SSC MTS 2025 Official Paper (Held On: 10 Feb, 2026 Shift 3) (Previous Year Paper)

SSC Multi-Tasking Staff (MTS) • 2025 • 90 questions • 90 minutes • Answer key and solutions

Take this paper as a timed mock test

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

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SESSION 1

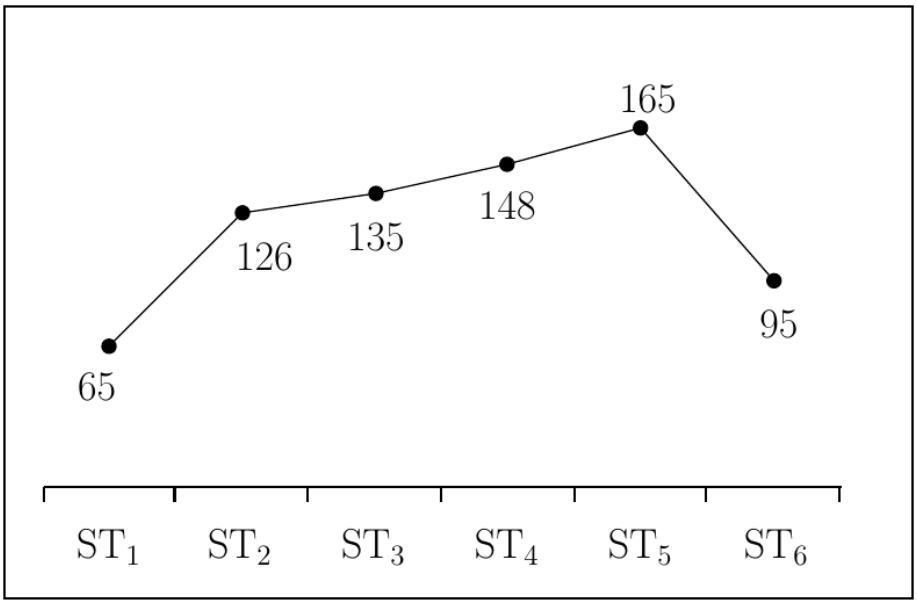
Q1. 48 + (72 + 16) - 34 × 2 + 19 + 11 = ?

(a) 98
(b) 92
(c) 96
(d) 100

Q2. 99 - 41 + 18 × 2 + (33 ÷ 3) - 22 + 16 = ?

(a) 99
(b) 100
(c) 102
(d) 109

Q3. The line chart given below shows the number of hours for which the 6 students ST1, ST2, ST3, ST4, ST5 and ST6 study in a month.

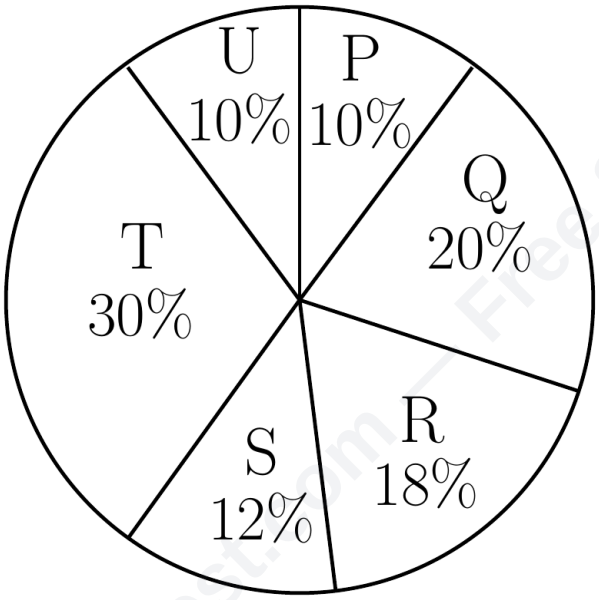


For the given 6 students, what is average hours of study per student in the given month?

(a) 112.67
(b) 122.33
(c) 116.67
(d) 128.33

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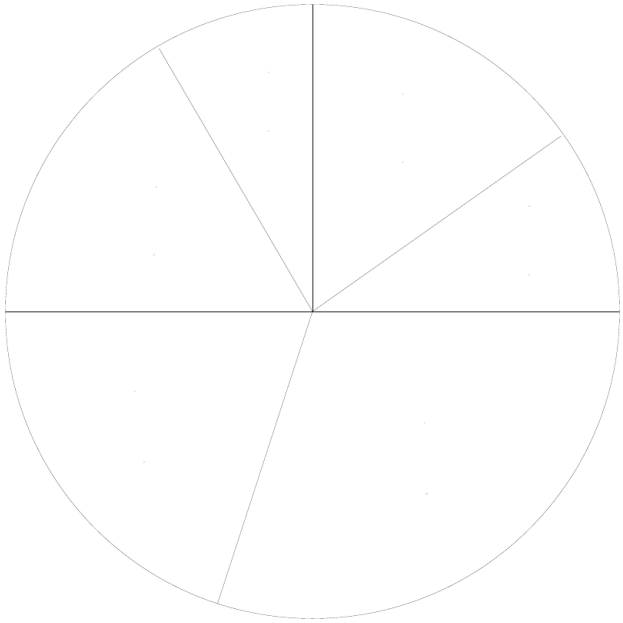
Q4. The pie chart given below shows the quantity of milk sold by 6 shops. The data is presented in the terms of percent.



What is the total central angle (in degrees) formed by the sectors of P and T?

(a) 216
(b) 108
(c) 144
(d) 272

Q5. The pie chart given below shows the number of players participated in 6 tournaments. The data is presented in the terms of degrees. Average number of players participated in A, B and F = 80.

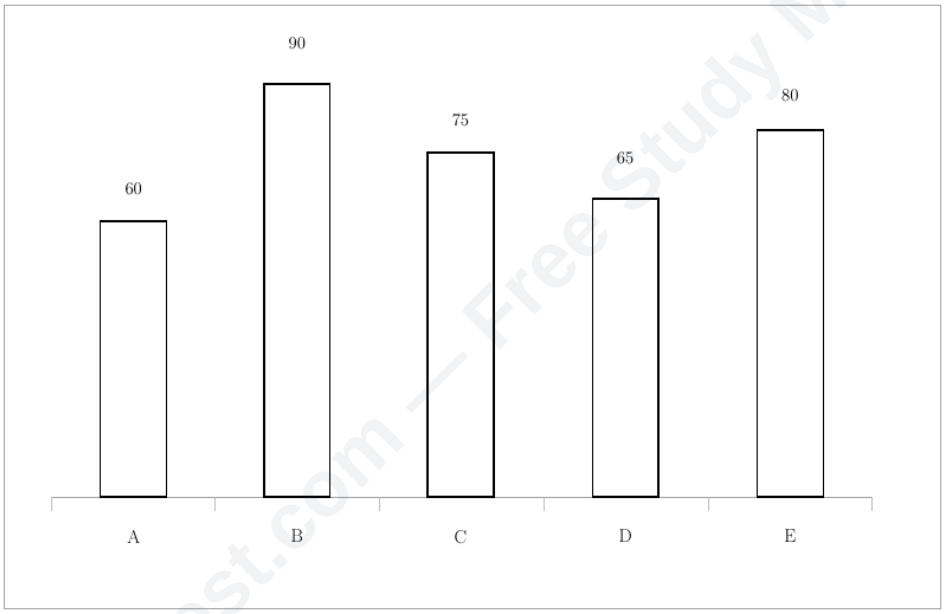


Total number of players participated in C and D are what percent of total number of players participated in the given 6 tournaments?

(a) 40%
(b) 30%
(c) 25%
(d) 50%

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Q6. The bar graph given below shows the rainfall (in mm) received by the given 5 cities in a month.



What is the total rainfall (in mm) received by the B, D and E?

(a) 215
(b) 235
(c) 195
(d) 205

Q7. A sum of money is to be distributed among P, Q, R, and S in the proportion 5 : 2 : 4 : 3. If R gets Rs. 1000 more than S, what is the total amount of money?

(a) Rs. 15000
(b) Rs. 14000
(c) Rs. 13000
(d) Rs. 16000

Q8. A chord AB of a circle is 30 cm long. If the perpendicular distance from the center to AB is 12 cm, calculate the radius of the circle. Also, determine the distance of another chord of length 24 cm from the center.

(a) 19.2 cm, 15 cm
(b) 11.4 cm, 18 cm
(c) 18 cm, 10 cm
(d) 15.5 cm, 16 cm

Q9. Arrange the following values in ascending order.

17/4, 41/3, 41/2, 19/4

(a) 17/4 < 41/3 < 41/2 < 19/4
(b) 41/3 < 17/4 < 41/2 < 19/4
(c) 17/4 < 19/4 < 41/3 < 41/2
(d) 41/3 < 41/2 < 17/4 < 19/4

Q10. 0.4 × 0.4 + 0.6 - 0.34 = ?

(a) 0.42
(b) 0.40
(c) 0.44
(d) 0.46

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Q11. $(\sqrt{32} + \sqrt{162})/\sqrt{18} = ?$

(a) 13/3
(b) 3/13
(c) 11/7
(d) 7/11

Q12. The product of the three consecutive odd numbers is 315. What is the sum of the largest and the smallest of the three numbers?

(a) 15
(b) 14
(c) 13
(d) 12

Q13. If $(2 + 5\sqrt{3})^2 = 79 + K\sqrt{3}$, then what is the value of K?

(a) 10
(b) 25
(c) 20
(d) 30

Q14. How many numbers among 9003, 6012, 3330, 1001 are divisible by 3?

(a) 0
(b) 1
(c) 2
(d) 3

Q15. 47P5 is divisible by 3. What is the value of P?

(a) 3
(b) 5
(c) 7

Q16. Average of first 'N' odd natural numbers is 21. What is the value of 'N'?

(a) 21
(b) 23
(c) 19
(d) 17

Q17. Two straight lines CD and AB cut each other at point O. Angle AOD = 80°. What is the value (in degrees) of angle AOC ?

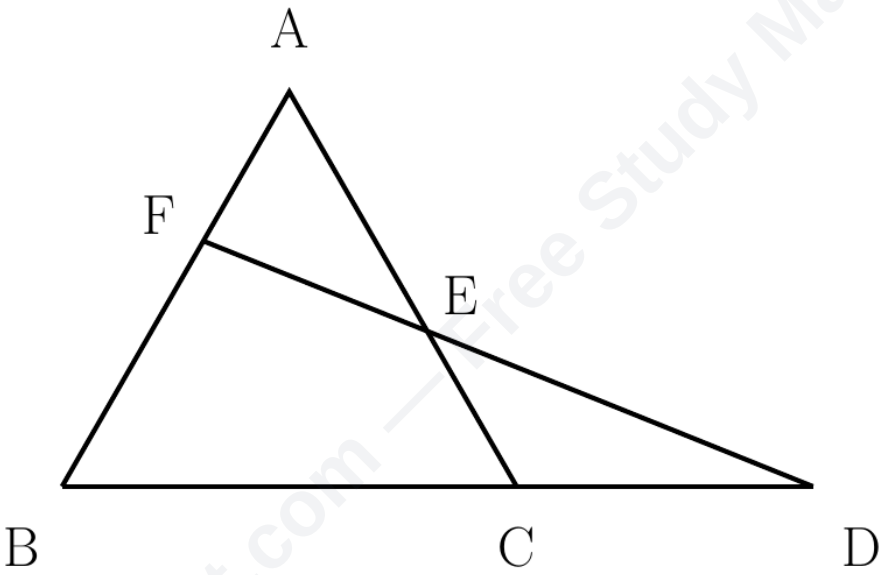
(a) 70
(b) 100
(c) 80
(d) 90

Q18. What will be the average of all the odd natural numbers between 8 and 30?

(a) 25
(b) 14
(c) 9
(d) 19

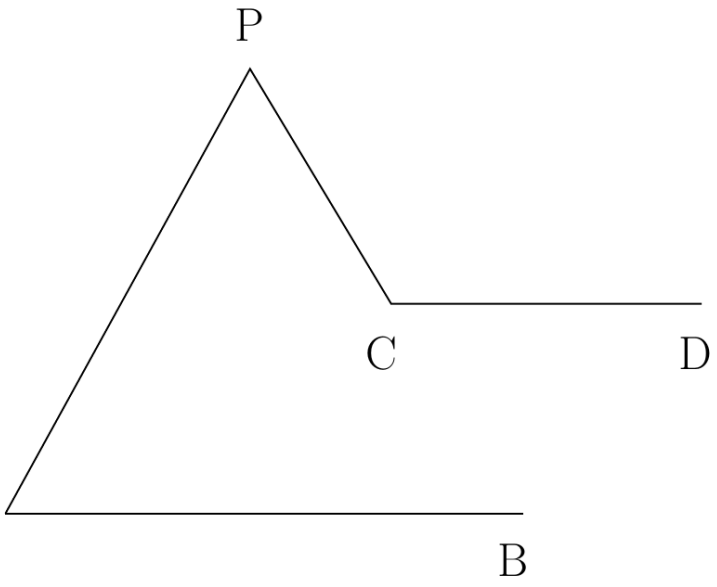
Q19. In the given figure, angle ABC = 70°. Angle AEF = 50°. Angle CDE = 45°. What is the value (in degrees) of angle ACD ?

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(a) 65
(b) 90
(c) 85
(d) 105

Q20. In the given figure, AB is parallel to CD. Angle PAB = 70 degrees and angle APC = 30 degrees. What is the value (in degrees) of angle DCP ?



(a) 90
(b) 100
(c) 110
(d) 95

Q21. Select the option that is related to the sixth letter cluster in the same way as the first letter cluster is related to the second letter cluster and third letter cluster is related to fourth letter cluster.

QH : TL :: BI : EM :: ? : UD

(a) RY
(b) PZ
(c) TY
(d) RZ

Q22. A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.

HI, ?, ZW, VQ, RK, NE, JY, FS

(a) DC
(b) DF
(c) BZ
(d) CC

Q23. A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.

PV, KP, FJ, ?, VX, QR, LL, GF

(a) AD
(b) ZB
(c) CD
(d) AE

Q24. In the following question, set of letter clusters are given. The letter clusters of each set are related to the letter clusters of the same set by some Logic/Rule/Relation. From the given alternatives, select a group of letter clusters which follows the same Logic/Rule/Relation.

(HR, AK, ZP)

(LO, EH, VS)

(a) (QO, JL, IN)
(b) (EV, XO, CL)
(c) (KH, DH, OP)
(d) (VR, ON, DK)

Q25. If the month of May 2016 ended on Sunday, then which date was the first Monday of October 2016?

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

Q26. If the month of July 2018 ended on Tuesday, then which date was the first Wednesday of December 2018?

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

Q27. Which of the following pairs of years have identical calendars?

(a) 1981 and 1988
(b) 1981 and 1987
(c) 1982 and 1988
(d) 1980 and 1991

Q28. 5 boys R, S, M, N and P are sitting in a row facing north (not necessarily in the same order). Only N is sitting between S and P. R is to the immediate left of S. R is at one of the end of the row. Who is sitting to the right of P?

(a) N
(b) M
(c) S
(d) R

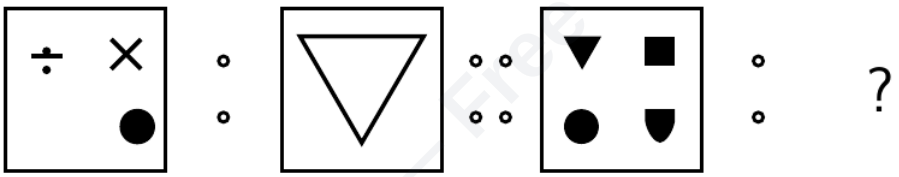
Q29. 7 women A, B, C, D, E, F and G are sitting around a circular table facing towards the centre (not necessarily in the same order). F is second to the right of C. A is third to the left of C. G is third to the left of F. D is not next to F. B is not next to A. Who are the immediate neighbours of C?

(a) D and G

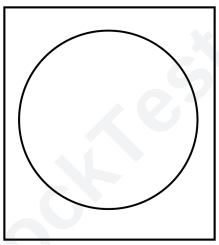
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(b) B and F
(c) B and G
(d) F and E

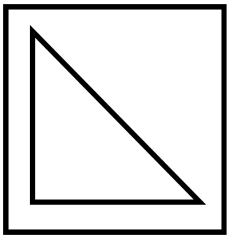
Q30. Two figures given on the left side of (::) are related with some logic/rule/relation. Select the missing figure on the right side of (::) from the given alternatives based on the same logic/rule/relation.



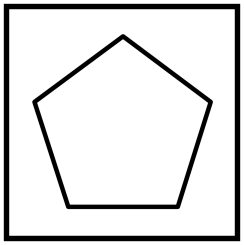
(a)



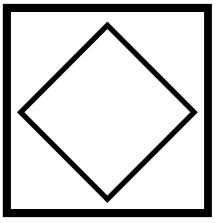
(b)



(c)

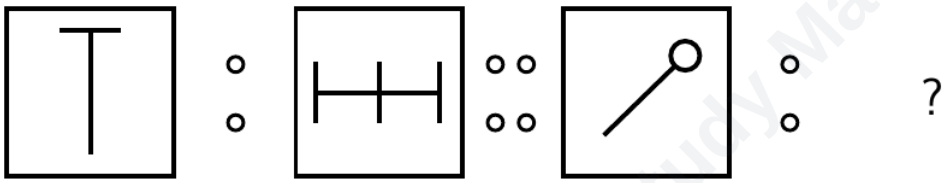


(d)

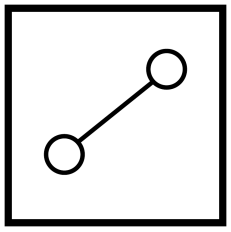


Q31. Two figures given on the left side of (::) are related with some logic/rule/relation. Select the missing figure on the right side of (::) from the given alternatives based on the same logic/rule/relation.

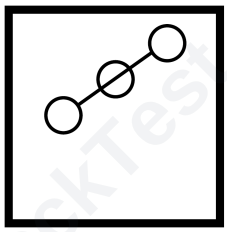
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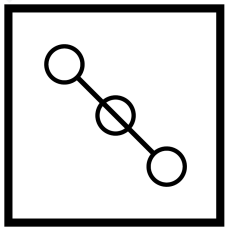
(a)



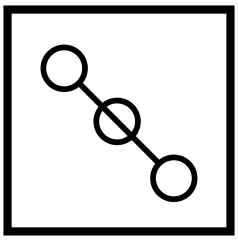
(b)



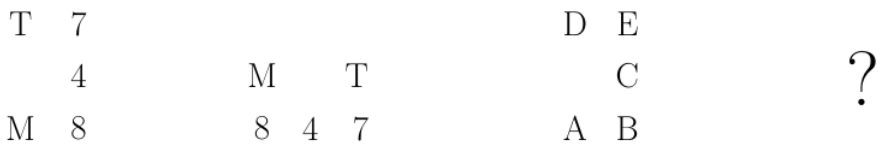
(c)

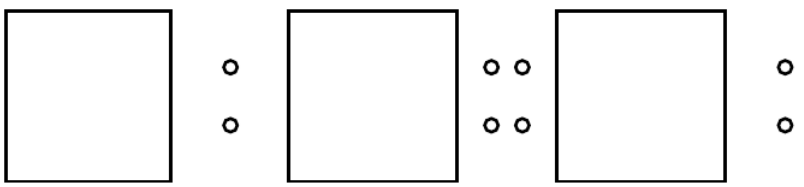


(d)

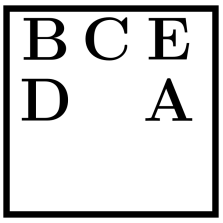


Q32. Two figures given on the left side of (::) are related with some logic/rule/relation. Select the missing figure on the right side of (::) from the given alternatives based on the same logic/rule/relation.

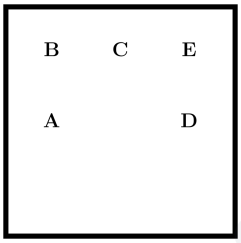




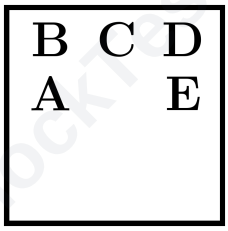
(a)



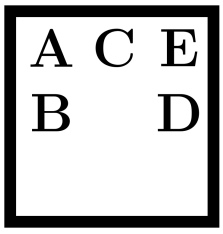
(b)



(c)



(d)



Q33. Select the option that is related to the second letter-number cluster in the same way as the third letter-number cluster is related to the fourth letter-number cluster and fifth letter-number cluster is related to sixth letter-number cluster.

(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)

? : TH20 :: PE12 : OC24 :: DK18 : CI36

(a) JV40
(b) UL40
(c) UJ10
(d) JU10

Q34. Select the option that is related to the sixth letter-number cluster in the same way as the first letter-number cluster is related to the second letter-number cluster and third letter-number cluster is related to fourth letter-number cluster.

(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)

ZWX42 : BBD84 :: ALP61 : CQV122 :: ? : LMT92

(a) JNN84
(b) JHN46
(c) JHN84
(d) JNH46

Q35. 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 fourth number is related to third number.

(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)

9739 : 9697 :: 5302 : 5260 :: 4086 : ?

(a) 4038
(b) 4049
(c) 4040
(d) 4044

Q36. Select the option that is related to the fourth number in the same way as the first number is related to the second number and fifth number is related to sixth number.

(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)

974 : 484 :: ? : 214 :: 1012 : 503

(a) 434
(b) 439
(c) 424
(d) 435

Q37. In a certain coded language 'FERAL' is coded as 'GFVXG' and 'SMEAR' is coded as 'TNIXM'. How will 'PHOTO' be coded in the same code language?

(a) PIQQL
(b) SHSRJ
(c) OKUPJ
(d) QISQJ

Q38. In a certain code language, 'SING' is coded as '57' and 'FAIR' is coded as '72'. How will 'PARTY' be coded in that code language?

(a) 53
(b) 55
(c) 57
(d) 61

Q39. A series is given with one term wrong. Select that wrong term from the given alternatives.

DL216, FH343, HD512, KZ720, LV1000, NR1331

(a) KZ720
(b) HD512
(c) FH343
(d) DL216

Q40. A series is given with one term wrong. Select that wrong term from the given alternatives.

CAT5, DEA124, EIH243, FNP362, GQV481, HUC600

(a) GQV481
(b) HUC600
(c) CAT5
(d) FNP362

SESSION 2

Q41. When the Chauhans tried to expand towards the west and east, from whom did they face opposition?

(a) Gahadavalas and Turks
(b) Chalukyas of Gujarat and Gahadavalas
(c) Rajputs and Tughlaqs
(d) Khiljis and Chalukyas

Q42. Prasanta Chandra Mahalanobis established the _____.

(a) Reserve Bank of India
(b) State Bank of India
(c) Indian Statistical Institute
(d) National Sample Survey Office

Q43. Which one of the following chronological order (from first to last) regarding the rule of early Turkish rulers is correct?

(a) Qutbuddin Aybak, Shamsuddin Iltutmish, Ghiyasuddin Balban
(b) Ghiyasuddin Balban, Qutbuddin Aybak, Shamsuddin Iltutmish
(c) Shamsuddin Iltutmish, Ghiyasuddin Balban, Qutbuddin Aybak
(d) Ghiyasuddin Balban, Shamsuddin Iltutmish, Qutbuddin Aybak

Q44. Which of the following five year plan had the theme "Towards Faster and More Inclusive Growth"?

(a) First
(b) Fifth
(c) Seventh
(d) Eleventh

Q45. Sri Lanka is separated from India by the ____.

(a) Palk strait
(b) Malacca strait
(c) Hormuz strait
(d) Cook strait

Q46. The land mass of India has an area of ____ million square km.

(a) 1.28
(b) 2.28
(c) 3.28
(d) 4.38

Q47. The _____ feet high iron pillar at Mehrauli in Delhi too speaks volumes of the iron technology prevailing in the Gupta period.

(a) 23
(b) 50
(c) 8
(d) 12

Q48. Which of the following article of Indian Constitution deals with Power of Parliament to legislate with respect to any matter in the State List if a Proclamation of Emergency is in operation?

(a) Article 282
(b) Article 250
(c) Article 263
(d) Article 173

Q49. ‘Gaarudi Gombe’, performed during major festivals, is a folk dance of which Indian state/Union Territory?

(a) West Bengal
(b) Karnataka
(c) Tripura
(d) Jammu and Kashmir

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Q50. Meristematic tissue is classified into how many types?

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

Q51. In which Indian state/UT is the 'Three Kings Feast' festival celebrated?

(a) Goa
(b) Ladakh
(c) Nagaland
(d) Assam

Q52. According to Census 2011, which state had the highest sex ratio in India?

(a) Tamil Nadu
(b) Kerala
(c) Puducherry
(d) Goa

Q53. The recoil experienced when firing a bullet from a gun is an example of _____.

(a) Newton's second law of motion
(b) Newton's law of gravitation
(c) Newton's third law of motion
(d) Newton's first law of motion

Q54. In the context of India, which of the following is associated with "Shiv Shakti Point"?

(a) Moon
(b) Mars
(c) Venus
(d) Jupiter

Q55. Which of the following is NOT one of the major occupational categories in India as per the 2011 census?

(a) Cultivators
(b) Agricultural Labourers
(c) Teachers
(d) Household Industrial Workers

Q56. Which space agency's Hubble Space Telescope captured a cosmic ‘bullseye galaxy’ with nine rings?

(a) ISRO
(b) NASA
(c) CNES
(d) JAXA

Q57. The principal mineral-bearing belts in _____ are Vidarbha area and Konkan area.

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

Q58. The headquarter of Asian Development Bank is located in _____.

(a) Philippines
(b) USA
(c) India
(d) China

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Q59. In which year was the National Statistical Commission was constituted?

(a) 2006
(b) 2008
(c) 2010
(d) 2012

Q60. Which among the following is a book authored by Jeet Thayil?

(a) Fury
(b) Low
(c) Shame
(d) Countdown

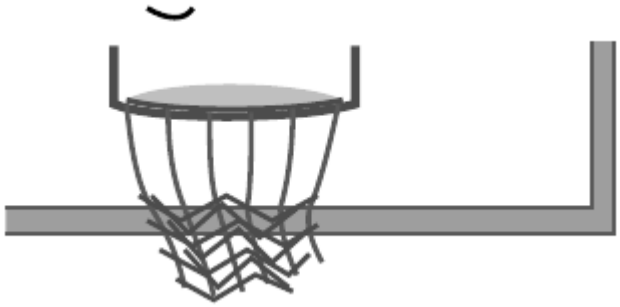
Q61. In cricket, the person seen in the image is called



.

(a) Batter
(b) Bowler
(c) Umpire
(d) Wicket keeper

Q62. The given below image is related to which of the following sports?



(a) Badminton
(b) Basketball
(c) Rugby
(d) Cricket

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Q63. The Red-Fort construction was begun in 1639 and completed after ____ years.

(a) 3
(b) 5
(c) 9
(d) 14

Q64. Which of the following is a Sushir Vadya?

(a) Hath ghanti
(b) Pena
(c) Bargu
(d) Sagna

Q65. Whom did Mahatma Gandhi regard as his mentor?

(a) Lala Lajpat Rai
(b) Dadabhai Naoroji
(c) Subhash Chandra Bose
(d) Gopal Krishna Gokhale

Q66. Which of the following idiom given in the alternatives has the meaning?

An offer made without conditions or restrictions, and requires nothing in return.

(a) Keep one on a string
(b) Loosen the apron strings
(c) With no strings attached
(d) Loosen the purse strings

Q67. From the alternatives given below, select the correct meaning of the idiom.

The penny drops.

(a) Said when someone suddenly comes to realize or understand something
(b) Said when someone suddenly comes to feel angry about something
(c) Said when someone suddenly comes to bends to pick something
(d) Said when someone suddenly comes to feel loved by somebody

Q68. Choose the correctly spelt word from the given options.

(a) Conscious
(b) Concious
(c) Consious
(d) Contious

Q69. Select the option with the correct spelling that can replace the underlined word in the given sentence. If the spelling in the given sentence is already correct, choose Option “No replacement required”.

He remained nonchalant even when chaos erupted around him, as if nothing could shake his calm.

(a) nonchalent
(b) nonchalant
(c) nonchelant
(d) No replacement required

Q70. There are four underlined words in the sentence given below. One of them is misspelt. Choose the option with the misspelt word.

Global health experts warned that the next pandemic could emerge from zoonotick diseases transmitted between animals and humans.

(a) experts
(b) zoonotick
(c) pandemic
(d) transmitted

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Q71. Choose the misspelt word from the given options.

(a) Predictable
(b) Valuable
(c) Sociable
(d) Compatable

Q72. Choose the word that is most opposite in meaning to “damaged”.

(a) Flawless
(b) Deteriorated
(c) Defaced
(d) Broken

Q73. Choose the word that is the antonym of Habitual.

(a) Regular
(b) Occasional
(c) Customary
(d) Routine

Q74. Choose the correct sentence where the homonym "seal" means a sea animal.

(a) He put his official seal on the agreement.
(b) The lawyer broke the wax seal on the letter.
(c) We saw a seal clapping its fins at the zoo.
(d) Please seal the envelope properly.

Q75. Choose the most suitable one-word substitution for the following.
The one who rides horses professionally.

(a) Rider
(b) Groom
(c) Farrier
(d) Jockey

Q76. Choose the most suitable one-word substitution for the following.
The art of preserving an animal's body by stuffing or mounting.

(a) Taxidermy
(b) Scrimshaw
(c) Oshibana
(d) Plastination

Q77. Which of the following options is the most suitable conversion of the following sentence into Passive Voice?
Shakespeare wrote many plays.

(a) Many plays were written by Shakespeare.
(b) Many plays was written by Shakespeare.
(c) Many plays have be written by Shakespeare.
(d) Many plays has been written by Shakespeare.

Q78. Which of the following options is the most suitable conversion of the following sentence into Passive Voice?
Do greenhouse gases cause global warming?

(a) Is global warming caused by greenhouse gases?
(b) Are global warming caused by greenhouse gases?
(c) Does global warming caused by greenhouse gases?
(d) Do global warming caused by greenhouse gases?

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Q79. Which of the following options is the most suitable conversion of the following sentence into active voice?

Will the project have been completed by the research team before the deadline?

(a) Has the research team completed the project before the deadline?
(b) Is the research team completing the project before the deadline?
(c) Will the research team complete the project before the deadline?
(d) Will the research team have completed the project before the deadline?

Q80. Which of the following options is the most suitable conversion of the following sentence into active voice?

Why aren't benign tumours rejected by the body?

(a) Why don't the body reject benign tumours?
(b) Why won't the body reject benign tumours?
(c) Why doesn't the body reject benign tumours?
(d) Why can't the body reject benign tumours?

Q81. In the given question, a sentence is divided into four parts and given in the alternatives (A), (B), (C), and (D). There is an error in one part. Choose the alternative containing that part of the sentence that has the error. Choosing the alternative with the error will be the answer.

Between the advantages of being an Indian citizen, freedom to worship one's own god is of utmost importance for the orthodox.

(a) Between the advantages of
(b) being an Indian citizen,
(c) freedom to worship one's own god is
(d) of utmost importance for the orthodox.

Q82. Select the correct alternative to fill in the blank with the correct preposition in the following sentence.

This song is not befitting _____ the Independence Day Celebration.

(a) for
(b) to
(c) on
(d) by

Q83. Given below are six sentences taken from a paragraph. The first and the last sentences are numbered S1 and S2 and are placed in the first and last positions respectively. The other four sentences between the first and last sentences are jumbled up and are numbered A, B, C, and D. Rearrange the jumbled sentences in a logical sequence keeping the unity and coherence of the paragraph intact. Choose the correct alternative that best describes the sequence.

S1. So why develop your financial genius?

A. I can tell you why I have been developing this area of my intelligence.

B. Not because I need to, but because I want to.

C. Only you can answer that.

D. I do it because I want to make money fast.

S2. It is a fascinating learning process.

(a) BCAD
(b) ADBC
(c) CADB
(d) DBCA

Q84. Given below are six sentences taken from a paragraph. The first and the last sentences are numbered S1 and S2 and are placed in the first and last positions respectively and are fixed in their positions. The other four sentences between the first and last sentences are jumbled up and are numbered A, B, C, and D. Rearrange the jumbled sentences in a logical sequence keeping the unity and coherence of the paragraph intact. Choose the correct alternative that best describes the sequence.

S1. Sofia stood listening to the noise of the departing carriage which bore away her mother and sister.

A. As a child, when some wrong or injustice had been done her, she had cried all alone, when she was in bed, in the

dark, and the habit had remained with her.

B. She was left alone, quite alone, as she had always wished to be left.

C. Certainly in these moments of complete solitude the consciousness of a great grief came over her;

D. Now, alone in the great drawing room, beneath the brightly lighted chandelier, her hands inert, her head resting against the back of her chair, her face wore an expression of great sorrow, the vivid reflection of a serious inward conflict.

S2. the sentiment of the reality, long repulsed, became clear, distinct, and cruel.

(a) CBAD
(b) BDAC
(c) ADCB
(d) BADC

Q85. A part of the following sentence is underlined. Choose the option that can replace the underlined part to improve the sentence. If you feel Options A, B, or C do not improve the sentence, then choose Option D: "No improvement required."

If I would be laid off again, I would seriously consider a career switch.

(a) will be laid off again
(b) had been laid off again
(c) were to be laid off again
(d) No improvement required

Directions

India's startup ecosystem has witnessed remarkable growth over the past decade, transforming the country into the third-largest startup hub globally. With more than 1.5 lakh startups recognized as of early 2025, India stands out due to its vibrant entrepreneurial spirit and robust support systems. Major cities such as Bengaluru, Mumbai, and Hyderabad lead this surge, while tier-2 and tier-3 cities are increasingly contributing innovators and enterprises.

The government's flagship initiative, Startup India, launched in 2016, has played a pivotal role in nurturing innovation by providing startups with financial assistance, mentorship, and regulatory ease. Additionally, a growing pool of young, tech-savvy professionals, combined with widespread internet and smartphone penetration, creates an ideal environment for digital innovations. This ecosystem has produced over a hundred unicorns, startups valued at over one billion dollars, boosting India's economic growth and employment generation substantially.

Startups are driving a cultural shift from job seekers to job creators by fostering entrepreneurial opportunities nationwide. Sectors like fintech, edtech, healthtech, and e-commerce are flourishing and addressing local challenges while gaining global recognition. The synergy among incubators, accelerators, investors, and the government continues to fuel India's ambition to become a global startup powerhouse in the years to come.

Q86. Choose the correct verb form to complete the sentence.

"Startups _____ a cultural shift from job seekers to job creators by fostering entrepreneurial opportunities nationwide."

(a) drives
(b) drive
(c) driving
(d) driven

Q87. Choose the correct verb form to complete the sentence from the passage.

"This ecosystem _____ produced over a hundred unicorns, startups valued at over one billion dollars."

(a) has
(b) have
(c) had
(d) having

Q88. What does the word “synergy” mean as used in the passage?

(a) Conflict
(b) Cooperation that leads to a greater effect
(c) Separation

(d) Competition

Q89. The word “flourishing” in the passage most nearly means _____.

(a) declining
(b) ignoring
(c) struggling
(d) thriving and growing

Q90. Which of the following best summarizes the main idea of the passage?

(a) India’s startup growth is mostly centered in a few large cities with little government support.
(b) The startup ecosystem in India is shrinking due to lack of innovation.
(c) India’s startup ecosystem is expanding rapidly due to government initiatives, technology adoption, and widespread collaboration, contributing significantly to economic and employment growth.
(d) Startups in India only focus on local markets without global ambitions.

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (a) 98

Shortcut Trick
Apply BODMAS: Solve bracket, then multiplication, then group addition.
48 + (88) − 68 + 19 + 11
48 + 20 + 30 = 98
Therefore The correct answer is 98.
Alternate Method
Given expression: 48 + (72 + 16) − 34 × 2 + 19 + 11
Method: BODMAS Rule (Bracket, Orders, Division, Multiplication, Addition, Subtraction)
=> 48 + 88 − 34 × 2 + 19 + 11
=> 48 + 88 − 68 + 19 + 11
=> 136 − 68 + 19 + 11
=> 68 + 19 + 11
=> 87 + 11 = 98
Therefore The correct answer is 98.
Additional Information
BODMAS Rule
Standard order for solving mathematical expressions: Brackets, Of, Division, Multiplication, Addition, Subtraction.
Grouping Terms
For faster calculation, group all positive terms together and all negative terms together before the final subtraction.

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Q2. Answer: (a) 99

Shortcut Trick

Solve brackets and multiplication first: (33 ÷ 3) = 11 and 18 × 2 = 36.

Rewrite the expression: 99 − 41 + 36 + 11 − 22 + 16.

Combine positive terms: 99 + 36 + 11 + 16 = 162.

Combine negative terms: 41 + 22 = 63.

Result: 162 − 63 = 99.

Therefore The correct answer is 99.

Alternate Method

Given expression: 99 − 41 + 18 × 2 + (33 ÷ 3) − 22 + 16

Apply BODMAS rule (Brackets, Orders, Division, Multiplication, Addition, Subtraction):

=> Step 1 (Brackets): 33 ÷ 3 = 11

=> Expression = 99 − 41 + 18 × 2 + 11 − 22 + 16

=> Step 2 (Multiplication): 18 × 2 = 36

=> Expression = 99 − 41 + 36 + 11 − 22 + 16

=> Step 3 (Addition): 99 + 36 + 11 + 16 = 162

=> Step 4 (Subtraction): 162 − 41 − 22 = 162 − 63

=> Result = 99

Therefore The correct answer is 99.

Additional Information

BODMAS Rule

It defines the order of operations: Brackets (), Orders (powers/roots), Division (÷), Multiplication (×), Addition (+), and Subtraction (−).

Grouping Like Terms

To simplify faster, add all positive numbers together and all negative numbers together before the final subtraction.

Sign Conventions

Two negative numbers are added to give a negative sum (e.g., −41 − 22 = −63), while a negative and a positive result in a difference.

Q3. Answer: (b) 122.33

Given:

The study hours for six students are shown in the line chart below:

Student	Study Hours (in a month)
ST1	65
ST2	126
ST3	135
ST4	148
ST5	165
ST6	95

Total number of students = 6

Formula Used:

Average Hours = Total Study Hours ÷ Number of Students

Calculation:

According to the data from the chart,

=> Total Study Hours = 65 + 126 + 135 + 148 + 165 + 95

=> Total Study Hours = 734

=> Average Hours per Student = 734 ÷ 6

=> Average Hours per Student ≈ 122.33

Therefore The correct answer is 122.33.

Q4. Answer: (c) 144

Given:

Shop Name	Quantity of Milk Sold (in %)
P	10%
Q	20%
R	18%
S	12%
T	30%
U	10%
Total	100%

Formula Used:

Total Percentage of Sectors = Percentage of Sector 1 + Percentage of Sector 2

Central Angle = (Total Percentage of Sectors ÷ 100) × 360 degrees

Calculation:

According to the pie chart,

=> Percentage of milk sold by Shop P = 10%

=> Percentage of milk sold by Shop T = 30%

=> Total percentage of milk sold by Shops P and T = 10% + 30% = 40%

=> Total central angle = (40 ÷ 100) × 360 degrees

=> Total central angle = 0.4 × 360 degrees

=> Total central angle = 144 degrees

Therefore The correct answer is 144.

Q5. Answer: (d) 50%

Given:

Tournament	Number of Players (in degrees)
A	54°
B	36°
C	108°
D	72°
E	60°
F	30°

Average number of players participated in A, B, and F = 80

Total degrees in a pie chart = 360°

Formula Used:

Required Percentage = (Sum of degrees of specific categories ÷ Total degrees of the pie chart) × 100

Calculation:

According to the pie chart data,

=> Total degree for tournament C and D = 108° + 72° = 180°

=> Total degree for all 6 tournaments = 360°

=> Required Percentage = (180° ÷ 360°) × 100

=> Required Percentage = (1 ÷ 2) × 100

=> Required Percentage = 50%

(Note: The average value provided in the question is not required to calculate the percentage, as the ratio of degrees represents the ratio of absolute numbers.)

Therefore The correct answer is 50%.

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Q6. Answer: (b) 235

Given:

City Name	Rainfall (mm)
A	60
B	90
C	75
D	65
E	80

Formula Used:

Total Rainfall = Rainfall in City B + Rainfall in City D + Rainfall in City E

Calculation:

From the provided bar graph, the rainfall values for the specified cities are:

=> Rainfall in City B = 90 mm

=> Rainfall in City D = 65 mm

=> Rainfall in City E = 80 mm

Now, calculating the total rainfall received by these three cities:

=> Total = 90 + 65 + 80

=> Total = 155 + 80

=> Total = 235 mm

Therefore The correct answer is 235.

Q7. Answer: (b) Rs. 14000

Shortcut Trick

Ratio of P : Q : R : S = 5 : 2 : 4 : 3

Difference between R and S in ratio units = 4 − 3 = 1 unit

Given: 1 unit = Rs. 1000

Total ratio units = 5 + 2 + 4 + 3 = 14 units

Total amount = 14 × Rs. 1000 = Rs. 14000

Therefore The correct answer is Rs. 14000.

Alternate Method

Given: Ratio of shares = 5 : 2 : 4 : 3

Difference in shares of R and S = Rs. 1000

Let the amounts received by P, Q, R, and S be 5x, 2x, 4x, and 3x respectively.

=> Amount with R − Amount with S = 1000

=> 4x − 3x = 1000

=> x = 1000

=> Total Amount = 5x + 2x + 4x + 3x

=> Total Amount = 14x

=> Total Amount = 14 × 1000

=> Total Amount = 14000

Therefore The correct answer is Rs. 14000.

Additional Information

Ratio Distribution Rule

To divide a quantity N in the ratio a:b:c, the parts are [a/(a+b+c)] × N, [b/(a+b+c)] × N, and [c/(a+b+c)] × N.

Comparison of Ratios

If two ratios are a:b and c:d, they can be compared by converting them to like fractions or comparing ad and bc.

Direct Proportion

When two quantities are in ratio, if one unit value is found, any part or the whole sum can be calculated using the unitary method.

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Q8. Answer: (a) 19.2 cm, 15 cm

Shortcut Trick

Radius r = √[(Chord/2)² + (Distance)²]

r = √[15² + 12²] = √[225 + 144] = √369 ≈ 19.2 cm.

For the second chord, Distance = √[r² − (New Chord/2)²]

Distance = √[369 − 12²] = √[369 − 144] = √225 = 15 cm.

Therefore The correct answer is 19.2 cm, 15 cm.

Alternate Method

Given: Chord AB = 30 cm, Distance from center OM = 12 cm, Second chord CD = 24 cm.

Formula Used: Radius² = (Half of chord length)² + (Perpendicular distance)²

=> In triangle OMA, AM = AB/2 = 15 cm and OM = 12 cm.

=> $OA^2 = OM^2 + AM^2$

=> $r^2 = 12^2 + 15^2 = 144 + 225 = 369$

=> r = √369 ≈ 19.2 cm

=> For chord CD, CN = CD/2 = 24/2 = 12 cm.

=> In triangle ONC, $OC^2 = ON^2 + CN^2$

=> $369 = ON^2 + 12^2$

=> $ON^2 = 369 - 144 = 225$

=> ON = √225 = 15 cm

Therefore The correct answer is 19.2 cm, 15 cm.

Additional Information

Perpendicular Bisector Property

The perpendicular from the center of a circle to a chord bisects the chord (AM = MB).

Chord Distance Relation

Longer chords are closer to the center than shorter chords; if chord length increases, its distance from the center decreases.

Pythagoras Theorem in Circles

For a chord of length L at distance d from the center of radius r, the relation is $r^2 = (L/2)^2 + d^2$.

Q9. Answer: (a) 17/4 < 41/3 < 41/2 < 19/4

Shortcut Trick

Convert all values to decimal form for immediate comparison:

17/4 = 4.25

4 1/3 ≈ 4.33

4 1/2 = 4.50

19/4 = 4.75

Comparing decimals: 4.25 < 4.33 < 4.50 < 4.75

Therefore The correct answer is 17/4 < 4 1/3 < 4 1/2 < 19/4.

Alternate Method

Given values: 17/4, 4 1/3, 4 1/2, 19/4

=> Step 1: Convert mixed fractions to improper fractions.

=> 4 1/3 = (4 × 3 + 1) / 3 = 13/3

=> 4 1/2 = (4 × 2 + 1) / 2 = 9/2

=> Step 2: Find a common denominator for 4, 3, 2, and 4. LCM = 12.

=> 17/4 = (17 × 3) / 12 = 51/12

=> 13/3 = (13 × 4) / 12 = 52/12

=> 9/2 = (9 × 6) / 12 = 54/12

=> 19/4 = (19 × 3) / 12 = 57/12

=> Step 3: Compare numerators: 51 < 52 < 54 < 57

=> Ascending order: 51/12 < 52/12 < 54/12 < 57/12

=> Final sequence: 17/4 < 4 1/3 < 4 1/2 < 19/4

Therefore The correct answer is 17/4 < 4 1/3 < 4 1/2 < 19/4.

Additional Information

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Comparison of Fractions

To compare fractions, either convert them to decimals or convert them to like fractions by finding the LCM of the denominators.

Mixed Fraction Conversion

A mixed fraction A b/c is converted to an improper fraction using the formula: (A × c + b) / c.

Ascending vs Descending Order

Ascending order means arranging values from smallest to largest, while descending order means largest to smallest.

Q10. Answer: (a) 0.42

Shortcut Trick

Apply BODMAS rule: Multiplication → Addition → Subtraction.

0.4 × 0.4 = 0.16

0.16 + 0.6 − 0.34 = 0.76 − 0.34 = 0.42

Therefore The correct answer is 0.42.

Alternate Method

Given expression: 0.4 × 0.4 + 0.6 − 0.34

Formula used: BODMAS (Bracket, Of, Division, Multiplication, Addition, Subtraction)

=> 0.16 + 0.6 − 0.34

=> 0.76 − 0.34

=> 0.42

Therefore The correct answer is 0.42.

Additional Information

BODMAS Rule

It defines the order of operations: Brackets, Orders, Division, Multiplication, Addition, then Subtraction.

Multiplication of Decimals

To multiply decimals, multiply as whole numbers then count total decimal places in factors to place the point in the product (0.4 × 0.4 = 0.16).

Addition/Subtraction of Decimals

Always align the decimal points vertically before performing addition or subtraction to ensure correct place value alignment.

Q11. Answer: (a) 13/3

Shortcut Trick

Divide each term of the numerator by the denominator: (√32 ÷ √18) + (√162 ÷ √18)

Apply rule √a ÷ √b = √(a ÷ b): √(32 ÷ 18) + √(162 ÷ 18)

Simplify fractions: √(16 ÷ 9) + √9 = 4/3 + 3

Calculate: (4 + 9) ÷ 3 = 13/3

Therefore The correct answer is 13/3.

Alternate Method

Given: (√32 + √162) ÷ √18

Formula: √a = √(b² × c) = b√c

=> √32 = √(16 × 2) = 4√2

=> √162 = √(81 × 2) = 9√2

=> √18 = √(9 × 2) = 3√2

=> Expression = (4√2 + 9√2) ÷ 3√2

=> Expression = 13√2 ÷ 3√2

=> Answer = 13/3

Therefore The correct answer is 13/3.

Additional Information

Product Rule of Surds

The square root of a product is equal to the product of the square roots: √(a × b) = √a × √b.

Quotient Rule of Surds

The square root of a quotient is equal to the quotient of the square roots: √(a ÷ b) = √a ÷ √b.

Simplifying Surds

A surd is simplified by factoring out the largest perfect square from the radicand: $\sqrt{50} = \sqrt{(25 \times 2)} = 5\sqrt{2}$.

Q12. Answer: (b) 14

Shortcut Trick

The middle term of three consecutive numbers is approximately the cube root of their product.

Product = 315. Approximate middle odd number $\approx \sqrt[3]{315}$.

Since $6^3 = 216$ and $7^3 = 343$, the middle odd number is 7.

Sequence: 5, 7, 9 (Product: $5 \times 7 \times 9 = 315$).

Sum of smallest (5) and largest (9) = 5 + 9 = 14.

Therefore The correct answer is 14.

Alternate Method

Given: Product of three consecutive odd numbers = 315.

Formula: Let the numbers be $(x - 2)$, x, and $(x + 2)$.

$\Rightarrow (x - 2) \times x \times (x + 2) = 315$

$\Rightarrow x \times (x^2 - 4) = 315$

$\Rightarrow$ By testing odd values for x: If $x = 7$, then $7 \times (7^2 - 4)$

$\Rightarrow 7 \times (49 - 4) = 7 \times 45 = 315$

$\Rightarrow$ Smallest number $= x - 2 = 7 - 2 = 5$

$\Rightarrow$ Largest number $= x + 2 = 7 + 2 = 9$

$\Rightarrow$ Sum of largest and smallest $= 9 + 5 = 14$

Therefore The correct answer is 14.

Additional Information

Consecutive Odd Numbers

Consecutive odd integers differ by 2 and can be represented as n, n+2, n+4 where n is odd.

Cube Root Estimation for Series

For three consecutive numbers, the middle number is the best integer approximation of the cube root of their product.

Sum of Odd Numbers

The sum of any number of consecutive odd integers is always even if the number of terms is even, and odd if the number of terms is odd.

Q13. Answer: (c) 20

Shortcut Trick

Identify the identity: $(a + b)^2 = a^2 + b^2 + 2ab$

The term $K\sqrt{3}$ in the expression corresponds to the 2ab term of the expansion.

$2ab = 2 \times 2 \times 5\sqrt{3} = 20\sqrt{3}$

Comparing $K\sqrt{3} = 20\sqrt{3}$, we get $K = 20$.

Therefore The correct answer is 20.

Alternate Method

Given: $(2 + 5\sqrt{3})^2 = 79 + K\sqrt{3}$

Formula used: $(a + b)^2 = a^2 + b^2 + 2ab$

$\Rightarrow (2)^2 + (5\sqrt{3})^2 + 2 \times 2 \times 5\sqrt{3} = 79 + K\sqrt{3}$

$\Rightarrow 4 + (25 \times 3) + 20\sqrt{3} = 79 + K\sqrt{3}$

$\Rightarrow 4 + 75 + 20\sqrt{3} = 79 + K\sqrt{3}$

$\Rightarrow 79 + 20\sqrt{3} = 79 + K\sqrt{3}$

$\Rightarrow 20\sqrt{3} = K\sqrt{3}$

$\Rightarrow K = 20$

Therefore The correct answer is 20.

Additional Information

Algebraic Identities for Surds

Common identities include $(a - b)^2 = a^2 + b^2 - 2ab$ and $(a + b)(a - b) = a^2 - b^2$, which are used to simplify or rationalize irrational expressions.

Comparison of Coefficients

If $p + q\sqrt{n} = x + y\sqrt{n}$, where p, q, x, y are rational numbers and $\sqrt{n}$ is irrational, then $p = x$ and $q = y$.

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Squaring Mixed Radicals

To square a term like $(x\sqrt{y})$, the result is $x^2 \times y$. For example, $(5\sqrt{3})^2 = 25 \times 3 = 75$.

Q14. Answer: (d) 3

Shortcut Trick

A number is divisible by 3 if the sum of its digits is a multiple of 3.

Checking sum of digits: 9003 (12), 6012 (9), 3330 (9), 1001 (2).

Divisible numbers: 9003, 6012, and 3330 are divisible by 3.

Number 1001 is not divisible by 3 as its digit sum is 2.

Total count = 3.

Therefore The correct answer is 3.

Alternate Method

Given numbers: 9003, 6012, 3330, 1001

Method: Apply the divisibility rule of 3 (Sum of digits ÷ 3 = Integer).

=> For 9003: Sum = 9 + 0 + 0 + 3 = 12. Since 12 ÷ 3 = 4, it is divisible.

=> For 6012: Sum = 6 + 0 + 1 + 2 = 9. Since 9 ÷ 3 = 3, it is divisible.

=> For 3330: Sum = 3 + 3 + 3 + 0 = 9. Since 9 ÷ 3 = 3, it is divisible.

=> For 1001: Sum = 1 + 0 + 0 + 1 = 2. Since 2 is not divisible by 3, it is not divisible.

=> Number of integers divisible by 3 = 3.

Therefore The correct answer is 3.

Additional Information

Divisibility by 9

A number is divisible by 9 if the sum of its digits is divisible by 9. For example, 6012 (6+0+1+2=9) is divisible by 9.

Divisibility by 6

A number is divisible by 6 if it is an even number and the sum of its digits is divisible by 3 (divisible by both 2 and 3).

Divisibility by 11

A number is divisible by 11 if the difference between the sum of digits at odd positions and even positions is 0 or a multiple of 11. For 1001: (1+0) − (0+1) = 0.

Q15. Answer: (b) 5

Shortcut Trick

Sum of digits of 47P5 must be a multiple of 3.

Sum of known digits = 4 + 7 + 5 = 16.

Checking the options: 16 + 5 = 21, which is divisible by 3.

Other options (3, 7, 9) result in sums (19, 23, 25) not divisible by 3.

Therefore The correct answer is 5.

Alternate Method

Given: The number 47P5 is divisible by 3.

Formula Used: Divisibility rule of 3 → Sum of all digits of the number must be divisible by 3.

=> Sum of digits of 47P5 = 4 + 7 + P + 5

=> Sum = 16 + P

=> For 47P5 to be divisible by 3, (16 + P) must be a multiple of 3.

=> Multiples of 3 greater than 16 are 18, 21, 24, 27, ...

=> Case 1: 16 + P = 18 => P = 2

=> Case 2: 16 + P = 21 => P = 5

=> Case 3: 16 + P = 24 => P = 8

=> Comparing the possible values of P (2, 5, 8) with the given options {3, 5, 7, 9}, the only matching value is 5.

Therefore The correct answer is 5.

Additional Information

Divisibility by 3

A number is divisible by 3 if the sum of its digits is divisible by 3.

Divisibility by 9

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Similar to the rule for 3, a number is divisible by 9 if the sum of its digits is divisible by 9.
Divisibility by 6
A number is divisible by 6 if it is divisible by both 2 (even number) and 3 (sum of digits divisible by 3).
Divisibility by 11
The difference between the sum of digits at odd places and the sum of digits at even places must be either 0 or a multiple of 11.

Q16. Answer: (a) 21

Shortcut Trick
Property: Average of first N odd natural numbers is always equal to N.
Given: Average of first N odd numbers = 21.
Comparing with the property: N = 21.
Therefore The correct answer is 21.
Alternate Method
Given: Average of first N odd natural numbers = 21.
Formula Used: Sum of first N odd natural numbers = N^2 | Average = Sum ÷ N
=> The first N odd numbers are: 1, 3, 5, ..., (2N − 1).
=> Sum of first N odd numbers = 1 + 3 + 5 + ... + (2N − 1) = N^2.
=> Average = Total Sum ÷ Total Terms
=> Average = N^2 ÷ N = N.
=> Since Given Average = 21,
=> N = 21.
Therefore The correct answer is 21.
Additional Information
Average of first N natural numbers
The sum of first N natural numbers is N(N + 1) ÷ 2, so the average is (N + 1) ÷ 2.
Average of first N even natural numbers
The sum of first N even natural numbers is N(N + 1), so the average is (N + 1).
Sum of squares of first N natural numbers
The formula for the sum of squares is [N(N + 1)(2N + 1)] ÷ 6.

Q17. Answer: (b) 100

Shortcut Trick
Adjacent angles on a straight line are supplementary (Linear Pair).
Sum of angles = 180°
angle AOC = 180° − angle AOD
angle AOC = 180° − 80° = 100°
Therefore The correct answer is 100°.
Alternate Method
Given:
Straight lines AB and CD intersect at point O.
Angle AOD = 80°.
Formula Used:
Linear Pair Axiom: If a ray stands on a line, then the sum of two adjacent angles so formed is 180°.
Calculations:
=> Since CD is a straight line and ray OA stands on it:
=> angle AOD + angle AOC = 180°
=> 80° + angle AOC = 180°
=> angle AOC = 180° − 80°
=> angle AOC = 100°
Therefore The correct answer is 100°.
Additional Information
Vertically Opposite Angles

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When two lines intersect, the angles opposite to each other are equal. Here, angle AOD = angle BOC = 80° and angle AOC = angle BOD = 100°.

Supplementary Angles

Two angles are called supplementary if their sum is exactly 180°.

Sum of Angles at a Point

The sum of all angles around a single point where lines intersect is always 360°.

Q18. Answer: (d) 19

Shortcut Trick

The odd numbers between 8 and 30 form an Arithmetic Progression (AP).

First odd number (a) = 9

Last odd number (l) = 29

Average of any AP = (First term + Last term) ÷ 2

Average = (9 + 29) ÷ 2 = 38 ÷ 2 = 19

Therefore The correct answer is 19.

Alternate Method

Given: Odd numbers between 8 and 30 are 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29.

Formula used: Average = Sum of all observations ÷ Total number of observations

=> Total numbers (n) = 11

=> Sum = 9 + 11 + 13 + 15 + 17 + 19 + 21 + 23 + 25 + 27 + 29

=> Sum = (First term + Last term) × (n ÷ 2)

=> Sum = (9 + 29) × (11 ÷ 2) = 38 × 5.5 = 209

=> Average = 209 ÷ 11 = 19

Therefore The correct answer is 19.

Additional Information

Average of First n Odd Numbers

The average of the first n odd natural numbers is always equal to n.

Sum of First n Odd Numbers

The sum of the first n odd natural numbers is given by the formula n^2.

Average of Consecutive Numbers

For any sequence in Arithmetic Progression, the average is the middle term if the number of terms is odd.

Q19. Answer: (c) 85

Shortcut Trick

In ΔFBD, Exterior angle AFE = angle ABC + angle CDE = 70° + 45° = 115°.

In ΔAFE, angle FAE = 180° − (angle AFE + angle AEF) = 180° − (115° + 50°) = 15°.

In ΔABC, Exterior angle ACD = angle ABC + angle BAC = 70° + 15° = 85°.

Therefore The correct answer is 85°.

Alternate Method

Given: angle ABC = 70°, angle AEF = 50°, angle CDE = 45°.

Formula Used:

Exterior Angle Theorem: The exterior angle of a triangle is equal to the sum of the two opposite interior angles.

Sum of interior angles of a triangle = 180°.

Calculations:

=> In ΔFBD, angle AFE is the exterior angle at vertex F.

=> angle AFE = angle FBD + angle FDB

=> angle AFE = 70° + 45° = 115°

=> Now, in ΔAFE, the sum of angles is 180°.

=> angle FAE + angle AFE + angle AEF = 180°

=> angle FAE + 115° + 50° = 180°

=> angle FAE = 180° − 165° = 15°

=> Since A, E, C are collinear, angle BAC = angle FAE = 15°.

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=> In ΔABC, angle ACD is the exterior angle at vertex C.

=> angle ACD = angle ABC + angle BAC

=> angle ACD = 70° + 15° = 85°

Therefore The correct answer is 85°.

Additional Information

Exterior Angle Theorem

An exterior angle of a triangle is formed by extending one of its sides. It is always equal to the sum of the two non-adjacent interior angles (angle ext = angle int1 + angle int2).

Angle Sum Property

For any triangle, the sum of all three interior angles is constant and equal to 180°.

Vertically Opposite Angles

When two lines intersect, the angles opposite each other are equal. In this problem, angle AEF and angle CED are not necessarily vertically opposite unless F-E-D and A-E-C are both straight lines intersecting at E.

Q20. Answer: (b) 100

Shortcut Trick

Extend the line segment PC to intersect the parallel line AB at point Q.

Applying the exterior angle theorem to triangle PAQ, the exterior angle at Q is the sum of opposite interior angles.

Exterior angle PQB = angle PAB + angle APC = 70° + 30° = 100°.

Since AB || CD, the corresponding angles angle DCP and angle PQB are equal.

Therefore The correct answer is 100°.

Alternate Method

Given: AB || CD, angle PAB = 70°, angle APC = 30°.

Construction: Extend PC to meet AB at point Q.

=> In triangle PAQ, angle PAQ = 70° and angle APQ = 30°.

=> angle PQA = 180° − (angle PAQ + angle APQ)

=> angle PQA = 180° − (70° + 30°) = 80°.

=> angle PQB = 180° − angle PQA = 180° − 80° = 100°.

=> Since AB || CD and PCQ is a transversal, angle DCP = angle PQB (Corresponding angles).

=> angle DCP = 100°.

Therefore The correct answer is 100°.

Additional Information

Parallel Lines and Transversals

When two parallel lines are cut by a transversal, corresponding angles are equal, and alternate interior angles are equal.

Exterior Angle Theorem

The exterior angle of a triangle is equal to the sum of the two opposite interior angles (angle Ext = angle Int1 + angle Int2).

Angle Sum Property

The sum of all interior angles in any triangle is always exactly 180°.

Q21. Answer: (d) RZ

The Logic followed here is:

For, QH : TL

For, BI : EM

Now for ? : UD

Therefore, the required letter cluster is RZ.

Hence, the correct answer is Option 4.

Q22. Answer: (a) DC

The logic followed here is:

So, 'DC' will replace the question mark in the given series.

Hence, the correct answer is "Option 1".

Q23. Answer: (a) AD

The logic followed here is:

So, 'AD' will replace the question mark in the given series.

Hence, the correct answer is "Option 1".

Q24. Answer: (b) (EV, XO, CL)

The Logic followed here is:

For, (HR, AK, ZP)

For, (LO, EH, VS)

Now, checking the options:

Option (2) → (EV, XO, CL)

So, the third cluster is CL.

Therefore, the cluster set (EV, XO, CL) follows the same logic.

Hence, the correct answer is Option 2.

Q25. Answer: (d) 5

The logic followed here is:

Given: May 31, 2016 was Sunday.

Month	Days
June	30
July	31
August	31
September	30

Total days = 30 + 31 + 31 + 30 = 122

Now, 122 ÷ 7 = 17 weeks and 3 odd days

So, September 30 = Sunday + 3 days = Wednesday

Date	Day
October 1	Thursday
October 2	Friday
October 3	Saturday
October 4	Sunday
October 5	Monday

Therefore, the first Monday of October 2016 was on 5th October.

Hence, the correct answer is "Option 4".

Q26. Answer: (b) 5

The logic followed here is:

Given: July 31, 2018 was Tuesday.

Month	Days
August	31
September	30
October	31
November	30

Total days = 31 + 30 + 31 + 30 = 122

Now, 122 ÷ 7 = 17 weeks and 3 odd days

So, November 30 = Tuesday + 3 days = Friday

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Therefore, December 1 = Saturday

Date	Day
December 1	Saturday
December 2	Sunday
December 3	Monday
December 4	Tuesday
December 5	Wednesday

Therefore, the first Wednesday of December 2018 was on 5th December.

Hence, the correct answer is "Option 2".

Q27. Answer: (b) 1981 and 1987

The logic followed here is:

Given: Two years have identical calendars when:

Both years are of the same type (both ordinary or both leap years).

Total odd days between them are a multiple of 7.

Year	Type	Odd Days
1981	Ordinary	1
1982	Ordinary	1
1983	Ordinary	1
1984	Leap	2
1985	Ordinary	1
1986	Ordinary	1

Total odd days = 1 + 1 + 1 + 2 + 1 + 1 = 7

7 is a multiple of 7.

Also, 1981 is an ordinary year and 1987 is an ordinary year.

Therefore, both years have identical calendars.

Hence, the correct answer is "Option 2".

Q28. Answer: (b) M

Given: Five boys R, S, M, N and P are sitting in a row facing north.

R is at one of the ends and is to the immediate left of S.

Only N is sitting between S and P

Now, the person sitting to the right of P is M.

Hence, the correct answer is Option 2.

Q29. Answer: (c) B and G

The logic followed here is:

Given: A, B, C, D, E, F and G are sitting around a circular table facing the centre.

F is second to the right of C.

A is third to the left of C.

G is third to the left of F.

D is not next to F.

B is not next to A.

So, the immediate neighbours of C are B and G.

Hence, the correct answer is Option 3.

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Q30. Answer: (d) [figure]

The logic followed here is:
Logic: The second figure is formed by taking the horizontal mirror image (left-to-right reflection) of the first figure.
The first pair:
The black flag-like shape on the left shifts to the right after reflection.
The white triangle near the center reverses its direction.
The outward line on the right shifts to the left side.
The second pair:
The outward line on the left shifts to the right side.
The black flag-like shape on the right shifts to the left after reflection.
The white triangle pointing right reverses to point left.
Hence, the correct answer is Option 4.

Q31. Answer: (c) [figure]

The logic followed here is:
Logic: The second figure is formed by taking the horizontal mirror image (left-to-right reflection) of the first figure.
For the first pair:
The diagonal line segments on the left side are reflected to the right side.
The single small horizontal line on the right shifts to the left side.
The central diamond structure remains structurally identical after reflection.
Similarly, for the second pair (applying the same horizontal mirror image logic to Figure 3):
The three small horizontal bars on the left side shift to the right side.
The single horizontal bar on the right shifts to the left side.
The complete structure reflects horizontally while preserving the overall arrangement.
Hence, the correct answer is Option 3.

Q32. Answer: (b) [figure]

The logic followed here is:
Logic: The second figure is formed by taking the horizontal mirror image (left-to-right reflection) of the first figure.
For the first pair:
The two horizontal bars attached to the left side shift to the right side.
The diagonal slant lines on the right shift to the left side with reversed orientation.
The small horizontal dash near the bottom left shifts to the bottom right.
Similarly, for the second pair (applying the same horizontal mirror image logic to Figure 3):
The three teeth-like horizontal steps on the right move to the left side.
The long horizontal line on the left shifts to the right side.
The small corner/cross elements also swap symmetrically from right to left.
Hence, the correct answer is Option 2.

Q33. Answer: (c) UJ10

The Logic followed here is:
For, PE12 : OC24
For, DK18 : CI36
Now for ? : TH20
Therefore, the required cluster is UJ10.
Hence, the correct answer is Option 3.

Q34. Answer: (b) JHN46

The Logic followed here is:
For, ZWX42 : BBD84
For, ALP61 : CQV122
Now for ? : LMT92
Therefore, the required cluster is JHN46.

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Hence, the correct answer is Option 2.

Q35. Answer: (d) 4044

Logic followed here is:
Logic: First Number − 42 = Second Number
For 9739 : 9697
9739 − 42 = 9697
For 5302 : 5260
5302 − 42 = 5260
Now, for 4086 : ?
4086 − 42 = 4044
Hence, the correct answer is Option 4.

Q36. Answer: (a) 434

Logic followed here is:
Logic: (First number − 6) ÷ 2 = Second number
For 974 : 484
974 → (974 − 6) ÷ 2
= 968 ÷ 2
= 484
For 1012 : 503
1012 → (1012 − 6) ÷ 2
= 1006 ÷ 2
= 503
Now, ? : 214
(X − 6) ÷ 2 = 214
X − 6 = 214 × 2
X − 6 = 428
X = 428 + 6
X = 434
Hence, the correct answer is Option 1.

Q37. Answer: (d) QISQJ

The logic followed here is:
Logic: Each letter of the word is shifted according to the fixed pattern: +1, +1, +4, -3, -5.
Here, FERAL → GFVXG
For, SMEAR → TNIXM
Now, applying the same pattern to PHOTO:
So, PHOTO → QISQJ
Hence, the correct answer is "Option 4".

Q38. Answer: (a) 53

The logic followed here is:
Logic: Code = Sum of the reverse positional values of the letters − 2
Given: SING →
S(8) + I(18) + N(13) + G(20) = 59
Code = 59 − 2 = 57
For, FAIR →
F(21) + A(26) + I(18) + R(9) = 74
Code = 74 − 2 = 72
Now, PARTY →
P(11) + A(26) + R(9) + T(7) + Y(2) = 55
Code = 55 − 2 = 53

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Hence, the correct answer is Option 1.

Q39. Answer: (a) KZ720

The logic followed here is:

Therefore, the wrong term in the series is KZ720.

Hence, the correct answer is Option 1.

Q40. Answer: (d) FNP362

The Logic followed here is:

Therefore, the wrong term in the series is FNP362.

Hence, the correct answer is Option 4.

Q41. Answer: (b) Chalukyas of Gujarat and Gahadavalas

The correct answer is Chalukyas of Gujarat and Gahadavalas.

Key Points

• The Chauhans, historically known as the Chahamanas, were a powerful Indian dynasty that ruled parts of the present-day states of Rajasthan, Haryana, and Delhi.

• During the 12th century, the Chahamanas attempted to expand their territorial control beyond their traditional base in Ajmer and Delhi.

• As they tried to expand towards the west, they encountered stiff opposition from the Chalukyas of Gujarat (also known as the Solankis). The conflict was primarily over the control of the border regions of Rajasthan and the fertile lands of Gujarat.

• When the Chauhans attempted to expand towards the east into the Ganges valley, they faced opposition from the Gahadavalas of western Uttar Pradesh. The Gahadavalas were based in Kannauj and were significant rivals for hegemony in North India.

• Prithviraj III, popularly known as Prithviraj Chauhan, was the most illustrious ruler of this dynasty. He reigned from 1168 to 1192 CE and was at the center of these multi-directional conflicts.

Additional Information

• Gahadavala Dynasty:

• They ruled the Antarvedi region in the Doab between the Ganges and Yamuna rivers.

• Their capital was Kannauj, and they held power during the 11th and 12th centuries.

• Jayachandra (or Jaichand) was the last great ruler of this dynasty, who famously had a legendary rivalry with Prithviraj Chauhan.

• Chalukyas of Gujarat (Solankis):

• They ruled from their capital at Anhilwara (modern-day Patan) between 942 CE and 1244 CE.

• They were great patrons of art and architecture, responsible for the Sun Temple at Modhera and the Rani ki Vav.

• Rulers like Bhimdev II were contemporary rivals to the expanding Chauhan power.

• Prithviraj Chauhan (Prithviraj III):

• He ascended the throne at a young age in 1177 CE.

• His exploits and his court poet Chand Bardai, who wrote the epic Prithviraj Raso, have immortalized his life in Indian folklore.

Important Points

• Conflict with the Ghurids: Beyond the internal Indian rivalries with the Chalukyas and Gahadavalas, the Chauhans are most famous for their resistance against the invasions of Sultan Muhammad Ghori.

• First Battle of Tarain (1191): Prithviraj III successfully defeated Muhammad Ghori in this encounter, showcasing the military might of the Chauhan cavalry.

• Second Battle of Tarain (1192): Just a year later, Ghori returned with a larger, reorganized force and defeated Prithviraj. This event is considered a major turning point in Indian history, as it paved the way for the establishment of the Delhi Sultanate.

• Territorial Reach: At its zenith, the Chauhan empire extended from the Himalayan foothills in the north to the Mount Abu region in the south.

Q42. Answer: (c) Indian Statistical Institute

The correct answer is Indian Statistical Institute.

Key Points

• Prasanta Chandra Mahalanobis, a legendary Indian statistician, founded the Indian Statistical Institute (ISI) on 17th December 1931.

• The institute was established in Kolkata (formerly Calcutta) and initially functioned from the Statistical Laboratory located in the Presidency College.

• The Indian Statistical Institute was recognized as an Institute of National Importance by the Indian Statistical Institute Act, 1959,

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passed by the Parliament of India.

• Mahalanobis is widely celebrated as the "Father of Indian Statistics" for his immense contribution to the development of the field in the country.

• The establishment of ISI was a pivotal moment for scientific research in India, as it integrated statistics with various natural and social sciences. Hence, the correct option is Indian Statistical Institute.

Additional Information

• Mahalanobis Distance: One of his most significant scientific contributions is the Mahalanobis Distance, introduced in 1936, which is a statistical measure used to find the distance between a point and a distribution.

• National Statistics Day: In recognition of his contributions to economic planning and statistical development, the Government of India celebrates his birth anniversary, June 29, as National Statistics Day every year.

• Second Five-Year Plan: Mahalanobis was a key member of the Planning Commission and formulated the Mahalanobis Model for the Second Five-Year Plan (1956-1961), which emphasized rapid industrialization and the growth of heavy industries.

• National Sample Survey (NSS): He was instrumental in establishing the National Sample Survey in 1950 and the Central Statistical Organisation (CSO) to provide a comprehensive database for the Indian economy.

• Honours: For his distinguished service, he was awarded the Padma Vibhushan in 1968 and was a fellow of several international organizations, including the Royal Society of London.

Important Points

• Reserve Bank of India (RBI): It is India's central bank established on April 1, 1935, following the Reserve Bank of India Act, 1934. It was not founded by Mahalanobis but was established based on the Hilton Young Commission recommendations.

• State Bank of India (SBI): It was created on July 1, 1955, after the nationalization of the Imperial Bank of India. It is the largest public sector bank in the country.

• National Sample Survey Office (NSSO): While Mahalanobis founded the NSS in 1950, the NSSO was a government organization under MoSPI. In 2019, the NSSO was merged with the Central Statistics Office (CSO) to form the National Statistical Office (NSO).

• Sankhya: Mahalanobis also started Sankhya: The Indian Journal of Statistics in 1933, which remains a prestigious publication in the field of statistics worldwide.

Q43. Answer: (a) Qutbuddin Aybak, Shamsuddin Iltutmish, Ghiyasuddin Balban

The correct answer is Qutbuddin Aybak, Shamsuddin Iltutmish, Ghiyasuddin Balban.

Key Points

• The Delhi Sultanate was ruled by five successive dynasties, the first of which was the Mamluk Dynasty (also known as the Slave Dynasty), established by Turkish rulers.

• Qutbuddin Aybak was the first ruler of the Mamluk Dynasty, reigning from 1206 to 1210 AD. He was a former slave of Muhammad Ghori and laid the foundation of the Delhi Sultanate after Ghori's death.

• Shamsuddin Iltutmish succeeded to the throne after a brief interval following Aybak's death, ruling from 1211 to 1236 AD. He is often regarded as the real consolidator of the Turkish rule in India and shifted the capital from Lahore to Delhi.

• Ghiyasuddin Balban was another prominent Turkish ruler who ascended the throne much later, reigning from 1266 to 1287 AD. He served as the Naib (regent) to Sultan Nasiruddin Mahmud before becoming the Sultan himself.

• The correct chronological order starts with the founder Qutbuddin Aybak (1206), followed by the consolidator Shamsuddin Iltutmish (1211), and finally the powerful administrator Ghiyasuddin Balban (1266). Hence, the sequence in option 1 is correct.

Additional Information

• Qutbuddin Aybak (Reign: 1206–1210):

• Known as Lakh Baksh (giver of lakhs) for his generosity.

• He started the construction of the Qutub Minar in Delhi, dedicated to the Sufi saint Qutbuddin Bakhtiyar Kaki.

• He died in 1210 while playing Chaugan (an early form of polo) in Lahore.

• Shamsuddin Iltutmish (Reign: 1211–1236):

• He introduced the Iqta system of land distribution and civil administration.

• He issued the first standard Arabic coinage of the Sultanate: the Silver Tanka and the Copper Jital.

• He organized a group of forty powerful Turkish nobles known as Turkan-i-Chahalgani (The Forty).

• Ghiyasuddin Balban (Reign: 1266–1287):

• He adopted the policy of Blood and Iron to suppress internal revolts and external Mongol threats.

• He introduced the Persian customs of Sijdah (prostration) and Paibos (kissing the Sultan's feet) in his court.

• He broke the power of the Chahalgani nobles to centralize authority and established a centralized spy system.

Important Points

• The term Mamluk refers to an Arabic word for "owned," signifying that these rulers were originally military slaves who rose to

sovereign status.

• Between Iltutmish and Balban, other notable rulers included Razia Sultan (the first female Muslim ruler of India, 1236–1240) and Nasiruddin Mahmud (1246–1266).

• The Slave Dynasty came to an end in 1290 AD when Jalaluddin Khalji overthrew the last Mamluk ruler, Kayumars, to establish the Khalji Dynasty.

• The primary sources for this period include Tabaqat-i-Nasiri by Minhaj-us-Siraj and later accounts by Ziauddin Barani.

Q44. Answer: (d) Eleventh

The correct answer is Eleventh.

Key Points

• The Eleventh Five-Year Plan of India spanned the period from 2007 to 2012.

• The central theme and objective of this plan was "Towards Faster and More Inclusive Growth". This was a significant shift in planning strategy, moving from mere economic expansion to ensuring that the benefits of growth reached all sections of society.

• It was prepared under the chairmanship of Dr. Manmohan Singh, who was the Prime Minister at that time, and the core document was drafted by the Planning Commission.

• The plan aimed to increase the GDP growth rate to 9% and specifically targeted a 4% growth rate in the agricultural sector to sustain rural livelihoods.

• Key goals included the creation of 70 million new work opportunities, reduction of infant mortality rate (IMR) to 28 per 1000 live births, and ensuring clean drinking water for all by 2009.

• It placed heavy emphasis on the social sector, particularly education and health, often being referred to as the "Education Plan" due to the high allocation of funds toward Sarva Shiksha Abhiyan and higher education.

• Hence, the correct answer is Eleventh.

Additional Information

• First Five-Year Plan (1951–1956):

• This plan was based on the Harrod-Domar model with a primary focus on the agricultural sector, including investments in dams and irrigation.

• The Bhakra Nangal Dam and Hirakud Dam projects were initiated during this period to address the food shortage after Independence and Partition.

• Fifth Five-Year Plan (1974–1978):

• The top priority of this plan was Garibi Hatao (poverty removal) and the attainment of self-reliance.

• The draft of this plan was prepared and launched by D.P. Dhar. However, it was terminated one year early in 1978 by the newly elected Janata Party government, which introduced the Rolling Plan.

• Seventh Five-Year Plan (1985–1990):

• This plan focused on the theme of "Food, Work, and Productivity" under the leadership of Rajiv Gandhi.

• It emphasized the growth of food grain production, increasing employment opportunities, and raising productivity through the integration of technology and social justice.

• Twelfth Five-Year Plan (2012–2017):

• The Twelfth Plan was the final Five-Year Plan of India before the Planning Commission was replaced by NITI Aayog.

• Its theme was "Faster, More Inclusive and Sustainable Growth", adding the crucial component of environmental sustainability to the previous plan's objective.

Important Points

• Evolution of Planning: Economic planning in India started in 1950 with the setting up of the Planning Commission. The National Development Council (NDC) was responsible for the final approval of these plans.

• Major Shift: In January 2015, the NDA government dissolved the Planning Commission and established NITI Aayog (National Institution for Transforming India) to serve as a think-tank for the government, promoting cooperative federalism.

• Key Terms: Inclusive growth refers to a growth process that yields broad-based benefits and ensures equality of opportunity for all, specifically focusing on the marginalized sections like SC, ST, OBCs, and Minorities.

Q45. Answer: (a) Palk strait

The correct answer is Palk strait.

Key Points

• The Palk Strait is a narrow inlet of the Indian Ocean located between the southeastern coast of India and the northern coast of Sri Lanka.

• It connects the Bay of Bengal in the northeast with the Palk Bay in the southwest, which further connects to the Gulf of Mannar.

• The strait is named after Robert Palk, who served as the Governor of Madras Presidency during the British Raj period between

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1755 and 1763.

• It is characterized by a chain of low islands and reef shoals known as Adam's Bridge (also popularly called Ram Setu), which stretches across the strait from Dhanushkodi on Pamban Island in Tamil Nadu to Mannar Island in Sri Lanka.

• The width of the Palk Strait ranges from approximately 64 to 137 kilometers, and it is relatively shallow, making it difficult for large ships to pass through without specific channels.

Additional Information

• Malacca Strait:

• It is a narrow stretch of water located between the Malay Peninsula and the Indonesian island of Sumatra.

• It serves as the main shipping channel between the Indian Ocean and the Pacific Ocean, connecting major economies like India, China, Japan, and South Korea.

• It is one of the busiest and most strategically important maritime chokepoints in the world for global trade.

• Hormuz Strait:

• Located between the Persian Gulf and the Gulf of Oman, it separates Iran from the Arabian Peninsula (specifically Oman and the UAE).

• It is the world's most important oil transit chokepoint, as a significant portion of the world's petroleum consumption passes through this narrow waterway daily.

• Cook Strait:

• This strait separates the North Island and South Island of New Zealand.

• It connects the Tasman Sea on the northwest with the South Pacific Ocean on the southeast.

• It is named after James Cook, the first European commander to sail through it in 1770, and it is known for its strong tidal currents and unpredictable weather.

Important Points

• The Sethusamudram Shipping Canal Project is a proposed project by the Government of India to create a shipping route in the shallow waters of the Palk Strait to reduce travel time for ships.

• Several rivers of Tamil Nadu, including the Vaigai River, drain into the Palk Strait.

• The region is rich in biodiversity, particularly the nearby Gulf of Mannar Marine National Park, which is a designated Biosphere Reserve containing numerous species of coral reefs, dugongs, and sea turtles.

Q46. Answer: (c) 3.28

The correct answer is 3.28.

Key Points

• The land mass of India has an area of approximately 3.28 million square km, which is officially recorded as 3,287,263 square kilometres.

• India's total area accounts for about 2.4 percent of the total geographical area of the world.

• In terms of land area, India is the seventh largest country in the world, preceded by Russia, Canada, USA, China, Brazil, and Australia.

• The north-south extent of the country from Kashmir to Kanniyakumari is about 3,214 km.

• The east-west width from Arunachal Pradesh to Gujarat (specifically Kuchchh) is approximately 2,933 km.

Additional Information

• Geographical Boundaries:

• India has a land boundary of about 15,200 km.

• The total length of the coastline of the mainland, including the Andaman and Nicobar Islands and Lakshadweep, is 7,516.6 km.

• India is bounded by the young fold mountains (the Himalayas) in the northwest, north, and northeast.

• International Borders:

• India shares its land borders with seven countries: Pakistan and Afghanistan in the northwest; China, Nepal, and Bhutan in the north; and Myanmar and Bangladesh in the east.

• The longest border is shared with Bangladesh, measuring approximately 4,096.7 km.

• Location and Coordinates:

• The mainland of India extends between latitudes 8°4'N and 37°6'N and longitudes 68°7'E and 97°25'E.

• The Tropic of Cancer (23°30'N) passes through eight Indian states: Gujarat, Rajasthan, Madhya Pradesh, Chhattisgarh, Jharkhand, West Bengal, Tripura, and Mizoram.

Important Points

• Standard Time: The Standard Meridian of India is 82°30'E, passing through Mirzapur in Uttar Pradesh. The time along this meridian is taken as the Standard Time (IST) for the whole country.

• Southernmost Point: While the southernmost point of the mainland is Kanniyakumari, the southernmost point of the Indian Union was Indira Point (located in the Great Nicobar Island), which got submerged under the sea water in 2004 during the Tsunami.

• Administrative Structure: For administrative purposes, the country is divided into 28 States and 8 Union Territories as of the latest reorganization following the Jammu and Kashmir Reorganisation Act, 2019.

• Strategic Position: The Indian landmass has a central location between East and West Asia, and the trans-Indian Ocean routes connect the countries of Europe in the West and the countries of East Asia.

Q47. Answer: (a) 23

The correct answer is 23.

Key Points

• The Iron Pillar of Delhi stands at a total height of 7.21 meters, which is approximately 23 feet, with a portion of about 1.12 meters currently below the ground level.

• Located at the Qutub Complex in Mehrauli, Delhi, this historical monument is globally renowned for its exceptional rust-resistant properties, surviving over 1,600 years without significant corrosion.

• It was erected during the reign of Chandragupta II (reigned c. 375–415 CE) of the Gupta Dynasty, a period often referred to as the Golden Age of India.

• The pillar weighs more than 6,000 kilograms (6 tonnes) and was manufactured using forge-welding techniques, indicating the sophisticated metallurgical skills of ancient Indian blacksmiths.

• An inscription in the Brahmi script and Sanskrit language on the pillar mentions a king named Chandra, who is identified by most historians as Chandragupta Vikramaditya.

Additional Information

• Metallurgical Composition:

• Scientific analysis shows that the pillar contains a high amount of phosphorus (0.11%) and lacks sulfur and magnesium.

• The corrosion resistance is attributed to the formation of a protective layer called misawite (crystalline iron oxyhydroxide) on the surface, which is catalyzed by the high phosphorus content and the specific atmospheric conditions of Delhi.

• Historical Significance:

• The pillar was originally a Vishnudhvaja (Standard of Lord Vishnu) and was likely situated at Udayagiri or Vishnupadagiri before being moved to its current location in Delhi by Anangpal Tomar in the 11th century.

• It serves as primary evidence of the progress in science and technology during the Gupta Era, complementing other advancements like the decimal system and astronomy.

Q48. Answer: (b) Article 250

The correct answer is Article 250.

Key Points

• Article 250 of the Indian Constitution confers power upon the Parliament to make laws for the entire territory of India or any part of it regarding any matter listed in the State List (List II) during a Proclamation of Emergency.

• This provision is activated when a National Emergency is declared by the President under Article 352 on grounds of war, external aggression, or armed rebellion.

• Laws enacted by the Parliament under Article 250 remain valid only while the proclamation is in force and for a period of six months after the emergency has ceased to operate.

• The primary objective of this article is to maintain national integrity and ensure legislative coordination during times of crisis, temporarily shifting the federal balance toward a unitary structure.

• Even while Article 250 is in operation, the State Legislature is not prohibited from making laws on the same subject, but in case of a conflict, the Parliamentary law prevails as per Article 251.

Additional Information

• Article 282:

• Relates to discretionary grants that can be made by the Union or a State for any public purpose, regardless of whether it falls within their respective legislative domains.

• Article 263:

• Deals with the establishment of an Inter-State Council by the President to facilitate coordination, inquiry, and advice on disputes between States or the Union.

• Article 173:

• Specifies the qualifications for membership in a State Legislature, including citizenship of India and minimum age limits (25 years for the Legislative Assembly and 30 years for the Legislative Council).

Q49. Answer: (b) Karnataka

The correct answer is Karnataka.

Key Points

• Gaarudi Gombe is a unique and vibrant folk dance native to the state of Karnataka, specifically popular in the Old Mysore region.

• The name literally translates to Magical Doll in the Kannada language, referring to the giant puppets used in the performance.

• The puppets are constructed using a bamboo wicker frame, standing approximately 10 to 12 feet tall and weighing between 30 to 40 kilograms.

• Performers carry these massive structures on their shoulders, balancing them while executing rhythmic dance steps to the beats of the Tamate (drum).

• The face of the doll is typically crafted from papier-mache and painted to represent various mythological characters, folk heroes, or deities.

• This art form is a major attraction during the Mysuru Dasara procession and is frequently performed during Ugadhi and village fairs.

Additional Information

• West Bengal:

• Known for Chhau, a masked tribal dance that depicts episodes from epics like the Ramayana and Mahabharata.

• Gambhira and Brita are other significant traditional dances of this region.

• Tripura:

• Home to Hojagiri, a dance of the Reang clan where women balance pitchers and lamps while performing intricate footwork.

• Other folk forms include Garia and Lebang Boomani.

• Jammu and Kashmir:

• Rouf is a famous folk dance performed by women during Eid and spring seasons.

• Bhand Pather is a traditional folk theatre involving dance and satire.

• Karnataka (Other Arts):

• Dollu Kunitha: A high-energy drum dance associated with the Kuruba community.

• Yakshagana: A classical theater form combining dance, music, and elaborate costumes.

Q50. Answer: (b) 3

The correct answer is 3.

Key Points

• Meristematic tissues are a group of young cells that consist of actively dividing cells and are responsible for the growth and development of the plant.

• Based on their location or position in the plant body, these tissues are classified into three distinct types: Apical Meristem, Intercalary Meristem, and Lateral Meristem.

• Apical Meristem: It is located at the growing tips of stems and roots (the apices). Its primary function is to increase the vertical length of the plant, known as primary growth.

• Intercalary Meristem: These are located at the base of leaves or internodes (e.g., in grasses). They facilitate the lengthening of the internode and help in the regrowth of parts removed by grazing animals.

• Lateral Meristem: Situated on the lateral sides of the plant body, parallel to the longitudinal axis. It is responsible for secondary growth, which increases the girth or thickness of the stem and root. Examples include Vascular Cambium and Cork Cambium.

Additional Information

• Characteristics of Meristematic Cells:

• The cells are immature, small, and generally isodiametric (spherical, oval, or polygonal) in shape.

• They possess thin cell walls made primarily of cellulose and lack intercellular spaces.

• Each cell contains a dense cytoplasm, a large and prominent nucleus, and typically lacks vacuoles due to high metabolic activity.

• These tissues remain in a state of continuous division until they differentiate into permanent tissues.

• Other Classifications:

• Based on Origin: Meristems can also be grouped into Promeristem, Primary Meristem, and Secondary Meristem depending on their developmental stage in the plant life cycle.

Q51. Answer: (a) Goa

The correct answer is Goa.

Key Points

• The Three Kings Feast, popularly known as Festa dos Reis or the Feast of Epiphany, is a significant religious and cultural

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festival celebrated in the Indian state of Goa.

• It is observed annually on January 6th, marking the conclusion of the Christmas season and the manifestation of Jesus Christ to the Gentiles.

• The festival commemorates the biblical journey of the Three Wise Men (the Magi) named Melchior, Caspar, and Balthazar, who followed the Star of Bethlehem to provide gifts to the infant Jesus.

• The most prominent celebrations take place at the Chapel of Our Lady of the Mount in Cuelim (Cansaulim), the Church of Reis Magos, and in Chandor.

• A unique tradition involves selecting three young boys from the local community to represent the Three Kings. These boys are dressed in royal attire and ride on horseback to the hilltop chapel to offer symbols of gold, frankincense, and myrrh.

• The event is characterized by a blend of religious solemnity and local festivities, including a large traditional fair featuring local crafts and cuisine.

Additional Information

• Festivals of Other States:

• Nagaland: Primarily famous for the Hornbill Festival, held in the first week of December, which showcases the diverse heritage of the Naga tribes.

• Ladakh: Known for the Hemis Festival, celebrated at the Hemis Monastery to honor the birth anniversary of Guru Padmasambhava, featuring the iconic Cham dance.

• Assam: Famous for Bihu festivals (Rongali, Kongali, and Bhogali), which are intrinsically linked to the agricultural cycle and the Assamese New Year.

• Goa's Indo-Portuguese Heritage:

• The state's cultural fabric is deeply influenced by over 450 years of Portuguese rule, resulting in unique traditions like the Goa Carnival and the Feast of St. Francis Xavier at the Basilica of Bom Jesus.

Q52. Answer: (b) Kerala

The correct answer is Kerala.

Key Points

• According to the Census 2011, the sex ratio in India is defined as the number of females per 1000 males.

• Kerala holds the distinction of having the highest sex ratio among all Indian states, with a figure of 1084 females per 1000 males.

• The state is well-known for its high literacy rate and advanced socio-economic indicators, which contribute to a more balanced gender distribution compared to the national average.

• The national sex ratio of India, as per the 2011 Census, stood at 943, showing an improvement from 933 recorded in the 2001 Census.

Additional Information

• Tamil Nadu:

• Following Kerala, Tamil Nadu recorded one of the higher sex ratios among Indian states at 996 females per 1000 males.

• Puducherry:

• Among the Union Territories, Puducherry has the highest sex ratio at 1037. However, as it is a UT, Kerala remains the highest among the categorized 'states'.

• Haryana:

• In contrast to Kerala, Haryana recorded the lowest sex ratio among all Indian states, with only 879 females per 1000 males.

• Child Sex Ratio:

• The Child Sex Ratio (0−6 years) in India according to the 2011 Census was 919, which was a cause for concern as it declined from 927 in 2001.

Q53. Answer: (c) Newton's third law of motion

The correct answer is Newton's third law of motion.

Key Points

• Newton's Third Law of Motion states that for every action, there is always an equal and opposite reaction. These two forces act on different bodies and never cancel each other out.

• When a bullet is fired from a gun, the gun exerts a forward force on the bullet to accelerate it. This is the action force.

• According to the law, the bullet simultaneously exerts an equal amount of force on the gun in the backward direction. This is the reaction force.

• The backward motion of the gun resulting from this reaction force is specifically known as the recoil of the gun.

• This interaction also illustrates the Law of Conservation of Linear Momentum. Since the initial total momentum of the system (gun + bullet) is zero, the final total momentum must also be zero, meaning the forward momentum of the bullet is balanced by the

backward momentum of the gun.

• The recoil velocity of the gun is significantly lower than the velocity of the bullet because the mass of the gun is much larger than the mass of the bullet, keeping the product of mass and velocity (momentum) equal for both.

Additional Information

• Newton's First Law of Motion:

• Often called the Law of Inertia, it states that an object will remain in its state of rest or uniform motion in a straight line unless compelled to change that state by an external applied force.

• Newton's Second Law of Motion:

• This law provides a quantitative definition of force, stating that the rate of change of momentum of an object is directly proportional to the net force applied. It is mathematically expressed as F = ma (Force equals mass times acceleration).

• Newton's Law of Gravitation:

• A universal law stating that every point mass attracts every other point mass by a force acting along the line intersecting both points. The force is proportional to the product of the masses and inversely proportional to the square of the distance between them.

Q54. Answer: (a) Moon

The correct answer is Moon.

Key Points

• The name Shiv Shakti Point refers to the specific landing site of the Chandrayaan-3 mission's lander, Vikram, on the lunar surface.

• Prime Minister Narendra Modi officially announced the name on August 26, 2023, during his visit to the ISRO Telemetry Tracking and Command Network (ISTRAC) in Bengaluru.

• The landing occurred on August 23, 2023, making India the first country to successfully achieve a soft landing near the lunar south pole.

• The term Shiv represents the welfare of humanity, while Shakti represents the capability and strength of women scientists who contributed significantly to the mission.

• The site is located at approximately 69.37°S latitude and 32.35°E longitude on the Moon, situated between the Manzinus C and Simpelius N craters.

Additional Information

• Chandrayaan-3 Mission:

• Launched on July 14, 2023, by the LVM3-M4 rocket from Sriharikota, the mission aimed to demonstrate a safe landing and rover wandering capabilities on the lunar surface.

• The mission consisted of a Propulsion Module, the Vikram Lander, and the Pragyan Rover.

• Tiranga Point:

• This is the name designated for the site where the Chandrayaan-2 lander crashed on the Moon in 2019.

• It serves as a reminder that no failure is permanent and symbolizes India's resilience in space exploration.

• Jawahar Point:

• Named after India's first Prime Minister, this is the location where the Moon Impact Probe (MIP) of the Chandrayaan-1 mission struck the lunar surface on November 14, 2008.

• National Space Day:

• In recognition of the Chandrayaan-3 success, the Government of India declared August 23 as National Space Day to celebrate the country's achievements in space science and technology.

Important Points

• International Recognition: The International Astronomical Union (IAU) working group for Planetary System Nomenclature approved the name Station Shiv Shakti on March 19, 2024.

• Scientific Importance: The lunar south pole is of great interest to the global scientific community because of the presence of water ice in permanently shadowed craters, which could support future human missions.

• ISRO's Achievement: With this mission, India became the fourth country in the world to achieve a soft landing on the Moon, joining the United States, the Soviet Union, and China.

• Rover Findings: The Pragyan Rover confirmed the presence of Sulfur (S) on the lunar surface near the south pole and detected other elements like Aluminum, Calcium, Iron, and Titanium.

Q55. Answer: (c) Teachers

The correct answer is Teachers.

Key Points

• The Census of India 2011 classifies the working population into certain broad occupational categories to understand the economic structure of the country.

• According to the 2011 Census, there are four major occupational categories: Cultivators, Agricultural Labourers, Household Industrial Workers, and Other Workers.

• Teachers do not form a separate major occupational category; instead, they are classified under the broader category of 'Other Workers'.

• This classification system helps the Government of India in tracking the shifts in the workforce from the primary sector (agriculture) to secondary and tertiary sectors.

• The Registrar General and Census Commissioner of India is responsible for conducting the census and determining these classifications every 10 years.

Additional Information

• Cultivators:

• A person is considered a cultivator if he or she is engaged in the cultivation of land owned or held from the Government or private persons/institutions for payment in money, kind, or share.

• Cultivation includes effective supervision or direction in farming but excludes those working on land for wages.

• Agricultural Labourers:

• A person who works on another person's land for wages in money, kind, or share is regarded as an agricultural labourer.

• They do not have any right of lease or contract on the land on which they work and do not bear any risk in the cultivation process.

• Household Industrial Workers:

• Household Industry is defined as an industry conducted by one or more members of the household at home or within the village in rural areas.

• This category typically involves manufacturing, processing, servicing, or repairing of goods and is not run on the scale of a registered factory.

• Other Workers:

• This category includes all workers who do not fall into the three categories mentioned above.

• It encompasses Government servants, Municipal employees, factory workers, Teachers, businessmen, trade and commerce workers, and professionals.

Important Points

• The 2011 Census was the 15th National Census of India since 1872 and the 7th after Independence.

• The Work Participation Rate (WPR) in India was recorded at 39.8% during the 2011 survey.

• Workers are also divided by the duration of their work: Main Workers are those who worked for 6 months (183 days) or more in a year, while Marginal Workers worked for less than 6 months.

• As per the 2011 data, 54.6% of the total workers were engaged in agricultural activities (Cultivators and Agricultural Labourers), showing the continued dominance of the agrarian sector.

Q56. Answer: (b) NASA

The correct answer is NASA.

Key Points

• The Hubble Space Telescope (HST), which captured the stunning image of a "bullseye galaxy" featuring intricate rings of dust, is a project of international cooperation between NASA (National Aeronautics and Space Administration) and ESA (European Space Agency).

• The "bullseye" appearance specifically refers to galaxies like NGC 4753, where Hubble's high-resolution imaging revealed concentric dust rings wrapping around the galactic core, likely formed by a past galactic merger event.

• Launched on April 24, 1990, aboard the Space Shuttle Discovery, Hubble has been operational for over three decades, providing unprecedented views of the universe from its position in Low Earth Orbit.

• The telescope is managed by NASA's Goddard Space Flight Center in Greenbelt, Maryland, while the Space Telescope Science Institute (STScI) conducts the science operations.

• Hubble's ability to observe in ultraviolet, visible, and near-infrared light allows it to capture details such as the nine rings of dust or gas that are often invisible to ground-based telescopes due to atmospheric distortion.

Additional Information

• NASA (National Aeronautics and Space Administration):

• Established in 1958, it is the United States government agency responsible for the civilian space program and aeronautics research.

• Apart from Hubble, NASA operates the James Webb Space Telescope (JWST) and the Chandra X-ray Observatory.

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• ISRO (Indian Space Research Organisation):

• Headquartered in Bengaluru, it is India's national space agency.

• In 2015, ISRO launched AstroSat, which is India's first dedicated multi-wavelength space observatory, though it is smaller in scale than Hubble.

• JAXA (Japan Aerospace Exploration Agency):

• Formed in 2003, it is Japan's national aerospace agency.

• JAXA is known for pioneering missions like Hayabusa2, which returned samples from the asteroid Ryugu.

• CNES (Centre National d'Études Spatiales):

• The French government space agency, founded in 1961.

• It plays a key role in the European Space Agency (ESA) and often collaborates with NASA on Earth observation and Mars exploration missions.

Important Points

• Cosmic Bullseyes: These are often ring galaxies or lenticular galaxies (like NGC 4753 or Hoag's Object) where gravitational interactions or mergers create distinct circular patterns.

• Hubble's Legacy: It helped determine the age of the universe (approx. 13.8 billion years) and confirmed the existence of supermassive black holes at the centers of galaxies.

• Maintenance: Unlike many other telescopes, Hubble was designed to be serviced in space by astronauts, with five servicing missions conducted between 1993 and 2009 to upgrade its cameras and sensors.

Q57. Answer: (a) Maharashtra

The correct answer is Maharashtra.

Key Points

• The distribution of minerals in Maharashtra is highly uneven, with the majority of deposits concentrated in the Vidarbha region in the east and the Konkan region in the west.

• While the Deccan Trap (basaltic lava) covers nearly 80% to 85% of the state's total area, these rocks are generally devoid of major mineral deposits, except for building stones and some bauxite.

• The Vidarbha area, particularly districts like Nagpur, Bhandara, Chandrapur, Gadchiroli, and Yavatmal, is the powerhouse of the state's mineral wealth, containing significant reserves of Coal, Manganese, and Iron Ore.

• The Konkan area and parts of South Maharashtra (like Kolhapur, Ratnagiri, and Sindhudurg) are rich in Bauxite and Iron Ore due to the presence of Laterite soil and specific geological formations.

• Approximately 12.33% of the total geographical area of Maharashtra is considered "mineral-bearing," providing essential raw materials for industries like Steel, Cement, and Aluminium.

Additional Information

• Coal Resources:

• Coal is the most important mineral found in the Vidarbha region. It is found in the Gondwana rock systems along the Wardha and Wainganga river basins.

• Major coal-producing areas include Chandrapur, Ballarpur, Warora, Umred, and Kamptee. These reserves feed several Thermal Power Plants in the state.

• Manganese and Iron Ore:

• Maharashtra is one of the leading producers of Manganese in India. High-grade deposits are found in the Nagpur and Bhandara districts.

• Iron Ore is found in the Surajgarh and Deulgaon areas of Gadchiroli (eastern belt) and in the Redi area of Sindhudurg district (western belt). The Redi port is crucial for the export of iron ore to countries like Japan and China.

• Bauxite and Limestone:

• Bauxite, the primary ore for Aluminium, is found in the laterite caps of the Sahyadri ranges. Key locations include Kolhapur (Radhanagari, Shahuwadi), Ratnagiri, and Raigad.

• Limestone is vital for the Cement industry. Massive deposits are found in Yavatmal and Chandrapur districts, making this region a hub for cement manufacturing units.

Important Points

• Directorate of Geology and Mining (DGM): This department, headquartered in Nagpur, was established in 1948. It is responsible for the systematic exploration, assessment, and administration of mineral resources in Maharashtra.

• Economic Impact: The mining sector contributes significantly to the state's Gross State Domestic Product (GSDP). Districts like Chandrapur are often referred to as the "Black Gold City" due to the abundance of coal.

• Other Minerals: Besides the major ones, the state also possesses deposits of Chromite (Bhandara, Sindhudurg), Kyanite and Sillimanite (Bhandara), and Dolomite (Yavatmal, Nagpur).

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• Crude Oil: While not part of the Vidarbha or Konkan terrestrial belts, the Mumbai High (offshore Konkan coast) is India's largest Oil and Natural Gas field, operated by ONGC.

Q58. Answer: (a) Philippines

The correct answer is Philippines.

Key Points

• The Asian Development Bank (ADB) is a regional development bank headquartered in Mandaluyong City, which is part of the Metro Manila region in the Philippines.

• It was established on 19 December 1966 with the primary mission of fostering economic growth and cooperation in the Asia-Pacific region.

• At its inception, the ADB had 31 members; however, it has grown significantly over the decades and currently comprises 68 members.

• Out of the total members, 49 are from within the Asia and the Pacific region, while 19 members are from other parts of the world.

• The institution is committed to achieving a prosperous, inclusive, resilient, and sustainable Asia and the Pacific, while sustaining its efforts to eradicate extreme poverty. Hence, the correct answer is Philippines.

Additional Information

• Shareholding and Voting:

• The ADB is modeled closely on the World Bank and has a similar weighted voting system where votes are distributed in proportion with members' capital subscriptions.

• As of 31 December 2022, Japan and the United States hold the largest proportion of shares at 15.57% each.

• The People's Republic of China (6.43%), India (6.32%), and Australia (5.77%) are the other major shareholders.

• Leadership:

• The President is the chairperson of the Board of Directors and manages the ADB.

• Traditionally, and since the bank's establishment in 1966, the President has always been Japanese.

• The current President is Masatsugu Asakawa, who was elected in January 2020.

• Headquarters of other Financial Institutions:

• USA: The headquarters of the World Bank and the International Monetary Fund (IMF) are located in Washington, D.C..

• China: The Asian Infrastructure Investment Bank (AIIB) is headquartered in Beijing, while the New Development Bank (NDB) is based in Shanghai.

• India: While not the headquarters for ADB, India is one of the largest borrowers and host to various regional offices for international financial institutions.

Important Points

• Strategy 2030: This is the ADB's long-term corporate strategy which sets out the institution's efforts to respond effectively to the region's changing needs, focusing on poverty reduction, gender equality, and climate change.

• Asian Development Outlook (ADO): The ADB publishes this flagship economic report annually, providing comprehensive analysis of economic performance and forecasts for the nations in Asia.

• Financial Assistance: The bank provides assistance through sovereign loans, equity investments, grants, and technical assistance to both government and private sector entities in developing member countries.

• Resident Missions: To ensure effective implementation of projects, the ADB maintains 31 field offices or resident missions across the globe to stay connected with local administrative and socio-economic realities.

Q59. Answer: (a) 2006

The correct answer is 2006.

Key Points

• The National Statistical Commission (NSC) of India was formally constituted on 12th July 2006.

• The establishment of this body was based on the recommendations of the Rangarajan Commission, headed by Dr. C. Rangarajan, which submitted its report in 2001 to address the gaps in the Indian statistical system.

• The government issued a notification for the setting up of the commission on 1st June 2005, leading to its actual constitution in the subsequent year.

• The NSC was designed to serve as an autonomous body responsible for evolving policies, priorities, and standards in statistical matters to ensure the credibility of official data.

• The first Chairman of the National Statistical Commission was the renowned economist Professor Suresh Tendulkar.

• Hence, the correct answer is 2006.

Additional Information

• Organizational Structure:

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• The commission consists of a part-time Chairperson, four part-time Members, and an ex-officio member.

• The CEO of NITI Aayog (formerly the Planning Commission) serves as the ex-officio member.

• The Chief Statistician of India (CSI), who is also the Secretary to the Ministry of Statistics and Programme Implementation (MoSPI), acts as the Secretary to the Commission.

• Mandate and Functions:

• The primary function of the NSC is to reduce the burden on data providers and improve the efficiency of the statistical system.

• It helps in standardizing statistical concepts, definitions, and methodologies used by various central and state government agencies.

• It exercises oversight over the National Sample Survey Office (NSSO) and the Central Statistics Office (CSO).

• MoSPI:

• The Ministry of Statistics and Programme Implementation is the nodal agency for the planned development of the statistical system in the country.

• It ensures the timely release of key economic indicators like GDP, CPI, and IIP.

Important Points

• National Statistics Day:

• In India, June 29th is celebrated as National Statistics Day every year.

• This day marks the birth anniversary of Professor Prasanta Chandra Mahalanobis, often referred to as the father of modern statistics in India, in recognition of his invaluable contribution in establishing the National Statistical System.

• Merger of CSO and NSSO:

• In May 2019, the Government of India approved the merger of the Central Statistics Office (CSO) and the National Sample Survey Office (NSSO) to create a unified National Statistical Office (NSO).

• This restructuring was aimed at streamlining the data collection and processing activities under the umbrella of MoSPI.

• Rangarajan Commission Report:

• The commission was set up in January 2000 and submitted its findings in August 2001. It highlighted that the lack of coordination and the absence of a legislative framework were major hurdles in the statistical system, leading to the creation of the NSC.

Q60. Answer: (b) Low

The correct answer is Low.

Key Points

• The book titled Low is a novel authored by the acclaimed Indian writer Jeet Thayil, published in 2020.

• The story follows the protagonist, Dominic Ullis, a poet who travels from New York to Mumbai following the death of his wife to scatter her ashes.

• The novel is noted for its deep dive into the urban underbelly of Mumbai, exploring themes of grief, drug addiction, and nihilism over the course of a single weekend.

• Jeet Thayil utilizes a hallucinatory prose style in Low, which serves as a spiritual successor to his debut novel, Narcopolis. Hence, the correct answer is Low.

• Jeet Thayil is a multidisciplinary artist born in 1959 in Kerala, known for his work as a poet, novelist, and musician.

Additional Information

• Fury:

• This novel was authored by Salman Rushdie and published in the year 2001.

• It is set in New York City and centers around Malik Solanka, a historian of ideas and a world-famous doll maker who is struggling with uncontrollable rage.

• The book examines the consumerist culture of America at the turn of the millennium.

• Shame:

• Published in 1983, Shame is another significant work by Salman Rushdie.

• It is a political satire that serves as an allegory for the political turmoil in Pakistan, focusing on the lives of characters representing Zulfikar Ali Bhutto and General Zia-ul-Haq.

• The novel won the French Prix du Meilleur Livre Étranger and was shortlisted for the Booker Prize.

• Countdown:

• Countdown is a non-fiction book written by the renowned author Amitav Ghosh, published in 1999.

• The book provides a critical analysis of the nuclear tests conducted by India at Pokhran in May 1998.

• It features interviews with various people in India, Pakistan, and Nepal, discussing the implications of nuclearization in South Asia.

Important Points

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• Jeet Thayil's Literary Achievements:

• His first novel, Narcopolis (2012), was shortlisted for the prestigious Man Booker Prize and won the DSC Prize for South Asian Literature.

• He was awarded the Sahitya Akademi Award in 2012 for his poetry collection titled These Errors Are Correct.

• He is also the editor of The Bloodaxe Book of Contemporary Indian Poets (2008), a significant anthology of Indian English poetry.

• Themes in Thayil's Work:

• His writing often reflects his personal history and experiences in Mumbai and New York, frequently touching upon modernity, loss, and human vulnerability.

• His background as a songwriter and guitarist often influences the rhythmic quality of his prose and verse.

Q61. Answer: (d) Wicket keeper

The correct answer is Wicket keeper.

Key Points

• The wicket-keeper is a specialist fielder in the sport of cricket who stands behind the stumps at the striker's end of the pitch.

• Under the Laws of Cricket, specifically Law 27, the wicket-keeper is the only member of the fielding side permitted to wear gloves and external leg guards (pads).

• The primary responsibility of the wicket-keeper is to stop deliveries that pass the batter and to attempt to dismiss the batter through a catch or a stumping.

• A stumping occurs when the wicket-keeper puts down the wicket while the batter is out of their ground (crease) and not attempting a run.

• The wicket-keeper plays a crucial role in the fielding side's strategy, often acting as a "general" who provides feedback to the bowler and helps the captain with field placements due to their unique vantage point.

Additional Information

• Batter:

• A batter is the player currently at the crease whose objective is to score runs and prevent the ball from hitting the stumps.

• They use a bat made of willow wood and wear protective gear including a helmet, gloves, pads, and arm guards.

• Bowler:

• The bowler is the player who delivers the ball to the batter. The act of delivering the ball is called bowling.

• Bowlers are generally categorized into fast bowlers (who rely on speed) and spin bowlers (who use finger or wrist action to change the ball's trajectory).

• Umpire:

• The umpire is an official who has the authority to make decisions about events on the cricket field according to the Laws of Cricket.

• There are usually two on-field umpires and a third umpire (television umpire) who assists with close calls using technology like ball-tracking and ultra-edge.

• Equipment and Rules:

• The wicket-keeper's gloves must have webbing between the thumb and the index finger, but only to a specified size and standard regulated by the Marylebone Cricket Club (MCC).

• Modern wicket-keepers almost always wear a helmet when standing close to the stumps for a spinner to protect against fast-moving balls or accidental hits from the bat.

• Famous wicket-keepers in the history of the game include MS Dhoni from India, Adam Gilchrist from Australia, and Kumar Sangakkara from Sri Lanka.

Important Points

• The wicket-keeper must remain wholly behind the stumps until the ball has been touched by the batter or has passed the wicket.

• If the wicket-keeper moves significantly before the ball is delivered, it can be called a dead ball or lead to penalties.

• In Test cricket, the wicket-keeper is often required to stay focused for up to 90 overs a day, making it one of the most physically and mentally demanding positions in the sport.

Q62. Answer: (b) Basketball

The correct answer is Basketball.

Key Points

• Basketball is a team sport characterized by two teams, typically consisting of five players each, competing on a rectangular court.

• The primary objective of the game is to shoot a ball through a raised hoop, known as the basket or rim, which is mounted at a

height of 10 feet (3.048 meters) to a backboard at each end of the court.

• The sport was invented in December 1891 by Dr. James Naismith, a Canadian physical education instructor, in Springfield, Massachusetts, as a way to keep his students active indoors during the winter.

• The international governing body for the sport is FIBA (International Basketball Federation), which was founded in 1932.

• A standard professional basketball court measures 28 by 15 meters under FIBA rules and 94 by 50 feet in the NBA (National Basketball Association).

Additional Information

• Common Terminologies:

• Dribbling: The act of bouncing the ball continuously with one hand while walking or running.

• Rebound: Gaining possession of the ball after a missed field goal or free throw.

• Layup: A two-point shot attempt made by leaping from below, laying the ball up near the basket, and using one hand to bounce it off the backboard and into the basket.

• Three-pointer: A field goal made from beyond the three-point line, a designated arc surrounding the basket.

• Gameplay Duration:

• In the NBA, a game consists of four quarters of 12 minutes each.

• Under FIBA regulations, the game consists of four quarters of 10 minutes each.

• Major Organizations:

• The NBA, based in North America, is widely considered the premier professional basketball league in the world in terms of popularity, salaries, and level of competition.

• Women's National Basketball Association (WNBA) is the equivalent professional league for women in the United States.

Important Points

• Player Positions:

• Point Guard (PG): Usually the team's best ball handler and passer, responsible for directing the offense.

• Shooting Guard (SG): Typically the team's best outside shooter.

• Small Forward (SF): Often a versatile player responsible for scoring and rebounding.

• Power Forward (PF): Plays offensively with their back to the basket and focuses on defense and rebounding.

• Center (C): Usually the tallest player, positioned near the basket to block shots and secure rebounds.

• Violations and Fouls:

• Traveling: Taking more than two steps without dribbling the ball.

• Double Dribble: Dribbling the ball with two hands at the same time or stopping the dribble and then starting again.

• Personal Foul: Illegal physical contact with an opponent.

• Olympic History: Basketball became an official Olympic sport for men at the 1936 Berlin Games and for women at the 1976 Montreal Games.

Q63. Answer: (c) 9

The correct answer is 9.

Key Points

• The construction of the Red Fort (Lal Qila) was commissioned by the Mughal Emperor Shah Jahan on 13 May 1638, when he decided to shift his capital from Agra to Delhi.

• While the site preparation began earlier, the actual construction process is widely cited to have started in 1639.

• The massive fort project was completed in 1648, which means the construction spanned a period of 9 years.

• The fort was designed by the architect Ustad Ahmad Lahori, the same genius who designed the Taj Mahal in Agra.

• The fort served as the main residence of the Mughal Emperors for nearly 200 years, until the end of the Mughal dynasty in 1857.

• It is located in Old Delhi (then known as Shahjahanabad) and is situated along the banks of the Yamuna River.

Additional Information

• Architectural Style: The Red Fort represents the zenith of Mughal architecture, characterized by a fusion of Persian, Timurid, and Indian styles. It is built primarily of Red Sandstone, which gives it its name.

• UNESCO Recognition: In the year 2007, the Red Fort was designated as a UNESCO World Heritage Site due to its historical and cultural significance.

• Main Structures:

• Diwan-i-Aam: The hall of public audience.

• Diwan-i-Khas: The hall of private audience, which once housed the famous Peacock Throne (Takht-i-Taus).

• Rang Mahal: Known as the "Palace of Colours," it was the residence of the emperor's wives.

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• Moti Masjid: The Pearl Mosque, added later by Emperor Aurangzeb between 1659 and 1660.

• Symbol of Sovereignty: Since India's independence on 15 August 1947, the fort has been a symbol of national pride. Every year, the Prime Minister of India hoists the National Flag from its ramparts.

Important Points

• Historical Shifts: The fort saw several invasions, most notably by Nadir Shah in 1739, who plundered the palace and took the Peacock Throne and the Koh-i-Noor diamond.

• British Era: After the Revolt of 1857, the British army occupied the fort, demolished many of its residential palaces, and converted it into a military garrison.

• The Gates: The fort has two main ceremonial gates: the Lahori Gate (the main entrance) and the Delhi Gate.

• Geographical Context: The fort covers an area of approximately 254 acres and is enclosed by 2.4 kilometres of defensive walls.

Q64. Answer: (c) Bargu

The correct answer is Bargu.

Key Points

• Sushir Vadya, also known as Aerophones, are musical instruments where sound is produced by the vibration of air, typically blown through a tube or a reed.

• Bargu is a traditional wind instrument primarily found in the state of Rajasthan, India. It is a long, curved trumpet or horn made of brass or copper.

• This instrument is widely associated with the Bhil tribe of Rajasthan and Madhya Pradesh. It is commonly played during community gatherings, festivals, and traditional ceremonies like weddings.

• The Bargu is frequently used to accompany the Gair dance, a famous tribal dance of the Bhils, providing a deep, resonant sound that signals the beginning of performances or religious processions.

• Historically, such horns were also used as signaling devices to warn villagers of approaching threats or to announce the arrival of important dignitaries.

Additional Information

• Classification of Musical Instruments:

• In the ancient text Natya Shastra, written by Bharat Muni between 200 BC and 200 AD, Indian musical instruments are classified into four main categories.

• Tata Vadya (Chordophones): These are stringed instruments. Examples include the Veena, Sitar, Sarangi, and the Pena (a traditional bowed instrument of Manipur).

• Sushir Vadya (Aerophones): These are wind instruments. Examples include the Bansuri (flute), Shehnai, Shankh (conch), Pungi, and Bargu.

• Avanaddha Vadya (Membranophones): These are percussion instruments with a stretched skin or membrane. Examples include the Tabla, Dholak, Mridangam, and Nagada.

• Ghana Vadya (Idiophones): These are solid instruments made of metal or wood that do not require tuning. Examples include Manjira, Jhanj, Karthal, and Hath ghanti (hand bell).

• Regional Wind Instruments:

• Mashak: A type of bagpipe found in Rajasthan and Uttarakhand, often made from goat skin.

• Algoza: A double flute popular in Punjab and Rajasthan folk music, played simultaneously by the musician.

• Karna: A straight, long brass trumpet used in temple processions and royal announcements in North India.

Important Points

• The Pena is a Tata Vadya (string instrument) and is the oldest musical instrument of the Meitei people of Manipur. Hence, option 2 is incorrect.

• Hath ghanti belongs to the Ghana Vadya category as it is a solid metal instrument that produces sound through the vibration of its own body. Hence, option 1 is incorrect.

• The Bargu is specifically characterized as a Sushir Vadya because it requires the player's breath to resonate air within its metal body to produce sound. Hence, the correct answer is Bargu.

• Sushir Vadya are often classified into two types: those where the air is blown through a natural hole (like a flute) and those using a mechanical reed (like the Shehnai).

Q65. Answer: (d) Gopal Krishna Gokhale

The correct answer is Gopal Krishna Gokhale.

Key Points

• Gopal Krishna Gokhale was a senior leader of the Indian National Congress and a renowned social reformer who Mahatma Gandhi regarded as his political mentor.

• After Mahatma Gandhi returned to India from South Africa in January 1915, he sought guidance from Gokhale, who advised him

to travel across the Indian subcontinent for one year to understand the ground realities of the people before taking any political stance.

• Gandhi expressed his deep respect and intellectual debt to Gokhale in his book titled "Gokhale, My Political Guru", published in 1955.

• Gokhale was a leading figure of the Moderate faction of the Congress, advocating for constitutional means, dialogue, and reforms rather than radical or violent methods to achieve Swaraj.

• In 1905, Gopal Krishna Gokhale founded the Servants of India Society in Pune, Maharashtra, with the aim of training Indians to devote their lives to the cause of the nation through social and humanitarian work.

• He also served as the President of the Banaras Session of the Indian National Congress in 1905.

Additional Information

• Lala Lajpat Rai:

• Known as "Punjab Kesari" (the Lion of Punjab), he was a prominent leader of the Extremist wing of the Congress (part of the Lal-Bal-Pal trio).

• He played a crucial role in the Swadeshi Movement and founded the Punjab National Bank in 1894.

• He died in 1928 after sustaining injuries during a lathi charge while protesting against the Simon Commission.

• Dadabhai Naoroji:

• Known as the "Grand Old Man of India", he was a co-founder of the Indian National Congress and served as its President three times (1886, 1893, and 1906).

• He was the first Indian to be elected as a Member of Parliament (MP) in the British House of Commons.

• He authored the famous book "Poverty and Un-British Rule in India", which introduced the "Drain of Wealth" theory, explaining how Britain was depleting India's resources.

• Subhash Chandra Bose:

• A radical nationalist leader who twice served as the President of the Congress (1938 and 1939) before resigning due to ideological differences with Gandhi.

• He founded the All India Forward Bloc in 1939 and later led the Indian National Army (INA) or Azad Hind Fauj to fight against British rule.

• Interestingly, despite their differences, it was Bose who first addressed Mahatma Gandhi as the "Father of the Nation" in a radio address from Singapore in 1944.

Important Points

• Political Ideology: Gokhale believed in secularism and education as the primary tools for national awakening. He was a member of the Imperial Legislative Council from 1902 until his death in 1915.

• Role in Reforms: He was instrumental in the formulation of the Morley-Minto Reforms of 1909, which increased Indian participation in the legislative process, although it also introduced separate electorates.

• Mentorship: Besides Gandhi, Gokhale also influenced several other leaders, including Mohammed Ali Jinnah in his early years, who aspired to become the "Muslim Gokhale" due to his ambassadorial role for Hindu-Muslim unity.

• Journalism: Gokhale was associated with the journal "Sudharak" (The Reformer) and contributed significantly to the Sarvajanik Sabha journal.

Q66. Answer: (c) With no strings attached

The solution is in Hindi. Read it online.

Q67. Answer: (a) Said when someone suddenly comes to realize or understand something

The solution is in Hindi. Read it online.

Q68. Answer: (a) Conscious

The solution is in Hindi. Read it online.

Q69. Answer: (b) nonchalant

The solution is in Hindi. Read it online.

Q70. Answer: (b) zoonotick

The solution is in Hindi. Read it online.

Q71. Answer: (d) Compatable

The solution is in Hindi. Read it online.

Q72. Answer: (a) Flawless

The solution is in Hindi. Read it online.

Q73. Answer: (b) Occasional

The solution is in Hindi. Read it online.

Q74. Answer: (c) We saw a seal clapping its fins at the zoo.

The solution is in Hindi. Read it online.

Q75. Answer: (d) Jockey

The solution is in Hindi. Read it online.

Q76. Answer: (a) Taxidermy

The solution is in Hindi. Read it online.

Q77. Answer: (a) Many plays were written by Shakespeare.

The correct answer is Option 1.

Key Points

- Passive voice structure: The object of the active voice sentence becomes the subject of the passive voice sentence.
- In the active voice, the sentence is: "Shakespeare wrote many plays."
- To convert to passive voice: Place the object "many plays" at the beginning of the sentence.
- Change the active verb form "wrote" (simple past) to "were written" (simple past passive).
- Since "plays" is plural, the plural auxiliary verb "were" must be used instead of "was."
- Add the preposition "by" followed by the original subject "Shakespeare."

Therefore, the correct answer is Option 1.

Correct Sentence: "Many plays were written by Shakespeare."

Additional Information

- Option 2: "Many plays was written by Shakespeare." – Incorrect subject-verb agreement; "plays" requires "were."
- Option 3: "Many plays have be written by Shakespeare." – Grammatically incorrect verb construction.
- Option 4: "Many plays has been written by Shakespeare." – Incorrect tense (present perfect) and subject-verb agreement.

Q78. Answer: (a) Is global warming caused by greenhouse gases?

The correct answer is Option 1.

Key Points

- Passive voice structure for interrogative sentences (Simple Present): Is/Am/Are + Subject + Past Participle (V3) + by + Agent?
- In the active voice, the sentence is: "Do greenhouse gases cause global warming?" (Simple Present).
- To convert to passive voice: The object "global warming" becomes the new subject.
- Since "global warming" is singular, the auxiliary verb "Is" is used at the beginning.
- The main verb "cause" changes to its past participle form, "caused."
- The original subject "greenhouse gases" becomes the agent following the preposition "by."

Therefore, the correct answer is Option 1.

Correct Sentence: "Is global warming caused by greenhouse gases?"

Additional Information

- Option 2: "Are global warming caused by greenhouse gases?" – Incorrect subject-verb agreement; "global warming" is singular and requires "Is."
- Option 3: "Does global warming caused by greenhouse gases?" – "Does" is used in active voice; passive voice requires a form of the verb "to be."
- Option 4: "Do global warming caused by greenhouse gases?" – Incorrect auxiliary verb and incorrect subject-verb agreement.

Q79. Answer: (d) Will the research team have completed the project before the deadline?

The correct answer is Option 4.

Key Points

- The given sentence is in the Passive Voice of the Future Perfect Tense in an interrogative form.
- Passive voice structure for Future Perfect (Interrogative): Will + Object + have been + Past Participle (V3) + by + Subject?
- To convert it into the Active Voice, the structure should be: Will + Subject + have + Past Participle (V3) + Object?

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• The subject in the passive sentence "the research team" becomes the subject of the active sentence.
• The object "the project" becomes the object of the active sentence.
• The verb phrase "have been completed" changes to "have completed" in the active voice.

Therefore, the correct answer is Option 4.

Correct Sentence: "Will the research team have completed the project before the deadline?"

Additional Information

• Option 1: "Has the research team completed..." – Incorrect because it uses the Present Perfect tense.
• Option 2: "Is the research team completing..." – Incorrect because it uses the Present Continuous tense.
• Option 3: "Will the research team complete..." – Incorrect because it uses the Future Simple tense instead of the Future Perfect.

Q80. Answer: (c) Why doesn't the body reject benign tumours?

The correct answer is Option 3.

Key Points

• The given sentence is in the Passive Voice of the Simple Present Tense in an interrogative (negative) form.
• Passive voice structure for Simple Present (Interrogative Negative): Wh-word + am/is/are + not + Object + Past Participle (V3) + by + Agent?
• To convert it into the Active Voice, the structure should be: Wh-word + do/does + not + Subject + Base Verb (V1) + Object?
• The agent in the passive sentence "the body" becomes the subject of the active sentence.
• Since "the body" is a singular third-person subject, the auxiliary verb "does" (specifically "doesn't") must be used.
• The verb "rejected" (V3) changes back to its base form "reject" (V1).

Therefore, the correct answer is Option 3.

Correct Sentence: "Why doesn't the body reject benign tumours?"

Additional Information

• Option 1: "Why don't the body..." – Incorrect because "the body" is singular and requires "doesn't" rather than "don't."
• Option 2: "Why won't the body..." – Incorrect because it changes the tense from Simple Present to Simple Future.
• Option 4: "Why can't the body..." – Incorrect because it changes the meaning of the sentence to ability/possibility (Modal verb).

Q81. Answer: (a) Between the advantages of

The correct answer is Option 1.

Key Points

• The error lies in the use of the preposition "Between" in part A of the sentence.
• The preposition "Between" is generally used when referring to two distinct people, places, or things.
• The preposition "Among" is used when referring to more than two things or when talking about a collective group (like "the advantages").
• Since the sentence discusses one advantage out of a larger set of advantages of being a citizen, "Among" is the grammatically correct choice.

Therefore, the correct answer is Option 1.

Correct Sentence: "Among the advantages of being an Indian citizen, freedom to worship one's own god is of utmost importance for the orthodox."

Additional Information

• Option 2: "being an Indian citizen," – This part is grammatically correct as it functions as the object of the prepositional phrase.
• Option 3: "freedom to worship one's own god is" – This part is correctly structured; "freedom" is the singular subject, and "is" is the singular verb.
• Option 4: "of utmost importance for the orthodox." – This part correctly conveys the degree of importance for a specific group of people.

Q82. Answer: (a) for

The correct answer is 'for'.

Key Points

• The preposition "for" is used to indicate the purpose or suitability of something.
• In this sentence, the phrase "befitting for" is correct as it conveys the idea of appropriateness for the Independence Day Celebration.
• Other options:
• "to": Incorrect, as it does not fit the context of appropriateness or purpose.

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• "on": Incorrect, as it refers to a specific time or date rather than suitability.

• "by": Incorrect, as it refers to agency or means, not suitability.

Therefore, the correct answer is Option 1.

Complete Sentence: "This song is not befitting for the Independence Day Celebration."

Additional Information

• Usage of "for": This preposition is commonly used to indicate the purpose, suitability, or intended recipient of something.

• Example: "This dress is perfect for the party."

• Common Prepositional Errors:

• "To": Often confused with "for," but it indicates direction, not purpose.

• "On": Refers to specific dates, surfaces, or positions, not suitability.

Q83. Answer: (c) CADB

The correct answer is Option 3.

Key Points

• The question asks for the logical arrangement of sentences in a paragraph to maintain unity and coherence.

• Sentence S1 is the opening sentence that introduces the topic: ""So why develop your financial genius?""

• Sentence C is the first in the sequence after S1 as it directly addresses the question and places responsibility on the individual: ""Only you can answer that.""

• Sentence A follows as it provides a personal perspective from the author: ""I can tell you why I have been developing this area of my intelligence.""

• Sentence D comes next as it explains the author's motivation for developing financial intelligence: ""I do it because I want to make money fast.""

• Sentence B is the final sentence before S2 as it emphasizes the author's personal choice: ""Not because I need to, but because I want to.""

• The paragraph ends with Sentence S2: ""It is a fascinating learning process.""

• The correct sequence is CADB.

Coherent paragraph after rearrangement:

""So why develop your financial genius? Only you can answer that. I can tell you why I have been developing this area of my intelligence. I do it because I want to make money fast. Not because I need to, but because I want to. It is a fascinating learning process.""

Q84. Answer: (d) BADC

The correct answer is Option 4.

Key Points

• This question involves rearranging the jumbled sentences to form a coherent paragraph.

• Sentence B is the first sentence following S1:

• "She was left alone, quite alone, as she had always wished to be left."

• This sentence logically follows S1 as it continues the idea of Sofia being left alone after her mother and sister departed.

• Sentence A follows because it delves into Sofia’s childhood experiences and habits:

• "As a child, when some wrong or injustice had been done her, she had cried all alone, when she was in bed, in the dark, and the habit had remained with her."

• This sentence explains her emotional state and further develops her character.

• Sentence D is the third sentence because it describes her current emotional state in detail:

• "Now, alone in the great drawing room, beneath the brightly lighted chandelier, her hands inert, her head resting against the back of her chair, her face wore an expression of great sorrow, the vivid reflection of a serious inward conflict."

• This sentence connects her past emotions with her present solitude and sorrow.

• Sentence C is the fourth as it brings in the realization of her grief and solitude:

• "Certainly in these moments of complete solitude the consciousness of a great grief came over her."

• This sentence ties the narrative together and leads smoothly into S2.

• The correct sequence is BADC.

Coherent paragraph after rearrangement:

"Sofia stood listening to the noise of the departing carriage which bore away her mother and sister. She was left alone, quite alone, as she had always wished to be left. As a child, when some wrong or injustice had been done her, she had cried all alone, when she was in bed, in the dark, and the habit had remained with her. Now, alone in the great drawing room, beneath the brightly

lighted chandelier, her hands inert, her head resting against the back of her chair, her face wore an expression of great sorrow, the vivid reflection of a serious inward conflict. Certainly in these moments of complete solitude the consciousness of a great grief came over her; the sentiment of the reality, long repulsed, became clear, distinct, and cruel."

Q85. Answer: (c) were to be laid off again

The correct answer is '3'.

Key Points

• The given sentence is an example of the second conditional, which is used to describe hypothetical or unlikely situations.

• In a second conditional sentence, the correct structure is If + past simple, would + base verb.

• The underlined phrase "If I would be laid off again" is incorrect because "would" is not used in the "if" clause.

• Option 3, "were to be laid off again," correctly uses the "were to + base verb" structure, which is appropriate for hypothetical situations.

Therefore, the correct answer is Option 3.

Complete Sentence: "If I were to be laid off again, I would seriously consider a career switch."

Additional Information

• Option 1: "will be laid off again" is incorrect because the first conditional uses "if + present simple, will + base verb." However, this sentence describes a hypothetical situation, not a real possibility.

• Option 2: "had been laid off again" is incorrect because it suggests a past unreal situation, which would require a third conditional structure: "if + past perfect, would have + past participle."

• Option 4: "No improvement required" is incorrect because the underlined part does not follow the correct grammatical structure for the second conditional.

Q86. Answer: (b) drive

The correct answer is 'Option 2'.

Key Points

• Option 2: drive

• The subject of the sentence is "Startups", which is a plural noun.

• According to the rules of subject-verb agreement, a plural subject requires a plural verb (the base form of the verb without an 's').

• Since the sentence describes a general fact or ongoing state in the present tense, "drive" is the correct form to match the plural subject.

• Option 1: drives

• This is incorrect because "drives" is the third-person singular form. It would be correct if the subject were singular (e.g., "The startup drives change").

• Option 3: driving

• This is incorrect. A present participle (ending in -ing) cannot function as the main verb of a sentence on its own; it requires an auxiliary verb like "are" (e.g., "Startups are driving a shift").

• Option 4: driven

• This is incorrect. "Driven" is a past participle and needs a helping verb to form a complete thought (e.g., "Startups have driven a shift" or "A shift is driven by startups").

Therefore, the correct answer is Option 2.

Additional Information

• Subject-Verb Agreement Rule: In the present tense, most verbs only change their ending for the third-person singular (he/she/it). For plural subjects (they), the verb remains in its base form.

• Vocabulary Note: In this context, to "drive" a shift means to be the primary cause or force behind a significant change in behavior or mindset within a society.

• Unicorns: As mentioned in the passage, a "unicorn" in the business world refers to a privately held startup company valued at over $1 billion.

Q87. Answer: (a) has

The correct answer is 'Option 1'.

Key Points

• Option 1: has

• The subject of the sentence is "This ecosystem".

• The word "ecosystem" is a singular noun. In English grammar, a third-person singular subject requires the auxiliary verb "has" to form the Present Perfect Tense.

• The Present Perfect Tense (has + past participle) is used here to describe an action that started in the past and has a result in the present (producing over a hundred unicorns).

• Option 2: have

• This is incorrect. "Have" is used for plural subjects (e.g., "These ecosystems have...") or with the pronouns I, you, we, and they.

• Option 3: had

• This is incorrect in this context. "Had" is the Past Perfect auxiliary. The passage is written in the present tense to describe the current state of India's startup growth. "Had" would suggest the action was completed and finished before another past event.

• Option 4: having

• This is incorrect. "Having" is a present participle and cannot function as the main auxiliary verb to support the past participle "produced" in this sentence structure.

Therefore, the correct answer is Option 1.

Additional Information

• Subject-Verb Agreement: Always identify the head noun of the subject phrase. Here, the head noun is "ecosystem," not "startups" or "unicorns" which appear later in the sentence.

• Unicorns in Business: The passage defines a "unicorn" as a startup valued at over $1 billion. This is a common term used in the venture capital industry.

• Flagship Initiative: The phrase "flagship initiative" refers to the most important or leading program of an organization—in this case, the Startup India program launched by the government.

Q88. Answer: (b) Cooperation that leads to a greater effect

The solution is in Hindi. Read it online.

Q89. Answer: (d) thriving and growing

The correct answer is 'Option 4'.

Key Points

• Option 4: thriving and growing

• In the context of the passage, "flourishing" is used to describe sectors like fintech, edtech, and e-commerce that are experiencing "remarkable growth" and "gaining global recognition."

• The word derives from the Latin florere (to bloom), and in a business or economic context, it refers to an entity that is prospering, expanding, and reaching a state of high success.

• The surrounding text mentions that these sectors are "addressing local challenges" and contributing to the production of "unicorns," which reinforces the idea of vigorous health and expansion.

• Option 1: declining

• This is incorrect. "Declining" is an antonym (opposite) of flourishing. The passage describes a surge in growth, not a decrease.

• Option 2: ignoring

• This is incorrect. "Ignoring" refers to a lack of attention and does not fit the description of an active, growing economic sector.

• Option 3: struggling

• This is incorrect. While startups may face challenges, the passage uses "flourishing" to highlight the success and powerhouse status of the ecosystem, which is the opposite of struggling.

Therefore, the correct answer is Option 4.

Additional Information

• Synonyms: Prospering, burgeoning, blooming, successful, robust.

• Antonyms: Withering, fading, failing, stagnant, declining.

• Usage in Business: When an "ecosystem" or "sector" is flourishing, it means the environment is conducive to success, leading to high investment, innovation, and job creation.

• Context Clue: The use of the word "surge" earlier in the passage acts as a context clue, suggesting upward momentum and rapid development.

Q90. Answer: (c) India’s startup ecosystem is expanding rapidly due to government initiatives, technology adoption, and wide...

The correct answer is 'Option 3'.

Key Points

• Option 3: India’s startup ecosystem is expanding rapidly due to government initiatives, technology adoption, and widespread collaboration, contributing significantly to economic and employment growth.

• The passage emphasizes "remarkable growth" and India's status as the "third-largest startup hub globally."

• It specifically credits the "Startup India" initiative for providing financial and regulatory support, matching the "government initiatives" part of the summary.

• It mentions "tech-savvy professionals" and "internet penetration" (technology adoption) and the "synergy among incubators, accelerators, investors, and the government" (widespread collaboration).

• Finally, it notes the "economic growth and employment generation" caused by over a hundred unicorns and the shift to becoming "job creators."

• Option 1: ...mostly centered in a few large cities with little government support.

• This is incorrect. The text states the government's role is "pivotal" and that tier-2 and tier-3 cities are "increasingly contributing."

• Option 2: The startup ecosystem in India is shrinking...

• This is incorrect. The entire passage focuses on growth, flourishing sectors, and expansion.

• Option 4: ...only focus on local markets without global ambitions.

• This is incorrect. The passage mentions startups are "gaining global recognition" and fueled by the ambition to become a "global startup powerhouse."

Therefore, the correct answer is Option 3.

Additional Information

• Unicorns: As defined in the passage, these are startups valued at over $1 billion. India having over a hundred of them signals a very mature and high-value ecosystem.

• Cultural Shift: The passage highlights a transition from a "job seeker" mentality to a "job creator" mentality, which is vital for long-term economic sustainability.

• Sector Success: The "flourishing" status of fintech, edtech, and healthtech shows that Indian innovation is heavily focused on using technology to solve practical problems in finance, education, and healthcare.

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