# RRB NTPC CBT 2 (Level-3) Official Paper (Held On: 14 June 2022 Shift 1) (Previous Year Paper)

RRB NTPC • 2022 • 120 questions • 90 minutes • Answer key and solutions

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## FULL TEST

**Q1.** Which of the following is NOT a valid option in the 'Paragraph' setting window in MS-Word 2016?

**(a)** Spacing
**(b)** Indentation
**(c)** Effects
**(d)** Pagination

**Q2.** One of the largest dams of the world, Hirakud Dam, is built across the _____ river.

**(a)** Mahanadi
**(b)** Narmada
**(c)** Kaveri
**(d)** Beas

**Q3.** If the difference between the mode and median is 2, then find the difference between the median and mean (in the given order) using empirical relation.

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

**Q4.** From the given options, select the one that CANNOT be listed among the long-run effects of ozone depletion.

**(a)** Reduced growth of terrestrial plants
**(b)** Skin cancer
**(c)** Increased amount of oxygen consumption in human beings
**(d)** Lowered production of aquatic animals

**Q5.** Which of the following languages had a negative decadal (2001-11) growth rate (its speakers) according to Census of India, 2011?

**(a)** Bengali
**(b)** Telugu
**(c)** Urdu
**(d)** Sanskrit

**Q6.** What is the sum of roots of the equation $2y^2 - 6y - 7 = 0$?

**(a)** • 7/2
**(b)** -3
**(c)** 3
**(d)** 7/2

**Q7.** Rohan started from his home towards the east, and after walking for 5 m, turned left. From there, after walking for 15 m, he turned right and walked for 5 m to reach a flower shop. In which direction is his home with respect to the flower shop? (All turns are 90° turns only)

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

**Q8.** Lakshya Sen won the men's singles final at the India Open badminton tournament, 2022 by defeating _____.

**(a)** Shi Yuqi
**(b)** Viktor Axelsen
**(c)** Lee Chong Wei
**(d)** Loh Kean Yew

**Q9.** Vasco Da Gama landed at _____ in 1498.

**(a)** Cochin
**(b)** Calicut
**(c)** Goa
**(d)** Surat

**Q10.** In a certain code language, 'ABSENCE' is written as 'DWVZQXH' and 'SERVICE is written as 'VZUQLXH. How will 'CONSENT' be written in that language?

**(a)** EJPNGIW
**(b)** FIQMHHQ
**(c)** EIPMGHQ
**(d)** FJQNHIW

**Q11.** Five colleagues, Chand, Chandini, Nidhi, Vikram and Ajay, are sitting in a row facing north. Nidhi and Chandini occupy the extreme ends of the row. Vikram is sitting exactly in the centre. No two people with the name starting with the same letter are immediate neighbours of each other. Ajay is sitting to the immediate left of Vikram. Who sits in the right extreme?

**(a)** Ajay
**(b)** Chandini
**(c)** Nidhi
**(d)** Chand

**Q12.** The liquid part of human blood, called _____ is made of water, salts and protein.

**(a)** Platelets
**(b)** RBC
**(c)** Plasma
**(d)** WBC

**Q13.** Which of the following is a noble gas?

**(a)** Ozone
**(b)** Helium
**(c)** Hydrogen
**(d)** Nitrogen

**Q14.** In December 2021, with whose support did the Indian Army establish the Quantum Lab in Madhya Pradesh?

**(a)** National Informatics Centre (NIC)
**(b)** National Security Agency (NSA)
**(c)** National Security Council Secretariat (NSCS)
**(d)** Defence Research & Development Organisation (DRDO)

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**Q15.** If '÷' is replaced with '+','×' is replaced with '-','+' is replaced with '×' and '-' is replaced with '÷', then what will be the value of the given expression?

8 + 5 × 54 - 9 ÷ 3 = ?

**(a)** 33
**(b)** 37
**(c)** 44
**(d)** 46

**Q16.** The ratio of incomes of A and B is 5 : 7 and the ratio of their savings is 2 : 3. If A and B spend Rs. 35,400 and Rs. 48,600, respectively, then what is the difference (inRs. ) between the incomes of B and A?

**(a)** 17,600
**(b)** 20,000
**(c)** 18,600
**(d)** 18,000

**Q17.** In ΔABC, the bisectors of angle B and angle C intersect at P inside the triangle. If angle BPC = 128°, then what is the measure of angle A?

**(a)** 52°
**(b)** 78°
**(c)** 76°
**(d)** 82°

**Q18.** Infant mortality is the death of an infant before his or her _____birthday.

**(a)** tenth
**(b)** third
**(c)** sixth
**(d)** first

**Q19.** In a certain code language, the letters of the English alphabet are coded as per their alphabetical order (A as 1 and Z as 26). However, if a consonant is immediately followed as well as preceded by a vowel, its code would be '77'.

What will be the code for 'WHITEN' in this language?

**(a)** 238772077514
**(b)** 238920514
**(c)** 239877514
**(d)** 238977514

**Q20.** If A : B = 1.2 : 2, B : C = 1.5 : 2, and C : D = 2 : 3, then B : D is equal to:

**(a)** 5 : 6
**(b)** 1 : 2
**(c)** 3 : 4
**(d)** 2 : 3

**Q21.** Gol Gumbaz is the mausoleum of the king Mohammed Adil Shah. It is a part of _____.

**(a)** Bundelkhand
**(b)** Bharatpur
**(c)** Panipat
**(d)** Bijapur

**Q22.** The value of 72 ÷ 4 × {8 × 4 - (14 - 19)} is:

**(a)** 666
**(b)** 1296
**(c)** 444
**(d)** 222

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**Q23.** Sarala Das, whose 600th birth anniversary was addressed by the Vice President in April 2021, was a great scholar of _____ literature.

**(a)** Odia
**(b)** Bengali
**(c)** Kannada
**(d)** Malayalam

**Q24.** What is the mode of the observations 5, 4, 4, 6, 7, 6, 9, 7, 6, 5?

**(a)** 4
**(b)** 6
**(c)** 7
**(d)** 5

**Q25.** A lawn in the shape of a rectangle has an area of 7260 m² and its sides are in the ratio 5 : 3. Its perimeter is equal to the perimeter of a circular garden. What is the area of the circular garden? (Take π = 22/7)

**(a)** 8712 m²
**(b)** 9856 m²
**(c)** 7260 m²
**(d)** 9878 m²

**Q26.** The difference between 12% gain and 4% loss on sale of the item was Rs. 28. What was the cost price of the item?

**(a)** Rs. 168
**(b)** Rs. 175
**(c)** Rs. 196
**(d)** Rs. 189

**Q27.** Two statements A and B are given. There may be a cause-and-effect relationship between the two statements. These two statements may be the effect of the same cause or independent causes. These statements may be independent causes without having any relationship. Read both the statements and select the appropriate option.

Statements:

A) KBCL decided to sell their oil to Alliance.

B) Alliance has raised the procurement price of oil from the last month.

**(a)** Both the statements, A and B, are effects of independent causes
**(b)** B is the cause and A is the effect
**(c)** A is the cause and B is the effect
**(d)** Both the statements, A and B, are independent causes.

**Q28.** Name of the scheme launched in June 2021 by the Lieutenant Governor of Ladakh to encourage digital learning among students and to bridge the digital divide between connected and unconnected sectors.

**(a)** YounTab
**(b)** Diksha
**(c)** eVidya
**(d)** Pragyata

**Q29.** The value of (919 + 9.019 + 0.919 + 9.0019) is:

**(a)** 937.3999
**(b)** 973.9399
**(c)** 937.9399
**(d)** 973.9939

**Q30.** The volume of a solid cone is 96 π cm³ and its height is 8 cm. What is its total surface area (in cm²)?

**(a)** 96 π
**(b)** 36 π
**(c)** 37 π
**(d)** 23 π

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**Q31.** The selling price of 2 blankets are the same. One of the blankets is sold at 662/3% profit and the CP of the other blanket is Rs. 400 less than its SP. If the total profit on selling both the blankets is 50%, then find the selling price of each blanket.

**(a)** Rs. 1500
**(b)** Rs. 1510
**(c)** Rs. 1530
**(d)** Rs. 1520

**Q32.** In a circle, chords AB and CD are produced to meet at E. outside the circle. If AB = 9 cm and AE = 12 cm and ED = 4 cm, then what is the length of the chord CD?

**(a)** 5.5 cm
**(b)** 5 cm
**(c)** 4 cm
**(d)** 4.5 cm

**Q33.** Rohan started from his home to go to his school. He went 100 meters towards the South, then turned towards the West and walked 50 metres. He then turned right and walked 50 metres and finally he turned to his right and walked 100 metres to reach his school. In which direction is his house from the school? (All turns are 90° turns only)

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something went wrong

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

**Q34.** Eight friends are sitting around a square table, four at the corners and four in the middle of the four sides, facing the centre. Isheen is an immediate neighbour of Manmeet and Jyoti. Only three people sit between Harsh and Rekha. Nandan is sitting third to the right of Isheen. Paresh is second to the left of Manmeet. Only three people sit between Meena and Isheen. Manmeet is sitting to the immediate right of Rekha. Who is sitting second to the right of Nandan?

**(a)** Rekha
**(b)** Meena
**(c)** Paresh
**(d)** Jyoti

**Q35.** What had been the Global Birth Rate (crude) in the year 2020, according to World Bank?

**(a)** 46.43
**(b)** 20.56
**(c)** 11.20
**(d)** 17.98

**Q36.** Which of the following states has the highest child sex ratio in India according to the 5^(th) National Family Health Survey (2019-21)?

**(a)** Kerala
**(b)** Bihar
**(c)** Mizoram
**(d)** Gujarat

**Q37.** In a school, 5/8 of the number of students are girls and the rest are boys. 2/5 of the number of girls are below 12 years of age and 4/9 of the boys are 12 years of age or above. If the total number of students is 288, how many students are below 12 years of age?

**(a)** 124
**(b)** 132
**(c)** 144
**(d)** 140

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**Q38.** Which trio among the following is referred to as 'The Trinity of Carnatic music"?

**(a)** Subbaraya Sastri, Madurai Mani Iyer and Tyagaraja
**(b)** Manambuchavadi Venkatasubbayyar, Poochi Srinivasa Iyengar and Subbaraya Sastri
**(c)** Tyagaraja, Muthuswami Dikshitar and Syama Sastri
**(d)** Madurai Mani Iyer, Tiger Varadachariar and Syama Sastri

**Q39.** In a certain code language, RAMESH is written as AREMHS and PRAKIL is written as 'RPKALI'. How will RISHIPAL be written in that language?

**(a)** ALIPHSRI
**(b)** IRSHPILA
**(c)** IRHSPILA
**(d)** RILAPISH

**Q40.** Select the option that is related to the fifth term in the same way as the second term is related to the first term and fourth term related to the third term.

SUGAR : 11 :: PILOT : 12 :: HOTEL : ?

**(a)** 15
**(b)** 10
**(c)** 12
**(d)** 19

**Q41.** What will be the total number of days from 20 February 2020 to 15 April 2020, by including both the days?

**(a)** 55
**(b)** 54
**(c)** 56
**(d)** 57

**Q42.** Which of the following numbers is divisible by 7, 11 and 13?

**(a)** 1002001
**(b)** 1003001
**(c)** 1005001
**(d)** 1004001

**Q43.** A boat takes 7 hours to move 63 km downstream and 30 km upstream. The boat takes 6 hours to move 28 km downstream and 48 km upstream. How much time will it take to move 35 km downstream and 27 km upstream?

**(a)** 4 hours 45 minutes
**(b)** 4 hours 50 minutes
**(c)** 5 hours
**(d)** 5 hours 20 minutes

**Q44.** The Provision for securing just and humane conditions of work and for maternity relief has been entrusted in the Indian Constitution as one of the:

**(a)** fundamental rights
**(b)** constitution and economic rights
**(c)** directive principles of state policy
**(d)** fundamental duties

**Q45.** The value of 84 ÷ 32 × 8 - 15 ÷ 8 × (19 - 35) is:

**(a)** 45
**(b)** 38
**(c)** 51
**(d)** 42

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**Q46.** Select the number from among the given options that can replace the question mark (?) in the following series.

18, 27, 34, 39, 42, ?

**(a)** 45
**(b)** 44
**(c)** 42
**(d)** 43

**Q47.** If

'A # B' means 'A is the father of B',
'A $ B' means 'A is the mother of B',
'A @ B' means 'A is the husband of B',
'A % B' means 'A is the wife of B'
'A = B' means 'A is the brother of B',
then how is P related to V in the following expression?
P @ Q $ U = R % S # V

**(a)** Mother's brother
**(b)** Paternal grandfather
**(c)** Father's brother
**(d)** Maternal grandfather

**Q48.** After the mid-term examination Rupesh ranked 10^(th) from the top and Rachit ranked 21^(st) from the bottom. If Rachit performed better than Rupesh and six students ranked between them, how many students appeared in the examination?

**(a)** 29
**(b)** 38
**(c)** 36
**(d)** 23

**Q49.** In a certain code language, MAN is written as OCP and GEM is written as IGO. How will CAT be written in that language?

**(a)** TAC
**(b)** ECV
**(c)** VCE
**(d)** DBU

**Q50.** Vihaan and Nav Agarwal won the International Children's Peace Prize 2021 for which work?

**(a)** For making an anti-cyberbullying mobile app
**(b)** For building a school in a refugee camp
**(c)** For tackling pollution in their home city by recycling household waste
**(d)** For peaceful fight against extremist violence and radicalisation

**Q51.** Nagananda, a Sanskrit play which tells the popular story of Vidyadhar King Jimutavahana's self-sacrifice to save the Nagas, is attributed to emperor _____

**(a)** Bindusara
**(b)** Ashoka
**(c)** Harsha
**(d)** Chandra Gupta I

**Q52.** Begum Hazrat Mahal, the wife of the Nawab of _____ led the uprising at Lucknow in May, 1857.

**(a)** Awadh
**(b)** Meerut
**(c)** Fatehpur Sikri
**(d)** Agra

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**Q53.** Select the option that is related to the fifth letter-cluster in the same way as the fourth letter-cluster is related to the third letter-cluster and the second letter-cluster is related to the first letter-cluster.

TRIP : PIRT :: STRONG : GNORTS :: MOUNTAIN : ?

**(a)** NAITNUOM
**(b)** NIATUNOM
**(c)** NIATNUOM
**(d)** NTIANUOM

**Q54.** If 75% of a number is added to 75, then the result is the number itself. The number is:

**(a)** 300
**(b)** 200
**(c)** 250
**(d)** 350

**Q55.** A hundred rupee note measures 15 cm × 8 cm and a bundle of 125 such notes is 2 cm thick. Find the value of the hundred-rupee notes that can be contained in a box of size 48 cm × 36 cm × 30 cm, if the bundles are tightly packed in it without any empty space.

**(a)** Rs. 36 Lakhs
**(b)** Rs. 33 Lakhs
**(c)** Rs. 30 Lakhs
**(d)** Rs. 27 Lakhs

**Q56.** The protection of interests of minorities under the Constitution of India lies under _____.

**(a)** Article 20
**(b)** Article 16
**(c)** Article 15
**(d)** Article 29

**Q57.** Which of the following products has the highest share in India's imports according to the economic survey 2021-22?

**(a)** Plastic Raw Materials
**(b)** Crude Petroleum
**(c)** Electronic Componets
**(d)** Gold

**Q58.** According to the Economic Survey of India, which of the following states had the highest share in the overall production of sugarcane for the financial year 2020-21?

**(a)** Punjab
**(b)** Uttar Pradesh
**(c)** Maharashtra
**(d)** Haryana

**Q59.** _____ of the Directive Principles of State Policy deals with the promotion of international peace and security.

**(a)** Article 43
**(b)** Article 50
**(c)** Article 51
**(d)** Article 41

**Q60.** A cylindrical bucket of height 150 cm and radius 50 cm is full of water. A person wants to fill spherical balloons of radius 5 cm each with the water in the bucket. How many balloons can he fill completely with the water present in the bucket?

**(a)** 2250
**(b)** 1753
**(c)** 1456
**(d)** 1832

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**Q61.** Which of the following keyboard shortcuts is used in a Windows 10 system to switch between open applications?

**(a)** Alt + Tab
**(b)** Alt + S
**(c)** Ctrl + S
**(d)** Ctrl + Tab

**Q62.** Which Mauryan emperor had his inscriptions engraved on rocks and pillars during his reign from c. 272/268-231 BCE?

**(a)** Ashoka
**(b)** Bindusara
**(c)** Chandragupta Maurya
**(d)** Brihadratha

**Q63.** The second number in each of the number-pairs is obtained by performing certain mathematical operations on the first number. Three of the following four number-pairs follow the same pattern and thus form a group. Select the number-pair that does NOT belong to that group.

**(a)** 18 : 321
**(b)** 21 : 438
**(c)** 17 : 286
**(d)** 19 : 357

**Q64.** A fraction becomes 2/3 when one is added to both the numerator and the denominator of the fraction, and it becomes 1/2, when 2 is subtracted from both the numerator and denominator. What is the sum of the numerator and denominator of the original fraction?

**(a)** 7
**(b)** 13
**(c)** 8
**(d)** 11

**Q65.** There are five friends, Deepu, Sonu, Tinku, Guddu and Innu. Innu is taller than Tinku. Among all, Tinku comes exactly in the middle on the basis of height. Guddu is shortest among all. Sonu is taller than Tinku but not the tallest in the group. Who comes at the 2^(nd) position starting from the shortest to tallest?

**(a)** Innu
**(b)** Sonu
**(c)** Guddu
**(d)** Deepu

**Q66.** Four letter-clusters have been given, out of which three are alike in some manner and one is different. Select the one that is different.

**(a)** ROW
**(b)** OLT
**(c)** VSA
**(d)** LIR

**Q67.** A question is given, followed by three statements labelled I, II and III. Identify which of the statements is/are sufficient to answer the question.

Question:

How is P related to C?

Statements:

I: H is the only brother of S and P.

II: P is the wife of L, who is the son-in-law of D.

III: D is the mother of S and T is the son-in-law of C.

**(a)** Data in statements I, II and III together are not sufficient to answer the question.
**(b)** Data in statements II and III together are sufficient to answer the question.
**(c)** Data in statements I, II and III together are sufficient to answer the question.

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**(d)** Data in statement I alone is sufficient to answer the question

**Q68.** Satyaram Reang of Tripura, who received The Padma Shri award in 2021, is a famous _____ dancer.

**(a)** Biraha
**(b)** Hojagiri
**(c)** Dumhal
**(d)** Bihu

**Q69.** The ratio of the two numbers is 3 : 4 and their LCM is 480. Find their HCF.

**(a)** 30
**(b)** 40
**(c)** 160
**(d)** 120

**Q70.** If $x = 2^3 \times 3^2 \times 5 \times 7^3$ ,$y = 2^2 \times 3^3 \times 5^2 \times 7^2$, and z = 2^4 × 3 × $5^3$ × 7,
then the HCF of x, y and z is:

**(a)** 420
**(b)** 1260
**(c)** 840
**(d)** 630

**Q71.** A can complete a piece of work in 10 days. B is 25% more efficient than A. How many days will B alone take to complete the same work?

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

**Q72.** What is the capacity of the recently commissioned supercomputer Param Pravega under the National Supercomputing Mission?

**(a)** 1.3 petaflops
**(b)** 2.3 petaflops
**(c)** 3.3 petaflops
**(d)** 4.3 petaflops

**Q73.** The average of 6 numbers is 16. If one of the numbers is excluded, the average becomes 17. Find the excluded number.

**(a)** 12
**(b)** 10
**(c)** 11
**(d)** 13

**Q74.** As of April 2022, India is NOT a permanent member of which of the following organisations?

**(a)** South Asian Association for Regional Cooperation
**(b)** G20
**(c)** Organization of Petroleum Exporting Countries
**(d)** World Trade Organization

**Q75.** Each of the six people were watching a different movie. A finished before D, but after F. E finished before B, but after D. F finished after C, but before A. What was the finishing order?

**(a)** CAFEBD
**(b)** CFADEB
**(c)** ACBDFE
**(d)** FACDEB

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**Q76.** The government deficit can be reduced by _____ taxes or _____ expenditure.

**(a)** increasing; increasing
**(b)** increasing; decreasing
**(c)** decreasing; increasing
**(d)** maintaining; increasing

**Q77.** Buddha delivered his first sermon which is called _____, at Sarnath to his five disciples.

**(a)** Niranjana
**(b)** Mahabhinishkramana
**(c)** Maha parinirvana
**(d)** Dharmachakra Pravartana

**Q78.** By which other name is the festival Gudi Padwa known in Karnataka, Telangana and Andhra Pradesh?

**(a)** Baisakhi
**(b)** Ugadi
**(c)** Akshay Tritiya
**(d)** Pongal

**Q79.** Who among the following is considered as the father of Plate Tectonics?

**(a)** Alfred Wegener
**(b)** James Rennell
**(c)** Antoine Lavoisier
**(d)** Antonie Philips Van Leeuwenhoek

**Q80.** X and Y can complete a certain work in 45 days and 60 days, respectively. They started the work together but X left after some days and Y alone completed the remaining work in 39 days. For how many days did X work?

**(a)** 9 days
**(b)** 10 days
**(c)** 6 days
**(d)** 8 days

**Q81.** When 6892, 7105 and 7531 are divided by the greatest number x, then the remainder in each case is the same. The sum of the digits of x is:

**(a)** 9
**(b)** 7
**(c)** 13
**(d)** 6

**Q82.** According to the Periodic Labour Force Survey of India (2019-20), what is the literacy rate among the Scheduled Tribes Population of India?

**(a)** 70.10%
**(b)** 65.30%
**(c)** 57.40%
**(d)** 83.28%

**Q83.** The role of the preparation of the electoral rolls for all the elections to Parliament and to the Legislature of every State and of elections to the offices of President and Vice-President lies with the _____.

**(a)** Cabinet
**(b)** Finance Commission
**(c)** Election Commission
**(d)** Planning Commission

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**Q84.** During lunch break, eight colleagues, namely A, B, C, D, E, F, G and H are sitting in a circle facing the centre at equal distances. B is an immediate neighbor of both G and D. C is an immediate neighbour of both A and G. H is third to the left of B. E is not an immediate neighbour of A. Who is third to the right of E?

**(a)** G
**(b)** A
**(c)** D
**(d)** B

**Q85.** In economics, what does 'Budget Surplus' mean?

**(a)** When the amount spent is equal to the revenue collected
**(b)** When the revenue collected is negligible as compared to the expenditure
**(c)** When the revenue collected exceeds the required expenditure
**(d)** When the expenditure exceeds income

**Q86.** Raju travels 150 km in 7.5 hours moving downstream. The speed of the stream is 5 km/h. Find the speed with which Raju should row the boat to reach back in the same time.

**(a)** 18 km/h
**(b)** 7.5 km/h
**(c)** 10 km/h
**(d)** 25 km/h

**Q87.** The area of a rectangular field, whose sides are in the ratio 13 : 5, is 260 $m^2$. What is the perimeter of the rectangular field?

**(a)** 70 m
**(b)** 72 m
**(c)** 66 m
**(d)** 68 m

**Q88.** 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:

a) Some suitcases are pouches.

b) Some bags are purses.

c) All pouches are purses.

Conclusions:

I. Some suitcases are purses.

II. Some purses are bags.

III. All purses are pouches.

**(a)** Only conclusions I and II follow.
**(b)** All the conclusions follow.
**(c)** Only conclusions I and III follow.
**(d)** Only conclusions II and III follow.

**Q89.** The Congress Working Committee adopted the Quit India Resolution at _____ in July 1942.

**(a)** Madras
**(b)** Wardha
**(c)** Patna
**(d)** Lucknow

**Q90.** The Comprehensive Crop Insurance Scheme (CCIS) was started from 1985 with the objective of providing _____.

**(a)** financial support to the farmers for educating their children
**(b)** financial support to the farmers in the event of crop failure due to drought, flood etc
**(c)** financial support to the farmers to purchase tractors and other implements

**(d)** financial support to the farmers to buy HYV seeds

**Q91.** Khan lends an amount of Rs. 10,000 to Irfan at 10% per annum compound interest for 5 years, compounded annually. What is the compound interest accrued for the 4th year?

**(a)** Rs. 1,762
**(b)** Rs. 1,331
**(c)** Rs. 1,745
**(d)** Rs. 1,540

**Q92.** Study the following arrangement of numbers and symbols and answer the question that follows:

(all numbers are single digit numbers only)

3 7 # 8 5 % 9 2 3 * 1 0 1 % 6 3 ? 9 3 5 ^ 2 7 & 3 5 4 @ 4 1 7

How many such even numbers are there in this arrangement each of which is immediately preceded by a symbol?

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

**Q93.** Read the given statements and conclusions carefully, and decide which of the given conclusions follow(s) based on the given statements.

Statements:

$A > B \leq C$

$P < Q \geq A$

Conclusions:

I. $B \leq P$

II. $C < Q$

**(a)** Only conclusion I follows.
**(b)** Only conclusion II follows.
**(c)** Both the conclusions follow.
**(d)** Neither conclusion I nor II follows.

**Q94.** There are six persons, A, B, C, D, E and F. A, B, C and F are male and other two are female. The height of A is 5.2 feet, B is 5.7 feet, C is 5.9 feet, D is 5.4 feet, E is 6.0 feet and F is 6.1 feet. Out of these all, A, B, C and E like sugar, and D and F like salt. Persons who have a height of more than 5.5 feet wear black, and others wear white.

Who among these is the sugar-loving male who does NOT wear black?

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

**Q95.** Which politician was awarded the Sahitya Akademi Award 2021 for 'Mirjafar O Anyanya Natak"?

**(a)** Agnimitra Paul
**(b)** Bratya Basu
**(c)** Abhishek Banerjee
**(d)** Tapas Mandal

**Q96.** Which two signs should be interchanged to make the equation correct?

12 × 3 ÷ 4 + 6 - 2 = 20

**(a)** × and +
**(b)** ÷ and +
**(c)** • and -
**(d)** × and ÷

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**Q97.** What is the compound interest on a sum of Rs. 19,500 invested for 12/5 years at 10% p.a., interest compounded annually?

**(a)** Rs. 2,608
**(b)** Rs. 2,480
**(c)** Rs. 2,808
**(d)** Rs. 2,880

**Q98.** Avinash is ranked 11^(th) from the top in the class and Ira is ranked 7^(th) from the bottom. If their positions get interchanged, Avinash will rank 15^(th) from the top and Ira is ranked 11^(th) from the bottom. How many total students appeared for the exam?

**(a)** 23
**(b)** 20
**(c)** 21
**(d)** 22

**Q99.** The value of (11/3 × 14/5 ÷ 3/5) × 3/8 - 2/3 is:

**(a)** 3/2
**(b)** 1/4
**(c)** 5/6
**(d)** 7/2

**Q100.** According to the Industrial Policy Statement of 1973, the private sector was allowed to apply for the license of their industry only after having a total assets of Rs. _____ or more.

**(a)** 2 lakh
**(b)** 20 lakh
**(c)** 2 crore
**(d)** 20 crore

**Q101.** First four terms of a series are 4, 12, 36, 108. What will be the 6^(th) term of this series?

**(a)** 624
**(b)** 2916
**(c)** 324
**(d)** 972

**Q102.** Select the number from the options that can replace the question mark (?) and complete the given series.

0,7, 26, 63, 124, ?

**(a)** 214
**(b)** 212
**(c)** 213
**(d)** 215

**Q103.** If √64 - cbrt64 = 4√y, where y > 0, then the value of y is:

**(a)** 256
**(b)** 16
**(c)** 625
**(d)** 81

**Q104.** Which of the following river basins is the most populated in the world?

**(a)** Ganga
**(b)** Nile
**(c)** Mississippi
**(d)** Amazon

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**Q105.** Determine the number of months required to get Rs. 25.5 as simple interest on Rs. 850 at 3.6% per annum.

**(a)** 10 months
**(b)** 9 months
**(c)** 8 months
**(d)** 11 months

**Q106.** Six boxes, M, N, O, P, Q and R, are kept one above the other but not necessarily in the same order. There is only one box between box N and box R. Box Q is immediately below box N. There are only two boxes between box Q and box M. There is no box above box P. Box R is third from the bottom. Which box is third from the top?

**(a)** Q
**(b)** O
**(c)** N
**(d)** R

**Q107.** Which of the following mountain ranges is considered as the boundary between Asia and Europe?

**(a)** Alps
**(b)** The Great Dividing Range
**(c)** Atlas
**(d)** Urals

**Q108.** A, B, C, D, E, F, G and H are sitting around a square table; four of them sit at the 4 corners, while four sit at the middle of the sides. The ones who sit at the corners face the centre, while those who sit at the middle of the sides face outside. F sits fourth to the left of D. D faces outside.

C is immediate to the right of F. A sits third to the right of the H. Only two persons sit between G and B. E is to the immediate right of B and to the immediate left of F. H sits second to the right of the E. What is the position of A with respect to D?

**(a)** Fourth to the right
**(b)** Second to the left
**(c)** Third to the left
**(d)** Third to the right

**Q109.** Assuming 8^(th) March 2013 was a Wednesday, what day of the week was 8^(th) March 2014?

**(a)** Tuesday
**(b)** Monday
**(c)** Thursday
**(d)** Wednesday

**Q110.** 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(1) from the statements

Statements:

a) Some sketch pens are ink pens

b) Some pencils are markers

c) All ink pens are markers

Conclusions:

I. Some markers are sketch pens

II. Some sketch pens are pencils

III. Some markers are ink pens

**(a)** Only conclusions II and III follow.
**(b)** All the conclusions follow.
**(c)** Only conclusions I and II follow.
**(d)** Only conclusions I and III follow.

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**Q111.** Who among the following has been honoured with Sports Journalists Federation of India (SJFT) Sportswoman of the year 2021?

**(a)** Saina Nehwal
**(b)** Pusarla Venkata Sindhu
**(c)** Mirabai Chanu
**(d)** Lovlina Borgohain

**Q112.** The Parliament of India comprises of:

**(a)** President, Lok Sabha, and Rajya Sabha
**(b)** Lok Sabha and Rajya Sabha
**(c)** President, Attorney General for India, Lok Sabha, and Rajya Sabha
**(d)** Prime Minister, Lok Sabha, and Rajya Sabha

**Q113.** Which of the following was the leading oil producing country in the world for the year 2020, according to US Energy Information Administration?

**(a)** USA
**(b)** Saudi Arabia
**(c)** Qatar
**(d)** UAE

**Q114.** Phumdis, the floating islands are the unique features of which of the following lakes?

**(a)** Chilika Lake
**(b)** Sambhar Lake
**(c)** Loktak Lake
**(d)** Pangong Lake

**Q115.** Which of the following dietary components per gram provides the highest energy in humans?

**(a)** Roughage
**(b)** Protein
**(c)** Fat
**(d)** Carbohydrate

**Q116.** Which of the following devices is used to measure atmospheric pressure?

**(a)** Thermometer
**(b)** Odometer
**(c)** Tetrameter
**(d)** Barometer

**Q117.** Which Article of the Indian Constitution is related with the Executive powers of the Union?

**(a)** 53
**(b)** 51
**(c)** 57
**(d)** 55

**Q118.** Which government has become the world's first government to turn 100% paperless?

**(a)** Moscow
**(b)** Berlin
**(c)** New York
**(d)** Dubai

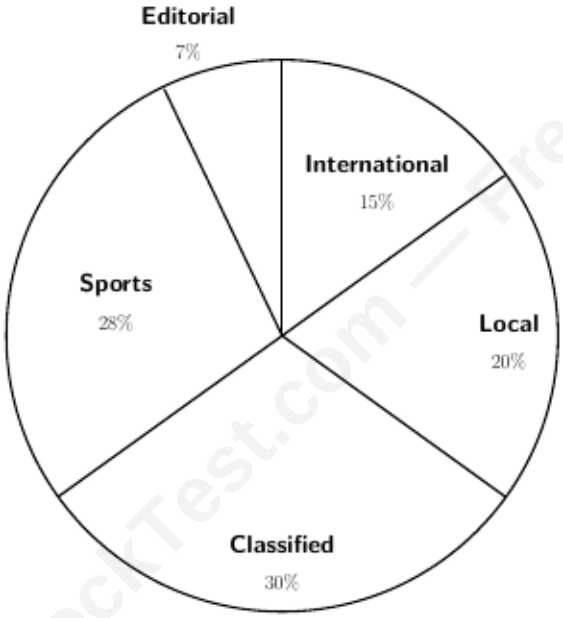
**Q119.** At the same time A and B start moving towards each other from two different places, 240 km apart. The ratio of the speeds of A and B is 5 : 7, and the speed of B is 84 km/h. After how many minutes will A and B meet each other?

**(a)** 80 minutes
**(b)** 100 minutes
**(c)** 120 minutes

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**(d)** 90 minutes

**Q120.** Study the given pie-chart and answer the question that follows.A newspaper decided to bring out its golden jubilee issue of 60 pages. The proportion of different types of coverage in this issue was decided in advance and is given in the pie chart.




How many pages were dedicated to sports and editorial coverage?

**(a)** 18
**(b)** 20
**(c)** 19
**(d)** 21

## ANSWER KEY

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | c | 2 | a | 3 | b | 4 | c | 5 | c | 6 | c | 7 | c | 8 | d | 9 | b | 10 | d |
| 11 | c | 12 | c | 13 | b | 14 | c | 15 | b | 16 | d | 17 | c | 18 | d | 19 | d | 20 | b |
| 21 | d | 22 | a | 23 | a | 24 | b | 25 | b | 26 | b | 27 | b | 28 | a | 29 | c | 30 | a |
| 31 | a | 32 | b | 33 | c | 34 | c | 35 | d | 36 | c | 37 | b | 38 | c | 39 | c | 40 | b |
| 41 | c | 42 | a | 43 | a | 44 | c | 45 | c | 46 | d | 47 | d | 48 | d | 49 | b | 50 | c |
| 51 | c | 52 | a | 53 | c | 54 | a | 55 | d | 56 | d | 57 | b | 58 | b | 59 | c | 60 | a |
| 61 | a | 62 | a | 63 | d | 64 | b | 65 | d | 66 | d | 67 | a | 68 | b | 69 | b | 70 | a |
| 71 | b | 72 | c | 73 | c | 74 | c | 75 | b | 76 | b | 77 | d | 78 | b | 79 | a | 80 | a |
| 81 | d | 82 | a | 83 | c | 84 | a | 85 | c | 86 | d | 87 | b | 88 | a | 89 | b | 90 | b |
| 91 | b | 92 | d | 93 | d | 94 | b | 95 | b | 96 | d | 97 | c | 98 | c | 99 | c | 100 | d |
| 101 | d | 102 | d | 103 | a | 104 | a | 105 | a | 106 | a | 107 | d | 108 | b | 109 | c | 110 | d |
| 111 | c | 112 | a | 113 | a | 114 | c | 115 | c | 116 | d | 117 | a | 118 | d | 119 | b | 120 | d |

## SOLUTIONS

**Q1. Answer: (c) Effects**

The correct answer is Effects.

Key Points

• The formatting options available in the 'Paragraph' setting window in MS Word 2016 are:

• Spacing.

• Indentation.
• Pagination under the option Line and Page breaks.
• Alignment.

Important Points

• Paragraph formatting options are described as:
• Alignment
• Alignment or justification refers to the way in which the lines of a paragraph are aligned.
• There are four types of alignment, namely, left, center, right, and justified.
• Indentation
• The value in the Before text box specifies the width of the additional empty space that is inserted between the margin and the text on the left-hand side of a paragraph of left-to-right text.
• The value in the After text box specifies the width of the additional empty space that is inserted between the text and the margin on the right-hand side of a paragraph of left-to-right text.
• A negative value specifies the distance by which the text extends beyond the respective margin.
• Spacing
• The spacing between two paragraphs is determined by the spacing before one paragraph and the spacing after the preceding paragraph, which are displayed and can be modified in the Before and After boxes.
• Line spacing refers to the vertical distance between the lines within a paragraph.
• It determines the location of each line relative to the line above it.
• Line and Page Breaks tab (Pagination)
• The paragraph formatting options on the Line and Page Breaks tab under pagination of the Paragraph dialog box can help you control where automatic page breaks occur in your document.

**Q2. Answer: (a) Mahanadi**

The correct answer is Mahanadi.

Key Points

• The dam is located across the Mahanadi river near the town of Sambalpur in the state of Orissa.
• The length of its main section is about 4.8 kilometers and the whole dam spans 25.8 kilometers.
• The dam was started in 1957 and is one of the first major multipurpose river valley projects started after India's independence.

Additional Information

| Name of the Dam | River | State |
|---|---|---|
| Srisailam Dam | Krishna River | Andhra Pradesh |
| Rajghat Dam | Betwa River | Uttar Pradesh and Madhya Pradesh Border |
| Hirakud Dam | Mahanadi River | Odisha |
| Gangapur Dam, Jayakwadi Dam | Godavari River | Maharashtra |

**Q3. Answer: (b) 1**

Given:

Mode - Median = 2

Concept used:

Mode = 3(Median) - 2(Mean)

Calculation:

Mode - Median = 2

=> Mode = 2 + Median ---(1)

We know that,

Mode = 3(Median) - 2(Mean)

From equation (1)

=> 2 + Median = 3(Median) - 2(Mean)

=> 2 + 2(Mean) = 3(Median) - Median

=> 2 + 2(Mean) = 2(Median)

1 + Mean = Median

So, Median - Mean = 1

Therefore The difference between the median and mean (in the given order) using empirical relation is 1.

**Q4. Answer: (c) Increased amount of oxygen consumption in human beings**

The correct answer is Increased amount of oxygen consumption in human beings.

Key Points

• The long-run effects of ozone depletion are:-

• Effects on Human Health

• Ozone layer depletion increases the amount of UVB (ultraviolet B-rays) that reaches the Earth's surface.

• UVB causes non-melanoma skin cancer and plays a major role in malignant melanoma development.

• In addition, UVB has been linked to the development of cataracts, a clouding of the eye's lens.

• Effects on Plants

• UVB radiation affects the physiological and developmental processes of plants.

• It also affects nutrient distribution within the plant, the timing of developmental phases, and secondary metabolism.

• Effects on Marine Ecosystems

• UVB radiation has been found to cause damage to the early developmental stages of fish, shrimp, crabs, amphibians, and other marine animals.

• The most severe effects are decreased reproductive capacity and impaired larval development.

• Effects on Biogeochemical cycles

• Increases in UVB radiation could affect terrestrial and aquatic biogeochemical cycles.

• Effects on Materials

• Synthetic polymers, naturally occurring biopolymers, as well as some other materials of commercial interest are adversely affected by UVB radiation.

**Q5. Answer: (c) Urdu**

The correct answer is Urdu.

Key Points

• Urdu had a negative decadal (2001-11) growth rate (its speakers) according to the Census of India, 2011.

• As per the language census data 2011:

• Two scheduled languages, Urdu and Konkani, saw a fall in absolute numbers.

• There are 50772631 Urdu speakers in India, a fall of about 1.5 percent since 2001.

• The decline in Konkani speakers is 9.5 percent.

• The Urdu language in modern India is associated only with Muslims.

• This fall in Urdu speakers is strange as the Muslim population in Uttar Pradesh and Bihar has grown between 2001 and 2011.

Additional Information

• The Office of the Registrar General and Census Commissioner of India June 26, 2018, released the 2011 Census data on Language and Mother Tongue.

• Key Highlights of the 2011 Census data on Language and Mother Tongue

• As per the 2011 census, 43.63 percent of Indians speak Hindi as their mother tongue.

• Bengali, with 8.03 percent speakers, is second on the list.

• Marathi at 3rd with 6.86 percent speakers, Telugu at 4th with 6.7 percent speakers, and Tamil at 5th with 5.7 percent speakers.

• In all, 13 of the 22 scheduled languages were reported as the mother tongue by at least 1 percent of the population.

• Except for Sanskrit, each of the 21 scheduled languages was reported as the mother tongue by at least 10 lakh people.

• Sanskrit is the only language that is spoken by a set of around 25000 people.

**Q6. Answer: (c) 3**

Given:

The equation is 2y2 - 6y - 7 = 0

Concept used:

In a quadratic equation $ax^2 + bx + c = 0$ the Sum of roots

$\alpha + \beta$ = -bover a

Calculation:

According to the concept,

b = - 6

a = 2

So, The Sum of roots of the equation

=> α + β = - (-6)over 2

=> 6over 2 = 3

Therefore The required Sum of roots is 3.

**Q7. Answer: (c) South-west**

According to given conditions,

• Rohan started form his home toward the east, walking 5 m.

• Turned left from there after waling for 15 m.

• He turned right and walked for 5 m to reach flower shop.

Clearly, At last Rohan's home is to the South-west of the flower shop.

Hence, ‘South-west’ is the correct answer.

**Q8. Answer: (d) Loh Kean Yew**

The correct answer is Loh Kean Yew.

Key Points

• Lakshya Sen won the Men's Singles title of the India open 2022 tournament.

• He defeated the world champion, Loh Kean Yew of Singapore in straight games.

• The men’s doubles pair of Satwiksairaj Rankireddy and Chirag Shetty defeated the top-seeded pair of Mohammad Ahsan and Hendra Setiawan of Indonesia.

• The women's title was won by Busanan Ongbamrungphan of Thailand.

• She defeated PV Sindhu in the finals.

Additional Information

• Badminton:

• Its apex governing body is International Badminton Federation (IBF).

• International Badminton Federation (IBF) was established in 1934.

• It was later renamed as Badminton World Federation (BWF).

• Its headquarters are in Kuala Lumpur, Malaysia.

• Badminton Association of India was formed in 1934.

• Its headquarters is in New Delhi.

• Himanta Biswa Sarma is the current president.

Important Points

• The trophy for the international matches was named Thomas Cup after the name of the first president of the IBF Sir George Thomas.

• Thomas Cup competition (for men) started in 1948-1949.

• Uber Cup Championship (for women) was started in 1956.

**Q9. Answer: (b) Calicut**

The correct answer is Calicut.

Key Points

• Portuguese explorer Vasco Da Gama discovered the sea route from Portugal to India and came to India in 1498 at Calicut.

• He belonged to Portugal and the discovery of the sea route became essential as the Ottomans occupied Constantinople (present-day Istanbul) and stopped the trade through the land route.

• Vasco da Gama’s fleet arrived in Kappadu near Kozhikode (Calicut), on the Malabar Coast (present-day the Kerala state of India).

• The King of Calicut at that time was Samudiri (Zamorin).

**Q10. Answer: (d) FJQNHIW**

The pattern/logic followed here is:

According to the alphabetical positions of the letters,

'ABSENCE' is written as 'DWVZQXH'

And,

'SERVICE' is written as 'VZUQLXH'

Similarly,

'CONSENT' is written as 'FJQNHIW'

Hence, ‘FJQNHIW’ is the correct answer.

**Q11. Answer: (c) Nidhi**

Five colleagues - Chand, Chandini, Nidhi, Vikram and Ajay, are sitting in a row facing north.

1. Nidhi and Chandini occupy the extreme ends of the row.

2. Vikram is sitting exactly in the centre.

3. Ajay is sitting to the immediate left of Vikram.

4. No two people with the name starting with the same letter are immediate neighbours of each other.

Clearly, Chand and Chandini are not immediate neighbours of each other from the above statement.

Case II is eliminated following the above statement.

So, the final arrangement will be as shown below:

Clearly, Nidhi sits in the right extreme.

Hence, 'Nidhi' is the correct answer.

**Q12. Answer: (c) Plasma**

The correct answer is Plasma.

Key Points

• Plasma is the liquid part of the blood of which 90%- 92% is water and the remaining 7% - 8% is made up of proteins, minerals, hormones, enzymes, and so on.

• Plasma is the clear liquid portion of blood that remains after red blood cells, white blood cells, platelets, and other cellular components are removed from the body.

Additional Information

**Q13. Answer: (b) Helium**

The correct answer is Helium.

Key Points

• Inert gas or noble gas is gas that does not generally participate in chemical reactions and is always available in a free state.

• All inert gases are colourless, odourless, and tasteless.

• There are 7 elements in class 18(inert gases) of the periodic table- Helium (He), Neon (Ne), Argon (Ar), Krypton (Kr), Xenon (Xe), Radon (Rn), and Oganesson (Og).

• Helium is used in the treatment of Asthma, Balloons, welding, etc.

• Xenon is used in Photographic flashes, high-pressure lamps, NMR Spectroscopy.

• Neon is used in TV Tubes, Signboards, Laser, etc.

**Q14. Answer: (c) National Security Council Secretariat (NSCS)**

The correct answer is National Security Council Secretariat (NSCS).

Key Points

• The Indian army, along with the National Security Council Secretariat (NSCS), established a Quantum Lab to spearhead research and training at the Military College of Telecommunication and Engineering (MCTE) in Mhow, Madhya Pradesh.

• Indian Army has also established an Artificial Intelligence (AI) Centre at the same institution.

• Based in Mhow, MCTE provides an array of academic courses.

• The Army War College, a defence service training and research institution of the Indian Army, is located in Mhow, Madhya Pradesh.

**Q15. Answer: (b) 37**

BODMAS RULE:-

| **Symbol** | ÷ | × | • | • |
|---|---|---|---|---|
| Meaning | • | • | × | ÷ |

Given equation: 8 + 5 × 54 - 9 ÷ 3 = ?

After replacing the symbols by their meaning, we get:

L.H.S = 8 × 5 - 54 ÷ 9 + 3
= 8 × 5 - 6 + 3
= 40 – 6 + 3
= 43 – 6
= 37
Hence, '37' is the correct answer.

**Q16. Answer: (d) 18,000**

Given:
The ratio of incomes of A and B is 5 : 7
The ratio of their savings is 2 : 3
A and B spend Rs. 35,400 and Rs. 48,600
Concept used:
Savings = Income - Expense
Caclulation:
Let the income of A and B be 5x and 7x and savings 2y and 3y
According to the question,
5x - 2y = 35400 ----(i)
7x - 3y = 48600 ----(ii)
By multiplying 3 with eq (i) and 2 with eq (ii) we get,
15x - 6y = 106200 ----(iii)
14x - 6y = 97200 ----(iv)
By subtracting eq (iv) from eq (iii) we get
x = 9000
So, incomes of A = 9000 × 5 = Rs. 45000
Income of B = 9000 × 7 = Rs. 63000
Difference = 63000 - 45000
=> Rs. 18000
Therefore The difference (inRs. ) between the incomes of B and A is 18000.
Alternate Method A : B
Income 5x : 7x
Expend. 35400 : 48600

---

Saving 5x - 35400 : 7x - 48600
Now, according to the question,
(5x - 35400)/(7x - 48600) = 2/3
=> 15x - 106200 = 14x - 97200
=> x = 9000
Difference (inRs. ) between the incomes of B and A
7x - 5x = 2x = 2 × (9000) = 18000

**Q17. Answer: (c) 76°**

Give:
angle BPC = 128°
Concept used:
In a ΔABC angle at the meeting points of internal angle bisectors of angle B and angle C = 90° + angle A/2
Calculation:
According to the concept,
angle A/2 + 90° = angle BPC
=> angle A/2 + 90° = 128°
=> angle A/2 = 128° - 90°
=> angle A/2 = 38°

=> angle A = 38° × 2 = 76°

Therefore The measure of angle A is 76°.

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

The correct answer is first.

Key Points

• Infant mortality is the death of an infant before his or her first birthday.

• The infant mortality rate is the number of infant deaths for every 1,000 live births.

• India's infant mortality rate (IMR) has shown significant improvement, falling from 47 in 2010 to just 28 in 2020.

• The decline in the infant mortality rate is seen over the past few decades.

• One in every 36 infants still dies within the first year of their life in India, according to official data.

• The Infant Mortality Rate (IMR), is widely accepted as a crude indicator of the overall health scenario of a country or a region.

• The corresponding decadal decline in IMR in rural areas is 48 to 31, and for urban areas, it is from 29 to 19.

• In 2020, the maximum IMR has been reported for Madhya Pradesh (43) and the minimum for Mizoram (3).

**Q19. Answer: (d) 238977514**

The pattern/logic followed here is:

According to the alphabetical positions of the letters,

The code for T will be 77 as it is immediately followed as well as preceded by a vowel.

Hence, ‘238977514’ is the correct answer.

**Q20. Answer: (b) 1 : 2**

Given:

A : B = 1.2 : 2, B : C = 1.5 : 2, and C : D = 2 : 3

Calculation:

1st case → A : B = 1.2 : 2

2nd case → B : C = 1.5 : 2

By equaling B in both the cases we get

3rd case → A : B : C = 1.8 : 3 : 4

Now,

4th case → C : D = 2 : 3

Again, by equaling C in both case 3rd and 4th we get,

A : B : C : D = 1.8 : 3 : 4 : 6

So, B : D = 3 : 6 or 1 : 2

Therefore B : D is equal to 1 : 2.

**Q21. Answer: (d) Bijapur**

The correct answer is Bijapur.

Key Points

• Gol Gumbaz is a 17th-century mausoleum located in Bijapur, a city in Karnataka, India.

• It is the tomb of Mohammad Adil Shah and houses his mortal remains.

• The mausoleum is notable for its scale and exceptionally large dome.

• The building is on UNESCO's "tentative list" to become a World Heritage Site in 2014.

• It is the second-largest dome ever built, next in size only to St Peter’s Basilica in Rome.

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

• Another attraction at the Gol Gumbaz is the Whispering Gallery, where even minute sounds can be heard clearly 37 meters away.

Additional Information

• Mohammed Adil Shah

• Mohammed Adil Shah was the son of Ibrahim Adil Shah II.

• He was the seventh ruler of Bijapur, crowned in 1627 at the age of 15 years.

• He assisted the Mughals with their campaigns against the Ahmednagar Sultanate.

• He signed a peace treaty with the Mughals in 1636.

• Kingdom attained its dominions stretched from the Arabian Sea to the Bay of Bengal.
• Bijapur also attained peace and prosperity during Mohammed's reign.
• His kingdom yielded an annual revenue of seven crores and eighty-four lakh rupees.
• He died in 1656 and was buried in the Gol Gumbaz.

**Q22. Answer: (a) 666**

Given:
72 ÷ 4 × {8 × 4 - (14 - 19)}
Concept used:
Calculation:
72 ÷ 4 × {8 × 4 - (14 - 19)}
=> 72 ÷ 4 × {8 × 4 - (- 5)}
=> 72 ÷ 4 × {32 + 5}
=> 72 ÷ 4 × 37
=> 18 × 37
=> 666
Therefore Required answer is 666.

**Q23. Answer: (a) Odia**

The correct answer is Odia.
Key Points
• The Vice President addressed Odia Adikabi Sarala Das's 600th birth anniversary function in Cuttack.
• Sarala Das was one of the great scholars of Odia literature.
• He was the first scholar who wrote his works in Odia in the 15th century A.D.
• Best known for three Odia books, Mahabharata, Vilanka Ramayana and Chandi Purana.
• He also wrote the book Laxmi Narayana Vachanika.
• He started writing his Mahabharata in the reign of Kapileswar, the famous Gajapati king of Odisha (AD 1435–67).
• Odia is one of the six languages that got Classical Status in India.

**Q24. Answer: (b) 6**

Given:
The observations are 5, 4, 4, 6, 7, 6, 9, 7, 6, 5
Concept used:
The number which appears most often in a set of numbers is called mode.
Calculation:
Here,
4, 5, 7 are given 2 times
9 is given 1 time
6 is given 3 times
So, the frequency of 6 is the highest among all
Therefore The mode of the data is 6.

**Q25. Answer: (b) 9856 m²**

Shortcut Trick
Ratio of sides = 5 : 3 => Ratio area = 5 × 3 = 15 units².
15 units² = 7260 => 1 unit = √(7260 ÷ 15) = 22.
Rectangle Perimeter = 2 × (5 + 3) × 22 = 16 × 22 = 352 m.
Circle Circumference = 2 × (22/7) × r = 352 => r = 56 m.
Circular Area = (22/7) × 56 × 56 = 9856 m².
Therefore The correct answer is 9856 m².
Alternate Method
Given:
Area of rectangle = 7260 m²

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Ratio of sides = 5 : 3
Perimeter of rectangle = Perimeter of circle
Formula Used:
Area of rectangle = Length × Breadth
Perimeter of rectangle = 2 × (Length + Breadth)
Circumference of circle = 2 × π × r
Area of circle = π × $r^2$
Calculations:
=> Let length = 5x and breadth = 3x
=> Area = 5x × 3x = $15x^2$ = 7260
=> $x^2$ = 7260 ÷ 15 = 484
=> x = √484 = 22 m
=> Length = 5 × 22 = 110 m, Breadth = 3 × 22 = 66 m
=> Perimeter of rectangle = 2 × (110 + 66) = 2 × 176 = 352 m
=> Circumference of circular garden = 2 × (22/7) × r = 352
=> r = (352 × 7) ÷ 44 = 8 × 7 = 56 m
=> Area of circular garden = (22/7) × 56 × 56
=> Area = 22 × 8 × 56 = 176 × 56 = 9856 $m^2$
Therefore The correct answer is 9856 $m^2$.
Additional Information
Rectangle Properties
A rectangle with sides a and b has area = a × b and diagonal = √($a^2$ + $b^2$).
Circle Mensuration
For a circle of radius r, the ratio of Area to Circumference is r/2.
Square vs Circle
For a given perimeter, a circle encloses the maximum area compared to any other polygon or rectangle.

**Q26. Answer: (b) Rs. 175**

Given:
The difference between 12% gain and 4% loss on sale of the item was Rs. 28
Concept used:
SP = CP + CP × gain%
SP = CP - CP × loss%
Here
SP = selling price
CP = cost price
Calculation:
Let the CP of the item be 100a
SP at 12% gain on CP = 100a + 100a × 12%
=> 112a
SP at 4% of loss on CP = 100a - 100a × 4%
=> 96a
According to the question,
112a - 96a = 28
=> 16a = 28
=> a = 28/16
Now, CP = 100 × (28/16)
=> Rs. 175
Therefore The cost price of the item is Rs. 175.

**Q27. Answer: (b) B is the cause and A is the effect**

The logic followed is:

Seller will sell their commodities if the price of that commodities is higher than previous time. As Alliance has raised the procurement price or cost price of oil from the last month, KBCL decided to sell their oil to Alliance. So, statement B is the cause and statement A is the effect.

Hence, the correct answer is "Option 2".

**Q28. Answer: (a) YounTab**

The correct answer is YounTab.

Key Points

• Lieutenant Governor of Ladakh RK Mathur launched the YounTab scheme for students and distributed 12,300 tablets among them virtually in Leh.

• The scheme is an initiative of the Department of School Education with technical support from the Information Technology Department.

• A total of 12 thousand 300 students of 6th to 12th class from government schools will benefit from the scheme.

• Formulated to encourage digital learning, bridge the digital divide between connected and unconnected, and mitigate the Covid pandemic disruptions.

Additional Information

• Diksha

• DIKSHA (Digital Infrastructure for Knowledge Sharing) is a national platform for school education.

• An initiative of the National Council for Educational Research and Training (NCERT).

• The unique initiative leverages existing highly scalable and flexible digital infrastructures while keeping teachers at the center.

• eVidya

• The Government of India has launched the PM eVIDYA program.

• Under this scheme, the top hundred universities in the country will start educating students through online education after 30th May 2020.

• PM eVIDYA will also be called a one Nation digital platform.

• Other than that a TV channel called one class one channel will also be launched for students who are studying in class 1st to 12th.

• Pragyata

• Recently, the Ministry of Education has released guidelines on digital education titled 'PRAGYATA'.

• The guidelines have been prepared by the National Council of Educational Research and Training (NCERT).

• These are only advisory in nature and state governments can formulate their own rules, based on local needs.

• The guidelines include eight steps of online/digital learning i.e. Plan- Review- Arrange- Guide- Yak (talk)- Assign- Track- Appreciate.

**Q29. Answer: (c) 937.9399**

Given:

(919 + 9.019 + 0.919 + 9.0019)

Calculation:

919 + 9.019 + 0.919 + 9.0019

=> 919.0000 + 9.0190 + 0.9190 + 9.0019

=> 928.0190 + 0.9190 + 9.0019

=> 928.9380 + 9.0019

=> 937.9399

Therefore Required answer is 937.9399.

**Q30. Answer: (a) 96 π**

Given:

The volume of a solid cone is 96 π cm3

Height = 8 cm

Formula used:

Volume of a cone = $(1/3)\pi r^2 h$

Total surface area = $\pi r(r + l)$

$l = \sqrt{(r^2 + h^2)}$
Here,
r = radius
h = height
l = slant height
Calculation:
Let the radius be r
According to the question,
$(1/3)\pi r^2 \times 8 = 96\pi$
$\Rightarrow (1/3)r^2 = 12$
$\Rightarrow r^2 = 36$
$\Rightarrow r = 6$
Now,
$l = \sqrt{(6^2 + 8^2)}$
$\Rightarrow l = \sqrt{(36 + 64)}$
$\Rightarrow l = \sqrt{100}$
$\Rightarrow l = 10$
Total surface area $= \pi \times 6(6 + 10)$
$\Rightarrow \pi \times 6 \times 16$
$\Rightarrow 96\pi$
Therefore Its total surface area (in $cm^2$) is $96\pi$.

**Q31. Answer: (a) Rs. 1500**

Given:
The selling price of 2 blankets are the same.
One of the blankets is sold at 662/3% profit and the CP of the other blanket is Rs. 400 less than its SP
Overall profit on two blankets = 50%
Concept used:
SP = CP + CP × profit%
SP - CP = Profit
SP = selling price
CP = cost price
Calculation:
662/3% = 2/3
Let CP of 1st blanket be 3x and 2nd blanket be y
SP of 1st blanket = 3x + 3x × 2/3
$\Rightarrow$ 5x
SP of 2nd blanket = y + 400
According to the question,
5x = y + 400
$\Rightarrow$ 5x - y = 400 ----(i)
Again
(3x + y) × 3/2 = 5x + y + 400 [Because Total profit on selling both the blankets is 50% and 50% profit on CP = CP × 3/2]
$\Rightarrow$ 9x + 3y = 10x + 2y + 800
$\Rightarrow$ x - y = - 800 ----(ii)
Subtracting eq (ii) from eq (i) we get
4x = 1200
$\Rightarrow$ x = 300
$\Rightarrow$ 5x = 300 × 5 = 1500
So, SP of 1st blanket = Rs. 1500
As both the blankets were sold on the same price
Therefore The selling price of each blanket is Rs. 1500.

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Alternate Method

Here, as for first blanket Profit is 662/3%

so assume, SP = 5x

then CP of first Blanket = 3x

SP of 2nd Blanket = 5x (as SP is Same)

then CP of 2nd blanket = 5x - 400

Now, Overall profit = 50%

thus,

Total SP = 1.5(Total CP)

5x + 5x = 1.5 (3x + 5x - 400)

x = 300

so SP = 5x = 1500

Therefore The selling price of each blanket is Rs. 1500.

**Q32. Answer: (b) 5 cm**

Shortcut Trick

According to the External Secant Segment Theorem, when two secants are drawn from an external point to a circle, the product of the length of one secant and its external part equals the product of the length of the other secant and its external part.

Logic: EA × EB = EC × ED

Given: EA = 12 cm, AB = 9 cm => EB = AE − AB = 12 − 9 = 3 cm

Also: ED = 4 cm, EC = ED + CD = 4 + CD

=> 12 × 3 = 4 × (4 + CD)

=> 36 = 16 + 4 × CD => 4 × CD = 20 => CD = 5 cm

Therefore The correct answer is 5 cm.

Alternate Method

Given:

AB = 9 cm

AE = 12 cm

ED = 4 cm

Concept Used:

If two chords AB and CD of a circle intersect at an external point E, then:

AE × BE = CE × ED

Calculation:

According to the concept,

AE × BE = CE × ED

=> 12 × 3 = CE × 4

=> 36 = 4 × CE

=> CE = 9 cm

Now,

CE = CD + ED

=> 9 = CD + 4

=> CD = 9 − 4

=> CD = 5 cm

Therefore The length of chord CD is 5 cm.

Additional Information

Internal Chord Theorem

If two chords AB and CD intersect inside a circle at point P, then PA × PB = PC × PD.

Tangent-Secant Theorem

If a tangent segment ET and a secant segment EAB are drawn from an external point E, then $ET^2 = EA \times EB$.

Power of a Point

For a point E at distance d from the center of a circle with radius r, the value $d^2 - r^2$ is constant for any line through E and is equal to the product of the segments of any secant.

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**Q33. Answer: (c) North-west**

According to given conditions,

• Rohan started from his home to go his school. He went 100 meters towards the south.

• He turned toward west and walked 50 meters.

• He turned right and walked 50 meters.

• Finally he turned to his right and walked 100 meters to reach his school

Clearly, Rohan's home is to the North-West of his school.

Hence, ‘North-west’ is the correct answer.

**Q34. Answer: (c) Paresh**

Eight friends are sitting around a square table, four at the corners and four in the middle of the four sides, facing the centre.

1. Isheen is an immediate neighbour of Manmeet and Jyoti.

2. Nandan is sitting third to the right of Isheen.

3. Paresh is second to the left of Manmeet.

The above condition cannot be satisfied in Case I, so it is eliminated.

5. Only three people sit between Meena and Isheen.

6. Manmeet is sitting to the immediate right of Rekha.

Clearly, Paresh is sitting second to the right of Nandan.

Hence, 'Paresh' is the correct answer.

**Q35. Answer: (d) 17.98**

The correct answer is 17.98.

Key Points

• The Global Birth Rate (crude) in the year 2020 is 17.98, according to World Bank.

• Birth rate of World went down by 1.13 % from 18.2 per 1,000 people in 2019 to 17.98 per 1,000 people in 2020.

• The world's total crude birth rate was estimated at 3,713.07 births per thousand population in 2020.

• The Global Birth Rate is used to calculate another fundamental measure, the rate of natural increase.

Important Points

• Crude birth rate

• indicates the number of live births occurring during the year, per 1,000 population estimated at midyear.

• Crude Death Rate

• Calculated as the number of deaths in a given period divided by the population exposed to the risk of death in that period.

• For human populations the period is usually one year.

• Subtracting the crude death rate from the crude birth rate provides the rate of natural increase, which is equal to the rate of population change in the absence of migration.

**Q36. Answer: (c) Mizoram**

The correct answer is Mizoram.

Key Points

• Among the given options, Mizoram has the highest child sex ratio in India according to the 5th National Family Health Survey (2019-21).

• Sex ratio at birth for children born in the last five years in India and its states/UTs.

• Child sex ratio

• the number of females per thousand males in the age group 0–6 years in a human population.

• The child sex ratio in India decreased between 2001 to 2011.

Additional Information

| Sl. No. | States/UTs | Sex ratio at birth for children born in the last five years (female per 1,000 male) |
|---|---|---|
| NFHS-5 (2019-21) | | |
| 1 | INDIA | 929 |
| 2 | Andaman & Nicobar Islands | 914 |

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| | | |
|---|---|---|
| 3 | Andhra Pradesh | 934 |
| 4 | Arunachal Pradesh | 979 |
| 5 | Assam | 964 |
| 6 | Bihar | 908 |
| 7 | Chandigarh | 838 |
| 8 | Chhattisgarh | 960 |
| 9 | DNH & DD | 817 |
| 10 | Goa | 838 |
| 11 | Gujarat | 955 |
| 12 | Haryana | 893 |
| 13 | Himachal Pradesh | 875 |
| 14 | Jammu & Kashmir | 976 |
| 15 | Jharkhand | 899 |
| 16 | Karnataka | 978 |
| 17 | Kerala | 951 |
| 18 | Ladakh | 1125 |
| 19 | Lakshadweep | 1051 |
| 20 | Madhya Pradesh | 956 |
| 21 | Maharashtra | 913 |
| 22 | Manipur | 967 |
| 23 | Meghalaya | 989 |
| 24 | Mizoram | 969 |
| 25 | Nagaland | 945 |
| 26 | NCT of Delhi | 923 |
| 27 | Odisha | 894 |
| 28 | Puducherry | 959 |
| 29 | Punjab | 904 |
| 30 | Rajasthan | 891 |
| 31 | Sikkim | 969 |
| 32 | Tamil Nadu | 878 |
| 33 | Telangana | 894 |
| 34 | Tripura | 1028 |
| 35 | Uttar Pradesh | 941 |
| 36 | Uttarakhand | 984 |
| 37 | West Bengal | 973 |

**Q37. Answer: (b) 132**

Given:

Total students = 288

Girls = 5/8th of the total

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2/5th of the girls are below 12 age
4/9th of the boys are above 12 years
Calculation:
Number of girls = 288 × 5/8
=> 180
So, number of boys = 288 - 180 = 108
Now,
Number of girls below 12 years of age = 180 × 2/5
=> 72
Number of boys above 12 years of age = 108 × 4/9
=> 48
So, the number of boys below 12 years of age = 108 - 48 = 60
Total number of students below 12 years of age = 72 + 60 = 132
Therefore 132 students are below 12 years of age.

**Q38. Answer: (c) Tyagaraja, Muthuswami Dikshitar and Syama Sastri**

The correct answer is Tyagaraja, Muthuswami Dikshitar and Syama Sastri.
Key Points
• Carnatic Music
• The Tamil classic of the 2nd century AD. titled ‘Silappadhikaram’ contains a vivid description of the music of that period.
• The Tolkappiyam, Kalladam and the contributions of the Saivite and Vaishnavite saints of the 7th and 8th centuries AD.
• It also serves as resource material for studying musical history.
• Trinity of Carnatic music:
• It is a trio of composer-musicians of Carnatic music in the 18th century.
• The trio consisted of Tyagaraja, Muthuswami Dikshitar and Shyama Sastri.
• Tyagaraja was a Telugu composer.
• He is known for Pancharatna Kritis.
• Muthuswami Dikshitar was a Sanskrit and Manipravalam composer.
• Shyama Sastri was a Telugu, Sanskrit composer.

**Q39. Answer: (c) IRHSPILA**

The logic followed here is:
RAMESH is written as AREMHS
• And,
PRAKIL is written as RPKALI
• Similarly,
RISHIPAL is written as IRHSPILA
• Hence, 'IRHSPILA' is the correct answer.

**Q40. Answer: (b) 10**

According to the alphabetical positions of the letters,
The logic followed here is:
(Sum of position value of consonant - sum of position value of vowel) ÷ 2 = code
SUGAR : 11
And,
PILOT : 12
Similarly,
HOTEL : ?
Hence, ‘10’ is the correct answer.

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**Q41. Answer: (c) 56**

The pattern followed here is:

In the month of February remaining day is:- 10 (Because 2020 is the leap year so, the month of February will be 29 Days)

In the month of March remaining day is:- 31

In the month of April the total day is:- 15

The total number of days from 20 February 2020 to 15 April 2020 = 10 + 31 + 15 = 56

Hence, '56' is the correct answer.

Mistake Points

• Here, 20 February and 15 April also have to be counted because the number of days counted from 20 February to 15 April to be told, so they do not have to be omitted.

**Q42. Answer: (a) 1002001**

Concept used:

7 × 11 × 13 = 1001, when any 3 digit number multiplied by 1001 then it repeats itself and always completely divisible by 7,11 and 13.

Calculation:

Option 1:

1002001 is divisible by 1001

Option 2:

1003001 is not divisible by 1001

Option 3:

1005001 is not divisible by 1001

Option 4:

1004001 is not divisible by 1001

Therefore Required answer is Option 1.

**Q43. Answer: (a) 4 hours 45 minutes**

Shortcut Trick

Let Downstream Speed be D and Upstream Speed be U.

Equations: 63/D + 30/U = 7 and 28/D + 48/U = 6.

To eliminate U, multiply first equation by 8 and second by 5: (504/D + 240/U = 56) − (140/D + 240/U = 30).

364/D = 26 => D = 14 km/h; Then 63/14 + 30/U = 7 => 4.5 + 30/U = 7 => U = 12 km/h.

Required Time = 35/14 + 27/12 = 2.5 + 2.25 = 4.75 hours = 4 hr 45 min.

Therefore The correct answer is 4 hr 45 min.

Alternate Method

Given:

Case 1: Distance Downstream (d1) = 63 km, Distance Upstream (u1) = 30 km, Total Time (t1) = 7 hr.

Case 2: Distance Downstream (d2) = 28 km, Distance Upstream (u2) = 48 km, Total Time (t2) = 6 hr.

Formula Used:

Time = Distance ÷ Speed

Calculations:

Let 1/D = x and 1/U = y.

=> 63x + 30y = 7 --- (Eq. 1)

=> 28x + 48y = 6 --- (Eq. 2)

Multiply Eq. 1 by 8: 504x + 240y = 56

Multiply Eq. 2 by 5: 140x + 240y = 30

Subtracting the two equations:

=> 364x = 26

=> x = 26/364 = 1/14

=> Downstream Speed (D) = 14 km/h

Substitute x = 1/14 in Eq. 2:

=> 28(1/14) + 48y = 6

=> 2 + 48y = 6 => 48y = 4

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=> y = 4/48 = 1/12

=> Upstream Speed (U) = 12 km/h

Time for 35 km downstream and 27 km upstream:

=> T = 35/D + 27/U

=> T = 35/14 + 27/12

=> T = 2.5 + 2.25 = 4.75 hr

=> 0.75 hr = 0.75 × 60 = 45 min

Therefore The correct answer is 4 hr 45 min.

Additional Information

Speed of Boat and Stream

Speed of boat in still water = (D + U) ÷ 2 | Speed of stream = (D − U) ÷ 2.

Relative Speed in Water

Downstream speed includes stream velocity helping the boat, while Upstream speed opposes it.

Average Speed for Round Trip

If distance is same both ways, Average Speed = (D × U) ÷ Speed in still water.

**Q44. Answer: (c) directive principles of state policy**

The correct answer is directive principles of state policy.

Key Points

• Article 42 of the constitution under DPSP (directive principles of state policy)states:

• The State shall make provision for securing just and humane conditions of work and for maternity relief.

• A welfare state is a concept of government where the state plays a key role in the protection and promotion of the economic and social welfare of its citizens.

• DPSPs promote the ideal of the welfare state by emphasizing the state to promote the welfare of people by providing them with basic facilities like shelter, food, and clothing.

Additional Information

• Directive principles of state policy

• Articles 36-51 of Part-IV of the Indian Constitution deal with Directive Principles of State Policy (DPSP).

• They are borrowed from the constitution of Ireland.

• They act as directives to the government to create any law.

• They act as the ‘instrument of instructions’.

• Fundamental rights

• Articles 12-35 of Part - III of the Indian Constitution deals with Fundamental Rights.

• Fundamental rights are enforceable in a court of law.

• These human rights are conferred upon the citizens of India for the Constitution tells that these rights are inviolable.

• Six main fundamental rights.

• Fundamental Duties

• 42nd Amendment Act of 1976 added 10 Fundamental Duties to the Indian Constitution.

• 86th Amendment Act 2002 later added the 11th Fundamental Duty to the list.

• Swaran Singh Committee in 1976 recommended Fundamental Duties.

• The Fundamental Duties are dealt with in Article 51A under Part-IV A of the Indian Constitution.

• Non enforceable in a court of law.

**Q45. Answer: (c) 51**

Given:

84 ÷ 32 × 8 - 15 ÷ 8 × (19 - 35)

Concept used:

Calculation:

84 ÷ 32 × 8 - 15 ÷ 8 × (19 - 35)

=> 84 ÷ 32 × 8 - 15 ÷ 8 × (- 16)

=> 21/8 × 8 - (15/8) × (- 16)

=> 21 + 30

=> 51

Therefore The required answer is 51.

**Q46. Answer: (d) 43**

The logic is:

Hence, '43' is the correct answer.

**Q47. Answer: (d) Maternal grandfather**

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

| A is | | | | | |
|---|---|---|---|---|---|
| Symbol | # | $ | @ | % | = |
| Meaning | Father | Mother | Husband | Wife | Brother |
| to B | | | | | |

P @ Q $ U = R % S # V → P is the husband of Q, Q is the mother of U, U is the brother of R, R is the wife of S, S is the father of V.

Clearly, P is the Maternal grandfather of V.

Hence, 'Maternal grandfather' is the correct answer.

**Q48. Answer: (d) 23**

Given:

1. Rupesh ranked 10th from the top and Rachit ranked 21st from the bottom.

2. Rachit performed better than Rupesh and six students ranked between them.

Rupesh rank from the bottom: 21 -7 = 14^(th).

Therefore, total number students appeared in the examination = 10 + 14 -1 = 23.

Hence,, the correct answer is "Option (4): 23".

**Q49. Answer: (b) ECV**

The pattern followed here is:

According to the alphabetical positions of the letters,

Similarly,

Hence, 'ECV' is the correct answer.

**Q50. Answer: (c) For tackling pollution in their home city by recycling household waste**

The correct answer is For tackling pollution in their home city by recycling household waste.

Key Points

• Two Indian teenage brothers Vihaan and Nav Agrawal have won the 2021 KidsRights International Children's Peace Prize for tackling pollution from household waste.

• Vihaan (17) and Nav Agarwal (14) have developed the 'One Step Greener' initiative segregating recyclables and organising pickups for trash from thousands of homes.

• From an impressive 169 applicants from 39 countries, the KidsRights' Expert Committee selected Nav and Vihaan as winners.

• They were awarded by Nobel laureate Kailash Satyarthi.

Important Points

• 'One Step Greener' initiative

• After seeing the link between waste and air pollution following Delhi's Ghazipur landfill collapse.

• Both boys were inspired to create One Step Greener – an initiative that began segregating rubbish and organizing waste pickup drives.

• From just 15 homes, One Step Greener is now a city-wide operation collecting rubbish from more than 1,000 households, schools, and offices, and has recycled 173,630 kilograms of waste.

• The entrepreneurial brothers often devote 4-5 hours per day to the organization and are working to bring their sustainability message to children across India.

Additional Information

• KidsRights International Children's Peace Prize

• The prestigious prize was launched in 2005 during the World Summit of Nobel Peace Laureates in Rome, chaired by Mikhail

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Gorbachev.

• Since then, the prize has been presented by a Nobel Peace Prize Laureate every year.

• In 2021 the 17th International Children's Peace Prize was presented by Kailash Satyarthi, Nobel Peace Prize Laureate 2014.

**Q51. Answer: (c) Harsha**

The correct answer is Harsha.

Key Points

• Nagananda is a Sanskrit play attributed to emperor Harsha.

• Nagananda is among the most acclaimed Sanskrit dramas.

• It tells the story of Vidyadhar King Jimutavahana's self-sacrifice to save the Nagas.

• The unique characteristic of this drama is the invocation to Buddha in the Nandi verse.

• The play depicts the story of how prince Jimutavahana gives up his own body to stop a sacrifice of a Naga prince to the divine Garuda.

• The play was first introduced in January 2008 at Panaji, Goa in Marathi by Prabhakar Sanskritic Sanstha.

Additional Information

• Bindusara

• Bindusara, also known as Amitrochates was the second Mauryan emperor of India.

• He was the son of the dynasty's founder Chandragupta and the father of its most famous ruler Ashoka.

• Ashoka

• Ashoka the Great, was an Indian emperor of the Maurya Empire, son of Bindusara.

• He conquered almost all of the Indian subcontinent from 268 to 232 BCE.

• Ashoka promoted the spread of Buddhism across ancient Asia.

• Chandra Gupta I

• Chandragupta, I was a king of the Gupta Empire, who ruled northern and central India.

• His title Maharajadhiraja suggests that he was the first emperor of the dynasty.

• Harsha

• Harsha, also spelled Harsa, also called Harshavardhana, was the ruler of a large empire in northern India from 606 to 647 CE.

• He was a Buddhist convert in the Hindu era.

• He was a member of the Vardhana dynasty and was the son of Prabhakaravardhana.

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

The correct answer is Awadh.

Key Points

• Begum Hazrat Mahal had a leading role in the rebellion against the British East India Company during the Revolt of 1857.

• Begum Hazrat Mahal also called Begum of Awadh was the second wife of Nawab Wajid Ali Shah.

• Her real name was Muhammadi Khanum.

• Awadh was annexed by the British East India Company in 1856.

• Nawab Wajid Ali Shah, the last Nawab of Awadh was sent into exile to Calcutta.

• After her husband had been exiled to Calcutta and the Indian Rebellion broke out, she made her son, Prince Birjis Qadr, the Wali (ruler) of Awadh, with herself as regent during his minority.

• However, she was forced to abandon this role after a short reign.

• She finally found asylum in Nepal where she died in 1879.

Additional Information

| Leaders of Revolt of 1857 | Centres |
|---|---|
| General Bakht Khan | Delhi |
| Nana Saheb | Kanpur |
| Begum Hazrat Mahal | Lucknow |
| Khan Bahadur | Bareilly |
| Kunwar Singh | Bihar |
| Maulvi Ahmadullah | Faizabad |

| | |
|---|---|
| Rani Laxmibai | Jhansi |

**Q53. Answer: (c) NIATNUOM**

The logic followed here is:

TRIP : PIRT

• STRONG : GNORTS

• • Similarly, MOUNTAIN

• Hence, 'NIATNUOM' is the correct answer.

**Q54. Answer: (a) 300**

Given:

If 75% of a number is added to 75, then the result is the number itself.

Calculation:

Let the number be 100a

According to the question,

100a × 75% + 75 = 100a

=> 75a + 75 = 100a

=> 75 = 100a - 75a

=> 75 = 25a

=> a = 75/25 = 3

So, the number = 100 × 3

=> 300

Therefore The number is 300.

**Q55. Answer: (d) Rs. 27 Lakhs**

Shortcut Trick

Volume of the box = 48 × 36 × 30 = 51840 $cm^3$

Volume of 1 bundle = 15 × 8 × 2 = 240 $cm^3$

Number of bundles = 51840 ÷ 240 = 216

Value per bundle = 125 × 100 = Rs. 12500

Total Value = 216 × 12500 = Rs. 27,00,000 = Rs. 27 Lakhs

Therefore The correct answer is Rs. 27 Lakhs.

Alternate Method

Given:

Dimensions of a 100-rupee note = 15 cm × 8 cm

Thickness of a bundle of 125 notes = 2 cm

Dimensions of the box = 48 cm × 36 cm × 30 cm

Formula Used:

Volume of a cuboid = Length × Breadth × Height

Number of items = Total Container Volume ÷ Volume of 1 item

Calculations:

=> Volume of the box = 48 × 36 × 30 = 51840 $cm^3$

=> Volume of 1 bundle = 15 × 8 × 2 = 240 $cm^3$

=> Number of bundles = 51840 ÷ 240 = 216

=> Total notes in the box = 216 × 125 = 27000 notes

=> Total value of the notes = 27000 × Rs. 100 = Rs. 27,00,000

=> Total value in Lakhs = Rs. 27 Lakhs

Therefore The correct answer is Rs. 27 Lakhs.

Additional Information

Cuboid Volume

The space occupied by a 3-dimensional solid with rectangular faces is its volume, calculated strictly as Length × Breadth × Height.

Packaging Optimization

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When checking how many small items perfectly fit into a larger container without any gaps, divide the total volume of the container by the volume of a single small unit.

Number System Units

In the Indian numbering system, 1 Lakh equals 1,00,000 (one hundred thousand). This conversion simplifies managing large monetary values in competitive exams.

**Q56. Answer: (d) Article 29**

The correct answer is Article 29.

Key Points

• Article 29 protects the interests of the minorities by making a provision that any citizen/section of citizens having a distinct language, script, or culture have the right to conserve the same.

• Article 29 mandates that no discrimination would be done on the ground of religion, race, caste, language, or any of them.

Important Points

• Article 20

• Protection in respect of conviction for offenses

1. No person shall be convicted of any offense except for violation of the law nor be subjected to a penalty greater than that which might have been inflicted under the law in force at the time of the commission of the offense.

2. No person shall be prosecuted and punished for the same offense more than once.

3. No person accused of any offense shall be compelled to be a witness against himself.

• Article 16

• Equality of opportunity in matters of public employment

• There shall be equality of opportunity for all citizens in matters relating to employment or appointment to any office under the State.

• Article 15

• Prohibition of discrimination on grounds of religion, race, caste, sex, or place of birth.

**Q57. Answer: (b) Crude Petroleum**

The correct answer is Crude Petroleum.

Key Points

• The highest share in India's imports according to the economic survey 2021-22 was crude petroleum.

• Crude petroleum imports more than doubled to US$ 73.3 billion in April-November, 2021 as compared to last year and continue to be the highest imported commodity.

• Gold imports registered a sharp rise to US$ 33.2 billion, from US$12.3 billion a year earlier.

Additional Information

• Key highlights of the economic survey 2021-22.

• The central theme of this year's Economic Survey is the “Agile approach”.

• Indian economy (GDP) is estimated to grow by 9.2 percent in real terms in 2021-22.

• GDP is projected to grow by 8- 8.5 percent in real terms in 2022-23.

• The Central Government debt has gone up from 49.1 percent of GDP in 2019-20 to 59.3 percent of GDP in 2020-21 but is expected to follow a declining trajectory with the recovery of the economy.

• Rs. 89,066 crores raised via 75 Initial Public Offering (IPO) issues in April-November 2021 is much higher than in any year in the last decade.

• Foreign Exchange Reserves crossed US$ 600 billion in the first half of 2021-22 and touched US $ 633.6 billion as of December 31, 2021.

• India’s overall score on the NITI Aayog SDG India Index and Dashboard improved to 66 in 2020-21 from 60 in 2019-20.

**Q58. Answer: (b) Uttar Pradesh**

The correct answer is Uttar Pradesh.

Key Points

• Uttar Pradesh had the highest share in the overall production of sugarcane for the financial year 2020-21 according to the economic survey 2020-21.

• UP’s districts known for sugarcane production are Meerut, Bareilly, Saharanpur, and Bulandshahr.

• The annual output for the sugarcane production of Uttar Pradesh is 133.3 million tonnes which is the highest sugarcane production in India.

• Maharashtra ranks 2nd in the top sugarcane-producing states in India with 9 lakh hectares of land is used to produce 75.3 MT of

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sugarcane in Maharashtra.

• Tamil Nadu is in the third position, followed by Karnataka, Andhra Pradesh, and Bihar.

• India is the world's second-largest sugarcane-producing nation after Brazil.

• It is estimated that sugar production will increase by 2.90 percent to 31.9 million tonnes in the ongoing 2021-22 marketing year.

• India is the largest consumer of Sugar.

**Q59. Answer: (c) Article 51**

The correct answer is Article 51.

Key Points

• Arti cle 51: Promotion of international peace and security The State shall endeavor to:

• promote international peace and security;

• maintain just and honorable relations between nations;

• foster respect for international law and treaty obligations in the dealings of organized peoples with one another; and encourage settlement of international disputes by a rbitration Part IVA Fundamental DUties.

Additional Information

| Article | What does it say |
|---|---|
| Article 41 | • Right to work, to education and to public assistance in certain cases. |
| Article 43 | • Living wages, etc for workers. - And to promote cottage industries on an individual or cooperative basis in rural areas. - And a decent standard of living and social and cultural opportunity for all workers. |
| Article 50 | • Sepreparation of the judiciary from the executive in the public service of the state. |

**Q60. Answer: (a) 2250**

Given:

A cylindrical bucket of height 150 cm and radius 50 cm is full of water.

It is needed to be filled with some spherical balloons of the radius of 5 each

Concept used:

Volume of a cylinder = $\pi r^2 h$

Volume of a sphere = $(4/3)\pi r^3$

r = radius of sphere and base of the cylinder

h = height

Calculation:

Let n number of spherical balloons be required

According to the question,

$\pi \times 50^2 \times 150 = (4/3) \times \pi \times 5^3 \times n$

=> $2500 \times 150 = (4/3) \times 125n$

=> $20 \times 150 = (4/3)n$

=> $3000 = (4/3)n$

=> $n = (3/4) \times 3000$

=> $n = 2250$

So, a total of 2250 balloons are required

Therefore 2250 balloons can he fill completely with the water present in the bucket.

**Q61. Answer: (a) Alt + Tab**

The correct answer is Alt + Tab.

Key Points

• Alt+Tab

• The keyboard shortcut is most often used to switch between open programs in Microsoft Windows 10.

• Alt + S

• Alt+S is a keyboard shortcut most often used to open the slide show settings in PowerPoint.
• Ctrl + S
• In Microsoft Word and other word processors, pressing Ctrl + S saves the current document.
• Ctrl + Tab
• Ctrl+Tab is a keyboard shortcut most often used to switch between open tabs in a browser.

Additional Information

| Shortcut keys | Description |
|---|---|
| Alt+F | File menu options in the current program. |
| Alt+E | Open Edit options in the current program. |
| Alt+Tab | Switch between open programs. |
| F1 | View help information (F1 is used by almost every Windows program to display help). |
| F2 | Rename a selected file. |
| F5 | Refresh the current program window. |
| Ctrl+D | Bookmark the current page in most Internet browsers. |
| Ctrl+N | Create a new or blank document in some software, or open a new tab in most Internet browsers. |
| Ctrl+O | Open a file in the current software. |
| Ctrl+A | Select all text. |
| Ctrl+B | Change selected text to bold. |
| Ctrl+I | Change selected text to be in italics. |
| Ctrl+U | Change selected text to be underlined. |
| Ctrl+F | Open find window for current document or window. |
| Ctrl+S | Save the current document file. |
| Ctrl+X | Cut selected item. |
| Shift+Del | Cut selected item. |
| Ctrl+C | Copy selected item. |
| Ctrl+Ins | Copy selected item. |
| Ctrl+V | Paste |
| Shift+Ins | Paste |

**Q62. Answer: (a) Ashoka**

The correct answer is Ashoka.

Key Points

• Asoka was the first ruler who inscribed his messages on stone surfaces i.e. natural rocks and polished pillars.
• Most of Ashoks's inscriptions were in Prakrit and were written in Brahmi script.
• James Prinsep, a British antiquary and colonial administrator was the first person to decipher Ashoka's edicts.
• These Ashoka's inscriptions are the first tangible evidence of Buddhism.
• There are 33 inscriptions in total and are primarily classified into the following:
• Major rock edicts.
• Minor rock edicts.
• Separate rock edicts.
• Major pillar edicts.
• Minor pillar edicts.

Additional Information

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• Ashoka's Major Rock Edicts

• There are 14 major rock edicts:

| Edict | Ashoka Inscription Details |
|---|---|
| Major Rock Edict I | • Prohibition of animal sacrifice, especially during festive seasons. |
| Major Rock Edict II | • Medical treatment of humans and animals, planting of fruits, and medicinal herbs, and the digging of wells. - Mentions the Pandyas, Satyapuras and Keralaputras of South India. |
| Major Rock Edict III | • Generosity to Brahmins. - About Yuktas, Pradeshikas, and Rajukas who would go every five years to different parts of his empire to spread Dhamma. |
| Major Rock Edict IV | • Dhammaghosha (sound of Dhamma/righteousness) over Bherighosha (sound of war). - King Ashoka attached the greatest value to his duty. |
| Major Rock Edict V | • About Dhammamahamatras. - Talks about treating slaves right. - A special cadre of officials, Dhamma Gosha was appointed and entrusted with the duty of spreading Dhamma within the kingdom. |
| Major Rock Edict VI | • King's desire to know about his people's conditions. - About welfare measures. |
| Major Rock Edict VII | • Tolerance towards religions among all sects and welfare measures for the public in his as well as his neighboring kingdoms. |
| Major Rock Edict VIII | • Ashoka's first visit to Bodh Gaya and the Bodhi tree (his first Dhamma Yatra). - Gave importance to Dhamma tours. |
| Major Rock Edict IX | • Condemns popular ceremonies. - Stresses on moral conduct. |
| Major Rock Edict X | • Disapproves of the individual's desire for fame and glory and stresses on Dhamma. |
| Major Rock Edict XI | • Dhamma is the best policy to follow, which includes respect for elders and concern for slaves and servants. |
| Major Rock Edict XII | • It mentions Mahamattas in charge of women's welfare, Ithijika Mahamatta, and tolerance towards the dhamma of others. |
| Major Rock Edict XIII | • Mentions victory over Kalinga. Mentions Ashoka's Dhamma victory over Greek Kings Antiochus of Syria (Amtiyoko), Ptolemy of Egypt (Turamaye), Magas of Cyrene (Maka), Antigonus of Macedon (Amtikini), Alexander of Epirus (Alikasudaro). Also mentions Pandyas, Cholas, etc. - The thirteenth rock edict which was issued at the end of the Kalinga war gives a vivid picture of the change of Ashoka from an aggressive and violent warrior to a great lover and preacher of peace. The direct and immediate effect of the Kalinga war was the conversion of Ashoka to Buddhism. |
| Major Rock Edict XIV | • Purpose of rock edicts. |

• Minor Rock Edict

• Minor rock edicts are found on 15 rocks across the country and in Afghanistan also.

• Ashoka uses his name only in four of these places namely:

1. Maski,
2. Brahmagiri (Karnataka),
3. Gujjara (MP) and
4. Nittur (AP)

**Q63. Answer: (d) 19 : 357**

The logic followed here is:

Logic: (first number)$^2$ - 3 = second number

1) 18 : 321 → $18^2$ - 3 = 324 - 3 = 321

2) 21 : 438 → $21^2$ - 3 = 441 - 3 = 438

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3) 17 : 286 → 172 - 3 = 289 - 3 = 286

4) 19 : 357 → 192 - 3 = 361 - 3 = 358 ≠ 357

Hence, '19 : 357' is the odd one out.

**Q64. Answer: (b) 13**

Given:

A fraction becomes 2/3 when one is added to both the numerator and the denominator of the fraction,

It becomes 1/2, when 2 is subtracted from both the numerator and denominator.

Calculation:

Let the fraction be x/y

According to the question,

(x+1)/(y+1)=2/3

=> 3x + 3 = 2y + 2

=> 2y - 3x = 3 - 2

=> 2y - 3x = 1 ----(i)

Again,

(x-2)/(y-2)=1/2

=> 2x - 4 = y - 2

=> 2x - y = 4 - 2

=> 2x - y = 2 ----(ii)

By multiplying eq (i) with 2 we get,

4y - 6x = 2

So,

4y - 6x = 2x - y

=> 5y = 8x

=> x/y = 5/8

So, the fraction is 5/8

Sum of the digits of the fraction = 5 + 8 = 13

Therefore The sum of the numerator and denominator of the original fraction is 13.

**Q65. Answer: (d) Deepu**

Five friends - Deepu, Sonu, Tinku, Guddu and Innu.

1. Innu is taller than Tinku.

Innu > Tinku

2. Among all, Tinku comes exactly in the middle on the basis of height.

Case I: __ > Innu > Tinku > _ > ___

or

Case II: Innu > ___ > Tinku > _ > ___

3. Guddu is shortest among all.

Case I: __ > Innu > Tinku > ___ > Guddu

or

Case II: Innu > ___ > Tinku > ___ > Guddu

4. Sonu is taller than Tinku but not the tallest in the group.

The above condition cannot be satisfied in Case I, so it is eliminated.

Case II: Innu > Sonu > Tinku > _____ > Guddu

As Deepu is the only person left, Deepu will occupy the vacant position.

So, the final arrangement will be as shown below:

Innu > Sonu > Tinku > Deepu > Guddu

Clearly, Deepu comes at the 2nd position starting from the shortest to tallest.

Hence, 'Deepu' is the correct answer.

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**Q66. Answer: (d) LIR**

The logic is: -3 from first alphabet and + 8 in second alphabet.

1.

Hence, 'LIR' is the odd one out.

**Q67. Answer: (a) Data in statements I, II and III together are not sufficient to answer the question.**

Preparing the family tree diagram using the following symbols:

Statements:

I: H is the only brother of S and P.

II: P is the wife of L, who is the son-in-law of D.

III: D is the mother of S and T is the son-in-law of C.

The relation between P and C cannot be determined by using any combination of the statements or all the statements together as no common relation between P and C can be established using the information in the given statement.

Hence, Data in statements I, II and III together are not sufficient to answer the question.

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

The correct answer is Hojagiri.

Key Points

• Satyaram Reang is an Indian folk performer and folk artist from Tripura.

• He is noted for his significant contribution to Hojagiri Dance.

• In January 2021, he was awarded India's fourth-highest civilian award the Padma Shri in the Arts category.

• In 1986, Satyaram Reang was conferred with the prestigious Sangeet Natak Akademi award, the highest award for performing artists.

Additional Information

• Biraha

• It is an ethnic Bhojpuri folk genre of Ahir communities in Uttar Pradesh, Bihar, and Jharkhand in India.

• Its place in folk songs is as important as that of Dwipadi in Sanskrit, Gatha in Prakrit, and Barwai in Hindi.

• Hojagiri

• Hojagiri is a folk dance, performed in the state of Tripura, India by the Tripuri people of the Reang clan.

• It is performed by women and young girls, about 4 to 6 members in a team, singing, balancing on an earthen pitcher, and managing other props such as a bottle on the head and an earthen lamp on the hand.

• Dumhal

• The Dumhal dance is very popular among the people of not only Jammu & Kashmir but also of Himachal Pradesh and Punjab.

• Though it is a folk dance still its root of origin lies in the era of the Sufi movement.

• It is said that Dumhal was invented by a Sufi saint.

• The wardrobe of the Dumhal dance is quite colourful and robust.

• Bihu

• The Bihu dance is an indigenous folk dance from the Indian state of Assam related to the Bihu festival and an important part of Assamese culture.

• The Bihu dancers are usually young men and women, and the dancing style is characterized by brisk steps and rapid hand movements.

**Q69. Answer: (b) 40**

Shortcut Trick

The LCM of two numbers is equal to the product of their ratio terms multiplied by their HCF.

Given Ratio = 3 : 4 and LCM = 480.

HCF = LCM ÷ (Product of ratio terms)

HCF = 480 ÷ (3 × 4) = 480 ÷ 12 = 40.

Therefore The correct answer is 40.

Alternate Method

Given:

The ratio of two numbers = 3 : 4

The Least Common Multiple (LCM) = 480

Formula Used:

If the ratio of two numbers is a : b and their Highest Common Factor (HCF) is x, then the numbers are ax and bx.
The LCM of ax and bx = a × b × x
Calculations:
Let the HCF of the two numbers be x.
=> The numbers are 3x and 4x.
=> LCM of (3x, 4x) = 3 × 4 × x = 12x
=> According to the question, 12x = 480
=> x = 480 ÷ 12
=> x = 40
Since x represents the HCF, the value of HCF is 40.
This matches the value given in Option (2).
Therefore The correct answer is 40.
Additional Information
Product of Two Numbers
For any two numbers, the product of the numbers is equal to the product of their HCF and LCM (n1 × n2 = HCF × LCM).
HCF of Fractions
HCF of fractions = (HCF of Numerators) ÷ (LCM of Denominators).
Co-prime Numbers
Two numbers are co-prime if their HCF is 1. Their LCM is always equal to their product.
Relationship between HCF and LCM
The HCF of a group of numbers is always a factor of their LCM.

**Q70. Answer: (a) 420**

Shortcut Trick
To find the HCF of numbers in prime factor form, identify the common prime bases and select the lowest power of each.
Common prime bases are 2, 3, 5, and 7.
Minimum powers: $2^2$, $3^1$, $5^1$, and $7^1$.
HCF = $2^2 \times 3^1 \times 5^1 \times 7^1 = 4 \times 3 \times 5 \times 7 = 420$.
Therefore The correct answer is 420.
Alternate Method
Given:
$x = 2^3 \times 3^2 \times 5^1 \times 7^3$
$y = 2^2 \times 3^3 \times 5^2 \times 7^2$
$z = 2^4 \times 3^1 \times 5^3 \times 7^1$
Formula:
HCF = Product of the lowest powers of common prime factors.
Calculations:
=> For prime 2: Lowest power is $2^2$
=> For prime 3: Lowest power is $3^1$
=> For prime 5: Lowest power is $5^1$
=> For prime 7: Lowest power is $7^1$
=> HCF = $2^2 \times 3^1 \times 5^1 \times 7^1$
=> HCF = 4 × 3 × 5 × 7
=> HCF = 12 × 35 = 420
Therefore The correct answer is 420.
Additional Information
LCM of Prime Factorizations
To find the LCM, take the highest power of every prime factor that appears in any of the numbers.
HCF and LCM Relation
For any two numbers a and b, the product a × b = HCF(a, b) × LCM(a, b).
HCF of Fractions
HCF of fractions = (HCF of Numerators) ÷ (LCM of Denominators).

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**Q71. Answer: (b) 8 days**

Given:

A can complete a piece of work in 10 days

B is 25% more efficient than A.

Concept used:

Total work = efficiency of the worker × time taken by him

Calculation:

Let A's efficiency is 4a

So, B's efficiency = 4a + 4a × 25%

=> 5a

Now,

total work = 4a × 10

=> 40a

So, B will take to complete the task = 40a/5a

=> 8 days

Therefore B alone will take 8 days to complete the same work.

**Q72. Answer: (c) 3.3 petaflops**

The correct answer is 3.3 petaflops.

Key Points

• Recently, the Indian Institute of Science (IISc) Bengaluru installed the supercomputer 'Param Pravega'.

• It has a supercomputing capacity of 3.3 petaflops.

• It has been installed under the government's National Supercomputing Mission.

• India's first supercomputer was PARAM 8000.

• PARAM Shivay, the first supercomputer assembled indigenously, was installed in IIT (BHU), followed by PARAM Shakti, PARAM Brahma, PARAM Yukti, PARAM Sanganak at IIT-Kharagpur, IISER, Pune, JNCASR, Bengaluru and IIT Kanpur respectively.

• In 2020, PARAM Siddhi, the High-Performance Computing-Artificial Intelligence (HPC-AI) supercomputer, achieved a global ranking of 62nd in the Top 500 most powerful supercomputer systems in the world.

Important Points

• Petaflop is a measure of a Supercomputer's processing speed.

• It can be expressed as a thousand trillion floating-point operations per second.

• FLOPS (floating-point operations per second) are typically used to measure the performance of a computer's processor.

• Supercomputers are primarily designed to be used in enterprises and organizations that require massive computing power.

• For example weather forecasting, scientific research, intelligence gathering, and analysis, data mining, etc.

• China has the maximum number of supercomputers and maintains the top position in the world, followed by the US, Japan, France, Germany, Netherlands, Ireland, and the United Kingdom.

Additional Information

• National Supercomputing Mission

• In 2015, the National Supercomputing Mission was launched to enhance the research capacities and capabilities

• To form a Supercomputing grid, with National Knowledge Network (NKN) as the backbone.

• The NKN project is aimed at establishing a strong and robust Indian network that will be capable of providing secure and reliable connectivity.

• It supports the government's vision of 'Digital India' and 'Make in India' initiatives.

• The Mission is being jointly steered by the Department of Science and Technology (DST) and the Ministry of Electronics and Information Technology (MeitY).

**Q73. Answer: (c) 11**

Shortcut Trick

Excluded Number = Old Average − (Increase in Average × New Count of Numbers)

Old Average = 16

Increase in Average = 17 − 16 = 1

New Count = 5

Excluded Number = 16 − (1 × 5) = 16 − 5 = 11

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Therefore The correct answer is 11.

Alternate Method

Given:

Number of initial observations (n1) = 6

Average of initial observations (A1) = 16

Number of observations after exclusion (n2) = 5

Average after exclusion (A2) = 17

Formula Used:

Sum of observations = Average × Total Numbers

Excluded Number = (Sum of 6 numbers) − (Sum of 5 numbers)

Calculations:

=> Sum of 6 numbers = 6 × 16 = 96

=> Sum of 5 numbers = 5 × 17 = 85

=> Excluded number = 96 − 85

=> Excluded number = 11

Therefore The correct answer is 11.

Additional Information

Average Concept

Average is defined as the sum of all observations divided by the total number of observations. Average = Σx / n.

Excluded Value Formula

When one value is excluded, the excluded value = (Old Average × Old Number of items) − (New Average × New Number of items).

Effect on Average

If the excluded number is greater than the original average, the average decreases. If it is smaller, the average increases.

**Q74. Answer: (c) Organization of Petroleum Exporting Countries**

The correct answer is Organization of Petroleum Exporting Countries.

Key Points

• India is not a permanent member of the Organization of Petroleum Exporting Countries.

• Headquartered in Vienna, Austria, although Austria is not an OPEC member state.

• The Organization of the Petroleum Exporting Countries (OPEC) was founded in Baghdad, Iraq, with the signing of an agreement in September 1960 by five countries namely the Islamic Republic of Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela.

• These countries were later joined by Qatar (1961), Indonesia (1962), Libya (1962), the United Arab Emirates (1967), Algeria (1969), Nigeria (1971), Ecuador (1973), Gabon (1975), Angola (2007), Equatorial Guinea (2017) and Congo (2018).

• It is now a 13 members organization.

Additional Information

• South Asian Association for Regional Cooperation

• Formed on 8th December 1985, in Dhaka, Bangladesh.

• The regional intergovernmental organization and geopolitical union of states in South Asia.

• Its member states are Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka.

• G20

• It works to address major issues related to the global economy, such as international financial stability, climate change mitigation, and sustainable development.

• The members of the G20 are Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, the United Kingdom, the United States, and the European Union.

• World Trade Organization

• An intergovernmental organization that regulates and facilitates international trade.

• The WTO has 164 members and 25 observer governments.

• India is a permanent member of WTO.

• India has been a WTO member since 1 January 1995 and a member of GATT since 8 July 1948.

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**Q75. Answer: (b) CFADEB**

1. A finished before D, but after F.

F > A > D

2. E finished before B, but after D.

D > E > B

3. F finished after C, but before A.

C > F > A

From all the three statements, we get:

C > F > A > D > E > B

Clearly, CFADEB was the finishing order.

Hence, 'CFADEB' is the correct answer.

**Q76. Answer: (b) increasing; decreasing**

The correct answer is increasing; decreasing.

Key Points

• The government deficit can be reduced by increasing taxes or decreasing expenditure.

• A deficit is an amount by which the expenditures in a budget exceed the income.

• Government Deficit

• Amount of money in the set budget by which the government expenditure exceeds the government income amount.

• It is an indication of the financial health of the economy.

Important Points

• Measures to Reduce Government Deficit

• Increased emphasis on tax-based revenues and appropriate measures to reduce tax evasion.

• Disinvestment should be done where assets are not being used effectively

• A reduction in subsidies by the government will also help reduce the deficit.

• Try and avoid unplanned expenditures.

• Borrowing from domestic sources.

• Borrowing from external sources.

• A broadened tax base may also help in reducing the government deficit.

**Q77. Answer: (d) Dharmachakra Pravartana**

The correct answer is Dharmachakra Pravartana.

Key Points

• Dharmachakra

• After 49 consecutive days of meditation, Gautama attained Bodhi (enlightenment) under a pipal tree at Bodhgaya a village in Bihar.

• Buddha gave his first sermon in the village of Sarnath, near the city of Benares in UP.

• This event is known as Dhammacakkappavattana (The Setting in Motion of the Wheel of Dharma).

• The Seated Buddha from Gandhara is an early statue of the Buddha made in Gandhara, in modern Pakistan, in the 2nd or 3rd century.

• The pose shows Buddha as a teacher setting the wheel of Dharma in motion (Dharmachakra Mudra).

• The mudra in Buddhism is a symbolic gesture of hands and fingers used in rituals and dances or sculptures and paintings.

• Buddha's first sermon after his enlightenment is preserved in the Pali Sutta-Pitaka (Samyutta Nikaya 56.11) as the Dhammacakkappavattana Sutta, which means "The Setting in Motion of the Wheel of Dharma." In Sanskrit, the title is Dharmacakra Pravartana Sutra.

• In this sermon, the Buddha gave the first presentation of the Four Noble Truths, which are the foundational teaching, or primary conceptual framework, of Buddhism. Everything he taught after that ties back to the Four Truths.

**Q78. Answer: (b) Ugadi**

The correct answer is Ugadi.

Key Points

• The festival Gudi Padwa is known in Karnataka, Telangana, and Andhra Pradesh by the name of Ugadi.

• Ugadi is celebrated as the New Year of the Telugu and Kannada people.

• The festival is known by different names in different states.

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• It is known by the name of ‘Ugadi’ by the people of Andhra Pradesh and Karnataka.
• The name ‘Gudi Padwa’ is used by the people of Maharashtra and Cheti Chand by Sindhis.
• The festival of Ugadi is celebrated in April every year.
• The festival falls according to the lunisolar calendar.

Additional Information

• Baisakhi
• Baisakhi has been a harvest festival in Punjab and also in northern India for a long time.
• In 1699, Guru Gobind Singh chose the festival as the moment to establish the Khalsa.
• Celebrated annually on 13 April and sometimes 14 April as a celebration of spring harvest primarily in Northern India.
• Akshay Tritiya
• The festival of Akshaya Tritiya is celebrated by Hindus and Jains around the world.
• Also known as Akti or Akha Teej, this day is believed to be one of the most auspicious occasions.
• According to the Hindu calendar, Akshaya Tritiya falls on the third tithi (lunar day) of Shukla Paksha of the Vaishakha month.
• Going by the Gregorian calendar, it falls somewhere around April and May.
• One of the most important rituals includes worshipping Lord Vishnu on this day.
• As per common belief, buying gold and properties on this day brings prosperity and wealth in the future.
• Pongal
• Pongal is a harvest festival celebrated by the Tamil community.
• It is a celebration to thank the Sun, Mother Nature, and the various farm animals that help to contribute to a bountiful harvest.
• Celebrated over four days, Pongal also marks the beginning of the Tamil month called Thai, which is considered an auspicious month.
• It usually falls on the 14th or 15th of January each year.

**Q79. Answer: (a) Alfred Wegener**

The correct answer is Alfred Wegener.

Key Points

• Continental Drift Theory (Alfred Wegener).
• Continental drift theory was proposed by Alfred Wegener in 1912.
• It was first put forward by Abraham Ortelius in 1596 before fully being developed by Albert Wegener.
• The theory deals with the distribution of the oceans and the continents*.*
• According to Wegener’s Continental Drift theory, all the continents were one single continental mass (called a Supercontinent) – Pangaea and a Mega Ocean surrounded this supercontinent. The Mega Ocean is known by the name Panthalassa.
• Although Wegener's initial theory did not cover mantle convection until Arthur Holmes later proposed the theory.
• According to this theory, the supercontinent, Pangaea, began to split some two hundred million years back.
• Pangaea first split into 2 big continental masses known as Gondwanaland and Laurasia forming the southern and northern modules respectively.
• Later, Gondwanaland and Laurasia continued to break into several smaller continents that exist today.

Additional Information

| Theory hypothesis | Scientist/Philosopher |
|---|---|
| • Gaseous Hypothesis | • Immanuel Kant |
| • Nebular hypothesis | • Laplace |
| • Planetesimal Hypothesis | • Chamberlin and Moulton |
| • Tidal Hypothesis | • Jeans and Jefferys |
| • Binary star Hypothesis | • Russell |
| • Supernova Hypothesis | • Hoyle |
| • Interstellar Dust Hypothesis | • Otto Schmidt |
| • Big bang theory | • Georges Henri Lemaitre |

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**Q80. Answer: (a) 9 days**

Shortcut Trick

Total Work = LCM(45, 60) = 180 units.

Efficiency: X = 4, Y = 3.

Y worked alone for 39 days: Work done = 39 × 3 = 117 units.

Remaining work done by X and Y together = 180 − 117 = 63 units.

Number of days X worked = 63 ÷ (4 + 3) = 9 days.

Therefore The correct answer is 9 days.

Alternate Method

Given:

Time taken by X = 45 days

Time taken by Y = 60 days

Remaining work completed by Y alone = 39 days

Formula Used:

Total Work = Time × Efficiency

| Person | Time | Work | Efficiency |
|---|---|---|---|
| X | 45 | 180 | 4 |
| Y | 60 | 3 | |

Calculations:

=> Total Work = LCM of 45 and 60 = 180 units

=> Efficiency of X = 180 ÷ 45 = 4 units/day

=> Efficiency of Y = 180 ÷ 60 = 3 units/day

=> Combined Efficiency of X + Y = 4 + 3 = 7 units/day

=> Work done by Y in the last 39 days = 39 × 3 = 117 units

=> Work done by X and Y together = 180 − 117 = 63 units

=> Days they worked together = 63 ÷ 7 = 9 days

=> Since X left after they worked together, X worked for 9 days.

Therefore The correct answer is 9 days.

Additional Information

Efficiency and Time Relationship

Efficiency is inversely proportional to the time taken to complete a task (Efficiency prop. to 1/Time).

Work and Wages

Wages are always distributed among workers in the ratio of the total work actually performed by each.

Combined Work Rate

If person A takes x days and B takes y days, together they take (x × y) ÷ (x + y) days to finish the work.

**Q81. Answer: (d) 6**

Given:

Numbers are 6892, 7105, 7531

Concept used:

For this type of question,

The divisor = HCF of the difference between the numbers from one another

Calculation:

7105 – 6892 = 213

7531 – 7105 = 426

7531 – 6892 = 639

HCF of 213, 426 and 639 is 213

So, x = 213

Now, dividing any of 6892, 7105, or 7531 by 213 we get the remainder = 76

Sum of the digits of x = 2 + 1 + 3

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=> 6

Therefore The sum of the digits of x is 6.

**Q82. Answer: (a) 70.10%**

The correct answer is 70.10%.

Key Points

• According to the Periodic Labour Force Survey of India (2019-20), the literacy rate among the Scheduled Tribes Population of India is 70.10%.

Important Points

• Periodic Labour Force Survey of India (2019-20)

• Improvements in living conditions of the Scheduled Tribes (STs).

• The literacy rate for STs has improved from 47.1% in 2001 to 59% in 2011.

• Further, the Periodic Labour Force Survey (PLFS) report (July 2019 - June 2020) reveals that the literacy rate for STs increased to 70.1%.

• According to the Unified District Information System for Education (UDISE) Plus reports published by the Ministry of Education

• Gross Enrolment Ratio (GER) for ST students at Senior Secondary (classes IX-X) level has increased from 62.4% in 2012-13 to 76.7% in 2019-20.

• As per National Family Health Surveys (NFHS) conducted by the Ministry of Health and Family Welfare,

• For Scheduled Tribes, Infant Mortality Rate has declined from 62.1 (2005-06) to 44.4 (2015-16).

• Under Five Mortality Rate has declined from 95.7 (2005-06) to 57.2 (2015-16).

• Institutional Delivery has increased from 17.7% in 2005-06 to 68.0 % in 2015-16.

• The percentage of Underweight (weight-for-age) ST children under the age of five years have declined from 54.5 in 2005-06 to 45.3 in 2015-16.

• Erstwhile Planning Commission estimated:

• The percentage of ST people living below the poverty line in rural areas has declined from 62.3% in 2004-05 to 45.3% in 2011-12.

• Also, the percentage of ST people living below the poverty line in urban areas has declined from 35.5% in 2004-05 to 24.1% in 2011-12.

Additional Information

• Considering the importance of the availability of labour force data at more frequent time intervals,

• the NSO launched the Periodic Labour Force Survey (PLFS) in April 2017.

• The objective of PLFS is :

• To estimate the key employment and unemployment indicators (viz. Worker Population Ratio, Labour Force Participation Rate, Unemployment Rate) in the short time interval of three months for the urban areas only in the CWS.

• To estimate employment and unemployment indicators in both usual Status and CWS in both rural and urban areas annually.

**Q83. Answer: (c) Election Commission**

The correct answer is Election Commission.

Key PointsElection Commission

• On January 25, 1950, the Election Commission of India was constituted in accordance with the Constitution.

• Election Commission of India:

• The Election Commission of India is a permanent and autonomous body constituted by the Indian Constitution to ensure free and fair elections.

• According to the Indian Constitution, the Election Commission of India (ECI) is a self-governing constitutional body that regulates the election process in India.

• The Constitution of India (Article 324) has vested in the Election Commission of India the superintendence, direction, and control of the entire process for conduct of elections to Parliament and Legislature of every State and the offices of President and Vice-President of India.

• Initially, there was only one Chief Election Commissioner on the board. There are currently two Election Commissioners and a Chief Election Commissioner.

Additional Information

• Cabinet

• The total number of ministers in the Cabinet, including the Prime Minister, cannot exceed 15% of the total number of members of the Lok Sabha.

• Article 75 1(A) states that the total number of Ministers, including the Prime Minister, in the Council of Ministers shall not exceed

fifteen percent of the total number of members of the House of the People.

• Also, all ministers must be members of Parliament.

• Finance Commission

• The Finance Commission is a Constitutionally mandated body that is at the center of fiscal federalism.

• Article 280 of the Constitution of India provides for a Finance Commission as a quasi-judicial body.

• It is constituted by the President of India every fifth year or at such earlier time as he considers necessary.

• N.K. Singh is the chairman of the 15th Finance Commission of India.

• Planning Commission

• The Planning Commission, although no longer active (since it was replaced by the NITI Aayog), was an important feature of policymaking and governance in India.

• The Planning Commission was reporting directly to the Prime Minister of India.

• The Planning Commission was established in March 1950 by an executive resolution of the Government of India, on the recommendation of the Advisory Planning Board constituted in 1946, under the chairman of KC Neogi. Thus the Planning Commission was neither constitutional nor a statutory body. It was an advisory body.

• It is a non-constitutional (not created by the Constitution) and a non-statutory body (not created by an act of Parliament).

**Q84. Answer: (a) G**

Eight colleagues - namely A, B, C, D, E, F, G and H are sitting in a circle facing the centre at equal distances.

1. B is an immediate neighbor of both G and D.

2. C is an immediate neighbour of both A and G.

3. H is third to the left of B.

The above condition cannot be satisfied in Case II, so it is eliminated.

4. E is not an immediate neighbour of A.

So, E sits between H and D.

Only person F is left and F will occupy the vacant position.

The final arrangement will be as shown below:

Clearly, G is third to the right of E.

Hence, ‘G’ is the correct answer.

**Q85. Answer: (c) When the revenue collected exceeds the required expenditure**

The correct answer is When the revenue collected exceeds the required expenditure.

Key Points

• A budget surplus occurs when receipts exceed expenditures.

• The term often refers to a government's financial state, as individuals have "savings" rather than a "budget surplus".

• A surplus is an indication that a government's finances are being effectively managed.

• A surplus implies the government has extra funds.

• Advantages of a budget surplus:

• These funds can be allocated toward public debt, which reduces interest rates and helps the economy.

• A budget surplus can be used to reduce taxes, start new programs, or fund existing programs such as Social Security or Medicare.

• The government might use a budget surplus to cut taxes to stimulate the supply-side of the economy.

**Q86. Answer: (d) 25 km/h**

Given:

Distance = 150 km

Time = 7.5 hours

Speed of the stream = 5 km/h

Concept used:

Speed = Distance/time

Downstream = u + v

Upstream = u - v

u = speed of the boat in still water

v = speed of the stream

Calculation:

Downstream speed of the boat = 150/7.5

=> 20 km/h

Here,

u + v = 20

=> u + 5 = 20

=> u = 15

Therefore speed of the boat in still water = 15 km/h

Now,

Raju needs to cover the same distance in 7.5 hours upstream

Upstream speed should be 20 km/h

Therefore u - v = 20

=> u - 5 = 20

=> u = 25

The speed of the boat in still water should be 25 km/h

Therefore Raju should row the boat at 25 km/h to reach back at the same time.

**Q87. Answer: (b) 72 m**

Given:

Side ratio of the rectangle = 13 : 5

Area of the rectangle = 260 m²

Formula used:

Area of the rectangle = (l × b)

Perimeter of the rectange = 2(l + b)

l = length

b = breadth

Calculation:

Let the sides of the rectangle be 13a and 5a

According to the question,

13a × 5a = 260

=> 65a² = 260

=> a2 = 4

=> a = 2

So, sides are 13 × 2 = 26, and 5 × 2 = 10

Now,

Perimeter of the rectangle = 2(26 + 10)

=> 2 × 36 = 72

So, perimeter of the rectangle = 72 m

Therefore The perimeter of the rectangular field is 72 m

**Q88. Answer: (a) Only conclusions I and II follow.**

The least possible Venn diagram is:

Conclusions:

I. Some suitcases are purses. → True (As, Some suitcases are pouches and All pouches are purses → Some suitcases are purses)

II. Some purses are bags. → True (As, Some bags are purses → Some purses are bags)

III. All purses are pouches. → False (As, All pouches are purses → Some purses are pouches)

Hence, only conclusions I and II follow.

**Q89. Answer: (b) Wardha**

The correct answer is Wardha.

Key Points

• On 14 July 1942, the Congress Working Committee met again at Wardha and resolved that it would authorize Gandhi to take

charge of the non-violent mass movement.

• The Resolution, generally referred to as the 'Quit India' resolution, was to be approved by the All India Congress Committee meeting in Bombay in August.

Additional Information

• Quit India Movement

• On 8th Aug 1942, India completed 80 years of the Quit India Movement also known as August Kranti.

• Taking inspiration from the Quit India Movement, the Prime Minister gave a call for the revival of its spirit of the Quit India Movement by coining a new slogan karenge aur karake rahenge in place of Gandhi's slogan of karo ya maro (Do or Die).

• This slogan aims to achieve the goal of building a "New India" by 2022.

• On 8th August 1942, Mahatma Gandhi gave a clarion call to end the British rule and launched the Quit India Movement at the session of the All-India Congress Committee in Mumbai.

• Gandhiji gave the call "Do or Die" in his speech delivered at the Gowalia Tank Maidan, now popularly known as August Kranti Maidan.

• Aruna Asaf Ali popularly known as the 'Grand Old Lady' of the Independence Movement is known for hoisting the Indian flag at the Gowalia Tank Maidan in Mumbai during the Quit India Movement.

• The slogan 'Quit India' was coined by Yusuf Meherally, a socialist and trade unionist who also served as Mayor of Mumbai.

• Meherally had also coined the slogan "Simon Go Back".

**Q90. Answer: (b) financial support to the farmers in the event of crop failure due to drought, flood etc**

The correct answer is financial support to the farmers in the event of crop failure due to drought, flood, etc.

Key Points

• Comprehensive Crop Insurance Scheme (CCIS)

• Started in 1985 with the objective of providing financial support to the farmers in the event of crop failure due to drought, flood, etc.

• Since the inception of the scheme in 1985, about 5.82 crore farmers have been covered up to Rabi 1996- 97 season.

• Participation in the scheme was voluntary and the States were free to opt for the scheme.

• All farmers who availed of crop loans from:

• Commercial Banks.

• Regional Rural Bank.

• Cooperative Banks.

• For growing wheat, paddy, millets (including maize), oilseeds, and pulses were eligible for coverage under the scheme.

• CCIS remained under implementation till Kharif 1999.

**Q91. Answer: (b) Rs. 1,331**

Given:

Sum = Rs. 10000

Rate of interest = 10%

Time = 5 years

Concept used:

Amount = P(1 + r/100)^t

Here,

P = Principal or sum

r = rate%

t = time

Interest = Amount - P

Calculation:

Interest for the 4th year = Amount of 4 years - Amount of 3 years

So,

$10000(1 + 10/100)^4 - 10000(1 + 10/100)^3$

=> 10000(1 + 1/10)4 - 10000(1 + 1/10)3

=> 10000(11/10)4 - 10000(11/10)3

=> 10000 × 14641/10000 - 10000 × 1331/1000

=> 14641 - 13310

=> 1331

So, the interest of the 4th year = Rs. 1331

Therefore The compound interest accrued for the 4th year is Rs. 1331.

**Q92. Answer: (d) 4**

Given: 3 7 # 8 5 % 9 2 3 * 1 0 1 % 6 3 ? 9 3 5 ^ 2 7 & 3 5 4 @ 4 1 7

Arrangement: Symbol → Even Number

3 7 # 8 5 % 9 2 3 * 1 0 1 % 6 3 ? 9 3 5 ^ 2 7 & 3 5 4 @ 4 1 7

Clearly, four such even numbers are there in this arrangement each of which is immediately preceded by a symbol.

Hence, '4' is the correct answer.

Mistake Points

Immediately preceded by means immediately before or to come just before.

Immediately followed by means immediately after or to come just after.

**Q93. Answer: (d) Neither conclusion I nor II follows.**

Statements:

A > B ≤ C

P < Q ≥ A

Combining both the statements together, we get:

P < Q ≥ A > B ≤ C

Conclusions:

I. B ≤ P → False (As, P < Q ≥ A > B ≤ C → There is no definite relation between B and P)

II. C < Q → False (As, P < Q ≥ A > B ≤ C → There is no definite relation between C and Q)

Hence, neither conclusion I nor II follows.

**Q94. Answer: (b) A**

Six persons - A, B, C, D, E and F. A, B, C and F are male and other two are female.

The height of A is 5.2 feet, B is 5.7 feet, C is 5.9 feet, D is 5.4 feet, E is 6.0 feet and F is 6.1 feet.

Out of these all, A, B, C and E like sugar, and D and F like salt.

Persons who have a height of more than 5.5 feet wear black, and others wear white.

| Persons | Male/Female | Height in feet | Sugar/Salt | Color |
|---|---|---|---|---|
| A | Male | 5.2 | Sugar | White |
| B | Male | 5.7 | Sugar | Black |
| C | Male | 5.9 | Sugar | Black |
| D | Female | 5.4 | Salt | White |
| E | Female | 6.0 | Sugar | Black |
| F | Male | 6.1 | Salt | Black |

Clearly, A is the sugar-loving male who does NOT wear black.

Hence, 'A' is the correct answer.

**Q95. Answer: (b) Bratya Basu**

The correct answer is Bratya Basu.

Key Points

• The Sahitya Akademi Award 2021 will be bestowed on Bratya Basu in the genre of Play.

• He has got this recognition for his book 'Mirjafar o Onyanyo Natok'.

• Bratya Basu is a politician who is serving as the current Education Minister of West Bengal since 2021.

• He was also present in the same office in the First Mamata Banerjee ministry.

• His constituency is Dum Dum since 2011.

• He has won many awards like - Satyen Mitra Puraskar, Banglar Gourab by Zee, Prachya Samman, etc.

Additional Information

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• Sahitya Akademi Award
• Sahitya Akademi Award is given in the field of Literature.
• This award is given annually by Sahitya Akademi (India's National Academy of Letters), New Delhi.
• It is given in 24 languages including Hindi and English.
• The award comprises a plaque and a cash prize of Rs. 1,00,000.
• The award's purpose is to recognize and promote excellence in Indian writing and also acknowledge new trends.
• Makhanlal Chaturvedi was the first recipient in the Hindi category in the year 1955.
• RK Narayan was the first recipient in the English category in the year 1960.

**Q96. Answer: (d) × and ÷**

BODMAS Rule:-
1. × and +
Given equation: 12 × 3 ÷ 4 + 6 - 2 = 20
After interchanging the signs, we get:
L.H.S = 12 + 3 ÷ 4 × 6 - 2
= 12 + 4.5 – 2
= 16.5 – 2
= 14.5 ≠ R.H.S
2. ÷ and +
Given equation: 12 × 3 ÷ 4 + 6 - 2 = 20
After interchanging the signs, we get:
L.H.S = 12 × 3 + 4 ÷ 6 - 2
= 36 + 0.67 – 2
= 36.67 – 2
= 34.67 ≠ R.H.S
3. + and –
Given equation: 12 × 3 ÷ 4 + 6 - 2 = 20
After interchanging the signs, we get:
L.H.S = 12 × 3 ÷ 4 - 6 + 2
= 9 – 6 + 2
= 11 – 6
= 5 ≠ R.H.S
4. × and ÷
Given equation: 12 × 3 ÷ 4 + 6 - 2 = 20
After interchanging the signs, we get:
L.H.S = 12 ÷ 3 × 4 + 6 - 2
= 16 + 6 – 2
= 22 – 2
= 20 = R.H.S
Hence, '× and ÷' is the correct answer.

**Q97. Answer: (c) Rs. 2,808**

Given:
Sum = Rs. 19500
Rate = 10%
Time = 12/5 years
Concept used:
$A = P(1 + r/100)^n$
Interest = A - P
A = amount
P = principal or sum
r = rate

n = time

Calculation:

Interest rate for 2/5 years = 10 × (2/5) = 4%

Now,

A = 19500(1 + 10/100)¹ × (1 + 10/100)^(2/5)

=> A = 19500(1 + 10/100) × (1 + 4/100)

=> A = 19500(1 + 1/10) × (1 + 1/25)

=> A = 19500(11/10) × (26/25)

=> A = 22308

So, interest of the given years = 22308 - 19500

=> Rs. 2808

Therefore Required compound interest is Rs. 2808.

**Q98. Answer: (c) 21**

Given:

1. Avinash is ranked 11th from the top in the class.

2. Ira is ranked 7th from the bottom.

If their positions get interchanged, Avinash will rank 15th from the top and Ira is ranked 11th from the bottom.

Total students appeared for the exams :

Ira's rank from the bottom + After interchanged position Avinash's rank from the top (Ira's rank from the top) - 1

= 7 + 15 - 1 = 22 -1 = 21

Hence, the correct answer is "Option (3): 21".

**Q99. Answer: (c) 5/6**

Given:

(11/3 × 14/5 ÷ 3/5) × 3/8 - 2/3

Concept used:

Calculation:

(11/3 × 14/5 ÷ 3/5) × 3/8 - 2/3

=> (4/3 × 9/5 × 5/3) × 3/8 - 2/3

=> 4 × 3/8 - 2/3

=> 3/2 - 2/3

=> (9 - 4)/6

=> 5/6

Therefore Required answer is 5/6.

**Q100. Answer: (d) 20 crore**

The correct answer is 20 crores.

Key Points

• According to the Industrial Policy Statement of 1973:

• the private sector was allowed to apply for the license of their industry only after having total assets of Rs. 20 crores or more.

Important Points

• Industrial Policy Statement, 1973

• Core Industries

• The policy introduced a new classification of ‘Core Industries’.

• It included six industries that were of fundamental importance for developing other industries – Iron & Steel, Cement, Coal, Crude Oil, Oil Refining & electricity.

• Note: At that time, there were 6 Core Industries. Now there are 8:

• Coal

• Crude Oil

• Cement

• Fertilizer

• Electricity

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• Refinery Products
• Natural Gas
• Steel
Additional Information
• Private Companies
• Private Companies may apply for licenses under Core industries if they aren't covered under Schedule A.
• They were eligible only if their total assets were above Rs. 20 crores.
• Reserved List
• Some industries were put under a reserved list in which only MSME could set up industry.
• Joint Sector
• It allowed partnership between the centre, states & private sector for setting up some industries.
• The government had discretionary power to exit such ventures in the future.
• The intention was to promote the private sector with government support.
• FERA
• Foreign Exchange Regulation Act was introduced to regulate foreign exchange in India.
• According to experts, it was draconian law that hampered the country's growth.
• Foreign Investment
• Limited permission for foreign investment was given, with MNCs being allowed to set up subsidiaries in India.

**Q101. Answer: (d) 972**

Shortcut Trick
Identify the constant multiplier ratio in the series pattern directly.
Each term is multiplied by 3 (4 × 3 = 12, 12 × 3 = 36).
We already have the 4^(th) term which is 108.
5^(th) term = 108 × 3 = 324
6^(th) term = 324 × 3 = 972
Therefore The correct answer is 972.
Alternate Method
Given:
The number series: 4, 12, 36, 108...
Formula Used:
N^(th) term of a Geometric Progression = a × r^((n − 1))
4
×3
→
12
×3
→
36
×3
→
108
×3
→
324
×3
→
972
The series is a geometric progression where every next term is exactly 3 times the previous term.
Calculations:
=> First term (a) = 4
=> Common ratio (r) = 12 ÷ 4 = 3

=> We need to find the 6^(th) term, so n = 6

=> 6^(th) term = a × r^((6 − 1))

=> 6^(th) term = 4 × 3^5

=> 6^(th) term = 4 × (3 × 3 × 3 × 3 × 3)

=> 6^(th) term = 4 × 243

=> 6^(th) term = 972

Therefore The correct answer is 972.

Additional Information

Geometric Progression (GP)

A sequence of numbers where each term after the first is found by multiplying the previous one by a fixed, non-zero number called the common ratio (r). The formula for finding the n^(th) term is $T_n = a \times r^{(n-1)}$.

Arithmetic Progression (AP)

A sequence of numbers in which the difference between any two successive members is a constant. The formula for the n^(th) term is $T_n = a + (n - 1)d$.

Number Series Patterns

Common patterns in examination series questions include constant difference, constant ratio (multiplication/division), squares, cubes, alternate sequences, and combined arithmetic operations.

**Q102. Answer: (d) 215**

The logic is:

13 - 1 = 1 - 1 = 0

$2^3$ - 1 = 8 - 1 = 7

33 - 1 = 27 - 1 = 26

43 - 1 = 64 - 1 = 63

53 - 1 = 125 - 1 = 124

63 - 1 = 216 - 1 = 215

Hence, ‘215’ is the correct answer.

**Q103. Answer: (a) 256**

Calculation:

√64 - cbrt64 = 4√y

=> √($8^2$) - cbrt($4^3$) = 4√y

=> 8 - 4 = 4√y

=> 4 = 4√y

=> 4 = $y^1/4$

=> y = 4^4 = 256

Therefore Required answer is 256.

**Q104. Answer: (a) Ganga**

The correct answer is Ganga.

Key Points

• The Ganga System

• The Ganga is the most important river of India both from the point of view of its basin and cultural significance.

• It rises in the Gangotri glacier near Gaumukh (3,900 m) in the Uttarkashi district of Uttarakhand. Here, it is known as the Bhagirathi.

• It cuts through the Central and the Lesser Himalayas in narrow gorges.

• At Devprayag, the Bhagirathi meets the Alaknanda; hereafter, it is known as the Ganga.

• The Alaknanda has its source in the Satopanth glacier above Badrinath.

• The Alaknanda consists of the Dhauli and the Vishnu Ganga which meet at Joshimath or Vishnu Prayag.

• The other tributaries of Alaknanda such as the Pindar joins it at Karna Prayag while Mandakini or Kali Ganga meets it at Rudra Prayag.

• The Ganga enters the plains at Haridwar. From here, it flows first to the south, then to the south-east and east before splitting into two distributaries, namely the Bhagirathi and the Padma.

• The river has a length of 2,525 km.

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• It is shared by Uttarakhand (110 km) and Uttar Pradesh (1,450 km), Bihar (445 km) and West Bengal (520 km).

Additional Information

• Nile

• The Nile is the longest river in the world and is called the father of African rivers.

• It rises south of the Equator and flows northward through northeastern Africa to drain into the Mediterranean Sea.

• Drainage countries - Parts of Tanzania, Burundi, Rwanda, the Democratic Republic of the Congo, Kenya, Uganda, South Sudan, Ethiopia, Sudan, and the cultivated part of Egypt.

• Lake Victoria, also called Victoria Nyanza, the largest lake in Africa and the chief reservoir of the Nile, lying mainly in Tanzania and Uganda but bordering on Kenya.

• Mississippi

• The Mississippi River is the 2nd longest river in North America.

• Its source at Lake Itasca through the centre of the continental United States to the Gulf of Mexico.

• The Missouri River is a tributary of the Mississippi River.

• The Mississippi-Missouri River (5,970km), combination ranks 4th compared to other rivers of the World.

• Amazon

• It is the largest river by discharge volume of water in the world.

• The Amazon river originates in the Andes Mountains of Peru.

• It flows through the countries of Peru, Bolivia, Venezuela, Colombia, Ecuador, and Brazil.

• Amazon river discharges its water into the Atlantic Ocean.

• There are no bridges across the entire width of the Amazon river.

**Q105. Answer: (a) 10 months**

Given:

Sum = Rs. 850

Rate = 3.6%

Interest = 25.5

Concept used:

S.I = PTR/100

P = Principal or sum

R = rate

T = time

Calculation:

Let the time be a months

According to the question,

25.5 = [(850 × 3.6 × a)/(100 × 12)]

=> 25.5 = 2.55a

=> a = 25.5/2.55

=> a = 10

So, the actual time needs to get the interest = 10 months

Therefore Required time to get the required interest is 10 months.

**Q106. Answer: (a) Q**

Six boxes - M, N, O, P, Q and R, are kept one above the other but not necessarily in the same order.

1. There is no box above box P.

2. Box R is third from the bottom.

| **P** |
|---|
| |
| |
| R |
| |

| |
|---|
| |

3. There is only one box between box N and box R.

| Case I | Case II |
|---|---|
| P | P |
| N | |
| | |
| R | R |
| | |
| | N |

4. Box Q is immediately below box N.

The above condition cannot be satisfied in Case II, so it is eliminated.

| Case I |
|---|
| P |
| N |
| Q |
| R |
| |
| |

3. There are only two boxes between box Q and box M.

| Case I |
|---|
| P |
| N |
| Q |
| R |
| |
| M |

Only one box O is left and it will occupy the vacant position.

So, the final arrangement is shown below:

| Case I |
|---|
| P |
| N |
| Q |
| R |
| O |
| M |

Clearly, box Q is third from the top.

Hence, ‘Q’ is the correct answer.

**Q107. Answer: (d) Urals**

The correct answer is Urals.

Key Points

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• Urals

• The Urals or the Ural mountain forms a boundary between the continents of Europe and Asia.

• It runs from north to south of Western Russia, from the coast of the Arctic Ocean to the river of Ural and northwestern Kazakhstan.

• The length of the Urals is 2500 km and the elevation is 1895 m.

• Asia is the largest continent. It covers about one-third of the total land area of the earth.

• The continent lies in the Eastern Hemisphere.

• The Tropic of Cancer passes through this continent.

• Asia is separated from Europe by the Ural mountains on the west.

Additional Information

Alp

• The Alps are the highest and most extensive mountain range system that are located in Europe.

• The mountain stretches approximately 1,200 kilometers across eight Alpine countries, namely: France, Switzerland, Italy, Monaco, Liechtenstein, Austria, Germany, and Slovenia.

The Great Dividing Range

• The Great Dividing Range is located in Australia.

• Its highest peak is Mount Kosciuszko, it is a Snowy Mountains which is 2800 meter high from the mainland of Australia.

• The mountain range stretches up to 3500 km from North to South.

Atlas

• The Atlas Mountains, series of mountain ranges in northwestern Africa for more than 2,000 kilometres.

• The highest peak in the Atlas Mountain ranges is Mt.Toubkal (4165 meters).

-

**Q108. Answer: (b) Second to the left**

A, B, C, D, E, F, G and H are sitting around a square table; four of them sit at the 4 corners, while four sit at the middle of the sides. The ones who sit at the corners face the centre, while those who sit at the middle of the sides face outside.

1. F sits fourth to the left of D. D faces outside.

2. C is immediate to the right of F.

3. E is to the immediate right of B and to the immediate left of F.

4. H sits second to the right of the E.

5. A sits third to the right of the H.

6. Only two persons sit between G and B.

Clearly, A is second to the left of D.

Hence, 'Second to the left' is the correct answer.

**Q109. Answer: (c) Thursday**

The total number of odd days from 8^(th) March 2013 to 8^(th) March 2014 are

| Year | Type | Odd Days |
|---|---|---|
| 2014 | Ordinary | 1 |

Total Odd days = 1

Given:

8th March 2013 → Wednesday

2014 is an ordinary year, so 8th March 2014 will be one day ahead of 8th March 2013.

Therefore, it will be Thursday on 8th March 2014.

Hence, 'Thursday' is the correct answer.

**Q110. Answer: (d) Only conclusions I and III follow.**

The least possible Venn diagram is:

Conclusions:

I. Some markers are sketch pens → True (As, Some sketch pens are ink pens and All ink pens are markers → Some markers are sketch pens)

II. Some sketch pens are pencils → False (As, there is no definite relation between sketch pens are pencils. Hence, false)

III. Some markers are ink pens → True (All ink pens are markers → Some markers are ink pens)

Hence, only conclusions I and III follow.

**Q111. Answer: (c) Mirabai Chanu**

The correct answer is Mirabai Chanu.

Key Points

• Mira bai Chanu is also known as "Saikhom Mirabai Chanu" won the gold medal in 2017 at the World Weightlifting Championships in Anaheim (United States of America).

• She won the Gold medal in the Women's 48kg category.

• Mirabai Chanu was awarded Rajiv Gandhi Khel Ratna in 2018.

• She was also honoured with Padam Shri in 2018.

Additional Information

• Sports Journalists Federation of India

• It was on 27 February 1976 that the Sports Journalists' Federation of India (SJFI) was formed at the Eden Gardens, Calcutta, during the inaugural year of the J.K. Bose Cricket Tournament.

• The cream of sports scribes from Delhi, Calcutta and Bombay were involved in forming the federation.

• The Sports Journalists Federation of India (SJFI) has decided to confer the prestigious 'SJFI Medal' to legendary cricketer Sunil Gavaskar.

• Neeraj Chopra was adjudged the SJFI Sportsman of the Year while weightlifter Mirabai Chanu was voted as the Sportswoman of the Year.

• The Indian men's team that won the hockey bronze in Tokyo was declared the Team of the Year.

• The body took the decision at its Annual General Meeting (AGM) in Guwahati.

• The AGM also elected A Vinod as the new SJFI President, Prashant Keni as the Secretary, and Vidyut Kalita as the Treasurer.

**Q112. Answer: (a) President, Lok Sabha, and Rajya Sabha**

The correct answer is President, Lok Sabha, and Rajya Sabha.

Key Points

• Article- 79: There shall be a Parliament for the Union which shall consist of the President and two Houses to be known respectively as the Council of States and the House of the People.

Additional Information

• Indian Parliament:

• Parliament is the supreme legislative body of India.

• The Indian Parliament comprises the President and the two Houses - Rajya Sabha (Council of States) and Lok Sabha (House of the People).

• The President has the power to summon and prorogue either House of Parliament or to dissolve Lok Sabha.

• The Constitution of India came into force on January 26, 1950.

• The first general elections under the new Constitution were held during the year 1951-52 and the first elected Parliament came into existence in April 1952.

**Q113. Answer: (a) USA**

The correct answer is USA.

Key Points

• According to US Energy Information Administration, the USA is the leading oil-producing country in the world for the year 2020.

• The 10 largest oil producers and share of total world oil production in 2020-21.

| Country | Million barrels per day | Share of the world's total consumption |
|---|---|---|
| United States | 18.88 | 20% |
| Saudi Arabia | 10.84 | 11% |
| Russia | 10.78 | 11% |
| Canada | 5.54 | 6% |
| China | 4.99 | 5% |
| Iraq | 4.15 | 4% |

| | | |
|---|---|---|
| United Arab Emirates | 3.79 | 4% |
| Brazil | 3.69 | 4% |
| Iran | 3.46 | 4% |
| Kuwait | 2.72 | 3% |
| Total top 10 | 68.82 | 72% |

Additional InformationThe 10 largest oil consumers and share of total world oil consumption in 2020-21.

| Country | Million barrels per day | Share of the world's total |
|---|---|---|
| United States | 20.54 | 20% |
| China | 14.01 | 14% |
| India | 4.92 | 5% |
| Japan | 3.74 | 4% |
| Russia | 3.70 | 4% |
| Saudi Arabia | 3.18 | 3% |
| Brazil | 3.14 | 3% |
| Canada | 2.63 | 3% |
| South Korea | 2.60 | 3% |
| Germany | 2.35 | 2% |
| Total top 10 | 60.81 | 61% |

**Q114. Answer: (c) Loktak Lake**

The correct answer is Loktak Lake.

Key Points

• Loktak Lake is the largest freshwater lake in North-eastern region of the country.
• It is famous for Phumdis.
• It is located in Manipur.
• Keibul Lamjao is the only floating national park in the world floats over it.
• Area: 266 square kilometre.
• Two wetlands of India are in Montreux Record: Keoladeo National Park(Rajasthan) and Loktak Lake(Manipur).
• Montreux Record is also maintained as part of the Ramsar List.
• It is under the Ramsar Convention is a register of wetland sites on the List of Wetlands of International Importance.

Additional Information

Chilika Lake

• Chilika is Asia’s largest and world’s second-largest lagoon.
• It spreads over Puri, Khurda and Ganjam districts of Odisha on the east coast of India, at the mouth of the Daya River.
• It is the largest wintering ground for migratory birds on the Indian subcontinent.
• In 1981, it was designated the first Indian wetland of international importance under the Ramsar Convention.
• Nalbana Bird Sanctuary or Nalbana Island is the core area of the Chilika Lake.

Sambhar Lake

• Sambhar Salt Lake, an ephemeral salt lake, the largest lake in India, is situated in east-central Rajasthan state, west of Jaipur.
• It represents a depression of the Aravalli Range with 230 square km in area.
• It is also known as the salt lake of Rajasthan.

Pangong Lake

• Pangong Tso Lake located in Ladakh Union territory is an endorheic lake in the Himalayas situated at a height of about 4,350 m.
• It is geographically situated in a disputed territory, claimed both by India and China.
• This lake is about 5 km wide and about 134 km long with about 60% of the length extending into Tibet.

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• Pangong Lake in Kashmir is the world's highest brackish lake at 4,350 m above sea level.

**Q115. Answer: (c) Fat**

The correct answer is Fat.

Key Points

• Fats are the slowest source of energy but the most energy-efficient form of food.

• Each gram of fat supplies the body with about 9 calories, more than twice that supplied by proteins or carbohydrates.

• Because fats are such an efficient form of energy, the body stores any excess energy as fat.

• Fats form the most concentrated source of energy in our diet.

• 1 gram of fat yields 9.5 kcal of energy which is the highest among the food components.

• 1 gram of carbohydrates and proteins yield an almost similar amount of energy which is equal to 4 kcal.

Additional Information

• Fats and ethanol have the greatest amount of food energy per mass, 37 and 29 kJ/g (8.8 and 6.9 kcal/g), respectively.

• Proteins and most carbohydrates have about 17 kJ/g (4.1 kcal/g).

**Q116. Answer: (d) Barometer**

The correct answer is Barometer.

Key Points

• Barometer

• A barometer is a scientific instrument used to measure atmospheric pressure, also called barometric pressure.

• The mercury barometer is the oldest type of barometer, invented by the Italian physicist Evangelista Torricelli in 1643.

• Torricelli conducted his first barometric experiments using a tube of water.

• Water is relatively light in weight, so a very tall tube with a large amount of water had to be used in order to compensate for the heavier weight of atmospheric pressure.

Atmospheric Pressure:

• The pressure of the atmosphere at any point is equal to the weight of a column of air of unit cross-sectional area extending from that point to the top of the atmosphere.

• At sea level the atmospheric pressure is given as,

=> Pa = 1.013×105 Pa = 1.013 bar

=> 1 bar = 105 Pa

EXPLANATION:

• Italian scientist Evangelista Torricelli (1608-1647) devised for the first time a method for measuring atmospheric pressure.

• A long glass tube closed at one end and filled with mercury is inverted into a trough of mercury as shown in the figure.

• This device is known as a ‘mercury barometer’.

• In the experiment it is found that the mercury column in the barometer has a height of about 76 cm at sea level equivalent to one atmosphere (1 atm).

Additional Information

• Thermometer

• Mercury has been frequently used in thermometers because it remains in liquid form throughout a wide range of temperatures i.e -37.89 degrees Fahrenheit to 674.06 degrees Fahrenheit.

• A thermometer with alcohol is used to measure low temperature because its freezing point is low i.e -1170C.

• The thermometer with mercury can not be used to measure the very low temperature because its freezing point is high i.e -400C.

• Odometer

• An odometer is a device that is used for measuring the distance travelled by a vehicle.

• The odometer is usually situated in the vehicle's dashboard.

• Blaise Pascal invented the first modern prototype of an odometer in the 17th century.

**Q117. Answer: (a) 53**

The correct answer is 53.

Key Points Article 53: Executive Power of the Union

• The executive power of the Union shall be vested in the President and shall be exercised by him either directly or through officers subordinate to him in accordance with this Constitution.

• Without prejudice to the generality of the foregoing provision, the supreme command of the Defence Forces of the Union Shall be vested in the President and the exercise thereof shall be regulated by law.

• Nothing in this article shall –

• be deemed to transfer to the President any functions conferred by any existing law on the Government of any State or other authority; or

• prevent Parliament from conferring by law functions on authorities other than the President.

Thus, we can conclude that under Article 53 of the Constitution of India, the executive power of the union is vested in the President.

Additional Information

| Articles | Details |
|---|---|
| 51 | The State shall endeavour to Promotion of international peace and security |
| 57 | Eligibility for re election A person who holds, or who has held, office as President |
| 55 | Manner of Election of President |

**Q118. Answer: (d) Dubai**

The correct answer is Dubai.

Key Points

• Dubai has become the first government in the world to turn 100 per cent paperless.

• This was announced by Emirate's Crown Prince Sheikh Hamdan bin Mohammed bin Rashid Al Maktoum.

• The emirate has achieved the objectives of the 'Dubai Paperless Strategy, which was launched in 2018.

• The strategy was implemented in five consecutive phases.

Additional Information

| Country | Capital | Currency |
|---|---|---|
| Russia | Moscow | Ruble |
| Germany | Berlin | Euro |
| USA | Washington DC | Dollar |

**Q119. Answer: (b) 100 minutes**

Shortcut Trick

Ratio of speeds A : B = 5 : 7

Given speed of B = 84 km/h => 7 units = 84 => 1 unit = 12 km/h

Total speed (Relative) = (5 + 7) units = 12 × 12 = 144 km/h

Time = (Distance ÷ Relative Speed) × 60 = (240 ÷ 144) × 60 = 100 min

Therefore The correct answer is 100 min.

Alternate Method

Given: Distance = 240 km, Speed Ratio (A:B) = 5 : 7, Speed of B = 84 km/h.

Formula Used: Time = Distance ÷ Relative Speed; 1 hour = 60 minutes.

=> Speed of B = 84 km/h

=> Ratio A : B = 5 : 7

=> Speed of A = (84 ÷ 7) × 5 = 12 × 5 = 60 km/h

=> Relative Speed (Opposite Direction) = Speed of A + Speed of B

=> Relative Speed = 60 + 84 = 144 km/h

=> Time to meet (in hours) = Distance ÷ Relative Speed

=> Time = 240 ÷ 144 = 5/3 hours

=> Time in minutes = (5 ÷ 3) × 60

=> Time = 5 × 20 = 100 minutes

Therefore The correct answer is 100 min.

Additional Information

Relative Speed in Opposite Direction

When two objects move towards each other, their relative speed is the sum of their individual speeds: S_(rel) = S1 + S2.

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Relative Speed in Same Direction

When two objects move in the same direction, their relative speed is the difference of their speeds: S_(rel) = |S1 − S2|.

Meeting Time Formula

Time taken to meet = (Initial distance between them) ÷ (Relative Speed).

**Q120. Answer: (d) 21**

Calculation:

Total number of pages = 60

Number of pages for sports = 60 × 28%

=> 16.8 pages

Number of pages for editorial = 60 × 7%

=> 4.2 pages

So, total pages in both = 16.8 + 4.2

=> 21

Therefore Required answer is 21.

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