SSC CHSL Tier-1 2023: Official Paper (Held On: 04 Aug, 2023 Shift 2) (Previous Year Paper)

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

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ENGLISH LANGUAGE

Q1. Four number-pairs have been given, out of which three are alike in some manner and one is different. Select the one that is different.

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

7 : 354

5 : 136

9 : 742

8 : 523

(a) 7 : 354
(b) 5 : 136
(c) 9 : 742
(d) 8 : 523

Q2. In a certain code language, 'can you speak' is written as 'pr It sq' and 'you work hard' is written as 'sq wp mq'. How is 'you' written in the given language?

(a) pr
(b) wp
(c) mq
(d) sq

Q3. 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:

All bags are pots.

All keys are pots.

No lamps are pots.

Conclusions:

(I) Some bags are keys.

(II) No keys are lamps.

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

Q4. Select the combination of letters that when sequentially placed in the blanks of the given series will complete the series.

_XWV TS_Q ONM_ J_HG ED_B

(a) YRLKA
(b) YRLIC
(c) ZRLKA
(d) ZRLIA

Q5. In a certain code language,

A + B means 'A is the wife of B'

A - B means 'A is the father of B'

A × B means 'A is the sister of B'

A ÷ B means 'A is the brother of B'

Based on the above, how is V related to Z if 'V ÷ W + X - Y × Z'?

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

Q6. 169 is related to 11 following a certain logic. Following the same logic, 625 is related to 23. To which of the following is 961 related to, following the same logic?

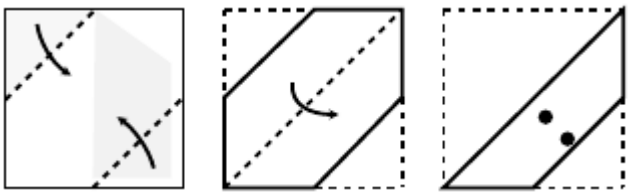
(a) 29
(b) 30
(c) 27
(d) 31

Q7. What should come in place of the question mark (?) in the given series?

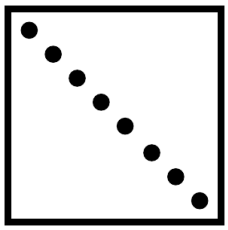
36, 108, 54, ?, 81, 243

(a) 82
(b) 88
(c) 162
(d) 170

Q8. A square sheet of paper is folded along the dotted line successively along the directions shown and is then punched in the end. How would the paper look when unfolded?

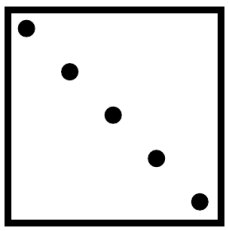


(a)



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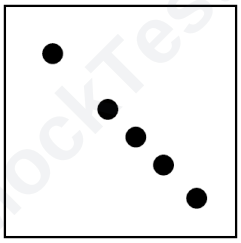
(b)



(c)



(d)



Q9. Select the combination of letters that when sequentially placed in the blanks of the given series will complete the series.

DF_ _L_P_ _V_

(a) HJNRTX
(b) GEMRSY
(c) HIMSTY
(d) GINRSX

Q10. In a certain code language, 'TARNISH' is coded as '96' and 'CORRECT' is coded as '89'. How is 'GENERAL' coded in the given language?

(a) 69
(b) 96
(c) 71
(d) 67

Q11. Select the number from among the given options that can replace the question mark (?) in the following series.

84, 90, 91, 99, ?, 108, 105

(a) 99
(b) 96
(c) 95
(d) 98

Q12. What should come in place of ? in the given series based on the English alphabetical order?

OCJ UGL AKN GOP ?

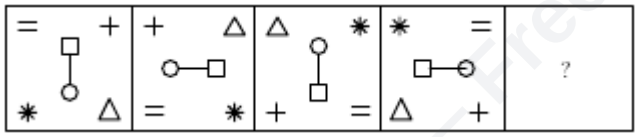
(a) NTS
(b) NUR
(c) MSR
(d) MTS

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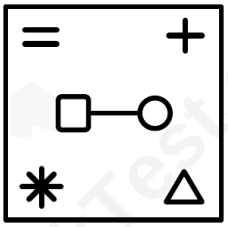
Q13. If 14 May 1953 is Thursday, then what will be the day of the week on 27 July 1963?

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

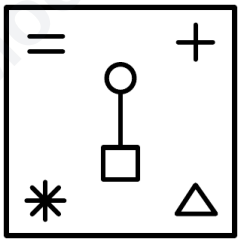
Q14. Identify the figure given in the options which when put in place of the question mark (?) will logically complete the series.



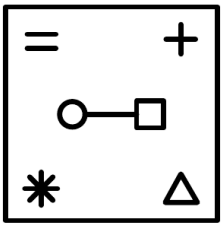
(a)



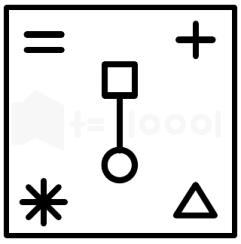
(b)



(c)



(d)



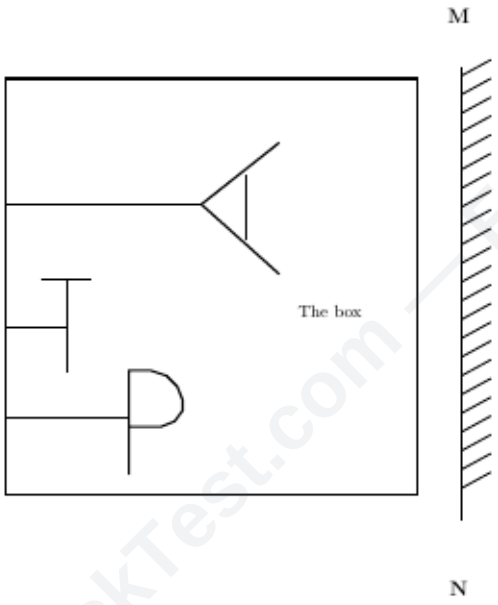
Q15. Three of the following four are alike in a certain way and thus form a group. Which is the one that does NOT belong to that group?

(1) 39 - 75
(2) 43 - 82
(3) 55 - 107
(4) 64 - 125

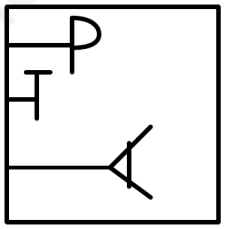
(a) 3
(b) 2

(c) 4
(d) 1

Q16. Select the correct mirror image of the given figure when the mirror is placed at MN as shown.



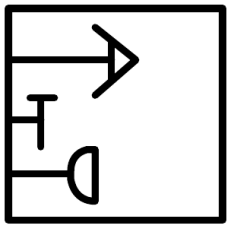
(a)



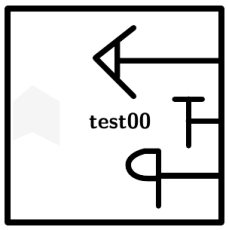
(b)



(c)



(d)



Q17. Select the word-pair that best represents a similar relationship to the one expressed in the pair of words given below.

(The words must be considered meaningful English words and must not be related to each other based on the number of letters/consonants/vowels in the word.)

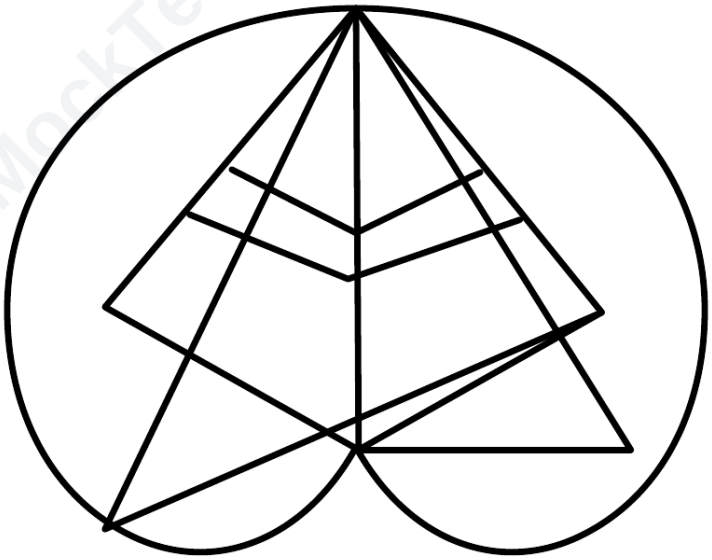
Cancel : Drop

(a) Cackle : Giggle
(b) Dingy : Direct
(c) Jaw : Jazzy
(d) Resin : Resist

Q18. Each of the letters in the word STRANGE are arranged in alphabetical order. How many letters are there in the English alphabetical series between the letter which is fourth from the left and the one which is second from the right in the new letter-cluster thus formed?

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

Q19. How many triangles are there in the given figure?



(a) 12
(b) 11
(c) 14
(d) 10

Q20. Based on the alphabetical order, three of the following four letter-clusters are alike in a certain way and thus form a group. Which of the following does NOT belong to that group?

(a) JLN
(b) MOR
(c) CEH
(d) VXA

Q21. 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?

67 C 429 A 11 B 5 D 85 = ?

(a) 126
(b) 177
(c) 110
(d) 262

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Q22. Which of the following four options will replace the question mark (?) in the following series?

8, 16, ?, 38, 41, 82

(a) 21
(b) 31
(c) 28
(d) 19

Q23. Read the given statements and conclusions carefully. You have to take the given statements to be true even if they seem to be at variance from commonly known facts. You have to decide which conclusion/s logically and definitely follow/s from the given statements.

Statements:

All Dances are Art.

Some Walls are Art.

Some Dances are Groups.

Conclusions:

(I) Some Walls are Dances.

(II) Some Groups are Art.

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

Q24. Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

352 : 531 :: 271 : 450 :: 725 : ?

(a) 523
(b) 904
(c) 791
(d) 335

Q25. In a certain code language, BFGD is written as IMNK and PTUR is written as WABY. How will GKLI be written in that language?

(a) NRSO
(b) NRSP
(c) MRSO
(d) MRSP

GENERAL INTELLIGENCE

Q26. According to the Census of India 2011, what is the percentage of India's population that live in urban areas?

(a) 25.7%
(b) 49.71%
(c) 41.72%
(d) 31.16%

Q27. When was the Smart Cities Mission launched by the Government of India?

(a) 2015
(b) 2017
(c) 2016
(d) 2014

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Q28. Which of the following Articles of the Indian Constitution directs the state to provide for a 'Uniform Civil Code'?

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

Q29. Which of the following is an award presented for classical dance forms?

(a) Kabir Puraskar
(b) Saraswati Samman
(c) Kalidas Samman
(d) Jnanpith Award

Q30. Rahul Srivatshav P became India's 74th Chess Grandmaster with an Elo rating of _____.

(a) 2400
(b) 2500
(c) 2000
(d) 2200

Q31. Which experiment was designed to trace the motion of the earth through the 'luminiferous aether', a theoretical substance necessary for the transmission of light?

(a) Maxwell and Hertz experiment
(b) Faraday and Henry experiment
(c) Michelson and Morley experiment
(d) Marconi and Thomson experiment

Q32. Which of these was NOT one of the reasons for the break in the five year plans after three consequent five year plans were formulated?

(a) Indo-Pakistan conflict
(b) Devaluation of domestic currency
(c) Gulf war
(d) Two successive years of drought

Q33. Who founded the East India Association in London?

(a) Justice Ranade
(b) Ananda Mohan Bose
(c) AO Hume
(d) Dadabhai Naoroji

Q34. Which river originates from the southern part of Devarayanadurga hill in Tumkur district, and flows for about 221 km before joining Kaveri?

(a) Shimsha river
(b) Girna river
(c) Ghataprabha river
(d) Waghur river

Q35. Which of the following is an INCORRECT statement concerning public goods?

(a) Usually, public goods are provided by the government.
(b) Consumption of public goods by people is rivalrous in nature.
(c) It is not easy to collect fees for public goods from every individual.
(d) Public goods are non-excludable in nature.

Q36. The first World Deaf T20 Cricket Championship will be organised by _____.

(a) West Indies
(b) Australia
(c) England

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(d) India

Q37. White light is an example of:

(a) laser light
(b) plane polarised light
(c) monochromatic light
(d) polychromatic light

Q38. Which of the following is NOT a factor impacting India's climate?

(a) Himalayan Mountains
(b) Sahara Desert
(c) Indian Ocean
(d) Western Ghats

Q39. Indian Council of Historical Research is a captive body of _____, Government of India.

(a) Ministry of Science and Technology
(b) Ministry of Tribal Affairs
(c) Ministry of Education
(d) Ministry of Culture

Q40. Who among the following Indian music composers won the Oscar award in the year 2023?

(a) Mani Sharma
(b) AR Rahman
(c) Devi Sri Prasad
(d) MM Keeravani

Q41. Calculate the NNP (in Rs. crore) at market price from the given data.

Particulars	Value (in Rs. crore)
NDP at factor cost	1,25,250
Net income from aboard	(-) 581
Net indirect taxes	18,120

(a) 1,25,831
(b) 1,42,789
(c) 1,43,951
(d) 1,24,669

Q42. Which of the following is NOT a political philosophy of the Indian Constitution?

(a) Sensitive for the historically disadvantaged groups
(b) Open to community values
(c) Sensitive to the needs of religious and linguistic minorities
(d) Non-committal to building a common national identity

Q43. The Constitution (Scheduled Castes and Scheduled Tribes) Orders (Second Amendment) Bill, 2022 is applicable to:

(a) Uttar Pradesh
(b) Madhya Pradesh
(c) Rajasthan
(d) Bihar

Q44. Which of the following folk dances is primarily associated with Rajasthan?

(a) Tapu
(b) Gair
(c) Dhimsa
(d) Bihu

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Q45. What was the theme of the 75^(th) year celebration of the Indian Independence Day?

(a) Cultural Development of India
(b) Nation First, Always First
(c) The Happiest Place on Earth
(d) Women Empowerment

Q46. Which of the following is true?

A) Fiscal deficit is financed from borrowings.

B) Recovery of loans is a revenue receipt.

(a) Only B
(b) Neither A nor B
(c) Both A and B
(d) Only A

Q47. Which of the following is a correct expression?

(a) Depreciation = Net investment - Gross investment
(b) Gross investment = Net investment - Depreciation
(c) Net investment = Gross investment - Depreciation
(d) Net investment = Gross investment + Depreciation

Q48. Which Indian Cricketer was the special guest at the Melbourne Indian Film Festival in 2022?

(a) Virat Kohli
(b) MS Dhoni
(c) Sunil Gavaskar
(d) Kapil Dev

Q49. 'Ghiyasuddin Balban introduced the customs of 'Sijda' and 'Paibos' as normal forms of salutations to the king as a part of _____ etiquette.

(a) Army
(b) Family
(c) Religious
(d) Court

Q50. An excessive amount of cadmium in the human body causes:

(a) minamata
(b) anaemia
(c) alzima
(d) itai-itai

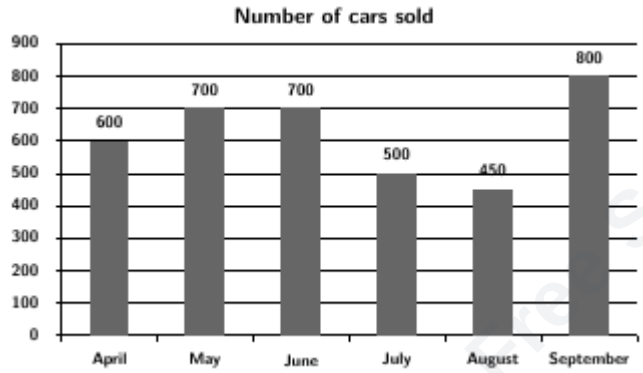
QUANTITATIVE APTITUDE

Q51. If tan θ = 4/5, then sec θ is:

(a) √41/5
(b) √41/4
(c) 5/4
(d) √41/20

Q52. Bar Graph showing number of cars sold by a reputed company during different months of a year. Look at the following bar graph and answer the question that follows:

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In which month was the sale highest and was what percent of the total sale of 6 months?

(a) September 21.3% nearly
(b) September 18.7% nearly
(c) July 21.3% nearly
(d) May 18.7% nearly

Q53. A merchant advertise 10% off on the items bought from his store. Find the discount got by a customer who bought a bag worth Rs. 560, an exercise book worth Rs. 90 and a pen worth Rs. 45.

(a) Rs. 59
(b) Rs. 69.50
(c) Rs. 65
(d) Rs. 67.50

Q54. If a map of a city was drawn on a scale of 0.2 cm to a km, what area would represent a country if it has an area of 22500 km²?

(a) 2500 cm²
(b) 2250 cm2
(c) 5625 cm2
(d) 900 cm2

Q55. A triangle PQR has three sides equal in measurement and if PM is perpendicular to QR, then which of following equality holds?

(a) $3PM^2 = 2PQ^2$
(b) 3PQ2 = 4PM2
(c) 3PM2 = 4PQ2
(d) 3PQ2 = 2PM2 =

Q56. PS and PT are two tangents from a point P outside the circle with centre O. If S and T are points on the circle such that angle SPT = 130°, then the degree measure of angle OST is equal to:

(a) 25°
(b) 55°
(c) 65°
(d) 35°

Q57. A shopkeeper professes to sell sugar costing Rs. 40/kg at Rs. 42/kg but gives only 550 grams sugar in place of 600 grams using faulty weighing machine. His profit percentage (correct to 2 decimal places) is:

(a) 14.54%
(b) 15.54%
(c) 15.45%
(d) 16.45%

Q58. A retailer buys 50 pens at the marked price of 44 pens. If he sells these pens at a discount of 1% on the marked price, what is the profit per cent?

(a) 10%
(b) 12.5%
(c) 12%
(d) 15%

Q59. Prakash spends 27% of his salary on children's education and donates 4% to a trust in a particular month. He spends Rs. 3,038 on these two heads, then his total salary for that month is:

(a) Rs. 4,402
(b) Rs. 9,800
(c) Rs. 11,251
(d) Rs. 13,200

Q60. Etika purchased a set of wallpapers for Rs. 700 and the marked price of a set was Rs. 850. The approximate rate of discount was:

(a) 25.34%
(b) 12.65%
(c) 22.5%
(d) 17.64%

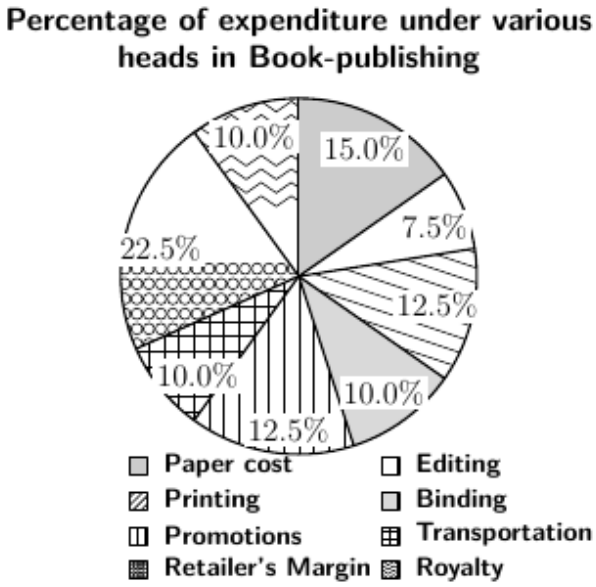
Q61. If √(a/b)=8/3-√(b/a) and a - b = 10, then the value of ab is:

(a) 32 1/7
(b) 32 3/7
(c) 32 4/7
(d) 32 2/7

Q62. Which of the following is an identity?

(a) $(a - b)^2 = a^2 - b^2$
(b) (a + b)2 = a2 + b2 + 2ab
(c) (a + b)2 = a2 + b2
(d) (a - b)2 = a2 - b2 - 2ab

Q63. The pie chart below gives the expenses under different heads that a publisher of books has to incur towards the cost of selling a book. All figures are given as percentages of the total expenditure incurred. If the retailer's margin is Rs. 3,55,500, which of the options given below provides correct information?



(a) The difference between the retailer's margin and the cost of editing is Rs. 2,33,050.
(b) The sum of the cost incurred towards payment of royalty and the cost of editing is Rs. 2,76,500.

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(c) The difference between the cost of promotion and the cost of editing is Rs. 80,500.
(d) The sum of the cost of printing and the cost of editing is Rs. 3,15,000.

Q64. If tan θ - Cot θ = 4, then find the value of $\tan^2\theta + \cot^2\theta$.
(a) 16
(b) 20
(c) 14
(d) 18

Q65. What is the compound interest on Rs. 25,000 for 3 years at 10% per annum compounded yearly?
(a) Rs. 8,125
(b) Rs. 8,000
(c) Rs. 8,200
(d) Rs. 8,275

Q66. In a rhombus STUV, S and U are joined angle SUV = 44°, angle STU = 92°, what is the degree measure of 4 angle SVU - 3 angle TSU?
(a) 451°
(b) 360°
(c) 169°
(d) 236°

Q67. If $(2^2 + 4)^2 \times (3 - 5) + 20\%$ of 400 + x% of 30 = 30% of 30, find the value of x.
(a) 150
(b) 120
(c) 190
(d) 160

Q68. Anam and Bikash invest in a business in the ratio 3 : 2. If in a particular month, Anam gets Rs. 3,840 as profit, the total profit is:
(a) Rs. 5,800
(b) Rs. 6,300
(c) Rs. 6,550
(d) Rs. 6,400

Q69. If 7 people working 4 hours a day can complete a task in 14 days. The number of days taken by 12 people working 8 hours a day will be:
(a) 5 1/8 days
(b) 8 days
(c) 4 1/12 days
(d) 7 1/4 days

Q70. If a train 130 m long takes 6 1/2 seconds to cross a man who is walking at 12 km/h in the same direction in which the train going, then the speed of the train (in km/h) is:
(a) 84
(b) 64
(c) 48
(d) 74

Q71. If A = 30°, then find the value of $(2 \tan A)/(1-\tan^2 A)$.
(a) $4\sqrt{3}$
(b) $3/\sqrt{3}$
(c) 3
(d) $2\sqrt{3}$

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Q72. The sides of the three cubes of metal are 15 cm, 18 cm and 25 cm, respectively. Find the side (in cm) of the new cube formed by melting these cubes together.

(a) 9 cbrt388
(b) 6 cbrt388
(c) 7 cbrt388
(d) 4 cbrt388

Q73. The number of various types of vehicles (in thousands) in three cities are given below.

Vehicle	City		
B	C	K	
Car	4.5	3.0	3.0
Bus	2.5	3.0	4.5
Truck	3.4	3.5	3.5
Bike	3.2	3.3	3.4

Which type of vehicle is the maximum in number combining the three cities?

(a) Truck
(b) Car
(c) Bus
(d) Bike

Q74. If $x + 2/x = 1$, then the value of $(x^2+7x+2)/(x^2+13x+2)$ is:

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

Q75. If the angle between two radii of a circle is 100°, then the angle between the tangents at the ends of the radii will be:

(a) 90°
(b) 70°
(c) 80°
(d) 50°

GENERAL AWARENESS

Q76. Direction: Select the most appropriate meaning of the underlined idiom.
Coming from the movie around midnight, the boys hit the sack.

(a) jumped with joy
(b) went to sleep
(c) hit a wall
(d) shouted at parents

Q77. Direction: Select the option that can be used as a one-word substitute for the given group of words.
One who always expects the worst possible outcome

(a) Pessimist
(b) Optimist
(c) Preacher
(d) Serial killer

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Q78. Direction: Select the option that can be used as a one-word substitute for the given group of words.

One who is bad in spellings

(a) Cartographer
(b) Cacographer
(c) Chauffeur
(d) Calligrapher

Q79. Direction: Select the most appropriate synonym of the given word.

Diminutive

(a) Miniature
(b) Enormous
(c) Propaganda
(d) Distinguish

Q80. Direction: Select the most appropriate synonym of the underlined word.

The teacher was accused of brazen favouritism in assigning the grades.

(a) Modest
(b) Shy
(c) Unashamed
(d) Ashamed

Q81. Direction: Select the most appropriate option that can substitute the underlined segment in the given sentence.

Lewis can handle many of the European languages with its dialectical varieties fluently.

(a) on its dialectical varieties
(b) with their dialectical varieties
(c) with a dialectical varieties
(d) with they dialectical varieties

Q82. Direction: Select the most appropriate synonym of the underlined word in the given sentence.

The ruins of this building do tell us the story of a defunct organisation.

(a) obsolete
(b) ancient
(c) contemporary
(d) prominent

Q83. Direction: Select the most appropriate option that can substitute the underlined segment in the given sentence.

Despite having a broken leg, Sarah managed to finish the marathon on record time.

(a) finish the marathon in record time
(b) finish a marathon on record time
(c) finish the marathon to record time
(d) finish the marathon at record time

Q84. Direction: Select the option that expresses the given sentence in active voice.

His wife was killed by him.

(a) Him kills his wife.
(b) He has killed his wife.
(c) He killed his wife.
(d) He kills his wife.

Q85. Direction: Select the option that can be used as a one-word substitute for the given group of words.

One’s relatives or family, related

(a) Kilt
(b) Kindle
(c) Kin

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(d) Kine

Q86. Direction: Select the most appropriate option that can substitute the underlined segment in the given sentence.

She is not as cleverest as John.

(a) as clever as
(b) clever
(c) cleverest
(d) cleverer by

Q87. Direction: Identify the INCORRECTLY spelt word in the following sentence and select its correct spelling from the given options.

The preview version will give you a glimpse of the entaire book.

(a) glimse
(b) preveiw
(c) varsion
(d) entire

Q88. Direction: Select the most appropriate synonym of the given word.

Camouflage

(a) Sabotage
(b) Execute
(c) Gigantic
(d) Disguise

Q89. Direction: Select the most appropriate synonym of the given word.

Conspicuous

(a) Opaque
(b) Unnoticeable
(c) Obvious
(d) Effective

Q90. Direction: Select the option that expresses the following sentence in passive voice.

The storm uprooted a large number of trees yesterday.

(a) Large number of trees were uprooted by the storm yesterday.
(b) A large number of trees had been uprooted by the storm yesterday.
(c) Trees was uprooted yesterday in a large number by the storm.
(d) A large number of trees were uprooted by the storm yesterday.

Q91. Direction: Parts of a sentence are given below in jumbled order. Arrange the parts in the correct order to form a meaningful sentence.

P. provided it is technologically accessible, economically feasible

Q. which can be used to satisfy our needs

R. and culturally acceptable can be termed as 'Resource'

S. everything available in our environment

(a) SPRQ
(b) SQPR
(c) QRSP
(d) QSPR

Q92. Direction: Select the most appropriate ANTONYM of the given word.

Fierce

(a) Sore
(b) Gentle
(c) Vast

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(d) Noisy

Q93. Direction: Select the most appropriate idiom to fill in the blank.

Her son came from Europe to meet her _____ after 20 years.

(a) blowing off the steam
(b) like a cakewalk
(c) out of the blue
(d) stepping up his game

Q94. Direction: Select the INCORRECTLY spelt word.

(a) Revolutionise
(b) Professional
(c) Jewelerry
(d) Conscientiousness

Q95. Direction: Select the most appropriate option that can substitute the underlined words in the given sentence.

Himanshu is braver than intelligent.

(a) more brave than intelligent
(b) most brave than intelligent
(c) braver than more intelligent
(d) most brave than more intelligent

Directions

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

Indian culture treats guests as God and serves them and takes care of them as if they are a part and ____ (1) __ of the family itself. Even though we don't have anything to eat, the guests are never left hungry and are always __ (2) __ after by the members of the family. Elders and respect for elders is a major component in Indian culture. Elders are the __ (3) __ force for any family and hence the love and respect for elders comes from __ (4) __ and is not artificial. An individual takes blessings from his elders by touching their feet. Elders drill and __ (5) ____ the Indian culture within us as we grow.

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

(a) parcel
(b) member
(c) mate
(d) colleague

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

(a) brought
(b) taken
(c) looked
(d) sought

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

(a) deriving
(b) caring
(c) driving
(d) diverting

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

(a) outcoming
(b) within
(c) surrounding
(d) without

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

(a) pass on
(b) put on
(c) hold on
(d) grow on

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (c) 9 : 742

Logic: Second no. = [(First no.)^3 + 11]
Checking the given options:
(1) 7 : 354 →
=> [(7)^3 + 11]
=> (343 + 11) = 354
(2) 5 : 136 →
=> [(5)3 + 11]
=> (125 + 11) = 136
(3) 9 : 742 →
=> [(9)3 + 13]
=> (729 + 13) = 742
(4) 8 : 523 →
=> [(8)3 + 11]
=> (512 + 11) = 523
Here, '9 : 742' is different from the rest.
Hence, the correct answer is "Option (3)".

Q2. Answer: (d) sq

As per the given data:
Here, the code for 'you' is 'sq'.
Hence, the correct answer is "Option (4)".

Q3. Answer: (a) Only conclusion (II) follows

Statements:
All bags are pots.
All keys are pots.
No lamps are pots.
The least possible Venn diagram as per the given statements:

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Conclusions:

(I) Some bags are keys → Not follow (Because there is no direct relation between bags and keys, so it can be possible but not definitely true)

(II) No keys are lamps → Follow (All keys are pots and no lamps are pots, which means no keys are lamps is definitely true)

Hence, the correct answer is "Only conclusion (II) follows".

Q4. Answer: (b) YRLIC

Given:

_XWV TS_Q ONM_ J_HG ED_B

Checking the options:

1. YRLKA

YXWV TSRQ ONML JKHG EDAB

2. YRLIC

YXWV TSRQ ONML JIHG EDCB

3. ZRLKA

ZXWV TSRQ ONML JKHG EDAB

4. ZRLIA

ZXWV TSRQ ONML JIHG EDAB

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

Q5. Answer: (c) Mother's brother

Preparing the family tree diagram by using the following symbols:

As per the given information:

A is				
Symbol	•	•	×	÷
Means	Wife	Father	Sister	Brother
of B				

Given expression: 'V ÷ W + X - Y × Z'

V is the brother of W, W is the wife of X, X is the father of Y and Y is the sister of Z.

Here, V is the mother's brother of Z.

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

Q6. Answer: (a) 29

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

1. For 169:

• $(11+2)^2=13^2=169$

2. For 625:

• $(23+2)^2=25^2=625$

Applying the logic to 961:

• Let the number be x such that

• $(x+2)^2=961$

• $x+2=\sqrt{961}$

• $x+2=31$

• $x=31-2$

• $x=29$

Thus, according to the given logic, 961 is related to 29.

Q7. Answer: (c) 162

Given:

36, 108, 54, ?, 81, 243

Logic: Multiplication by '3' and division by '2' alternatively.

Here, the missing number is '162'.

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

Q8. Answer: (a) [figure]

The given figure when unfolded is as follows:

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

Q9. Answer: (a) HJNRTX

Here, we use the table given below:

Given:

DF_ _L_P_ _V_

Checking all the given options:

1. HJNRTX

Here, the series is completed.

2. GEMRSY

3. HIMSTY

4. GINRSX

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

Q10. Answer: (a) 69

Here, we use the table given below:

Logic: (Sum of the positional value of each alphabet) + Number of alphabets.

'TARNISH' is coded as '96' →

=> [{T(20) + A(1) + R(18) + N(14) + I(9) + S(19) + H(8)} + 7] = 96

'CORRECT' is coded as '89' →

=> [{C(3) + O(15) + R(18) + R(18) + E(5) + C(3) + T(20)} + 7] = 89

Similarly, 'GENERAL' will be coded as:

=> [{G(7) + E(5) + N(14) + E(5) + R(18) + A(1) + L(12)} + 7] = 69

Here, 'GENERAL' is coded as '69'.

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

Q11. Answer: (d) 98

Given:

84, 90, 91, 99, ?, 108, 105

The logic followed in the given series is:

Here, '98' is the missing term.

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

Q12. Answer: (c) MSR

Here, we use the table given below:

Given:

OCJ, UGL, AKN, GOP,?

Logic: '6', '4' and '2' are added to the positional value of the first, second and third alphabet respectively.

Here, the missing term is 'MSR'.

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

Q13. Answer: (c) Saturday

Given: 14 May 1953 is Thursday.

Now,

14 May 1953 to 14 May 1963 = 10 years (2 leap and 8 ordinary year)

→ In 10 years = (2 × 2) + (8 × 1) = 4 + 8 = 12 days.

And, from 14 May 1963 to 27 July 1963 = 17 (May) + 30(June) + 27(July) = 74 days.

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Total odd days = 12 + 74 = 86 days = 86/7 = 12 week and 2 odd days.
So, 27 July 1963 was Thursday + 2 = Saturday.
Hence, the correct answer is "Option 3".
Alternate Method
Given:
14 May 1953 = Thursday
As we know:

Leap Year	2 Odd days
Normal Year	1 Odd day

14 May 1953 = Thursday
14 May 1954 = Thursday + 1 = Friday
14 May 1955 = Friday + 1 = Saturday
14 May 1956 = Saturday + 2 = Monday
14 May 1957 = Monday + 1 = Tuesday
14 May 1958 = Tuesday + 1 = Wednesday
14 May 1959 = Wednesday + 1 = Thursday
14 May 1960 = Thursday + 2 = Saturday
14 May 1961 = Saturday + 1 = Sunday
14 May 1962 = Sunday + 1 = Monday
14 May 1963 = Monday + 1 = Tuesday
Odd days from 14 May 1963 to 27 July 1963 = [May(17) + June (30) + July(27)] = (74 ÷ 7) = 4 Odd days
27 July 1963 = Tuesday + 4 = Saturday
27 July 1963 → Saturday
Hence, the correct answer is "Option (3)".

Q14. Answer: (d) [figure]

The logic followed in the given figure series is:
From Figure (1) to (2):
The symbols are moving as shown below and the middle shape rotates 90º in the clockwise direction.
From Figure (2) to (3):
The symbols are moving as shown below and the middle shape rotates 90º in the clockwise direction.
From Figure (3) to (4):
The symbols are moving as shown below and the middle shape rotates 90º in the clockwise direction.
From Figure (4) to Answer Figure:
The symbols are moving as shown below and the middle shape rotates 90º in the clockwise direction.
Hence, the correct answer is "Option (4)".

Q15. Answer: (b) 2

Logic: Second no. = [{(First no. + 1) × 2} - 5]
Given:
(1) 39 - 75 →
=> [{(39 + 1) × 2} - 5]
=> [(40 × 2) - 5]
=> (80 - 5) = 75
(2) 43 - 82 →
=> [{(43 + 1) × 2} - 6]
=> [(44 × 2) - 6]
=> (88 - 6) = 82
(3) 55 - 107 →
=> [{(55 + 1) × 2} - 5]
=> [(56 × 2) - 5]

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=> (112 - 5) = 107

(4) 64 - 125 →

=> [{(64 + 1) × 2} - 5]

=> [(65 × 2) - 5]

=> (130 - 5) = 125

Here, '43 - 82' is different from the rest.

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

Q16. Answer: (b) [figure]

The mirror image of the given figure is:

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

Q17. Answer: (a) Cackle : Giggle

Given:

Cancel : Drop → Synonyms

Cancel → call off or drop.

Checking all the given options:

1. Cackle : Giggle → Synonyms

Cackle → Laugh in a loud, harsh way.

Giggle → Laugh lightly.

2.Dingy : Direct

Dingy → Dark or dull.

Direct → Straight.

3. Jaw : Jazzy

Jaw → Part of mouth. (Noun)

Jazzy → Bright, colourful and showy. (Adj.)

4. Resin : Resist

Resin → Sticky material.

Resist → Withstand the action or effect of. (Verb)

Here, 'Cackle : Giggle' is similar to the given word pair.

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

Q18. Answer: (b) Four

Given: 'STRANGE'

After arranging in alphabetical order:

STRANGE → AEGNRST

The alphabet 'S' is second from the right and the alphabet 'N' is fourth from the left, Between N and S has four letters (O, P, Q and R).

Hence, the correct answer is "Four".

Q19. Answer: (a) 12

The number of triangles:

Here, the number of triangles is '12'.

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

Q20. Answer: (a) JLN

Here, we use the table given below:

Logic: Addition of '2' and '3' to the positional value of the first and second alphabet.

Checking the options:

1. JLN

2. MOR

3. CEH

4. VXA

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Here, 'JLN' is different from the rest.

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

Q21. Answer: (b) 177

Here, we use the table given below:

As per the given information:

Symbol	Means
A	÷
B	×
C	•
D	•

Given:

=> 67 C 429 A 11 B 5 D 85 =?

Putting sign as per the equation:

=> 67 + 429 ÷ 11 × 5 - 85

Apply BODMAS rule:

=> 67 + 429 ÷ 11 × 5 - 85

=> 67 + 39 × 5 - 85

=> 67 + 195 - 85

=> 262 - 85 = 177.

Here, the value of the equation is '177'.

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

Q22. Answer: (d) 19

Given:

8, 16, ?, 38, 41, 82

Logic: Multiplication by '2' and addition of '3' alternatively.

Here, the missing number is '19'.

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

Q23. Answer: (d) Only conclusion (II) follows.

Statements:

All Dances are Art.

Some Walls are Art.

Some Dances are Groups.

The Venn diagram as per the given statements:

Conclusions:

(I) Some Walls are Dances. → Not follow (Because there is no direct relation between walls and dances, so it can be possible but not definitely true)

(II) Some Groups are Art. → Follow (Some dances are groups and all dances are art, which means some groups are art is definitely true)

Hence, the correct answer is "Only conclusion (II) follows".

Q24. Answer: (b) 904

Logic: Second no. = [First no. + 179]

352 : 531 →

=> [352 + 179] = 531

271 : 450 →

=> [271 + 179] = 450

Similarly, for '725 : ?' →

=> [725 + 179] = 904

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Here, '725 : 904' is the correct pair.

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

Q25. Answer: (b) NRSP

Here, we use the table given below:

Logic: '7' is added to the positional value of each alphabet.

BFGD is written as IMNK →

PTUR is written as WABY →

Similarly, 'GKLI' will be written as:

Here, 'GKLI' is written as 'NRSP'.

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

Q26. Answer: (d) 31.16%

The correct answer is 31.16.

Key Points

• The total urban population in the country as per Census 2011 is more than 377 million forming 31.16% of the total population.

• The data shows that Goa is the most urbanized state with 62.17% of the population living in urban areas. But if one goes by geographical area and total population, Tamil Nadu is the most urbanized state followed by Kerala (47.7 percent) upstaging Maharashtra (45.2 percent)

• The total rural population in the country as per the census of 2011 is 833.1 million.

• Himachal Pradesh becomes the most rural state with 89.97 percent of the rural population followed by Bihar.

Additional Information

• The responsibility of conducting the decennial Census rests with the Office of the Registrar General and Census Commissioner, India under the Ministry of Home Affairs, Government of India.

• Census of India 2011 is the 15^(th) census conducted in India, which is the largest democratic country in the world.

• The census data is collected every 10 years, and it provides important information about the population, literacy rate, occupation, and other demographic factors.

• The percentage of India's population that lives in urban areas has been increasing over the years due to various factors such as urbanization, industrialization, and modernization.

• According to the 2011 census, the percentage of India's population living in urban areas is 31.16% which is a significant increase from the previous census in 2001.

• Urbanization has both positive and negative impacts on society, and it is important to manage it effectively to ensure sustainable development.

Q27. Answer: (a) 2015

The correct answer is 2015.

Key Points

• The Ministry of Housing and Urban Affairs, Government of India launched the Smart Cities Mission on 25 June 2015.

• The objective of the program is to promote sustainable and inclusive cities that provide core infrastructure and give a decent quality of life to their citizens, a clean and sustainable environment, and the application of ‘Smart’ Solutions.

Additional Information

The core infrastructure elements in a smart city include:

1. Sufficient water supply
2. Guaranteed electricity supply
3. Sanitation with proper solid waste management
4. Systematic urban mobility and structured public transport
5. Low-cost housing, especially for the poor
6. Strong and vigorous IT connectivity and digitalization
7. good governance, especially e-Governance and enhanced citizen participation
8. sustainable environment
9. proper safety and security of citizens, especially women, children and the elderly
10. affordable health and education for all.

• This is not, the final list. Each city is free to add more applications as per their requirement.

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• The selection process for Smart Cities is based on the idea of Competitive and Co-operative Federalism.

• It follows an All India competition to select cities.

The following are the details:

Sr. No	Year	No of cities participated	No. of cities selected
1.	January 2016		20 in Round 1 (13 more in May 2016 in fast track round)
2.	June 2016	63	27
3.	June 2017	45	30
4.	January 2018	15	9

Q28. Answer: (c) Article 44

The correct answer is Article 44.

Key Points

• Article 44 of the Directive Principles in the Constitution says:

• "State shall endeavor to provide for its citizens a uniform civil code (UCC) throughout the territory of India".

• The objective of Article 44 of the Directive Principles in the Indian Constitution was to address the discrimination against vulnerable groups and harmonize diverse cultural groups across the country.

• The Uniform Civil Code (UCC) calls for the formulation of one law for India, which would be applicable to all religious communities in matters such as marriage, divorce, inheritance, and adoption.

• The origin of the UCC dates back to colonial India when the British government submitted its report in 1835 stressing the need for uniformity in the codification of Indian law relating to crimes, evidence, and contracts, specifically recommending that personal laws of Hindus and Muslims be kept outside such codification.

Additional Information

• Article 43 of the Indian Constitution directs the state to secure for all workers a living wage, decent working conditions, and social security.

• Article 45 of the Indian Constitution directs the state to provide free and compulsory education for all children between the ages of 6 and 14 years.

• Article 42 of the Indian Constitution directs the state to make provisions for securing just and humane conditions of work and maternity relief.

Q29. Answer: (c) Kalidas Samman

The correct answer is Kalidas Samman.

Key Points

• Kalidas Samman is a prestigious award presented by the government of Madhya Pradesh to recognize contributions in the field of classical arts, literature, and culture.

• The 'Kalidas Samman' is given by the Madhya Pradesh government.

• It is a prestigious award presented annually by the government of Madhya Pradesh.

• The award is named after Kalidasa, a writer of ancient history.

• 'Kalidas Samman was established in the year 1980-81.

• In this award, Rs. 2,00,000 and a citation are presented in the fields of classical music, classical dance, theatre, and visual art.

• First recipients: Semmangudi Srinivasa Iyer and Mallikarjun Mansur

• Dharwad: Renowned Hindustani classical vocalist Pt M Venkateshkumar of Dharwad was recently conferred the prestigious Kalidas Samman for his outstanding contribution to the field of classical music.

Additional Information

• Kabir Puraskar is an award presented for promoting communal harmony and national integration through literature.

• It is presented by the government of Madhya Pradesh.

• Saraswati Samman is an award presented for outstanding contributions to Indian literature.

• It is presented by the K.K. Birla Foundation.

• Jnanpith Award is the highest literary award in India, presented for outstanding contribution in the field of literature.

Q30. Answer: (b) 2500

The correct answer is 2500.

Key Points

• Rahul Srivatshav P. of Telangana has become India's 74^(th) Grandmaster.

• He achieved the title after breaking the 2500 (Elo points) barrier in live FIDE ratings during the 9th Cattolica Chess Festival 2022 in Italy.

• To become a GM, a player has to secure three GM norms and cross the live rating of 2500 Elo points.

• Viswanathan Anand is India's first GM, which he became way back in 1988.

Additional Information

• India's Grand Master R Praggnanandhaa on 10 June 2022 emerged the winner in the Norway Chess Group A open chess tournament at Stavanger with 7.5 points from 9 rounds.

• Norway Chess is an annual closed chess tournament, typically taking place in the May to June time period every year.

• The first edition took place in the Stavanger area, Norway, from 7 May to 18 May 2013.

• The International Chess Federation or World Chess Federation is commonly referred to by its French acronym FIDE.

• It is an international organization based in Switzerland that connects the various national chess federations and acts as the governing body of international chess competitions.

• World Chess Federation:

• Headquarters: Lausanne, Switzerland

• President: Arkady Dvorkovich

• Founded: 20 July 1924, Paris, France

Q31. Answer: (c) Michelson and Morley experiment

The correct answer is the Michelson and Morley experiment.

Key Points

• The Michelson and Morley experiment was designed to trace the earth's motion through the luminiferous aether, a theoretical substance necessary for transmitting light.

• The experiment was conducted in 1887 by Albert Michelson and Edward Morley.

• The experiment aimed to detect the relative motion of the earth and the luminiferous aether by measuring the speed of light in different directions.

• The experiment results were surprising as they showed that the speed of light was constant in all directions, which contradicted the prevailing theory of the existence of the luminiferous aether.

• The Michelson and Morley experiment paved the way for the development of Einstein's theory of relativity, which explained the behavior of light and the absence of the luminiferous aether.

Additional Information

• Maxwell and Hertz experiment: This experiment was conducted by James Clerk Maxwell and Heinrich Hertz in the late 19th century to demonstrate the existence of electromagnetic waves.

• Faraday and Henry experiment: This experiment was conducted by Michael Faraday and Joseph Henry in the 19th century to study the phenomenon of electromagnetic induction.

• Marconi and Thomson experiment: This experiment was conducted by Guglielmo Marconi and Joseph John Thomson in the early 20th century to demonstrate the feasibility of wireless communication.

Q32. Answer: (c) Gulf war

The correct answer is the Gulf War.

Key Points

• India's government formulated five-year plans to set targets for economic growth and development over five years.

• The first five-year plan was launched in 1951, and subsequent procedures were formulated until the 12th five-year plan ended in 2017.

• The break in five-year plans occurred after three consequent plans were formulated - the 7th, 8th, and 9th five-year plans.

• The reasons for the break were primarily domestic issues such as the Indo-Pakistan conflict, the devaluation of domestic currency, and two successive years of drought.

• The Gulf War, which took place in 1990-91, impacted the global economy but was not a direct cause of the break in five-year plans in India.

Important Points

Five-Year Plans:

• The idea of a five-year plan is simple- The Government of India prepares a document with all its income and expenditure for five years.

• The budget of the central government and all the state governments is divided into two parts: non-plan and plan budgets.

• The non-plan budget is spent on routine items yearly. The planned budget is spent on a five-year basis as per the priorities fixed

by the plan.

• The model of the Indian economy was premised on the concept of planning based on five-year plans from 1951 to 2017.

• The Five Year Plans were formulated, implemented, and regulated by a body known as the Planning Commission.

Plan	Aim/Goal
First	economic development
Second	rapid industrialization and the public sector
Third	agriculture development and growth
Fourth	Growth, Stability, and self-reliance.
Fifth	employment and poverty alleviation
Sixth	economic liberation
Seventh	Industrial productivity levels through the use of technology
Eighth	modernisation of Industries
Ninth	elimination of poverty
Tenth	inclusive growth and equitable development
Eleventh	rapid and more inclusive growth
Twelfth	Faster, More Inclusive, and Sustainable Growth

Additional Information

Indo-Pakistan conflict:

• The Indo-Pakistan conflict refers to the tensions and conflicts between India and Pakistan, primarily over the disputed region of Kashmir.

• The conflict has had an impact on India's economy and has been a factor in the break-in of five-year plans due to the diversion of resources towards defense and security.

Devaluation of domestic currency:

• Devaluation of domestic currency refers to reducing the currency's value relative to other currencies.

• This can lead to inflation and other economic problems, which can impact the targets set in the five-year plans.

• The devaluation of the Indian rupee in the 1990s was a factor in the break-in five-year plans.

Two successive years of drought:

• Droughts can have a significant impact on agriculture, which is a major sector of the Indian economy.

• Two successive years of drought can lead to food shortages, inflation, and other economic problems, which can impact the targets set in the five-year plans.

• The droughts in the mid-1960s were a factor in the break in five-year plans.

Q33. Answer: (d) Dadabhai Naoroji

The correct answer is London.

Key Points

• Dadabhai Naoroji founded The East India Association in 1866.

• He founded it with Indian members and retired British officials in London.

• It was supplanted by the London Indian Society.

• The objective behind the association was:

• to provide a platform for discussing matters and ideas about India,

• and to provide representation for Indians to the Government.

• Dadabhai Naoroji delivered the first lecture at the Association on 2 May 1867.

• The first President of the East India Association was Lord Lyveden.

• The East India Association incorporated the National Indian Association in 1949 and became the Britain, India, and Pakistan Association.

• In 1966 it amalgamated with the former India Society, now Royal India, Pakistan, and Ceylon Society, to become the Royal Society for India, Pakistan, and Ceylon.

Additional Information

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• Ananda Mohan Bose was a prominent Bengali nationalist and one of the founders of the Indian National Congress, but he was not involved in the East India Association.

• In 1872, Anand Mohan Bose formed an Indian Society in London to foster the spirit of nationalism among the Indian residents in Britain.

• AO Hume was a British civil servant who played a crucial role in forming the Indian National Congress, but he was not associated with the East India Association.

• Justice Ranade was a prominent social reformer and nationalist from Maharashtra, but he did not have any connection with the East India Association.

Important Points

• The London Indian Society

• In 1865, the London Indian Society was founded under the guidance of Dadabhai Naoroji.

• It was formed by Indian students as a forum to air political grievances.

• Europeans were allowed to be honorary members but could not vote or hold office.

• Of the founding group of students, they included W. C. Bonnerjee, Manomohun Ghose, Pherozeshah Mehta and Badruddin Tyabji.

• In 1866, the London Indian Society was superseded by the East India Association, although it did continue to exist in some separate form for a few more years.

Q34. Answer: (a) Shimsha river

The correct answer is Shimsha River.

Key Points

• Shimsha River originates from the southern part of Devarayanadurga hill in Tumkur district, Karnataka.

• It is a tributary of the Kaveri River and flows for about 221 km before joining Kaveri.

• Shimsha River is known for its scenic beauty and is a popular spot for fishing and boating.

• Cauvery River rises at Talakaveri on the Brahmagiri range in the Western Ghats in the state of Karnataka.

• It flows for about 800 km before it falls into the Bay of Bengal.

• Left bank tributaries:-

• Harangi, Hemavati, Shimsha, and Arkavati*.*

• Right bank tributaries:-

• Lakshmantirtha, Kabbani, Suvarnavati, Bhavani, Noyil, and Amaravati.

• Cauvery basin extends over an area of 87,900 sq. km. which is nearly 2.7% of the total geographical area of the country.

• The Cauvery basin extends over the states of Tamil Nadu, Karnataka, Kerala, and the Union Territory of Puducherry.

Additional Information

• Girna River is a tributary of the Tapti River in Maharashtra,

• Ghataprabha River is a tributary of the Krishna River in Karnataka.

• Waghur River is a tributary of the Godavari River in Maharashtra.

Q35. Answer: (b) Consumption of public goods by people is rivalrous in nature.

The correct answer is Consumption of public goods by people is rivalrous in nature.

Key Points

• Public goods are goods or services that are non-excludable and non-rivalrous in nature.

• Non-excludable means that it is difficult or impossible to exclude someone from using the good or service once it is provided.

• Non-rivalrous means that one person's use of the good or service does not diminish its availability for others.

• Usually, public goods are provided by the government.

• This statement is generally true, as governments often provide public goods due to their non-excludable and non-rivalrous nature.

• Consumption of public goods by people is rivalrous in nature.

• This statement is incorrect, as the consumption of public goods is non-rivalrous in nature.

• It is not easy to collect fees for public goods from every individual.

• This statement is true, as it is difficult to exclude individuals from using public goods and therefore difficult to collect fees from every individual.

• Public goods are non-excludable in nature.

• This statement is true, as public goods are difficult or impossible to exclude someone from using once they are provided.

Additional Information

Types of goods	Description
Consumer goods	These can be both durable and non-durable. Durable- car, furniture, etc. Non-durable- food, etc. These are the final goods that are directly consumed by the users.
Capital goods	These are the ones that are used in the production of other goods. These are durable in nature like machines, tools, etc.
Luxury goods	These are the goods whose demand is exponentially related to consumers' income. These are remarkable goods of high quality. These are opposite to necessity goods. Examples – gold jewelry, etc.

Q36. Answer: (d) India

The correct answer is India.

Key Points

• The first World Deaf T20 Cricket Championship will be organized by India.

• The tournament is likely to be held in November 2022.

• The tournament will be organized by the All India Cricket Association for the Deaf (AICAD).

• A minimum of eight countries are expected to take part in the championship.

• The tournament will feature eight teams from different parts of the world, including Australia, England, South Africa, Sri Lanka, Bangladesh, Pakistan, Nepal, and hosts India.

• AISCD is the only Centre-recognised national sports federation for the deaf.

• The ICSD is the only international federation recognized as the governing body of the deaf sports movement and Deaflympics sanctioned by the International Olympic Committee.

Additional Information

• West Indies: The West Indies cricket team represents a collection of 15 Caribbean territories and dependencies, including Jamaica, Trinidad and Tobago, and Barbados.

• The West Indies team has won two ICC Cricket World Cup titles and two ICC World Twenty20 titles.

• Australia: The Australian cricket team, also known as the Baggy Greens, is the most successful team in the history of Test cricket, with the most wins and the highest winning percentage.

• The Australian team has also won five ICC Cricket World Cup titles and one ICC World Twenty20 title.

• England: The England cricket team is the birthplace of cricket and is one of the oldest teams in international cricket. England has won one ICC Cricket World Cup title and one ICC World Twenty20 title.

• India: The Indian cricket team is the current ICC World Test Championship runner-up and has won two ICC Cricket World Cup titles and one ICC World Twenty20 title.

• India is also the host of the upcoming T20 World Cup in October-November 2021.

Q37. Answer: (d) polychromatic light

The correct answer is polychromatic light.

Key Points

• White light is a combination of all visible colors in the electromagnetic spectrum.

• White light consists of 7 colors.

• White light consists of seven component colors: violet (V), indigo (I), blue (B), green (G), yellow (Y), orange (O), and red (R).

• In order from lowest to highest, the wavelengths of colored light are given by the acronym VIBGYOR (V < I < B < G < Y < O < R)

• The wavelength range of visible light is 400 to 700 nm.

Important Points

• Electromagnetic Waves are generated due to the vibration between the electric field and the magnetic field and do not require any medium to travel. It can run in a vacuum.

• Light is a form of energy that is an example of an electromagnetic wave.

• Wavelength: The distance between two successive crests or troughs is called the wavelength of a wave.

Additional Information

• Plane polarised light is a type of light in which the electric field oscillates in a single plane.

• Monochromatic light is a type of light that consists of a single color or wavelength.

• Laser light is a type of light that is monochromatic, meaning it consists of a single color or wavelength

Q38. Answer: (b) Sahara Desert

The correct answer is the Sahara Desert.

Key Points

• The Himalayan Mountains play a significant role in India's climate, as they act as a barrier to cold winds from Central Asia and help regulate the temperature in the northern part of the country.

• The Indian Ocean is another important factor, as it moderates the climate along the coast and influences the monsoon season, which is critical for agriculture and water supply in India.

• The Western Ghats, a mountain range along the western coast of India, also have a significant impact on the climate, as they block the southwest monsoon winds and cause heavy rainfall in the region.

• However, the Sahara Desert, which is located in North Africa, is too far away from India to have any direct impact on its climate. It may indirectly affect the climate in some parts of the world through atmospheric circulation patterns, but not in India.

Additional Information

• The Himalayan Mountains are a range of high peaks that stretch across several countries, including India, Nepal, Bhutan, and China.

• They are home to several glaciers and rivers that are critical for water supply in the region.

• The Sahara Desert is the world's largest hot desert, covering about 3.6 million square miles.

• It is known for its extreme temperatures and low rainfall and is home to several unique species of plants and animals that have adapted to the harsh conditions.

• The Indian Ocean is the third largest ocean in the world, covering an area of about 70 million square miles.

• It is home to several important shipping routes and is known for its rich biodiversity, including several species of whales, dolphins, and sea turtles.

• The Western Ghats are a UNESCO World Heritage Site known for their rich biodiversity, including several endemic species of plants and animals.

• They are also home to several tribal communities that have lived in the region for centuries.

Important Points

FACTORS DETERMINING THE CLIMATE OF INDIA

Latitude :

• The northern part of India lies in the sub-tropical and temperate zone and the part lying south of the Tropic of Cancer falls in the tropical zone.

• The tropical zone being nearer to the equator experiences high temperatures throughout the year with small daily and annual ranges.

• The area north of the Tropic of Cancer away from the equator experiences an extreme climate with a high daily and annual range of temperature.

The Himalayan Mountains :

• The lofty Himalayas in the north along with its extensions act as an effective climatic divide.

• The towering mountain chain provides an invincible shield to protect the subcontinent from the cold northern winds.

• These cold and chilly winds originate near the Arctic Circle and blow across central and eastern Asia.

• The Himalayas also trap the monsoon winds, forcing them to shed their moisture within the subcontinent.

Distribution of Land and Water :

• India is flanked by the Indian Ocean on three sides in the south and girdled by a high and continuous mountain wall in the north. As compared to the landmass, water heats up or cools down slowly.

• This differential heating of land and sea creates different air pressure zones in different seasons in and around the Indian subcontinent.

• Difference in air pressure causes a reversal in the direction of monsoon winds.

Distance from the Sea :

• With a long coastline, large coastal areas have an equable climate. Areas in the interior of India are far away from the moderating influence of the sea. Such areas have extremes of climate.

• That is why, the people of Mumbai and the Konkan coast have hardly any idea of extremes of temperature and the seasonal rhythm of weather.

• On the other hand, the seasonal contrasts in weather at places in the interior of the country such as Delhi, Kanpur and Amritsar affect the entire sphere of life.

Altitude :

• Temperature decreases with height. Due to thin air, places in the mountains are cooler than places on the plains.

• For example, Agra and Darjeeling are located on the same latitude, but the temperature of January in Agra is 16°C whereas it is

only 4°C in Darjeeling.

Relief :

• The physiography or relief of India also affects the temperature, air pressure, direction and speed of wind and the amount and distribution of rainfall.

• The windward sides of Western Ghats and Assam receive high rainfall during June-September whereas the southern plateau remains dry due to its leeward situation along the Western Ghats.

Q39. Answer: (c) Ministry of Education

The correct answer is the Ministry of Education.

Key Points

• The Indian Council of Historical Research (ICHR) is an autonomous body that was established by the Government of India in 1972 under the Ministry of Education.

• Its main function is to promote and fund research in the field of history and archaeology in India.

• The Ministry of Culture is responsible for the preservation and promotion of India's rich cultural heritage.

• It has various programs such as the National Cultural Fund and the National Heritage City Development and Augmentation Yojana.

Important Points

• Indian Council of Historical Research: The Indian Council of Historical Research is an autonomous body of the Ministry Of Education then (Ministry of Human Resource Development).

• Archaeological Survey of India: It is an Indian government agency attached to the Ministry of Culture, that is responsible for archaeological research and the conservation and preservation of cultural monuments in the country.

• It was founded in 1861 by Alexander Cunningham.

• Ministry of Culture: The Ministry of Culture is the Indian government ministry charged with the preservation and promotion of art and culture of India. G. Kishan Reddy is the current Minister of Culture.

• The Ministry of Science and Technology is responsible for promoting science and technology research in India. It has various autonomous bodies such as the Department of Science and Technology and the Council of Scientific and Industrial Research.

Additional Information

• The Ministry of Tribal Affairs is responsible for the welfare of tribal communities in India and has various autonomous bodies such as the National Commission for Scheduled Tribes.

• The Ministry of Culture is responsible for promoting and preserving India's diverse cultural heritage and has various autonomous bodies such as the Archaeological Survey of India.

• The Ministry of Education is responsible for the development and implementation of education policies in India. It has various autonomous bodies such as the University Grants Commission and the National Council of Educational Research and Training.

Q40. Answer: (d) MM Keeravani

The correct answer is MM Keeravani.

Key Points

• MM Keeravani is a renowned Indian music composer who has composed music for many Telugu, Tamil, Kannada, Malayalam, and Hindi films.

• He won the Oscar award in 2023. He was awarded for the song "Naatu Naatu" from the movie "RRR" in the category of Best Original Song.

• He won the National Film Award for Best Music Direction for the Telugu film Annamayya in 1997 and the Filmfare Award for Best Music Director in Telugu film for the film Magadheera in 2009.

• MM Keeravani is also known for his work in the Baahubali film series, for which he received critical acclaim and international recognition.

• Mani Sharma has composed music for many Telugu and Tamil films.

• AR Rahman is a well-known composer who has won many international awards, including Oscars.

• Devi Sri Prasad is a popular music composer who has worked in Telugu and Tamil films.

• However, none of them won the Oscar award in the year 2023, as mentioned in the question.

Additional Information

Academy Award

• The Oscar is also known as the Academy Awards.

• It is a set of awards given for artistic and technical merit in the American film industry.

• The award is given annually by the Academy of Motion Picture Arts and Science.

• AR Rahman is an Indian composer, singer, and songwriter who has won the 81st Academy Award. Hence option 2 is correct.

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• The 2020 Oscars award this year was the 92nd in its series.

• This year's Oscar was very special as it honored a non-English film "Parasite" with the Best Picture Award.

Q41. Answer: (b) 1,42,789

The correct answer is 1,42,789.

Key Points

• To calculate the Net National Product (NNP) at market prices, we can use the following formula:

• NNP at market prices = NDP at factor cost + Net Indirect Taxes + Net Income from Abroad

• Given the data:

• NDP at factor cost: Rs. 1,25,250 crore

• Net Indirect Taxes: Rs. 18,120 crore

• Net Income from Abroad: -Rs. 581 crore (negative value indicating net outflow)

• Now, substituting these values into the formula:

• NNP at market prices=1,25,250+18,120−581

• NNP at market prices=1,25,250+18,120−581=1,42,789 crore

• Therefore, the NNP at market prices is Rs. 1,42,789 crore.

• NDP at factor cost is the total value of goods and services produced within the domestic territory of a country in a financial year.

• It is calculated by deducting depreciation from GDP (Gross Domestic Product) at factor cost.

• Net income from abroad represents the income earned by domestic residents from foreign sources minus the income earned by foreign residents from domestic sources.

• Net indirect taxes refer to the indirect taxes paid by the government minus the subsidies received by the government.

Additional Information

• Market Price and Factor Cost represent two different ways to value the goods and services within an economy.

• Market Price:

• The market price is the amount that consumers pay for a good or service in the marketplace.

• It includes the cost of production as well as taxes (indirect taxes) levied on the product or service and any subsidies provided by the government.

• The market price represents the final price paid by consumers, which also covers the cost of making the product available in the market (transportation, retailing, etc.).

• Factor Cost:

• Factor cost is the total production cost of goods and services, measured as the sum of the income earned by the factors of production (land, labour, capital, and entrepreneurship).

• In simple terms, it is the cost of employing resources in producing goods and services, without considering any taxes or subsidies.

• Factor cost provides a perspective on the costs acquired by businesses in an economy to produce the goods and services that are consumed.

• Using the concepts of market price and factor cost, we can differentiate between NNP at Market prices and NNP at Factor cost:

• NNP (Net National Product) at Market Price:

• This is the value of final goods and services produced within an economy, including net income from abroad, measured at market prices. It includes indirect taxes and excludes subsidies paid by the government.

• It is essentially the GDP (Gross Domestic Product) adjusted for depreciation and net factor income from abroad.

• NNP at Factor Cost:

• This is the value of final goods and services produced within the economy, including net income from abroad, measured at factor cost.

• To calculate NNP at factor cost, we deduct indirect taxes and add subsidies to the NNP at market price.

• This gives us a measure of the income generated by the factors of production, disregarding the taxes and subsidies that may affect the market price.

Q42. Answer: (d) Non-committal to building a common national identity

The correct answer is Non-committal to building a common national identity.

Key Points

• Sensitive for the historically disadvantaged groups

• The Indian Constitution recognizes the need to provide special provisions and safeguards for historically disadvantaged groups such as Dalits, Adivasis, and women.

• This is evident in the provisions for reservations in education and employment, as well as the creation of special laws such as the Prevention of Atrocities Act.

• Open to community values

• The Indian Constitution recognizes the importance of community values and traditions, but only to the extent that they do not violate fundamental rights and principles.

• This is evident in the provisions for freedom of religion and the protection of cultural and linguistic minorities.

• Sensitive to the needs of religious and linguistic minorities

• The Indian Constitution recognizes the importance of protecting the rights and interests of religious and linguistic minorities.

• This is evident in the provisions for freedom of religion, the right to language, and the creation of minority commissions.

• Non-committal to building a common national identity

• The Indian Constitution recognizes the importance of building a common national identity but does not prescribe a specific model or ideology.

• This is evident in the use of terms such as "unity in diversity" and the recognition of multiple languages and cultures.

Additional Information

Characteristics of Indian Polity:

• Separation of Power:

• The theory of Separation of Power was first published by Montesquieu in his book "Espirit des Louis' (The Spirit of the laws)" in 1747.

• This principle enables the three pillars of democracy - executive, judiciary, and legislature to perform separate functions and act as separate entities.

• It is a part of the basic structure of the Indian Constitution.

• In Raj Narain v/s The State of Uttar Pradesh case, 1975 the Supreme Court clarified that India has separation of power in the broad sense only.

• Checks and Balances:

• This principle enables the three pillars of democracy - executive, judiciary, and legislature to support and prevent each other's arbitrary decision-making.

• Article 75 implies that the executive is responsible to the legislature for his decisions.

• The judiciary checks the legislature through the power of judicial review.

• Appointment of judges in India is done through the President.

• Parliamentary System:

• In India, it is inspired by the UK's Westminster model.

• In this system, the de facto head is the Prime Minister while the de jure head is the President or Monarch.

• Ivor Jennings called the parliamentary system a 'cabinet system' because the cabinet is the nucleus of power in a parliamentary system.

• Limited Government:

• This is also known as Constitutionalism because the powers to legislate are limited by the Constitution itself.

• It prevents arbitrary decision-making.

• Unlike the UK, India has a limited government.

Q43. Answer: (a) Uttar Pradesh

The correct answer is Uttar Pradesh.

Key Points

• The Constitution (Scheduled Castes and Scheduled Tribes) Orders (Second Amendment) Bill, 2022 is applicable to: uttar pradesh

• Scheduled Castes (SCs) and Scheduled Tribes (STs) are officially recognized groups in India that have been historically marginalized and subjected to discrimination.

• The Indian Constitution provides for affirmative action measures, such as quotas in education and government jobs, to uplift SCs and STs.

• The list of SCs and STs is periodically reviewed and revised by the government based on various criteria, such as social and educational backwardness, economic deprivation, and political representation.

• The inclusion of a community in the list of SCs or STs can provide them with various benefits, such as reservations in educational institutions and government jobs, financial assistance, and protection from atrocities.

Additional Information

• Who are Scheduled Tribes?

• The framers of the Constitution took note of the fact that certain communities in the country were suffering from extreme social, educational, and economic backwardness on account of primitive agricultural practices, lack of infrastructure facilities and geographical isolation.

• The Constitution of India in Article 366 (25) prescribes that the Scheduled Tribes mean such tribes or tribal communities as are deemed under Article 342 of the Constitution to be Scheduled Tribes.

• The provisions under Article 342 read as follows:

• 342(1) Scheduled Tribes --- the President may with respect to any State or Union Territory, and where it is a State, after consultation with the Governor thereof, by public notification, specify the tribes or tribal communities or part of or groups within tribes or tribal communities as Scheduled Tribe in relation to that State or Union Territory as the case may be.

• Parliament may by law include in or exclude from the list of Scheduled Tribes specified in a notification issued under clause (1) any tribe or tribal community or part of or group within any tribe or tribal community, but save as aforesaid a notification issued under the said clause shall not be varied by any subsequent notification.

Q44. Answer: (b) Gair

The correct answer is Gair.

Key Points

• Gair dance is a famous folk dance associated with Rajasthan.

• It is mainly performed by the Bhil community.

• It is performed by both men and women.

• Gair dance is popular in the Mewar and Marwar regions of Rajasthan.

• Performed during the festive month of Holi and Janmashtami.

• Some other important folk dances in Rajasthan are:

• Ghoomar.

• Chari.

• Ginad.

• Jhulan Leela.

• Kalbeliya.

• Bhavai.

• Kachchhi Ghodi.

Additional Information

• Dhimsa is a tribal dance form of Andhra Pradesh, performed by women during the harvest season.

• Bihu is a folk dance of Assam that is performed during the Bihu festival to celebrate the onset of spring.

Q45. Answer: (b) Nation First, Always First

The correct answer is Nation First, Always First

Key Points

• India Celebrates 75 Years of Independence with the Theme “Nation First, Always First”.

• Azadi Ka Amrit Mahotsav' is an initiative of the Government of India to celebrate and commemorate 75 years of independence of progressive India and the glorious history of its people, culture, and achievements.

Additional Information

• This theme focuses on all the efforts that are currently being undertaken by the Government to take India to carve out its position at the world level.

• It has a motto: SABKA SAATH. SABKA VIKAS. SABKA VISHWAS, SABKA PRAYAS.

Q46. Answer: (d) Only A

The correct answer is Only A.

Key Points

• Fiscal deficit refers to the difference between the government's total expenditure and its total revenue.

• It is financed through borrowings, either from domestic or foreign sources.

• Recovery of loans is not a revenue receipt but a capital receipt.

• Revenue receipts are those that do not create any liability or reduce any asset of the government, such as taxes, fines, and fees. Capital receipts, on the other hand, are those that create a liability or reduce an asset of the government, such as borrowings, disinvestment proceeds, and recoveries of loans.

• In summary, the fiscal deficit is financed from borrowings and the recovery of loans is a capital receipt.

• It is worth noting that fiscal deficit is a key indicator of a government's financial health and economic management.

• A high fiscal deficit may lead to inflation, high interest rates, and a negative impact on the country's credit rating.

• Therefore, governments often strive to maintain a low fiscal deficit through various measures such as reducing expenditure, increasing revenue, and improving tax compliance.

Additional Information

• What constitutes the government’s total income or receipts?

• It has two components revenue receipts and non-tax revenues.

• Revenue receipts from the government

• Corporation Tax

• Income Tax

• Custom Duties

• Union Excise Duties

• GST and taxes of Union territories.

• Non-tax revenues

• Interest Receipts

• Dividends and Profits

• External Grants

• Other non-tax revenues

• Receipts of union territories

• Expenditures of the government:

• Revenue Expenditure

• Capital Expenditure

• Interest Payments

• Grants-in-aid for the creation of capital assets.

Important Points

• Fiscal Deficit is the difference between the total income of the government (total taxes and non-debt capital receipts) and its total expenditure. While calculating the total revenue, borrowings are not included. Hence, Fiscal Deficit is- Budget expenditure- Budget receipts excluding borrowings.

• A fiscal deficit situation occurs when the government’s expenditure exceeds its income. This difference is calculated both in absolute terms and also as a percentage of the Gross Domestic Product (GDP) of the country. A recurring high fiscal deficit means that the government has been spending beyond its means.

• The government describes fiscal deficit of India as “the excess of total disbursements from the Consolidated Fund of India, excluding repayment of the debt, over total receipts into the Fund (excluding the debt receipts) during a financial year”.

Q47. Answer: (c) Net investment = Gross investment - Depreciation

The correct answer is Net investment = Gross investment - depreciation.

Key Points

• The addition to the capital stock in an economy is measured by net investment or new capital formation, which is expressed as

• Net investment = Gross investment - depreciation.

• Gross Investment is referred to as the total expenditure that is made for buying capital goods over a time period, without accounting for depreciation.

• In other words, gross investment is the amount that a company has invested in particular assets or the business as a whole without considering depreciation for the same.

• Net Investment, on the other hand, is the actual addition that is made to the capital stock in a given period.

• Net Investment takes into account the depreciation and is calculated by subtracting the depreciation from the gross investment.

Additional Information The Gross Domestic Product (GDP) refers to the market value of all final goods and services produced within an economy.

• It can be calculated into two ways:

• Nominal GDP:

• It refers to the GDP at the current market prices i.e., the GDP is calculated as per the market prices for the year for which the GDP is calculated.

• Real GDP:

• It refers to the GDP at base year prices i.e., the GDP is calculated as per the market prices in the base year. Thus, the Real GDP negates the inflation in goods and services.

• In case of a high rate of inflation, the nominal GDP would be higher than the real GDP.

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Q48. Answer: (d) Kapil Dev

The correct answer is Kapil Dev.

Key Points

• Kapil Dev was the special guest at the Melbourne Indian Film Festival in 2022.

• He is a former Indian cricketer who is widely regarded as one of the greatest all-rounders in the history of cricket.

• Kapil Dev played for the Indian cricket team from 1978 to 1994 and was the captain of the team when they won the 1983 Cricket World Cup, which is considered one of the greatest moments in Indian cricket history.

• Virat Kohli is the Ex. Captain of Indian cricket team and is widely regarded as one of the best batsmen in the world.

• MS Dhoni is a former Indian cricket captain who is known for his excellent leadership skills and his ability to finish matches.

• Sunil Gavaskar is a former Indian cricketer who is regarded as one of the greatest opening batsmen in the history of cricket.

Additional Information Kapil Dev

• Kapil Dev is a former cricketer who played for India.

• He is also called "The Haryana Hurricane."

• He is one of India's best all-around cricket players.

• Kapil Dev served as the captain of the Indian cricket team that won the 1983 Cricket World Cup.

• He became the first player with 200 one-day international wickets.

• He enrolled as a lieutenant colonel in the Indian Territorial Army in 2008.

• ‘Straight from the Heart: An Autobiography is an autobiography of Kapil Dev. Numerous events in Kapil Dev's life are discussed throughout the entire book.

Q49. Answer: (d) Court

The correct is "Court".

Key Points

• The customs of 'Sijda' and 'Paibos' were introduced by Ghiyasuddin Balban as normal forms of salutations to the king as a part of Court etiquette.

• 'Sijda' is a form of prostration where an individual bows down to the ground and touches their forehead to the floor as a sign of respect, submission, and humility.

• 'Paibos' is a form of obeisance where an individual bows down and touches the feet of the king as a sign of respect and loyalty.

• He also introduced several reforms in the areas of revenue, justice, and military organization.

Additional Information

• Ghiyasuddin Balban (1266-1287)

• He was the first Sultan of Delhi to introduce the practice of 'Sijda'.

• He started Sijda (prostration) and Paibos as the normal form of Salutation of the king.

• In Sijda people had to Kneel down and touch the ground with their heads to greet the Sultan.

Q50. Answer: (d) itai-itai

The correct answer is itai-itai.

Key Points

• Itai-itai disease is caused by cadmium (Cd) exposure, produced as a result of human activities related to industrialization.

• It was first recognized in Japan in the 1960s.

• Itai-itai disease is characterized by osteomalacia with severe bone pain and is associated with renal tubular dysfunction.

• This disease was recognized as the Four Big Pollution Diseases of Japan.

• Cadmium is a naturally occurring toxic heavy metal.

• It is an extremely toxic industrial and environmental pollutant classified as a human carcinogen.

• It is used in the manufacturing of NiCd rechargeable batteries.

Additional Information

Exposure	Disease
Mercury	Minamata
Arsenic	Blackfoot
Selenium	Alkali disease
Nitrate	Blue baby syndrome

Q51. Answer: (a) √41/5

Formula used:

Sec θ = √(1+tan²θ)

Calculation:

Sec θ = √(1+tan2θ)

=> √(1+(4/5)2)

=>√(1+16/25) = √41 / 5

Q52. Answer: (a) September 21.3% nearly

Calculation:

The sale is highest in september.

Total sale in 6 months is 600 + 700 + 700 + 500 + 450 + 800 = 3750

The required percentage is 800 / 3750 × 100 = 21.33 %

Therefore The correct option is 1

Q53. Answer: (b) Rs. 69.50

Given:

The bag worth Rs. 560, an exercise book worth Rs. 90 and a pen worth Rs. 45.

Concept used:

he discount is calculated on market price

Calculation:

The total discount will be,

=> 560 × 10/100 + 90 × 10/100 + 45 × 10/100

=> 56 + 9 + 4.5 = Rs 69.50

Therefore The correct option is 2

Q54. Answer: (d) 900 cm2

Given:

A map of a city was drawn on a scale of 0.2 cm to a km,

Concept used:

The scale of the map is 0.2 cm to 1 km, which means that for every 0.2 cm on the map, there is 1 km in reality.

Calculation:

The real area of the country will be

=> 22500 × (0.2 × 1)2

=> 22500 × 0.04 = 900 cm2

Therefore The correct option is 4

Q55. Answer: (b) 3PQ2 = 4PM2

Given:

A triangle PQR has three sides equal in measurement and if PM is perpendicular to QR

Concept used:

Height(PM) of an equilateral triangle = √3 / 2 a [a is the side]

Calculation:

In a Triangle PQR has three sides equal in measurement and if the PM is perpendicular to QR then,

Let the side is 4 cm

Height will be √3 / 2 × 4 = 2√3

So 3 PQ² = 3 × 16

= 48

Again,4PM² = 4 × (2√3)²

=> 4 × 12 = 48

So,3PQ2 = 4PM2

Therefore The correct option is 2

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Q56. Answer: (c) 65°

Shortcut Trick

In a circle where tangents are drawn from an external point P, the angle between the radius and the chord (angle OST) is always exactly half of the angle between the tangents (angle SPT).

=> angle OST = angle SPT ÷ 2

=> angle OST = 130° ÷ 2 = 65°

Therefore The correct answer is 65 °.

Alternate Method

Given:

angle SPT = 130°

Formula Used:

1. Sum of interior angles of a quadrilateral = 360°.

2. Tangent is perpendicular to the radius at the point of contact (angle OSP = angle OTP = 90°).

3. Sum of angles in a triangle = 180°.

In quadrilateral OSPT:

=> angle OSP + angle SPT + angle OTP + angle SOT = 360°

=> 90° + 130° + 90° + angle SOT = 360°

=> 310° + angle SOT = 360°

=> angle SOT = 360° − 310° = 50°

Now, in isosceles triangle ΔOST (as OS = OT = radius):

=> angle OST = angle OTS

=> angle OST + angle OTS + angle SOT = 180°

=> 2 × angle OST + 50° = 180°

=> 2 × angle OST = 130°

=> angle OST = 65°

Therefore The correct answer is 65 °ree;.

Additional Information

Tangent-Radius Theorem

The radius of a circle is always perpendicular to the tangent at the point of contact, making the angle 90°.

Cyclic Nature of OSPT

The quadrilateral formed by the center, two tangency points, and the external point is always cyclic because opposite angles sum to 180°.

Angle Bisector Property

The line segment OP bisects both the angle angle SPT between the tangents and the angle angle SOT at the center.

Q57. Answer: (a) 14.54%

Given:

A shopkeeper professes to sell sugar costing Rs. 40/kg at Rs. 42/kg

But gives only 550 grams sugar in place of 600 grams using faulty weighing machine.

Concept used:

If a seller sells his goods at a% profit on cost price and uses b grams instead of c g less weight, then his percentage profit will be

[(100 + a) c/b - 100] %

Calculation:

As per the question,

the profit percentage is 2/40 × 100 = 5%

So overall profit,

[(100 + a) c/b - 100] %

[(100 + 5) 600/550 - 100] %

[114.54 - 100] % = 14.54%

Therefore The correct option is 1

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Q58. Answer: (b) 12.5%

Given:

A retailer buys 50 pens at the marked price of 44 pens.

He sells these pens at a discount of 1% on the marked price.

Concept used:

The discount is calculated on market price while profit is calculated on cost price.

Calculation:

Let the Market price 50 pens are 50

After getting 1 % discount the price should be 50 - 0.5 = 49.5

Now the cost Price will be market price of 44 pens that is Rs 44

So the profit will be 49.5 - 44 = 5.5

The profit percentage will be,

=> (5.5 /44) × 100 = 12.5 %

Therefore The correct option is 2

Q59. Answer: (b) Rs. 9,800

Given:

Prakash spends 27% of his salary on children's education and donates 4% to a trust in a particular month.

He spends Rs. 3,038 on these two heads.

Calculation:

Total amount spend is 27 % + 4% = 31%

As per the question,

Value of 31% = 3038

=> Value of 100% is 3038 /31 × 100 = Rs 9800

Therefore The correct option is 2

Q60. Answer: (d) 17.64%

Given:

Wallpapers cost = Rs. 700

Marked Price = Rs. 850

Concept used:

Discount is calculated on market price.

Calculation:

The discount amount is 850 -700 = Rs 150

The required percentage is 150 / 850 × 100 = 17.64%

Therefore The correct option is 4

Q61. Answer: (a) 32 1/7

Given:

$\sqrt{a/b}=8/3-\sqrt{b/a}$ and a - b = 10

Formula used:

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

Calculation:

$\sqrt{a/b}=8/3-\sqrt{b/a}$

=> $\sqrt{a/b} + \sqrt{b/a} = 8/3$

Squares of both sides

=> $a/b + b/a + 2(\sqrt{a/b} \times \sqrt{b/a}) = 64/9$

=> $a/b + b/a + 2 = 64/9$

=> $a^2 + b^2 / ab = 46/9$

=> $\{(a - b)^2 + 2ab\} / ab = 46/9$

=> $100/ ab + 2 = 46 / 9$

=> $100 /ab = 28/9$

=> $ab = 225/7$

= 32 1/7

Therefore The correct option is 1

Q62. Answer: (b) (a + b)2 = a2 + b2 + 2ab

Calculation:

Among the following options, the idintity is

(a + b)2 = a2 + b2 + 2ab

Therefore The correct option is 2

Q63. Answer: (b) The sum of the cost incurred towards payment of royalty and the cost of editing is Rs. 2,76,500.

Calculation:

As per the question:

The value of 22.5 % = Rs. 3,55,500

Again, The sum of the cost incurred towards payment of royalty and the cost of editing is 10 + 7.5 = 17.5%

So value of 17.5% = (3,55,500 / 22.5) × 17.5 = Rs. 2,76,500.

Therefore The correct option is 2

Q64. Answer: (d) 18

Given:

tan θ - Cot θ = 4

Formula used:

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

Calculation:

$\tan 2\theta + \cot 2\theta = (\tan \theta - \text{Cot } \theta)^2 + 2 \tan \theta \text{ Cot}\theta$

=>(tan θ - Cot θ)2 + 2

$=> 4^2 + 2 = 18$

Q65. Answer: (d) Rs. 8,275

Given:

The compound interest on Rs. 25,000 for 3 years at 10% per annum compounded yearly

Formula used:

In compound interest,

Amount = Principal × (1 + r / 100)n

Calculation:

As per the question,

$\text{Amount} = 25000 \times (1 + 10 / 100)^3$

25000 × (11/10)3

=> 25 × 1331

=> 33275

The interest amount is

=> 33275 - 25000 = Rs 8275

Therefore The correct option is 4

Q66. Answer: (d) 236°

Given:

angle SUV = 44° and angle STU = 92°

Concept Used:

The opposite angle of a rhombus is equal.

Calculation:

angle STU = 92°, So angle SVU = 92° as the opposite angle is equal.

Again,

angle SUV = 44°, So angle TSU = 44°, since the full angle is equal, so half angle will also be equal.

The degree measure of 4 angle SVU - 3 angle TSU

= 4 × 92° - 3 × 44°

= 236°

Therefore The correct option is 4

Q67. Answer: (c) 190

Calculation:

(22 + 4)2 × (3 - 5) + 20% of 400 + x% of 30 = 30% of 30

=> (4 + 4)² × (-2) + 80 + 3x/10 = 9

=> 64 × (-2) + 80 + 3x/10 = 9

=> - 128 + 80 + 3x/10 = 9

=> 3x/10 = 9 + 128 - 80 = 57

=> x = 57 × 10/3 = 190

Therefore x = 190

Q68. Answer: (d) Rs. 6,400

Given:

Anam and Bikash invest in a business in the ratio 3 : 2. If in a particular month, Anam gets Rs. 3,840 as profit

Concept used:

Profit is shared as per their investment ratio

Calculation:

If Anam gets 3x then Bikash gets 2x

Total will be 3x + 2x = 5x

As per the question,

3x = 3840

Then 5x = 3840 × 5/3

=> Rs 6400

Therefore The correct option is 4

Q69. Answer: (c) 4 1/12 days

Given:

7 people working 4 hours a day can complete a task in 14 days.

Concept used:

Total work = Total number of days × total people

Calculation:

The total work wil be 14 × 7 × 4 units

So the required number of days,

=> 14 × 7 × 4 / 12 × 8 = 49/12 = 4 1/12 days

Therefore The correct option is 3

Q70. Answer: (a) 84

Given:

A train 130 m long takes 6 1/2 seconds to cross a man who is walking at 12 km/h in the same direction in which the train going.

Formula used:

Distance = speed × time

Concept used:

Relative speed for Same direction = difference of their speed given

Calculation:

The train takes 6.5 sec to cross 130 m

So Relative speed will be 130/6.5 = 20 m/s

So Relative speed is 20 × 18/5 = 72 km/h

The speed of the train will be 72 +12 = 84 km/h

Therefore The correct option is 1

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Q71. Answer: (b) 3/√3

Calculation:

By putting the value of Tan30° = 1/√3 we get

(2 tan A)/(1-tan² A)

=> (2/√3) / (1-1/3)

=> (2/√3) × 3/2 = 3/√3

Therefore The correct option is 2

Q72. Answer: (d) 4 cbrt388

Given:

The sides of the three cubes of metal are 15 cm, 18 cm and 25 cm, respectively.

Concept used:

Volume of a cube = side³

If we melt three cubes and make a single big cube then the volume will be the same

Calculation:

As per the question,

The volume of the bigger cube is

=> 15³ + 18³ + 25³

The side of the bigger cube is

3_√(153 + 183 + 253)

= 4cbrt388

Therefore The correct option is 4

Q73. Answer: (b) Car

Calculation:

Total number of cars in 3 citites is, 4.5 + 3 + 3 = 10.5

Total number of Bus in 3 citites is, 2.5 + 3 + 4.5 = 10

Total number of Trucks in 3 citites is, 3.4 + 3.5 + 3.5 = 10.4

Total number of Bikes in 3 citites is, 3.2 + 3.3 + 3.4 = 9.9

The number of cars is maximum.

Q74. Answer: (c) 4/7

Calculation:

x + 2/x = 1,

x² + 2 = x

So,

(x²+7x+2)/(x²+13x+2)

=> 7x + x / 13x + x

=> 8x / 14x = 4/7

Therefore The correct option is 3

Q75. Answer: (c) 80°

Given:

The angle between two radii of a circle is 100°

Concept used:

Sum of the four angles of a quadrilateral is 360°

Calculation:

As per the question

angle OPQ = angle ORQ = 90°

angle POR = 100°

So angle RQP = 360° - (90° + 90° + 100°)

=> 80°

Therefore The correct option is 3

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Q76. Answer: (b) went to sleep

The solution is in Hindi. Read it online.

Q77. Answer: (a) Pessimist

The solution is in Hindi. Read it online.

Q78. Answer: (b) Cacographer

The solution is in Hindi. Read it online.

Q79. Answer: (a) Miniature

The solution is in Hindi. Read it online.

Q80. Answer: (c) Unashamed

The solution is in Hindi. Read it online.

Q81. Answer: (b) with their dialectical varieties

The correct answer is "with their dialectical varieties."

Key Points

• The original sentence is grammatically incorrect because "its" refers to Lewis, which is singular, while "dialectical varieties" refers to multiple languages, which is plural.

• Option 2 corrects this error by using "their" to refer to the plural "European languages."

• "Their" is a possessive pronoun that can refer to multiple people or things.

• Using the correct pronoun helps to make the sentence clear and grammatically correct.

• The correct answer is Option 2.

Correct sentence: Lewis can handle many of the European languages with their dialectical varieties fluently.

Q82. Answer: (a) obsolete

The solution is in Hindi. Read it online.

Q83. Answer: (a) finish the marathon in record time

The solution is in Hindi. Read it online.

Q84. Answer: (c) He killed his wife.

The correct answer is "He killed his wife."

Key Points

• The given sentence is in Passive Voice. It is in Simple Past Tense.

• As per the given question, we must change it to Active Voice.

• The structure of the given sentence is as follows:

• Subject + V2 + Object. (Active Voice)

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

• Example:

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

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

• In the passive voice, the action "killing" is performed by the doer "him."

• "He" is the subject and "his wife" is the object in the active voice.

• The correct answer is Option 3.

Correct sentence: He killed his wife.

Q85. Answer: (c) Kin

The solution is in Hindi. Read it online.

Q86. Answer: (a) as clever as

The correct answer is "as clever as."

Key Points

• The phrase "as clever as" is a comparative form that indicates the same level of cleverness between two people or things.

• The original sentence is incorrect because "cleverest" is a superlative form, which means it indicates the highest degree of cleverness.

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• The correct form to use in this sentence is "as clever as" because it compares the cleverness of two people.

• The correct answer is Option 1.

Correct sentence: She is not as clever as John.

Additional Information

• Option 2, "clever", is not a comparative form and does not indicate any comparison between two people or things.

• Option 3, "cleverest", is a superlative form and indicates the highest degree of cleverness, which is not appropriate for this sentence.

• Option 4, "cleverer by", is a comparative form but is not grammatically correct without specifying what the comparison is to.

Q87. Answer: (d) entire

The solution is in Hindi. Read it online.

Q88. Answer: (d) Disguise

The solution is in Hindi. Read it online.

Q89. Answer: (c) Obvious

The solution is in Hindi. Read it online.

Q90. Answer: (d) A large number of trees were uprooted by the storm yesterday.

The correct answer is "A large number of trees were uprooted by the storm yesterday."

Key Points

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

• The structure of the given sentence is as follows:

• Subject + V2 + Object. (Active Voice)

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

• Example:

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

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

• The subject of the given sentence is 'storm'.

• The object of the given sentence is 'a large number of trees'.

• The subject will be put in place of the object and the object will be put in place of the subject.

• 'Uprooted' will be changed into 'was uprooted'.

• "A large number of trees" is treated a unit and we must use "was" with it.

• The preposition "by" is used to indicate the doer of the action in the passive voice.

• Therefore, as per the points mentioned above, we find that the correct answer is Option 4.

Correct sentence: A large number of trees were uprooted by the storm yesterday.

Q91. Answer: (b) SQPR

The correct answer is "SQPR."

Key Points

• The sentence talks about the definition of a 'Resource' and how it is determined.

• The sentence starts with the subject 'Everything available in our environment'.

• So, the first part must be S.

• It should be followed by Q as it is having the relative clause "which can be used to satisfy our needs."

• Now, Q must be followed by P as P is adding more information to Q.

• The last part is R as it is providing an object to the sentence.

• The correct answer is Option 2.

Correct sentence: Everything available in our environment which can be used to satisfy our needs, provided it is technologically accessible, economically feasible and culturally acceptable can be termed as 'Resource.'

Q92. Answer: (b) Gentle

The solution is in Hindi. Read it online.

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Q93. Answer: (c) out of the blue

The solution is in Hindi. Read it online.

Q94. Answer: (c) Jewelerry

The solution is in Hindi. Read it online.

Q95. Answer: (a) more brave than intelligent

The correct answer is "more brave than intelligent."

Key Points

• The sentence is comparing Himanshu's bravery and intelligence.

• We are trying to say that Himanshu is more brave than intelligent, you could rephrase it as: "Himanshu is more brave than intelligent."

• Therefore, the correct comparative form of the sentence would be "more brave than intelligent."

• The correct answer is Option 1.

Q96. Answer: (a) parcel

The solution is in Hindi. Read it online.

Q97. Answer: (c) looked

The solution is in Hindi. Read it online.

Q98. Answer: (c) driving

The solution is in Hindi. Read it online.

Q99. Answer: (b) within

The solution is in Hindi. Read it online.

Q100. Answer: (a) pass on

The solution is in Hindi. Read it online.

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