SSC CHSL Tier-1 2023: Official Paper (Held On: 03 Aug, 2023 Shift 4) (Previous Year Paper)

SSC Combined Higher Secondary Level (CHSL) • 2023 • 100 questions • 60 minutes • Answer key and solutions

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ENGLISH LANGUAGE

Q1. In a certain code language,

P # Q means P is the wife of Q,

P - Q means P is the mother of Q,

P + Q means P is the father of Q,

P & Q means P is the son of Q.

Based on the above, how is E related to L in C # D + E # G + L?

(a) Mother
(b) Father
(c) Sister
(d) Mother's mother

Q2. If the 20th day of the month falls on the 4th day before Monday, then what will be the day of the week on the 1st of that month?

(a) Saturday
(b) Tuesday
(c) Wednesday
(d) Friday

Q3. Three of the following four letter-clusters are alike in a certain way and thus form a group. Which is the one that does NOT belong to that group?

(a) XVU
(b) TQP
(c) CAZ
(d) KIH

Q4. Select the number from among the given options that can replace the question mark (?) in the following series.

6, 24, 54, 96, 150, ?

(a) 216
(b) 196
(c) 220
(d) 204

Q5. Three of the following four are alike in a certain way and thus form a group. Which is the one that does NOT belong to that group?

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g., 13-Operations on 13 such as adding /subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(a) 7 - 56
(b) 9 - 90

(c) 4 - 20
(d) 6 - 48

Q6. Read the given statements and conclusions carefully. You have to take the given statements to be true even if they seem to be at variance from commonly known facts. You have to decide which conclusion/s logically and definitely follow/s from the given statements.

Statements: Some Chips are Potatoes. All Potatoes are Fries. All Fries are Snacks.

Conclusions:

(i) All Potatoes are Snacks.

(II) Some Snacks are Chips.

(a) Both conclusions (I) and (II) do not follow.
(b) Only conclusion (I) follows.
(c) Both conclusions (I) and (II) follow.
(d) Only conclusion (II) follows.

Q7. Which number from among the given options can replace the question mark (?) in the following series?

31, 97, ?, 259, 355, 461

(a) 127
(b) 234
(c) 189
(d) 173

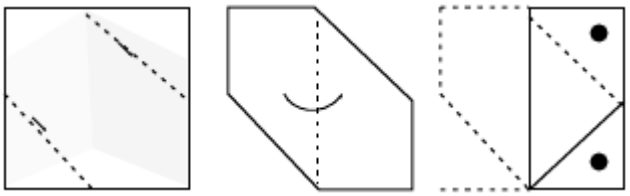
Q8. 'LJNR' is related to 'QNQT' in a certain way based on the English alphabetical order. In the same way, 'JHLP' is related to 'OLOR'. To which of the following is 'FDHL' related, following the same logic?

(a) KNKH
(b) KHKN
(c) KNHK
(d) KKNH

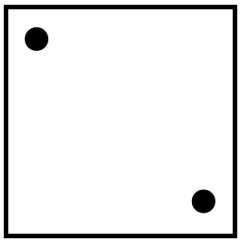
Q9. In a certain code language, 'PRINT' is coded as '38724' and 'NITRO' is coded as '23687'. What is the code for 'O' in the given code language?

(a) 3
(b) 4
(c) 6
(d) 8

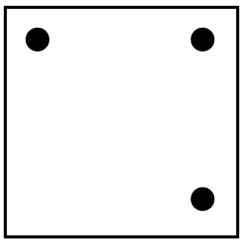
Q10. A square sheet of paper is folded along the dotted line successively along the directions shown and is then punched in the end. How would the paper look when unfolded?



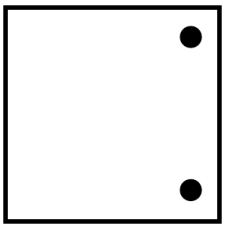
(a)



(b)



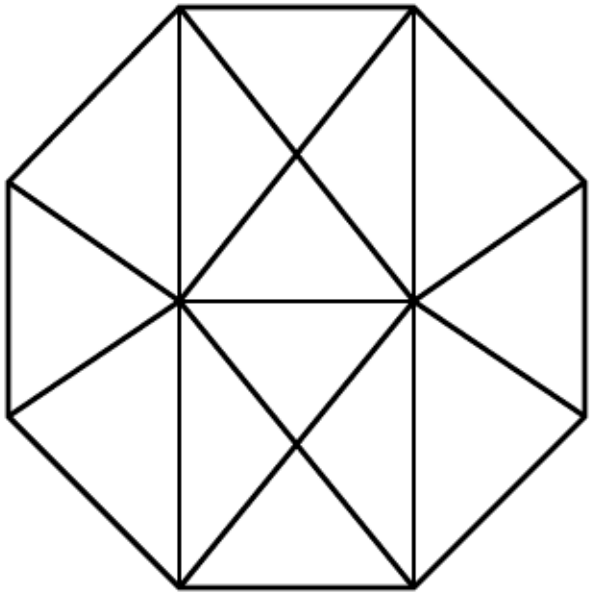
(c)



(d)



Q11. How many triangles are there in the given figure?



(a) 20
(b) 21
(c) 22
(d) 24

Q12. In a certain code language,

A + B means 'A is the mother of B',
A - B means 'A is the father of B',
A × B means 'A is the husband of B' and
A ÷ B means 'A is the sister of B'.

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Based on the above, how is Q related to L if 'Q × C + R ÷ G - L'?

(a) Mother's father
(b) Father's father
(c) Father's son
(d) Father's brother

Q13. In a certain code language, 'BRING' is coded as 'FVMRK' and 'LOVE' is coded as 'PSZI'. What is the code for 'SOLDIER' in the given code language?

(a) WSPHMIV
(b) WTPHMIV
(c) WSPHMIU
(d) WSPHNIV

Q14. What should come in place of ? in the given series based on the English alphabetical order?

DRH YOG TLF OIE ?

(a) JFD
(b) KFE
(c) IDE
(d) KDD

Q15. Which two mathematical operators should be interchanged to balance the following equation?

19 - 39 × 3 + 25 ÷ 5 = 131

(a) • and ÷
(b) ÷ and ×
(c) • and ÷
(d) • and ×

Q16. Four number-pairs have been given, out of which three are alike in some manner and one is different. Select the one that is different.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13-Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

16 : 90

32 : 201

21 :120

41 : 240

(a) 16 : 90
(b) 41 : 240
(c) 21 :120
(d) 32 : 201

Q17. JKGI is related to OPLN in a certain way based on the English alphabetical order. In the same way. QRNP is related to VWSU. Which of the following is NOKM related to, following the same logic?

(a) STOP
(b) STPR
(c) STQR
(d) TUPQ

Q18. In the following number-pairs, the second number is obtained by applying certain mathematical operations to the first number. Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13-Operations on 13 such as adding/subtracting/ multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

(125, 30)

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(615, 128)

(a) 165, 28
(b) 425, 92
(c) 335, 73
(d) 225, 50

Q19. Select the set in which the numbers are related in the same way as are the numbers of the given sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into their constituent digits. E.g., 13-Operations on 13 such as adding/deleting multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

9 : 32 : 7

11 : 96 : 5

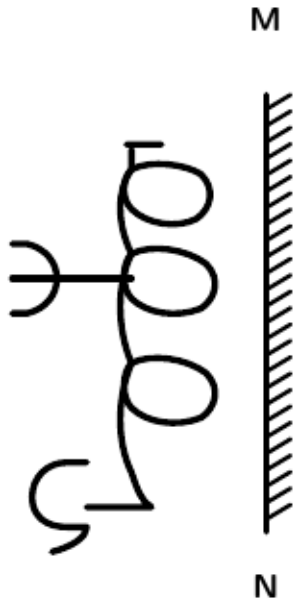
(a) 8 : 38 : 5
(b) 6 : 27 : 3
(c) 7 : 30 : 4
(d) 12 : 110 : 6

Q20. Which of the following letter-clusters will replace the question mark (?) in the given series to make it logically complete?

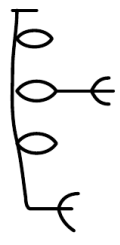
JHF, MKI, PNL, ?, VTR

(a) SRP
(b) PSO
(c) PST
(d) SQO

Q21. Select the correct mirror image of the given figure when the mirror is placed at MN as shown.



(a)

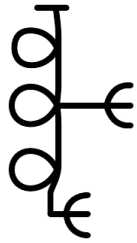


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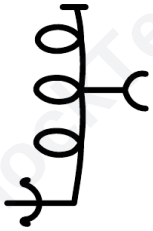
(b)



(c)



(d)



Q22. WF 18 is related to ZI 13 in a certain way. In the same way. NT 16 is related to QW 11. To which of the following is SL 19 related following the same logic?

(a) VO 14
(b) UO14
(c) WP 13
(d) VP15

Q23. John bought a puppy on Friday, 21 January 2022. The puppy become an adult dog on the 380th day since John bought him. On which day did the puppy become an adult?

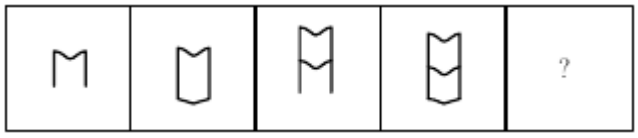
(a) Saturday
(b) Wednesday
(c) Monday
(d) Sunday

Q24. If 'A' stands for '÷', 'B' stands for '×', 'C' stands for '+' and 'D' stands for '-', what will come in place of the question mark '?' in the following equation?

31 B 5 D 12 C 56 A 14 = ?

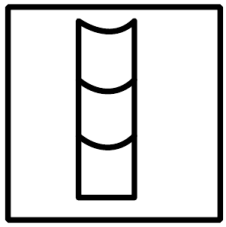
(a) 137
(b) 127
(c) 147
(d) 117

Q25. Identify the figure given in the options which when put in place of the question mark (?) will logically complete the series.

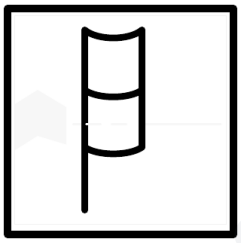


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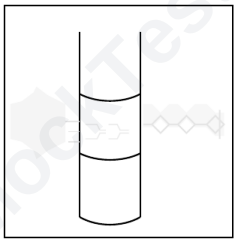
(a)



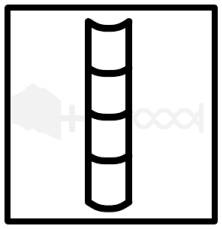
(b)



(c)



(d)



GENERAL INTELLIGENCE

Q26. Which of the following is a straight- chain alkane containing 12 carbon atoms that are used as a major component in kerosene and some jet fuel research and also in the rubber and paper processing industry?

(a) Undecane
(b) Eicosane
(c) Heptadecane
(d) Dodecane

Q27. Which of the following crops can be grown during the Kharif season in India?

(a) Gram
(b) Mustard
(c) Wheat
(d) Cotton

Q28. In which session of All India Congress Committee was the Quit India Resolution accepted?

(a) Calcutta
(b) Delhi
(c) Madras
(d) Bombay

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Q29. Jaimal and Patta were the warriors who were given charge of defending the fort of _____.

(a) Raisen
(b) Ajmer
(c) Udaipur
(d) Chittor

Q30. What is the Inter Tropical Convergence Zone (ITCZ)?

(a) A region with a high annual rainfall
(b) A low-pressure zone located at the equator
(c) A zone where air tends to descend
(d) A high-pressure zone located at the equator

Q31. Who among the following Indian grandmasters won the Bronze medal at the FIDE World Rapid and Blitz Championship 2022?

(a) Savitha Shri
(b) Harika Dronavalli
(c) Koneru Hampi
(d) Tania Sachdev

Q32. Who among the following is a famous music director?

(a) Khayyam
(b) Sameer
(c) Anjaan
(d) Kaifi Azmi

Q33. Mir Qasim's name is associated with which of the following battles of India?

(a) Battle of Kirkee
(b) Battle of Buxar
(c) Battle of Plassey
(d) Battle of Lahore

Q34. What is the only sport specifically designed to be played by participants of both genders simultaneously?

(a) Netball
(b) Quidditch
(c) Korfball
(d) Basketball

Q35. Which of the following countries is NOT a member of SAARC (South Asian Association for Regional Cooperation)?

(a) Pakistan
(b) Myanmar
(c) Afghanistan
(d) Bhutan

Q36. With a stretch of about 724 km, which river is one of the most important rivers of peninsular India?

(a) Tapi
(b) Beas
(c) Palar
(d) Bhavani

Q37. The Central Universities (Amendment) Bill 2022 proposed to convert _____ as Gati Shakti Vishwavidyalaya.

(a) National Infrastructure and Industrial Institute
(b) National Energy and Environment Institute
(c) National Rail and Transportation Institute
(d) National Transport and Infrastructure Institute

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Q38. What is the change in fiscal deficit if both the primary deficit and interest payments are doubled?

(a) Increase by 100%
(b) Increase by 200%
(c) Decrease by 50%
(d) Decrease by 100%

Q39. In any economy, the income velocity of the hoarded money (idle) by the public is equal to _____.

(a) one
(b) greater than one
(c) zero
(d) greater than zero

Q40. Who, in the 1860s, undertook a thorough investigation of the gas laws expressing the relationships of pressure, temperature, and volume in carbon dioxide?

(a) Thomas Andrews
(b) Giulio Natta
(c) John Dalton
(d) Marguerite Perey

Q41. which cell analysis technique is used to rapidly analyse single cells or particles as they flow through single or multiple lasers while suspended in a buffered salt-based solution?

(a) Mass spectroscopy
(b) Flow cytometry
(c) Electrochemical analysis
(d) Multiple displacement amplification

Q42. _____ won the bronze medal in the women's 10 m air rifle event at the ISSF World Cup 2023 in Cairo, Egypt.

(a) Sift Kaur Samra
(b) Tilottama Sen
(c) Shreyasi Singh
(d) Nivetha Paramanantham

Q43. Lui Ngai Ni is a festival that is associated with which of the following states?

(a) Manipur
(b) Uttar Pradesh
(c) Uttarakhand
(d) Himachal Pradesh

Q44. Gulabo Sapera is associated with which of the following dance forms?

(a) Sattriya
(b) Kuchipudi
(c) Kalbelia
(d) Pandavani

Q45. The measures of money supply, namely, M1, M2, M3 and M4, in this order, indicate:

(a) decreasing order of earning capacity
(b) increasing order of liquidity
(c) decreasing order of liquidity
(d) decreasing order of store of value

Q46. Which of the following is a feature of the Directive Principles of State Policy of the Indian Constitution?

(a) Are non-justiciable
(b) Are available against state
(c) Can be suspended during emergency
(d) Are negative in nature

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Q47. From which five-year plan onwards in India, were fiscal and economic reforms including liberalization adopted?

(a) Eighth Five Year Plan
(b) Seventh Five Year Plan
(c) Sixth Five Year Plan
(d) Ninth Five Year Plan

Q48. Usually, the reduction in taxes will have a _____ multiplier effect compared to an increase in government spending on aggregate demand.

(a) no
(b) smaller
(c) higher
(d) equivalent

Q49. Which of the following statements about fundamental rights mentioned in the Indian Constitution is FALSE?

(a) They provide necessary conditions for moral protection.
(b) The lay down the foundation for social justice.
(c) They provide necessary conditions for material protection.
(d) They provide necessary conditions for practicing untouchability.

Q50. Indian Classical dancer Kumkum Dhar was awarded the Sangeet Natak Akademi Award 2020 for her contribution to _____.

(a) Odissi
(b) Bharatanatyam
(c) Kathak
(d) Manipuri

QUANTITATIVE APTITUDE

Q51. Minor arc BC subtends angles BAC and BDC at points A and D, respectively, on the circumference in the major sector of the circle with centre O. What is the value [in degrees] of (angle ABC + angle ACB), if angle BDC = 73°?

(a) 117°
(b) 107°
(c) 103°
(d) 113°

Q52. What is the least value of x + y. if 10 digit number 780x533y24 is divisible by 88?

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

Q53. The compound ratio of 3 : 4 and 6 : 7 is 36 : x. Find x.

(a) 64
(b) 75
(c) 56
(d) 48

Q54. In Δ ABC, the internal bisectors of angle ABC and angle ACB meet at X and angle BAC = 30°. The measure of angle BXC is:

(a) 120°
(b) 115°
(c) 105°
(d) 150°

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Q55. The difference between the total surface area and the lateral surface area of a cube of side 12 cm is:

(a) 292 cm²
(b) 290 cm²
(c) 288 cm²
(d) 286 cm²

Q56. A bag is listed at Rs. 1,500 and a discount of 20% is offered. If the customer wanted to get the bag at a net price of Rs. 1,104, what additional discount must be offered to the customer?

(a) 8%
(b) 4%
(c) 5%
(d) 10%

Q57. Disha takes 12 hours to copy a 75-page manuscript, while Mohit can copy the same manuscript in 10 hours. How many hours will it take for them to copy a 150-page manuscript if they work together?

(a) 1010/11 hours
(b) 99/11 hours
(c) 89/11 hours
(d) 118/11 hours

Q58. Shobha purchased a saree for Rs. 5,130 after availing two successive discounts of 10% and 5%. What is the marked price of the saree?

(a) Rs. 6,000
(b) Rs. 5,400
(c) Rs. 5,000
(d) Rs. 5,200

Q59. A financial institution claims that it returns three times the principal in 25 years on a certain rate of simple interest per annum. What is the rate of simple interest?

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

Q60. The distance between the centres of two circles having radii of 24 cm and 18 cm, respectively is 48 cm. Find the length (in cm) of a direct common tangent to the two circles

(a) 20√6
(b) 18√7
(c) 45
(d) 22√5

Q61. The radius of a circle is 3 cm and 'O' is its centre. The length of the tangent (in cm) to the circle drawn from a point P, which is at a distance of 5 cm from 'O' is:

(a) 4
(b) 6
(c) 5
(d) 3

Q62. The given table shows the number of berths reserved in trains A, B and C on a particular day under different classes. study the given table and answer the question that follows.

Trains	AC-1^(st) capacity-200	AC-sleeper capacity-200	Ac-chair car capacity-400	First class capacity-300	2^(nd) class capacity-500
A	186	201	313	282	487
B	190	183	348	215	414

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C	198	191	364	291	484

How many berths in all the classes together are vacant in Trains B and C?

(a) 534
(b) 612
(c) 322
(d) 278

Q63. If $(a + b + c) \neq 0$, then $(a + b + c)(a^2 + b^2 + c^2 - ab - bc - ca)$ is equal to:

(a) $a^3 + b^3 - c^3 - 3abc$
(b) $a^3 - b^3 + c^3 - 3abc$
(c) $a^3 + b^3 + c^3 - 3abc$
(d) $a^3 + b^3 + c^3 + 3abc$

Q64. A boat goes 10 km upstream in 50 minutes, and the speed of the stream is 3 kmph. Find the speed of the boat in still water (in kmph).

(a) 15
(b) 10
(c) 8
(d) 12

Q65. A vendor earns 10% on an investment but loses 10% on another investment. What will be the combined loss or gain if the two investments are in the ratio 1 : 3?

(a) 4% loss
(b) 5% gain
(c) 4% gain
(d) 5% loss

Q66. If $\sin(p + q) = 1$ and $\cos(p - q) = \sqrt{3}/2$, find p

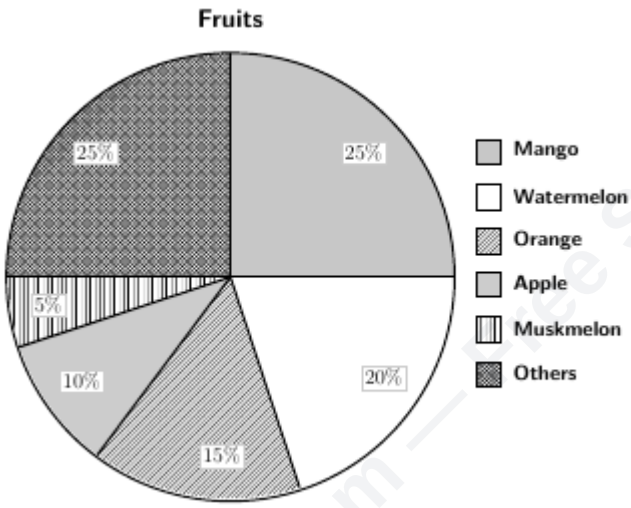
(a) 90°
(b) 80°
(c) 60°
(d) 120°

Q67. The ratio of the number of men to the number of women in an office is 2 : 3. If the average weights of the men and the women in the office are 56 kg and 51 kg, respectively. find the average weight of the employees in the office (in kg).

(a) 53.5
(b) 54
(c) 53
(d) 54.5

Q68. The following pie-chart shows the percentage distribution of different fruits in a market.

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There are 15,000 kg of oranges in the market. Find the quantity of muskmelon and watermelon together.

(a) 25,000 kg
(b) 5,000 kg
(c) 20,000 kg
(d) 10,000 kg

Q69. The following table represents the number of candidates who appeared (A) and passed (P) in a screening test over four years from four different states. Read the table carefully and answer the question given below:

States									
Years	Assam	Bihar	Kerala	Uttar Pradesh					
A	P	A	P	A	P	A	P		
2019	2500	1400	4200	3200	2800	2200	4500	3600	
2020	2700	1500	4500	3400	3000	2400	4600	3700	
2021	2900	1800	4700	3800	3400	2500	4800	3800	
2022	3000	1900	5000	3900	3500	2600	5200	4100	

What is the average number of appearing candidates in the screening test from all the four states in the year 2021?

(a) 4000
(b) 3900
(c) 3850
(d) 3950

Q70. A person, who spends 68% of his monthly income, is able to save Rs. 14,720 per month. Find his total expenses.

(a) Rs. 46,000
(b) Rs. 38,210
(c) Rs. 31,280
(d) Rs. 42,400

Q71. If $\text{cosec}\ \theta = 17/22$, find the value of $\cot^2 \theta$.

(a) 49/484
(b) 357/484
(c) 225/484
(d) 7/22

Q72. If $x^3 = 270 + y^3$ and $x = (6 + y)$, then what is the value of $(x + y)$? (given that $x > 0$ and $y > 0$)

(a) $2\sqrt{3}$
(b) $\sqrt{3}$
(c) $4\sqrt{3}$
(d) $4\sqrt{2}$

Q73. If $2a + 3b = 14$ and $2a - 3b = 10$, then find the value of 'ab'.

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

Q74. What is the present value of the sum if the interest compounded at the rate of 18% per annum for two years is Rs. 981?

(a) Rs. 2,800
(b) Rs. 2,500
(c) Rs. 3,600
(d) Rs. 2,400

Q75. If $\cot A + \cos A = p$ and $\cot A - \cos A = q$, then which of the following relation is correct?

(a) $\sqrt{(1/16pq)}=p^2+q^2$
(b) $1/4pq=p^2+q^2$
(c) $\sqrt{16pq}=p^2-q^2$
(d) $4pq = p^2 + q^2$

GENERAL AWARENESS

Q76. Direction: Choose the correct meaning of the underlined word in the given sentence.

The orchard was a peaceful retreat, with the sound of leaves rustling in the wind and birds chirping in the trees.

(a) A piece of land with lots of houses
(b) A collection of farmlands
(c) A collection of apartments
(d) A piece of enclosed land with fruit trees

Q77. Direction: Select the most appropriate meaning of the given idiom.

Make up one's mind

(a) To disturb
(b) To leave
(c) To decide
(d) To cheat

Q78. Direction: Select the grammatically correct version of the following sentence.

I like my puppies, Mac and Matt, but I like Matt best.

(a) I like my puppies, Mac and Matt, but I like Matt better.
(b) I like my puppies, Mac and Matt, but I like Matt the best.
(c) I like my puppies, Mac and Matt, but I like Matt much.
(d) I like my puppies, Mac and Matt, but I like Matt most.

Q79. Directions: Each of the following questions has underlined idioms/phrases. Each sentence is followed by four options. Choose the option that best describes the meaning of the underlined idiom/phrase.

As the actors gathered backstage, the director shouted, "Break a leg, everyone!" before they took the stage for their opening night performance.

(a) To get a good night's sleep
(b) To wish someone good luck

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(c) To take a risk
(d) To keep a secret

Q80. Direction: Select the most appropriate ANTONYM to replace the underlined word in the following sentence.
He was a liberal who believed that men were inherently superior to women in every aspect of life.
(a) conservative
(b) tolerant
(c) republican
(d) philanthropist

Q81. Direction: Select the most appropriate option that can substitute the underlined segment in the following sentence. If there is no need to substitute it, select 'No substitution required.'
I enjoy learn languages because I like them.
(a) to learning
(b) lean
(c) learning
(d) No substitution required

Q82. Direction: Select the option that can be used as a one-word substitute for the given group of words.
Argue loudly about unimportant things
(a) Maintain
(b) Disagree
(c) Agree
(d) Squabble

Q83. Direction: Select the most appropriate ANTONYM of the given word.
Hostile
(a) Hospitable
(b) Bitter
(c) Nasty
(d) Aggressive

Q84. Direction: Select the option that expresses the given sentence in passive voice.
Do the Basus visit the Shuklas?
(a) Are the Shuklas been visited by the Basus?
(b) Are the Shuklas visit by the Basus?
(c) Are the Shuklas being visited by the Basus?
(d) Are the Shuklas visited by the Basus?

Q85. Direction: Select the correctly spelt word.
(a) Ocasion
(b) Occasion
(c) Occasien
(d) Occassion

Q86. Direction: Select the most appropriate synonym of the underlined word.
He was the discreet boy in our group but more hardworking than all of us.
(a) loud
(b) outspoken
(c) reserved
(d) noisy

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Q87. Direction: Select the most appropriate synonym of the bracketed word in the following sentence to fill in the blank.

The factory has been _____ (exhaling) black smoke from its chimney.

(a) emitting
(b) preserving
(c) remitting
(d) indicting

Q88. Direction: Select the option that can be used as a one-word substitute for the given group of words.

A life history of a person written by himself

(a) Biography
(b) Epic
(c) Story
(d) Autobiography

Q89. Direction: Parts of a sentence are given below in jumbled order. Select the option that arranges the parts in the correct order to form a meaningful sentence.

A) about all his
B) noise they make
C) he constantly complains
D) neighbours and the

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

Q90. Direction: Select the option that expresses the given sentence in active voice.

I was kept waiting for more than an hour to get an appointment by the staff.

(a) The staff had kept me waiting for more than an hour to get an appointment.
(b) The staff keep me waiting for more than an hour to get an appointment.
(c) The staff kept me waiting for more than an hour to get an appointment.
(d) The staff kept me wait for more than an hour to get an appointment.

Q91. Direction: Sentences of a paragraph are given below in jumbled order. Select the option that arranges the sentences in the correct logical sequence to form a meaningful and coherent paragraph.

A. Globally, almost 6.5 million people have died so far.
B. As I write the final chapter, we enter the third year in our battle with COVID-19.
C. While we have the vaccine to outlive the disease, to live our grief needs the salve of time.
D. I started writing this book in the throes of the pandemic.

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

Q92. Direction: Select the INCORRECTLY spelt word.

(a) Grateful
(b) Immigrate
(c) Ignorance
(d) Hiearchy

Q93. Direction: Select the most appropriate ANTONYM of the underlined word.

His deliberate activities brought him fame.

(a) Dishonour
(b) Respect

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(c) Sorrow
(d) Strength

Q94. Direction: Select the most appropriate ANTONYM of the given word.

Imminent

(a) Near
(b) Unstoppable
(c) Distant
(d) Impending

Q95. Direction: The following sentence has been divided into four segments. Identify the segment that contains a grammatical error.

Have you ever / wondered / where does / oysters come from?

(a) wondered
(b) oysters come from?
(c) where does
(d) Have you ever

Directions

Direction: In the following passage some words have been deleted. Read the passage carefully and select the most appropriate option to fill in each blank.

The Grim Reaper seems to have ____ (1) __ in Europe during the 14th century. It was during this time that Europe was dealing with what was then the world's __ (2) __ pandemic, the Black Death, believed to be the result of the plague. It is estimated that about one-third of Europe's entire population __ (3) __ as a result of the pandemic, with some areas of the continent suffering far greater losses than others. The original outbreak of the plague occurred during 1347–51, and outbreaks then __ (4) __ several other times after that. So, clearly, death was something that the surviving Europeans had on their mind, and it is not surprising that they __ (5) ____ an image to represent it.

Q96. Select the most appropriate option to fill in blank number 1.

(a) found
(b) appeared
(c) rested
(d) died

Q97. Select the most appropriate option to fill in blank number 2.

(a) better
(b) worse
(c) best
(d) worst

Q98. Select the most appropriate option to fill in blank number 3.

(a) vanished
(b) shriveled
(c) perished
(d) moldered

Q99. Select the most appropriate option to fill in blank number 4.

(a) remaked
(b) renewed
(c) recurred
(d) duplicated

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Q100. Select the most appropriate option to fill in blank number 5.

(a) forced
(b) conjured
(c) desired
(d) compelled

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (a) Mother

Preparing the family tree diagram by using the following symbols:

As per the given information:

P is				
Symbol	#	•	•	&
Means	Wife	Mother	Father	Son
of Q				

Given expression: 'C # D + E # G + L'

C is the wife of D, D is the father of E, E is the wife of G and G is the father of L.

Here, E is the mother of L.

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

Q2. Answer: (a) Saturday

Given:

If the 20th day of the month falls on the 4th day before Monday, means on 24th of the month is Monday.

A day will repeat itself after seven days, which means the 17th, 10th and 3rd of the month is Monday.

If the 3rd of the month is Monday then the 1st of the month is Saturday.

Here, the first day of the month is Saturday.

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

Q3. Answer: (b) TQP

Here, we use the table given below:

Logic: Subtraction of 2 and 1 from the positional value of the first and second letters.

Checking the given options:

1. XVU →
2. TQP →

3. CAZ →

4. KIH →

Here, 'TQP' is different from the rest.

Hence, the correct answer is "Option (2)".

Q4. Answer: (a) 216

Given:

6, 24, 54, 96, 150,?

The logic followed in the given series:

Here, '216' is the missing number.

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

Q5. Answer: (d) 6 - 48

Logic: Second no. = [(First no.)² + (First no.)]

Checking all the given options:

(1) 7 - 56

=> [(7)² + 7]

=> (49 + 7) = 56

(2) 9 - 90

=> [(9)2 + 9]

=> (81 + 9) = 90

(3) 4 - 20

=> [(4)2 + 4]

=> (16 + 4) = 20

(4) 6 - 48

=> [(6)2 + (6 × 2)]

=> (36 + 12) = 48

Here, '6 - 48' is different from the rest.

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

Q6. Answer: (c) Both conclusions (I) and (II) follow.

Statements:

Some Chips are Potatoes.

All Potatoes are Fries.

All Fries are Snacks.

The Venn diagram as per the given statements:

Conclusions:

(i) All Potatoes are Snacks. → Follow (Because all potatoes are fries and all fries are snacks, which means all potatoes are snacks is definitely true)

(II) Some Snacks are Chips. → Follow (Because some chips are potatoes, all potatoes are fries and all fries are snacks, which means some snacks are chips is definitely true)

Hence, the correct answer is "Both conclusions (I) and (II) follow".

Q7. Answer: (d) 173

Given:

31, 97, ?, 259, 355, 461

The logic followed in the given series is:

Here, the missing term is '173'.

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

Q8. Answer: (b) KHKN

Here, we use the table given below:

Logic: Addition of 5, 4, 3 and 2 into the positional value of the first, second, third and fourth letter.

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'LJNR' is related to 'QNQT' →
'JHLP' is related to 'OLOR' →
Similarly, 'FDHL' will be written as:
Here, 'FDHL' is related to 'KHKN'.
Hence, the correct answer is "Option (2)".

Q9. Answer: (c) 6

Given:
'PRINT' is coded as '38724' and 'NITRO' is coded as '23687'.
Here, I, N, R and T are common, which means the code for the alphabet P is 4 and the code for the alphabet O is 6.
Hence, the correct answer is "Option (3)".

Q10. Answer: (a) [figure]

The given figure when unfolded is as follows:
Hence, the correct answer is "Option (1)".

Q11. Answer: (d) 24

The number of triangles in the given figure is:
Here, the number of triangles is '24'.
Hence, the correct answer is "Option (4)".

Q12. Answer: (b) Father's father

Preparing the family tree diagram by using the following symbols:
As per the given information:

A is				
Symbol	•	•	×	÷
Means	Mother	Father	Husband	Sister
of B				

Given expression: 'Q × C + R ÷ G - L'
Q is the husband of C, C is the mother of R, R is the sister of G and G is the father of L.
Here, Q is the father's father of L.
Hence, the correct answer is "Option (2)".

Q13. Answer: (a) WSPHMIV

Here, we use the table given below:

Logic: Addition of 4 to the positional value of each letter.
'BRING' is coded as 'FVMRK' →
'LOVE' is coded as 'PSZI' →
Similarly, 'SOLDIER' will be coded as:
Hence, the correct answer is "Option (1)".

Q14. Answer: (a) JFD

Here, we use the table given below:

Given:
DRH, YOG, TLF, OIE, ?
Logic: Subtraction of 5, 3 and 1 from the positional value of the first, second and third letters.
Here, the next term is 'JFD'.
Hence, the correct answer is "Option (1)".

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Q15. Answer: (b) ÷ and ×

Here, we use the BODMAS table given below:

Given:

=> 19 - 39 × 3 + 25 ÷ 5 = 131

(1) + and ÷

=> 19 - 39 × 3 + 25 ÷ 5 = 131

After changing the signs:

=> 19 - 39 × 3 ÷ 25 + 5

Apply BODMAS rule:

=> 19 - 39 × 0.12 + 5

=> 19 - 4.68 + 5

=> 24 - 4.68 = 19.32

Here, the equation is not satisfied.

(2) ÷ and ×

=> 19 - 39 × 3 + 25 ÷ 5 = 131

After changing the signs:

=> 19 - 39 ÷ 3 + 25 × 5

Apply BODMAS rule:

=> 19 - 13 + 25 × 5

=> 19 - 13 + 125

=> 144 - 13 = 131

=> '19 - 39 ÷ 3 + 25 × 5 = 131'

Here, the equation is satisfied.

(3) - and ÷

=> 19 - 39 × 3 + 25 ÷ 5 = 131

After changing the signs:

=> 19 ÷ 39 × 3 + 25 - 5

Apply BODMAS rule:

=> 0.484 × 3 + 25 - 5

=> 1.461 + 25 - 5

=> 26.461 - 5 = 21.461

Here, the equation is not satisfied.

(4) + and ×

=> 19 - 39 × 3 + 25 ÷ 5 = 131

After changing the signs:

=> 19 - 39 + 3 × 25 ÷ 5

Apply BODMAS rule:

=> 19 - 39 + 3 × 5

=> 19 - 39 + 15

=> 34 - 39 = (-5)

Here, the equation is not satisfied.

Hence, the correct answer is "Option (2)".

Q16. Answer: (d) 32 : 201

Logic: Second no. = [(First no. - 1) × 6]

Checking all the given options:

(1) 16 : 90 →

=> [(16 - 1) × 6]

=> (15 × 6) = 90

(2) 41 : 240 →

=> [(41 - 1) × 6]

=> (40 × 6) = 240

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(3) 21 : 120 →
=> [(21 - 1) × 6]
=> (20 × 6) = 120
(4) 32 : 201 →
=> [{(32 + 1) × 6} + 3]
=> [(33 × 6) + 3]
=> (198 + 3) = 201
Here, '32 : 201' is different from the rest.
Hence, the correct answer is "Option (4)".

Q17. Answer: (b) STPR

Here, we use the table given below:

Logic: '5' is added to the positional value of each alphabet.
JKGI is related to OPLN →
QRNP is related to VWSU →
Similarly, NOKM will be written as:
Here, 'NOKM' is related to 'STPR'.
Hence, the correct answer is "Option (2)".

Q18. Answer: (d) 225, 50

Logic: First no. = [(Second no. × 5) - 25]
Given:
(125, 30) →
=> [(30 × 5) - 25]
=> (150 - 25) = 125
(615, 128) →
=> [(128 × 5) - 25]
=> (640 - 25) = 615
Checking all the given options:
1. (165, 28) →
=> [(28 × 5) - 25]
=> (140 - 25) =115
2. (425, 92) →
=> [(92 × 5) - 25]
=> (460 - 25) = 435
3. (335, 73) →
=> [(73 × 5) - 25]
=> (365 - 25) = 340
4. (225, 50) →
=> [(50 × 5) - 25]
=> (250 - 25) = 225
Here, (225, 50) is similar to the given number pairs.
Hence, the correct answer is "Option (4)".

Q19. Answer: (b) 6 : 27 : 3

Logic: Second no. = [(First no.)² - (Third no.)²]
Given:
9 : 32 : 7 →
=> [(9)² - (7)²]
=> (81 - 49) = 32
11 : 96 : 5 →
=> [(11)2 - (5)2]

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=> (121 - 25) = 96
Checking all the given options:
(1) 8 : 38 : 5 →
=> [(8)2 - (5)2]
=> (64 - 25) = 39
(2) 6 : 27 : 3 →
=> [(6)2 - (3)2]
=> (36 - 9) = 27
(3) 7 : 30 : 4 →
=> [(7)2 - (4)2]
=> (49 - 16) = 33
(4) 12 : 110 : 6 →
=> [(12)2 - (6)2]
=> (144 - 36) = 108
Here, '6 : 27 : 3' is similar to the given sets of the numbers.
Hence, the correct answer is "Option (2)".

Q20. Answer: (d) SQO

Here, we use the table given below:

Given:
JHF, MKI, PNL, ?, VTR
Logic: '3' is added to the positional value of each alphabet.
Here, the missing term is 'SQO'.
Hence, the correct answer is "Option (4)".

Q21. Answer: (c) [figure]

The mirror image of the given figure is:
Hence, the correct answer is "Option (3)".

Q22. Answer: (a) VO 14

Here, we use the table given below:

Logic: Addition of 3 to the positional value of the first and second alphabet and 5 is subtracted from the number.
WF 18 is related to ZI 13 →
NT 16 is related to QW 11 →
Similarly, SL 19 will be written as:
Here, 'SL 19' is related to 'VO 14'.
Hence, the correct answer is "Option (1)".

Q23. Answer: (d) Sunday

Given:
21 January 2022 → Friday
As per the given information:
=> (380 ÷ 7) = 54 weeks + 2 days
=> 2 days after Friday = Sunday
Here, on Sunday the puppy will become an adult.
Hence, the correct answer is "Option (4)".

Q24. Answer: (c) 147

Here, we use the BODMAS table given below:
Given:
31 B 5 D 12 C 56 A 14 = ?
As per the given information:

Symbol	Means
A	÷
B	×
C	•
D	•

After putting the sign as per the table:

=> 31 × 5 - 12 + 56 ÷ 14

Apply BODMAS rule:

=> 31 × 5 - 12 + 4

=> 155 - 12 + 4

=> 159 - 12 = 147

=> '31 × 5 - 12 + 56 ÷ 14 = 147'

Here, the value of the equation is "147".

Hence, the correct answer is "Option (3)".

Q25. Answer: (c) [figure]

The logic followed in the given figure series is:

The shapes shown below are added alternatively.

From Figure (1) to (2):

From Figure (2) to (3):

From Figure (3) to (4):

From Figure (4) to Answer Figure:

Hence, the correct answer is "Option (3)".

Q26. Answer: (d) Dodecane

The correct answer is Dodecane.

Key Points

• Dodecane is a straight-chain alkane containing 12 carbon atoms.

• It is used as a major component in kerosene and some jet fuel research.

• Dodecane is also used in the rubber and paper processing industry.

• The molecular formula of dodecane is C12H26.

Additional Information

• Undecane is a straight-chain alkane containing 11 carbon atoms. It is used as a fuel additive and solvent.

• Eicosane is a straight-chain alkane containing 20 carbon atoms. It is used as a lubricant, in cosmetics, and as a fuel additive.

• Heptadecane is a straight-chain alkane containing 17 carbon atoms. It is used as a solvent, fuel, and lubricant

• Hydrocarbons:Compounds made of carbon and hydrogen atoms only, are called hydrocarbons. The natural source of hydrocarbons is petroleum.

1. Saturated hydrocarbons: The hydrocarbons in which carbon atoms are singly bonded are called saturated hydrocarbons

• Saturated hydrocarbons are also called alkanes or paraffin.

• The general formula of alkane– CnH2n+2

2. Unsaturated hydrocarbons: The hydrocarbons in which carbon atoms are either doubly or triply bonded are called unsaturated hydrocarbons.

• Doubly bonded (carbon atoms) hydrocarbons are called alkenes.

• The general formula of alkene is C_nH_(2n).

Q27. Answer: (d) Cotton

The correct answer is Cotton.

Key Points

• Kharif season in India is the monsoon season that starts in June and lasts till September. During this season, crops that require a lot of water are grown.

• Cotton is a major Kharif crop in India, and it is also one of the most important cash crops. It requires a lot of water and warm

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weather to grow.

Kharif Season:

• Kharif crops also are known as monsoon crops as they are cultivated in the monsoon season.

• Their cropping season starts in June and ends in October.

• These crops are sown at the beginning of the rainy season.

• Rice, maize, bajra, ragi, sorghum, soybean, groundnut, cotton, etc. are all Kharif types of crops.

Additional Information

• Mustard is a Rabi crop that is usually grown during the winter season. It requires cool weather to grow and is usually harvested in the spring.

• Wheat is also a Rabi crop that is grown during the winter season. It is one of the most important staple crops in India and is used to make various food items like bread, pasta, etc.

Rabi crops:

• Rabi crops or rabi harvest are agricultural crops that are sown in winter and harvested in the spring in India.

• Some example of Rabi crops is wheat, barley, gram, peas, mustard, and linseed.

• States from the north and northwestern parts such as Punjab, Haryana, Himachal Pradesh, Jammu and Kashmir, Uttarakhand, and Uttar Pradesh are important for the production of wheat and other rabi crops.

• The availability of precipitation during winter months due to the western temperate cyclones helps in the success of these crops.

Zaid Season:

• It is a short season between the Kharif and Rabi seasons.

• The crops grown during this season are known as Zaid crops.

• Pumpkin, cucumber, watermelon, bitter gourd, etc. are all zaid types of crops.

Q28. Answer: (d) Bombay

The correct answer is Bombay.

Key Points

• All India Congress Committee (AICC) is the highest decision-making body of the Indian National Congress.

• The Quit India Movement was a civil disobedience movement launched by Mahatma Gandhi on 8 August 1942, demanding an end to British rule in India.

Quit India Movement:

• On 8^(th) August 1942, Mahatma Gandhi gave a clarion call to end British rule and launched the Quit India Movement at the session of the All-India Congress Committee in Mumbai.

• The 'Quit India' resolution was moved in the Bombay Session of the Congress in the year 1942 by Jawaharlal Nehru.

• 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 harbored also coined the slogan “Simon Go Back”.

Additional Information

• Calcutta: The AICC session held in Calcutta in 1928 was significant for the adoption of the Nehru Report, which proposed a dominion status for India within the British Empire.

• Delhi: The AICC session held in Delhi in 1918 was significant for the adoption of the Montagu-Chelmsford Reforms, which introduced limited self-government in India.

• Madras: The AICC session held in Madras in 1927 was significant for the adoption of the resolution on Fundamental Rights and Economic Policy, which called for the protection of civil liberties and the promotion of economic development.

• Bombay: The AICC session held in Bombay in 1942 was significant for the adoption of the Quit India Resolution, which called for the immediate withdrawal of British rule from India.

Q29. Answer: (d) Chittor

The correct answer is Chittor.

Key Points

• Jaimal and Patta were two Rajput warriors who were given the charge of defending the fort of Chittor against the Mughal emperor Akbar's army in 1567.

• Chittor is a city in the state of Rajasthan, India, and is famous for its massive Chittorgarh Fort, which is a UNESCO World Heritage Site.

• The fort of Chittor has a rich history, and it has witnessed many battles and sieges over the centuries. It was also the capital of the Sisodia dynasty of Mewar.

• Raisen is a city in the state of Madhya Pradesh, India, and it has a fort built by the Rajputs. However, there is no record of Jaimal and Patta defending this fort.

• Ajmer is a city in the state of Rajasthan, India, and it has a fort called the Taragarh Fort. Again, there is no record of Jaimal and Patta defending this fort.

• Udaipur is a city in the state of Rajasthan, India, and it has a famous palace called the City Palace. However, it is not a fort, and there is no record of Jaimal and Patta defending it.

Additional Information

• 1303: First Jauhar of Chittorgarh

• In 1303, Alauddin Khilji laid siege to Chittor.

• In the following battle, Rana Ratan Singh of Chittor died fighting & Rani Padmini committed Jauhar.

• The event is remembered as the First Jauhar of Chittor.

• Years later in 1540, Malik Mohd. Jayasi wrote Padmavat on this Jauhar.

• 1535: Second Jauhar of Chittor

• In 1535, Bahadur Shah of Gujarat laid siege to Chittorgarh.

• This invasion of Chittor resulted in the Second Jauhar & Saka in the history of Chittor and followed a series of battles that led to the overthrow of the Gujarat Sultanate.

• 1567: Third Jauhar of Chittorgarh

• In 1567, extending his campaign against Rajputana, Akbar laid siege to the fort of Chittorgarh.

• Through their valor & sacrifice in defense of the fort, Jaimal & Patta became synonymous with the house of Mewar and Chittor.

• The battle witnessed the third Jauhar of Chittorgarh & the massacre that Abkar ordered after the victory.

Q30. Answer: (b) A low-pressure zone located at the equator

The correct answer is A low-pressure zone located at the equator.

Key Points

• The Intertropical Convergence Zone:

• The Intertropical Convergence Zone, or ITCZ, is the belt of low pressure that circles the Earth, near the equator.

• Here the trade winds of the Northern and Southern Hemispheres come together.

• The intense sun and warm water of the equator heat the air in the ITCZ, raising its humidity and making it buoyant.

• Aided by the convergence of the trade winds, the buoyant air rises.

• As the air rises it expands and cools, releasing the accumulated moisture in an almost perpetual series of thunderstorms.

• Seasonal shifts in the location of the ITCZ drastically affect rainfall in many equatorial nations, resulting in the wet and dry seasons of the tropics rather than the cold and warm seasons of higher latitudes.

• Longer-term changes in the ITCZ can result in severe droughts or flooding in nearby areas.

• The position of the ITCZ varies with the seasons, lags behind the sun's relative position above the Earth's surface by about 1 to 2 months, and correlates generally to the thermal equator.

• Since water has a higher heat capacity than land, the ITCZ propagates poleward more prominently over land than over water, and over the Northern Hemisphere than over the Southern Hemisphere.

• In July and August, over the Atlantic and Pacific, the ITCZ is between 5 and 15 degrees north of the Equator, but further north over the landmasses of Africa and Asia.

• In eastern Asia, the ITCZ may propagate up to 30 degrees north of the Equator.

• In January, over the Atlantic, the ITCZ generally sits no further south than the Equator but extends much further south over South America, Southern Africa, and Australia.

Additional Information

• Polar region:

• The polar region is an area around the North Pole or the South Pole.

• The northern polar region consists mainly of floating and pack ice, 7–10 feet (2–3 m) thick, floating on the Arctic Ocean and surrounded by landmasses.

• The ice cap of the southern polar region averages 6,700 feet (about 2,000 m) in thickness, is underlaid by the continental landmass of Antarctica, and is surrounded by oceans.

• The North Pole was discovered in 1909 by Robert Peary and the South Pole in 1911 by Roald Amundsen.

• Equatorial region:

• The equator is a circle of latitude, about 40,075 km (24,901 mi) in circumference, that divides the Earth into the Northern and Southern Hemispheres.

• It is a line located at 0 degrees latitude, halfway between the North and South Poles.

• Temperate Zone:

• The Temperate Zone is a part of the earth's surface lying between the Tropic of Cancer and the Arctic Circle in the Northern Hemisphere or between the Tropic of Capricorn and the Antarctic Circle in the Southern Hemisphere.

• It is characterized by having a climate that is warm in the summer, cold in the winter, and moderate in the spring and fall.

Q31. Answer: (a) Savitha Shri

The correct answer is Savitha Shri.

Key Points

• Harika Dronavalli is a renowned Indian chess player who has won many national and international titles in her career.

• Savitha Shris is a known chess player and she has won the Bronze medal at the FIDE World Rapid and Blitz Championship 2022

• Koneru Hamp is also a well-known Indian chess player who has won many titles, but she did not win a medal at the FIDE World Rapid and Blitz Championship 2022.

• Tania Sachdev is also a well-known Indian chess player who has won many titles, but she did not win a medal at the FIDE World Rapid and Blitz Championship 2022.

• The FIDE World Rapid and Blitz Championship is a prestigious international chess tournament that is held annually. The 2022 edition was held in Warsaw, Poland, from December 26-30, 2022.

• Harika Dronavalli won the bronze medal in the Women's Rapid event, which was a remarkable achievement for her and India. She scored 8 points out of 12 rounds and finished behind Anna Muzychuk of Ukraine and Kateryna Lagno of Russia, who won gold and silver, respectively.

• In the Women's Blitz event, Harika Dronavalli finished in 15th place with 12 points out of 18 rounds, while Humpy Koneru finished at 26th place with 11 points. However, none of them won a medal in the Blitz event.

• Overall, Harika Dronavalli's performance at the FIDE World Rapid and Blitz Championship 2022 was impressive, and she made India proud with her achievement.

Additional Information

• Viswanathan Anand is a former world chess champion and Indian chess grandmaster.

• In 1988, he became India's first grandmaster and is one of the few players to have crossed an Elo rating of 2800, a feat he first accomplished in 2006.

• Anand is a five-time champion of world chess.

• In a six-game series, he beat Alexei Shirov to win the 2000 FIDE World Chess Championship, a title which he retained until 2002.

• The 2015 FIDE World Rapid Championship was held in the Bolle Meierei Ballroom in Berlin, Germany, from 10 to 12 October, with the participation of 130 GMs, including defending champion Magnus Carlsen, for the 15-round Swiss Open (for players ranked >2500).

Q32. Answer: (a) Khayyam

The correct answer is Khayyam.

Key Points

• Khayyam is a famous music director.

• A cash reward of Rs. 100000 and a souvenir are included with the Hridaynath award for lifetime achievement.

• The recipient of the 2018 Hridaynath Award for Lifetime Achievement is Mohammed Zahur Khayyam Hashmi.

• The prize was created in 2011 by the Hridayesh Art organization to honor the composer and performer Hridaynath Mangeshkar.

• He is the son of Deenanath Mangeshkar and the younger brother of Lata Mangeshkar and Asha Bhosle.

Additional Information

• Sameer was a famous lyricist who wrote songs for numerous Bollywood films.

• Anjaan was a popular lyricist and screenwriter in the Indian film industry.

• Kaifi Azmi was a renowned poet, lyricist, and songwriter in the Indian film industry.

• It is essential to note that music directors are responsible for composing and arranging music for films, while lyricists write the words (lyrics) for the songs.

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Q33. Answer: (b) Battle of Buxar

The correct answer is the Battle of Buxar.

Key Points

• The Battle of Buxar was fought in 1764.

• The Battle of Buxar (1764) was the battle which was fought between English Forces, and a combined army of Mir Qasim.

• The battle was the outcome of the misuse of Farman and Dastak, and also the trade expansionist aspiration of the English, Mir Qasim, the Nawab of Bengal, the Nawab of Oudh Shah Alam II, and the Mughal Emperor.

• The battle of Buxar proved itself to be a turning point in the history of India.

• In 1765, Shuja-ud-daulah and Shah Alam signed a treaty at Allahabad with Clive who had become the Governor of the company.

• Under these treaties, the English company secured the Diwani of Bengal, Bihar, and Odisha, which gave the company the right to collect revenue from these territories.

Additional Information

• Battle of Kirkee: This battle was fought between the British East India Company and the Maratha Empire in 1817. Mir Qasim was not involved in this battle as he had died more than 50 years earlier.

• Battle of Plassey: The Battle of Plassey was on June 23, 1757, on the banks of the Hooghly River in Bengal, India. It marked a decisive victory for the British East India Company, led by Robert Clive, over the forces of Siraj-ud-Daulah, the Nawab of Bengal, and his French allies.

• Battle of Lahore: This battle was fought in 1849 between the British East India Company and the Sikh Empire. Mir Qasim was not involved in this battle as he had died more than 30 years earlier.

Q34. Answer: (c) Korfball

The correct answer is Korfball.

Key Points

• Korfball is a ball sport that was invented in the Netherlands in the early 20^(th) century.

• It is the only sport specifically designed to be played by participants of both genders simultaneously.

• Korfball is similar to basketball and netball in that it is a team sport played on a court with two baskets or goals, but it has some unique rules that make it inclusive for both male and female players.

• In Korfball, teams consist of four male and four female players who take turns attacking and defending the baskets.

• The sport is played in over 50 countries worldwide and is recognized by the International Olympic Committee.

Additional Information

• Netball is a ball sport played between two teams of seven players. It is primarily played by women and is similar to basketball but with some different rules and a different court layout.

• Quidditch is a fictional sport from the Harry Potter series, which has been adapted for real-life play, primarily by university and college teams. It is played by two teams of seven players, with each player riding a broomstick.

• Basketball is a ball sport played between two teams of five players. It is a popular sport worldwide and is played at both amateur and professional levels. It is primarily played by men, but there are also women's leagues.

Q35. Answer: (b) Myanmar

The correct answer is Myanmar.

Key Points

• Myanmar is NOT a member of SAARC. The other seven member countries are Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, and Pakistan.

• Myanmar is located in Southeast Asia and is not considered part of South Asia.

• SAARC stands for South Asian Association for Regional Cooperation.

• Its members are Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan, and Sri Lanka.

• The SAARC was founded in Dhaka on 8 December 1985.

Trick: MBBS PAIN

M - Maldives, B - Bhutan, B - Bangladesh, S - Sri Lanka, P - Pakistan, A - Afghanistan, I - India, N - Nepal

Important Points

About SAARC:

• Headquarters - Kathmandu.

• Official Language - English.

• Founded by - Abul Ahsan (Bangladeshi Diplomat)

Additional Information

Importance of SAARC:

• SAARC comprises 3% of the world's area, 21% of the world's population, and 3.8% (US$2.9 trillion) of the global economy.

• It is the world's most densely populated region and one of the most fertile areas.

• SAARC countries have common traditions, dress, food culture, and political aspects thereby synergizing their actions.

• All the SAARC countries have common problems and issues like poverty, illiteracy, malnutrition, natural disasters, internal conflicts, industrial and technological backwardness, low GDP, and poor socio-economic conditions.

Q36. Answer: (a) Tapi

The correct answer is Tapi.

Key Points

• Tapi, also known as the Tapti River, is one of the most important rivers of peninsular India.

• It originates in the Satpura Range of Madhya Pradesh and flows through Maharashtra and Gujarat before draining into the Arabian Sea.

• The river has a total length of about 724 km, making it one of the longest rivers in peninsular India.

• The Tapi River is an important source of water for irrigation, hydropower generation, and drinking water supply for the people living in the region.

• The river is also known for its scenic beauty and is a popular tourist destination. The Tapi Riverfront project in Surat, Gujarat, has been developed as a recreational and entertainment hub for the local residents and tourists.

Important Points

• Satpura range arises parallel to Narmada and Tapi and is a source of both rivers.

• It is one of the major rivers of peninsular India with a length of around 724 km.

• Tapti River, a river in central India, rises in the Gawilgarh Hills of the central Deccan plateau in south-central Madhya Pradesh state.

• It flows westward between two spurs of the Satpura Range, across the Jalgaon plateau region in Maharashtra state, and through the plain of Surat in Gujarat state to the Gulf of Khambhat.

Additional Information

• Beas: The Beas River is a major river in northern India, flowing through the states of Himachal Pradesh and Punjab. It is a tributary of the Indus River and has a total length of about 470 km. The river is an important source of water for irrigation and hydropower generation.

• Palar: The Palar River is a major river in southern India, flowing through the states of Karnataka and Tamil Nadu. It has a total length of about 348 km and is an important source of water for irrigation and drinking water supply for the people living in the region.

• Bhavani: The Bhavani River is a major river in southern India, flowing through the states of Tamil Nadu and Kerala. It has a total length of about 217 km and is an important source of water for irrigation and drinking water supply for the people living in the region.

Q37. Answer: (c) National Rail and Transportation Institute

The answer is the National Rail and Transportation Institute.

Key Points

• The Central Universities (Amendment) Bill 2022 proposed to convert an existing central university into Gati Shakti Vishwavidyalaya, which will focus on transportation and infrastructure studies.

• The key word in the question is "Gati Shakti Vishwavidyalaya," which translates to "University of Transportation and Infrastructure."

• The Central Universities (Amendment) Bill, 2022 was passed in Lok Sabha in August.

• The Central Universities (Amendment) Bill, 2022 was introduced in Lok Sabha on August 1, 2022.

• The Bill amends the Central Universities Act, of 2009, which provides for establishing central universities in various states.

Additional Information

• National Infrastructure and Industrial Institute - This option is not correct as it does not focus specifically on transportation studies.

• National Energy and Environment Institute - This option is not correct as it does not focus specifically on transportation studies.

• National Transport and Infrastructure Institute - This option is similar to the correct option, but the exact name mentioned in the proposed bill is National Rail and Transportation Institute.

Q38. Answer: (a) Increase by 100%

The correct answer is Increase by 100%.

Key Points

• A fiscal deficit is the difference between the government's total expenditures and its total revenue.

• The primary deficit is the fiscal deficit excluding interest payments.

• If both primary deficit and interest payments are doubled, the fiscal deficit will increase by 100%.

• This is because the primary deficit will increase by 100% and interest payments will also increase by 100%, leading to a total increase of 100% in the fiscal deficit.

Additional Information

Primary deficit:

• Primary deficit is referred to as the difference that exists between the fiscal deficit of the current year and the interest payment that was needed to be paid in the previous fiscal year.

• It is one of the three important measures of determining the government deficit.

• It shows the requirement of borrowing from the government and excludes any kind of interest.

• It also highlights the number of government expenses that need to be met through borrowing other than the interest payment.

• While fiscal deficit deals with the government’s total borrowings including the interest payment, primary deficit deals with the government’s borrowings excluding the interest payments.

• Generally, when a loan is raised by the government it includes the interest payment amount also.

• This amount when subtracted from the principal loan amount indicates the primary deficit.

• Primary deficit = Fiscal deficit – Interest payments

• Fiscal deficit = (Total expenditure – Total income of the government)

• Interest payments refer to the previous year’s pending payments.

Q39. Answer: (c) zero

The correct answer is zero

Key Points

• The income velocity of money is a measure of the frequency at which the average unit of currency is used for transactions in a given time period.

• When money is hoarded (idle), it is not being used for transactions.

• Hence, the income velocity of hoarded money is zero because it does not circulate in the economy.

Additional Information

• The concept of money velocity is central to the quantity theory of money, which relates the money supply to the price level and the economy's output.

• A higher velocity of money indicates that each unit of currency is used more frequently to purchase goods and services within a given period.

• Conversely, a lower velocity can indicate economic stagnation or a preference for holding cash rather than spending.

Q40. Answer: (a) Thomas Andrews

The correct answer is Thomas Andrews.

Key Points

• Thomas Andrews was an Irish chemist who made significant contributions to the study of gases.

• In the 1860s, Andrews conducted a series of experiments on carbon dioxide gas and discovered the critical temperature and pressure of the gas.

• He also formulated the concept of the critical point, which is the temperature and pressure at which a gas and liquid are indistinguishable.

• Andrews' work on the gas laws of carbon dioxide was an important step towards understanding the behavior of gases in general.

Additional Information

• Giulio Natta was an Italian chemist who won the Nobel Prize in Chemistry in 1963 for his work on high polymers.

• John Dalton was an English chemist who developed the atomic theory of matter and made important contributions to the study of gases.

• Marguerite Perey was a French physicist who discovered the element francium.

Q41. Answer: (b) Flow cytometry

The correct answer is Flow cytometry.

Key Points

• Flow cytometry is the cell analysis technique used to rapidly analyze single cells or particles as they flow through single or multiple lasers while suspended in a buffered salt-based solution.

• This technique can analyze thousands of cells per second, making it an efficient way to study large populations of cells.

• Flow cytometry can be used to analyze various cell characteristics such as size, shape, and protein expression.

• This technique is commonly used in medical research, clinical diagnostics, and drug development.

• Mass spectroscopy is a technique used to identify the chemical composition of a substance, while electrochemical analysis involves measuring the electrical properties of a substance. Multiple displacement amplification is a technique used to amplify small amounts of DNA.

Q42. Answer: (b) Tilottama Sen

The correct answer is Tilottama Sen.

Key Points

• Tilottama Sen is an Indian shooter who has represented India in various international shooting events.

• The ISSF World Cup is a prestigious shooting tournament organized by the International Shooting Sport Federation, where shooters from different countries compete in various events.

• Tilottama Sen won a bronze medal in the women's 10m Air Rifle at ISSF World Cup Cairo in Egypt on 22 February 2023.

• She won the second bronze for India.

• Great Britain’s Seonaid Mcintosh won gold and Switzerland’s Olympic Champion Nina Christen came second to win silver.

Additional Information

• Shreyasi Singh, another option mentioned, is also an Indian shooter who has won several medals in international shooting events, including a gold medal in the women's double trap event at the 2018 Commonwealth Games.

• Sift Kaur Samra and Nivetha Paramanantham, the other two options mentioned, are also shooters who have represented their respective countries in international shooting events.

Important Points

Sports	Sports Players
Weightlifting	Kunjarani Devi, Karnam Malleswari, Mirabai Chanu, Sanjita Chanu etc.
Shooting	Elavenil Valarivan, Apurvi Chandela, Anjali Bhagwat etc.
Swimming	Arati Saha, Bhakti Sharma, Shikha Tandon etc.
Archery	Deepika Kumari, Ankita Bhakat, Muskan Kirar etc.

Q43. Answer: (a) Manipur

The correct answer is Manipur.

Key Points

• Lui Ngai Ni is a festival that is celebrated in the state of Manipur.

• Lui Ngai Ni is a seed-sowing festival celebrated by the Naga tribes of Manipur.

• It marks the beginning of the new agricultural season and is usually observed in February.

• The festival is characterized by traditional songs, dances, and rituals performed by the Naga communities. It is a time for rejoicing and thanking the gods for a bountiful harvest.

• The festival is also an occasion for the Naga tribes to showcase their rich cultural heritage and traditional attire.

• Tourists from all over the world visit Manipur during this time to witness the celebrations.

• Manipur is a state located in Northeast India, bordering Nagaland, Mizoram, and Assam. It is known for its scenic beauty, rich history, and diverse culture.

Additional Information

• Uttar Pradesh: Uttar Pradesh is a state in North India known for its rich cultural heritage and historical monuments. Some of the popular festivals celebrated in the state include Diwali, Holi, Eid, and Dussehra. However, Lui Ngai Ni is not celebrated in Uttar Pradesh.

• Uttarakhand: Uttarakhand is a state located in North India known for its scenic beauty and pilgrimage sites. Some of the popular festivals celebrated in the state include Kumbh Mela, Ganga Dussehra, and Bikhauti Mela. However, Lui Ngai Ni is not celebrated in Uttarakhand.

• Himachal Pradesh: Himachal Pradesh is a state located in North India known for its scenic beauty and adventure tourism. Some of the popular festivals celebrated in the state include Diwali, Holi, and Baisakhi. However, Lui Ngai Ni is not celebrated in Himachal Pradesh.

Q44. Answer: (c) Kalbelia

The correct answer is Kalbelia.

Key Points

• Padma Shri awardee, Gulabo Sapera is a Kalbelia dancer of Rajasthan.

• The Kalbelia are a tribe of snake charmers located in the Thar Desert in Rajasthan.

• Both men and women can perform the Kalbelia dance, which is an essential component of their culture.

• The Kalbelia dance is also known as the "Sapera Dance" and "Snake Charmer Dance".

• Beginning in 2010, Rajasthan's Kalbelia dance and songs were added to UNESCO's representative list of the Intangible Cultural Heritage of Humanity.

• At the Kalbelia dance, men play a variety of traditional instruments as women dance.

Important Points

Dance of Kalbelia

• Panihari Dance - Dance performed by both men and women

• Indauli Dance - Dance performed by both men and women in doubles

• Sankariya Dance - love affair The couple is based on dance.

• Bagdiya Dance - This dance performed by women only while begging.

Additional Information

Dance	State	Famous people
Sattriya	Assam	• Ghana Kanta Bora - Jatin Goswami
Chhau	• Chhau dance can be classified into three divisions based on the place it is performed; 1. Mayurbhanj Chau of Odisha 2. Seraikella Chau of Jharkhand 3. Purulia Chau of Bengal.	• Late Guru Natasekhar Banbihari Pattanayak, - Guru Padma Shri Rajkumar S.N. Singhdeo - Padma Shri Guru Kedar Nath Sahoo.
Pandavani	Chhattisgarh	Teejan Bai

Q45. Answer: (c) decreasing order of liquidity

The correct answer is decreasing the order of liquidity.

Key Points

• The money supply measures are used by central banks to monitor and control the amount of money in circulation in the economy.

• M1 includes the most liquid forms of money such as cash, demand deposits, and traveler's checks. It is considered a narrow measure of money supply.

• M2 includes M1 plus less liquid forms of money such as savings deposits, time deposits, and money market funds. It is considered a broader measure of money supply than M1.

• M3 includes M2 plus large time deposits, institutional money market funds, and other forms of less liquid assets. It is considered a broad measure of money supply.

• M4 includes M3 plus all other forms of deposits such as certificates of deposit and commercial paper. It is considered the broadest measure of money supply.

Additional Information

Mo(Reserve Money)	Currency in circulation + Bankers' deposits with the RBI + 'Other' deposits with the RBI
M1 (Narrow Money)	Currency with the public + Deposit money of the public
M2	M1 + Savings deposits with Post office savings banks
M3 (Broad Money)	M3 is a measure of the money supply that includes M2 as well as large time deposits, institutional money market funds, short-term repurchase agreements (repo), and larger liquid assets.
M4	M3+ All deposits with the post office savings banks.

Important Points

• The money supply is defined as currency in circulation plus deposits in commercial banks in the most basic sense.

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• The total stock of money circulating in an economy is referred to as the money supply.

• In short, there are two types of money:

• Central bank money (MO).

• Commercial bank money (M1 and M3).

• Central bank money is designated as MO in money supply data, whereas commercial bank money is separated into M1 and M3 components. Post-office deposits are also included in the M2 and M4 components.

Q46. Answer: (a) Are non-justiciable

The correct answer is non-justiciable.

Key Points

• The directive principles of State policy (aka DPSP) were borrowed from Ireland in 1937. However, the idea of DPSP originated in Spain.

• DPSP are an integral part of the Indian constitution and is listed in Part IV, articles 36 - 51.

• DPSP are non-justiciable in nature.

• The Sapru committee in 1945 suggested the two categories of individual rights i.e.

• Justiciable and non-justiciable rights.

• The instrument and instructions from the GOI Act 1935 were taken as DPSP in the constitution.

Additional Information

• Fundamental duties: fundamental duties are borrowed from the USSR whereas the very concept of fundamental duties comes from Japan.

• Fundamental rights: they were borrowed from the USA.

• US constitution: fundamental rights, independence of the judiciary, judicial review, impeachment of the president, removal of the supreme court and high court, the post of vice president.

• Canadian constitution: federation with a strong centre, vesting of residuary powers in the centre appointment of state government by the centre, advisory jurisdiction of the supreme court.

• USSR constitution: fundamental duties, the ideals of justice (social, economic and political).

Q47. Answer: (a) Eighth Five Year Plan

The correct answer is Eighth Five Year Plan.

Key Points

• The Eighth Five-Year Plan was scheduled to be introduced in April 1990 but it was introduced in 1992.

• At that time, the country was going through a severe economic crisis.

• The government launched India's free-market reforms that brought the nearly bankrupt nation back from the edge.

• It was the beginning of liberalization, privatization, and globalization (LPG) in India.

• Major Objectives were

• Creation of employment,

• check population growth, and overall human development.

• Primary health facilities, Drinking Water, and vaccination in all villages

• Growth and diversification of agricultural activities

• Strengthen the basic Infrastructure.

• The target growth rate was 5.6% and the actual growth rate was 6.8%.

Additional Information

9^(th)Five-Year Plan

• It was introduced in 1997.

• It saw contributions towards development from the general public as well as governmental agencies in both the rural and urban areas of the country.

• The 9th Five-Year Plan achieved a GDP growth rate of 5.4% against a target of 6.5%

10^(th) Five-Year Plan

• It was introduced in 2002.

• The Target growth was 8.1% and the growth achieved was 7.7%.

11^(th)Five-Year Plan

• It aimed to increase the enrolment in higher education for the 18–23 years of age group by 2011–12.

• Hence, the 8th five-year plan (FYP) is known for introducing various fiscal and economic reforms including liberalization.

Q48. Answer: (b) smaller

The correct answer is smaller.

Key Points

• Smaller - When taxes are reduced, people have more disposable income to spend which leads to an increase in consumption and hence, an increase in aggregate demand. However, the multiplier effect of this increase in demand is smaller than the multiplier effect of an increase in government spending because some of the tax savings may be saved or used to pay off debt rather than spent immediately.

• Higher - An increase in government spending directly increases aggregate demand as it leads to an increase in government purchases, which in turn leads to an increase in the income of the suppliers. This increase in income leads to an increase in consumption, which again leads to an increase in demand. Thus, the multiplier effect of government spending is higher than the multiplier effect of tax reduction.

• Equivalent The multiplier effect of tax reduction is smaller than the multiplier effect of government spending.

Additional Information

• The multiplier effect refers to the increase in national income that results from an increase in government spending or a reduction in taxes. It is the ratio of the change in national income to the change in government spending or taxes.

• Tax reduction leads to an increase in disposable income, which leads to an increase in consumption. However, some of the tax savings may not be spent immediately, which reduces the multiplier effect.

• Government spending leads to an increase in demand and income, which leads to an increase in consumption and a further increase in demand. This results in a higher multiplier effect.

• The equivalent option is incorrect because tax reduction has a smaller multiplier effect than government spending.

Q49. Answer: (d) They provide necessary conditions for practicing untouchability.

The correct answer is They provide the necessary conditions for practicing untouchability.

Key Points

• The fundamental rights mentioned in the Indian Constitution are the basic rights that every citizen is entitled to.

• They provide necessary conditions for moral protection, as they ensure that every individual is treated with dignity and respect.

• They lay down the foundation for social justice, as they ensure that every individual is treated equally and that there is no discrimination based on caste, gender, religion, etc.

• They also provide necessary conditions for material protection, as they ensure that every individual has access to basic amenities like food, shelter, healthcare, education, etc.

• However, practicing untouchability is a violation of fundamental rights, and therefore, the statement that they provide necessary conditions for practicing untouchability is false.

Additional Information

• The fundamental rights do provide necessary conditions for moral protection, as they ensure that every individual is treated with dignity and respect. This is a key feature of these rights.

• The fundamental rights lay down the foundation for social justice, as they ensure that every individual is treated equally and that there is no discrimination based on caste, gender, religion, etc. This is also a key feature of these rights.

• The fundamental rights provide necessary conditions for material protection, as they ensure that every individual has access to basic amenities like food, shelter, healthcare, education, etc. This is another key feature of these rights.

• Practicing untouchability is a violation of fundamental rights, as it goes against the principles of equality and non-discrimination. Therefore, the statement that they provide necessary conditions for practicing untouchability is false.

Q50. Answer: (c) Kathak

The correct answer is Kathak.

Key Points

• The Sangeet Akademi Award is one of the most prestigious awards in the field of performing arts in India.

• Some of the other classical dance forms in India include Odissi, Bharatanatyam, and Manipuri.

• Kumkum Dhar is a renowned Kathak dancer who has made significant contributions to the art form.

• Sangeet Natak Akademi (The National Academy of Music, Dance, and Drama in English) is the national-level academy for performing arts set up by the Government of India.

• It was set up by the Indian education ministry on 31 May 1952 and became functional the following year, with the appointment of its first chairman, Dr. P. V. Rajamannar.

• Dr. Rajendra Prasad, the first President of India, inaugurated it on 28 January 1953 in a special function held in the Parliament House. The academy's Fellowship and Awards are considered very prestigious.

• In India, it functions as the headquarters of performing arts.

• It presents the Sangeet Natak Akademi Awards which is the highest Indian recognition given to performing/practicing artists

• Kathak is a classical dance form that originated in northern India and is characterized by fast footwork, intricate hand gestures, and facial expressions.

Additional Information

• Odissi is a classical dance form that originated in the state of Odisha and is characterized by fluid movements and intricate footwork.

• Bharatanatyam is a classical dance form that originated in the state of Tamil Nadu and is characterized by grace, precision, and storytelling.

• Manipuri is a classical dance form that originated in the northeastern state of Manipur and is characterized by its use of intricate hand movements and graceful movements.

Important Points

• Sangeet Natak Akademi Puruskar

• The Sangeet Natak Akademi, India's National Academy of Music, Dance, and Drama, bestows the Sangeet Natak Akademi Puraskar.

• It is the highest honor bestowed to practicing artists in India.

• Prior to 2003, the prize came with a citation, a tamrapatra, an angavastram (a shawl), and Rs. 50,000.

• Since 2009, the cash prize has been increased to Rs. 1,00,000.

• The awards are presented in the performing arts categories of music, dance, theatre, other traditional arts, puppetry, and contribution/scholarship.

Q51. Answer: (b) 107°

Shortcut Trick

Angles subtended by the same arc at the circumference are equal.

Therefore angle BAC = angle BDC = 73°.

In ΔABC, the sum of internal angles is 180°.

(angle ABC + angle ACB) = 180° − angle BAC = 180° − 73° = 107°.

Therefore The correct answer is 107°.

Alternate Method

Given:

angle BDC = 73°

Formula Used:

1. Angles in the same segment of a circle are equal.

2. Angle Sum Property: The sum of angles in a triangle is 180°.

Calculations:

=> According to circle theorems, the minor arc BC subtends angle BAC and angle BDC at the major arc circumference.

=> angle BAC = angle BDC

=> angle BAC = 73°

=> In ΔABC, angle ABC + angle ACB + angle BAC = 180°

=> angle ABC + angle ACB + 73° = 180°

=> angle ABC + angle ACB = 180° − 73°

=> angle ABC + angle ACB = 107°

Therefore The correct answer is 107°.

Additional Information

Angles in the Same Segment

Angles subtended by the same chord or arc at any point on the remaining circumference are always equal.

Angle at the Centre

The angle subtended by an arc at the centre is double the angle subtended by it at any point on the circumference (angle BOC = 2 × angle BAC).

Cyclic Quadrilateral

If points A, B, C, and D lie on the circumference, the sum of opposite angles is 180° (angle A + angle C = 180°).

Angle in a Semicircle

The angle subtended by a diameter at any point on the circumference is always a right angle (90°).

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Q52. Answer: (d) 2

Calculation:

If a number is divisble by 88, the number should be divisible by 8 and 11 together.

As per divisibility rule of 8 the possible value of y is 2

If we put x = 0, then the number will be divisible by 11

As the divisibility rule of 11 This particular rule states that the given number can only be completely divided by 11 if the difference of the sum of digits at odd position and sum of digits at even position in a number is 0 or 11.

(Sum of odd-positioned numbers) - (Sum of even positioned numbers) = 0 or multiple of 11

By putting x = 0, and y = 2

The Sum of odd-positioned numbers = 7 + 0 + 5 + 3 + 2 = 17

The sum of even positioned numbers = 8 + 0 + 3 + 2 + 4 = 17

So, the difference is 0, which means the number is divisible by 11

The least value of x + y is 2

Therefore The correct option is 4

Q53. Answer: (c) 56

Given:

The compound ratio of 3 : 4 and 6 : 7 is 36 : x.

Calculation:

Form the compound ration we know that,

3/4 × 6/7 = 36 / x

=> 18 / 28 = 36 /x

=> x = 56

Therefore The correct option is 3

Q54. Answer: (c) 105°

Given:

In Δ ABC, the internal bisectors of angle ABC and angle ACB meet at X and angle BAC = 30°.

Formula used:

angle BXC = 90° + 1/2 angle BAC

Calculation:

angle BXC = 90° + 1/2 angle BAC

=> 90° + 1/2 × 30° = 105°

Therefore The correct option is 3

Q55. Answer: (c) 288 cm²

Formula used:

Total surface area of a cube = $6a^2$

The lateral surface area of a cube = $4a^2$

Calculation:

The difference will be,

=> $6a^2 - 4a^2 = 2a^2$.

Vaue of 2a2. = 2 × 12 × 12

=> 288 cm2

Q56. Answer: (a) 8%

Shortcut Trick

Price after 20% discount = 1500 × 0.8 = Rs. 1200

Required Net Price = Rs. 1104

Additional discount value = 1200 − 1104 = Rs. 96

Additional discount % = (96 ÷ 1200) × 100 = 8%

Therefore The correct answer is 8%.

Alternate Method

Given: Marked Price (MP) = Rs. 1500, First Discount (D1) = 20%, Final Selling Price (SP) = Rs. 1104.
Formula Used: Final SP = MP × (100 − D1)% × (100 − D2)%
Calculations:
=> Price after 1^(st) discount = 1500 − (20% of 1500)
=> Price after 1^(st) discount = 1500 − 300 = Rs. 1200
=> Let additional discount be x%.
=> 1104 = 1200 × (100 − x) ÷ 100
=> 11.04 = 12 × (1 − x ÷ 100)
=> 1104 ÷ 1200 = 1 − x ÷ 100
=> 0.92 = 1 − x ÷ 100
=> x ÷ 100 = 1 − 0.92 = 0.08
=> x = 8%
Therefore The correct answer is 8%.
Additional Information
Successive Discount Formula
If two successive discounts are a% and b%, then the single equivalent discount is (a + b − (ab ÷ 100))%.
Marked Price (MP) and Selling Price (SP)
SP = MP × (1 − d1/100) × (1 − d2/100) ... (1 − d_n/100), where d are discount percentages.
Discount Calculation
Discount is always calculated on the Marked Price (MP) unless otherwise stated. Discount = MP − SP.

Q57. Answer: (a) 1010/11 hours

Given:
Disha takes 12 hours to copy a 75-page manuscript.
Mohit can copy 75-page manuscript in 10 hours
Concept used:
Efficiency is inversely proportional to the time.
Calculation:
The efficiency of Disha is 75 /12 = 25/4
The efficiency of Mohit is 75 /10 = 15/2
So to copy a 150-page manuscript together they will together take,
=>150 / (25/4 + 15 /2)
=> 600 / 55 hours = 1010/11 hours
Therefore The correct option is 1

Q58. Answer: (a) Rs. 6,000

Given:
Cost price of Shobha = 5,130 rs, availing two successive discounts of 10% and 5%
Formula used:
Two successive discounts of a% and b% is equal to, a + b - (a×b) /100
Calculation:
Two successive discounts of 10% and 5% is equal to,
A single discount of 10 + 5 - (10×5) /100 = 14.5 %
As per the question,
Value of 85.5 % = 5130
value of 100% = Rs 6000
Therefore The correct option is 1

Q59. Answer: (a) 8%

Given:
Returns 3 times the principal in 25 years.
Formula used:
Simple interest = P × R × T / 100 [P = principal, R = rate of interest, T = time]

Calculation:
Let,R = rate of interest
Principal is = P
The simple interest got by the person is 3P - P = 2P
As per the question,
=> 2P = P × R × 25 /100
=> R = 8 %
Therefore The correct option is 1

Q60. Answer: (b) 18√7

Formula used:
Direct common tangent = √ (distance between the two centers2 - (r1 - r2)2
Calculation:
The distance between the two centers is = 48 cm
As per the formula,
Direct common tangent = √ (482 - (24 - 18)2.
=> √ (482 - 62.
=> 18√7
Therefore The correct option is 2

Q61. Answer: (a) 4

Given:
The radius of a circle is 3 cm and 'O' is its centre.
The length of distance = 5 cm from 'O'
Concept used:
Pythagoras concept
Calculation:
The length will be = √(52 - 32)
=> √(25-9)
=> √(16)
=> 4
Therefore The correct option is 1

Q62. Answer: (c) 322

Calculation:
The berths in all the classes together are vacant in Trains B is
=> 10 + 17+ 52 + 85 + 86 = 250
The berths in all the classes together are vacant in Trains C is
=> 2 + 9+ 36+ 9 + 16 = 72
Total number of vacant berth 250 + 72 = 322
Therefore The correct option is 3

Q63. Answer: (c) $a^3 + b^3 + c^3 - 3abc$

Calculation:
If (a + b + c) ≠ 0,
then (a + b + c) (a2 + b2 + c2 - ab - bc - ca) is = a3 + b3 + c3 - 3abc
Therefore The correct option is 3

Q64. Answer: (a) 15

Shortcut Trick
Upstream Speed = Distance ÷ Time
Upstream Speed = 10 ÷ (50/60) = 10 × (6/5) = 12 kmph
Speed of boat in still water = Upstream Speed + Speed of stream
Speed of boat = 12 + 3 = 15 kmph

Therefore The correct answer is 15 kmph.
Alternate Method
Given:
Distance traveled upstream = 10 km
Time taken = 50 minutes
Speed of the stream = 3 kmph
Formula Used:
Speed = Distance ÷ Time
Upstream Speed = Speed of boat in still water − Speed of stream
Calculations:
=> Time taken = 50 ÷ 60 hours = 5/6 hours
=> Upstream Speed = 10 ÷ (5/6)
=> Upstream Speed = 10 × (6/5) = 12 kmph
=> Let the speed of the boat in still water be u kmph.
=> 12 = u − 3
=> u = 12 + 3 = 15 kmph
Therefore The correct answer is 15 kmph.
Additional Information
Downstream Speed
When the boat moves in the direction of the stream. Downstream Speed = Speed of boat + Speed of stream.
Speed of Boat in Still Water
If both upstream and downstream speeds are known: Speed of Boat = (Downstream Speed + Upstream Speed) ÷ 2.
Speed of Stream
If both upstream and downstream speeds are known: Speed of Stream = (Downstream Speed − Upstream Speed) ÷ 2.

Q65. Answer: (d) 5% loss

Given:
A vendor earns 10% on one investment but loses 10% on another investment.
The two investments are in the ratio 1 : 3
Calculation:
Let one investment be 100 then the other one is 300.
Total 300 +100 = 400
Profit earn in 1st investment 100 × 10/100 = 10
Loss earn in 2nd investment 300 × 10/100 = 30
Total loss 30-10 = 20
Loss percentage will be 20/400 × 100 = 5%
Therefore The correct option is 4

Q66. Answer: (c) 60°

Given:
sin (p + q) = 1
cos (p - q) = √3/2
Concept used:
Sin90°= 1, cos30° = √3/2
Calculation:
sin (p + q) = 1
=> sin (p + q) = sin 90°
=> p+q = 90°
Again,
cos (p - q) = √3/2
=> cos (p - q) = cos 30°
=> (p - q) = 30°

p = 1/2 (p+q + p - q)
=> 1/2 (90+30) = 60°

Q67. Answer: (c) 53

Given:
Men: women 2 : 3.
The average weights of the men = 56 kg
The women in the office = 51 kg,
Calculation:
Let the number of men is 2x so the number of women is 3x
As per the question,
The average weight of the employees in the office,
=> (56 × 2x + 51 × 3x) / (2x + 3x)
=> 265x / 5x = 53 kg
Therefore The correct option is 3

Q68. Answer: (a) 25,000 kg

Given:
Oranges = 15000 kg
Calculation:
The total amount of muskmelon and watermelon together is (5 + 20) = 25%
As per the question,
The value of 15% = 15000 kg
So, 100% = 100000
The quantity of muskmelon and watermelon together = 100000 × 25/100 = 25000 kg
Therefore The correct option is 1.

Q69. Answer: (d) 3950

Calculation:
The average number of appearing candidates in the screening test from all the four states in the year 2021 is
=> (2900 + 4700 + 3400 + 4800) / 4 = 3950
Therefore The correct option is 4

Q70. Answer: (c) Rs. 31,280

Given:
Expenditure = 68% of his monthly income.
Savings = Rs. 14,720
Concept used:
Income = savings + expenditure
Calculation:
His total income is 100%
He spends 68%
So he saves 100 - 68 = 32%
So the value of 32 % = 14720
So the value of 68% = (14720 / 32)× 68
=> Rs 31,280
Therefore The correct option is 3

Q71. Answer: (b) 357/484

Given:
cosec θ = 17/22
Concept used:
Cotθ = Base/perpendicular
Calculation:

Here
cosec θ = 17/22
cosec θ = 29 / 22
Then Base will be,
=> √(29² - 22²)
=> √(29 - 22) (29 + 22)
=> √(7 ×51) = √(357)
So Cotθ = √(357) / 22
Cot²θ = 357/484
Therefore The correct option is 2

Q72. Answer: (c) 4√3

Given:
x3 = 270 + y3 and x = (6 + y)
Formula used:
x3 - y3 = (x - y)3 + 3xy(x - y)
Calculation:
As per the question,
x3 - y3 = 270, and x - y = 6
x3 - y3 = (x - y)³ + 3xy(x - y)
=> 270 = 216 + 18xy
=> xy = 3
(x+y)² = (x - y)² +4xy
(x+y)2 = (6)2 +4 x 3
=> (x+y)2 = 48
=> (x + y) = 4√3
Therefore The correct option is 3

Q73. Answer: (c) 4

Calculation:
2a + 3b = 14 and 2a - 3b = 10,
So,
=> 2a + 3b + 2a - 3b = 14 + 10
=> 4a= 24
=> a = 6
So b = (14 - 12)/ 3
=> 2/3
The value of ab = 6 × 2/3
=> 4
Therefore The correct option is 3

Q74. Answer: (b) Rs. 2,500

Given:
The rate = 18%. For two years interest is Rs. 981.
Formula used:
In compound interest,
Amount = Principal × (1 + r / 100)n
Calculation:
Let the present value is 100
After 1 yr it would be 118
Then after 2 yr the value is 118 × 18/100 = 21.24
Total interest received in two years 21.24 + 18 = 39.24
As per the question,

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value of 39.24 = 981

So value of 100 units = 981/39.24 × 100

=> Rs 2500

Therefore The correct option is 2

Q75. Answer: (c) √16pq=p²-q²

Shortcut Trick

Put A = 30°, then cot 30° = √3 and cos 30° = √3/2.

=> p = √3 + √3/2 = 3√3/2 and q = √3 − √3/2 = √3/2

=> $p^2 - q^2 = (27/4) - (3/4) = 24/4 = 6$

=> $16pq = 16 \times (3\sqrt{3}/2) \times (\sqrt{3}/2) = 16 \times 9/4 = 36$

=> $\sqrt{16pq} = \sqrt{36} = 6$

Therefore The correct answer is $\sqrt{16pq} = p^2 - q^2$.

Alternate Method

Given:

p = cot A + cos A

q = cot A − cos A

Formula Used:

$(a + b)^2 - (a - b)^2 = 4ab$

$\cot^2 A - \cos^2 A = \cot^2 A \times \cos^2 A$

Calculations:

=> $p^2 - q^2 = (\cot A + \cos A)^2 - (\cot A - \cos A)^2$

=> $p^2 - q^2 = 4 \times \cot A \times \cos A$ --- (Equation 1)

=> pq = (cot A + cos A) × (cot A − cos A)

=> $pq = \cot^2 A - \cos^2 A$

=> $pq = (\cos^2 A / \sin^2 A) - \cos^2 A$

=> $pq = \cos^2 A \times (1 / \sin^2 A - 1)$

=> $pq = \cos^2 A \times (\text{cosec}^2 A - 1)$

=> $pq = \cos^2 A \times \cot^2 A$

=> $\sqrt{pq} = \cos A \times \cot A$

Multiplying by 4 on both sides:

=> $4\sqrt{pq} = 4 \times \cos A \times \cot A$

=> $\sqrt{16pq} = 4 \times \cos A \times \cot A$ --- (Equation 2)

From Equation 1 and Equation 2:

=> $p^2 - q^2 = \sqrt{16pq}$

Therefore The correct answer is $\sqrt{16pq} = p^2 - q^2$.

Additional Information

Pythagorean Identities

The fundamental identities are: $\sin^2 A + \cos^2 A = 1$, $\sec^2 A - \tan^2 A = 1$, and $\text{cosec}^2 A - \cot^2 A = 1$.

Algebraic Expansion Formulas

Standard algebraic formulas used in trigonometry: $(a + b)^2 - (a - b)^2 = 4ab$ and $(a + b)(a - b) = a^2 - b^2$.

Quotient and Reciprocal Relations

The basic relationships include: tan A = sin A ÷ cos A, cot A = cos A ÷ sin A, and cosec A = 1 ÷ sin A.

Q76. Answer: (d) A piece of enclosed land with fruit trees

The solution is in Hindi. Read it online.

Q77. Answer: (c) To decide

The solution is in Hindi. Read it online.

Q78. Answer: (a) I like my puppies, Mac and Matt, but I like Matt better.

The correct answer is "I like my puppies, Mac and Matt, but I like Matt better."

Key Points

• In this context, the error lies in the word "best."
• The word "best" is the superlative form of "good," which is used when comparing three or more things.
• Example: She is the best of all.
• The word "better" is the comparative form of the adjective "good," which is the correct form to use when comparing two things.
• Example: Karan is better than Arun.
• In this sentence, we are comparing two puppies, so the correct answer is Option 1.

Additional Information

• Option 2: "best" is the superlative form of "good," but it is used incorrectly in this context because the sentence only compares two things.
• Option 3: "much" is an adverb that describes the degree or extent of something, but it is not appropriate in this context.
• Option 4: "most" is a superlative form, but it is not used correctly in this context.

Q79. Answer: (b) To wish someone good luck

The solution is in Hindi. Read it online.

Q80. Answer: (a) conservative

The solution is in Hindi. Read it online.

Q81. Answer: (c) learning

The correct answer is "learning."

Key Points

• The original sentence is grammatically incorrect as it uses "enjoy" with the infinitive "to learn."
• It should be "enjoy learning."
• In the corrected version, "learning" must be used which is the gerund form of the verb "learn."
• It is the appropriate form to use after the verb "enjoy."
• The correct answer is option 3.

Correct sentence: I enjoy learning languages because I like them.

Q82. Answer: (d) Squabble

The solution is in Hindi. Read it online.

Q83. Answer: (a) Hospitable

The solution is in Hindi. Read it online.

Q84. Answer: (d) Are the Shuklas visited by the Basus?

The correct answer is: Are the Shuklas visited by the Basus?

Key Points

• The given sentence is in active voice, where the subject "Basus" is performing the action of visiting.
• To convert it into passive voice, we need to make the object "Shuklas" the subject and add a form of "be" before the past participle "visited".
• The resulting sentence will have the object "Basus" after "by", indicating who performed the action.
• Also, the verb is placed before the subject in the Passive Voice.
• Structure:
• Do/does + Subject + V1 + Object? (Active Voice)
• Is/am/are + Object + V2 + by + Subject? (Passive Voice)
• Example:
• Does Rahul love his parents? (Active)
• Are the parents loved by Rahul? (Passive)
• The correct answer is Option 4.

Therefore, the correct answer is: Are the Shuklas visited by the Basus?

Q85. Answer: (b) Occasion

The solution is in Hindi. Read it online.

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Q86. Answer: (c) reserved

The solution is in Hindi. Read it online.

Q87. Answer: (a) emitting

The solution is in Hindi. Read it online.

Q88. Answer: (d) Autobiography

The solution is in Hindi. Read it online.

Q89. Answer: (b) C, A, D, B

The correct answer is (C, A, D, B).

Key Points

• The sentence should start with the subject, which is "he" in this case.

• So, the first part is C.

• The next part should be the verb + preposition, which is "complains about all his."

• So, the next part is A.

• Then, we need to add the object, which is "about all his neighbours and the noise they make."

• So, the next pair must be DB.

• The correct answer is option 2.

Correct sentence: He constantly complains about all his neighbours and the noise they make.

Additional Information

• Option 1 (B, A, D, C) is incorrect because it starts with the object instead of the subject.

• Option 3 (B, D, A, C) is incorrect because it starts with the object and also places the subject after the object.

• Option 4 (D, B, C, A) is incorrect because it starts with the object and places the subject after the verb.

Q90. Answer: (c) The staff kept me waiting for more than an hour to get an appointment.

The correct answer is "The staff kept me waiting for more than an hour to get an appointment."

Key Points

• The given sentence is in Passive Voice. It is in Simple Past Tense. As per the given question we have to change it into Active Voice.

• The structure of Simple Past Tense is as follows:

• Subject + V2 + Object. (Active Voice)

• Subject (objective case)+ was/were + V3 + Object (subjective case). (Passive Voice)

• Example:

• Their cousin showed them some rare photographs. (Active Voice)

• They were shown some rare photographs by their cousin. (Passive Voice)

• In the passive voice, the subject is "I" and the object is "staff."

• So, in the active voice, the subject would be "staff" and the object would be "me."

• 'Was kept' will be changed into 'kept.'

• Therefore, the correct answer is Option 3.

Q91. Answer: (b) D, B, A, C

The correct answer is D, B, A, C.

Key Points

• The paragraph is about the author's experience of writing a book during the COVID-19 pandemic and reflecting on the global impact of the disease. So the first sentence must be D.

• The author mentions about writing the final chapter, so B must follow D.

• The author mentions that almost 6.5 million people have died globally due to COVID-19. So, A must follow B.

• The author reflects on the need for time to heal the grief caused by the pandemic, even though there is a vaccine available.

• So, the last sentence must be C.

• The correct answer is Option 2.

• Correct sequence:

D. I started writing this book in the throes of the pandemic.

B. As I write the final chapter, we enter the third year in our battle with COVID-19.

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A. Globally, almost 6.5 million people have died so far.

C. While we have the vaccine to outlive the disease, to live our grief needs the salve of time.

Q92. Answer: (d) Hiearchy

The solution is in Hindi. Read it online.

Q93. Answer: (a) Dishonour

The solution is in Hindi. Read it online.

Q94. Answer: (c) Distant

The solution is in Hindi. Read it online.

Q95. Answer: (c) where does

Here, the erroneous part is "where does."

Key Points

• The error lies in the part "where does."

• The error is in the subject-verb agreement as "oysters" is plural and "does" is singular.

• The sentence is in the present tense, so the correct question formation should be "where do oysters come from?" instead of "where does oysters come from?"

• The correct sentence should be "Have you ever wondered where do oysters come from?"

• So, the correct answer is Option 3.

Q96. Answer: (b) appeared

The solution is in Hindi. Read it online.

Q97. Answer: (d) worst

The correct answer is "worst."

Key Points

• The blank needs a word that describes a negative comparison with the first option.

• "Worse" is the best fit as it is the opposite of "better," which is the first option.

• We need to use the superlative degree in the blank.

• The superlative degree of comparison is mainly used to show which of the nouns in a particular context has the greatest or least degree of the quality mentioned.

• It is the highest degree of comparison and is used to compare three or more nouns or pronouns.

• The correct answer is Option 4.

• Correct passage:

The Grim Reaper seems to have appeared in Europe during the 14th century. It was during this time that Europe was dealing with what was then the world's worst pandemic, the Black Death, believed to be the result of the plague. It is estimated that about one-third of Europe's entire population ____ (3) __ as a result of the pandemic, with some areas of the continent suffering far greater losses than others. The original outbreak of the plague occurred during 1347–51, and outbreaks then __ (4) __ several other times after that. So, clearly, death was something that the surviving Europeans had on their mind, and it is not surprising that they __ (5) ____ an image to represent it.

Additional Information

• Better: Comparative degree of the word "Good."

• Worse: Comparative degree of the word "Bad."

• Best: Superlative degree of the word "Good."

Q98. Answer: (c) perished

The solution is in Hindi. Read it online.

Q99. Answer: (c) recurred

The solution is in Hindi. Read it online.

Q100. Answer: (b) conjured

The solution is in Hindi. Read it online.

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