SSC CHSL Tier-1 2022: Official Paper (Held On: 17 March, 2023 Shift 2) (Previous Year Paper)

SSC Combined Higher Secondary Level (CHSL) • 2022 • 100 questions • 60 minutes • Answer key and solutions

Take this paper as a timed mock test

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

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

ENGLISH LANGUAGE

Q1. Select the option in which the number-pair shares the same relationship as that is shared by the following number-pair.

15 : 210

(a) 16 : 224
(b) 14 : 196
(c) 22 : 462
(d) 13 : 239

Q2. In a certain code language, ‘SAGE’ is coded as ‘–8’, ‘TABS’ is coded as ‘0’. What is the code for ‘VERB’ in that code language?

(a) –7
(b) 4
(c) –4
(d) 7

Q3. After arranging the given words according to dictionary order, which word will come at ‘Third’ position?

1. Special
2. Speck
3. Species
4. Speckle
5. Spectacle

(a) Special
(b) Speckle
(c) Speck
(d) Species

Q4. In the following question, select the missing number from the given series.

16, 32, 64, 128, ?, 512

(a) 320
(b) 128
(c) 192
(d) 256

Q5. In the following question below are given some statements followed by some conclusions based on those statements. Taking the given statements to be true even if they seem to be at variance from commonly known facts. Read all the conclusions and then decide which of the given conclusion logically follows the given statements.

Statements:

I. No F is N.

II. All N are L.

Conclusions:

I. All F are L.

II. All N are F.

III. Some L are N.

(a) Only conclusion II follows

(b) Only conclusion III follows

(c) Only conclusion I follows

(d) All conclusion follows

Q6. If 36 @ 2 = 1296 and 4 @ 4 = 256, then 9 @ 3 = ?

(a) 729

(b) 343

(c) 512

(d) 6561

Q7. In a certain code language, ‘AWAKED’ is coded as ‘FPFDJW’. What is the code for ‘FACEUP’ in that code language?

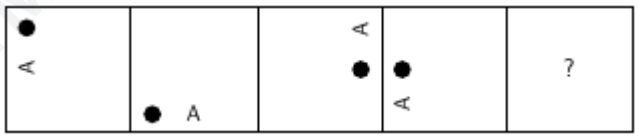
(a) KTHYZI

(b) KTHXZI

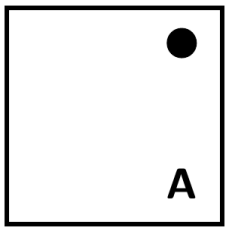
(c) KTHZXI

(d) TKHXZI

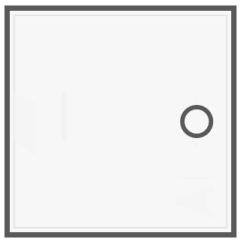
Q8. Select the figure from the given options that can replace the question mark (?) in the following series.



(a)



(b)



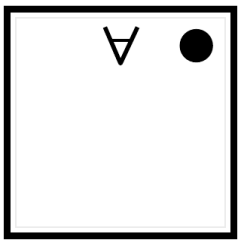
(c)



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(d)

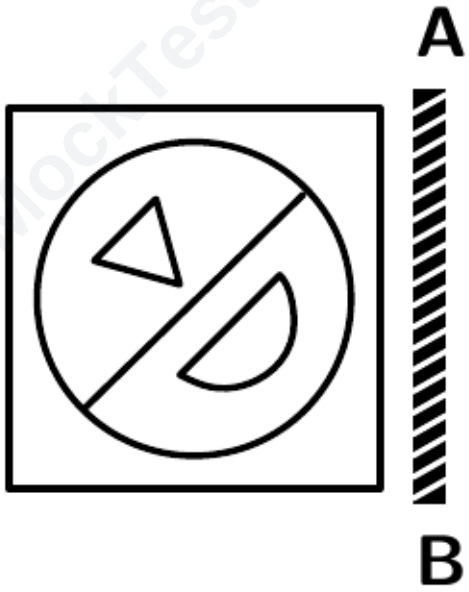


Q9. In the following question, select the related letters from the given alternatives.

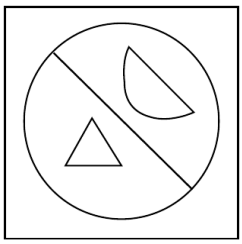
LY : OB :: MZ : ?

(a) YL
(b) PC
(c) KO
(d) BC

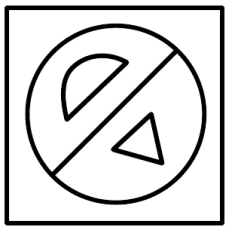
Q10. Select the correct mirror image of the given figure when the mirror is placed to its right side.



(a)

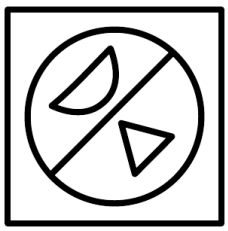


(b)

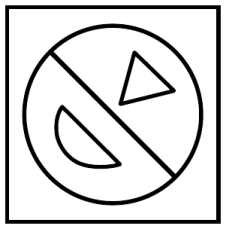


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(c)



(d)



Q11. Select the option in which the numbers share the same relationship in set as that shared by the numbers in the given 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)

(40, 20, 82)

(36, 18, 74)

(a) (118, 69, 278)
(b) (124, 62, 248)
(c) (212, 106, 426)
(d) (206, 103, 412)

Q12. Which two numbers (not digits) should be interchanged to make the given equation correct?

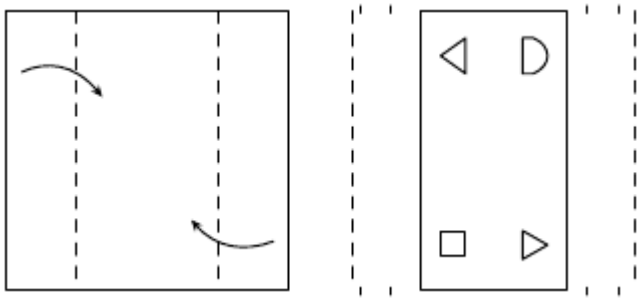
5 - 6 ÷ 3 × 9 + 1 = 0

(a) 1 and 0
(b) 6 and 9
(c) 5 and 9
(d) 6 and 3

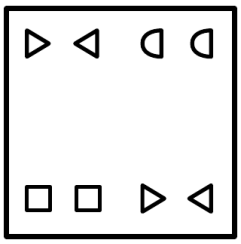
Q13. In the following question, select the odd letter/letters from the given alternatives.

(a) UVSX
(b) OPMR
(c) ABZD
(d) GHEJ

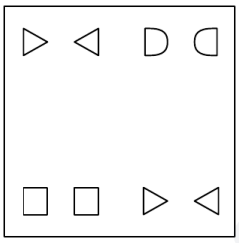
Q14. A piece of paper is folded and punched as shown below in the question figures. From the given answer figures, indicate how it will appear when opened?



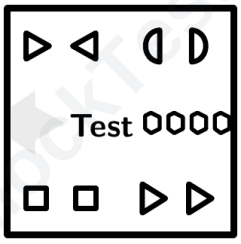
(a)



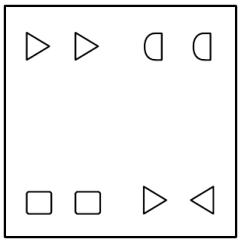
(b)



(c)



(d)



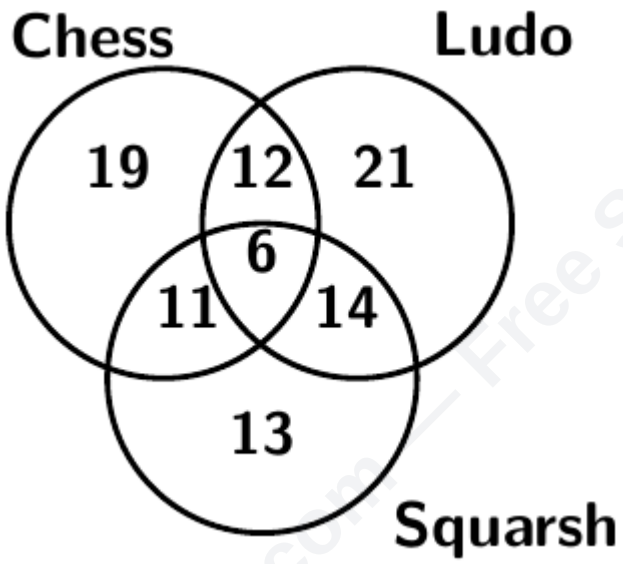
Q15. A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.

NRQS, NIYI, NZGY, ?, NHWE

(a) NQQO
(b) NQQQ
(c) NOOO
(d) NQOO

Q16. Study the given diagram carefully and answer the questions. The numbers in different sections indicate the number of students who play different games. How many students play only one game?

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(a) 32
(b) 37
(c) 61
(d) 53

Q17. Select the option in which the numbers shares the same relationship in set as that shared by the numbers in the given set.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits.

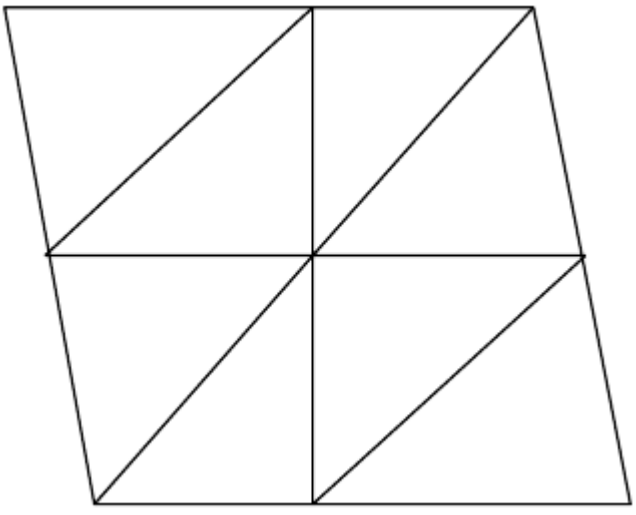
E.g.13 – Operations on 13 such as adding /subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(34, 17, 51)

(46, 23, 69)

(a) (68, 34, 204)
(b) (54, 27, 108)
(c) (72, 36, 108)
(d) (44, 22, 88)

Q18. Find the total number of triangles in the given figure.



(a) 11
(b) 12
(c) 9
(d) 10

Q19. Select the option in which the numbers shares the same relationship in set as that shared by the numbers in the given set. (NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits.

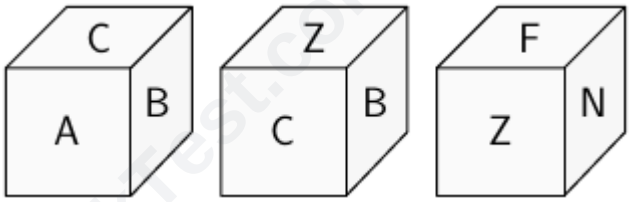
E.g.13 – Operations on 13 such as adding /subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(36, 48, 45)

(72, 96, 90)

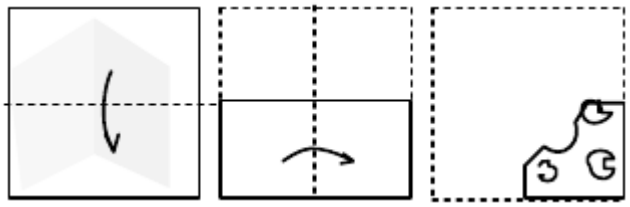
(a) (24, 24, 30)
(b) (48, 64, 72)
(c) (72, 120, 90)
(d) (60, 80, 75)

Q20. Three different positions of the same dice are shown. Select the letter that will be on the face opposite to the one having 'A'.

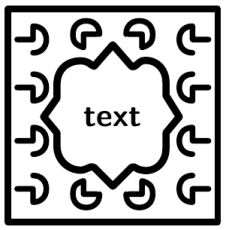


(a) B
(b) F
(c) N
(d) Z

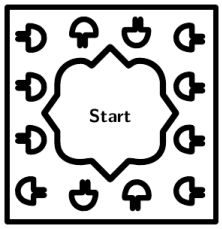
Q21. A piece of paper is folded and punched as shown below in the question figures. From the given answer figures, indicate how it will appear when opened?



(a)

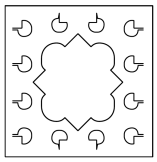


(b)

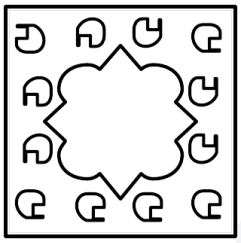


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(c)



(d)



Q22. Pointing towards a photo of a man, Shivang said, “He is the father of my mother’s brother”. How that man is related to Shivang?

(a) Paternal Grandfather
(b) Maternal Grandfather
(c) Father in law
(d) Nephew

Q23. In the following question, select the odd word pair from the given alternatives.

(a) Brick – Wall
(b) Pulp – Paper
(c) Wood – Furniture
(d) Metal – Ore

Q24. Words given on the left side of (::) are related with each other by some Logic/Rule /Relation. Select the missing word/word pair on the right side of (::) from the given alternatives based on the same Logic/Rule/Relation.

Pen : Author :: Gun : ?

(a) Soldier
(b) Tailor
(c) Mason
(d) Farmer

Q25. Words given on the left side of (::) are related with each other by some Logic/Rule /Relation. Select the missing word/word pair on the right side of (???:) from the given alternatives based on the same Logic/Rule/Relation.

Rain : Patter :: Goat : ?

(a) Bleat
(b) Neigh
(c) Hiss
(d) Bark

GENERAL INTELLIGENCE

Q26. Which team won the Irani trophy 2022?

(a) Mumbai
(b) India Blue
(c) Rest of India
(d) Saurashtra

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Q27. Which of the following is NOT a major iron ore belt in India?

(a) Maharashtra - Goa belt
(b) Haryana - Rajasthan Belt
(c) Odisha - Jharkhand belt
(d) Durg-Bastar - Chandrapur belt

Q28. Which of the following statements is correct regarding the marginal utility of a commodity?

I. It is the change in total utility due to consumption of one additional unit of a commodity.

II. It diminishes with increase in consumption of the commodity.

(a) Both I and II
(b) Only II
(c) Only I
(d) Neither I nor II

Q29. Prime Minister Narendra Modi laid foundation stone for the world's first CNG terminal in _____ in September 2022.

(a) Maharashtra
(b) Madhya Pradesh
(c) Bihar
(d) Gujarat

Q30. "World Refugee Day" is observed every year on _____.

(a) 20^(th) June
(b) 22th June
(c) 18^(th) June
(d) 17^(th) June

Q31. PARAM 8000, developed in 1991 using parallel processing, belongs to which generation?

(a) Second
(b) First
(c) Fifth
(d) Third

Q32. The tropic of cancer does NOT pass through which of the following states of India?

(a) Odisha
(b) Jharkhand
(c) Mizoram
(d) Rajasthan

Q33. Which athlete became the first Indian to win Diamond League Finals title for javelin throw in 2022?

(a) Neeraj Chopra
(b) Shivpal Singh
(c) Davinder Singh Kang
(d) Annu Rani

Q34. Who was the first Indian to get the Oscar for lifetime achievements in cinema in 1992?

(a) Tarun Majumdar
(b) K Viswanath
(c) Satyajit Ray
(d) T Rama Rao

Q35. Which among the following is the correct way to express change of inventories of a firm during a year?

(a) Change of inventories of a firm during a year (value added – intermediate goods used by the firm + sale of the firm during a year)
(b) Change of inventories of a firm during a year (value added + intermediate goods used by the firm + sale of the firm during

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a year)

(c) Change of inventories of a firm during a year (value added – intermediate goods used by the firm – sale of the firm during a year)

(d) Change of inventories of a firm during a year (value added + intermediate goods used by the firm – sale of the firm during a year)

Q36. Which of the following keyboard shortcut is used to switch between open apps in Windows 10?

(a) Shift + Tab

(b) Shift + Alt + Tab

(c) Alt + Tab

(d) Alt + Shift

Q37. Which of the following is NOT a type of a fold mountain?

(a) Aravali range

(b) The Rhine Valley

(c) Appalachians

(d) Ural Mountains

Q38. Which of the following pair of "player – sports" is correct?

I. Manpreet Singh – Boxing

II. Neeraj Chopra – Javelin Throw

(a) Neither I nor II

(b) Both I and II

(c) Only II

(d) Only I

Q39. What is the pH of human blood?

(a) 6.5

(b) 5.8

(c) 10

(d) 7.4

Q40. Which of the following countries has decided to opt out of the International Space Station (ISS) after 2024?

(a) United States of America

(b) Russia

(c) Japan

(d) Germany

Q41. Which among the following lakes lies on the borders of Andhra Pradesh and Tamil Nadu?

(a) Dal

(b) Pulicat

(c) Loktak

(d) Sambhar

Q42. Under _____ (Governor General from 1813 to 1823) a new policy of “paramountcy” was initiated. Now the Company claimed that its authority was paramount or supreme, hence its power was greater than that of Indian states.

(a) Lord Amherst

(b) Lord Cornwallis

(c) Lord Hastings

(d) Lord Auckland

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Q43. The nineteenth century saw the golden age of Kathak under the patronage of _____, the last Nawab of Oudh.

(a) Asaf-ud-daula
(b) Siraj-ud-daulah
(c) Saadat Khan Burhanul mulk
(d) Wajid Ali Shah

Q44. The Seventy-First Amendment to the Indian Constitution included Konkani, Manipuri, and Nepali languages in the _____ Schedule.

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

Q45. Buddha meditated for days on end under a peepal tree at _____, where he attained enlightenment.

(a) Sarnath
(b) Bodh Gaya
(c) Kushinagar
(d) Ujjain

Q46. Which of the following dancer is related to Odissi dance?

(a) Shovana Narayan
(b) Birju Maharaj
(c) Sujata Mohapatra
(d) Rukmini Devi

Q47. Which of the following is a type of connective tissue?

I. Blood
II. Bone
III. Ligament

(a) Only III
(b) Only II and III
(c) I, II and III
(d) Only I and III

Q48. Directive Principles of State Policy of the Indian constitution are borrowed from the constitution of which country?

(a) Germany
(b) Japan
(c) Spain
(d) Ireland

Q49. Flight Lieutenant _____ had created history in May 2019 by becoming the first woman to qualify for combat missions on a fighter jet.

(a) Priya Jhingan
(b) Harita Kaur Deol
(c) Bhawana Kanth
(d) Shanti Tigga

Q50. Which of the following is an organic impurity in sewage?

(a) Phosphates
(b) Human faeces
(c) Nitrates
(d) Metals

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QUANTITATIVE APTITUDE

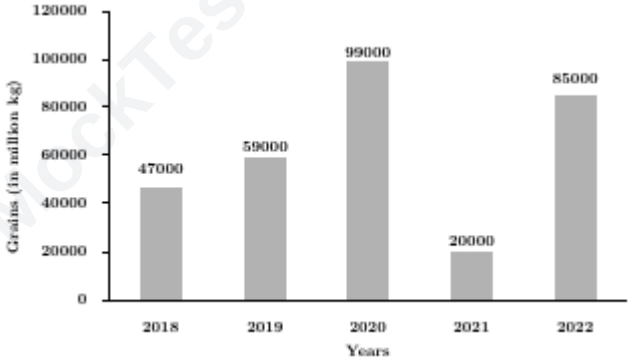
Q51. Radii of two circles are 20 cm and 4 cm. Length of direct common tangent is 30 cm. What is the distance between their centres?

(a) 36 cm
(b) 38 cm
(c) 34 cm
(d) 32 cm

Q52. 6m61 is divisible by 11. What is the value of m?

(a) 0
(b) 4
(c) 3
(d) 5

Q53. The following bar chart shows the quantity (in million kg) of grains exported by India from 2018-2022. By how much percentage is the minimum export less than the average export in the given period?



(a) 67.74%
(b) 77.25%
(c) 88.25%
(d) 38.44%

Q54. The bar graph given below shows the cost price and selling price of four articles J, K, L and M.



The average cost price of J and K together is how much percent more than the average selling price of L and M together?

(a) 12.5 percent
(b) 14.28 percent
(c) 20 percent
(d) 7.28 percent

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Q55. If sec β + tan β = 2, then what is the value of cot β?

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

Q56. If sec A = 9/4, then what is the value of cot A?

(a) 4/√65
(b) 9/√65
(c) √65/9
(d) √65/4

Q57. In ΔPQR, PN is the median on QR. If PN = QN, then what is the value of angle QPR?

(a) 90 degree
(b) 80 degree
(c) 60 degree
(d) 75 degree

Q58. L is the incentre of ΔONP. If angle OLP + angle ONP = 195 degree, then what will be the value of angle OLP?

(a) 115 degree
(b) 140 degree
(c) 135 degree
(d) 125 degree

Q59. If a + b + c = 0 and $a^2 + b^2 + c^2 = 40$, then what is the value of ab + bc + ca?

(a) -30
(b) -20
(c) -25
(d) -40

Q60. If the sum of a number and its reciprocal is 4, find the sum of their squares.

(a) 12
(b) 16
(c) 14
(d) 18

Q61. On decreasing the price of a fan by 30 percent, its sales increases by 40 percent. What will be the percentage decrease in its revenue?

(a) 2 percent decrease
(b) 5 percent decrease
(c) 8 percent decrease
(d) 3 percent decrease

Q62. The average age of Rustam and Preetam is 30 years. The average age of Preetam and Geetam is 20 years. The average age of Rustam and Geetam is 26 years. What will be the age of the youngest of the three after 5 years?

(a) 21 years
(b) 22 years
(c) 26 years
(d) 25 years

Q63. On selling a table for Rs. 210 and Rs. 420 there will be loss of L1% and L2 % respectively. If L1- L2 = 7, then what is the cost price of table

(a) Rs. 5,000
(b) Rs. 3,000
(c) Rs. 7,000

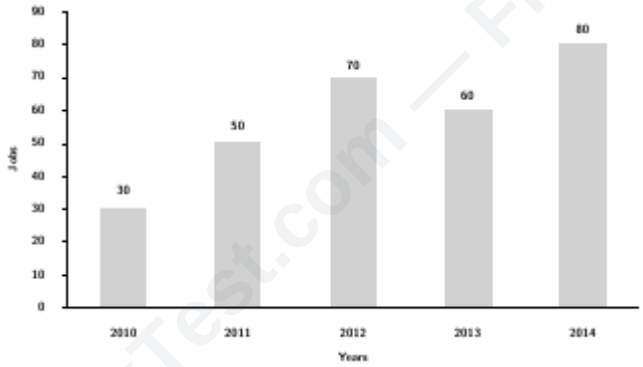
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(d) Rs. 4,000

Q64. If sec x + cos x = 5/2, where x lies between 0° and 90°, then what is the value of $\sin^2 x$?

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

Q65. Given bar graph shows the number of jobs held by Indians over different years in Canada. In which of these year minimum jobs are held by Indians?



(a) 2011
(b) 2010
(c) 2012
(d) 2013

Q66. The distance between P and Q is 720 km. A train leaves P at 6 am and runs at a speed of 20 m/s. The train stops on the way for 1 hour 30 minutes. At what time train will reach at Q?

(a) 5 : 00 pm
(b) 4 : 45 pm
(c) 5 : 15 pm
(d) 5 : 30 pm

Q67. The table given below shows production of taxi by two companies J and K in 5 years.

	Companies	
Years	J	K
P	90	55
Q	70	60
R	50	90
S	45	80
T	40	65

Which of the following statement is NOT correct?

I. The difference between the total production of taxi by J and K in all years is 35.

II. The production of taxi by J in year P and Q together is 92.11 percent of the production of taxi by K in years R and S together.

(a) Only II
(b) Both I and II
(c) Neither I nor II
(d) Only I

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Q68. What is the compound interest for 1 year on a sum of Rs.18000 at the annual rate of 20 percent per annum compounding half yearly?

(a) Rs. 3780
(b) Rs. 2450
(c) Rs. 4500
(d) Rs. 3650

Q69. Manoj sold an article on marked price for Rs. 13,000. Had he offered a discount of 10% on the marked price he would have earned a profit of 30%. What is the cost price?

(a) Rs. 10,000
(b) Rs. 9,900
(c) Rs. 9,000
(d) Rs. 11,000

Q70. Ratio of the angles of a triangle are 2 : 2 : 5. What is the largest angle?

(a) 120 degree
(b) 80 degree
(c) 110 degree
(d) 100 degree

Q71. What is the value of (5/6 of 1/3× 12/25-1/3 of 5/6× 18/25)/(25/12 of 1/6 × 2/5+3/8 of 12/25×5/6) ?

(a) -3/13
(b) -5/13
(c) -8/25
(d) -3/25

Q72. Rani can do a work in 10 days, Priya can do the same work in 15 days and Guddu can do the same work in 12 days. If they do that work together and they are paid Rs. 9000, then what is the share of Priya?

(a) Rs. 2400
(b) Rs. 3000
(c) Rs. 3500
(d) Rs. 3600

Q73. The length of a cuboid is 8 cm. If the breadth of the cuboid is twice of its length and height of the cuboid is half of its length, then what is the total surface area of the cuboid?

(a) 448 cm2
(b) 216 cm2
(c) 188 cm2
(d) 154 cm2

Q74. If a = 12, b = -7 and c = -5, then what is the value of $a^3 + b^3 + c^3$?

(a) 1260
(b) 1125
(c) 1200
(d) 1380

Q75. Rs. 13000 is divided among X, Y and Z such that 2 times of X's share is equal to 3 times of Y's share which is equal to 4 times of Z's share. What is the share of Y?

(a) Rs. 3200
(b) Rs. 4800
(c) Rs. 5600
(d) Rs. 4000

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GENERAL AWARENESS

Q76. In the following question, out of the given four alternatives, select the alternative which best expresses the meaning of the Idiom/Phrase.

Get into hot water

(a) To get a costly gift
(b) To get into trouble
(c) To reach nowhere
(d) A private end to serve

Q77. Find the part of the given sentence that has an error in it. If there is no error, choose 'No error'.

More than 40 percent of the world's population lives in regions where water has becoming increasingly scarce.

(a) has becoming increasingly scarce.
(b) lives in regions where water
(c) More than 40 percent of the world's population
(d) No error

Q78. Choose the word that means the same as the given word.

Shapeless

(a) Amorphous
(b) Amortization
(c) Amoral
(d) Amorous

Q79. Choose the word that can substitute the given group of words.

Lion like characteristics

(a) Leonine
(b) Feline
(c) Porcine
(d) Lionize

Q80. Choose the sentence with no spelling error.

(a) They give the impressin that you are desperate.
(b) They give the impression that you are desparate.
(c) They give the impression that you are desperate.
(d) They give the impresion that you are desperate.

Q81. In the following question, out of the given four alternatives, select the alternative which best expresses the meaning of the Idiom/Phrase.

Penny wise and pound foolish

(a) Careless with large amounts, but not small
(b) To act like a fool
(c) An intelligent person who behaves foolishly
(d) Dissipating money without caring about consequences

Q82. Select the correct indirect form of the given sentence.

He said, "You were making excuses."

(a) He said that I had been making excuses.
(b) He said that you were making excuses.
(c) He said that you had been making excuses.
(d) He said that I was making excuses.

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Q83. Find the part of the given sentence that has an error in it. If there is no error, choose 'No error'.

Balloons filled with helium travel hundreds or even thousands of mile.

(a) Balloons filled with helium
(b) travel hundreds or
(c) No error
(d) even thousands of mile.

Q84. Choose the word that is opposite in meaning to the given word.

Abstinence

(a) Gluttony
(b) Celibacy
(c) Continence
(d) Control

Q85. Fill in the blank with an appropriate option.

Earwax is a helpful and _____ part of your body's defenses.

(a) transparent
(b) flowing
(c) tedious
(d) natural

Q86. Choose the word that can substitute the given group of words.

A game that results neither in victory nor in defeat

(a) Void
(b) Cynic
(c) Draw
(d) Fawn

Q87. Rearrange the parts of the sentence in correct order.

P. won the right to host the 2020 Games, explicitly stated that
Q. Tokyo 2020 represented a key way to open up Japanese
R. culture and people to the watching and visiting world
S. Shinzo Abe, who was prime minister at the time Japan

(a) QRSP
(b) RPQS
(c) SRPQ
(d) SPQR

Q88. Select the most appropriate one-word substitution for the given group of words.

Someone who avoids other people's company.

(a) Amiable
(b) Gregarious
(c) Reclusive
(d) Amicable

Q89. Select the correct passive form of the given sentence.

My father cooks breakfast every day.

(a) Breakfast was being cooked every day by my father.
(b) Breakfast was cooked every day by my father.
(c) Breakfast is cooked every day by my father.
(d) Breakfast was cook every day by my father.

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Q90. Choose the word that is opposite in meaning to the given word.

Antsy

(a) Collected
(b) Perturbed
(c) Pure
(d) Adulation

Q91. Choose the incorrectly spelt word.

(a) Treasure
(b) Poison
(c) Mason
(d) Clouwn

Q92. Fill in the blank with the most suitable word.

He was rewarded for his meekness _____ and understanding heart.

(a) wisest
(b) on a wisely
(c) with wiser
(d) with a wise

Q93. Improve the underlined part of the sentence. Choose 'No improvement' as an answer if the sentence is grammatically correct.

The crime scene were surround by yellow tape.

(a) No improvement
(b) was surrounded
(c) were surrounded
(d) was surround

Q94. Select the most appropriate antonym of the given word.

Ideal

(a) Flawed
(b) Excellent
(c) Fitting
(d) Optimal

Q95. Fill in the blank with the most suitable word.

_____ on the silver tray like a white snake, the wedding garland was as thick as my forearm.

(a) Circulated
(b) Repeated
(c) Bartered
(d) Coiled

Directions

In the following passage some of the words have been deleted. Read the passage carefully and select the correct answer for the given blank out of the four alternatives.

The ocean floor is famously less (1)____ than the surface of Mars. And when our team of scientists recently mapped the seabed, and ancient sediments beneath, we (2)____ what looks like an asteroid impact crater.

Intriguingly, the crater, (3)____ "Nadir" after the nearby volcano Nadir Seamount, is of the same age as the Chicxulub impact caused by a huge asteroid at the end of the Cretaceous (4)__, around 66 million years ago, which (5)____ the dinosaurs and many other species.

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

(a) reconstructed
(b) imposed
(c) explored
(d) stocked

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

(a) discovered
(b) screened
(c) shaped
(d) founded

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

(a) dropped
(b) named
(c) murmured
(d) squeaked

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

(a) generation
(b) spell
(c) period
(d) vase

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

(a) wiped out
(b) absolved in
(c) turned off
(d) counted in

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (c) 22 : 462

The logic followed here is:
Logic: 1st number × (1st number - 1) = 2nd number.
For, 15 : 210
→ 15 × (15 - 1)
→ 15 × 14 = 210.

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Now, checking the options,
Option 1) 16 : 224
→ 16 × (16 - 1)
→ 16 × 15 = 240 ≠ 224.
Option 2) 14 : 196
→ 14 × (14 - 1)
→ 14 × 13 = 182 ≠ 196.
Option 3) 22 : 462
→ 22 × (22 - 1)
→ 22 × 21 = 462.
Option 4) 13 : 239
→ 13 × (13 - 1)
→ 13 × 12 = 156 ≠ 239.
Hence, the correct answer is "Option 3".

Q2. Answer: (a) –7

The logic followed here is:
Logic: (Sum of first two digit's place value) - (Sum of last two digit's place value).
Now,
'SAGE' is coded as '-8'
=> [S(19) + A(1)] - [G(7) + E(5)]
=> 20 - 12 = 8.
And, '8 is written as -8'.
For, 'TABS' is coded as '0'
=> [T(20) + A(1)] - [B(2) + S(19)]
=> 21 - 21 = 0.
And, '0 is written as 0'.
Similarly, for 'VERB'
=> [V(22) + E(5)] - [R(18) + B(2)]
=> 27 - 20 = 7.
And, '7 is written as -7'.
So, 'VERB' will be coded as '-7'.
Hence, the correct answer is "-7".

Q3. Answer: (c) Speck

The correct order as per the dictionary is as follows:
1) Special
3) Species
2) Speck
4) Speckle
5) Spectacle
Here, we can see that Speck is at the third position.
Hence, the correct answer is "Speck".

Q4. Answer: (d) 256

The logic followed here is:
So, '256' will complete the series.
Hence, the correct answer is "256".

Q5. Answer: (b) Only conclusion III follows

Given Statements:
I. No F is N.
II. All N are L.

The least possible Venn diagram for the given statement is:
Conclusions:
I. All F are L - False (Because, All N are L and no F is N, so those part of N that is L will be definitely not F).
II. All N are F - False (Because, No F is N).
III. Some L are N - True (Because, All N are L so, some L are N is definitely true).
So, Only conclusion III follows.
Hence, the correct answer is "Option 2".

Q6. Answer: (a) 729

The logic followed here is:
Logic: Consider @ as 'times or power'.
Now,
For, 36 @ 2 = 1296
=> 36 × 36 = 1296.
For, 4 @ 4 = 256,
=> 4 × 4 × 4 × 4 = 256.
Similarly, for 9 @ 3 = ?
=> 9 × 9 × 9 = 729.
Hence, the correct answer is "729".

Q7. Answer: (b) KTHXZI

The logic followed here is:
For, ‘AWAKED’ is coded as ‘FPFDJW’,
Similarly, for 'FACEUP'
So, 'FACEUP' is coded as 'KTHXZI'.
Hence, the correct answer is "Option 2".

Q8. Answer: (d) [figure]

The logic followed here is:
Step I: The 'Shaded Circle' is getting rotated in anti-clockwise direction and shifting its place by +1, +2,+3,+4,+5 places.
Step II: The 'Letter A' is getting rotated in anti-clockwise direction and shifting its place by +1, +2,+3,+4,+5 places.
So, the complete series will be:
Hence, the correct answer is "Option 4".

Q9. Answer: (b) PC

The logic followed here is:
Logic: 3 has been added in each letter's positional value to get the corresponding letters.
LY : OB
Similarly,
MZ :?
Hence, the correct answer is "PC".

Q10. Answer: (d) [figure]

The mirror image of the given figure is:
Hence, the correct answer is "Option 4".

Q11. Answer: (c) (212, 106, 426)

The logic followed here is:
Logic: (1st number - 2nd number) × 4 + 2 = 3rd number.
Now, for (40, 20, 82)
=> (40 - 20) × 4 + 2
=> 20 × 4 + 2 = 82.
For, (36, 18, 74)
=> (36 - 18) × 4 + 2

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=> 18 × 4 + 2 = 74.

Similarly, for (212, 106, 426)

=> (212 - 106) × 4 + 2

=> 106 × 4 + 2 = 426.

Hence, the correct answer is "Option 3".

Q12. Answer: (c) 5 and 9

Given equation: 5 - 6 ÷ 3 × 9 + 1 = 0.

BODMAS Table:

Let's check each option one by one.

Option 1) 1 and 0

Given: 5 - 6 ÷ 3 × 9 + 1 = 0

After interchanging the numbers we get;

=> 5 - 6 ÷ 3 × 9 + 0 = 1

=> 5 - 2 × 9 + 0 = 1

=> 5 - 18 + 0 = 1

=> 5 - 18 = 1

=> - 13 ≠ 1

=> LHS ≠ RHS

Option 2) 6 and 9

Given: 5 - 6 ÷ 3 × 9 + 1 = 0

After interchanging the numbers we get;

=> 5 - 9 ÷ 3 × 6 + 1 = 0

=> 5 - 3 × 6 + 1 = 0

=> 5 - 18 + 1 = 0

=> 6 - 18 = 0

=> - 12 ≠ 0

=> LHS ≠ RHS

Option 3) 5 and 9

Given: 5 - 6 ÷ 3 × 9 + 1 = 0

After interchanging the numbers we get;

=> 9 - 6 ÷ 3 × 5 + 1 = 0

=> 9 - 2 × 5 + 1 = 0

=> 9 - 10 + 1 = 0

=> 10 - 10 = 0

=> 0 = 0

=> LHS = RHS

Option 4) 6 and 3

Given: 5 - 6 ÷ 3 × 9 + 1 = 0

After interchanging the numbers we get;

=> 5 - 3 ÷ 6 × 9 + 1 = 0

=> 5 - 0.5 × 9 + 1 = 0

=> 5 - 4.5 + 1 = 0

=> 6 - 4.5 = 0

=> 1.5 ≠ 0

=> LHS ≠ RHS

Hence, the correct answer is "Option 3".

Q13. Answer: (c) ABZD

The logic followed here is:

Option 1) UVSX

Option 2) OPMR

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Option 3) ABZD
Option 4) GHEJ
Here, 'ABZD' is odd among the given options.
Hence, the correct answer is "Option 3".

Q14. Answer: (b) [figure]

When the paper is unfolded, the image we get is shown below:
Hence, the correct answer is "Option 2".

Q15. Answer: (d) NQOO

The logic followed here is:
So, 'NQOO' will replace the question mark in the given series.
Hence, the correct answer is "NQOO".

Q16. Answer: (d) 53

According to the given Venn diagram:
The shaded area shows the "total number of students play only one game".
So, the total number of 'students play only one game' = 19 + 21 + 13 = 53.
Hence, the correct answer is "53".

Q17. Answer: (c) (72, 36, 108)

The logic followed here is:
Logic:- Second Number = First Number ÷ 2
And, Third Number = First Number + Second Number.
(34, 17, 51):
→ 17 = 34 ÷ 2
→ 51 = 34 + 17
(46, 23, 69):
→ 23 = 46 ÷ 2
→ 69 = 46 + 23
Let's check each option as per the logic:
1. (68, 34, 204):
→ 34 = 68 ÷ 2
→ 204 ≠ 68 + 34 => Doesn't satisfy the logic.
1. (54, 27, 108):
→ 27 = 54 ÷ 2
→ 108 ≠ 54 + 27 => Doesn't satisfy the logic.
1. (72, 36, 108):
→ 36 = 72 ÷ 2
→ 108 = 72 + 36 => Satisfies the logic.
1. (44, 22, 88):
→ 22 = 44 ÷ 2
→ 88 ≠ 44 + 22 => Doesn't satisfy the logic.
Here, we can see that only Option 3 satisfies the logic.
Hence, the correct answer is "Option 3".

Q18. Answer: (d) 10

The triangles are:
So, there are '10' triangles in the given figure.
Hence, the correct answer is "10".

Q19. Answer: (d) (60, 80, 75)

The logic followed here is:
Logic: (1st number ÷ 12) + 3rd number = 2nd number.

Now,
For (36, 48, 45)
=> (36 ÷ 12) + 45
=> 3 + 45 = 48.
For (72, 96, 90)
=> (72 ÷ 12) + 90
=> 6 + 90 = 96.
Similarly, for (60, 80, 75)
=> (60 ÷ 12) + 75
=> 5 + 75 = 80.
Hence, the correct answer is "Option 4".

Q20. Answer: (d) Z

For find the opposite surface of 'A', we need to compare the common surface in the given dices,
So, From Dice 1 and Dice 2,
→ Letter C and B is the common surface,
So, the remaining 'Z' will be the opposite face of 'A'.
Hence, the correct answer is "Option 4".

Q21. Answer: (d) [figure]

When the paper is unfolded, the image we get is as follows:
Hence, the correct answer is "Option 4".

Q22. Answer: (b) Maternal Grandfather

Family Chart:
Given: Pointing towards a photo of a man, Shivang said, “He is the father of my mother’s brother”.
So, the man is Maternal Grandfather of Shivang.
Hence, the correct answer is "Option 2".

Q23. Answer: (d) Metal – Ore

The logic followed here is:
Logic: The first word is used to make the second word.
Let's check each option as per the logic,
1) Brick – Wall:
→ Brick is used to make wall.
2) Pulp – Paper:
→ Pulp is used to make Paper.
3) Wood – Furniture:
→ Wood is used to make Furniture.
4) Metal – Ore:
→ Metal is not used to make ore. Here, the order is wrong.
Here, we can see that only Option 4 doesn't follow the logic.
Hence, the correct answer is "Metal – Ore".

Q24. Answer: (a) Soldier

The logic followed here is:
Logic: The first word is used by the second word.
Pen : Author
→ Pen is used by the author.
Similarly,
Gun :?
→ Gun is used by the soldier.
Hence, the correct answer is "Soldier".

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Q25. Answer: (a) Bleat

The logic followed here is:

Logic: The word on the right side is the sound made by the word on the left side.

Rain : Patter

→ Patter is the sound of the rain.

Similarly,

Goat :?

→ Bleat is the sound made by the Goat.

Hence, the correct answer is "Bleat".

Q26. Answer: (c) Rest of India

The correct answer is Rest of India.

Key Points

• The Irani Trophy:-

• It is a domestic first-class cricket tournament in India.

• It is played annually between the Rest of India team, consisting of top domestic players from various states, and the Ranji Trophy champions, the winner of the premier domestic cricket competition in India.

• The Rest of India team:-

• It is also known as ROI, is a domestic cricket team in India that participates in the Irani Trophy.

• The Rest of India team is composed of top-performing players from various states who are not part of the Ranji Trophy-winning team.

• They won the Irani Trophy 2022

Additional Information

• Mumbai:-

• It is one of the most successful cricket teams in Indian domestic cricket.

• The Mumbai cricket team represents the Mumbai Cricket Association (MCA) and competes in various domestic tournaments, including the Ranji Trophy.

• India Blue:-

• It represents one of the cricketing regions in India and is made up of top domestic players.

• The team consists of players who have performed well in the domestic cricket season and are selected to represent the India Blue team.

• Saurashtra:-

• It is a cricket team that represents the Saurashtra Cricket Association (SCA) in Indian domestic cricket.

• Saurashtra is a region located in the western part of the Indian state of Gujarat.

Q27. Answer: (b) Haryana - Rajasthan Belt

The correct answer is Haryana - Rajasthan Belt.

Key Points

• Iron ore belt in India:-

• The iron ore belt in India refers to the region that contains high-quality iron ore deposits.

• It is located in the central and southern parts of the country.

• The iron ore belt stretches from the state of Odisha in the east to Jharkhand, Chhattisgarh, and Andhra Pradesh in the central and southern regions.

• Haryana - Rajasthan Belt is not an iron ore belt. (Hence option 2 is correct)

Additional Information

• The Maharashtra-Goa belt:-

• It is a significant iron ore-producing region in western India.

• It is located along the western coast, spanning parts of Maharashtra and Goa states.

• This belt is known for its iron ore deposits, particularly the high-quality hematite ores.

• The Odisha-Jharkhand belt:-

• It is a major iron ore-producing region in eastern India.

• It encompasses parts of the states of Odisha and Jharkhand and is one of the richest mineral belts in the country.

• Durg-Bastar-Chandrapur belt:-

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• It is not primarily known as an iron ore-producing region.

• Instead, it is a significant geological belt in central India that is rich in mineral resources, including coal and other minerals like limestone, bauxite, and manganese.

Q28. Answer: (a) Both I and II

The correct answer is Both I and II

Key Points

• Marginal utility:-

• It refers to the additional satisfaction or benefit a consumer derives from consuming one additional unit of a commodity or product.

• It is a concept used in economics to analyze consumer behaviour and the relationship between the quantity consumed and the utility or satisfaction obtained from it.

• Both statements I and II are correct regarding the marginal utility of a commodity.

• Statement I: The marginal utility refers to the additional utility or satisfaction gained from consuming one more unit of a commodity.

• It represents the change in total utility resulting from the consumption of an additional unit of the commodity.

• Therefore, a statement I is accurate.

• Statement II: The law of diminishing marginal utility states that as the consumption of a commodity increase, the marginal utility derived from each additional unit of the commodity diminishes.

• In other words, as you consume more of a commodity, the satisfaction or utility gained from each additional unit decreases.

• Hence, statement II is also correct.

Q29. Answer: (d) Gujarat

The correct answer is Gujrat.

Key Points

• The first compressed natural gas (CNG) Terminal in the world will be built near Gujarat's Bhavnagar port for an estimated cost of Rs 4,000 crore by a consortium of the Mumbai-based Padmanabhan Mafatlal Group and the UK's Foresight Group.

• On September 29, Prime Minister Narendra Modi will lay the foundation for the project.

• The massive CNG Terminal project has a cargo handling capacity of 1.5 million metric tonnes per annum (MMTPA).

• The Gujarat Maritime Board (GMB), which is currently managing the Bhavnagar Port will also support the project as it would be developed using a public-private partnership (PPP) approach.

• The upcoming CNG Terminal will have the fourth largest lock gate system in the world in addition to an ultra-modern container terminal, a multipurpose terminal, a Ro-Ro terminal, and a liquid terminal.

• The future brownfield project will also have direct door-step connectivity to the existing roadway and railway network connecting to the largest industrial zones, the Dedicated Freight Corridor, and the northern hinterland of India.

• The construction of the port is expected to commence in the first half of 2023 and the port will be operational in 2026.

Additional Information

• Maharashtra:-

• It is a state located in the western region of India. It is the third-largest state by area and the second-most populous state in the country.

• The capital city of Maharashtra is Mumbai, which is also the financial and entertainment capital of India.

• The state is known for its rich cultural heritage, historical landmarks, and diverse cuisine.

• Bihar:

• It is the third-most populous state in the country.

• The capital city of Bihar is Patna.

• The state has a deep-rooted historical significance and is associated with the ancient kingdoms of Magadha and Maurya.

• Bihar is known for its cultural and religious heritage, with important pilgrimage sites like Bodh Gaya, where Gautama Buddha attained enlightenment.

• Madhya Pradesh:

• Madhya Pradesh is a state located in central India.

• It is the second-largest state by area and the sixth-most populous state in the country.

• The capital city of Madhya Pradesh is Bhopal.

• The state is known for its rich history and architectural marvels, with landmarks such as the Khajuraho Group of Monuments, Sanchi Stupa, and the Gwalior Fort.

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Q30. Answer: (a) 20^(th) June

The correct answer is 20th June.

Key Points

• World Refugee Day:-

• It is an international observance held annually on June 20th.

• It is a day designated by the United Nations to honor the courage, resilience, and strength of millions of refugees worldwide who have been forced to flee their homes due to conflict, persecution, or other forms of violence.

• The main purpose of World Refugee Day is to raise awareness about the plight of refugees and to mobilize support for their protection and well-being.

• It serves as a reminder that refugees are ordinary people who have been through extraordinary circumstances and deserve compassion, empathy, and assistance.

• The theme for World Refugee Day may vary each year, focusing on different aspects of the refugee crisis. It serves as a platform to shed light.

Additional Information

• Other Important days in June:-

• June 1:- Global Day of Parents

• June 5:- World Environment Day

• June 8:- World Oceans Day

• June 14:- World Blood Donor Day

• June 17:- World Day to Combat Desertification and Drought

• June 19:- Juneteenth

• June 20:- World Refugee Day

• June 21:- International Day of Yoga

• June 23:- United Nations Public Service Day

• June 26:- International Day against Drug Abuse and Illicit Trafficking

• June 30:- International Asteroid Day

Q31. Answer: (c) Fifth

The correct answer is Fifth.

Key Points

• PARAM:-

• It is a series of supercomputers developed by the Centre for Development of Advanced Computing (C-DAC) in India.

• It stands for "Parallel Machine." PARAM was one of the earliest supercomputing initiatives in India and has evolved over time to encompass various generations and models.

• The PARAM series started with PARAM 8000, which was commissioned in 1991 and was India's first indigenous supercomputer. Since then, several iterations of the PARAM supercomputers have been developed, each offering increased computing power and performance.

• Some notable PARAM supercomputers include:

• PARAM 8000: India's first supercomputer, introduced in 1991.

• PARAM 8000 Plus: An upgraded version of PARAM 8000, released in 1994.

• PARAM 8600: A supercomputer launched in 1998, which utilized a distributed memory architecture.

• PARAM 10000: Introduced in 1998, PARAM 10000 was designed for weather forecasting and other scientific applications.

• PARAM Padma: A supercomputer launched in 2002, featuring high computational power and network bandwidth.

• PARAM Yuva: A supercomputer unveiled in 2009, offering significant computing capabilities for research and development.

• PARAM Shakti: A series of indigenous supercomputers based on RISC-V architecture, developed by C-DAC and announced in 2018. This series aims to promote the development and adoption of the indigenous processor architecture in India.

• PARAM Siddhi-AI: An artificial intelligence-focused supercomputer unveiled in 2020, designed to accelerate research in AI and machine learning applications.

Q32. Answer: (a) Odisha

The correct answer is Odisha.

Key Points

• Tropic of Cancer:-

• The Tropic of Cancer is an imaginary line of latitude located at approximately 23.5 degrees north of the equator.

• It is one of the five major lines of latitude that mark the Earth's surface and plays a significant role in defining the Earth's climate zones.

• The Tropic of Cancer is specifically the northernmost point where the Sun appears directly overhead at noon during the June solstice.

• This event marks the beginning of summer in the Northern Hemisphere. It also signifies the boundary of the tropical region and separates it from the subtropical and temperate zones.

• The Tropic of Cancer passes through several countries, including India, Mexico, Egypt, Saudi Arabia, and China, among others.

• It does not pass through Odisha.

• It passes through:-

• Gujrat

• Rajasthan

• Chhattisgarh

• Madhya Pradesh

• Jharkhand

• West Bengal

• Tripura

• Mizoram

Q33. Answer: (a) Neeraj Chopra

The correct answer is Neeraj Chopra.

Key Points

• The Diamond League:-

• It is an annual series of elite track and field athletic events that bring together the best athletes from around the world.

• It is organized by World Athletics (formerly known as the International Association of Athletics Federations or IAAF) and consists of a collection of prestigious meets held in various cities across the globe.

• Neeraj Chopra:-

• Neeraj Chopra is an Indian athlete and javelin thrower.

• He was born on December 24, 1997, in Khandra village in the Panipat district of Haryana, India.

• Chopra's biggest achievement came at the 2020 Tokyo Olympics, which were held in 2021 due to the COVID-19 pandemic.

• He won the gold medal in the men's javelin throw event, becoming the first Indian athlete to win a track and field gold medal at the Olympics.

• Neeraj Chopra's winning throw of 87.58 meters not only secured him the gold but also set a new national record.

• He became the first Indian to win Diamond League Finals title for javelin throw in 2022.. (Hence option I is correct)

Additional Information

• Shivpal Singh:-

• Shivpal Singh is an Indian javelin thrower.

• He was born on June 6, 1995, in the Varanasi district of Uttar Pradesh, India.

• Shivpal Singh comes from an athletic background, with his father being a former national-level javelin thrower.

• Davinder Singh Kang:-

• Davinder Singh Kang is an Indian javelin thrower.

• He was born on 20 June 1988 in the Jalandhar district of Punjab, India.

• Kang is known for being the first Indian javelin thrower to qualify for the finals of the World Championships.

• Annu Rani:-

• Annu Rani is an Indian javelin thrower.

• She was born on 28 August 1992 in the Meerut district of Uttar Pradesh, India.

• Rani is known for her accomplishments in the javelin throw event and has represented India in various international competitions.

Q34. Answer: (c) Satyajit Ray

The correct answer is Satyajit Ray.

Key Points

• Satyajit Ray:-

• Satyajit Ray (1921-1992) was a renowned Indian filmmaker, screenwriter, author, and composer.

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• He is considered one of the greatest filmmakers in the history of cinema and is often credited with bringing Indian cinema to the global stage.

• Ray is particularly known for his realistic and artistic approach to filmmaking, focusing on human relationships and social issues.

• Ray's directorial debut came with the film "Pather Panchali" (1955), the first installment of his critically acclaimed Apu Trilogy.

• The trilogy, which also includes "Aparajito" (1956) and "Apur Sansar" (1959), follows the life of a young boy named Apu and is considered a masterpiece of world cinema.

• Satyajit Ray received numerous awards and accolades throughout his career:-

• He was honored with the prestigious Legion of Honour by the French government, and in 1992.

• He was posthumously awarded the Academy Award for Lifetime Achievement.

• The Academy Awards:-

• They are also known as the Oscars, are an annual set of awards honoring artistic and technical excellence in the film industry.

• The awards are presented by the Academy of Motion Picture Arts and Sciences (AMPAS), and they recognize outstanding achievements in various categories, including acting, directing, writing, and film production.

Additional Information

• Tarun Majumdar:-

• Tarun Majumdar is an Indian film director and screenwriter known for his work in Bengali cinema.

• He was born on February 22, 1931, in Comilla, British India (now Bangladesh).

• Majumdar is considered one of the pioneers of the parallel cinema movement in Bengal and is often associated with the "middle cinema" genre.

• K Viswanath:-

• Kasinathuni Viswanath, popularly known as K. Viswanath, is an eminent Indian film director, screenwriter, and actor, primarily associated with Telugu cinema.

• He was born on February 19, 1930, in Repalle, Andhra Pradesh, India.

• Viswanath is known for his artistic and socially relevant films, which have garnered critical acclaim and widespread recognition.

• T. Rama Rao:-

• Nandamuri Taraka Rama Rao (NTR), was a prominent Indian actor, filmmaker, and politician.

• He was born on May 28, 1923, in Nimmakuru, Andhra Pradesh, India, and passed away on January 18, 1996.

• NTR had a remarkable career in the Telugu film industry, where he acted in over 300 films and gained immense popularity.

• He made his acting debut in 1949 with the film "Mana Desam" and went on to portray a wide range of roles, including mythological, historical, and social dramas

Q35. Answer: (d) Change of inventories of a firm during a year (value added + intermediate goods used by the firm – sale of...

The correct answer is Change of inventories of a firm during a year (value added + intermediate goods used by the firm – sale of the firm during a year).

Key Point

• The correct way to express the change of inventories of a firm during a year is by calculating the inventory turnover or by using the formula for the change in inventories.

• Inventory Turnover:

• Inventory turnover is a financial ratio that measures the number of times a company's inventory is sold and replaced during a given period.

• It is calculated by dividing the cost of goods sold (COGS) by the average inventory value.

• The formula for inventory turnover is:

• Inventory Turnover = Cost of Goods Sold / Average Inventory

• Change in Inventories::-

• The change in inventories can be calculated by subtracting the ending inventory value from the beginning inventory value.

• The formula for the change in inventories is:

• Change in Inventories = Ending Inventory - Beginning Inventory

• This measure represents the net increase or decrease in inventory over a specific period, such as a year. A positive value indicates an increase in inventory, while a negative value suggests a decrease.

Q36. Answer: (c) Alt + Tab

The correct answer is Alt + Tab.

Key Points

• Microsoft:-

• It is s widely recognized for its operating systems such as Microsoft Windows and software applications like Microsoft Office suite (including Word, Excel, PowerPoint, etc.), Microsoft Edge web browser, and many other tools and services.

• Windows 10:-

• It is a widely used operating system developed by Microsoft.

• It is part of the Windows NT family of operating systems and serves as the successor to Windows 8.1

• Alt + Tab:- It is a shortcut for switching between open applications or windows in most operating systems.

Additional Information

• Here are some common keyboard shortcuts for Windows 10:

• Shift + Tab:- to navigate backward through fields or elements, particularly in forms or dialog boxes.

• Shift + Alt + Tab:- to navigate through open applications or windows in reverse order.

• Alt + Shift:- to switch between keyboard input languages or keyboard layouts in many operating systems

Q37. Answer: (b) The Rhine Valley

The correct answer is The Rhine Valley

Key Points

• Fold Mountain:-

• Fold mountains are a type of mountain formed by the folding of layers of rock in the Earth's crust.

• They are characterized by long, linear ridges and valleys that often extend for hundreds of kilometers.

• The process of mountain formation through folding is known as orogeny.

• The Rhine Valley:-

• The Rhine Valley refers to the region along the Rhine River, which is one of the major rivers in Europe.

• The Rhine River flows through multiple countries, including Switzerland, Germany, France, and the Netherlands.

• The Rhine Valley encompasses the areas surrounding the river as it meanders through these countries.

Additional Information

• Aravali range:-

• The Aravali Range is a mountain range located in western India, primarily in the states of Rajasthan and Haryana.

• It is one of the oldest mountain ranges in the world, dating back to millions of years.

• The Aravali Range stretches approximately 800 kilometers (500 miles) from Gujarat in the southwest to Delhi in the northeast.

• It is a type of fold mountain.

• Appalachians:-

• The Appalachians, also known as the Appalachian Mountains or Appalachian Range, are a vast mountain system in eastern North America.

• They extend for about 2,400 kilometers (1,500 miles) from Newfoundland and Labrador in Canada, down through the eastern United States, and into northern Alabama in the southeastern part of the country.

• The Appalachian Mountains are one of the oldest mountain ranges in the world.

• It is a type of fold mountain.

• Ural Mountains:-

• It is a mountain range that stretches for about 2,500 kilometers (1,550 miles) from north to south, dividing the European and Asian continents.

• The range starts from the Arctic Ocean in the north and extends to the Ural River in the south, which separates Russia into its European and Asian parts.

• It is a type of fold mountain.

Q38. Answer: (b) Both I and II

Mistake Points

There are two notable individuals named Manpreet Singh from India who excel in different sports. One is a renowned field hockey player, while the other is an amateur boxer. The field hockey player, Manpreet Singh, holds the position of captain in the Indian national team and is widely regarded as one of the world's best in his sport. On the other hand, the amateur boxer, Manpreet Singh, was trained at the Army Sports Institute and competes in the 82 – 91 kg weight category. Notably, he achieved a silver medal in the 2010 Asian Games, which took place in Guangzhou, China.

Solution:

The correct answer is Both I and II.

Key Points

• Manpreet Singh:-

• Manpreet Singh (born 3 May 1985)is an amateur boxer from India and a product of Army Sports Institute. (Hence option I is correct)

• He competes in 82 – 91 kg category.

• Manpreet won silver medal in 2010 Asian Games held in Guangzhou, China.

• Boxing:-

• Boxing is a combat sport that involves two individuals, typically of similar weight, who engage in a contest of strength, speed, agility, and strategy.

• The objective of boxing is to score points or achieve a knockout by landing punches on the opponent while avoiding being hit.

• Neeraj Chopra:-

• Neeraj Chopra is an Indian athlete and javelin thrower. (Hence option II is correct)

• He was born on December 24, 1997, in Khandra village in the Panipat district of Haryana, India.

• Chopra's biggest achievement came at the 2020 Tokyo Olympics, which were held in 2021 due to the COVID-19 pandemic.

• He won the gold medal in the men's javelin throw event, becoming the first Indian athlete to win a track and field gold medal at the Olympics.

• Neeraj Chopra's winning throw of 87.58 meters not only secured him the gold but also set a new national record.

• Javelin Throw:-

• Javelin throw is a track and field event in which athletes compete to throw a javelin, a spear-like implement, as far as possible.

• It is one of the oldest Olympic events and requires a combination of strength, technique, and speed.

Q39. Answer: (d) 7.4

The correct answer is 7.4

Key Points

• pH:-

• pH scale is used to know if the substance is acidic or basic.

• The scale ranges from 0 to 14.

• 0 is strongly acidic and 14 is strongly basic or alkaline.

• The pH of 7 is considered neutral.

• The p in pH stands for ‘potenz’ in German, meaning power.

• pH of human blood is 7.4. (Hence Option 4 is correct)

Additional Information

• pH values of some common substances:-

Substance	pH
Human Saliva	6.4
Milk	6.8
Distilled Water	7.0
Human Tears	7.4
Egg	7.8
Baking Soda	8.3
Milk of Magnesia	10.5
Sodium Hydroxide	14
HCl	1.0
Lemon Juice	2.0

Q40. Answer: (b) Russia

The correct answer is Russia.

Key Points

• International Space Station (ISS):-

• The International Space Station (ISS) is a multinational cooperative project involving space agencies from the United States

(NASA), Russia (Roscosmos), Europe (ESA), Japan (JAXA), and Canada (CSA).

• It is a habitable space station that orbits the Earth and serves as a research laboratory, observatory, and living space for astronauts from different countries.

• Russia will opting out of it by the 2024.

• Roscosmos:-

• Roscosmos, also known as the Russian Space Agency, is the government corporation responsible for the space activities of Russia.

• It was formed in 1992 following the dissolution of the Soviet Union and the subsequent restructuring of the Russian space industry.

• Roscosmos is tasked with various responsibilities related to space exploration, scientific research, and the development of space technologies.

• Its primary objectives include the launch and operation of manned and unmanned spacecraft, satellite deployment, and the advancement of space science.

Additional Information

• NASA:-

• NASA, short for the National Aeronautics and Space Administration, is an independent agency of the United States federal government responsible for the country's civilian space program and for aeronautics and aerospace research.

• NASA was established on July 29, 1958, replacing its predecessor, the National Advisory Committee for Aeronautics (NACA)

• JAXA:-

• JAXA stands for the Japan Aerospace Exploration Agency. It is the national space agency of Japan and is responsible for the country's space exploration, satellite deployment, and aerospace research.

• JAXA was formed on October 1, 2003, through the merger of three former organizations: the Institute of Space and Astronautical Science (ISAS), the National Aerospace Laboratory of Japan (NAL), and the National Space Development Agency of Japan (NASDA).

Q41. Answer: (b) Pulicat

The correct answer is Pulicat.

Key Points

• Pulicat Lake (also known as Pulicat Lagoon) lies on the borders of Andhra Pradesh and Tamil Nadu.

• Pulicat Lake is the second-largest brackish water lagoon in India.

• It spans the states of Andhra Pradesh and Tamil Nadu, with the majority of its area falling in Andhra Pradesh.

• The lake is separated from the Bay of Bengal by a barrier island known as Sriharikota.

• Pulicat Lake is home to a rich variety of flora and fauna, including numerous bird species, making it an important bird sanctuary and an ecologically significant area.

Additional Information

• Dal Lake:

• Dal Lake is a popular tourist attraction located in Srinagar, Jammu and Kashmir.

• It is known for its scenic beauty, serene surroundings, and floating gardens called "Rad" and "Sankara."

• The lake is surrounded by snow-capped mountains, Mughal gardens, and charming houseboats.

• Shikaras, traditional wooden boats, are commonly used for transportation and sightseeing on Dal Lake.

• Loktak Lake:

• Loktak Lake is the largest freshwater lake in Northeast India, situated in Manipur.

• It is known for its floating phumdis (heterogeneous mass of vegetation, soil, and organic matter) that can be seen on the lake's surface.

• The lake is home to the Keibul Lamjao National Park, which is the world's only floating national park and a refuge for the endangered Manipur brow-antlered deer.

• Loktak Lake plays a crucial role in maintaining the ecological balance and is a significant source of livelihood for the local communities.

• Sambhar Lake:

• Sambhar Lake, located in Rajasthan, is the largest inland saltwater lake in India.

• It is an important wintering area for migratory birds, including flamingos, and is recognized as a Ramsar site.

• Sambhar Lake is known for its salt production, and salt pans can be seen around the lake's vicinity.

• The lake is surrounded by vast saline wetlands, giving it a unique landscape and attracting nature enthusiasts and birdwatchers.

Important Points

Lake Name	Situated at
Vembanad Lake	Kerala
Chilika Lake	Odisha
Sambhar Lake	Rajasthan
Kolleru Lake	Andhra Pradesh
Pulicat Lake	Andhra Pradesh/TN
Wular Lake	Jammu and Kashmir
Dal Lake	Jammu and Kashmir
Loktak Lake	Manipur
Nagarjuna Sagar Lake	Telangana/Andhra Pradesh
Bhimtal Lake	Uttarakhand
Pichola Lake	Rajasthan
Pushkar Lake	Rajasthan
Upper Lake (Bada Talaab)	Madhya Pradesh
Renuka Lake	Himachal Pradesh
Nainital Lake	Uttarakhand

Q42. Answer: (c) Lord Hastings

The correct answer is Lord Hastings.

Key Points

• Lord Hastings served as the Governor-General of India from 1813 to 1823.

• During his tenure, Lord Hastings initiated a policy of "paramountcy" in British India.

• The policy of paramountcy declared that the authority of the British East India Company was supreme and superior to that of Indian princely states.

• Under the doctrine of paramountcy, the Company claimed the power to intervene in the affairs of Indian states and asserted its dominance over them.

Additional Information

• Lord Amherst:

• Lord Amherst served as the Governor-General of India from 1823 to 1828.

• He oversaw the First Anglo-Burmese War (1824-1826), which resulted in the British acquisition of territories in Northeast India.

• Lord Amherst implemented various administrative and judicial reforms during his tenure.

• He faced criticism for his handling of the war and was recalled to England in 1828.

• Lord Cornwallis:

• Lord Cornwallis served as the Governor-General of India from 1786 to 1793.

• He is best known for his administrative reforms, including the introduction of the Permanent Settlement of Bengal in 1793.

• Lord Cornwallis played a significant role in shaping the administrative and legal structures of British India.

• He also led the British forces during the Third Anglo-Mysore War, culminating in the defeat of Tipu Sultan in 1792.

• Lord Auckland:

• Lord Auckland served as the Governor-General of India from 1836 to 1842.

• He pursued an expansionist policy in Afghanistan and became involved in the First Anglo-Afghan War (1839-1842).

• The war proved to be a military and political disaster for the British, and they faced significant setbacks and losses.

• Lord Auckland was criticized for his decisions and handling of the conflict, and he was replaced as Governor-General in 1842.

Q43. Answer: (d) Wajid Ali Shah

The correct answer is Wajid Ali Shah.

• Wajid Ali Shah was the last Nawab of Oudh (Awadh) and reigned from 1847 to 1856.

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• He was a prominent patron of the arts and played a significant role in the development and promotion of Kathak, a classical dance form of India.

• Wajid Ali Shah himself was a skilled dancer, poet, and musician, and he actively supported Kathak performers and musicians during his reign.

• Under his patronage, Kathak reached its golden age in the nineteenth century, with the art form flourishing in the royal courts and gaining popularity among the masses.

• Asaf-ud-daula:

• Asaf-ud-daula was the fourth Nawab of Awadh, ruling from 1775 to 1797.

• He is known for his patronage of art, architecture, and literature in Lucknow.

• Asaf-ud-daula commissioned the construction of several architectural marvels, including the Bara Imambara and the Rumi Darwaza in Lucknow.

• He also promoted cultural activities and supported renowned poets and musicians of his time.

• Siraj-ud-daulah:

• Siraj-ud-daulah was the last independent Nawab of Bengal, reigning from 1756 to 1757.

• He is famously associated with the Battle of Plassey in 1757, where he faced defeat against the British East India Company forces led by Robert Clive.

• The British victory at Plassey marked a significant turning point in the British colonization of India.

• Siraj-ud-daulah's defeat and subsequent capture led to the British gaining control over Bengal and establishing their dominance in the region.

• Saadat Khan Burhanul mulk:

• Saadat Khan Burhanul mulk, also known as Burhan-ul-Mulk, was a prominent Persian noble and statesman.

• He served as the founder of the Nawab dynasty in Awadh and became the first Nawab of Awadh in 1722.

• Saadat Khan played a vital role in stabilizing and expanding the Awadh region and was known for his administrative and military reforms.

• Under his rule, Awadh witnessed significant development, and he established a well-organized administration and a strong revenue system.

Q44. Answer: (a) Eighth

The correct answer is Eighth.

Key Points

• The 71st Amendment, enacted in 1992, added Konkani, Manipuri, and Nepali languages to the Eighth Schedule of the Indian Constitution, recognizing them as official languages of India.

• The amendment was a significant step towards linguistic inclusivity, acknowledging the cultural and linguistic diversity of India and granting official status to these languages.

• The 71st Amendment highlighted the importance of preserving and promoting these languages, ensuring their protection, and facilitating educational resources, official documentation, and communication in these languages for their respective communities.

• The addition of Konkani, Manipuri, and Nepali languages to the Eighth Schedule aimed to provide representation and support to linguistic communities in Goa, Manipur, and Sikkim, respectively.

Additional InformationThere are a total of 12 Schedules in the Indian Constitution.

Schedules	Features
First Schedule	List of States & Union Territories
Second Schedule	Salary of President, Governors, Chief Judges, Judges of High Court and Supreme Court, Comptroller and Auditor General.
Third Schedule	Forms of Oaths and Affirmations
Fourth Schedule	Allocate seats for each state of India in Rajya Sabha
Fifth Schedule	Administration and control of scheduled areas and tribes.
Sixth Schedule	Provisions for the administration of Tribal Areas in Assam, Meghalaya, Tripura, Mizoram
Seventh Schedule	Gives allocation of powers and functions between Unions & States. It contains 3 lists Union List, States, Concurrent List
Eighth Schedule	List of 22 languages of India recognized by the Constitution.

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Ninth Schedule	It contains acts & orders related to land tenure, land tax, railways, and industries.
Tenth Schedule	It contains provisions for disqualification of grounds of defection.
Eleventh Schedule	It contains provisions of the Panchayati Raj.
Twelfth Schedule	It contains provisions of the Municipal Corporation.

Q45. Answer: (b) Bodh Gaya

The correct answer is Bodh Gaya.

Key Points

• Bodh Gaya is a small town in the state of Bihar, India, and it is one of the most sacred sites in Buddhism.

• It was at Bodh Gaya, under a peepal tree known as the Bodhi Tree, that Siddhartha Gautama, later known as Buddha, attained enlightenment.

• The site of Bodh Gaya is marked by the Mahabodhi Temple, which is a UNESCO World Heritage Site and an important pilgrimage destination for Buddhists worldwide.

• The temple complex houses the sacred Bodhi Tree, the Vajrasana (Diamond Throne) where Buddha meditated, and various other monastic structures.

Additional Information

• Sarnath:

• Sarnath, located near Varanasi in Uttar Pradesh, is where Buddha delivered his first sermon after attaining enlightenment.

• It is a significant pilgrimage site for Buddhists.

• Kushinagar:

• Kushinagar, also in Uttar Pradesh, is the place where Buddha attained Mahaparinirvana (passed away).

• It is an important Buddhist pilgrimage site and has several monastic ruins and stupas.

• Ujjain:

• Ujjain is an ancient city in Madhya Pradesh and holds religious importance in Hinduism.

• It is associated with the Kumbh Mela and is known for its ancient temples, but it is not directly linked to Buddha's life or enlightenment.

Q46. Answer: (c) Sujata Mohapatra

The correct answer is Sujata Mohapatra.

Key Points

• Sujata Mohapatra is a renowned Odissi dancer and Guru who has made significant contributions to the Odissi dance form.

• She is known for her graceful movements, intricate footwork, and emotive expressions that are characteristic of Odissi dance.

• Sujata Mohapatra was honoured with the Sangeet Natak Akademi Award in 2013, one of the highest recognition given for performing arts in India.

• As a Guru, Sujata Mohapatra has trained and mentored many students, passing on the rich traditions and techniques of Odissi dance.

Additional Information

• Shovana Narayan:

• Shovana Narayan is a renowned Kathak dancer who has contributed to the field of Kathak dance.

• She is known for her expressive storytelling, intricate footwork, and graceful movements in the Lucknow Gharana style of Kathak.

• Shovana Narayan received the Padma Shri award, one of the highest civilian honours in India, in the year 1992.

• She has also been actively involved in promoting cultural exchanges and collaborations between India and other countries.

• Birju Maharaj:

• Birju Maharaj is a legendary Kathak dancer, choreographer, and Guru.

• He belongs to the Lucknow Gharana and is recognized for his mastery of intricate footwork, graceful movements, and expressive storytelling.

• Birju Maharaj has received numerous national and international awards for his contribution to Kathak dance like Padma Vibhushan in 1986, Sangeet Natak Akademi Award in 1964, Kalidas Samman etc.

• He has played a vital role in preserving and popularizing Kathak through his performances, teaching, and choreographic works.

• Rukmini Devi:

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• Rukmini Devi was a renowned Bharatanatyam dancer, choreographer, and the founder of Kalakshetra.

• She is credited with reviving and reforming Bharatanatyam, bringing it into the mainstream and removing social stigmas associated with the art form.

• Rukmini Devi's contributions include incorporating elements from other classical dance styles, introducing new themes and techniques, and establishing Kalakshetra as a leading institution for Indian classical arts.

• She was a strong advocate for animal rights and environmental conservation, and her work extended beyond dance to various social and cultural initiatives.

Q47. Answer: (c) I, II and III

The correct answer is I, II and III.

Key Points

• Connective tissues provide structural support and integrity to the body, with diverse types such as loose, dense, adipose, cartilage, bone, and blood, each contributing unique properties and functions within the extracellular matrix. Hence, option 3 is the correct answer.

• The extracellular matrix, composed of protein fibres and ground substance, determines the flexibility, strength, and elasticity of connective tissues, allowing them to adapt to different mechanical demands.

• Apart from their structural roles, connective tissues also play a crucial role in immunity, with certain types housing immune cells and contribute to immune responses against pathogens and foreign substances.

• Connective tissues are essential components of the body, contributing to its overall architecture, supporting organs and tissues, storing energy, protecting vital structures, and participating in various physiological processes.

Additional Information

• Blood:

• Blood is a type of connective tissue that consists of cells suspended in a liquid matrix called plasma.

• It plays a vital role in transporting oxygen, nutrients, hormones, and waste products throughout the body.

• Bone:

• Bone is a specialized connective tissue that forms the skeletal structure of the body.

• It provides support, protection, and facilitates movement.

• Bone tissue is composed of cells called osteocytes embedded in a matrix of collagen fibres and calcium salts.

• Ligament:

• Ligaments are fibrous connective tissues that connect bones to other bones in a joint.

• They provide stability and help limit excessive movement within the joint, contributing to joint strength and function.

Q48. Answer: (d) Ireland

The correct answer is Ireland.

Key Points

• Directive Principles of State Policy of the Indian constitution are borrowed from the constitution of Ireland.

• Directive Principles of State Policy (DPSP) in the Indian Constitution are mentioned in Part IV, Articles 36 to 51.

• The nomination of members to the Rajya Sabha and the Method of the election of the president is also taken from the Irish constitution.

Additional Information Some other important features borrowed from Indian Constitution and their sources:

Country	Key Features
Britain	Parliamentary government, Rule of Law, Legislative procedure, Single citizenship, Cabinet system, Prerogative writs, Parliamentary privileges, Bicameralism
Ireland	Directive Principles of State Policy, Nomination of members to the Rajya Sabha, Method of election of the president
United States	Impeachment of the president, Functions of president and vice-president, Removal of Supreme Court and High Court judges, Fundamental Rights, Judicial review, Independence of the judiciary, Preamble of the constitution
Canada	Federation with a strong Centre, Vesting of residuary powers in the Centre, Appointment of state governors by the Centre, Advisory jurisdiction of the Supreme Court

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Australia	Concurrent List, Freedom of trade, Commerce and intercourse, Joint sitting of the two Houses of Parliament
Russia	Fundamental duties, Ideal of justice (social, economic and political) in the Preamble
France	Ideals of the Republic in the Preamble, Ideals of liberty in the Preamble, Ideals of equality in the Preamble, Ideals of fraternity in the Preamble
Germany	Suspension of Fundamental Rights During Emergency
South Africa	Procedure for amendment of the Constitution, Election of members of Rajya Sabha
Japan	Concept of "Procedure Established by Law"

Q49. Answer: (c) Bhawana Kanth

The correct answer is Bhawana Kanth.

Key Points

• Bhawana Kanth created history in May 2019 by becoming the first woman to qualify for combat missions on a fighter jet in the Indian Air Force.

• Her qualification opened up opportunities for women to serve in combat roles in the Indian armed forces.

• Bhawana Kanth received her initial training at the Air Force Academy in Dundigal, Telangana, and showcased exceptional skills and dedication during her training.

• Her accomplishment as a fighter pilot serves as a source of inspiration for women across the country.

Additional Information

• Priya Jhingan:

• Priya Jhingan is an Indian lawyer and a former officer in the Indian Army.

• She is notable for being one of the first women to join the Indian Army as a Short Service Commission officer.

• Priya Jhingan and another woman, Lt. G. R. Khanna, filed a landmark case in the Delhi High Court in 1992 challenging the denial of permanent commission to women officers in the Indian Army.

• Harita Kaur Deol:

• Harita Kaur Deol is an Indian Air Force officer who made headlines in 1994 for her pioneering achievements.

• She became the first woman to fly solo in a fighter aircraft when she flew a MiG-21 Bison.

• Unfortunately, she tragically lost her life in an air crash soon after, in 1996, during a routine training mission.

• Harita Kaur Deol's bravery and accomplishments continue to inspire generations of women aspiring to join the Indian Air Force.

• Shanti Tigga:

• Shanti Tigga made history in 2012 by becoming the first woman jawan (soldier) in the Indian Army.

• She joined the Corps of Signals in the Indian Army and served as a riflewoman.

• While Shanti Tigga's achievement is significant in breaking gender barriers in the Indian Army.

• Nonetheless, her determination and trailblazing role have contributed to women's empowerment and inclusion in the Indian armed forces.

Q50. Answer: (b) Human faeces

The correct answer is Human faeces.

Key Points

• Human faeces are an organic impurity commonly found in sewage.

• Faecal matter is rich in organic matter and contains various bacteria, pathogens, and undigested food particles.

• The presence of human faeces in sewage poses a risk to public health due to the potential transmission of diseases and contamination of water sources.

• Proper sewage treatment processes are necessary to effectively manage and eliminate human faeces to prevent environmental and health hazards.

Additional Information

• Phosphates:

• Phosphates are inorganic compounds that can be found in sewage as an inorganic impurity.

• Phosphates mainly come from detergents, fertilizers, and human waste that enter the sewage system.

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• Excessive levels of phosphates in sewage can contribute to water pollution and eutrophication when released into natural water bodies.

• Controlling and reducing the phosphate levels in sewage is important for environmental protection and maintaining water quality.

• Nitrates:

• Nitrates are inorganic compounds that can be present in sewage as an inorganic impurity.

• Nitrates can originate from various sources, including agricultural runoff, industrial waste, and domestic sewage.

• Elevated levels of nitrates in sewage can lead to water pollution and pose a risk to human health, especially when they contaminate drinking water sources.

• Metals:

• Metals, such as lead, mercury, cadmium, and copper, can be present in sewage as inorganic impurities.

• These metals can originate from various sources, including industrial discharges, domestic waste, and runoff from metal-contaminated areas.

• Elevated levels of metals in sewage can have detrimental effects on the environment and human health.

• Effective sewage treatment processes, including filtration and sedimentation, are employed to remove or reduce metal impurities in sewage before it is discharged or reused.

Q51. Answer: (c) 34 cm

Shortcut Trick

For a Direct Common Tangent (DCT), the relationship between distance (d), radii (R, r), and length (L) is a Pythagorean triplet formed by L, (R − r), and d.

Difference in radii = 20 − 4 = 16 cm

Length of tangent = 30 cm

Distance (d) = $\sqrt{[30^2 + 16^2]}$

d = $\sqrt{[900 + 256]} = \sqrt{1156} = 34$ cm

Therefore The correct answer is 34 cm.

Alternate Method

Given:

Radius of larger circle (R) = 20 cm

Radius of smaller circle (r) = 4 cm

Length of direct common tangent (DCT) = 30 cm

Formula Used:

Length of DCT = $\sqrt{[d^2 - (R - r)^2]}$

Where d is the distance between the centers.

Calculations:

=> $30 = \sqrt{[d^2 - (20 - 4)^2]}$

=> $30 = \sqrt{[d^2 - 16^2]}$

Squaring both sides:

=> $30^2 = d^2 - 16^2$

=> $900 = d^2 - 256$

=> $d^2 = 900 + 256$

=> $d^2 = 1156$

=> $d = \sqrt{1156}$

=> d = 34 cm

Therefore The correct answer is 34 cm.

Additional Information

Transverse Common Tangent (TCT)

The length of the transverse common tangent is given by TCT = $\sqrt{[d^2 - (R + r)^2]}$, where the tangent crosses the line joining the centers.

Tangent Properties

A tangent is always perpendicular to the radius at the point of contact, and for two non-intersecting circles, there are 2 direct and 2 transverse common tangents.

Special Case: Touching Circles

If two circles touch externally, the distance between centers d = R + r. In this case, the length of the DCT becomes $2\sqrt{(R \times r)}$.

Q52. Answer: (a) 0

Given:

If 6m61 is completely divisible by 11

Calculation:

For divisibility by 11,

The Sum of digits at even places minus the sum of digits at odd places should be 0 or divisible by 11

6 + 6 – M – 1 = 0 or a multiple of 11

Therefore If the value of M is 0, then it is divisible by 11.

Q53. Answer: (a) 67.74%

Calculation:

Minimum export = 20000

Average export in the given period = (47000 + 59000 + 99000 + 20000 + 85000)/5

=> 310000/5 = 62000

Minimum export less than average export = 62000 - 20000 = 42000

Percentage = 42000/62000 × 100

=> 67.74%

Therefore Option 1 is the correct answer.

Q54. Answer: (b) 14.28 percent

Calculation:

The average cost price of J and K together = (700 + 900)/2 = 800

The average selling price of L and M together = (600 + 800)/2 = 700

Difference = 800 - 700 = 100

Percentage = 100/700 × 100 = 14.28%

Therefore Option 2 is the correct answer.

Q55. Answer: (c) 4/3

Concept:

Some useful formulas are,

sec2 θ - tan2 θ = 1

tan θ = 1over cot θ

Calculation:

We know that,

sec2 θ - tan2 θ = 1; which can be written as,

(sec θ + tan θ)(sec θ - tan θ) = 1

Since,sec β + tan β = 2 ....(1)

We can write the above equation as,

=> (sec β - tan β) = 1over 2 ...(2)

By solving eq(1) and eq(2) we get,

2 tan β = 2 - 1over 2 = 3over 2

=> tan β = 3over 4

=> cot β = 4over 3

Therefore Option 3 is the correct answer.

Q56. Answer: (a) 4/√65

Given:

SecA = 9/4

Formula used:

Sec2A – Tan2A = 1,

CotA = 1/TanA

Calculation:

=> Sec2A – Tan2A =1

=> Tan2A =Sec2A – 1
=> Tan2A = (9/4)2 – 1
=> Tan2A = (81 – 16)/16
=> Tan2A = 65/16
=> TanA = √65/4
=> CotA = 1/TanA
=> CotA = 1/√65/4
=> CotA = 4/√65
Therefore Option 1 is the correct answer.

Q57. Answer: (a) 90 degree

Given:
In ΔPQR, PN is the median on QR.
PN = QN
Concept Used:
Median divide the side into two equal parts.
Calculation:
In ΔPQR, PN is the median,
QN = NR
PN = QN [given]
In ΔPQN
PN = QN
angle QPN = angle NQP = θ
Similarly, In ΔPNR
PN = NR
angle PNR = angle NRP = α
Therefore angle QPR = θ + α
In ΔPQR, apply Angle-Sum-Property
angle QPR +angle QRP + angle RQP = 180°
(θ + α) + θ + α = 180°
2(θ + α) = 180°
(θ + α) = 90°
Therefore angle QPR = 90°
Therefore Option 1 is the correct answer.

Q58. Answer: (d) 125 degree

Given:
L is the incentre of ΔONP.
angle OLP + angle ONP = 195.
Concept Used:
If L is the incentre.
angle OLP = 90° + angle ONP/2
Calculation:
angle OLP + angle ONP = 195
angle OLP = 195 - angle ONP
L is the incentre.
angle OLP = 90° + angle ONP/2
195 - angle ONP = 90° + angle ONP/2
105 = 3angle ONP/2
angle ONP = 70°
angle OLP = 195 - 70
angle OLP = 125°

Therefore Option 4 is the correct answer.

Q59. Answer: (b) -20

Shortcut Trick

Apply the algebraic identity for the square of a trinomial: $(a + b + c)^2 = (a^2 + b^2 + c^2) + 2(ab + bc + ca)$.

Substitute the given values: $0^2 = 40 + 2(ab + bc + ca)$.

$0 = 40 + 2(ab + bc + ca) \rightarrow 2(ab + bc + ca) = -40$.

Dividing by 2, we get $ab + bc + ca = -20$.

Therefore The correct answer is −20.

Alternate Method

Given:

$a + b + c = 0$

$a^2 + b^2 + c^2 = 40$

Formula Used:

$(a + b + c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca)$

=> Substitute the known values into the identity:

=> $(0)^2 = 40 + 2(ab + bc + ca)$

=> $0 = 40 + 2(ab + bc + ca)$

=> $2(ab + bc + ca) = -40$

=> $ab + bc + ca = -40 \div 2$

=> $ab + bc + ca = -20$

Therefore The correct answer is −20.

Additional Information

Algebraic Identity - Square of Trinomial

The formula $(a + b + c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca)$ connects the sum of three numbers, the sum of their squares, and the sum of their pairwise products.

Special Case: Sum is Zero

If $a + b + c = 0$, then $a^2 + b^2 + c^2 = -2(ab + bc + ca)$. This implies that the sum of pairwise products must be negative if the squares are positive.

Cubic Identity when Sum is Zero

When $a + b + c = 0$, the cubic identity simplifies to $a^3 + b^3 + c^3 = 3abc$.

Q60. Answer: (c) 14

Given:

The sum of a number and its reciprocal is 4.

Concept Used:

If $a + 1/a = k$

$a^2 + 1/a^2 = k^2 - 2$

Calculation:

Let the nuumber be a.

Reciprocal = 1/a

According to question,

=> $a + 1/a = 4$

=> $a2 + 1/a2 = 42 - 2$

=> $a2 + 1/a2 = 14$

Therefore Option 3 is the correct answer.

Q61. Answer: (a) 2 percent decrease

Shortcut Trick

Use the Net Percentage Change formula: $a + b + (ab \div 100)\%$

Here, Price decrease (a) = −30 and Sales increase (b) = +40.

Net change in Revenue = $-30 + 40 + [(-30 \times 40) \div 100]$

Net change = $10 - 12 = -2\%$

A negative sign indicates a percentage decrease.
Therefore The correct answer is 2 percent decrease.
Alternate Method
Given:
Decrease in Price = 30%
Increase in Sales (Quantity) = 40%
Formula Used:
Revenue = Price × Quantity
=> Let the initial Price be 100 and initial Sales be 100.
=> Initial Revenue = 100 × 100 = 10,000
=> New Price = 100 − (30% of 100) = 70
=> New Sales = 100 + (40% of 100) = 140
=> New Revenue = 70 × 140 = 9,800
=> Decrease in Revenue = 10,000 − 9,800 = 200
=> Percentage Decrease = (200 ÷ 10,000) × 100 = 2%
Therefore The correct answer is 2 percent decrease.
Additional Information
Successive Percentage Change
When a value is changed by x% and then by y%, the net change is [x + y + (xy/100)]%. Use negative for decrease.
Revenue and Expenditure Relationship
Revenue = Price × Consumption. If Price increases and Expenditure is constant, Consumption must decrease by [r/(100+r)] × 100%.
Percentage Base Change
Percentage change is always calculated on the initial value: [(Final − Initial) ÷ Initial] × 100%.

Q62. Answer: (a) 21 years

Given:
The average age of Rustam and Preetam is 30 years.
The average age of Preetam and Geetam is 20 years.
The average age of Rustam and Geetam is 26 years.
Calculation:
Let the ages of Rustam, Preetam and Geetam be r, p and g respectively.
(r + p)/2 = 30 => r + p = 60 ----(1)
=> (p + g)/2 = 20 => p + g = 40 ----(2)
=> (r + g)/2 = 26 => r + g = 52 ----(3)
Substituting the value of p and g in terms of r from (1) and (3) in (2):
=> 60 - r + 52 - r = 40
=> 112 - 2r = 40
=> 2r = 112 - 40 = 72
Therefore r = 36
=> p = 60 - 36 = 24 and
=> g = 52 - 36 = 16
Therefore Youngest is Geetam of 16 years.
Therefore Geetam's age after 5 years = 16 + 5 = 21 years.
Therefore Option 1 is the correct answer.

Q63. Answer: (b) Rs. 3,000

Given:
First selling price of a table = Rs. 210
Another selling price of a table = Rs. 420
There will be loss of L1% and L2 % respectively.
L1 - L2 = 7

Concept Used:
Cost Price = 100 × Selling Price/(100 - Loss%)
Calculation:
SP1 = Rs. 210
=> CP = 100 × 210/(100 - L1%)
=> SP2 = Rs. 420
=> CP = 100 × 420/(100 - L2%)
Since both CP equal,
=> 100 × 210/(100 - L1%) = 100 × 420/(100 - L2%)
=> 210/(100 - L1%) = 420/(100 - L2%)
=> 2(100 - L1%) = (100 - L2%)
=> 200 - 2L1 = 100 - L2
=> 2L1 - L2 = 100
Given, L1 - L2 = 7.
=> L1 = 7 + L2
Put the value of L1
=> 2(7 + L2) - L2 = 100
=> 14 + 2L2 - L2 = 100
=> L2 = 86%
=> CP = 100 × 420/(100 - 86)
=> CP = 100 × 420/14
=> CP = 100 × 30
=> CP = Rs.3000
Therefore Option 2 is the correct answer.

Q64. Answer: (a) 3/4

Formula used:
• cos θ = 1/sec θ
• sin2 θ + cos2 θ = 1
Calculation:
We have,
=> sec x + cos x = 5/2
=> 1/cos x + cos x = 5/2
Above equation satisfy for x = 60°,
Hence,
$\sin^2 x = \sin 260° = (\sqrt{3}/2)2$
sin2x = 3/4
Therefore Option 1 is the correct answer.

Q65. Answer: (b) 2010

Calculation:
Jobs held in 2010 = 30
Jobs held in 2011 = 50
Jobs held in 2012 = 70
Jobs held in 2013 = 60
Jobs held in 2014 = 80
Minimum jobs held by Indians in 2010.
Therefore Option 2 is the correct answer.

Q66. Answer: (d) 5 : 30 pm

GIVEN:
Distance = 720 km
Speed = 20 m/s

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Starting time = 6 am
Stoppage = 1 hrs 30 min
FORMULA USED:
Speed = Distance/Time
CALCULATION:
20 × 18/5 = 72 km/h
Traveling time = 720/72 = 10 hrs
Total time = 10 + 1.5 = 11.5 hrs
Arrival time = 6 am + 11.5 hrs = 5 : 30 pm
Therefore Train will arrive at 5 : 30 pm.

Q67. Answer: (b) Both I and II

Calculation:
Total production of taxi by J = 90 + 70 + 50 + 45 + 40 = 295
Total production of taxi by K = 55 + 60 + 90 + 80 + 65 = 350
Difference = 350 - 295 = 55
Statement I is wrong
The production of taxi by J in year P and Q together = 90 + 70 = 160
The production of taxi by K in years R and S together = 90 + 80 = 170
Percentage = 160/170 × 100 = 94.11%
Statement II is wrong.
Both statement is Incorrect.
Therefore Option 2 is the correct answer.

Q68. Answer: (a) Rs. 3780

Shortcut Trick
For half-yearly compounding, the rate becomes half (20% ÷ 2 = 10%) and time doubles (1 year × 2 = 2 periods).
Effective percentage for 2 periods at 10% = 10 + 10 + (10 × 10)/100 = 21%.
Compound Interest = 21% of Rs. 18000 = 18000 × 0.21 = Rs. 3780.
Therefore The correct answer is Rs. 3780.
Alternate Method
Given: Principal (P) = Rs. 18000, Annual Rate (R) = 20%, Time (T) = 1 year, Compounded Half-Yearly.
Formula Used: Amount (A) = $P(1 + r/100)^n$; Compound Interest (CI) = A − P.
=> For half-yearly compounding, new rate (r) = 20% ÷ 2 = 10% per half-year.
=> Total periods (n) = 1 year × 2 = 2 half-years.
=> $A = 18000 \times (1 + 10/100)^2$
=> $A = 18000 \times (11/10) \times (11/10)$
=> A = 18000 × 1.21 = Rs. 21780.
=> CI = A − P = 21780 − 18000 = Rs. 3780.
Therefore The correct answer is Rs. 3780.
Additional Information
Half-Yearly Compounding Rule
When interest is compounded half-yearly, the annual rate is divided by 2 and the time is multiplied by 2.
Effective Rate Formula
For two successive changes of x% and y%, the net change is (x + y + xy/100)%. For 2 periods of 10% each, it is 21%.
Quarterly Compounding
In quarterly compounding, the rate is divided by 4 and the time is multiplied by 4 (n = 4T, r = R/4).

Q69. Answer: (c) Rs. 9,000

Given:
Marked Price = Rs. 13000
Discount = 10%
Profit = 30%

Concept Used:
Selling price = 13000 – 10% of 13000
Cost price = SP × 100/(100 + Profit%)
Calculation:
Marked Price = Rs. 13000
After Discount selling price = 13000 – 10% of 13000 = 11700
Now, cost price = 11700 × 100/130 = 9000
Therefore Option 3 is the correct answer.

Q70. Answer: (d) 100 degree

Given:
The angles of a triangle are in the ratio 2 : 2 : 5.
Concept:
The angle sum property of a triangle states that the sum of all three angles of a triangle is 180o.
Solution:
As per the question,
The angles of a triangle are in the ratio 2 : 2 : 5
Using the angle sum property of the triangle, we have
2x + 2x + 5x = 180o
9x = 180o
x = 20o
The largest angle of the triangle is 5x i.e., 100o.
Hence,, option 4 is correct.

Q71. Answer: (a) -3/13

Calculation:
(5/6 of 1/3× 12/25-1/3 of 5/6× 18/25)/(25/12 of 1/6 × 2/5+3/8 of 12/25×5/6)
(5/6 × 1/3× 12/25-1/3 × 5/6× 18/25)/(25/12 × 1/6 × 2/5+3/8 × 12/25×5/6)
(1/3× 2/5- 1/5)/(5/36 +3/20)
(2/15- 1/5)/(5/36 +3/20)
((2-3)/15)/((25 + 27)/180)
((-1)/15)/(52/180)
(-1 × 180)/(15 × 52)
-3/13
Therefore Option 1 is the correct answer.

Q72. Answer: (a) Rs. 2400

Given:
Rani can do a work in 10 days.
Priya can do the same work in 15 days.
Guddu can do the same work in 12 days.
All three of them do the same work together and they are paid Rs. 9000.
Formula used:
W = E × T Where, W = Work, E = Efficiency, and T = Time
Calculation:
Let the total work be a units
Work done by Rani in 1 day = a/10
Work done by Priya in 1 day = a/15
Work done by Guddu in 1 day = a/12
Ratio of work done by Rani, Priya and C:
=> Rani : Priya : Guddu = 1/10 : 1/15 : 1/12
=> Rani : Priya : Guddu = 18 : 12 : 15 = 6 : 4 : 5
Total amount paid to them = Rs. 9000

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Share of Priya = Rs. 9000 × (4)/(6 + 4 + 5)
Share of Priya = Rs. 9000 × (4)/(15)
Share of Priya = Rs. 2400
Therefore The share (in Rs.) of Priya is 2400.

Q73. Answer: (a) 448 cm2

Shortcut Trick
Length (L) = 8 cm
Breadth (B) = 2 × 8 = 16 cm
Height (H) = 8 ÷ 2 = 4 cm
TSA = 2 × (LB + BH + HL) = 2 × (8×16 + 16×4 + 4×8)
TSA = 2 × (128 + 64 + 32) = 2 × 224 = 448 cm²
Therefore The correct answer is 448 cm².
Alternate Method
Given:
=> Length (L) of the cuboid = 8 cm
=> Breadth (B) = 2 × Length = 2 × 8 = 16 cm
=> Height (H) = Length ÷ 2 = 8 ÷ 2 = 4 cm
Formula Used:
=> Total Surface Area (TSA) = 2(LB + BH + HL)
Calculations:
=> TSA = 2 × (8 × 16 + 16 × 4 + 4 × 8)
=> TSA = 2 × (128 + 64 + 32)
=> TSA = 2 × (224)
=> TSA = 448 cm²
Therefore The correct answer is 448 cm².
Additional Information
Volume of Cuboid
The space occupied by a cuboid is calculated as Volume = L × B × H.
Lateral Surface Area (LSA)
The area of the four side faces (excluding top and bottom) is LSA = 2H(L + B).
Diagonal of a Cuboid
The longest rod that can be placed inside a cuboid is given by Diagonal = √(L² + B² + H²).

Q74. Answer: (a) 1260

Given:
a = 12, b = -7 and c = -5
Concept Used:
If, a + b + c = 0
then, a3 + b3 + c³ = 3abc
Calculation:
=> 12 - 7 - 5 = 0
=> a3 + b3 + c3 = 3 × 12 × (-7) × (-5)
=> 1260

Q75. Answer: (d) Rs. 4000

Given:
Total = 13000
2X = 3Y = 4Z
Solution:
X = 3/2Y
Z = 3/4 Y
Total = 3/2 Y + Y + 3/4 Y = 13000

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6Y + 4Y + 3Y = 4 x 13000

13Y = 4 x 13000

Y = 4 x 1000 = Rs. 4000

Hence, the correct option is 4.

Q76. Answer: (b) To get into trouble

The solution is in Hindi. Read it online.

Q77. Answer: (a) has becoming increasingly scarce.

The correct answer is 'Option 1'.

Key Points

• The sentence contains an error in option 1: "has becoming increasingly scarce".

• The problem lies in the verb tense.

• In English, the present perfect tense is formed by using "has" or "have" followed by a past participle (in most cases, a verb ending in -ed).

• The verb "become" should be used in its past participle form, "become", not "becoming".

• The phrase should be corrected to "has become increasingly scarce".

Therefore, the correct sentence is: "More than 40 percent of the world's population lives in regions where water has become increasingly scarce."

Q78. Answer: (a) Amorphous

The solution is in Hindi. Read it online.

Q79. Answer: (a) Leonine

The solution is in Hindi. Read it online.

Q80. Answer: (c) They give the impression that you are desperate.

The correct answer is 'Option 3'.

Key Points

• The correct sentence with no spelling errors is option 3: "They give the impression that you are desperate."

• In option 1, the word "impressin" is misspelled. The correct spelling is "impression".

• In option 2, the word "desparate" is misspelled. The correct spelling is "desperate".

• In option 4, the word "impresion" is misspelled. The correct spelling is "impression".

• The word "impression" means an idea, feeling, or opinion about something or someone, especially one formed without conscious thought or on the basis of little evidence.

• "Desperate" means having a great need or desire for something, or feeling of despair.

Therefore, the correct sentence is: "They give the impression that you are desperate".

Q81. Answer: (a) Careless with large amounts, but not small

The solution is in Hindi. Read it online.

Q82. Answer: (a) He said that I had been making excuses.

The correct answer is 'Option 1'.

Key Points

• The correct indirect form of the given sentence is option 1: "He said that I had been making excuses."

• In reported speech, if the reporting verb (like "said" in this case) is in the past tense, then we usually shift the tenses back in the reported clause.

• When, the given direct sentence is in 'Past continuous tense', the indirect sentence will be changed to 'Past perfect continuous tense'.

• 'Were' will be changed into 'Had been'.

• 'You' will be changed into 'I'.

Therefore, the correct answer is: 'He said that I had been making excuses.'

Q83. Answer: (d) even thousands of mile.

The correct answer is 'Option 4'.

Key Points

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• The sentence contains an error in option 4: "even thousands of mile."
• The correct term is "miles" not "mile" when referring to multiple units of distance.
• In English, we usually use the plural form of a noun when we are talking about more than one of something.
• Therefore, "mile" should be in its plural form "miles" when referring to "thousands" of them.

Therefore, the correct sentence is: "Balloons filled with helium travel hundreds or even thousands of miles."

Q84. Answer: (a) Gluttony

The solution is in Hindi. Read it online.

Q85. Answer: (d) natural

The solution is in Hindi. Read it online.

Q86. Answer: (c) Draw

The solution is in Hindi. Read it online.

Q87. Answer: (d) SPQR

The correct answer is 'Option 4'.

Q88. Answer: (c) Reclusive

The solution is in Hindi. Read it online.

Q89. Answer: (c) Breakfast is cooked every day by my father.

The correct answer is 'Option 3'.

Key Points

• The correct passive form of the sentence is option 3: "Breakfast is cooked every day by my father."
• In the original sentence, "My father" is the subject, "cooks" is the verb in simple present tense, and "breakfast" is the object.
• When we convert this into the passive voice, the object ("breakfast") becomes the subject, the verb ("cooks") changes to its past participle form ("cooked"), and the original subject ("my father") is preceded by "by".
• We also use "is" before the verb to keep it in the present tense, resulting in "Breakfast is cooked every day by my father."

Therefore, the correct sentence is: 'Breakfast is cooked every day by my father.'

Additional Information

• Let's go through all the options:
• "Breakfast was being cooked every day by my father." This is incorrect because it uses the past continuous tense ("was being cooked") instead of the simple present tense.
• "Breakfast was cooked every day by my father." This is incorrect because it uses the simple past tense ("was cooked") instead of the simple present tense.
• "Breakfast was cook every day by my father." This is incorrect due to the grammatical error "was cook" and the use of the past tense "was".

Q90. Answer: (a) Collected

The solution is in Hindi. Read it online.

Q91. Answer: (d) Clouwn

The solution is in Hindi. Read it online.

Q92. Answer: (d) with a wise

The correct answer is 'Option 4' i.e. "with a wise".

Key Points

• The phrase "with a wise and understanding heart" suggests that the reward he received was a wise and understanding heart.
• It fits the sentence structure and provides the most coherent meaning.
• Here, "with" is a preposition that is used to indicate the means, manner, or method, and "a wise" modifies "understanding heart", indicating what kind of understanding heart it is.

Therefore, the correct sentence is: He was rewarded for his meekness with a wise and understanding heart.

Additional Information

• Let's examine the other options:
• "Wisest" would change the meaning of the sentence, and it would not fit grammatically.
• "On a wisely" is grammatically incorrect. "Wisely" is an adverb, and adverbs can't modify nouns like "heart". It should be an

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adjective.

• "With wiser" is incorrect because "wiser" is a comparative adjective and it is not appropriate to use it here as there's no comparison being made.

Q93. Answer: (b) was surrounded

The correct answer is 'Option 2' i.e. "was surrounded".

Key Points

• In the given sentence, "The crime scene" is a singular noun and thus, it requires a singular verb to agree with it.

• The correct form of the verb to be used here is "was", not "were".

• Additionally, the verb "surround" needs to be in the past participle form, "surrounded", to correctly form the passive voice.

Therefore, the improved sentence should read: "The crime scene was surrounded by yellow tape."

Additional Information

• Let's examine the other options:

• "were surrounded": This is incorrect. "Were" is used for plural nouns, whereas "the crime scene" is singular.

• "was surround": This is incorrect. The verb should be in its past participle form, "surrounded", to correctly form the passive voice.

Q94. Answer: (a) Flawed

The solution is in Hindi. Read it online.

Q95. Answer: (d) Coiled

The correct answer is 'Option 4' i.e. "Coiled".

Key Points

• In the context of the sentence, it is describing a wedding garland that is thick and is likely twisted or wound on a silver tray, much like a snake would coil itself.

• Thus, the word "Coiled" fits best here.

Therefore, the correct sentence is: "Coiled on the silver tray like a white snake, the wedding garland was as thick as my forearm."

Additional Information

• Let's consider the other options:

• "Circulated" generally means to move continuously or freely through a closed system or area.

• "Repeated" generally means to say or do something again, either once or several times.

• "Bartered" generally means to exchange (goods or services) for other goods or services without using money.

Q96. Answer: (c) explored

The correct answer is 'option 3' i.e. "explored".

Key Points

• In this context, the term "explored" is most fitting because it refers to the act of examining or investigating a location, in this case, the ocean floor.

• The sentence is saying that we have less knowledge and investigation about the ocean floor compared to the surface of Mars.

Therefore, the correct sentence is: The ocean floor is famously less explored than the surface of Mars. And when our team of scientists recently mapped the seabed, and ancient sediments beneath, we (2)____ what looks like an asteroid impact crater. Intriguingly, the crater, (3)__ “Nadir” after the nearby volcano Nadir Seamount, is of the same age as the Chicxulub impact caused by a huge asteroid at the end of the Cretaceous (4)__, around 66 million years ago, which (5)____ the dinosaurs and many other species.

Additional Information

• Let's consider the other options:

• "Reconstructed" generally means to build or form (something) again after it has been damaged or destroyed. It does not fit here because the sentence is about the examination or investigation of the ocean floor, not about building it again.

• "Imposed" usually refers to force (something unwelcome or unfamiliar) to be accepted or put in place. This doesn't fit in the given context.

• "Stocked" means to have or keep a supply of (a particular product or type or product) available for sale. This also doesn't make sense in this context.

Q97. Answer: (a) discovered

The correct answer is 'option 1' i.e. "discovered".

Key Points

• In the context of this sentence, the team of scientists has mapped the seabed and found something that resembles an asteroid impact crater.

• The word "discovered" fits best here, as it denotes the action of finding something unexpected or previously unknown.

Therefore, the correct sentence is: The ocean floor is famously less explored than the surface of Mars. And when our team of scientists recently mapped the seabed, and ancient sediments beneath, we discovered what looks like an asteroid impact crater. Intriguingly, the crater, (3)____ “Nadir” after the nearby volcano Nadir Seamount, is of the same age as the Chicxulub impact caused by a huge asteroid at the end of the Cretaceous (4)__, around 66 million years ago, which (5)____ the dinosaurs and many other species.

Additional Information

• Let's consider the other options:

• "Screened" generally means to view or examine something, but in this context, it doesn't capture the idea of finding something new or unexpected.

• "Shaped" means to give a particular shape or form to something, but this doesn't fit the context here as the scientists aren't creating or forming the asteroid impact crater.

• "Founded" refers to establishing or setting up an institution or organization, which doesn't fit in the context of this sentence as the scientists are finding something, not setting up an organization.

Q98. Answer: (b) named

The correct answer is 'option 2' i.e. "named".

Key Points

• In this context, the crater has been given a specific name, "Nadir," after the nearby volcano, Nadir Seamount.

• Thus, "named" is the most suitable word to fill in the blank.

Therefore, the correct sentence is: The ocean floor is famously less explored than the surface of Mars. And when our team of scientists recently mapped the seabed, and ancient sediments beneath, we discovered what looks like an asteroid impact crater. Intriguingly, the crater, named “Nadir” after the nearby volcano Nadir Seamount, is of the same age as the Chicxulub impact caused by a huge asteroid at the end of the Cretaceous (4)____, around 66 million years ago, which (5)____ the dinosaurs and many other species.

Key Points

• Let's consider the other options:

• "Dropped" generally means to let or make (something) fall vertically. It does not fit here because the sentence is about giving a name to the crater, not about dropping something.

• "Murmured" usually refers to a soft, low, or indistinct sound made by a person or group of people speaking quietly or at a distance. It does not fit in the given context.

• "Squeaked" means to make a short, high-pitched sound or cry. This also doesn't make sense in this context.

Q99. Answer: (c) period

The correct answer is 'option 3' i.e. "period".

Key Points

• In a geological or historical context, the word "period" is used to denote a span of time characterized by specific conditions, events, or forms of life.

• Here, the "Cretaceous" refers to a specific geologic time period, making "period" the appropriate term.

Therefore, the correct sentence is: The ocean floor is famously less explored than the surface of Mars. And when our team of scientists recently mapped the seabed, and ancient sediments beneath, we discovered what looks like an asteroid impact crater. Intriguingly, the crater, named “Nadir” after the nearby volcano Nadir Seamount, is of the same age as the Chicxulub impact caused by a huge asteroid at the end of the Cretaceous period, around 66 million years ago, which (5)_____ the dinosaurs and many other species.

Additional Information

• Let's consider the other options:

• "Generation" refers to all of the people born and living at about the same time, regarded collectively. It doesn't fit the context here because the Cretaceous is a geological era, not a generation of people.

• "Spell" could refer to a period of time, but it's usually used to denote a shorter, definite period of time, often with a specific characteristic, like a dry spell or a spell of good weather. It's not used to refer to geological eras.

• "Vase" is a container for holding flowers or for decoration, and it doesn't make sense in this context.

Q100. Answer: (a) wiped out

The correct answer is 'option 1' i.e. "wiped out".

Key Points

• In this context, "wiped out" is the most appropriate phrase. It means to completely destroy or eliminate.

• We know from historical data that the Chicxulub impact around 66 million years ago was a significant event that led to the extinction of dinosaurs and many other species.

• Therefore, the phrase "wiped out" aptly describes the impact's effect on these species.

Therefore, the correct sentence is: The ocean floor is famously less explored than the surface of Mars. And when our team of scientists recently mapped the seabed, and ancient sediments beneath, we discovered what looks like an asteroid impact crater. Intriguingly, the crater, named “Nadir” after the nearby volcano Nadir Seamount, is of the same age as the Chicxulub impact caused by a huge asteroid at the end of the Cretaceous period, around 66 million years ago, which wiped out the dinosaurs and many other species.

Additional Information

• Let's consider the other options:

• "Absolved in" usually refers to being freed from guilt or blame. This does not fit the context because the impact didn't absolve or free the dinosaurs, it caused their extinction.

• "Turned off" can refer to the action of stopping the operation of something. It is not appropriate here because it does not adequately convey the effect of the asteroid impact on the dinosaurs.

• "Counted in" usually means to include someone or something in an activity or process. This phrase does not fit the context of the sentence because the impact didn't count the dinosaurs in; instead, it led to their extinction.

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