.

Additional Information

• Chetan Bhagat is an Indian author.

• Notable works:

• The Girl in Room 105.
• 2 States: The Story of My Marriage.
• The 3 Mistakes of My Life.
• Revolution 2020.
• What Young India Wants.
• Half Girlfriend.
• One Indian Girl.
• Five Point Someone.
• Tom Hanks is an American actor known for both his comedic and dramatic roles.
• Jhumpa Lahiri is an American author known for her short stories, novels and essays in English.
• Notable works:
• Interpreter of Maladies.
• The Namesake.
• Unaccustomed Earth.
• The Lowland.

**Q46. Answer: (c) Lord Canning**

The correct answer is Lord Canning.

Important Points

• During the 'Sepoy Mutiny,' Lord Canning was the Governor-General of India.
• Lord Canning served as India's first Viceroy and last Governor-General.
• Canning officially revoked the doctrine of lapse.
• The remarriage of Hindu widows was first legalised by Canning.
• He introduced income tax in India.

Key Points

• Sepoy Mutiny is well known as India's first attempt to gain freedom from the British.
• The sepoy mutiny started at Meerut on 10th May 1857.
• Mangal Pandey was the revolt's first martyr.
• The revolt was dubbed 'Devil's Wind' by the English.
• The revolt was suppressed in 1858.

Additional Information

• Lord Dalhousie served as Governor-General of India from 1848 to 1856.
• He is popularly known as the 'maker of modern India'.
• In India, Dalhousie established the Public Works Department.
• During his presidency, India saw the introduction of passenger trains, the electric telegraph, and uniform postage.
• First Governor-General of British India, William Bentick.
• He is the British government's only governor-general who has been impeached.
• He abolished the dual government system.
• Lord Cornwallis served as Governor-General of India from 1786 to 1793.
• In 1781, he is best known for surrendering at the Siege of Yorktown.
• He is the father of the Indian civil service.

**Q47. Answer: (c) 50.694**

Given:

3.03 + 31.003 + 13.33 + 3.331

Calculation:

3.03 + 31.003 + 13.33 + 3.331

=> 34.033 + 16.661

=> 50.694

Therefore The required result = 50.694

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**Q48. Answer: (b) 17**

The logic followed here is:

Hence, "17" is the correct answer.

**Q49. Answer: (a) 35º**

Given:

angle ARS = 125°

Concept:

Angle made in a semi-circle is a right angle.

Angles formed in the same segment of a circle will be equal in measure.

Calculation:

BR is formed by joining B and R.

angle ARS + angle ARP = 180° [Linear Pair]

=> angle ARP = 180° - 125° = 55°

angle ARB = 90° [Angle made in semi-circle]

=> angle ARP + angle BRP = 90°

=> angle BRP = 90° - 55° = 35°

angle BRP = angle PAB = 35° [Angles made in the same segement]

Therefore angle PAB = 35°

**Q50. Answer: (a) 6 : 7**

Given:

Sharing ratio of the amount to be divided between Sukhdev and Baldev = 20 : 23

Amount to be divided between Sukhdev and Baldev = Rs.2150

Calculation:

Share of Sukhdev = 2150 × 20/43 = 1000

Share of Sukhdev after donating = Rs.1000 - Rs.100 = Rs.900

Share of Baldev = 2150 × 23/43 = Rs.1150

Share of Baldev after donating = Rs.1150 - Rs.100 = Rs.1050

Therefore New ratio of the shares of Sukhdev and Baldev = 900 : 1050

=> 6 : 7

**Q51. Answer: (d) 17/450**

Given:

Expression = 0.0377...

=> 0.0377777.....

Calculation:

Let 0.0377777..... = x (1)

By multiplying (1) by 100

=> 3.7777..... = 100x (2)

By multiplying (1) by 1000

=> 37.7777..... = 1000x (3)

By (3) - (2)

=> 37.7777..... - 3.7777..... = 1000x - 100x

=> 34 = 900x

=> x = 34/900

=> x = 17/450

Therefore 0.0377... or 0.037777.....in the form of p/q is 17/450.

Alternate MethodStep 1: Number of 9 in denominator = Number of bars [0.7 = 7/9]

Step 2: Number of non bar digit = Number of zeros [0.86 = (86 - 8)/90 = 78/90 = 13/10]

Step 3: Subtract the non-bar number from the original number

0.037 = (37 - 3)/900

=> 34/900

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=> 17/450

Therefore The required form of p/q is 17/450.

**Q52. Answer: (a) Rhombus**

The correct answer is Rhombus.

Key Points

• A rhombus is a type of parallelogram.

• All four sides of a rhombus have the same length.

• Rhombus is most similar to the rectangle and square shapes.

• The main difference between a rhombus and a rectangle or square is that its interior angles are only the same as their diagonal opposites.

• A square is a flat two-dimensional shape that has four equal sides, four interior right angles, and four vertices.

• Triangles are the simplest polygons.

• They have three sides and three angles, but they can look different from one another.

• A circle is a two-dimensional shape made up of a curve that is always the same distance from a point in the centre.

**Q53. Answer: (a) 6**

Given:

Numbers from 3 to 60.

Concept:

Divisibility by 5 = If a number ends with 0 or 5, it will be divisible by 5.

Calculation:

The given numbers are; 3, 4, 5, 6, 7, 8, 9, 10 .....60

Odd numbers from the following series which are divisible by 5 are as follows;

=> 5, 15, 25, 35, 45, and 55.

Therefore The required result = 6

**Q54. Answer: (c) Lord's London**

The correct answer is Lord's, London.

Key Points

• ICC Men's Cricket World Cup 2019 final match was held at Lord's in London.

• Lord's had hosted the Cricket World Cup Final five times, the most of any venue.

• The final match was played between New Zealand and England.

• The final match was conducted on 14 July 2019.

• England defeated New Zealand and lifted the ICC Men's Cricket World Cup 2019.

• It was England's first ICC Men's Cricket World Cup victory in four final appearances.

• It was also the first world cup final since 1992 to have a definite new winner.

• The two teams were tied on the same score at the end of the match, resulting in a Super Over.

• It was the first time a Super Over was necessary for a One Day International final match.

• England won on the boundary count.

• England's all-rounder Ben Stokes was awarded the player of the match.

Additional Information

• Indian cricketer Rohit Sharma became the top scorer in the tournament with 648 runs in nine games.

• The 2019 Cricket World Cup was hosted by England and Wales.

• England was the third team in a row to win the World Cup in their own country.

• Australia won the ICC World Cup the most number of times(5 times.)

**Q55. Answer: (c) 57**

The logic followed here is:

Positional value of S = 19, U = 21, N = 14

SUN = 19 + 21 + 14 = 54.

Similarly,

Place value of M = 13, O = 15, O = 15, N = 14

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MOON = 13 + 15 + 15 + 14 = 57.

Hence, "57" is the correct answer.

**Q56. Answer: (a) Rourkela Steel Plant**

The correct answer is Rourkela Steel Plant.

Key Points

• Rourkela Steel Plant is located in Rourkela, Odisha.

• It is India's first integrated steel plant.

• It was built in the 1960s with the collaboration of West Germany.

• Rourkela Steel Plant is managed by the Steel Authority of India.

• It was established during the second Five Year Plan (1956-61).

• Rourkela Steel Plant was Asia's first steel plant to use the LD (Linz-Donawitz) steel-making process.

• It is also the first steel plant in SAIL and the only one presently where 100% of slabs are produced through the cost-effective and quality-centric continuous casting route.

• It is SAIL's only steel plant capable of producing silicon steels for the power sector as well as high-quality pipes for the oil and gas industry.

Additional Information

• Durgapur Steel Plant is one of the Steel Authority of India Limited's integrated steel plants.

• Is located in Durgapur, West Bengal.

• It was established with the assistance of the United Kingdom.

• The Bhilai Steel Plant is located in Bhilai IN Chhattisgarh.

• ii is India's first and main producer of steel rails.

• Bokaro Steel Plant (BSL) is located in Bokaro, Jharkhand.

• It is India's fourth integrated public-sector steel factory, developed with Soviet Unions' assistance.

**Q57. Answer: (d) Yohei Sasakawa**

The correct answer is Yohei Sasakawa.

Key Points

• Yohei Sasakawa is a Goodwill Ambassador of the World Health Organization.

• The International Gandhi Peace Prize 2018 was given to Yohei Sasakawa by the President of India.

• He conferred Gandhi Peace Prize 2018 for his contribution to Leprosy Eradication in India and across the world.

• He is the chairman of The Nippon Foundation, Japan's largest charitable foundation.

Important Points

• The Government of India annually bestows the International Gandhi Peace Prize, which is named after Mahatma Gandhi.

• On the 125th anniversary of Mohandas Gandhi's birth, the Government of India established the International Gandhi Peace Prize in 1995 as a tribute to Gandhi's values.

• This is an annual prize presented to individuals and institutions for their contributions to nonviolence and other Gandhian approaches in the areas of social, economic, and political reform.

• The prize includes a monetary prize of one crore (US$130,000), a plaque, and a citation in any currency on the globe.

• It is open to people of all nationalities, races, creeds, and genders.

• Julius Nyerere received the first Gandhi Peace Prize in 1995.

Additional Information

• The Ekal Abhiyan Trust has won the Gandhi Peace Prize for the year 2017.

• The Gandhi Peace Prize for 2016 was shared between the Akshaya Patra Foundation and Sulabh International.

• Kanyakumari's Vivekananda Kendra won the Gandhi Peace Prize for 2015.

• The Vivekananda Kendra is recognised for its contributions to rural development, education, and natural resource development.

• Former Sultan of Oman Qaboos bin Said Al Said was honoured with the Gandhi Peace Prize for the year 2019.

• The first President of Bangladesh Sheikh Mujibur Rahman honoured with the Gandhi Peace Prize for the year 2020.

**Q58. Answer: (d) 7**

Given:

√(37+√(130+2√(56-√16-√9)))=?

Calculation:

√(37+√(130+2√(56-√16-√9)))=?

=> √(37+√(130+2√(56-4-3)))=?

=> √(37+√(130+2√49))=?

=> √(37+√(130+2×7))=?

=> √(37+√144)=?

=> √(37+12)=?

=> √49=?

=> 7=?

Therefore The value of ? is 7.

**Q59. Answer: (b) 4 m**

Given:

The length of a rectangle = 2 m less than thrice its breadth

Perimeter of the rectangle = 28 m

Formula used:

Perimeter of a rectangle = 2(Length + Breadth)

Calculation:

Let the breadth be = b

28 m = 2 [(3b - 2 + b)]

=> 28 = 2 [4b - 2]

=> 28 = 8b - 4

=> 8b = 28 + 4 = 32

=> b = 32/8 = 4 m

Therefore The breadth of the recangle is 4 m.

**Q60. Answer: (c) Lal Bahadur Shastri and Ayub Khan**

The correct answer is Lal Bahadur Shastri and Ayub Khan.

Key Points

• The Tashkent Agreement was a peace treaty signed by India and Pakistan in 1965 to end the Indo-Pakistani War.

• Lal Bahadur Shastri is the prime minister who signed on Tashkent agreement.

• On January 10, 1966, Lal Bahadur Shastri and Pakistan's then-President Muhammad Ayub Khan signed the Tashkent Agreement.

• Tashkent is the capital city of Uzbekistan.

• Aleksey Kosygin, the Soviet premier, mediated the agreement.

• The parties agreed that all armed forces would be withdrawn to positions held prior to August 5, 1965.

• In India, the agreement was criticized because it did not include a no-war pact or any commitment to refrain from guerilla warfare in Kashmir.

• Lal Bahadur Shastri died in Tashkent on (11th January 1966) the day after the Tashkent Declaration.

Additional Information

• Lal Bahadur Shastri was the second Prime minister of India.

• He served as the Prime minister of India from 1964 to 1965.

• He is popularly called "man of peace".During the 1965 Indo-Pak conflict, he served as Prime Minister of India.

• On the same day as Mahatma Gandhi's birthday, he was born on October 2nd.

• Lal Bahadur Shastri popularised the term "Jai Jawan, Jai Kisan."

• He is the first Prime Minister of India to die abroad.

• In 1966, the Bharat Ratna was bestowed upon him.

• He was the first posthumous recipient of the Bharat Ratna.

• Lal Bahadur Shastri's resting spot is known as Vijayghat.

**Q61. Answer: (a) Due to atmospheric refraction of starlight**

The correct answer is Due to the atmospheric refraction of starlight.

Key Points

• Stars twinkle in the sky at night due to the atmospheric refraction of starlight.

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• A ray of light bends as it passes from one medium to another is called Refraction.
• If light travels from a rare medium to a dense medium, it bends towards the normal.
• If light travels from a dense medium to a rarer medium, it bends away from the normal.
• The earth's atmosphere is made up of several layers.
• When light from a distant source (a star) passes through the atmosphere it undergoes refraction many times,
• This light from a star looks to be twinkling when we eventually see it.
• This is due to the fact that certain light beams directly reach us, while others bend away from and toward us.
• It occurs so quickly that it creates a sparkling(twinkle) effect.

**Q62. Answer: (b) Neither conclusion I nor II follows.**

The least possible Venn diagram is as follows:

Conclusions:

I. All apples are mangoes. - Does not follow (it is possible but not definite)

II. Some mangoes are apples.- - Does not follow (it is possible but not definite)

• Thus, neither conclusion I nor II follows from the given statements.

Hence, "option 2" is the correct answer.

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

• If the letters of the word UNIVERSITY are arranged in alphabetical order then we get the following:
• E I I N R S T U V Y
• The seventh letter from the left end is T as shown below -
• E I I N R S T U V Y

Hence, "T" is the correct answer.

**Q64. Answer: (d) ATP**

The correct answer is ATP.

Key Points

• ATP stands for Adenosine Triphosphate.
• ATP is the energy-carrying molecule used in cells.
• ATP is the organic compound composed of the phosphate groups, adenine, and sugar ribose.
• ATP is mainly composed of the molecule adenosine and three phosphate groups.
• In the respiration process, complex organic compounds such as glucose are broken down to provide energy in the form of ATP.
• Mitochondria produces ATP molecules, which is why it is known as the cell's powerhouse.
• In mitochondria, energy is stored in the form of ATP.
• ATP acts as the energy currency of the cell.
• In the year 1929, German chemist Karl Lohmann developed the ATP molecule.
• Alexander Todd was the first to synthesis the ATP molecule in 1948.

**Q65. Answer: (d) Ministry of Law and Justice**

The correct answer is Ministry of Law and Justice.

Key Points

• Goods and Services Tax (GST) is an indirect tax used in India on the manufacture, sale, and consumption of goods and services in India.
• The Goods and Service Tax (GST) Act, 2017 was published by the Ministry of Law and Justice.
• The Ministry of Law and Justice is responsible for the management of the legal affairs, legislative activities and administration of justice in India.
• As of November 2021, Kiren Rijiju is the minister responsible for Minister of Law and Justice
• Child agencies of the Ministry of Law and Justice are:
• Department of legal affairs.
• Legislative Department.
• Department of justice.

Important Points

• The Constitution Amendment Bill on GST was ratified by 18 states in August 2016, and President Pranab Mukherjee signed it.

• On March 27, 2017, the Goods and Services Tax Bill, 2017 was introduced in the Lok Sabha.
• In India, the Goods and Services Tax (GST) went into effect on July 1, 2017.
• GST was passed as the 101st Amendment act.
• On April 12th, 2017, the President of India signed the Central GST Law.
• It substituted all indirect tax on the manufacture, sale, and consumption of goods and services throughout India.

Additional Information

• The state of Assam was the first to approve the GST bill.
• Odisha is the 16th state to vote in favour of the GST bill.
• GST implementation needs the assent of 16 states.
• One Nation, One Tax, One Market is the GST tagline.
• There are no hidden taxes because the Goods and Services Tax is not an expense for retail merchants.
• GST resolved disputes related to the classification of goods and services.
• Under GST present goods and services are taxed at 0%, 5%, 12%, 18% & 28%.

**Q66. Answer: (a) James Princep**

The correct answer is James Princep.

Key Points

• James Prinsep was an English scholar and the founding editor of the Journal of the Asiatic Society of Bengal.
• James Prinsep deciphered Brahmi and Kharosthi scripts that were used for earlier inscriptions.
• In 1838, James Prinsep deciphered the letters Brahmi and Kharoshti, which were used in the oldest inscriptions and coinage.
• After Prinsep recognised the Kharosthi inscription's language as Prakrit, it became possible to interpret longer inscriptions.
• Apart from working as an assay master at the Benares Mint, he studied, documented, and illustrated various topics of numismatics, metallurgy, and meteorology.
• Christian Lassen, a Norwegian scholar, made the first successful attempts to interpret Brahmi in 1836.

Important Points

• Brahmi is an ancient South Asian writing system.
• Most Prakrit inscriptions were written in the Brahmi script.
• Brahmi script used in most Ashokan inscriptions is the basis for the majority of scripts used to write current Indian languages.
• The Kharosthi script was an ancient Indian script used in areas of the Indian subcontinent and present-day eastern Afghanistan by the Khasa, Saka, and Yuezhi peoples.

Additional Information

• Sir Alexander Cunningham was an archaeologist who excavated many sites in India, including Saranath and Sāanchi.
• He served as the first director of the Indian Archaeological Survey.
• John Archibald Wheeler was an American theoretical physicist who was instrumental in rekindling interest in general relativity in the United States following World War II.

**Q67. Answer: (b) Rs. 1,760**

Shortcut Trick

In Profit and Loss, we compare values relative to the Cost Price (CP) as 100%.

A 15% loss means the article was sold at 85% of its CP (100% − 15% = 85%).

To gain 10%, the Selling Price must be 110% of its CP (100% + 10% = 110%).

Given: 85% → Rs. 1,360

Required: 110% → (1,360 ÷ 85) × 110 = 16 × 110 = Rs. 1,760.

Therefore The correct answer is Rs. 1,760.

Alternate Method

Given:

First Selling Price (SP1) = Rs. 1,360

Initial Loss Percentage = 15%

Desired Gain Percentage = 10%

Formula Used:

Cost Price (CP) = SP × [100 / (100 − Loss%)]

New SP = CP × [(100 + Gain%) / 100]

Calculations:

=> Cost Price = 1,360 × (100 / (100 − 15))

=> CP = 1,360 × (100 / 85)

=> CP = 16 × 100 = Rs. 1,600

=> New Selling Price = 1,600 × ((100 + 10) / 100)

=> New SP = 1,600 × (110 / 100)

=> New SP = 16 × 110

=> New SP = Rs. 1,760

Therefore The correct answer is Rs. 1,760.

Additional Information

Basic Profit and Loss

Profit occurs when SP > CP, while Loss occurs when CP > SP. Profit = SP − CP; Loss = CP − SP.

Selling Price at Gain/Loss

SP = CP × (100 ± P/L%) ÷ 100. Always treat CP as the base (100%) for percentage calculations.

Direct Ratio Method

When CP is constant, SP1 / (100 − L1%) = SP2 / (100 + G2%). This allows solving for a new SP without finding the CP first.

**Q68. Answer: (a) 19^(th)**

The correct answer is 19th

Key Points

• Fertilizers are chemical substances that are applied to crops in order to boost their output.

• Fertilizers are of two types

• Natural.

• Artificial.

• Artificial fertilizers are the chemical substances added to the soil to make up for the deficiency of essential elements are called fertilizers.

• It is produced through chemical processes.

• Artificial fertilizers were first created during the 19^(th)century.

• Artificial fertilisers are manufactured from petrol or natural gas.

• Artificial fertilisers are primarily composed of plant macronutrients such as nitrogen, potassium, phosphorus, and sulphur, but they are deficient in other critical nutrients (micronutrients).

• Artificial fertilisers can improve the chemical properties of soils, but because they don't include organic matter, they can't compensate for the loss of organic matter due to harvesting, which is critical for soil structure.

• Fertilisers that contain nitrogen, phosphorous and potassium are called NPK fertilisers.

**Q69. Answer: (c) Appiko Movement**

The correct answer is Appiko Movement.

Important Points

• The Chipko movement was a peaceful social and environmental movement led by rural villagers, mainly women In India in the 1970s.

• The initiative intended to protect trees and forests that were planned for logging by the government.

• In 1973, the movement began in the Himalayan state of Uttarakhand (then a part of Uttar Pradesh) and swiftly spread across India's Himalayas.

• Chipko is a Hindi word that means "to hug" or "to cling to," and it refers to the demonstrators' principal method of clutching trees in order to obstruct loggers.

• Sunderlal Bahuguna, a Gandhian activist, was instrumental in steering the movement in the right direction.

• The Right Livelihood Award was given to the Chipko movement in 1987 "for its dedication to the conservation, rehabilitation, and environmentally sound use of India's natural resources."

• The famous Chipko Movement inspired the villagers of the Uttara Kannada district of Karnataka Province in southern India to launch a similar movement to save their forests.

Key Points

• Appiko Movement is an environment protection movement like the Chipko Movement, aims to protect forests in the Uttara Kannada district.

• The Salkani men, women, and children "hugged the trees" at Kalase forest in September 1983.

• In Kannada, "hugging" is referred to as Appiko.

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• Appiko Andolan sparked a fresh wave of awareness across southern India.

• Panduranga Hegde, an environmentalist from Karnataka's Uttara Kannada district, is credited with founding the Appiko campaign to protect trees in the Western Ghats.

• In the field of environmental protection, Panduranga Hegde is influenced by Sundarlal Bahuguna and Amrita Devi Bishnoi and is considered a disciple of the latter.

• The Al Baydha Project, based on permacultural and hydrological design concepts, is a land restoration, poverty reduction, and heritage preservation programme in rural western Saudi Arabia.

**Q70. Answer: (b) a**

• A year has 12 months.

• A month has 28 or 29 or 30 or 31 days.

The Venn diagram that best represents the relationship between the given set of classes:

Hence, "option 2" is the correct answer.

**Q71. Answer: (b) 4**

Given:

Two numbers = 52, 100

Concept:

HCF = Highest Common Factor

HCF means the Highest Common Factor. The largest number that divides two or more numbers is the highest common factor (HCF) for those numbers.

Calculation:

By prime factorization;

52 = 2 × 2 × 13

100 = 2 × 2 × 5 × 5

Therefore HCF (52, 100) = 4

**Q72. Answer: (c) Concave mirror**

The correct answer is Concave mirror.

Key Points

• A concave mirror is used by dentists to see large images of patients' teeth.

• A concave mirror magnifies the dentist's view of the mouth while also refracting some light.

• A concave mirror forms a virtual or real image depending on the position of the object.

• It is also used by dentists and ENT doctors.

• The concave mirror is used in the solar cooker.

• To create powerful parallel beams of light, concave mirrors are often used in torches, searchlights, and vehicle headlights.

Additional Information

• A convex mirror is used as rearviewar mirror in vehicles.

• The spherical mirror is the most frequent type of curved mirror.

• The reflecting surface of spherical mirrors can be considered to form a part of the surface of a sphere.

**Q73. Answer: (b) (√3)/4**

Given:

√ 3 sin θ - cos θ = 0 (θ is an acute angle)

Calculation:

√ 3 sin θ - cos θ = 0

=>√3 sinθ = cosθ

=> sinθ/cosθ = 1/√3

=> tan θ = tan 30°

=>θ = 30°

$\cos^3\theta - \sqrt{3}\sin^3\theta$

=> $(\sqrt{3}/2)^3 - \sqrt{3} \times (1/2)3$ Because [cos 30° = √3/2, sin 30° = 1/2]

=> 3√3/8 - √3 × 1/8

=> 3√3/8 - √3/8

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=>√3(3 - 1)/8

=> 2√3/8

=>√3/4

Therefore The required value is √3/4.

**Q74. Answer: (c) 0**

Given:

{1-1/4} {1-2/4} ...{1-5/4} {1-6/4} = ?

Calculation:

{1-1/4} {1-2/4} ...{1-5/4} {1-6/4} = ?

=> {(4 - 1)/4} × {(4 - 2)/4} × {(4 - 3)/4} × {(4 - 4)/4} × {(4 - 5)/4} × {(4 - 6)/4} = ?

=> 3/4 × 2/4 × 1/4 × 0 × (-1/4) × (- 2/4) = ?

=> 0 = ?

Therefore The required result = 0

**Q75. Answer: (c) Ozone**

The correct answer is Ozone.

Key Points

• Ozone protects the earth from the ultraviolet radiation of the sun

• The Ozone Layer absorbs the majority of the Sun's Ultraviolet Radiation.

• The ozone layer has high ozone concentrations in comparison to other sections of the atmosphere (O3).

• Ozone depletion refers to the phenomenon of reductions in the amount of ozone in the stratosphere.

• Charles Fabry and Henri Buisson discovered the ozone layer in 1913.

• The ozone layer is mostly found in the stratosphere's lower reaches.

• The ozone layer works as a shield, absorbing the sun's UV energy.

• High quantities of chlorine and bromine chemicals in the stratosphere can deplete the ozone layer.

• Ozone depletion is mostly caused by chlorofluorocarbons (CFCs), which are employed as cooling agents in air conditioners and refrigerators.

• The Montreal Protocol, signed in 1987, aimed to limit ozone-depleting chemicals' emissions.

Additional Information

• Magnesium is the element known as the 'Chemical sun'.

• Nitrogen is the main content of protein.

• Oxygen is the gas that helps to burn substances but doesn't burn itself.

**Q76. Answer: (d) Only conclusion II follows.**

The least possible Venn diagram is as follows:

Conclusions:

I. Some pants are shoes. - Does not follow (it is possible but not definite)

II. Some shirts are coats. - Follows (the part of shirts that is pants is coats)

III. All shirts are coats. - Does not follow (it is possible but not definite)

IV. No pants are shoes. - Does not follow (it is possible but not definite)

• Hence, only conclusion II follows.

Hence, "option 4" is the correct answer.

**Q77. Answer: (d) 390**

Given:

LCM of two numbers = 91 × HCF

The sum of the HCF and LCM = 2760

One of the numbers = 210

Concept:

Product of two numbers = HCF × LCM

Calculation:

Let the other number be = b

HCF + LCM = 2760

=> HCF + 91× HCF = 2760

=> 92 × HCF = 2760

=> HCF = 2760/92

=> HCF = 30

Therefore LCM = 91 × 30 = 2730

Product of two numbers = HCF × LCM

=> 210 × b = 30 × 2730

=> b = 30 × 2730/210

=> b = 390

Therefore The other number is 390.

**Q78. Answer: (d) 24 years**

Given:

The mean of 9 children = 14 years

Age of grandfather = 71 years

Age of grandmother = 67 years

Formula used:

Mean Age = (Total age of persons)/(Number of persons)

Calculation:

Mean of the ages of 9 children and grandparents = (14 years × 9 + 71 years + 67 years)/(9 + 2)

=> 264/11

=> 24 years

Therefore The mean of the ages of children and grandparents is 24 years.

**Q79. Answer: (c) Biarritz**

The correct answer is Biarritz.

Key Points

• The 45th G7 summit was held in Biarritz, France.

• It was held in Biarritz on 24-26 August 2019.

• 'Fighting Inequality' is the theme of the 45th G7 summit.

• It will focus on fighting income and gender inequality and protecting biodiversity.

• During the G7 conference in Biarritz, Former US President Donald Trump, British Prime Minister Boris Johnson, and German Chancellor Angela Merkel gathered to discuss a variety of subjects.

• On 23 August, French President Emmanuel Macron urged the G7 to lead the summit discussions with the 2019 Amazon wildfires.

• The summit was marked by the surprise visit of the Iranian Foreign Minister Zarif and the group's commitment to providing €20 million to fight the wildfires ravaging the Amazon forest in Brazil.

Important Points

• G7 is a group of the world's largest IMF advanced economies and wealthiest liberal democracies.

• Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States make up the Group of Seven (G7), an intergovernmental political forum.

• Annually, its political leaders meet to discuss pressing global economic, political, social, and security issues.

• In 1975, it had its inaugural summit in Rambouillet, France.

Additional Information

• Tokyo hosted the G7 summit three times in 1979, 1986, and 1993.

• London hosted the G7 summit three times in 1977, 1984, and 1991.

• 46th G7 summit was cancelled due to Covid 19 issues.

• 47th G7 summit was held in the United Kingdom.

• The 48th G7 summit will be held in Germany.

• The 49th G7 summit will be held in Japan.

• The 50th T G7 summit will be held in Italy.

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**Q80. Answer: (c) UNESCO**

The correct answer is UNESCO.

Important Points

• The United Nations Educational, Scientific, and Cultural Organization (UNESCO) is an international organisation that promotes education, science, and culture.

• UNESCO was founded on November 16, 1945.

• The headquarters of the United Nations Educational, Scientific, and Cultural Organization (UNESCO) is in Paris, France.

• UNESCO has 193 member states and 11 associate members.

• The United Nations Educational, Scientific, and Cultural Organization (UNESCO) was established in 1945 as the successor of the League of Nations' International Committee on Intellectual Cooperation.

Key Points

• UNESCO has the International Institute of Educational Planning in Paris as its Part.

• UNESCO's International Institute for Educational Planning was founded in Paris, France, in 1963.

• Through training, technical assistance, policy research, and information sharing strengthen the capacity of education actors to plan and govern their educational systems.

• It supports ministries of education to plan and prepare their education sector plans.

• In June 1962, a committee chaired by Sir Alexander Carr-Saunders and including Guy Benveniste as Rapporteur suggested the establishment of the institute.

Additional Information

• UNICEF(United Nations Children's Fund) is a United Nations agency that provides humanitarian and developmental assistance to children around the world.

• The headquarters of UNICEF is in New York City, USA.

• The International Labour Organization (ILO) is a UN organisation tasked with promoting social and economic fairness by establishing international labour standards.

• The headquarters of ILO is in Geneva, Switzerland.

• The United Nations University(UNU) is the United Nations' academic and research arm.

• The headquarters of UNU is in Tokyo, Japan.

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

The correct answer is proteins.

Key Points

• Ribosomes are non-membrane bound organelles found in both eukaryotic and prokaryotic cells.

• Ribosomes make proteins.

• During a process known as protein synthesis or translation, amino acids are converted into proteins.

• Ribosomes are connected with the cell's plasma membrane in prokaryotes.

• A polysome's ribosomes are responsible for converting mRNA into proteins.

• Ribosomes are granular structures that were first discovered as dense particles under the electron microscope by George Palade (1953).

• Ribosomes are made up of ribonucleic acid (RNA) and proteins and do not have a membrane surrounding them.

• The eukaryotic ribosomes are the 80S while the prokaryotic ribosomes are 70S, ‘S’ stands for the sedimentation coefficient.

• Protein synthesis is a fundamental operation performed by all living cells.

Additional Information

• In plants, starch is an example of a storage polysaccharide.

• A simple lipid is a fatty acid ester that contains several alcohols but no additional groups.

**Q82. Answer: (a) Abiy Ahmed**

The correct answer is Abiy Ahmed.

Key Points

• Abiy Ahmed Ali is the 4th Prime Minister of Ethiopia.

• He the 2019 Nobel Peace Prize for his work in ending the 20-year post-war territorial stalemate between Ethiopia and Eritrea.

• He is the first Ethiopian to be awarded a Nobel Prize,

• He participated in the armed struggle against Mengistu’s communist regime in Ethiopia.

• He took up the post of Prime Minister of Ethiopia in April 2018.

• Abiy was elected as a member of the Oromo People's Democratic Organization to the House of Peoples' Representatives in 2010.

Additional Information

• Barack Obama was the 44th president of the United States who served from 2009 to 2017.

• He the first African American to become the president of the United States.

• Barack Obama was honoured with the 2009 Nobel Peace Prize for his extraordinary efforts to strengthen International Diplomacy.

• John Bardeen was an American engineer who was awarded the Nobel Prize in Physics twice:

• First in 1956 with William Shockley and Walter Brattain for the invention of the transistor.

• Second in 1972 with Leon N Cooper and John Robert Schrieffer for a fundamental theory of conventional superconductivity known as the BCS theory.

• Rainer Weiss is an American physicist who was awarded the Nobel Prize in Physics, along with Kip Thorne and Barry Barish, "for decisive contributions to the LIGO detector and the observation of gravitational waves".

**Q83. Answer: (b) 2004**

The correct answer is 2004.

Key Points

• The Information and Communication Technology (ICT) in Schools was launched in December 2004.

• It was redesigned in 2010 to give secondary school pupils more possibilities to develop their ICT skills and learn through a computer-assisted learning process.

• The Scheme is a primary driver in bridging the digital divide among students from a variety of socioeconomic and geographic backgrounds.

• The Scheme assists states and local governments in establishing long-term computer labs.

• The Information and Communication Technology (ICT) in schools have been subsumed in the Rashtriya Madhyamik Shiksha Abhiyan (RMSA).

• Now ICT in Schools is a component of the RMSA.

Important Points

• Rashtriya Madhyamik Shiksha Abhiyan (RMSA) scheme was launched in March 2009.

• It is a centrally sponsored scheme of the Ministry of Human Resource Development, Government of India.

• It was launched to enhance access to secondary education and to improve its quality.

• The scheme's implementation began in 2009-2010 with the goal of creating circumstances for efficient growth, development, and equity for all.

• Its goal is to provide universal education to all children aged 15 to 16.

• The central ministry funds are channelled through state governments, which set up their own implementation organisations.

**Q84. Answer: (d) 1/2**

Given:

Sum of the zeros of the polynomial 5x2 + (5p – 1)x – (2p + 5) = 1/4 × Product of zeros

Formulas used:

Standard form of polynomial, $ax^2 + bx + c = 0$

Sum of the zeros = - b/a

Product of the zeros = c/a

Calculation:

Sum of the zeros = - (5p - 1)/5

Product of zeros = - (2p + 5)/5

As per the question;

=> - (5p - 1)/5 = 1/4 × [- (2p + 5)/5]

=> (5p - 1) = (2p + 5)/4

=> 20p - 4 = 2p + 5

=> 20p - 2p = 5 + 4

=> 18p = 9

=> p = 9/18 = 1/2

Therefore The value of p = 1/2

**Q85. Answer: (d) Australia**

The correct answer is Australia.

Key Points

• Australia is one of the seven continents on Earth.
• It is the smallest continent on Earth.
• Australia is the sixth-largest country in the world in terms of area.
• The total area of Australia is about 7,617,930 square kilometres (2,941,300 sq mi).
• Australia is lying between the Pacific and Indian oceans in the Southern Hemisphere.
• Canberra is the capital city of Australia.
• "The Oldest Continent," "The Last of Lands," and "The Last Frontier" have all been used to describe Australia.
• Australian Dollar is the currency of Australia.

Additional Information

• Russia is the world's largest country, spanning 17,098,250 km² over Eastern Europe and Asia.
• Brazil is the world's fifth-largest country by area.
• China is the third-largest country by area after Russia and Canada,
• India is the seventh-largest country by area.

**Q86. Answer: (c) 59**

Given:

Weights (in kg) of 25 students:

58, 55, 53, 50, 53, 51, 52, 54, 53, 52, 54, 53, 58, 53, 59, 55, 53, 52, 51, 54, 53, 59, 55, 53, 52

Calculation:

By observing the data given, we observe that 59 kg is the largest number present.

Therefore The weight (in kg) of the heaviest student is 59 kg.

**Q87. Answer: (a) 53**

Given:

The following are the weights (in kg) of 25 students:

58, 55, 53, 50, 53, 51, 52, 54, 53, 52, 54, 53, 58, 53, 59, 55, 53, 52, 51, 54, 53, 59, 55, 53, 52

Concept:

Mode = It is the value that appears most often in a set of data values.

Calculation:

Weights of the 25 students in ascending order are as follow:

50, 51, 51, 52, 52, 52, 52, 53, 53, 53, 53, 53, 53, 53, 53, 54, 54, 54, 55, 55, 55, 58, 58, 59, 59

53 kg weight has the highest frequency of 8 times.

Therefore By observing the above data, we can conclude that 53 kg is the most commonly observed weight.

**Q88. Answer: (b) 50**

Given:

The following are the weights (in kg) of 25 students:

58, 55, 53, 50, 53, 51, 52, 54, 53, 52, 54, 53, 58, 53, 59, 55, 53, 52, 51, 54, 53, 59, 55, 53, 52

Calculation:

Weights of the 25 students in ascending order are as follow:

50, 51, 51, 52, 52, 52, 52, 53, 53, 53, 53, 53, 53, 53, 53, 54, 54, 54, 55, 55, 55, 58, 58, 59, 59

Weight 50 kg has the lowest frequency, 1 in the given set of data values.

Therefore 50 kg appears least number of times in the given data.

**Q89. Answer: (d) 9**

Given:

The following are the weights (in kg) of 25 students:

58, 55, 53, 50, 53, 51, 52, 54, 53, 52, 54, 53, 58, 53, 59, 55, 53, 52, 51, 54, 53, 59, 55, 53, 52

Concept:

Range = It is the difference between the highest and lowest values in a given data.

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Calculation:
Highest weight = 59 kg
Lowest weight = 50 kg
Range = 59 - 50 = 9
Therefore The required result is 9.

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

The logic followed here is:
Hence, "NJB" is the correct answer.

**Q91. Answer: (b) India Today**

• Hindustan Times, The Indian Express, and The Hindu are newspapers, and India Today is a magazine.
• So India Today is different from others.
Hence, "India Today" is the correct answer.

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

Let's check each option:
1. cab - cab - ccb - ccb. - No repetitive pattern
2. cab - cab - cbb - ccb. - No repetitive pattern
3. cab - cab - cab - ccb. - No repetitive pattern
4. cab - cab - cab - cab. - The term "cab" is repeated
Hence, "abaa" is the correct answer.

**Q93. Answer: (a) DGJ**

The logic followed here is:
Hence, "DGJ" is the correct answer.

**Q94. Answer: (a) Jews**

The logic followed here is:
• A church is a place of worship for Christians.
Similarly,
• A synagogue is a place of worship for Jews.
Additional Information
• Muslims - a place of worship is Mosque
• Jains - a place of worship is Derasar
• Parsis - a place of worship is Agyari
Hence, "Jews" is the correct answer.

**Q95. Answer: (c) 30**

The logic followed here is :

| Letter | Meaning |
|---|---|
| P | • |
| Q | • |
| R | × |
| S | ÷ |

Given expression is : 2/3S1/3 Q7 P7 R5
Replacing the signs as per the given directions and using the BODMAS rule:
= 2 / 3 ÷ 1 /3 - 7 + 7 × 5
= 2 / 3 × 3 - 7 + 7 × 5
= 2 - 7 + 35
= 37 - 7
= 30

Hence, the correct answer is "30".

**Q96. Answer: (b) Fifth**

• In a row of 12 students, Karan's new position = 5th from the right end
• Therefore, Karan's new position from the left = 12 - 5 + 1 = 8th from the left end
• Karan's earlier position from the left = Karan's new position from the left - 3 = 8 - 3 = 5th from the left end.
Hence, "Fifth" is the correct answer.

**Q97. Answer: (a) 7**

The logic followed here is:
Hence, "7" is the correct answer.

**Q98. Answer: (d) Niece**

The family tree are given below -
Girl is the niece of Bhola.
Hence, "Niece" is the correct answer.

**Q99. Answer: (d) Kohima**

The logic followed here is:
Imphal is the capital city of Manipur.
Similarly,
Kohima is the capital city of Nagaland.
In other option -
Aizawl is the capital city of Mizoram, Gangtok is the capital city of Sikkim and Shillong is the capital city of Meghalaya.
Hence, "Kohima" is the correct answer.

**Q100. Answer: (a) 7/4**

The logic followed here is:
• There are 2 series:
• 3/4,5/4, ?
• 7/4, 9/4

Hence, "option 1" is the correct answer.

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