SSC CHSL Tier-1 2024: Official Paper (Held On: 05 Jul, 2024 Shift 4) (Previous Year Paper)

SSC Combined Higher Secondary Level (CHSL) • 2024 • 100 questions • 60 minutes • Answer key and solutions

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ENGLISH LANGUAGE

Q1. Select the most appropriate option to fill in the blank.

He _____ the truth.

(a) speak
(b) spoken
(c) speaking
(d) spoke

Q2. The following sentence has been divided into four segments. Identify the segment in which the article has been used INCORRECTLY.

Ms. Rose is a / sweetest of / all the girls / in the class.

(a) in the class.
(b) Ms. Rose is a
(c) all the girls
(d) sweetest of

Q3. The following sentence has been divided into four segments. Identify the segment that contains a grammatical error.

The shop / usually opened / ten minutes / late.

(a) late.
(b) usually opened
(c) ten minutes
(d) The shop

Q4. The following sentence has been split into four segments. Identify the segment that contains a grammatical error.

I am going / to buy a red car / with a leather seats / and a sunroof.

(a) with a leather seats
(b) I am going
(c) and a sunroof
(d) to buy a red car

Directions

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

Today, lets explore the significant role of human beings in shaping the world as we know it. Can you 1._____ a world without human beings? Who would have 2.___ the resources and created social and cultural environment? The people are 3._ to develop the economy and the society. The people make and use resources and are themselves resources with 4._ quality. Coal is but a piece of rock, until people were able to 5.__ technology to obtain it and make it a ‘resource’.

Q5. Select the most appropriate option to fill in blank number 1.

(a) imagine
(b) ignore
(c) neglect
(d) fabricate

Q6. Select the most appropriate option to fill in blank number 2.

(a) utilised
(b) broken
(c) crippled
(d) destroyed

Q7. Select the most appropriate option to fill in blank number 3.

(a) frantic
(b) crucial
(c) hopeful
(d) hasty

Q8. Select the most appropriate option to fill in blank number 4.

(a) alternating
(b) varying
(c) inconstant
(d) deviating

Q9. Select the most appropriate option to fill in blank number 5.

(a) invent
(b) open
(c) fashion
(d) mint

Q10. Identify the correct spelling of the underlined word.

The police issued a varant to the criminals.

(a) Varrant
(b) Warent
(c) Warrant
(d) Warant

Q11. Select the option to fill in the blank with the most appropriate collocation.

In boarding schools, students need to _____ by themselves.

(a) wash the bed
(b) make the bed
(c) run the bed
(d) turn the bed

Q12. Identify the most appropriate ANTONYM of the underlined word in the given sentence.

His jovial nature has won him many friends.

(a) Cunning
(b) Shrewd
(c) Miserable
(d) Dumb

Q13. Select the most appropriate synonym of the given word.

Change

(a) Alter
(b) Adjust

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(c) Resolute
(d) Renew

Q14. Select the most appropriate ANTONYM of the given word.
Absurd
(a) Insane
(b) Reasonable
(c) Nonsensical
(d) Foolish

Q15. Select the most appropriate ANTONYM of the given word.
Lazy
(a) Genuine
(b) Barren
(c) Helpful
(d) Diligent

Q16. Select the most appropriate option that can substitute the underlined segment in the given sentence.
Vihaan is clumsy at dancing.
(a) easy handed
(b) all thumbs
(c) heavy duty
(d) master skill

Q17. Identify the most appropriate meaning of the given word.
Accept
(a) Regret
(b) Agree
(c) Refuse
(d) Present

Q18. Select the INCORRECTLY spelt word.
(a) Scatered
(b) Crowded
(c) Imprudent
(d) Brazen

Q19. Select the most appropriate option to fill in the blank.
The grass on my lawn is glistening with the morning _____.
(a) do
(b) due
(c) duo
(d) dew

Q20. Select the most appropriate option to substitute the underlined segment in the following sentence.
There was a noise that was wake me up.
(a) has woke me up
(b) woke me up
(c) wakes me up
(d) woken me up

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Q21. Read the sentence carefully and select the most appropriate option to substitute the underlined part.

The crux of the study has been delineated by the researcher.

(a) collected data
(b) central point
(c) relevant part
(d) fixed limitation

Q22. Select the most appropriate ANTONYM of the word ‘Plausible’ from the given sentence.

The trend of improvement is unlikely to continue for the foreseeable future.

(a) trend
(b) unlikely
(c) foreseeable
(d) future

Q23. Select the most appropriate meaning of the underlined idiom in the given sentence.

When I got an opportunity to start a new business, Ravikanth queered my pitch.

(a) Advised me
(b) Ruined my plan
(c) Supported me with money
(d) Helped me by standing beside me

Q24. Select the most appropriate meaning of the given idiom.

Spill the beans

(a) Cook the beans carefully
(b) To leak a secret
(c) To help someone extraordinarily
(d) The act of loving beans

Q25. Select the most appropriate option that can substitute the underlined segment in the following sentence.

Play cards is not allowed here

(a) Playing card
(b) Playing cards
(c) Play card
(d) Played cards

GENERAL INTELLIGENCE

Q26. If 'A' stands for '÷', 'B' stands for '×', 'C' stands for '+' and 'D' stands for '-', what will come in place of the question mark (?) in the following equation?

321 A 3 C 11 B 10 D 19 = ?

(a) 198
(b) 188
(c) 178
(d) 168

Q27. Which letter - cluster will replace the question mark (?) to complete the given series?

GLYC, FNVG, ?, DRPO, CTMS

(a) EPSK
(b) EPRJ
(c) EQRK
(d) EQSJ

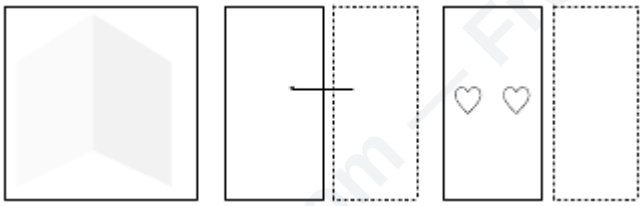
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Q28. What will come in the place of '?' in the following equation, if '+' and '-' are interchanged and '×' and '÷' are interchanged?

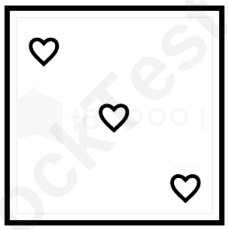
32 × 8 ÷ 4 - 6 + 15 = ?

(a) 7
(b) 15
(c) 13
(d) 5

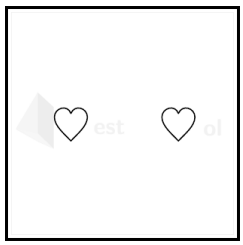
Q29. A paper is folded and cut as shown below. How will it appear when unfolded?



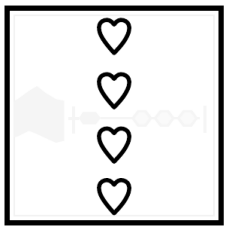
(a)



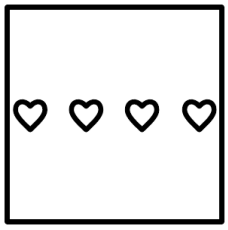
(b)



(c)



(d)



Q30. In a certain code language,

'A + B' means 'A is the mother of B',

'A × B' means 'A is the husband of B',

'A ÷ B' means 'A is the daughter of B'.

Based on the above, how is Q related to T if 'P ÷ Q ÷ R × S + T'?

(a) Father's sister
(b) Sister
(c) Daughter
(d) Mother

Q31. Select the correct mirror image of the given figure when the mirror is placed at MN as shown below.



(a)



(b)



(c)



(d)

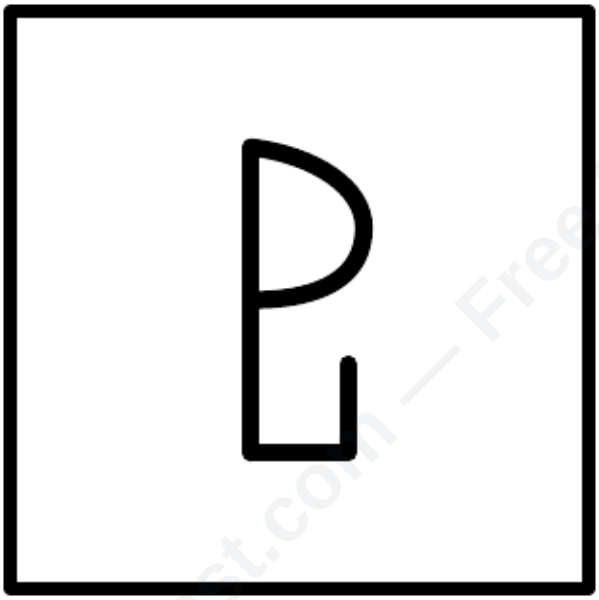


Q32. In a certain code language, 'WILT' is coded as '6194' and 'SLIT' is coded as '9413'.
What is the code for 'S' in the given code language?

(a) 4
(b) 1
(c) 9
(d) 3

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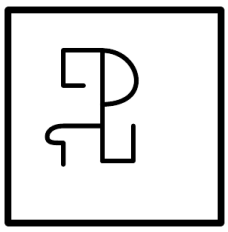
Q33. Select the option in which the given figure is embedded (rotation is not allowed).



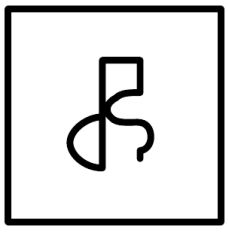
(a)



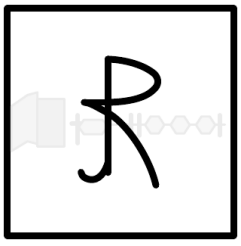
(b)



(c)



(d)

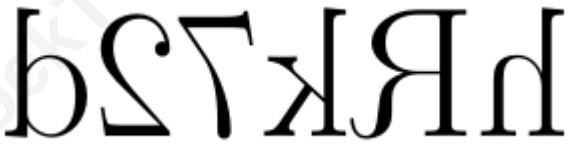


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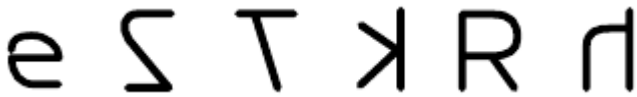
Q34. Select the correct mirror image of the given figure when the mirror is placed at MN.



(a)



(b)



(c)



(d)



Q35. S % T = S is the father of T.

X - W = X is the mother of W.

U * V = U is the sister of V.

Z + Y = Z is the husband of Y.

If A + J - B * V % G, find the relation between A and G.

(a) Maternal grandfather

(b) Mother

(c) Father

(d) Paternal grandfather

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Q36. What should come in place of ? in the given series?

251, 268, 285, 302, 319 ?

(a) 306
(b) 336
(c) 326
(d) 315

Q37. Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into their 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.)

(4, 16, 32)

(6, 36, 72)

(a) (9, 81, 162)
(b) (9, 27, 162)
(c) (9, 81, 160)
(d) (9, 81, 164)

Q38. Which of the following numbers will replace the question mark (?) in the given series?

876 865 832 733 ?

(a) 446
(b) 426
(c) 436
(d) 453

Q39. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements :

Some movies are videos.

No video is audio.

All audios are songs.

Conclusions :

(I) All movies can never be audios.

(II) No video is a song.

(a) Both conclusions I and II follow
(b) Only conclusion I follows
(c) Only conclusion II follows
(d) None of the conclusions follow

Q40. What should come in place of ? in the given series based on the English alphabetical order?

EMU GQA IUG KYM ?

(a) UKA
(b) MCS
(c) VLB
(d) MWD

Q41. BHJL is related to FLNP in a certain way based on the English alphabetical order. In the same way, HNPR is related to LRTV. To which of the following is JPRT related, following the same logic?

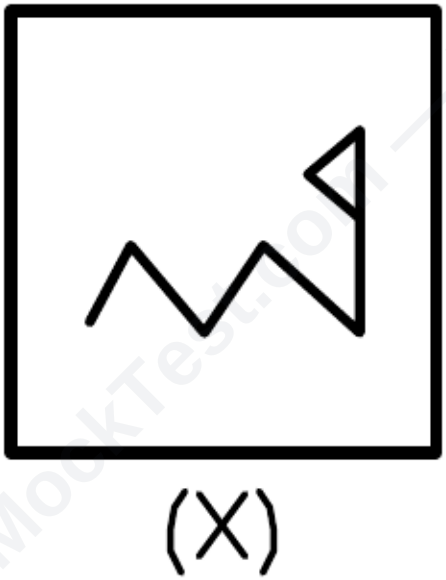
(a) NUWX
(b) NUVX
(c) NTYX
(d) NTVX

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Q42. In a certain code language, 'sanitiser saves us' is written as 'ra kl mq' and 'let us go' is written as 'kl mt ax'. How is 'us' written in the given language?

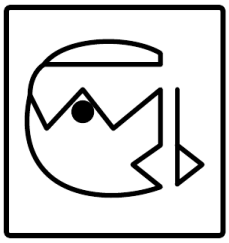
(a) kl
(b) mt
(c) mq
(d) ra

Q43. Select the option in which the given figure X is embedded (rotation is NOT allowed).

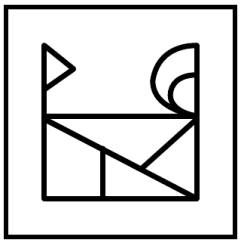


(X)

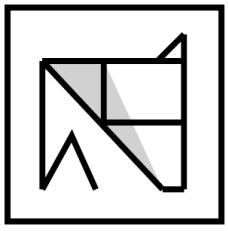
(a)



(b)

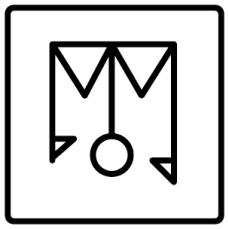


(c)



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(d)

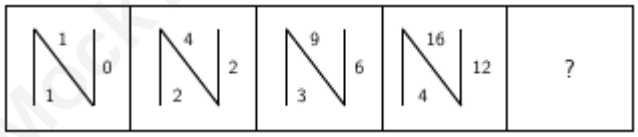


Q44. 84 is related to 21 following a certain logic. Following the same logic, 180 is related to 45. To which of the following is 252 related following the same logic?

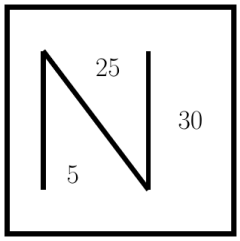
(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc., to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and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

(a) 63
(b) 67
(c) 65
(d) 61

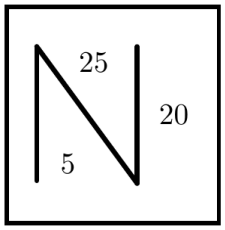
Q45. Identify the figure in the options that when put in place of the question mark (?) will logically complete the series?



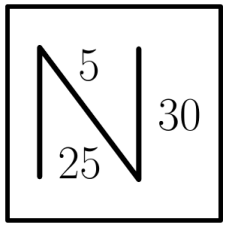
(a)



(b)

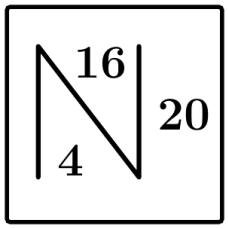


(c)



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(d)



Q46. The position of how many letters will remain unchanged if all the letters in the word HARMONY are arranged in alphabetical order?

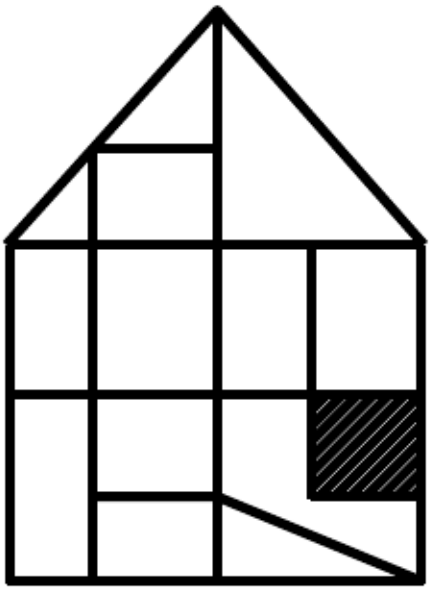
(a) Four
(b) One
(c) Three
(d) Two

Q47. What will come in the place of the question mark (?) in the following equation if '+' and '×' are interchanged and '-' and '÷' are interchanged?

39 ÷ 6 - 3 × 9 + 4 = ?

(a) 83
(b) 73
(c) 56
(d) 81

Q48. How many triangles are there in the given figure?



(a) 18
(b) 16
(c) 15
(d) 17

Q49. What will be the day on 31 December 2006 if 1 January 2006 is a Wednesday?

(a) Wednesday
(b) Friday
(c) Thursday
(d) Monday

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Q50. CKMZ is related to VDFS in a certain way based on the English alphabetical order. In the same way, LPBV is related to EIUO. To which of the following is UXBN related, following the same logic?

(a) NGQU
(b) NQUG
(c) NGUQ
(d) NQGU

QUANTITATIVE APTITUDE

Q51. Find the fourth proportion to 1.25, 5.75 and 3.5.

(a) 6.5
(b) 4.5
(c) 12.5
(d) 16.1

Q52. In ΔABC, O is the point of intersection of the bisectors of angle B and angle A. If the angle BOC = 108°, then angle BAO is:

(a) 26°
(b) 18°
(c) 16°
(d) 22°

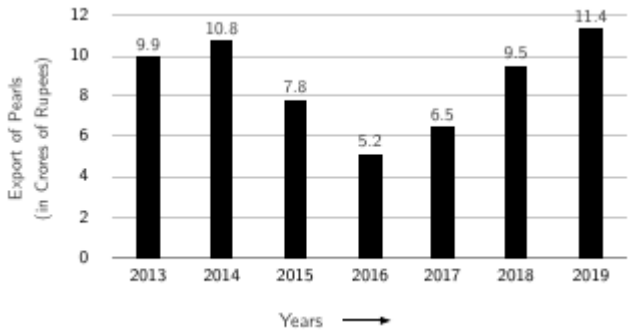
Q53. Let ABC be a right - angled triangle such that angle C = 90°. Let D be a point on AB such that CD is perpendicular to AB. If AC = 5 cm and BC = 12 cm, find the length of CD (in cm).

(a) 40/13
(b) 60/13
(c) 40/23
(d) 50/23

Q54. The diameter of a roller is 35 cm and its length is 100 cm. It takes 200 complete revolutions to level a playground. Find the area of the playground in m^2

(a) 220
(b) 2,20,00,000
(c) 1,10,000
(d) 110

Q55. Study the given bar - graph carefully and answer the question that follows.



For how many years was the export above - average for the period, 2013 - 2019?

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

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Q56. Two similar triangles have area 490 sq. cm. and 640 sq. cm. If the length of the one side of the first triangle is 21 cm, then what is the length of the corresponding side of the second triangle?

(a) 24 cm
(b) 16 cm
(c) 21 cm
(d) 14 cm

Q57. X and Y can do a job in 18 days; Y and Z can do the same in 24 days. If all the three can finish the job in 12 days, in how many days can X and Z can complete the job?

(a) 14 2/5 days
(b) 7 days
(c) 5 days
(d) 12 3/5 days

Q58. A person spends 60% of his salary on family expenses, 10% on medical expenses, 5% on charity, and saves the remaining amount. If the amount on savings is Rs. 4,000, find his monthly salary.

(a) Rs. 15,000
(b) Rs. 16,000
(c) Rs. 12,000
(d) Rs. 14,000

Q59. The number of subjects in which the students of a class have failed is given in the following table.

No. of subjects in which students have failed	**0**	**1**	**2**	**3**	**4**	**5**
No. of students	10	18	5	6	7	4

Find the total number of students who have failed in more than 3 subjects.

(a) 11
(b) 17
(c) 12
(d) 10

Q60. The whole surface area of a cube is 294 cm^2. The volume of the cube is:

(a) 216 cm^3
(b) 343 cm^3
(c) 512 cm^3
(d) 243 cm^3

Q61. How many factors of 14,400 are divisible by 18 but not by 36?

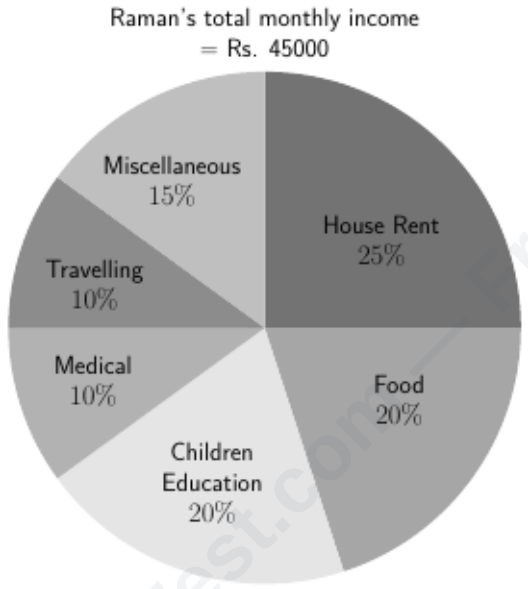
(a) 4
(b) 3
(c) 5
(d) 2

Q62. The price of a motorcycle was $750 last year. The price increased by 20% this year. What is the price of the motorcycle this year?

(a) $600
(b) $750
(c) $790
(d) $900

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Q63. The following pie chart represents the percentage domestic expenditure of Raman over his family. Study the pie chart carefully and answer the question given below.



After paying the House Rent and expending over Food and Children's Education, what is Raman's remaining monthly income (in Rs.)?

(a) 29,250
(b) 20,250
(c) 15,750
(d) 12,750

Q64. A shopkeeper cheats 25% in weight while buying rice and cheats 25% while selling it. If he sells the rice at 12 1/2 % profit, then find his net profit percentage.

(a) 87.5%
(b) 92.5%
(c) 62.5%
(d) 82.5%

Q65. [(cosec 31°-sec 59°)/((sin 18° ÷ cos 72°)) × (tan 26°)/(cot 64°)]+[(tan 30°+tan 15°)/((1-tan 30° tan 15°))] = _____.

(a) 2
(b) 0
(c) 1
(d) • 1

Q66. K being any odd number greater than 1, k^{33} - k is always divisible by:

(a) 1.5
(b) 13
(c) 24
(d) 15

Q67. Let ABC be a triangle such that angle ABC = 70° and angle ACB = 50°. Let O be the incentre of the triangle. Find angle BOC.

(a) 120°
(b) 60°
(c) 130°
(d) 100°

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Q68. A person divides his total route of journey into three equal parts and decides to travel the three parts at the speeds of 80 km/h, 60 km/h and 30 km/h, respectively. What is the average speed during the journey?

(a) 49 km/h
(b) 40 km/h
(c) 48 km/h
(d) 45 km/h

Q69. A person travels from one place to another at 60 km/hr and returns at 75 km/hr. If the total time taken is 6 hours, then find the total distance travelled.

(a) 250 km
(b) 300km
(c) 400 km
(d) 240km

Q70. The difference (in Rs.) between a discount of 37% on Rs. 2,635 and two successive discounts of 23% and 7% on the same amount is (rounded off to 2 decimal places):

(a) 248.36
(b) 226.87
(c) 242.25
(d) 235.65

Q71. In an election, a voter has choices to vote for one candidate out of three candidates. There is also an option 'None Of The Above' (NOTA) to reject all candidates. The three candidates get votes that are 6 times NOTA. The winner gets votes that are twice the second runner - up's votes. The first runner - up gets 900 votes more than NOTA and defeats the second runner - up by 150 votes. What is the total number of votes polled?

(a) 15177
(b) 11577
(c) 11025
(d) 17715

Q72. If the graph of the equation 20x + 21y = 420 cuts the coordinate axes at P and Q, then what is the measure of the length (in units) of PQ?

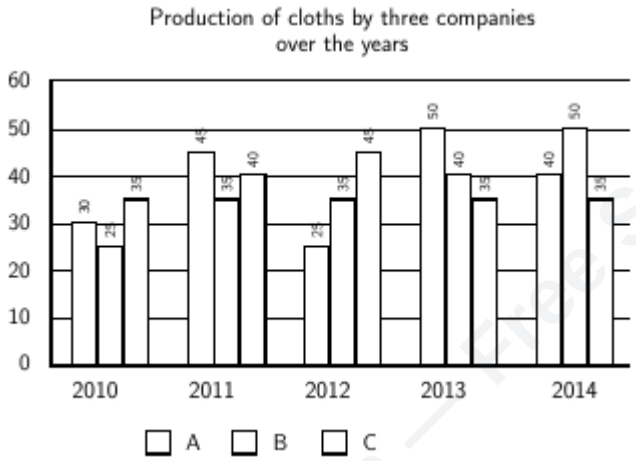
(a) 29
(b) 35
(c) 25
(d) 40

Q73. The altitude of an equilateral triangle is 3 √3 cm. Find its area.

(a) 3 √3 sq cm
(b) 27 sq cm
(c) 9 √3 sq cm
(d) 9 sq cm

Q74. The following graph shows the data of the production of cloths (in lakh tonnes) by three different companies A, B and C over the years.

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What is the ratio of the average production of Company A in the period 2012 - 2014 to the average production of Company B in the same period?

(a) 3 : 5
(b) 5 : 3
(c) 25 : 23
(d) 23 : 25

Q75. Find the amount to be paid at the end if Rs. 4,500 is invested for a period of 4 years at the rate of 8% simple interest per annum.

(a) Rs. 5,490
(b) Rs. 6,300
(c) Rs. 6,080
(d) Rs. 5,940

GENERAL AWARENESS

Q76. Match the items in List I with those in List II.

List I	List II		
i.	Blue revolution	a.	Oilseeds
ii.	Yellow revolution	b.	Overall horticulture
iii.	Round revolution	c.	Fish
iv.	Golden revolution	d.	Potato

(a) i - d, ii - a, iii - b, iv - c
(b) i - c, ii - a, iii - d, iv - b
(c) i - b, ii - d, iii - a, iv - c
(d) i - b, ii - c, iii - d, iv - a

Q77. In which year did the Indian Constitution declare Hindi in Devanagari script to be the official language of the Union?

(a) 1952
(b) 1949
(c) 1955
(d) 1951

Q78. As of January 2023, who among the following is the chief minister of Puducherry?

(a) Shri P Shanmugam
(b) Shri V Narayanasamy
(c) Shri N Rangaswamy
(d) Shri V Vaithilingam

Q79. After being passed by both the Lok Sabha and Rajya Sabha, the Competition (Amendment) Bill, 2023 received the President's assent on _____ to become the Competition (Amendment) Act, 2023.

(a) 21 April 2023
(b) 1 April 2023
(c) 11 April 2023
(d) 14 April 2023

Q80. What is the wavelength range of visible light ?

(a) 0.7 to 0.9 µm
(b) 1 to 2 µm
(c) 0.2 to 0.3 µm
(d) 0.4 to 0.7 µm

Q81. What is the standard size of basketball for men?

(a) 07
(b) 06
(c) 08
(d) 05

Q82. A _____ is issued to prevent an inferior court or tribunal from exceeding its jurisdiction, which is not legally vested, or acting without jurisdiction or acting against the principles of natural justice.

(a) writ of habeas corpus
(b) writ of prohibition
(c) writ of mandamus
(d) writ of quo - warranto

Q83. Where is the Narora Nuclear Power plant located ?

(a) Tamil Nadu
(b) Uttar Pradesh
(c) Maharashtra
(d) Karnataka

Q84. In Gujarat, the festival Makar Sankranti is celebrated as:

(a) Purbayan
(b) Uttarayan
(c) Dakshinayan
(d) Paschimayan

Q85. As per the Economic Survey of India 2022 - 23, unemployment rates fell from 5.8% in 2018 - 19 to _____ in 2020 - 21.

(a) 4.7%
(b) 3.8%
(c) 4.2%
(d) 3.4%

Q86. Which among the following Chola emperors defeated the Pandya king Maravarman Rajsimha II in the battle of Vellore?

(a) Rajaraja I
(b) Parantaka I
(c) Rajendra I
(d) Vijayalaya

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Q87. The reaction of an acid and a metal gives :

(a) salt and water
(b) carbon dioxide, salt and hydrogen gas
(c) hydrogen gas and salt
(d) carbon dioxide, salt and water

Q88. Who has written the patriotic song ‘Sandese Aate Hai’?

(a) Samir Anjan
(b) Irshad Kamil
(c) Gulzar
(d) Javed Akhtar

Q89. Which of the following extensions is used to save MS - PowerPoint applications?

(a) .txt
(b) .doc
(c) .docx
(d) .ppt

Q90. As of 01 January 2023, who is the chairman of UPSC?

(a) Shri Rajeev Nayan Choubey
(b) Dr. Manoj Soni
(c) Dr. TCA Anant
(d) Mrs. Preeti Sudan

Q91. Terah taali dance belongs to which of the following states?

(a) Kerala
(b) Uttaranchal
(c) Uttar Pradesh
(d) Rajasthan

Q92. Bails are used in which of the following games / sports?

(a) Football
(b) Badminton
(c) Cricket
(d) Hockey

Q93. In India, statutory liquidity ratio is fixed by _____.

(a) State government
(b) Reserve Bank of India
(c) Commercial banks
(d) India Brand Equity Foundation

Q94. What enables IoT devices to gather data and exchange it over the network?

(a) Biochip transponders
(b) Actuators and sensors
(c) Human interaction
(d) Data encryption techniques

Q95. The length of a day on _____ is approximately 16 hours.

(a) Venus
(b) Mercury
(c) Mars
(d) Neptune

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Q96. Which committee is related to fundamental duties?

(a) LM Singhvi Committee
(b) Verma Committee
(c) Vasantrao Naik Committee
(d) Rajmannar Committee

Q97. Pusarla Venkata Sindhu won silver medal in badminton in which Olympics Games?

(a) Beijing 2008
(b) London 2012
(c) Rio 2016
(d) Tokyo 2020

Q98. The 'Western disturbances' originates from the _____.

(a) East China Sea
(b) Mediterranean Sea
(c) Arabian Sea
(d) Red Sea

Q99. Which folk music is a mix of Indian and western music and is popular in Goa?

(a) Maand
(b) Pawada
(c) Pai songs
(d) Mando

Q100. Sardar Vallabhbhai Patel, who was the first Home Minister of India, is known by which sobriquet?

(a) Iron man of India
(b) Father of Indian Unrest
(c) Grand old man of India
(d) Morning star of Indian Renaissance

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (d) spoke

The correct answer is Option 4)

Key Points

• In the given sentence, the past tense of the verb is required to indicate that the action has already been completed.
• The options provided are:
• 1) speak (present tense)

• 2) spoken (past participle)
• 3) speaking (present participle)
• 4) spoke (simple past)
• Since the sentence requires the past tense, the correct option is 'spoke'.
• Hence, the correct answer is option 4)

Therefore the correct statement is: He spoke the truth.

Additional Information

• In English grammar, the simple past tense is used to describe actions that have already been completed at the time of speaking.
• Examples of the simple past tense:
• She walked to the park.
• They played soccer.
• We visited the museum.

Q2. Answer: (b) Ms. Rose is a

The correct answer is Option 2)

Key Points

• In the second part of the given sentence, the article 'a' is incorrect.
• The correct usage should be 'the' before the superlative adjective 'sweetest'.
• Therefore, the corrected part should be 'the sweetest of'.

Hence, the correct statement should be: Ms. Rose is the sweetest of all the girls in the class.

Additional Information

• Articles 'a', 'an', and 'the' are used before nouns or adjectives to specify or generalize them.
• Use 'the' before superlative adjectives (e.g., the tallest, the sweetest).
• Use 'a' or 'an' before singular, countable nouns when referring to them in a general sense (e.g., a book, an apple).

Q3. Answer: (b) usually opened

The correct answer is Option 2)

Key Points

• The primary issue in the sentence is the use of "opened" instead of "opens".
• The sentence attempts to describe a habitual action.
• For habitual actions, the simple present tense "opens" should be used.
• Thus, the error is located in Option 2 of the sentence.

Therefore, the correct statement is "The shop usually opens ten minutes late."

Additional Information

• Option 1: "late." – This part of the sentence is grammatically correct and does not require any changes.
• Option 3: "ten minutes" – This part of the sentence is grammatically correct and does not require any changes.
• Option 4: "The shop" – This part of the sentence is grammatically correct and does not require any changes.

Q4. Answer: (a) with a leather seats

The correct answer is Option 1)

Key Points

• In the third part of the given sentence, the article 'a' is incorrectly used before the plural noun 'seats'.
• In English grammar, the article 'a' is used before singular countable nouns, whereas 'seats' is a plural noun.
• The correct phrase should be 'with leather seats' without the article 'a'.

Hence, the correct statement is: I am going to buy a red car with leather seats and a sunroof.

Additional Information

• When using articles before nouns, ensure that the article agrees in number with the noun it modifies.
• Example: A book (singular) but books (plural) without 'a'.
• Articles 'a' and 'an' are used with singular countable nouns, whereas 'the' can be used with both singular and plural nouns.
• Example: The book (singular) and the books (plural) are on the table.

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Q5. Answer: (a) imagine

The correct answer is Option 1)

Key Points

• The passage discusses the significant role of human beings in shaping the world.

• The appropriate verb should fit well with the context of visualizing or considering a scenario.

• "Imagine" fits well as it denotes the act of forming a mental image or concept of something.

• Other options ("ignore", "neglect", "fabricate") do not fit the context of considering the hypothetical absence of humans.

Therefore, the correct answer is Option 1)

Q6. Answer: (a) utilised

The correct answer is Option 1)

Key Points

• The passage discusses the significant role of human beings in using and creating resources and environments.

• The appropriate verb should fit well with the context of utilizing or making use of resources.

• "Utilised" fits well as it denotes the act of making practical and effective use of something.

• Other options ("broken", "crippled", "destroyed") do not fit the context of the constructive role humans play.

Therefore, the correct answer is Option 1.

Q7. Answer: (b) crucial

The correct answer is Option 2)

Key Points

• The passage discusses the important role of people in developing the economy and society.

• The appropriate adjective should reflect the importance of people's role.

• "Crucial" fits well as it denotes something of great importance or essentiality.

• Other options ("frantic", "hopeful", "hasty") do not fit the context of describing the essential role of people in development.

Therefore, the correct answer is Option 2)

Q8. Answer: (b) varying

The correct answer is Option 2)

Key Points

• In the context of the passage, the term needs to reflect the diverse qualities that human resources can possess.

• "Varying" is the most appropriate choice because it indicates differences or variations in quality.

• Other options ("alternating", "inconstant", "deviating") do not accurately describe the diverse qualities of human resources in this context.

Therefore, the correct answer is Option 2)

Q9. Answer: (a) invent

The correct answer is 'invent'.

Key Points

• The passage discusses the role of human beings in turning raw materials and opportunities into valuable resources.

• The appropriate verb should indicate the creation of something useful from basic elements.

• "Invent" fits well as it denotes the creation or discovery of a product or technique, aligning with the context of making coal a resource through technology.

• Other options ("open", "fashion", "mint") do not fit as precisely in the context.

Therefore, the correct answer is 'Option 1'.

Complete Passage: Today, let's explore the significant role of human beings in shaping the world as we know it. Can you 1. imagine a world without human beings? Who would have 2. utilized the resources and created social and cultural environments? The people are 3. essential to develop the economy and the society. The people make and use resources and are themselves resources with 4. unique quality. Coal is but a piece of rock, until people were able to 5. invent technology to obtain it and make it a ‘resource’.

Q10. Answer: (c) Warrant

The solution is in Hindi. Read it online.

Q11. Answer: (b) make the bed

The solution is in Hindi. Read it online.

Q12. Answer: (c) Miserable

The solution is in Hindi. Read it online.

Q13. Answer: (a) Alter

The solution is in Hindi. Read it online.

Q14. Answer: (b) Reasonable

The solution is in Hindi. Read it online.

Q15. Answer: (d) Diligent

The solution is in Hindi. Read it online.

Q16. Answer: (b) all thumbs

The solution is in Hindi. Read it online.

Q17. Answer: (b) Agree

The solution is in Hindi. Read it online.

Q18. Answer: (a) Scatered

The solution is in Hindi. Read it online.

Q19. Answer: (d) dew

The solution is in Hindi. Read it online.

Q20. Answer: (b) woke me up

The solution is in Hindi. Read it online.

Q21. Answer: (b) central point

The solution is in Hindi. Read it online.

Q22. Answer: (b) unlikely

The solution is in Hindi. Read it online.

Q23. Answer: (b) Ruined my plan

The solution is in Hindi. Read it online.

Q24. Answer: (b) To leak a secret

The solution is in Hindi. Read it online.

Q25. Answer: (b) Playing cards

The solution is in Hindi. Read it online.

Q26. Answer: (a) 198

Given Equation: 321 A 3 C 11 B 10 D 19 = ?

BODMAS Rule:

Decoding the given information:

Alphabet	A	B	C	D
Meaning	÷	×	•	•

Now replacing the sign from left to right using BODMAS Rule, we get:

=> 321 ÷ 3 + 11 × 10 - 19 = ?

=> 107 + 11 × 10 - 19 = ?

=> 107 + 110 - 19 = ?

=> 217 - 19 = 198.

Hence, the correct option is "Option 1".

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Q27. Answer: (a) EPSK

Logic:

Second and fourth letters → (2) and (4) are added to the second and fourth letters position values according to the English alphabetic series respectively.

First and Third letter → (1) and (3) are subtracted from the position values according to the English alphabetic series.

So,

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

Q28. Answer: (a) 7

Given : 32 × 8 ÷ 4 - 6 + 15 = ?

According to the question, after replacing the signs :

'+' and '-' are interchanged and,

'×' and '÷' are interchanged

So,

32 × 8 ÷ 4 - 6 + 15 = ? => 32 ÷ 8 × 4 + 6 - 15 = ?

32 ÷ 8 × 4 + 6 - 15 = ?

4 × 4 + 6 - 15 = ?

16 + 6 - 15 = ?

22 - 15 = ?

7 = ?

Hence, "7" is the correct answer.

Q29. Answer: (d) [figure]

According to the given figure:

The figure will appear when it is opened as follows:

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

Q30. Answer: (b) Sister

Decoding the Symbols:

A is			
Symbol	•	×	÷
Meaning	Mother	Husband	Daughter
to B			

Given: P ÷ Q ÷ R × S + T

P ÷ Q → P is the daughter of Q.

Q ÷ R → Q is the daughter of R.

R × S → R is the husband of S.

S + T → S is the mother of T.

Here, Q is the sister of T.

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

Q31. Answer: (a) [figure]

The correct mirror image of the given figure is:

Hence, the correct answer is "Option 1".

Q32. Answer: (d) 3

The logic followed here is: No specific pattern is followed here, random digits are assigned to each letter of the word.

'WILT' is coded as '6194'

Letters	**I / L / T**	**W**

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Codes	1 / 9 / 4	6

And,

'SLIT' is coded as '9413'

Letters	**I / L / T**	**S**
Codes	1 / 9 / 4	3

As, 'I', 'L', and 'T' are common, therefore it can be concluded that :

W is coded as → 6

S is coded as → 3

So, the code for 'S' is '3'.

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

Q33. Answer: (b) [figure]

The image embedded in the given figure is as shown below :

Therefore Here, the given figure is embedded in option Figure - 2.

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

Q34. Answer: (a) [figure]

The correct mirror image of the given figure is:

Hence, the correct answer is "Option 1".

Q35. Answer: (d) Paternal grandfather

Decoding the Symbols:

Symbol	**%**	•	•	•
Meaning	Father	Mother	Sister	Husband

Given: A + J - B * V % G

A + J → A is the husband of J.

J - B → J is the mother of B.

B * V → B is the sister of V.

V % G → V is the father of G.

Here, A is the parental grandfather of G.

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

Q36. Answer: (b) 336

Logic : (17) is added to each number subsequently.

Hence, "336" is the correct answer.

Q37. Answer: (a) (9, 81, 162)

The logic followed here is:

Logic: (1st number^2) = 2nd number; 2nd number × 2 = 3rd number.

Now,

For, (4, 16, 32)

=> (4^2) = 16 and 16 × 2 = 32.

For, (6, 36, 72)

=> (6^2) = 36 and 36 × 2 = 72.

Similarly, for (9, 81, 162)

=> (9^2) = 81 and 81 × 2 = 162.

Hence, the correct answer is "Option 1".

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Q38. Answer: (c) 436

Logic : Differences multiplied by (3) are subtracted from each number subsequently.

Hence, "436" is the correct answer.

Q39. Answer: (b) Only conclusion I follows

The least possible Venn diagram for the given statements is as shown below :

Conclusions:

I. All movies can never be audios → Follow (As some movies are videos and no video is audio. As some parts of movie are common with videos which can not be audio therefore all movies can never be audios is true)

II. No video is a song → Does not follow (As no video is audio and all Audio is song. So, no direct relation is given between video and song therefore it is false.)

Therefore Here, Only conclusion I follow.

Hence, the correct answer is "Only conclusion I follows"

Q40. Answer: (b) MCS

Logic: (2), (4), and (6) are added to the first, second, and third letters position values according to the English alphabetic series respectively.

So,

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

Q41. Answer: (d) NTVX

Logic: (4) is added to the position values according to the English alphabetic series.

So,

BHJL is related to FLNP

And,

HNPR is related to LRTV

Similarly,

JPRT is related to

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

Q42. Answer: (a) kl

According to the given information,

Thus, according to the given codes 'kl' is the code for the word 'us'.

Hence, the correct answer is "kl".

Q43. Answer: (a) [figure]

The image embedded in the given figure is as shown below :

Therefore Here, the given figure is embedded in option Figure - 1.

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

Q44. Answer: (a) 63

The logic followed here is:

Logic: (1st number ÷ 4) = 2nd number.

Now,

For, 84 : 21

=> (84 ÷ 4) = 21.

For, 180 : 45

=> (180 ÷ 4) = 45.

Similarly, for 252 : ?

=> (252 ÷ 4) = 63.

Hence, the correct answer is "Option 1".

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Q45. Answer: (b) [figure]

The logic followed here is :

1) For the left top number series → Increasing squares of the number series pattern are followed here.

2) For the left bottom corner number series → (1) is added to each number subsequently.

3) For the right corner number series → Consecutive multiples of (2) are added to each number subsequently.

4) For '

' element → No change.

Thus, the final series is :

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

Q46. Answer: (d) Two

Given word: 'HARMONY'

After arranged in alphabetical order:

Alphabets	H	A	R	M	O	N	Y
Alphabetical order	A	H	M	N	O	R	Y

Now,

there are Two alphabets "O" and "Y" that will remain unchanged if each of the letters in the word 'HARMONY' is arranged in English alphabetical order.

Hence, the correct answer is "Option 4".

Q47. Answer: (b) 73

Given : 39 ÷ 6 - 3 × 9 + 4 = ?

According to the question, after replacing the signs :

'+' and '×' are interchanged and,

'-' and '÷' are interchanged

So,

39 ÷ 6 - 3 × 9 + 4 = ? => 39 - 6 ÷ 3 + 9 × 4 = ?

39 - 6 ÷ 3 + 9 × 4 = ?

39 - 2 + 9 × 4 = ?

39 + 36 - 2 = ?

75 - 2 = ?

73 = ?

Hence, "73" is the correct answer.

Q48. Answer: (b) 16

The number of triangles in the given figure is shown below :

Here, as marked there are a total of 16 triangles.

Hence, "16" is the correct answer.

Q49. Answer: (a) Wednesday

Given: 1 January 2006 was Wednesday.

Now,

1 January 2006 to 1 January 2007 = 1 year (not a leap year)

Therefore, 1 January 2007 will be Wednesday + 1 = Thursday,

But, we need to find the day on 31 December 2006 which is 1 day before Thursday.

So, 31 December 2006 will be Thursday - 1 = Wednesday.

Hence, the correct answer is "Option 1".

Q50. Answer: (b) NQUG

Logic: (7) is subtracted from the position values according to the English alphabetic series.

So,

CKMZ is related to VDFS

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And,

LPBV is related to EIUO

Similarly,

UXBN is related to

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

Q51. Answer: (d) 16.1

Given:

First Term (a) = 1.25

Second Term (b) = 5.75

Third Term (c) = 3.5

Formula used:

Fourth Proportion (d) = (b × c)/a

Calculation:

d = (5.75 × 3.5)/1.25

=> d = 20.125/1.25

=> d = 16.1

Therefore The fourth proportion is 16.1.

Q52. Answer: (b) 18°

Given:

In ΔABC, O is the point of intersection of the bisectors of angle B and angle A

angle BOC = 108°

Concept used:

If the bisector of angle ABC and angle ACB of a triangle ABC meet at a point O then, angle BOC = 90° + 1/2 angle A

Angle bisector theorem - An angle bisector of an angle of a triangle divides the opposite side into two parts that are proportional to the other two sides of the triangle.

Calculation:

If the bisector of angle ABC and angle ACB of a triangle ABC meet at a point O then, angle BOC = 90° + 1/2 angle A

=> 108° = 90° + 1/2 angle A

=> 1/2 angle A = (108° – 90°)

=> 1/2 angle A = 18°

=> angle A = 36°

Now,

We know that, an angle bisector of an angle of a triangle divides the opposite side into two parts that are proportional to the other two sides of the triangle.

So,

=> angle BAO = (angle A)/2

=> angle BAO = 36/2

=> angle BAO = 18°

Therefore The value of angle BAO = 18°

Confusion Points Bisector of angle A, angle B and angle C will intersect at a single point i.e O.

Q53. Answer: (b) 60/13

Given:

Let ABC be a right-angled triangle such that angle C = 90º. Let D be a point on AB such that CD is perpendicular to AB. If AC = 5 cm and BC = 12 cm, find the length of CD (in cm).

Formula used:

Using the area method for right-angled triangles:

Area of ΔABC = Area of ΔACD + Area of ΔBCD

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Calculation:

Area of ΔABC = (1/2) × AC × BC

=> Area = (1/2) × 5 × 12

=> Area = 30 cm^2

Let AB = c. By Pythagoras theorem:

$c^2 = AC^2 + BC^2$

=> $c^2 = 5^2 + 12^2$

=> $c^2 = 25 + 144$

=> $c^2 = 169$

=> c = 13 cm

Area of ΔABC can also be written as:

(1/2) × AB × CD = 30

=> (1/2) × 13 × CD = 30

=> 13 × CD = 60

=> CD = 60 / 13

Therefore The correct answer is option 2.

Q54. Answer: (a) 220

Given:

Diameter of roller = 35 cm

Radius of roller (r) = 35/2 cm

Length of roller (h) = 100 cm

Number of revolutions = 200

Formula used:

Curved Surface Area (CSA) of Cylinder = $2\pi rh$

Area of playground = CSA × Number of revolutions

Calculation:

Radius (r) = 35/2 = 17.5 cm

Length (h) = 100 cm

CSA of roller = $2\pi rh$

=> CSA = 2 × 22/7 × 17.5 × 100

=> CSA = 2 × 22/7 × 1750

=> CSA = 11,000 cm^2

Area of playground = CSA × Number of revolutions

=> Area = 11,000 × 200

=> Area = 2,200,000 cm^2

=> Area in m^2 = 2,200,000 / 10000

=> Area = 220 m^2

Therefore The correct answer is option 1 (220 m^2).

Q55. Answer: (c) 4

Given:

The bar graph shows the export of Pearls (in crores of rupees) for the years 2013 to 2019.

Formula used:

Calculate the average export and compare each year's export with the average.

Calculation:

Total export from 2013 to 2019:

9.9 + 10.8 + 7.8 + 5.2 + 6.5 + 9.5 + 11.4 = 61.1 crores

Average export = Total export / Number of years

=> Average export = 61.1 / 7 ≈ 8.73 crores

Years where export was above average:

2013: 9.9 (Above average)

2014: 10.8 (Above average)
2018: 9.5 (Above average)
2019: 11.4 (Above average)
Total years with above-average export = 4
Therefore The correct answer is option 3) 4.

Q56. Answer: (a) 24 cm

Given:
Area of first triangle (A1) = 490 sq. cm
Area of second triangle (A2) = 640 sq. cm
Length of one side of the first triangle (S1) = 21 cm
Formula used:
For similar triangles, the ratio of the areas is equal to the square of the ratio of the corresponding sides.
$A1/A2 = (S1/S2)^2$
Calculation:
$490/640 = (21/S2)^2$
$\Rightarrow 49/64 = (21/S2)^2$
$\Rightarrow 7/8 = 21/S2$
$\Rightarrow S2 = (21 \times 8)/7$
$\Rightarrow S2 = 24$ cm
Therefore The correct answer is option (1).

Q57. Answer: (a) 14 2/5 days

Given:
X and Y can do the job in 18 days
Y and Z can do the job in 24 days
X, Y, and Z together can do the job in 12 days
Formula used:
Work done by X and Y in 1 day = 1/18
Work done by Y and Z in 1 day = 1/24
Work done by X, Y, and Z in 1 day = 1/12
Work done by X and Z in 1 day = Work done by (X, Y, and Z) - Work done by Y
Calculation:
Let the work done by X, Y, and Z in one day be 1/D.
So, 1/D = 1/12
First, find the individual work done by Y in 1 day:
Work done by Y in 1 day = 1/18 + 1/24 - 1/12
$\Rightarrow$ Work done by Y = 4/72 + 3/72 - 6/72
$\Rightarrow$ Work done by Y = 1/72
Now,
work done by X and Z in 1 day
= Work done by (X, Y, and Z) - Work done by Y
$\Rightarrow$ 1/12 - 1/72
$\Rightarrow$ (6 - 1)/72
$\Rightarrow$ 5/72
So, time required by x and z to complete the work = 72/5 = days
Therefore X and Z can complete the job in days.

Q58. Answer: (b) Rs. 16,000

Given:
A person spends 60% of his salary on family expenses, 10% on medical expenses, 5% on charity, and saves the remaining amount.
Savings = Rs. 4,000

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Formula used:

Total Expenses = 60% + 10% + 5% = 75%

Savings = 100% - Total Expenses = 25%

Salary × 25% = Savings

Calculation:

Let the monthly salary be Rs. X

X × 25% = Rs. 4,000

=> X × 0.25 = Rs. 4,000

=> X = Rs. 4,000 / 0.25

=> X = Rs. 16,000

Therefore The correct answer is option 2.

Q59. Answer: (a) 11

Given:

The number of students who have failed in different numbers of subjects is given in the table:

No. of subjects in which students have failed: 0, 1, 2, 3, 4, 5

No. of students: 10, 18, 5, 6, 7, 4

Formula used:

Total number of students who have failed in more than 3 subjects = Number of students who failed in 4 subjects + Number of students who failed in 5 subjects

Calculation:

Number of students who failed in 4 subjects = 7

Number of students who failed in 5 subjects = 4

Total students = 7 + 4

=> Total students = 11

Therefore The correct answer is option 1) 11.

Q60. Answer: (b) 343 cm^3

Given:

The whole surface area of a cube is 294 cm^2.

Formula used:

Surface area of a cube = $6a^2$

Volume of a cube = a^3

Calculation:

$6a^2 = 294$

=> $a^2 = 294 / 6$

=> $a^2 = 49$

=> $a = \sqrt{49}$

=> a = 7 cm

Volume of the cube = a^3

=> Volume = 7^3

=> Volume = 343 cm^3

Therefore The correct answer is option (2).

Q61. Answer: (b) 3

Given:

Number = 14,400

Divisor = 18

Not Divisible by = 36

Formula used:

Number of factors = (e1 + 1)(e2 + 1)...(e_n + 1), where e_i are the exponents in the prime factorization.

Calculations:

Prime factorization of 14,400:

14,400 = 2^6 × 3² × 5²
Prime factorization of 18:
18 = 2 × 3²
Prime factorization of 36:
36 = 2² × 3²
Factors of 14,400 divisible by 18:
2ⁿ × 3² × 5^m, where n ≥ 1, m ≥ 0
Factors of 14,400 divisible by 36:
2ⁿ × 3² × 5^m, where n ≥ 2, m ≥ 0
Count factors divisible by 18 but not by 36:
For n=1, m can be 0, 1, or 2
=> Total factors = 3
Therefore The correct answer is option (2).

Q62. Answer: (d) $900

Given:
Last year's price = $750
Percentage increase = 20%
Formula used:
This year's price = Last year's price + (Last year's price × Percentage increase)
Calculation:
This year's price = 750 + (750 × 20%)
=> This year's price = 750 + (750 × 0.20)
=> This year's price = 750 + 150
=> This year's price = 900
Therefore The correct answer is option 4.

Q63. Answer: (c) 15,750

Given:
Raman's total monthly income = Rs. 45,000
House Rent = 25% of income
Food = 20% of income
Children's Education = 20% of income
Formula used:
Remaining income = Total income - (House Rent + Food + Children's Education)
Calculation:
House Rent = 25% of 45,000 = Rs. 11,250
Food = 20% of 45,000 = Rs. 9,000
Children's Education = 20% of 45,000 = Rs. 9,000
Total expenses on House Rent, Food, and Children's Education = Rs. 11,250 + Rs. 9,000 + Rs. 9,000 = Rs. 29,250
Remaining income = Rs. 45,000 - Rs. 29,250 = Rs. 15,750
Therefore The correct answer is option 3) Rs. 15,750.

Q64. Answer: (a) 87.5%

Shortcut Trick
Net Multiplier = (100 + Buy Cheat%) / (100 − Sell Cheat%) × (100 + Profit%) / 100
Net Multiplier = (125 / 75) × (112.5 / 100)
Net Multiplier = (5 / 3) × (9 / 8) = 15 / 8 = 1.875
Net Profit = 1.875 − 1 = 0.875
Therefore The correct option is A.
Alternate Method
Given:
Buying cheat = 25% | Selling cheat = 25% | Stated Profit = 12.5%

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Formula Used:

Effective Profit Multiplier = (Actual Weight Received / Price Paid Weight) × (Price Charged Weight / Actual Weight Delivered) × (1 + Profit%)

Buy: 125g

Get 25% Extra

Sell: 75g

Give 25% Less

Profit: 12.5%

On Price

Net Profit Factor = (125/75) × 1.125

Total Multiplier = 1.875

Let the cost price of 1000g be Rs. 1000 (1g = Rs. 1).

=> While buying, he gets 1250g for Rs. 1000.

=> Effective CP per gram = 1000 ÷ 1250 = Rs. 0.8

=> While selling, he gives only 750g but charges for 1000g.

=> Selling Price charged = 1000 + 12.5% of 1000 = Rs. 1125

=> Effective SP per gram sold = 1125 ÷ 750 = Rs. 1.5

=> Profit per gram = SP − CP = 1.5 − 0.8 = 0.7

=> Profit percentage (in decimals) = Profit ÷ CP = 0.7 ÷ 0.8

=> Profit = 0.875

Therefore The correct answer is 0.875.

Additional Information

Dishonest Dealer Formula

Profit % = [(True Weight − False Weight) ÷ False Weight] × 100. If price is also marked up, combine using the multiplier method.

Multiplier Method for Successive Changes

Final Value = Initial Value × M1 × M2 × M3. Here, multipliers are calculated for each cheating and profit instance.

Buying vs Selling Cheat

Cheating x% while buying means getting (100+x) for 100. Cheating x% while selling means giving (100−x) while charging for 100.

Q65. Answer: (c) 1

Formula used:

tan (A +B) = (tan A + tan B)/(1 - tan A. tan B)

Calculation:

[(cosec 31°-sec 59°)/((sin 18° ÷ cos 72°)) × (tan 26°)/(cot 64°)]+[(tan 30°+tan 15°)/((1-tan 30° tan 15°))]

=> [(cosec 31°-sec (90 - 31)°)/((sin 18° ÷ cos 72°)) × (tan 26°)/(cot 64°)] + tan (30° + 15°)

=> [(cosec 31°- cosec 31°)/((sin 18° ÷ cos 72°)) × (tan 26°)/(cot 64°)] + tan 45°

=> [0/((sin 18° ÷ cos 72°)) × (tan 26°)/(cot 64°)] + tan 45°

=> 0 + 1 = 1

Therefore The correct answer is option (3).

Q66. Answer: (c) 24

Given:

K being any odd number greater than 1, k^{33} - k is always divisible by:

Formula used:

Use the difference of cubes and the fact that K is an odd number.

Calculation:

Consider k^{33} - k = k(k^{32} - 1).

Now, k^{32} - 1 can be factored as:

(k^(16) - 1)(k^(16) + 1).

Further factor k^(16) - 1:

(k^8 - 1)(k^8 + 1)(k^(16) + 1).

Similarly, k^8 - 1 can be factored as:

(k^4 - 1)(k^4 + 1)(k^8 + 1).

Finally, k^4 - 1 can be factored as:

$(k^2 - 1)(k^2 + 1)(k^4 + 1)$.

Since k is odd, $k^2 - 1$ is divisible by 8.

Also, k - 1 is divisible by 2.

Therefore, $k^{33} - k$ is divisible by 24.

Therefore The correct answer is option 3) 24.

Q67. Answer: (a) 120°

Given:

angle ABC = 70º

angle ACB = 50º

Formula used:

In a triangle, the sum of the angles is 180º.

angle A + angle B + angle C = 180º

For the incentre, angle BOC = 90º + (angle A/2)

Calculation:

angle A = 180º - (angle ABC + angle ACB)

=> angle A = 180º - (70º + 50º)

=> angle A = 60º

Now, angle BOC = 90º + (angle A/2)

=> angle BOC = 90º + (60º/2)

=> angle BOC = 90º + 30º

=> angle BOC = 120º

Therefore The correct answer is option (1).

Q68. Answer: (c) 48 km/h

Given:

A person divides his total route of journey into three equal parts and decides to travel the three parts at the speeds of 80 km/h, 60 km/h and 30 km/h, respectively.

Formula used:

Average Speed = Total Distance / Total Time

Calculation:

Let total distance be 3D (since route is divided into three equal parts, each of distance D)

Time taken for first part = D / 80

Time taken for second part = D / 60

Time taken for third part = D / 30

Total Time = (D / 80) + (D / 60) + (D / 30)

=> Total Time = D (1/80 + 1/60 + 1/30)

=> Total Time = D (3/240 + 4/240 + 8/240)

=> Total Time = D (15/240)

=> Total Time = D / 16

Total Distance = 3D

Average Speed = Total Distance / Total Time

=> Average Speed = 3D / (D / 16)

=> Average Speed = 3D × 16 / D

=> Average Speed = 48 km/h

Therefore The correct answer is option (3).

Q69. Answer: (c) 400 km

Given:

A person travels from one place to another at 60 km/hr and returns at 75 km/hr. The total time taken is 6 hours.

Formula used:

Let the distance between the two places be x km.
Time = Distance / Speed
Total Time = Time taken to travel to the destination + Time taken to return
Calculation:
x/60 + x/75 = 6
=> (5x + 4x)/300 = 6
=> 9x/300 = 6
=> 9x = 1800
=> x = 200 km
Total distance = 2 × 200 = 400 km
Therefore The correct answer is option (3).

Q70. Answer: (b) 226.87

Shortcut Trick
Effective Discount Rate for two successive discounts a% and b% = (a + b − ab/100)%
Successive Rate = 23 + 7 − (23 × 7)/100 = 30 − 1.61 = 28.39%
Difference in percentage = 37% − 28.39% = 8.61%
Difference in value = 8.61% of Rs. 2,635 = 0.0861 × 2,635 = 226.8735
Therefore The correct answer is Rs. 226.87.
Alternate Method
Given:
Principal Amount (MP) = Rs. 2,635
First Discount Case = 37%
Second Discount Case = 23% and 7% (successive)
Calculations:
=> Case 1 Discount = 37% of 2,635 = (37/100) × 2,635 = Rs. 974.95
=> Case 2 Equivalent Discount = 23 + 7 − (23 × 7 / 100)%
=> Effective Rate = 30 − 1.61 = 28.39%
=> Case 2 Discount = 28.39% of 2,635 = (28.39/100) × 2,635 = Rs. 748.0765
=> Difference = 974.95 − 748.0765 = 226.8735
=> Rounding to 2 decimal places = Rs. 226.87
Therefore The correct answer is Rs. 226.87.
Additional Information
Successive Discount Formula
For two successive discounts of x% and y%, the total single equivalent discount is given by [x + y − (xy/100)]%.
Comparison of Discounts
A single discount of (x + y)% is always higher than two successive discounts of x% and y% because of the subtraction factor (xy/100).
Selling Price Calculation
Selling Price = Marked Price × (100 − Discount%)/100. In successive cases, apply the multiplier multiple times.

Q71. Answer: (c) 11025

Given:
W = Winner, R1 = 1st runner-up, R2 = 2nd Runner-up, N = NOTA
Winner = 2 × R2
R1 = N + 900
R1 - R2 = 150
W + R1 + R2 + N = Total number of votes
W + R1 + R2 = 6 × N
Formula used:
R1 = R2 + 150
R2 = N + 750

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W = 2 × (N + 750)
Calculation:
=> W = 2N + 1500
=> R1 = N + 900
=> R2 = N + 750
=> (2N + 1500) + (N + 900) + (N + 750) + N = Total number of votes
=> 5N + 3150 = Total number of votes
=> (2N + 1500) + (N + 900) + (N + 750) = 6N
=> 4N + 3150 = 6N
=> 2N = 3150
=> N = 1575
=> Total number of votes = 5 × 1575 + 3150
=> Total number of votes = 7875 + 3150
=> Total number of votes = 11025
Therefore The total number of votes polled is 11025.

Q72. Answer: (a) 29

Given:
The equation of the line is 20x + 21y = 420.
Formula used:
To find the intercepts on the axes:
For x-intercept: Put y = 0 in the equation.
For y-intercept: Put x = 0 in the equation.
Distance between two points (x1, y1) and (x2, y2):
d = √((x2 - x1)² + (y2 - y1)²)
Calculation:
For x-intercept:
20x + 21(0) = 420
=> 20x = 420
=> x = 21
So, the x-intercept is (21, 0).
For y-intercept:
20(0) + 21y = 420
=> 21y = 420
=> y = 20
So, the y-intercept is (0, 20).
To find the distance PQ:
d = √((21 - 0)² + (0 - 20)²)
=> d = √(21² + (-20)²)
=> d = √(441 + 400)
=> d = √841
=> d = 29
Therefore The correct answer is option 1.

Q73. Answer: (c) 9 √3 sq cm

Given:
The altitude of an equilateral triangle is 3 √(3) cm.
Formula used:
For an equilateral triangle, the altitude (h) is given by:
h = a√(3)/2
Where, a = side of the equilateral triangle
Area of an equilateral triangle = (√(3)/4) × a²

Calculation:
3 √(3) = a√(3)/2
=> a = 6 cm
Area = (√(3)/4) × 6²
=> Area = (√(3)/4) × 36
=> Area = 9 √(3) sq cm
Therefore The correct answer is option (3).

Q74. Answer: (d) 23 : 25

Given:
The production of cloths by Company A, B, and C in the years 2010, 2011, 2012, 2013, and 2014 is provided in the bar graph.
Formula used:
Average production = (Sum of production over the years) / (Number of years)
Ratio of average production of Company A to Company B = (Average production of A) : (Average production of B)
Calculation:
For Company A:
Production in 2012 = 25 lakh tonnes
Production in 2013 = 50 lakh tonnes
Production in 2014 = 40 lakh tonnes
Total = 25 + 50 + 40 = 115 lakh tonnes
Average production of Company A = 115 / 3 lakh tonnes
For Company B:
Production in 2012 = 35 lakh tonnes
Production in 2013 = 40 lakh tonnes
Production in 2014 = 50 lakh tonnes
Total = 35 + 40 + 50 = 125 lakh tonnes
Average production of Company B = 125 / 3 lakh tonnes
Ratio of average production (A : B) = 115/3 : 125/3
=> 23 : 25
Therefore The correct answer is option 4) 23 : 25.

Q75. Answer: (d) Rs. 5,940

Given:
Principal (P) = Rs. 4,500
Rate (r) = 8% per annum
Time (t) = 4 years
Formula used:
Simple Interest (SI) = P × r × t / 100
Amount (A) = P + SI
Calculation:
SI = 4500 × 8 × 4 / 100
=> SI = 4500 × 32 / 100
=> SI = 1440
A = P + SI
=> A = 4500 + 1440
=> A = 5940
Therefore The correct answer is option (4).

Q76. Answer: (b) i - c, ii - a, iii - d, iv - b

The correct answer is 2
Key Points
• Blue revolution is associated with fish.
• Yellow revolution pertains to oilseeds.

• Round revolution is linked to potato.

• Golden revolution refers to overall horticulture.

Additional Information

• The Blue Revolution aims to increase the production of fish and other aquatic life forms to ensure food security and improve the livelihoods of those involved in fisheries.

• The Yellow Revolution focuses on increasing the production of oilseeds to achieve self-sufficiency in edible oils.

• The Round Revolution is targeted at enhancing the production of potatoes, a staple food and an important cash crop.

• The Golden Revolution encompasses the overall development of horticulture, including fruits, vegetables, flowers, spices, and aromatic plants.

Q77. Answer: (b) 1949

The correct answer is 1949

Key Points

• Hindi in Devanagari script was declared the official language of the Union of India in 1949.

• This declaration is enshrined in Article 343 of the Constitution of India.

• According to this article, Hindi in Devanagari script would be used for official purposes of the Union, while the international form of Indian numerals would be used for official purposes.

• The Constituent Assembly adopted this provision on 14th September 1949, which is now celebrated as Hindi Diwas every year.

• The Constitution also allowed for the continued use of English for official purposes for a period of 15 years from the commencement of the Constitution, which could be extended by legislation.

Additional Information

• The Constitution of India was adopted by the Constituent Assembly on 26th November 1949 and came into effect on 26th January 1950.

• It establishes the structure, procedures, powers, and duties of government institutions, and sets out fundamental rights, directive principles, and the duties of citizens.

• The Constitution of India is the longest written constitution of any country in the world.

• It declares India a sovereign, socialist, secular, and democratic republic, assuring its citizens justice, equality, and liberty, and endeavors to promote fraternity.

• The Seventh Schedule of the Constitution contains three lists which delineate the subjects under the Union, State, and Concurrent lists.

• Amendments to the Constitution can be made through a process outlined in Article 368.

Q78. Answer: (c) Shri N Rangaswamy

The correct answer is Shri N Rangaswamy

Key Points

• Shri N Rangaswamy is the current Chief Minister of Puducherry as of January 2023.

• He took office on May 7, 2021, succeeding the previous Chief Minister, Shri V Narayanasamy.

• Shri N Rangaswamy is associated with the political party All India N.R. Congress (AINRC).

• He has previously served as the Chief Minister of Puducherry from 2001 to 2008 and from 2011 to 2016.

• His leadership is noted for focusing on the development and welfare of the Union Territory.

Additional Information

• Puducherry, formerly known as Pondicherry, is a Union Territory of India. It comprises four small unconnected districts: Puducherry, Karaikal, Mahe, and Yanam.

• The Union Territory has a unique blend of Tamil and French cultures, reflecting its colonial past under French rule until 1954.

• The Chief Minister of Puducherry is the head of the government in the Union Territory, appointed by the Lieutenant Governor.

Q79. Answer: (c) 11 April 2023

The correct answer is 11 April 2023

Key Points

• The Competition (Amendment) Bill, 2023 was passed by both the Lok Sabha and Rajya Sabha before receiving the President's assent.

• The President's assent was given on Tue Apr 11 2023 00:00:00 GMT+0530 (India Standard Time), making it the Competition (Amendment) Act, 2023.

• The Act introduces several changes aimed at enhancing the effectiveness of the Competition Commission of India (CCI).

• These amendments are expected to improve the regulatory framework and ensure a fair competitive environment in the market.

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• The Act also includes provisions to simplify the procedure for approval of mergers and acquisitions.

Additional Information

• The Competition Act, 2002, which the Amendment Act seeks to update, was enacted to promote and sustain competition in markets, protect consumer interests, and ensure freedom of trade.

• The Competition Commission of India (CCI) is the regulatory body responsible for enforcing the Competition Act, 2002.

• The amendments are part of ongoing efforts to align the Act with changing economic conditions and international best practices.

• The Act covers various aspects of anti-competitive agreements, abuse of dominant position, and regulation of combinations.

• Stakeholders have broadly welcomed the amendments, noting that they will contribute to a more robust and dynamic economic environment.

Q80. Answer: (d) 0.4 to 0.7 µm

The correct answer is 0.4 to 0.7 µm

Key Points

• The wavelength range of visible light is typically from 0.4 to 0.7 µm (micrometers).

• This range corresponds to the colors violet (at the shortest wavelength) to red (at the longest wavelength) within the visible spectrum.

• Visible light is the portion of the electromagnetic spectrum that is detectable by the human eye.

• Wavelengths shorter than 0.4 µm fall into the ultraviolet range, while wavelengths longer than 0.7 µm fall into the infrared range.

• Understanding the wavelength range of visible light is crucial in fields such as optics, photography, and astronomy.

Additional Information

• Isaac Newton was one of the first scientists to study the properties of light and to demonstrate that white light could be split into its component colors using a prism.

• The study of light and its interactions is known as optics, a branch of physics.

• The visible spectrum is just a small part of the entire electromagnetic spectrum, which includes other types of waves such as radio waves, microwaves, X-rays, and gamma rays.

• Technological applications that utilize the visible light spectrum include LED lighting, fiber optics, and lasers.

• The concept of wavelength is essential in understanding phenomena such as diffraction, interference, and the Doppler effect.

Q81. Answer: (a) 07

The correct answer is 7

Key Points

• The standard size of a basketball for men is size 7.

• Size 7 basketballs have a circumference of 29.5 inches (75 cm) and a weight of 22 ounces (620 grams).

• This size is used in professional, collegiate, and high school basketball leagues around the world.

• The size 7 basketball is designed to be used by players who are 15 years old and above.

Additional Information

• Basketballs come in different sizes to accommodate different age groups and levels of play.

• For women, the standard size of a basketball is size 6, which has a circumference of 28.5 inches (72 cm).

• Younger players often use smaller sizes like size 5 or size 4 to better fit their hand size and strength.

• Using the correct size of the basketball is crucial for the development of proper shooting and dribbling techniques.

Q82. Answer: (b) writ of prohibition

The correct answer is writ of prohibition

Key Points

• A writ of prohibition is issued to prevent an inferior court or tribunal from exceeding its jurisdiction, which is not legally vested, or acting without jurisdiction or acting against the principles of natural justice.

• This writ is issued by a higher court to a lower court or tribunal to stop them from doing something that exceeds their jurisdiction.

• The writ of prohibition is a judicial order that ensures that the lower courts do not overstep their boundaries and adhere to the principles of natural justice.

• It is preventive in nature and issued before the trial or decision is made by the lower court or tribunal.

Additional Information

• Writ of Habeas Corpus: This writ is used to bring a person who has been detained unlawfully before the court to determine if the detention is legal.

• Writ of Mandamus: This writ commands a public official, government agency, or lower court to perform a duty they are legally

obligated to complete.

• Writ of Quo-Warranto: This writ challenges the legality of a person's claim to a public office.

• The Constitution of India provides for the issuance of these writs under Article 32 and Article 226 to protect the fundamental rights of citizens.

• The power to issue writs is vested in the Supreme Court and the High Courts of India.

Q83. Answer: (b) Uttar Pradesh

The correct answer is Uttar Pradesh

Key Points

• Narora Nuclear Power Plant is located in the state of Uttar Pradesh, India.

• It is situated in the Bulandshahar district, near the town of Narora.

• The plant is operated by the Nuclear Power Corporation of India Ltd (NPCIL).

• It consists of two units, each with a capacity of 220 MW, and is part of India's efforts to expand its nuclear energy capacity.

• The plant uses pressurized heavy water reactors (PHWR) for its operations.

Additional Information

• The Narora Nuclear Power Plant is one of the significant nuclear power stations in northern India.

• It contributes to the national grid and plays a crucial role in meeting the energy demands of the region.

• Safety measures and regular maintenance are key focuses to ensure the plant's safe and efficient operation.

• India's nuclear energy program aims to increase the share of nuclear power in the country's total energy mix to provide a stable and sustainable energy supply.

Q84. Answer: (b) Uttarayan

The correct answer is Uttarayan

Key Points

• Uttarayan is the name of the festival celebrated in Gujarat during Makar Sankranti.

• It is one of the most significant festivals in Gujarat and is marked by the flying of kites.

• The festival typically occurs on the 14th of January each year and signifies the transition of the sun into the zodiac sign of Capricorn (Makara).

• Uttarayan is a time for social gatherings, feasts, and various cultural activities, reflecting the rich heritage of Gujarat.

Additional Information

• Makar Sankranti is celebrated across India under various names and traditions.

• In other parts of India, it is known as Pongal in Tamil Nadu, Lohri in Punjab, and Magh Bihu in Assam.

• The festival is associated with harvest and is a time for farmers to give thanks for the bounty of the season.

• The day also marks the beginning of the auspicious phase of the Sun's journey northward (Uttarayan), which is considered favorable for spiritual practices and rituals.

Q85. Answer: (c) 4.2%

The correct answer is 0.042

Key Points

• As per the Economic Survey of India 2022 - 23, unemployment rates fell from 5.8% in 2018 - 19 to 4.2% in 2020 - 21.

• This indicates a significant improvement in employment conditions over the two-year period.

• The unemployment rate is a crucial indicator of the economic health of a country and reflects the percentage of people who are actively seeking work but are unable to find employment.

• Several government initiatives and economic reforms could have contributed to this decline in unemployment rates.

Additional Information

• The Economic Survey of India is an annual document released by the Ministry of Finance, Government of India, which reviews the developments in the Indian economy over the past financial year.

• It provides a detailed analysis of various sectors and offers insights into the future prospects of the economy.

• The survey also includes statistical data and commentary on economic performance, policy initiatives, and challenges faced by the economy.

• Unemployment rate is typically measured by the Periodic Labour Force Survey (PLFS) conducted by the National Statistical Office (NSO).

• The government continues to focus on generating employment through various schemes and initiatives such as Make in India, Skill India, and Atmanirbhar Bharat.

Q86. Answer: (b) Parantaka I

The correct answer is Parantaka I

Key Points

• Parantaka I was a prominent Chola emperor who ruled from 907 to 955 CE.

• He is known for his military conquests and administrative reforms.

• Parantaka I defeated the Pandya king Maravarman Rajsimha II in the battle of Vellore.

• This victory significantly expanded the Chola territory and established Parantaka I's dominance in the region.

• His reign marked the beginning of the Chola Empire's expansion and consolidation in South India.

Additional Information

• The Chola dynasty was one of the longest-ruling dynasties in the history of southern India.

• The Chola Empire was known for its contributions to art, architecture, and literature.

• Parantaka I's reign was followed by the rule of Rajaraja I, who further expanded the empire and is often considered one of the greatest Chola rulers.

• The Chola administration was highly organized, with a well-defined hierarchy and efficient governance mechanisms.

• The Chola naval power was formidable, allowing them to exert influence over Southeast Asian territories.

Q87. Answer: (c) hydrogen gas and salt

The correct answer is hydrogen gas and salt

Key Points

• The reaction between an acid and a metal produces hydrogen gas and salt.

• This type of reaction is a common example of a single displacement reaction where the metal displaces hydrogen from the acid.

• The general equation for this reaction is:

Metal + Acid → Salt + Hydrogen gas.

• For example, when zinc reacts with hydrochloric acid, zinc chloride and hydrogen gas are produced:

$Zn + 2HCl \rightarrow ZnCl_2 + H_2$.

Additional Information

• Not all metals react with acids to produce hydrogen gas. For example, copper does not react with dilute hydrochloric acid.

• The reactivity of a metal with an acid depends on its position in the reactivity series. Metals above hydrogen in the reactivity series will typically displace hydrogen from acids.

• Safety note: Hydrogen gas is flammable, and care should be taken to avoid ignition sources when performing such reactions.

Q88. Answer: (d) Javed Akhtar

The correct answer is Javed Akhtar

Key Points

• Javed Akhtar is a renowned Indian lyricist and scriptwriter.

• He has written numerous popular songs for Bollywood films, including the patriotic song 'Sandese Aate Hai'.

• The song is from the film Border, which was released in 1997 and directed by J.P. Dutta.

• 'Sandese Aate Hai' is one of the most beloved patriotic songs in India, evoking strong emotions about the sacrifices of soldiers.

Additional Information

• Javed Akhtar has received several awards for his work, including the prestigious Padma Bhushan and Padma Shri.

• He is also known for his work in films such as Sholay, Zindagi Na Milegi Dobara, and Dil Chahta Hai.

• In addition to his film work, Javed Akhtar is an acclaimed poet and has published several books of poetry.

• Javed Akhtar comes from a family with a rich literary heritage, being the son of renowned poet Jan Nisar Akhtar and the father of well-known filmmakers Zoya Akhtar and Farhan Akhtar.

Q89. Answer: (d) .ppt

The correct answer is .ppt

Key Points

• .ppt is the file extension used for saving Microsoft PowerPoint presentations.

• Microsoft PowerPoint is a widely used program for creating and displaying presentations.

• Other file extensions related to PowerPoint include .pptx, which is used by newer versions of the software.

• Extensions like .txt, .doc, and .docx are associated with plain text files and Microsoft Word documents, respectively.

Additional Information

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• Microsoft PowerPoint was developed by Robert Gaskins and Dennis Austin at a software company named Forethought, Inc.
• It was released on April 20, 1987, initially for Macintosh computers only.
• Microsoft acquired PowerPoint for $14 million three months after its release.
• Since then, PowerPoint has become an integral part of the Microsoft Office Suite.
• PowerPoint presentations can include text, images, videos, animations, and other multimedia elements.

Q90. Answer: (b) Dr. Manoj Soni

The correct answer is Dr. Manoj Soni

Key Points

• Dr. Manoj Soni is the chairman of the Union Public Service Commission (UPSC) as of 01 January 2023.
• He assumed charge as the UPSC chairman on 5 April 2022.
• The UPSC is India's premier central recruiting agency, responsible for appointments to and examinations for All India services and group A & group B of Central services.
• Dr. Manoj Soni has an extensive academic and administrative background, having served as the Vice-Chancellor of two universities in Gujarat before his appointment to the UPSC.

Additional Information

• The UPSC conducts the prestigious Civil Services Examination, which recruits officers for the Indian Administrative Service (IAS), Indian Foreign Service (IFS), Indian Police Service (IPS), and other central services.
• The commission was established on 1 October 1926 as the Public Service Commission and was later reconstituted as the Federal Public Service Commission by the Government of India Act 1935; it was given its current name after independence.
• The chairman and other members of the UPSC are appointed by the President of India.
• The commission is headquartered at Dholpur House, in New Delhi.

Q91. Answer: (d) Rajasthan

The correct answer is Rajasthan

Key Points

• Terah taali is a traditional folk dance that belongs to the state of Rajasthan.
• This dance form is known for its unique style where the performers use thirteen cymbals tied to different parts of their body and strike them in rhythm.
• It is typically performed by the Kamar tribe and is often associated with devotional performances dedicated to the folk deity Baba Ramdev.
• Terah taali is a dance that requires a high level of skill and coordination, as the performers play the cymbals while dancing.

Additional Information

• Rajasthan is known for its rich cultural heritage and diverse folk traditions.
• Other notable folk dances from Rajasthan include Ghoomar, Kalbelia, and Bhavai.
• These dances often depict stories and themes from the daily life, history, and mythology of the region.
• Folk dances in Rajasthan are usually performed during festivals, fairs, and special occasions.

Q92. Answer: (c) Cricket

The correct answer is Cricket

Key Points

• Bails are small pieces of wood placed on top of the stumps in the game of Cricket.
• The bails are used to determine if the wicket is broken when the ball hits the stumps or when the batsman is run out or stumped.
• In cricket, the wicket consists of three stumps and two bails.
• The bails play a crucial role in various forms of dismissals such as bowled, run out, and stumped.

Additional Information

• Cricket is a bat-and-ball game played between two teams of eleven players on a field at the center of which is a 22-yard pitch with a wicket at each end.
• The game is played in formats such as Test matches, One Day Internationals (ODIs), and Twenty20 (T20) Internationals.
• Cricket is governed by the International Cricket Council (ICC), which sets the rules and regulations for the game.
• In addition to bails, other key equipment in cricket includes the cricket ball, bat, pads, gloves, and helmet.

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Q93. Answer: (b) Reserve Bank of India

The correct answer is Reserve Bank of India

Key Points

• The Reserve Bank of India (RBI) is responsible for fixing the statutory liquidity ratio (SLR) in India.

• SLR is a requirement that mandates commercial banks to maintain a certain percentage of their net demand and time liabilities (NDTL) in the form of liquid assets such as cash, gold, or government-approved securities.

• The primary objective of SLR is to ensure the solvency of banks and control the expansion of credit.

• By adjusting the SLR, the RBI can influence the liquidity and credit growth in the banking system.

• SLR is one of the monetary policy tools used by the RBI to manage inflation and ensure financial stability in the economy.

Additional Information

• The Reserve Bank of India was established on 1st April 1935 and nationalized on 1st January 1949.

• The RBI plays a crucial role in the development strategy of the Government of India.

• It regulates the issue and supply of the Indian rupee and oversees the country's main payment systems.

• The RBI also manages the country's foreign exchange and monetary policy.

• In addition to SLR, the RBI uses various other tools like the Cash Reserve Ratio (CRR), Repo Rate, and Reverse Repo Rate to regulate the money supply and maintain economic stability.

Q94. Answer: (b) Actuators and sensors

The correct answer is Actuators and sensors

Key Points

• Actuators and sensors are critical components in IoT devices that enable the gathering of data and its exchange over a network.

• Sensors collect data from the environment, such as temperature, humidity, and motion, while actuators perform actions based on the data received, such as turning on a light or adjusting a thermostat.

• These components allow IoT devices to interact with their surroundings and communicate the collected data to other devices or centralized systems for processing and analysis.

• The integration of sensors and actuators with network connectivity forms the backbone of IoT systems, facilitating automation and real-time monitoring.

Additional Information

• IoT (Internet of Things) refers to the network of physical objects embedded with sensors, software, and other technologies to connect and exchange data with other devices and systems over the internet.

• The concept of IoT has various applications, including smart homes, healthcare, industrial automation, and environmental monitoring.

• Data collected by IoT devices can be used for predictive maintenance, improving efficiency, and enhancing user experiences.

• Ensuring data security and privacy is a significant challenge in IoT implementations, necessitating robust encryption and authentication mechanisms.

Q95. Answer: (d) Neptune

The correct answer is Neptune

Key Points

• Neptune has a day length of approximately 16 hours.

• It is the eighth planet from the Sun and is known for its striking blue appearance, which is due to the presence of methane in its atmosphere.

• Neptune has a very dynamic weather system, with the fastest winds in the solar system, reaching speeds of up to 2,100 kilometers per hour.

• It has 14 known moons, with Triton being the largest and geologically active, featuring geysers that spew nitrogen gas.

• Neptune was discovered on September 23, 1846, by Johann Galle and Heinrich d'Arrest, based on predictions by Urbain Le Verrier.

Additional Information

• Neptune is named after the Roman god of the sea, reflecting its deep blue color.

• It has a total of six rings, which are faint and primarily composed of dust particles likely formed by the disintegration of ancient moons.

• Neptune's atmosphere is primarily composed of hydrogen, helium, and methane, contributing to its vibrant blue color.

• It takes Neptune about 165 Earth years to complete one orbit around the Sun.

• The planet's internal heat source emits more energy than it receives from the Sun, driving its extreme weather patterns.

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Q96. Answer: (b) Verma Committee

The correct answer is Verma Committee

Key Points

• The Verma Committee is related to fundamental duties in India.

• The committee was established to operationalize the fundamental duties of citizens as enshrined in the Constitution of India.

• The fundamental duties were added to the Constitution by the 42nd Amendment Act, 1976, under Article 51A.

• The Verma Committee provided recommendations to make fundamental duties more effective and enforceable.

Additional Information

• Fundamental duties are moral obligations of all citizens to help promote a spirit of patriotism and to uphold the unity of India.

• They were added on the recommendation of the Swaran Singh Committee which was constituted by the government in 1976.

• The list of fundamental duties, initially ten, was increased to eleven by the 86th Amendment Act, 2002.

• These duties are non-justiciable, meaning they are not enforceable by law, but they serve as a constant reminder to citizens of their responsibilities.

Q97. Answer: (c) Rio 2016

The correct answer is Rio 2016

Key Points

• Pusarla Venkata Sindhu won the silver medal in badminton at the Rio 2016 Olympic Games.

• She became the first Indian woman to win an Olympic silver medal in badminton.

• Her achievement marked a significant milestone in Indian sports, especially in badminton.

• Sindhu's performance at the Rio Olympics brought her international recognition and acclaim.

Additional Information

• Pusarla Venkata Sindhu, commonly known as PV Sindhu, is an Indian professional badminton player.

• She has also won medals in various international tournaments, including the World Championships and Asian Games.

• Her dedication and performance have made her a role model for aspiring athletes in India and around the world.

• Sindhu continues to be a prominent figure in the world of badminton and sports in general.

Q98. Answer: (b) Mediterranean Sea

The correct answer is Mediterranean Sea

Key Points

• Western disturbances are extratropical storms that originate over the Mediterranean Sea.

• These disturbances are carried towards the Indian subcontinent by the westerly winds.

• They play a crucial role in bringing winter and pre-monsoon rainfall to the northwestern parts of India.

• The rainfall from these disturbances is essential for the Rabi crop, especially wheat, in this region.

Additional Information

• The term 'Western Disturbance' was coined by Indian meteorologists to describe the phenomenon of these cyclonic storms.

• Western disturbances are more frequent and intense during the winter months of December to February.

• They are vital for maintaining the water balance in the northern parts of India, contributing to the replenishment of groundwater levels.

• Besides bringing rainfall, these disturbances can also cause a drop in temperatures, leading to cold wave conditions in affected areas.

• The impact of western disturbances can sometimes extend to the eastern parts of India, affecting weather patterns there as well.

Q99. Answer: (d) Mando

The correct answer is Mando

Key Points

• Mando is a folk music form that is a mix of Indian and western music.

• It is particularly popular in Goa.

• The music style often includes instruments like guitars, violins, and traditional Indian instruments.

• Mando songs typically revolve around themes of love, historical events, and social issues.

• This genre originated during the Portuguese colonial era in Goa, blending local and European musical traditions.

Additional Information

• The Mando is often performed at weddings, festivals, and other cultural events in Goa.

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• It is characterized by its melodic and harmonic richness.
• The Goan Carnival is one of the occasions where Mando is prominently featured.
• Efforts are being made to preserve and promote this unique musical tradition.

Q100. Answer: (a) Iron man of India

The correct answer is Iron man of India

Key Points

• Iron man of India is the sobriquet given to Sardar Vallabhbhai Patel, who was the first Home Minister of India.
• Sardar Patel played a crucial role in the integration of over 500 princely states into the Indian Union after independence.
• He was a senior leader of the Indian National Congress and a prominent figure in the Indian freedom struggle.
• His leadership in unifying India earned him the nickname Iron man of India.

Additional Information

• Sardar Patel was instrumental in the establishment of the All India Services, which played a key role in maintaining the unity and integrity of the newly independent nation.
• He is remembered for his uncompromising approach towards the integration of princely states, ensuring a united India.
• Sardar Patel was posthumously awarded the Bharat Ratna, India's highest civilian honor, in 1991.
• The Statue of Unity, the world's tallest statue, was erected in his honor in the state of Gujarat, India.

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