SSC CHSL 2020 Official Paper 29 (Held on: 10 Aug 2021 Shift 2) (Previous Year Paper)

SSC Combined Higher Secondary Level (CHSL) • 2020 • 100 questions • 60 minutes • Answer key and solutions

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ENGLISH LANGUAGE

Q1. Select the word which means the same as the group of words given.

A professional who works with patients who have heart problems

(a) orthopaedic
(b) urologist
(c) cardiologist
(d) paediatrician

Q2. Select the INCORRECTLY spelt word.

(a) Permanent
(b) Subsikuent
(c) Dominant
(d) Temporary

Q3. Select the option that can be used as a one-word substitute for the given group of words.

The study of ancient civilisations and cultures by examining their sites

(a) Entomology
(b) Arachnology
(c) Etymology
(d) Archaeology

Q4. Direction: Select the option that expresses the given sentence in reported speech.

My mother said to me, "Aravind, the baby has been crying all day."

(a) Aravind told my mother that the baby had been crying all day.
(b) My mother told me that the baby had been crying all day.
(c) My mother said Aravind that the baby has been crying all the day.
(d) My mother told to Aravind why the baby has been crying all day.

Q5. Direction: The following sentence has been divided into four segments. Select the segment that contains a grammatical error from the given options.

I am going / to home / soon after the / programme gets over.

(a) to home
(b) soon after the
(c) programme gets over
(d) I am going

Q6. Select the most appropriate meaning of the given idiom.

Burn the midnight oil

(a) create problems in the night
(b) work late into the night

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(c) burn things using oil
(d) work many nights at a stretch

Q7. Direction: Given below are four jumbled sentences. Out of the given options, select the one that gives their correct order.

A. I sat patiently through them knowing they were not for me.

B. The headmaster read the list of qualities this year's best student award had - most giving, contributed most to society, and so on.

C. At my high school graduation, the awards were being presented for achievement, contribution to the school, the community, scholarship, and more.

D. But when I heard my name called, I began to cry as I could not believe that I was actually chosen for the award.

(a) CBDA
(b) BACD
(c) CABD
(d) BDCA

Q8. Direction: In the given sentence, identify the segment which contains a grammatical error.

Due to the lockdown most schools teaches students through online classes.

(a) through online classes
(b) teaches students
(c) most schools
(d) Due to the lockdown

Q9. Direction: Select the most appropriate option to substitute the underlined segment in the given sentence. If there is no need to substitute it, select 'No substitution'.

The migrant said that he did not planning to come back to the city for quite some time.

(a) do not planning
(b) did not plan
(c) was not planned
(d) No substitution

Q10. Select the most appropriate synonym of the given word.

Emerge

(a) Enforce
(b) Erase
(c) Close
(d) Appear

Q11. Select the most appropriate meaning of the given idiom.

To come round

(a) To meet someone by chance
(b) To go round and round
(c) To become conscious again
(d) To spend a lot of time with someone

Q12. Direction: Select the most appropriate word to fill in the blank.

The government is making air bags _____ for front seat passengers in all cars.

(a) compulsory
(b) suggested
(c) registered
(d) temporary

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Q13. Select the INCORRECTLY spelt word.

(a) executive
(b) development
(c) dissappear
(d) movement

Q14. Select the most appropriate ANTONYM of the given word.

Repulsion

(a) addiction
(b) complacence
(c) attraction
(d) disgust

Q15. Direction: Select the most appropriate option to substitute the underlined segment in the given sentence. If there is no need to substitute it, select 'No substitution required'.

This is the student which won the first prize in the recitation.

(a) who won
(b) whom won
(c) whose won
(d) No substitution required

Q16. Direction: Sentences of a paragraph are given below in jumbled order. Arrange the sentences in the right order to form a meaningful and coherent paragraph.

A. The test procedure starts at 10 a.m. in all the test centres.

B. When you enter the test hall, you should have your Test Admit Card with you.

C. You are, therefore, required to reach the test centre by 9.30 a.m.

D. Remember that, if you report after 10 a.m., you will not be admitted.

(a) DBAC
(b) CADB
(c) DACB
(d) ACDB

Q17. Direction: Select the correct passive form of the given sentence.

Shashi was enjoying the game.

(a) The game is being enjoyed by Shashi.
(b) The game has been enjoyed by Shashi.
(c) The game was being enjoyed by Shashi.
(d) The game was enjoying by Shashi.

Q18. Direction: Select the most appropriate word to fill in the blank.

The mother monkey picked up her baby and climbed up the tree to _____.

(a) safety
(b) ability
(c) cruelty
(d) agility

Q19. Select the most appropriate ANTONYM of the given word.

Lucid

(a) Obvious
(b) Acidic
(c) Confusing
(d) Clear

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Q20. Select the most appropriate synonym of the given word.

DILEMMA

(a) fascination
(b) predicament
(c) importance
(d) attraction

Directions

Direction: In the following passage, some words have been deleted. Fill in the blanks with the help of the alternatives given. Select the most appropriate option for each blank.

An open-minded person can very easily accept as well as respect the (1)____ person's viewpoint or ideas. Such a person willingly and cordially (2)__ to others' views, accepts their different ideas, and even goes ahead to implement them (3)__. With an open mindset, positive and vibrant energy (4)__ that not only helps such people (5)_____ also keeps other people around them happy.

Q21. Select the most appropriate option for blank No. 1.

(a) either
(b) other
(c) every
(d) each

Q22. Select the most appropriate option for blank No. 2.

(a) listen
(b) listening
(c) listened
(d) listens

Q23. Select the most appropriate option for blank No. 3.

(a) eventfully
(b) successfully
(c) habitually
(d) clearly

Q24. Select the most appropriate option for blank No. 4.

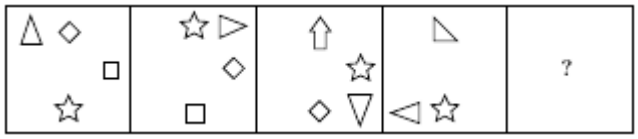
(a) is created
(b) was created
(c) had been created
(d) was being created

Q25. Select the most appropriate option for blank No. 5.

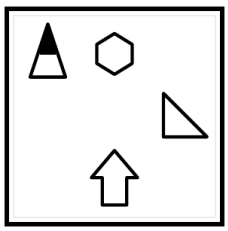
(a) when
(b) even
(c) and
(d) but

GENERAL INTELLIGENCE

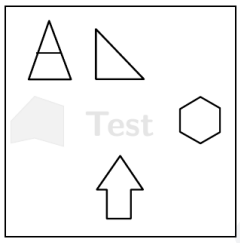
Q26. Select the figure from among the given options that can replace the question mark (?) in the following series.



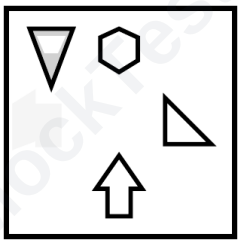
(a)



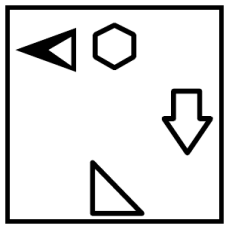
(b)



(c)



(d)



Q27. Select the correct option that indicates the arrangement of the given words in the order in which they appear in an English dictionary.

1. Fragile
2. Freedom
3. Fresher
4. Fraudster
5. Frame

(a) 2, 5, 4, 3, 1
(b) 1, 5, 4, 2, 3
(c) 1, 5, 2, 4, 3
(d) 1, 4, 5, 2, 3

Q28. Select the number that can replace the question mark (?) in the following series.

1, 2, 10, 37, ?, 226

(a) 73
(b) 101
(c) 89
(d) 98

Q29. Select the option in which the words share the same relationship as that shared by the given pair of words.

Warrior : Battlefield

(a) Sports : Ground
(b) Umpire : Cricket
(c) Actor : Stage
(d) Soldier : Army

Q30. Select the option in which the numbers are related in the same way as are the numbers of the following set.

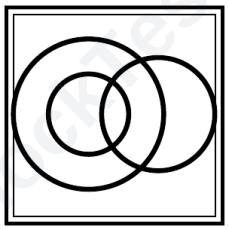
(5, 14, 350)

(a) (8, 16, 340)
(b) (6, 12, 232)
(c) (3, 20, 380)
(d) (7, 9, 441)

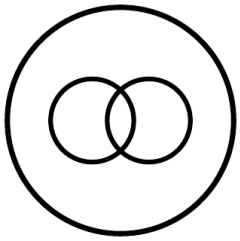
Q31. Select the Venn diagram that best represents the relationship between the following classes.

Mammals, Animals, Giraffe

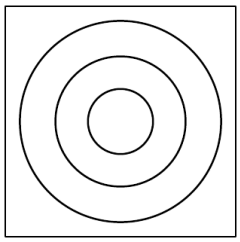
(a)



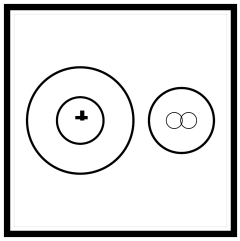
(b)



(c)



(d)



Q32. Four number-pairs have been given, out of which three are alike in some manner and one is different. Select the number-pair that is different.

(a) 17 : 204
(b) 11 : 132
(c) 7 : 84

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(d) 9 : 99

Q33. Three of the following four number triads are alike in a certain way and one is different. Select the one that is different.

(a) (201, 402, 603)
(b) (108, 300, 501)
(c) (111, 222, 333)
(d) (202, 404, 909)

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

BIOLOGY : COUMUHZ : : CHEMISTRY : ?

(a) DAKNOTUSZ
(b) DJINUTUSZ
(c) DIINOTUSZ
(d) DIONUTASZ

Q35. In a certain code language, DORM is coded as 4303626 and FIRST is coded as 69363840. How will CANCER be coded in that language?

(a) 31283536
(b) 322831036
(c) 612661036
(d) 61283638

Q36. Two statements are given, followed by two conclusions numbered I and II. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

Statements:

Some managers are bosses.

Some doctors are managers.

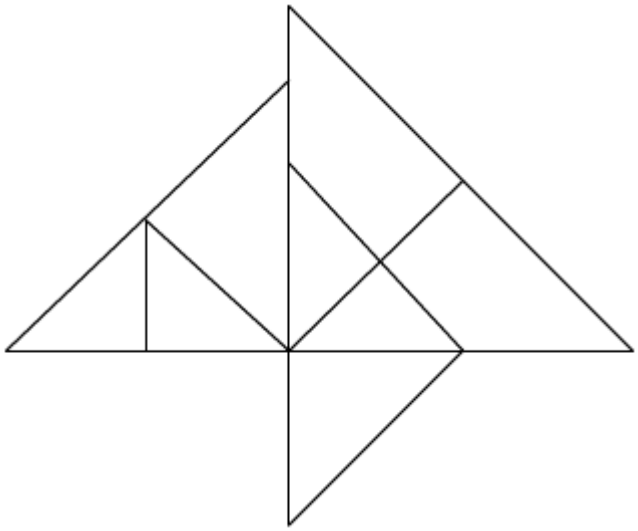
Conclusions:

I. Some managers are executives.

II. Some doctors are bosses.

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

Q37. How many triangle are there in the given figure?



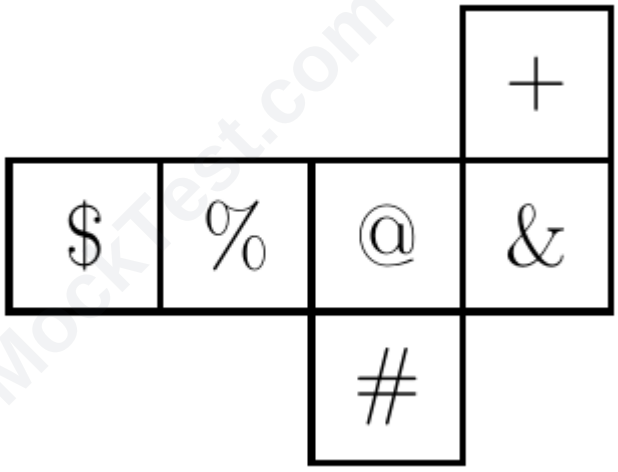
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(a) 12
(b) 14
(c) 15
(d) 13

Q38. Eye' is related to 'Glasses' in the same way as '_____' is related to 'Dialyser'.

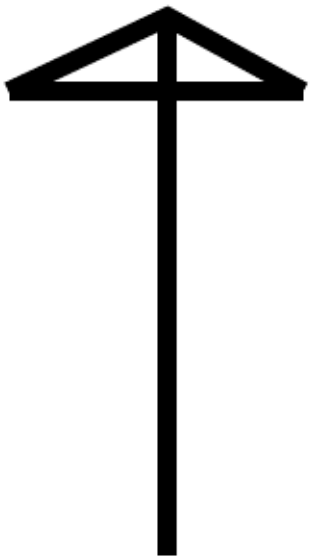
(a) Spine
(b) Kidney
(c) Heart
(d) Ear

Q39. A cube is made by folding the given sheet. In the cube so formed, what would be the symbol on the opposite side of '@'?



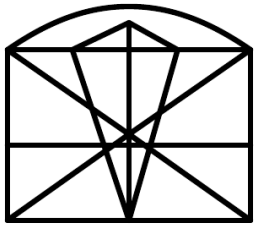
(a) &
(b) %
(c) #
(d) $

Q40. Select the option in which the given figure is embedded.

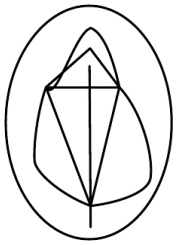


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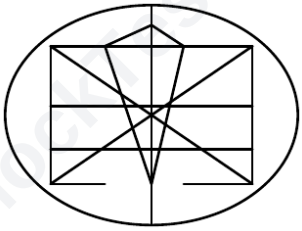
(a)



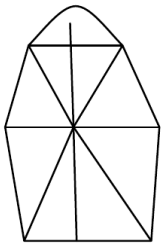
(b)



(c)



(d)



Q41. Select the combination of letters that when sequentially placed in the blanks of the given letter series will complete the series.

T _ R _ _ S _ D T _ R D _ S _ D

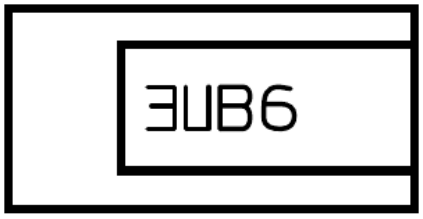
(a) D S T R T T R
(b) S D T D S T T
(c) S D T R S T R
(d) S T S R R T R

Q42. Select the correct mirror image of the given figure when the mirror is placed to the right side of the figure.



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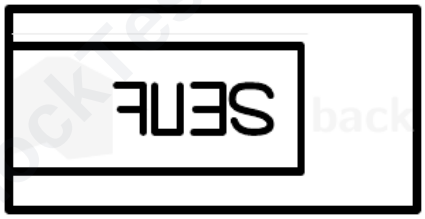
(a)



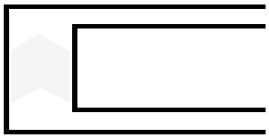
(b)



(c)



(d)



Q43. Three of the following four words are alike in a certain way and one is different. Select the odd one.

(a) Engineer
(b) Architect
(c) Designer
(d) Doctor

Q44. 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 the fifth number is related to the sixth number.

68 : 4 : : ? : 7 : : 220 : 6

(a) 301
(b) 112
(c) 347
(d) 220

Q45. The sum of the salaries of three persons, A, B and C, is Rs. 66,500. B's salary is half the salary of C. B's salary is 125% of A's salary. What is the salary of C?

(a) Rs. 30,000
(b) Rs. 35,000
(c) Rs. 34,000

×

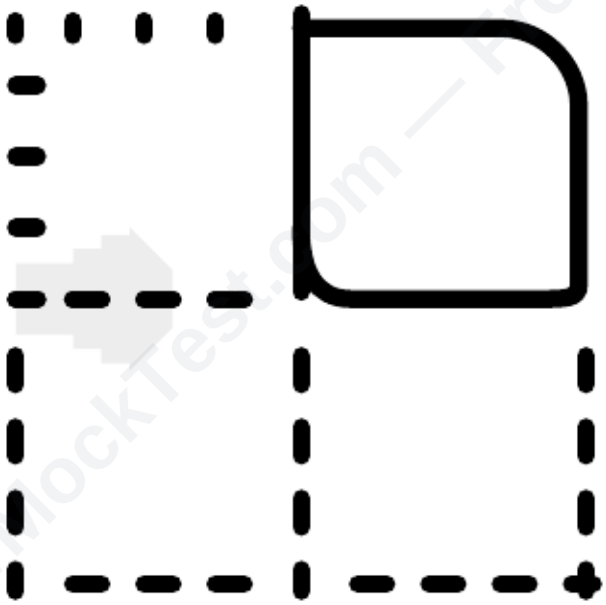
duplicate options found. English Question 1 options 2,3

(d) Rs. 28,000

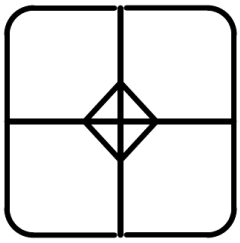
Q46. If in a code language, GOD is coded as 15 and DEVIL is coded as 43, then how will you code HUMEN?

(a) 81
(b) 72
(c) 42
(d) 56

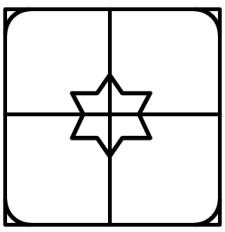
Q47. A paper is folded and cut as shown in the following figure. How will it appear when unfolded.



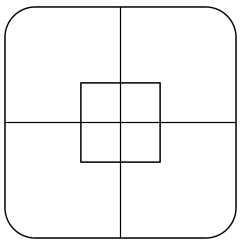
(a)



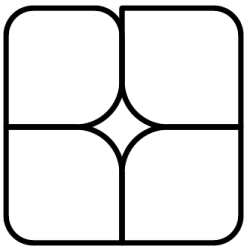
(b)



(c)



(d)



Q48. Four letter-clusters have been given, out of which three are alike in some manner and one is different. Select the letter-cluster that is different.

(a) HKNQT
(b) TWZCF
(c) DGJMP
(d) BEGLN

Q49. Which of the following equations will be correct when the signs + and ×, and the numbers 3 and 6 are interchanged?

(a) 11 × 6 + 3 = 69
(b) 9 × 3 + 6 = 33
(c) 12 × 3 + 6 = 30
(d) 7 + 3 × 6 = 48

Q50. In a family, Divya and Monika are sisters. Monika is the mother of Anamika. Kishore is the son of Anamika. Lillu is the son of Divya. How is Anamika related to Lillu?

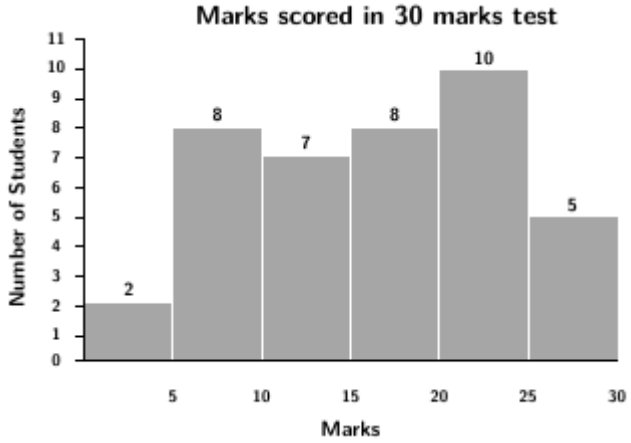
(a) Mother
(b) Cousin
(c) Sister-in-law
(d) Niece

QUANTITATIVE APTITUDE

Q51. If $\sin^2 x - 3\cos^2 x = 0$, then the value of x ($0 < x < 90°$) is:

(a) 45°
(b) 60°
(c) 15°
(d) 30°

Q52. The histogram shows the marks scored by 40 students in a test with maximum 30 marks.



What is the percentage of the students who scored less than 20 marks?

(a) 62.5
(b) 50

(c) 25
(d) 87.5

Q53. If $(5 \cot \theta + \sqrt{3} \operatorname{cosec} \theta)/(2\sqrt{3} \operatorname{cosec} \theta + 3 \cot \theta)=1, 0° < \theta < 90°$, then the value of $(7/2 \cot^2 \theta - 3/4 \operatorname{cosec}^2 \theta)/(4 \sin^2 \theta + 3/2 \tan^2 \theta)$ will be:
(a) 2
(b) 7
(c) 5
(d) 3

Q54. The sum of the square of the sides of a rhombus is 1600 cm^2. What is the side of the rhombus?
(a) 25 cm
(b) 10 cm
(c) 15 cm
(d) 20 cm

Q55. In a circle with center O, PA and PB are tangent to the circle at A and B, respectively, from an external point P. If, angle AOB = 116° then what is the measure of angle OPB?
(a) 32°
(b) 90°
(c) 30°
(d) 58°

Q56. The value of $\sqrt{(\cos 60° \cos 30° - \sin 60° \sin 30°)}$ is:
(a) 1
(b) $1/\sqrt{2}$
(c) 0
(d) $\sqrt{3}/2$

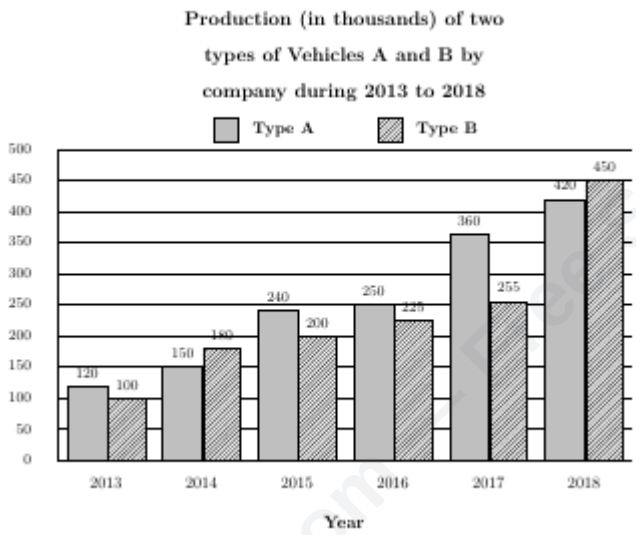
Q57. x, y and z are three positive numbers such that y is 4/5 times of x and z is 5/8 times of y. If the average of reciprocals of the numbers x, y and z is 17/240, then the average of 3 times of x and 5 times of y will be:
(a) 60
(b) 70
(c) 45
(d) 40

Q58. Find the compound interest (in Rs.) on a sum of Rs. 7,500 for 4 years if the rate of interest is 20% per annum for the first two years and 10% per annum for the next two years. (The interest is compounded annually.)
(a) 5,586
(b) 5,658
(c) 6,558
(d) 5,568

Q59. In a workshop with 80 students and 10 resource persons, sweets were distributed at the end of the workshop. the amount spent for distributing sweets to each student was 30% of the total number of students and amount spent towards each resource person was 40% of the total number of students. The total amount spent for sweets distribution in the workshop was:
(a) Rs. 2,240
(b) Rs. 2,400
(c) Rs. 2,440
(d) Rs. 2,420

Q60. Study the given graph and answer the question that follows.

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311/4% of the total number of vehicles of type A produced in 2013, 2015 and 2017 is equal to the number of vehicles of type B produced in the year:

(a) 2017
(b) 2016
(c) 2018
(d) 2015

Q61. If S is a point on side QR of a triangle PQR such that QS = 10 cm, QR = 18 cm and angle PSR = angle QPR, then the length of PR will be:

(a) 16 cm
(b) 12 cm
(c) 15 cm
(d) 14 cm

Q62. If $2x + 3y + 4z = 11$, $8x^3 + 27y^3 + 64z^3 = 105$ and $xyz = 1$, then the value $4x^2 + 9y^2 + 16z^2 - 6xy - 12yz - 8xz$ is:

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

Q63. The marked price of a juicer mixer is Rs. 5,500 and three successive discounts of 40%, 30% and 20% are given on this marked price. The selling price of the juicer mixer is:

(a) Rs. 1,835
(b) Rs. 1,848
(c) Rs. 1,858
(d) Rs. 1,868

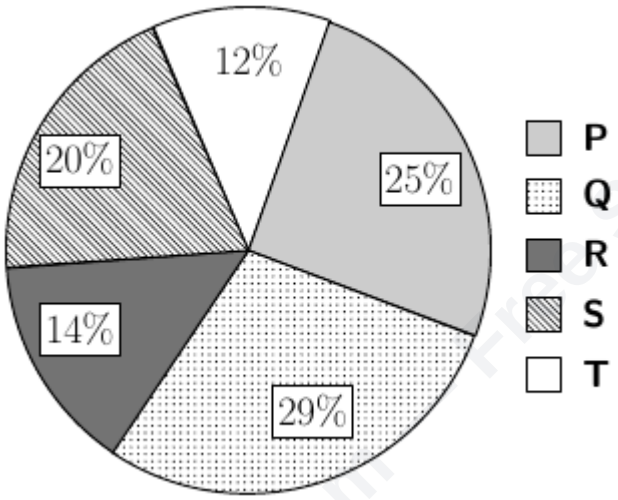
Q64. If the number 4A306768B2 is divisible by both 8 and 11, then the smallest possible values of A and B will be:

(a) A = 5, B = 3
(b) A = 3, B = 5
(c) A = 5, B = 2
(d) A = 5, B = 4

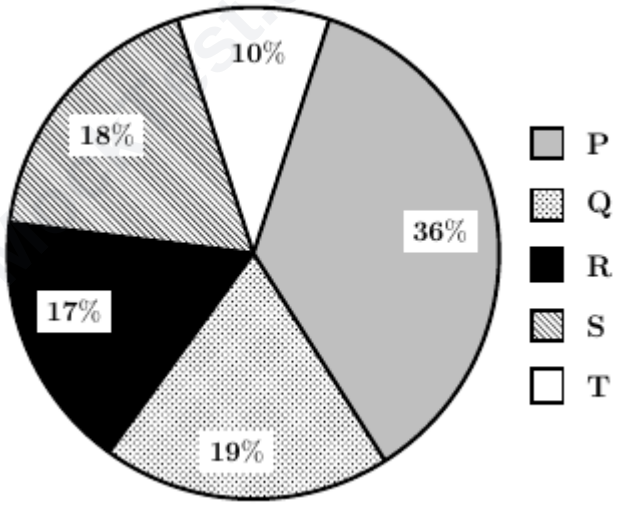
Q65. Study the given pie charts and answer the question that follows.

The pie charts show the distribution of students of graduate and post graduate levels in five different institutes P, Q, R, S and T in a town.

(i) Total number of students of graduate level in five different institutes = 12400



(ii) Total number of students of post graduate level in five different institutes = 8000

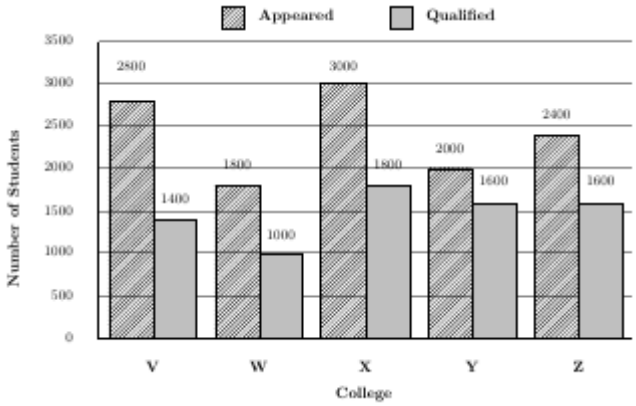


The difference between the average number of students of graduate level in institutes P, R and T to the average of students of postgraduate level in institutes P, R and T is:

(a) 426
(b) 425
(c) 428
(d) 328

Q66. Study the following graph and answer the question that follows.

Number of students that appeared and qualified, from various colleges, at a scholarship examination.



What is the ratio of the number of students that appeared to the number of students that qualified at the scholarship examination from College X?

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

Q67. If $x+1/3x=5$, then the value of $27x^3+1/(x^3)$ will be:
(a) 3024
(b) 3042
(c) 3240
(d) 3420

Q68. In any triangle, if the angles are in the ratio 1 : 2 : 3, then what will be the ratio of the side opposite to them?
(a) 2 : 2 : √3
(b) 2 : √3 : 1
(c) 1 : √3 : 2
(d) 1 : √3 : 1

Q69. If $1 + 4x^2 + 16x^4 = 512$ and $1 - 2x + 4x^2 = 64$, then the value of $1 + 2x + 4x^2$ is:
(a) 10
(b) 8
(c) 6
(d) 12

Q70. 15 people working 6 hours per day earn Rs. 900. How much money will 20 people earn, working 10 hours per day?
(a) Rs. 1,800
(b) Rs. 1,500
(c) Rs. 2,100
(d) Rs. 2,000

Q71. The sides of a triangle are in the ratio 1/3,1/5,1/4 and its perimeter is 141 cm. The difference between the greatest side and the smallest side is:
(a) 15 cm
(b) 24 cm
(c) 18 cm
(d) 12 cm

Q72. Gaurav bought some articles at 5 for Rs. 6 and sold them at 10 for Rs. 11. His loss percentage is:
(a) 81/3%
(b) 82/3%
(c) 71/3%
(d) 72/3%

Q73. If the length of a chord of a circle, that makes an angle of 60° with the tangent drawn at one end point the chord, is 8√3 cm, then the radius of the circle will be:
(a) 6 cm
(b) 8 cm
(c) 7 cm
(d) 5 cm

Q74. With a speed of 48 km/h, Raghu is able to complete his journey in 2 hours 28 minutes. If he wants to cover the same distance in 1 hour 36 minutes, then what should be his new speed?
(a) 64 km/h
(b) 66 km/h
(c) 72 km/h
(d) 74 km/h

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Q75. The value of 284/5 ÷ [(4/5 × (15+35)-113/5)] is:

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

GENERAL AWARENESS

Q76. Who is the author of the novel 'Burnt Sugar'?

(a) Kiran Desai
(b) Vikas Bahl
(c) Avni Doshi
(d) Salman Rushdie

Q77. Which of the following Articles of the Constitution of India makes provision for protection in respect of conviction for offences?

(a) Article 18
(b) Article 20
(c) Article 19
(d) Article 21

Q78. In which of the following states is the Ajanta caves situated?

(a) Maharashtra
(b) Madhya Pradesh
(c) Uttar Pradesh
(d) Kerala

Q79. Who was the Governor-General of Bengal when the Permanent Settlement was introduced there in 1793?

(a) Warren Hastings
(b) Lord Cornwallis
(c) Sir John Macpherson
(d) Sir John Shore

Q80. Which of the following national waterways has been INCORRECTLY matched with its associated river?

(a) National Waterway 2 - Brahmaputra
(b) National Waterway 4 - Krishna
(c) National Waterway 6 - Sutlej
(d) National Waterway 1 - Ganga

Q81. The legal provisions governing the management of foreign exchange reserves are laid down in the Reserve Bank of India Act, _____.

(a) 1947
(b) 1934
(c) 1923
(d) 1971

Q82. Who founded the famous Vikramashila University in the ninth century?

(a) Samanta Sena
(b) Dharmapala
(c) Gopala
(d) Ballala Sena

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Q83. Who among the following won the ‘Golden Boot’ at FIFA World Cup 2018?

(a) Kylian Mbappe
(b) Paul Pogba
(c) Harry Kane
(d) Luka Modric

Q84. Which of the following Union Ministries of India launched a pilot ‘Pey Jal Survekshan’ on 16 February 2021?

(a) Ministry of Earth Sciences
(b) Ministry of Jal Shakti
(c) Ministry of Housing and Urban Affairs
(d) Ministry of Environment, Forest and Climate Change

Q85. In October 2019, who became the youngest cricketer in the world to score a double century in List A cricket?

(a) Yashasvi Jaiswal
(b) Atharva Ankolekar
(c) Ravi Bishnoi
(d) Dhruv Jurel

Q86. On a computer keyboard, the Shift and Alt keys are examples of:

(a) numeric keys
(b) cursor movement keys
(c) modifier keys
(d) function keys

Q87. A mango tree is an example of a/an:

(a) pseudotroph
(b) autotroph
(c) ambitroph
(d) heterotroph

Q88. Which of the following nations is the smallest neighbour of India in terms of area?

(a) Maldives
(b) Nepal
(c) Bangladesh
(d) Afghanistan

Q89. Which of the following is the slowest type of internet connection?

(a) Cable
(b) Dial-up
(c) Satellite
(d) Digital subscriber line (DSL)

Q90. The nucleus of a cell is surrounded by a jelly-like substance called:

(a) stomata
(b) cell membrane
(c) cytoplasm
(d) deltoid

Q91. The total number of fundamental duties provided by the Constitution of India is:

(a) 11
(b) 29
(c) 19
(d) 32

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Q92. Where was ‘Dev Deepawali Mahotsav’ celebrated in the presence of the PM Narendra Modi in November 2020?

(a) Agra
(b) Prayagraj
(c) Varanasi
(d) Mathura

Q93. Which of the following is the largest bituminous coalfield in India?

(a) Jharia
(b) Rampur
(c) Yellandu
(d) Talcher

Q94. Which of the following hills is situated in Andhra Pradesh?

(a) Kaimur Hills
(b) Nagari Hills
(c) Girnar Hills
(d) Pachmarhi Hills

Q95. Which country was the host of the 15th G20 Leaders’ Summit 2020?

(a) Saudi Arabia
(b) China
(c) India
(d) The US

Q96. Who among the following singers was called ‘Mallika-e-Ghazal’ or the queen of Ghazal?

(a) Roshan Ara Begum
(b) Iqbal Bano
(c) Suraiya
(d) Begum Akhtar

Q97. What is the meaning of the term 'collateral' in the context of the banking system?

(a) Collateral is an asset that the government provides to farmers.
(b) Collateral is an asset that a borrower owns and uses this as a guarantee to a lender until the loan is repaid.
(c) Collateral is an asset that a borrower took as a loan.
(d) Collateral is an asset of the government that is used for the protection of consumers.

Q98. World Thyroid Day is observed on _____.

(a) 17^(th) June
(b) 30^(th) April
(c) 23^(rd) March
(d) 25^(th) May

Q99. Who among the following was NOT one of the recipients of the US military decoration 'the Legion of Merit' in December 2020?

(a) Scott Morrison
(b) Boris Johnson
(c) Shinzo Abe
(d) Narendra Modi

Q100. With which of the following sports is the FedEx Cup associated?

(a) Golf
(b) Badminton
(c) Football
(d) Tennis

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ANSWER KEY

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

SOLUTIONS

Q1. Answer: (c) cardiologist

The solution is in Hindi. Read it online.

Q2. Answer: (b) Subsikuent

The solution is in Hindi. Read it online.

Q3. Answer: (d) Archaeology

The solution is in Hindi. Read it online.

Q4. Answer: (b) My mother told me that the baby had been crying all day.

The solution is in Hindi. Read it online.

Q5. Answer: (a) to home

The solution is in Hindi. Read it online.

Q6. Answer: (b) work late into the night

The solution is in Hindi. Read it online.

Q7. Answer: (c) CABD

The solution is in Hindi. Read it online.

Q8. Answer: (b) teaches students

The solution is in Hindi. Read it online.

Q9. Answer: (b) did not plan

The solution is in Hindi. Read it online.

Q10. Answer: (d) Appear

The solution is in Hindi. Read it online.

Q11. Answer: (c) To become conscious again

The solution is in Hindi. Read it online.

Q12. Answer: (a) compulsory

The solution is in Hindi. Read it online.

Q13. Answer: (c) dissappear

The solution is in Hindi. Read it online.

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Q14. Answer: (c) attraction

The solution is in Hindi. Read it online.

Q15. Answer: (a) who won

The solution is in Hindi. Read it online.

Q16. Answer: (d) ACDB

The solution is in Hindi. Read it online.

Q17. Answer: (c) The game was being enjoyed by Shashi.

The solution is in Hindi. Read it online.

Q18. Answer: (a) safety

The solution is in Hindi. Read it online.

Q19. Answer: (c) Confusing

The solution is in Hindi. Read it online.

Q20. Answer: (b) predicament

The solution is in Hindi. Read it online.

Q21. Answer: (b) other

The solution is in Hindi. Read it online.

Q22. Answer: (d) listens

The solution is in Hindi. Read it online.

Q23. Answer: (b) successfully

The solution is in Hindi. Read it online.

Q24. Answer: (a) is created

The solution is in Hindi. Read it online.

Q25. Answer: (d) but

The solution is in Hindi. Read it online.

Q26. Answer: (a) [figure]

The figure that will replace the question mark (?) in the following figure series is shown below:

1) Three middle small figure interchange their positions in clockwise direction.

2) When the Lower middle small figure changes their position it is replace by a new small figure.

3) The Triangle figure rotates in a clockwise direction in each corner of square and it is also rotated a clockwise direction of its own position.

Final series is:

Hence, ‘option 1’ is the correct answer.

Q27. Answer: (b) 1, 5, 4, 2, 3

According to the sequence in the dictionary:

The correct order of the given words is:

1. Fragile
5. Frame
4. Fraudster
2. Freedom
3. Fresher

Hence, the correct answer is "1, 5, 4, 2, 3".

Q28. Answer: (b) 101

The pattern followed here is:

Hence, '101' is the correct answer.

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Q29. Answer: (c) Actor : Stage

The logic followed here is:

Warrior : Battlefield → Warriors perform their martial arts on the battlefield.

Similarly,

Actor : Stage → Actors perform their acting on stage.

Hence, 'Actor : Stage' is the correct answer.

Q30. Answer: (d) (7, 9, 441)

The Logic here is as follows:

{(1^(st) Number)² × 2^(nd) number} = 3^(rd) Number

In (5, 14, 350)

{(1^(st) Number)² × 2^(nd) number}

= 5² × 14

= 25 × 14

= 350 = 3^(rd) Number

Now check the all options,

Option (1) (8, 16, 340)

{(1^(st) Number)² × 2^(nd) number}

= 8² × 16

= 64 × 16

= 1024 ≠ 3^(rd) Number

Option (2) (6, 12, 232)

{(1^(st) Number)² × 2^(nd) number}

= 6² × 12

= 36 × 12

= 432 ≠ 3^(rd) Number

Option (3) (3, 20, 380)

{(1^(st) Number)² × 2^(nd) number}

= 3² × 20

= 9 × 20

= 180 ≠ 3^(rd) Number

Option (4) (7, 9, 441)

{(1^(st) Number)² × 2^(nd) number}

= 7² × 9

= 49 × 9

= 441 = 3^(rd) Number

Hence, the correct answer is "(7, 9, 441)".

Q31. Answer: (c) [figure]

The Venn diagrams best represent the relationship between - Mammals, Animals, Giraffe figures are shown below:

All Giraffes are mammals and all mammals are animals.

Hence, 'option 3' is the correct answer.

Q32. Answer: (d) 9 : 99

The logic is here is:

1^(st) number × 12 = 2^(nd) number.

Option (1): 17 : 204

Now, follow the logic:

17 × 12 = 204 = 2^(nd) number

This option follows the pattern.

Option (2): 11 : 132

11 × 12 = 132 = 2^(nd) number

This option follows the pattern.

Option (3): 7 : 84
7 × 12 = 84 = 2^(nd) number
This option follows the pattern.
Option (4): 9 : 99
Now, follow the logic:
9 × 12 = 108 ≠ 2^(nd) number
This option do not follow the pattern.
Hence, pair “9 : 99” is an odd one.

Q33. Answer: (d) (202, 404, 909)

The logic followed here is:
Option (1) (201, 402, 603) → All numbers are divisible by 3.
Option (2) (108, 300, 501) → All numbers are divisible by 3.
Option (3) (111, 222, 333) → All numbers are divisible by 3.
Option (4) (202, 404, 909) → 202 and 404 are not divisible by 3.
Hence, ‘Option (4)’ is the correct answer.

Q34. Answer: (c) DIINOTUSZ

The table is alphabets place value:
The pattern followed here is:
Step 1: Consonants alphabets coded as the number next alphabets.
• Consonants alphabet + 1 = new alphabet
Step 2: Vowel alphabets coded as the next vowel alphabets.
Given:
BIOLOGY: COUMUHZ
Similarly,
CHEMISTRY: ?
Hence, 'CHEMISTRY' is coded as "DIINOTUSZ".

Q35. Answer: (a) 31283536

The table is alphabets place value:
The pattern followed here is:
Step 1: Alphabets which place value in two-digit its place value multiply by 2 and coded as the number.
Step 2: Alphabets which place value in one-digit its place value coded as the number.
DORM is coded as 4303626
And,
FIRST is coded as 69363840
Similarly,
Hence, 'CANCER' is coded as "31283536".

Q36. Answer: (c) Neither conclusion I nor II follows.

Statements:
Some managers are bosses.
Some doctors are managers.
The least possible diagram for the given statements is as follows
Conclusions:
I. Some managers are executives → False (Because there are no statements given for executives)
II. Some doctors are bosses → False (It is possible but not definite)
Hence, “Neither conclusion I nor II follows.”

Q37. Answer: (d) 13

The number of triangles in the given figure is:
So, there are a total of 13 triangles in the figure.
Hence, ‘13’ is the correct answer.

Q38. Answer: (b) Kidney

The logic followed here is:

Given:

Eye' is related to 'Glasses' → Glasses are an object that clears the vision of the eyes.

Similarly,

'Kidney' is related to 'Dialyser'→ Dialyser is a machine that use for dialysis of kidney.

Hence, 'Kidney' is the correct answer.

Q39. Answer: (d) $

The opposite surface of the open dice can be found by the below method:-

• Alternate surfaces are opposite to each other.

• No two opposite surfaces are touched by side or by corners

So, by using the above rule we can find the opposite surface of open dice.

Below are the opposite surfaces:-

Symbols	Opposite
$	@
%	&
#	•

Option (1) & → % is opposite to &.

Option (2) % → & is opposite to %.

Option (3) # → + is opposite to #.

Option (4) $ → $ is opposite to @.

So, when the table will be constructed, the letters '$ and @' will be opposite to each other.

Hence, '$' is the correct answer.

Q40. Answer: (a) [figure]

The embedded part of this image is:

Hence, option (1) is the correct answer.

Q41. Answer: (c) S D T R S T R

Given :- T _ R _ _ S _ D T _ R D _ S _ D

By checking options and substituting accordingly.

Option (1) D S T R T T R → T D R S / T S R D / T T R D / T S R D.

Option (2) S D T D S T T → T S R D / T S D D / T S R D / T S T D

Option (3) S D T R S T R → T S R D / T S R D / T S R D / T S R D

Option (4) S T S R R T R → T S R T / S S R D / T R R D / T S R D

► Option (3) gives a pattern of T S R D - T S R D - T S R D - T S R D.

Hence, 'S D T R S T R' is the correct answer.

Q42. Answer: (c) [figure]

The correct mirror image of the given figure when the mirror is held at the right side is:

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

Additional Information

In Mirror image left side and right side changed vice-versa where top and bottom remain same.

Reflection of an object into the water is its water image. It appears by inverting an object vertically i.e. upside down.

The water image of the figure looks like the mirror image of the figure in case the mirror is horizontally at the bottom of the figure.

Water image is just a reflection where top and bottom part of the images changed where left and right side of the image remain same.

Q43. Answer: (d) Doctor

The logic followed here is:

Option (1) Engineer → An engineer applies mathematics and science to develop technical solutions to constructs buildings,

houses and etc.

Option (2) Architect → An architect is a person who plans, designs and oversees the construction of buildings, houses and etc.

Option (3) Designer → A designer is a person whose job is to make drawings or plans showing how buildings, houses will be made.

Option (4) Doctor → A doctor is a medical term. He is not contribute any help to making a house and building.

Hence, All contribute to making houses and buildings except doctors.

Hence, “Doctor” is an odd one.

Alternate MethodThe logic followed here is:

Option (1) Engineer → Engineer is the technical term.

Option (2) Architect → Architect is the technical term.

Option (3) Designer → Designer is the technical term.

Option (4) Doctor → Doctor is the medical term.

Hence, “Doctor” is an odd one.

Q44. Answer: (c) 347

The pattern followed here is,

Let (1^(st) number : 2^(nd) number)

(2^(nd) number)^3 + 4 = 1^(st) number

Now follow the steps:

68 : 4

=> 4^3 + 4 = 64 + 4 = 68 = 1^(st) number

And,

220 : 6

=> 6^3 + 4 = 216 + 4 = 220 = 1^(st) number

Similarly,

? : 7

=> 7^3 + 4 = 343 + 4 = 347 = 1^(st) number

Hence, "347" is correct answer.

Q45. Answer: (b) Rs. 35,000

Given:

1) The sum of the salaries of three persons, A, B and C, is Rs. 66,500.

=> A + B + C = 66,500 ---------- eq. (i)

2) B's salary is half the salary of C.

=> B = C / 2 ---------- eq. (ii)

3) B's salary is 125% of A's salary.

=> B = 125% A

=> B = 5 / 4 × A

From eq. (i)

=> C / 2 = 5A / 4

=> A = 4C / 10 ---------- eq. (iii)

From eq. (ii) and eq. (iii) put the value of B and A in eq. (i)

=> 4C / 10 + C / 2 + C = 66500

=> (4C + 5C + 10 C) / 10 = 66500

=> 19C / 10 = 66500

=> C = (66500 × 10) / 19

=> C = 665000 / 19

=> C = 35000

Hence, Salary of C is “35000”.

Q46. Answer: (c) 42

The pattern followed here is:

Step 1: Each consonants are coded as their positional value = Number code.

Step 3: Vowels coded as their vowel order.
A - 1, E - 2, I - 3, O - 4, U - 5
GOD is coded as 15.
And,
DEVIL is coded as 43,
Similarly,
HUMEN = ?
Hence, the correct answer is "42".

Q47. Answer: (d) [figure]

The image obtained when the paper is unfolded is,
Hence, "option 4" is the correct answer.

Q48. Answer: (d) BEGLN

Table show alphabet serial number –
The pattern followed is,
All follow the same pattern, except 'BEGLN'.
Hence, “BEGLN” is the odd one.

Q49. Answer: (c) 12 × 3 + 6 = 30

Option (1) 11 × 6 + 3 = 69
After interchange signs + and ×, and the numbers 3 and 6.
11 + 3 × 6 = 69
11 + 18 = 69
29 = 69 (LHS ≠ RHS)
Option (2) 9 × 3 + 6 = 33
After interchange signs + and ×, and the numbers 3 and 6.
9 + 6 × 3 = 33
9 + 18 = 33
27 = 33 (LHS ≠ RHS)
Option (3) 12 × 3 + 6 = 30
After interchange signs + and ×, and the numbers 3 and 6.
12 + 6 × 3 = 30
12 + 18 = 30
30 = 30 (LHS = RHS)
Option (4) 7 + 3 × 6 = 48
After interchange signs + and ×, and the numbers 3 and 6.
7 × 6 + 3 = 48
42 + 3 = 48
45 = 48 (LHS ≠ RHS)
Hence, “Option (3)” is the correct answer.

Q50. Answer: (b) Cousin

Preparing the family tree using the following symbols,
Given:
1) Divya and Monika are sisters.
2) Monika is the mother of Anamika.
3) Kishore is the son of Anamika.
4) Lillu is the son of Divya.
Here, Anamika's gender is not confirmed. So, Anamika is either male or female.
Hence, Anamika is the "Cousin" of Lillu.

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Q51. Answer: (b) 60°

Given:

sin2 x – 3cos2 x = 0

Formula used:

$\tan^2 x = \sin^2 x/\cos^2 x$

$\tan 60° = \sqrt{3}$

Calculation:

sin2 x – 3cos2 x = 0

$\sin^2 x/\cos^2 x = 3$

$\Rightarrow \tan^2 x = 3$

$\Rightarrow \tan x = \sqrt{3}$

$\Rightarrow \tan x = \sqrt{3} = \tan 60°$

$\Rightarrow x = 60°$

Therefore The value of x is 60°

Q52. Answer: (a) 62.5

Calculation:

The total number of students who scored less than 20 marks = (2 + 8 + 7 + 8) = 25

Total number of students = 40

The percentage of the students who scored less than 20 marks = (25/40 × 100)

$\Rightarrow 125/2$

$\Rightarrow 62.5\%$

Therefore The required percentage is 62.5

Q53. Answer: (c) 5

Given:

$(5 \cot \theta + \sqrt{3} \operatorname{cosec} \theta)/(2\sqrt{3} \operatorname{cosec} \theta + 3 \cot \theta)=1,0° < \theta < 90°$

Formula used:

$\cot\theta = \cos\theta/\sin\theta$

$\operatorname{cosec}\theta = 1/\sin\theta$

Calculation:

$(5 \cot \theta + \sqrt{3} \operatorname{cosec} \theta)/(2\sqrt{3} \operatorname{cosec} \theta + 3 \cot \theta)=1,0° < \theta < 90°$

$\Rightarrow 5\cot\theta + \sqrt{3}\operatorname{cosec}\theta = 2\sqrt{3}\operatorname{cosec}\theta + 3\cot\theta$

$\Rightarrow (5\cot\theta – 3\cot\theta) = (2\sqrt{3}\operatorname{cosec}\theta – \sqrt{3}\operatorname{cosec}\theta)$

$\Rightarrow 2\cot\theta = \sqrt{3}\operatorname{cosec}\theta$

$\Rightarrow 2 \times \cos\theta/\sin\theta = \sqrt{3} \times 1/\sin\theta$

$\Rightarrow 2\cos\theta = \sqrt{3}$

$\Rightarrow \cos\theta = \sqrt{3}/2 = \cos 30°$

So, $\theta = 30°$

Now,

The value of $(7/2 \cot^2 \theta - 3/4 \operatorname{cosec}^2 \theta)/(4 \sin^2 \theta + 3/2 \tan^2 \theta)$

$\Rightarrow (7/2 \cot^2 30° – 3/4 \operatorname{cosec}^2 30°)/(4 \sin^2 30° + 3/2 \tan^2 30°)$

$\Rightarrow 7/2 \times (\sqrt{3})^2 – 3/4 \times (2)^2/4 \times (1/2)^2 + 3/2 \times (1/\sqrt{3})^2$

$\Rightarrow (7/2 \times 3) – (3/4 \times 4)/(4 \times 1/4) + (3/2 \times 1/3)$

$\Rightarrow (21/2 – 3)/(1 + 1/2)$

$\Rightarrow (21 – 6)/2/(2 + 1)/2$

$\Rightarrow (15/2)/(3/2)$

$\Rightarrow (15/2 \times 2/3)$

$\Rightarrow 5$

Therefore The required value is 5

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Q54. Answer: (d) 20 cm

Given:

The sum of the square of the sides of a rhombus = 1600 cm²

Concept used:

The side of a rhombus is equal

Calculation:

Let the side of the rhombus be a

Sum of side of rhombus = 4a

Now,

According to the question

=> $4a^2 = 1600$ cm²

=> $a^2 = (1600/4)$

=> $a^2 = 400$

=> a = 20 cm

Therefore The side of the rhombus is 20 cm

Q55. Answer: (a) 32°

Given:

angle AOB = 116°

Calculation:

According to the question

=> angle AOB + angle APB = 180°

=> 116° + angle APB = 180°

=> angle APB = (180° – 116°)

=> angle APB = 64°

Now,

=> angle OPB = angle APB/2

=> angle OPB = 64°/2

=> angle OPB = 32°

Therefore The required value of angle OPB is 32°

Q56. Answer: (c) 0

Given:

The value of √(cos 60° cos 30°- sin 60° sin 30°)

Formula used:

cos 60° = 1/2

cos 30° = √3/2

sin 60° = √3/2

sin 30° = 1/2

Calculation:

√(cos 60° cos 30°- sin 60° sin 30°)

=> √(1/2 × √3/2) – (√3/2 × 1/2)

=> √(√3/4 – √3/4)

=> 0

Therefore The required value is 0

Q57. Answer: (b) 70

Given:

x, y and z are three positive numbers

y is 4/5 times of x

z is 5/8 times of y

The average of reciprocals of the numbers x, y and z = 17/240

Formula used:

Average = sum of observations/Number of observations
Calculation:
y is 4/5 times of x
=> y = x × 4/5
=> y = 4x/5
And, z is 5/8 times of y
=> z = y × 5/8
=> z = 4x/5 × 5/8
=> z = x/2
Now,
The average of reciprocals of the numbers x, y and z = 17/240
=> (1/x + 1/y + 1/z)/3 = 17/240
=> 1/x + 1/y + 1/z = 17/80
Now,
=> 1/x + 5/4x + 2/x = 17/80
=> (4 + 5 + 8)/4x = 17/80
=> 17/4x = 17/80
=> x = 80/4
=> x = 20
Now,
Put the value of x in y = 4x/5
=> y = (4 × 20/5)
=> y = 16
Now,
The average of 3 times of x and 5 times of y = (3 × 20 + 5 × 16)/2
=> (60 + 80)/2
=> 140/2
=> 70
Therefore The required average is 70

Q58. Answer: (d) 5,568

Given:
Principal = Rs. 7500
The rate of interest for the first two years = 20%
The rate of interest for the next two years = 10%
Formula used:
CI = P[(1 + R/100)^T – 1]
CI = CI1 + CI2
Calculation:
According to the question
CI for the first two year
=> CI1 = P[(1 + R/100)T – 1]
=> Rs. 7500[(1 + 20/100)² – 1]
=> Rs. 7500[(120/100)² – 1]
=> Rs. 7500[(6/5 × 6/5) – 1]
=> Rs. 7500(36/25 – 1)
=> Rs. (7500 × 11/25)
=> Rs. 3300
Now,
CI for the next two year
P will be = Rs. (7500 + 3300) = Rs. 10800
=> CI2 = P[(1 + R/100)T – 1]

=> Rs. 10800[(1 + 10/100)² – 1]
=> Rs. 10800[(110/100)² – 1]
=> Rs. 10800[(11/10 × 11/10) – 1]
=> Rs. 10800(121/100 – 1)
=> Rs. (10800 × 21/100)
=> Rs. 2268
Now,
CI = CI1 + CI2
=> Rs. (3300 + 2268)
=> Rs. 5568
Therefore The required CI is Rs. 5,568

Q59. Answer: (a) Rs. 2,240

Given:
Total number of students = 80
Total number of resource persons = 10
The amount spent for distributing sweets to each student = 30% of the total number of students
The amount spent towards each resource person = 40% of the total number of students.
Calculation:
According to the question
=> (80 × 30/100 of 80) + (10 × 40/100 × 80)
=> (80 × 24) + (4 × 80)
=> Rs. (1920 + 320)
=> Rs. 2240
Therefore The total amount spent for sweets distribution in the workshop was Rs. 2,240

Q60. Answer: (b) 2016

Calculation:
The total number of vehicles of type A produced in 2013, 2015 and 2017 = (120 + 240 + 360) = 720
311/4% of the total number of vehicles of type A produced in 2013, 2015 and 2017 = (720 × 125/400)
=> 225
So, 225 is equal to the number of vehicles of type B produced in the year 2016
Therefore The required year is 2016

Q61. Answer: (b) 12 cm

Shortcut Trick
By AA similarity, triangle PRQ ~ triangle SRP because angle R is common and angle QPR = angle PSR.
Ratio of corresponding sides: PR / SR = QR / PR
$PR^2 = QR \times SR$
SR = QR − QS = 18 − 10 = 8 cm
$PR = \sqrt{(18 \times 8)} = \sqrt{144} = 12$ cm
Therefore The correct answer is 12 cm.
Alternate Method
Given:
QS = 10 cm, QR = 18 cm, angle PSR = angle QPR
Formula Used:
AA Similarity Criterion: If two angles of one triangle are equal to two angles of another triangle, the triangles are similar, and their corresponding sides are in the same ratio.
P
Q
R
S
10 cm

8 cm

QR = 18 cm

Calculations:

=> In triangle PQR, S is a point on QR.

=> SR = QR − QS = 18 − 10 = 8 cm

=> Compare triangle PRQ and triangle SRP:

=> angle PRQ = angle PRS (Common Angle)

=> angle QPR = angle PSR (Given)

=> Therefore triangle PRQ ~ triangle SRP (By AA Similarity)

=> PR / SR = QR / PR

=> $PR^2 = QR \times SR$

=> $PR^2 = 18 \times 8$

=> $PR^2 = 144$

=> PR = √144 = 12 cm

Therefore The correct answer is 12 cm.

Additional Information

AA Similarity Criterion

Two triangles are similar if two pairs of corresponding angles are equal. The order of vertices is crucial for defining side ratios correctly.

Geometric Mean Property

In similar triangles formed by a common angle and specific vertex equalities, a side often acts as the geometric mean: $side^2$ = part1 × part2.

Area of Similar Triangles

If triangle ABC ~ triangle DEF, then Area(triangle ABC) / Area(triangle DEF) = $(AB/DE)^2 = (BC/EF)^2 = (AC/DF)^2$.

Q62. Answer: (a) 3

Given:

2x + 3y + 4z = 11, 8x3 + 27y3 + 64z3 = 105 and xyz = 1

Formula used:

$a^3 + b^3 + c^3 – 3abc = (a + b + c) (a^2 + b^2 + c^2 – ab – bc – ca)$

Calculation:

a3 + b3 + c3 – 3abc = (a + b + c) (a2 + b2 + c2 – ab – bc – ca)

$2x^3 + 3y^3 + 4z^3 – 3 \times 2x \times 3y \times 4z = (2x + 3y + 4z) (2x^2 + 3y^2 + 4z^2 – 2x \times 3y – 3y \times 4z – 2x \times 4z)$

=> 8x3 + 27y3 + 64z3 – 72xyz = (2x + 3y + 4z) (4x2 + 9y2 + 16z2 – 6xy – 12yz – 8xz)

=> 105 – 72 = 11 × (4x2 + 9y2 + 16z2 – 6xy – 12yz – 8xz)

=> 33 = 11 × (4x2 + 9y2 + 16z2 – 6xy – 12yz – 8xz)

=> (4x2 + 9y2 + 16z2 – 6xy – 12yz – 8xz) = (33/11)

=> (4x2 + 9y2 + 16z2 – 6xy – 12yz – 8xz) = 3

Therefore The required value is 3

Q63. Answer: (b) Rs. 1,848

Given:

The marked price of a juicer mixer = Rs. 5,500

The three successive discounts = 40%, 30% and 20% respectively

Formula used:

SP = MP × (100 – Discount%)/100

Calculation:

The marked price of a juicer mixer = Rs. 5,500

The Selling price = Rs. 5,500 × (100 – 40)/100 × (100 – 30)/100 × (100 – 20)/100

=> Rs. (5,500 × 60/100 × 70/100 × 80/100)

=> Rs. (5,500 × 3/5 × 7/10 × 4/5)

=> Rs. (22 × 3 × 7 × 4)

=> Rs. 1,848

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Therefore The selling price of the juicer mixer is Rs. 1,848

Q64. Answer: (a) A = 5, B = 3

Given:

The number 4A306768B2 is divisible by both 8 and 11

Concept used:

Divisibility rule of 8 - If the last three digits of a number are divisible by 8, then the number is completely divisible by 8.

Divisibility rule of 11 - If the difference between the sum of the digits at the odd and even places equals 0 or divisible by 11, then the number is divisible by 11.

Calculation:

According to the divisibility rule of 8, we have 8B2 should be divisible by 8

By dividing the number 8B2, the smallest values of B, we put is 3

So, the number is 832, which is completely divisible by 8.

Now,

The updated number = 4A30676832

The difference between the sum of the digits at the odd and even places = (4 + 3 + 6 + 6 + 3) – (A + 0 + 7 + 8 + 2)

=> [22 – (A + 17)] = 0 or 11

=> A – 5 = 0 or 11

If we put the value of A be 0

Then,

=> (A – 5) = 0

=> A = 5

Therefore The smallest possible values of A and B will be A = 5, B = 3

Q65. Answer: (c) 428

Calculation:

Total number of students of graduate level in five different institutes = 12400

Total number of students of graduate level in P, R and T = (25 + 14 + 12)% = 51%

=> (12400 × 51/100)

=> 6324

The average number of students of graduate level in P, R and T = (6324/3)

=> 2108

Now,

Total number of students of post graduate level in five different institutes = 8000

Total number of students of post graduate level in P, R and T = (36 + 17 + 10)% = 63%

=> (8000 × 63/100)

=> 5040

The average number of students of post graduate level in P, R and T = (5040/3)

=> 1680

Now,

The difference between the average number of students of graduate level in institutes P, R and T to the average of students of postgraduate level in institutes P, R and T = (2108 – 1680)

=> 428

Therefore The required difference is 428

Q66. Answer: (c) 5 : 3

Calculation:

The number of students that appeared at the scholarship examination from College X = 3000

The number of students that qualified at the scholarship examination from College X = 1800

The ratio of the number of students that appeared to the number of students that qualified at the scholarship examination from College

X = (3000: 1800)

=> 5 : 3

Therefore The required ratio is 5 : 3

Q67. Answer: (c) 3240

Shortcut Trick

Multiply the given equation by 3: $3x + 1/x = 15$.

Use the direct shortcut: If $a + b = k$, then $a^3 + b^3 = k^3 - 3abk$.

Here, $a = 3x$, $b = 1/x$, so $ab = 3$ and $k = 15$.

Value = $15^3 - 3 \times 3 \times 15 = 3375 - 135 = 3240$.

Therefore The correct answer is 3240.

Alternate Method

Given: $x + 1/(3x) = 5$

Formula Used: $(a + b)^3 = a^3 + b^3 + 3ab(a + b)$

=> Multiply the given equation by 3 on both sides:

=> $3 \times (x + 1/(3x)) = 3 \times 5$

=> $3x + 1/x = 15$

=> Cubing both sides of the equation:

=> $(3x + 1/x)^3 = 15^3$

=> $(3x)^3 + (1/x)^3 + 3 \times 3x \times (1/x) \times (3x + 1/x) = 3375$

=> $27x^3 + 1/x^3 + 9 \times (3x + 1/x) = 3375$

=> Substitute $(3x + 1/x) = 15$:

=> $27x^3 + 1/x^3 + 9 \times 15 = 3375$

=> $27x^3 + 1/x^3 + 135 = 3375$

=> $27x^3 + 1/x^3 = 3375 - 135 = 3240$

Therefore The correct answer is 3240.

Additional Information

Algebraic Cube Identity

The basic identity for the cube of a sum is $(a + b)^3 = a^3 + b^3 + 3ab(a + b)$. It is frequently used to find the sum of cubes when the sum and product of two terms are known.

Reciprocal Power Shortcut

If $x + 1/x = k$, then $x^3 + 1/x^3 = k^3 - 3k$. This can be extended to coefficients: if $ax + b/x = k$, then $(ax)^3 + (b/x)^3 = k^3 - 3(ab)k$.

Successive Calculation

To find higher powers like x^6, first find the square ($x^2 + 1/x^2$) and then cube that result, or vice versa.

Q68. Answer: (c) 1 : √3 : 2

Given:

The ratio of angles = 1 : 2 : 3

Concept used:

Sine rule = a/sinA = b/sinB = c/sinC

Calculation:

Let A = x, B = 2x and C = 3x

=> angle A + angle B + angle C = 180° [angle sum property]

=> x + 2x + 3x = 180°

=> 6x = 180°

=> x = 30°

=> angle A = 30°, angle B = 60° and angle C = 90°

Now,

As we know that,

=> a/sin30° = b/sin60° = c/sin90°

=> a/1/2 = b/√3/2 = c/1

=> a = 1, b = √3 and c = 2

So, a : b : c = 1 : √3 : 2

Therefore The required ratio is 1 : √3 : 2

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Q69. Answer: (b) 8

Given:

1 + 4x2 + 16x4 = 512 and 1 – 2x + 4x2 = 64

Calculation:

1 + 4x2 + 16x^4

Factorizing the number, we get

=> (1 – 2x + 4x²) (1 + 2x + 4x²)

Now,

Let the value of (1 + 2x + 4x2) be x

Then,

=> (1 + 2x + 4x2) = (1 + 4x2 + 16x^4)/(1 – 2x + 4x2)

=> x = 512/64

=> x = 8

Therefore The required value is 8

Q70. Answer: (d) Rs. 2,000

Shortcut Trick

Earnings are directly proportional to the total man-hours (People × Hours).

Initial man-hours = 15 × 6 = 90 units.

Given, 90 units = Rs. 900 => 1 unit = Rs. 10.

New man-hours = 20 × 10 = 200 units.

Total money earned = 200 units × Rs. 10 = Rs. 2,000.

Therefore The correct answer is Rs. 2,000.

Alternate Method

Given:

Number of people (M1) = 15, Working hours (H1) = 6, Earnings (W1) = Rs. 900

Number of people (M2) = 20, Working hours (H2) = 10, Earnings (W2) = ?

Using the Chain Rule formula:

(M1 × H1) / W1 = (M2 × H2) / W2

=> (15 × 6) / 900 = (20 × 10) / W2

=> 90 / 900 = 200 / W2

=> 1 / 10 = 200 / W2

=> W2 = 200 × 10

=> W2 = 2000

Therefore The correct answer is Rs. 2,000.

Additional Information

Chain Rule Concept

The general formula for work and wages is (M1 × D1 × H1 × E1) / W1 = (M2 × D2 × H2 × E2) / W2, where M is men, D is days, H is hours, E is efficiency, and W is work or wages.

Direct and Inverse Proportion

Wages are directly proportional to the number of men and hours, while the time required to complete a fixed piece of work is inversely proportional to the number of men.

Wage Calculation

Total Wage = (Rate per man-hour) × (Total number of man-hours). In this case, the rate was Rs. 10 per man-hour.

Q71. Answer: (b) 24 cm

Given:

The ratio of sides of a triangle = 1/3 : 1/5 : 1/4

Perimeter = 141 cm

Calculation:

Let the ratio of sides of triangle be 1x/3, 1x/5 and 1x/4 respectively

According to the question

=> x/3 + x/5 + x/4 = 141

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=> (20x + 12x + 15x)/60 = 141
=> 47x/60 = 141
=> 47x = (141 × 60)
=> 47x = 8460
=> x = 180
Now,
The greatest side = x/3 = (180/3) = 60 cm
The smallest side = x/5 = (180/5) = 36 cm
The difference between greatest side and smallest side = (60 – 36) = 24 cm
Therefore The required difference is 24 cm

Q72. Answer: (a) 81/3%

Given:
Gaurav bought some articles at 5 for Rs. 6
Gaurav sold them at 10 for Rs. 11
Formula used:
Loss = CP – SP
Loss% = Loss/CP × 100
Calculation:
Cost price of articles = Rs. 6/5
Selling price of articles = Rs. 11/10
Loss = Rs. (6/5 – 11/10)
=> (12 – 11)/10
=> 1/10
Loss% = (1/10/6/5 × 100)
=> (1/10 × 5/6 × 100)
=> (1/12 × 100)
=> 25/3
=> 81/3%
Therefore The loss% is 81/3%

Q73. Answer: (b) 8 cm

Given:
The length of a chord of a circle = 8√3 cm
Concept used:
The tangents drawn at the ends of a chord of a circle make equal angles with the chord.
Calculation:
If a perpendicular is drawn from O to AB, then it will touch AB at M
So, length of AM = 8√3 ÷ 2 = 4√3
Now, in ΔAOM
angle AOM = 60° [The tangents drawn at the ends of a chord of a circle make equal angles with the chord]
So, Sin 60° = AM/OA
=> √3/2 = 4√3/OA
=> 1/2 = 4/OA
=> OA = 2 × 4
=> 8 cm
Therefore Length of radius is 8 cm

Q74. Answer: (d) 74 km/h

Shortcut Trick
Since Distance is constant, Speed is inversely proportional to Time (S1 × T1 = S2 × T2).
Convert times to minutes: T1 = 148 min and T2 = 96 min.
Ratio of Time = 148 : 96 = 37 : 24.

Ratio of Speed = 24 : 37.
If 24 units = 48 km/h, then 1 unit = 2 km/h Therefore 37 units = 37 × 2 = 74 km/h.
Therefore The correct answer is 74 km/h.
Alternate Method
Given:
Initial Speed (S1) = 48 km/h
Initial Time (T1) = 2 hr 28 min = (2 × 60) + 28 = 148 min
New Time (T2) = 1 hr 36 min = (1 × 60) + 36 = 96 min
Formula Used:
Distance = Speed × Time
Calculations:
=> Distance (D) = S1 × T1
=> D = 48 × (148/60) km
=> New Speed (S2) = D ÷ T2
=> S2 = [48 × (148/60)] ÷ (96/60)
=> S2 = (48 × 148) ÷ 96
=> S2 = 148 ÷ 2
=> S2 = 74 km/h
Therefore The correct answer is 74 km/h.
Additional Information
Speed-Time Inverse Relation
When Distance is fixed, the ratio of speeds is the inverse of the ratio of times taken (S1:S2 = T2:T1).
Unit Conversion
To convert Speed from km/h to m/s, multiply by 5/18. To convert m/s to km/h, multiply by 18/5.
Average Speed
For a journey with different speeds but equal distances, Average Speed = 2S1S2 ÷ (S1 + S2).

Q75. Answer: (c) 2

Concept Used:
Follow the BODMAS rule according to the table given below:
Calculation:
284/5 ÷ [(4/5 × (15+35)-113/5)]
=> 284/5 ÷ [(4/5 × (15 + 35) – 58/5)]
=> 284/5 ÷ [(4/5 × 50 – 58/5)]
=> 284/5 ÷ (40 – 58/5)
=> 284/5 ÷ (200 – 58)/5
=> (284/5 ÷ 142/5)
=> (284/5 × 5/142)
=> 2
Therefore The required value is 2

Q76. Answer: (c) Avni Doshi

The correct answer is Avni Doshi.
• Avni Doshi is the author of the novel ‘Burnt Sugar’.
Key Points
• Avni Doshi is an American novelist.
• Her debut novel, "Girl in White Cotton" was published in India in 2019.
• In 2020, it was published in the United Kingdom under the title Burnt Sugar.
• The novel was shortlisted for the 2020 Booker Prize.
Additional InformationKiran Desai
• Kiran Desai is an Indian author.
• Desai's first novel, "Hullabaloo in the Guava Orchard" was published in 1998 and it won the Betty Trask Award.

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• Her novel "The Inheritance of Loss" won the 2006 Man Booker Prize and the National Book Critics Circle Fiction Award.

• In January 2015, The Economic Times listed her as one of 20 "most influential" global Indian women.

Vikas Bahl

• Vikas Bahl is an Indian film producer, screenwriter, and director in Hindi cinema.

• He used to produce films under Phantom Films and was the former head of UTV Spot Boy.

• He has won three National Film Awards (2011, 2014)and one Filmfare Award (2015).

Salman Rushdie

• Sir Ahmed Salman Rushdie FRSL is a British-American novelist and essayist of Indian descent.

• His second novel "Midnight's Children" won the Booker Prize in 1981.

• He received the Golden PEN Award, Hans Christian Andersen Literature Award (2014), PEN Pinter Prize (UK), St. Louis Literary Award from the Saint Louis University Library Associates, State Prize for Literature (Austria), and Swiss Freethinkers Award 2019.

Q77. Answer: (b) Article 20

The correct answer is Article 20.

• Article 20 of the Constitution of India makes provision for protection in respect of conviction for offenses.

Key Points

• Article 20 grants three kinds of protection against arbitrary and excessive punishment to an accused person, whether a citizen or foreigner or a legal person like a company or a corporation.

1. No ex-post-facto law.

2. No double Jeopardy.

3. No self-incrimination.

Additional InformationArticle 18

• Abolition of titles, except Military and academic distinctions.

Article 19

• It guarantees the citizens of India the following six fundamentals freedoms:-

1. Freedom of Speech and Expression.

2. Freedom of Assembly.

3. Freedom of form Associations.

4. Freedom of Movement.

5. Freedom of Residence and Settlement.

6. Freedom of Profession, Occupation, Trade, and Bussiness

Article 21

• Provides protection of life and personal liberty.

Important Points

• The total number of parts in the Indian Constitution- 25.

• The total articles in the Indian Constitution - 470.

• The total number of schedules - 12.

Q78. Answer: (a) Maharashtra

The correct answer is Maharashtra.

• The Ajanta caves are situated in Maharashtra.

Key Points

• The Ajanta Caves are approximately 30 rock-cut Buddhist cave monuments dating from the 2nd century BCE to about 480 CE.

• The Ajanta caves are situated in the Aurangabad district of Maharashtra.

• The figures in these caves were done using fresco painting.

• The paintings are generally themed around Buddhism – the life of Buddha and Jataka stories.

• The outlines of the paintings were done in red colour.

• One of the striking features is the absence of blue colour in the paintings.

• The caves were designated a UNESCO Heritage site in 1983.

Additional Information

State	Famous caves

Maharashtra	Ellora Caves, Elephanta Caves, Karla Caves, Bhaja Caves, Bedse caves, Lenyadri Caves, Aurangabad Caves, Limestone caves, Bahrot Caves.
Madhya Pradesh	Bagh Caves, Bhimbetka Caves, Adamgarh Caves, Saru Maru Caves, Pandav Caves, Udayagiri Caves Bandhavgarh Ancient Caves, Chota Mahadev Cave, Lohani Caves, Bharat Neer Cave.
Uttar Pradesh	Gupt Godavari caves
Kerala	Edakkal Caves, Trikkur Mahadeva Temple, Kottukal Cave Temple Vizhinjam rock caves, Kaviyoor Cave Temple.

Q79. Answer: (b) Lord Cornwallis

The correct answer is Lord Cornwallis.

• Lord Cornwallis was the Governor-General of Bengal when the Permanent Settlement was introduced there in 1793.

Key Points

• Permanent Settlement is also known as Permanent Settlement of Bengal was an agreement between the British East India Company and the Landlords of Bengal to fix the land revenue.

• Land revenue was the major source of income for the British in India.

• Permanent Settlement was one such land revenue system.

• It was first introduced in Bengal and Bihar and later it was introduced in Madras and Varanasi.

• This system was also known as the Zamindari system.

Additional Information

Lord Cornwallis

• • He is known as the 'Father of Civil Services in India'.

• He created the post of District Judges'.

• Third Anglo-Mysore War and Treaty of Srirangapatnam.

• First-person to codify laws in 1793.

Warren Hastings

• First Governor-General of Bengal.

• He abolished the dual system of administration.

• He introduced Izaredari System in 1773.

• Regulating Act of 1773 and Pitt’s India Act of 1784.

• Rohilla war in 1774.

• He established Supreme Court in Calcutta.

• Foundation of the Asiatic Society of Bengal (1784)

• First Anglo-Maratha War (1775-1782) ended with the Treaty of Salbai.

• The second Anglo-Mysore war (1780-1784) ended with the Treaty of Mangalore.

Sir John Macpherson

• Sir John Macpherson was a British administrator in India.

• He was the acting Governor-General of Bengal from 1785 to 1786.

Sir John Shore

• He introduced the first Charter act of 1793.

• He was famous for his Policy of Non-intervention.

• Battle of Kharda (1795).

Q80. Answer: (c) National Waterway 6 - Sutlej

The correct answer is National Waterway 6 - Sutlej.

Key Points

• National Waterways 6 is a 71 km waterway between Lakhipur and Bhanga of the Barak River.

• The NW - 6 passes through Assam, Nagaland, Mizoram, Manipur, Tripura, and Arunachal Pradesh.

Additional InformationNational Waterway 2 - Brahmaputra

• National Waterway 2 (NW-2) is a section of the Brahmaputra River between the Bangladesh border near Dhubri and Sadiya in Assam.

• It is 891 km long and was established in 1988.

National Waterway 4 - Krishna

• National Waterway 4 is a part of the Krishna and Godavari river system.

• It is 1095 km long and was established in 2008.

• It connects the Indian states of Telangana, Andhra Pradesh, Tamil Nadu, and the union territory of Puducherry.

National Waterway 1 - Ganga

• The National Waterway 1 (NW-1) or Ganga-Bhagirathi-Hooghly river system runs from Prayagraj (Allahabad) in Uttar Pradesh to Haldia in West Bengal.

• It is 1620 km long and was established in 1986.

• The NW-1 passes through West Bengal, Jharkhand, Bihar, and Uttar Pradesh.

Important Points

• Longest waterway in India - National Waterway 1.

• Smallest waterway in India - National Waterway 69 (5 km, Manimutharu river Tamil Nadu).

• The longest river in India is the Ganges.

• The smallest river in India is the Arvari river (Rajasthan).

• The longest river island in the world is Majuli Island (Brahmaputra).

Q81. Answer: (b) 1934

The correct answer is 1934.

• The legal provisions governing the management of foreign exchange reserves are laid down in the Reserve Bank of India Act,1934.

Key Points

• The Reserve Bank of India Act 1934, provides the overarching legal framework for the deployment of reserves in different foreign currencies assets, and gold within the broad parameters of currencies, instruments, issuers, and counterparties.

• The guiding objectives of foreign exchange reserve management in India are similar to those of many central banks in the world.

• RBI Act was passed in 1934.

Additional Information

• RBI is known as the 'Central Bank of India' whose primary function is to regulate the issue of Banknotes and keeping of reserves with a view to securing monetary stability in India and generally to operate the currency and credit system of the country.

• RBI was set up on the recommendation of the Hilton Young Commission also called the Royal Commission in 1926.

• It was established on 1st April 1935.

• RBI was nationalized on 1st January 1949.

• RBI issues all currency notes except one rupee.

• The signature of the RBI Governor on the notes is in English and Hindi.

• The currency notes except one rupee hold the signature of the RBI Governor.

• One rupee holds the signature of the Finance Secretary.

Important Points

• Present and 25th Governor of RBI - Shakthikanta Das (As of March 2022).

• Deputy Governors of RBI - T. Rabi Sankar, S. M. K Jain, M. D. Patra, and M. Rajeshwar Rao.

• The first Governor of RBI - Sir Osborne Smith.

• The first Indian Governor of RBI - C. D. Deshmukh.

• The longest-serving RBI Governor - Benegal Rama Rao.

• Headquarter of RBI - Mumbai.

Q82. Answer: (b) Dharmapala

The correct answer is Dharmapala.

• Dharmapala founded the famous Vikramashila University in the ninth century.

Key Points

• Vikramashila was one of the three most important Buddhist monasteries in India during the Pala Empire, along with Nalanda and Odantapuri.

• It was established in response to a supposed decline in the quality of scholarship at Nalanda.

• Vikramashila University is located in Bihar.

Additional Information

• The Pala Dynasty originated in the region of Bengal as an imperial power during the Late Classical period on the Indian subcontinent.

• The dynasty was named after its ruling dynasty, whose rulers bore names ending with the suffix of Palau, which meant "protector".

• They were followers of the Mahayana and Tantric schools of Buddhism.

• They were insightful diplomats and military conquerors.

• Their army was equipped with war elephant cavalry.

• The Pala period is also known as a ‘Golden Era’ in Bengali history.

Important Points

• The Pala Dynasty was founded by Gopala I.

• Dharmapala was the son of Gopala I and the second ruler of the Pala Dynasty.

• Samanta Sena was the founder of the Sena dynasty.

• Ballala Sena was the second ruler of the Sena dynasty.

Q83. Answer: (c) Harry Kane

The correct answer is Harry Kane.

• Harry Kane won the ‘Golden Boot’ at FIFA World Cup 2018.

Key Points

• Harry Edward Kane is an English professional footballer who plays as a striker for Premier League club Tottenham Hotspur and captains the England national team.

• He scored six goals in FIFA World Cup 2018.

Additional InformationKylian Mbappe

• Kylian Mbappé Lottin is a French professional footballer who plays as a forward for Ligue 1 club Paris Saint-Germain.

• He won the Best Young Player award in the FIFA World cup 2018.

Paul Pogba

• Paul Pogba is a French professional footballer who plays as a central midfielder for Premier League club Manchester United.

Luka Modric

• Luka Modric is a Croatian professional footballer who plays as a midfielder for Spanish club Real Madrid and captains the Croatia national team.

• He won one Ballon d 'Or award in 2018.

• He also won the Best FIFA Men's Player award in 2018.

Important Points

• Full form of FIFA - International Federation of Association Football.

• FIFA Founded - 21^(st) May 1904.

• FIFA Headquarter - Zurich, Switzerland.

• FIFA President - Gianni Infantino (As of March 2022).

• FIFA 2018 Men World Cup Winner - France

• FIFA 2019 Women World Cup Winner - United States Of America.

• FIFA 2022 Men World Cup Venue - Qatar.

• FIFA 2023 Women World Cup Venue - Australia and New Zealand.

Q84. Answer: (c) Ministry of Housing and Urban Affairs

The correct answer is the Ministry of Housing and Urban Affairs.

• Ministry of Housing and Urban Affairs launched a pilot ‘Pey Jal Survekshan’ on 16 February 2021.

Key Points

• The pilot ‘Pey Jal Survekshan has been launched in 10 cities- Agra, Badlapur, Bhubaneswar, Churu, Kochi, Madurai, Patiala, Rohtak, Surat, and Tumkur.

• The main objective is to ascertain the equitable distribution of water, reuse of wastewater, and mapping of water bodies concerning quantity and quality of water through a challenging process.

Additional InformationMinistry of Housing and Urban Affairs

• The Ministry of Housing and Urban Affairs is a federal ministry with executive authority over the formulation and administration of the rules and regulations and laws relating to housing and urban development in India.

Ministry of Earth Sciences

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• The Ministry of Earth Sciences was formed on 29 January 2006 from a merger of the India Meteorological Department, the National Centre for Medium-Range Weather Forecasting, the Indian Institute of Tropical Meteorology, Pune, and Earth Risk Evaluation Centre, and the Ministry of Ocean Development.

Ministry of Jal Shakti

• Ministry of Jal Shakti was formed in May 2019 under the second Modi ministry.

• This was formed by merging of two ministries; the Ministry of Water Resources, River Development & Ganga Rejuvenation and Ministry of Drinking Water and Sanitation.

Ministry of Environment, Forest and Climate Change

• The ministry is responsible for planning, promoting, coordinating, and overseeing the implementation of environmental and forestry programmes in the country.

• The main activities undertaken by the ministry include conservation and survey of the flora of India and fauna of India, forests, prevention and control of pollution, afforestation, and land degradation mitigation.

Important Points

• Ministry of Housing and Urban Affairs - Hardeep Singh Puri (As of March 2022).

• Ministry of Earth Sciences - Dr. Jitendra Singh (Minister of State) (As of March 2022).

• Ministry of Jal Shakti - Gajendra Singh Shekhawat (As of March 2022).

• Ministry of Environment, Forest and Climate Change - Bhupender Yadav (As of March 2022).

Q85. Answer: (a) Yashasvi Jaiswal

The correct answer is Yashasvi Jaiswal.

• In October 2019, Yashasvi Jaiswal became the youngest cricketer in the world to score a double century in List A cricket.

Key Points

• Yashasvi Bhupendra Kumar Jaiswal is an Indian cricketer who plays for Mumbai in domestic cricket and Rajasthan Royals in the Indian Premier League.

• He was the leading run-scorer of the India U-19 team and player of the tournament at the 2020 Under-19 World Cup in South Africa.

Additional InformationAtharva Ankolekar

• Atharva Ankolekar is an Indian cricketer who plays for India Under-19s.

• He was the highest wicket-taker at the 2019 ACC Under-19 Asia Cup and player of the match in the final.

Ravi Bishnoi

• Ravi Bishnoi is an Indian cricketer who plays for Rajasthan in domestic cricket and Lucknow Super Giants in the Indian Premier League.

• He played for India in the 2020 Under-19 Cricket World Cup, finishing as the tournament's highest wicket-taker with 17 dismissals.

• He made his international debut for the India cricket team in February 2022.

Dhruv Jurel

• Dhruv Jurel is an Indian cricketer who plays for Rajasthan Royals in the Indian Premier League.

• He made his Twenty20 debut on 10 January 2021, for Uttar Pradesh in the 2020–21 Syed Mushtaq Ali Trophy.

• He was named as the Vice-Captain of India's squad for the 2020 Under-19 Cricket World Cup.

Q86. Answer: (c) modifier keys

The correct answer is modifier keys.

• On a computer keyboard, the Shift and Alt keys are examples of modifier keys.

Key Points

Modifier keys:

• A modifier key is a special key on a computer keyboard that temporarily modifies the normal action of another key when pressed together.

• Common modifier keys include Shift, Function, Control, Alt, Command, and Option.

• The Shift key is found on all keyboards, while the other keys may be exclusive to laptops or Windows or Macintosh computers.

• Shift - used for capitalizing letters and entering different types of symbols.

• Function (Fn) - There are 12 function keys (F1 - F12) are present on a keyboard to perform specific tasks. These keys have different functions for different programs.

• Control (Ctrl) - a Windows key used for entering keyboard shortcuts, such as Ctrl+S for saving a file or Ctrl+P for printing a document.

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• Alt - a Windows key that is also called the Alternate or Alternative key; used in combination with the numeric keypad for entering "Alt codes," which output special characters; may also be used in combination with the Control key for entering keyboard shortcuts.

• Command (Cmd) - a Macintosh key (similar to the Windows Control key) used for entering keyboard shortcuts; may have a four-leaf clover or Apple icon printed on the key.

• Option - A Macintosh key (similar to the Windows Alt key) used for entering special characters; may also be used in combination with the Command key for entering keyboard shortcuts.

Additional InformationNumeric keys:

• These keys are used for typing numbers (0 to 9).

• These keys are present above the top row of the alphabet keys and also present on the right side of the keyboard.

Cursor movement keys

• Cursor control keys are buttons on a computer keyboard that move the cursor.

• Every keyboard has some special navigation keys such as Cursor control keys (Arrow Keys), Home key, End key, Ctrl, Alt, Page Up, Page Down, Delete, Insert, etc.

Function keys

• There are 12 function keys (F1 - F12) are present on a keyboard to perform specific tasks.

• These keys have different functions for different programs.

Q87. Answer: (b) autotroph

The correct answer is autotroph.

• A mango tree is an example of an autotroph.

Key Points

• An autotroph is an organism that can produce its own food using light, water, carbon dioxide, or other chemicals.

• Examples of autotrophs include plants, algae, plankton, and bacteria.

Additional Information

• A heterotroph is an organism that cannot produce its own food and that eats other plants or animals for energy and nutrients.

• Heterotrophs occupy the second and third levels in a food chain.

• Dogs, birds, fish, and humans are all examples of heterotrophs.

• Producers, or autotrophs, are at the lowest level of the food chain, while consumers, or heterotrophs, are at higher levels.

Important Points

• Scientifc name of mango - Mangifera indica.

Q88. Answer: (a) Maldives

The correct answer is the Maldives.

• The Maldives is the smallest neighbor of India in terms of area.

Key Points

• A total of 9 countries shares borders with India.

• Out of these, 7 countries share land borders while 2 countries share sea borders.

• India shares its border with seven countries - Afghanistan (106 km), Bangladesh (4096.7 km), Bhutan (699 km), China (3488 km), Myanmar (1643 km), Nepal (1751 km), Pakistan (3323 km).

• Sri Lanka and the Maldives are two countries with water borders.

• Bhutan is the second smallest neighboring country of India in terms of land borders.

Additional Information

Countries	Capital	Currency	Language	Area (km²)
Maldives	Male	Maldivian Rufiyaa	Dhivehi	297.8
Nepal	Kathmandu	Nepalese Rupee	Nepali	147,181
Bangladesh	Dhaka	Bangladeshi Taka	Bengali	148,460
Afghanistan	Kabul	Afghan Afghani	Dari and Pashto	652,860

Important Points

• The longest boundary with India - Bangladesh (4096.7 km).

• The shortest boundary with India - Afghanistan (106).

Q89. Answer: (b) Dial-up

The correct answer is Dial-up.

• Dial-up is the slowest type of internet connection.

Key Points

Dial-up

• A dial-up connection uses a standard phone line and analog modem to access the Internet.

• A dial-up connection is established when two or more communication devices use a public switched telephone network (PSTN) to connect to an Internet service provider (ISP).

• A dial-up connection is the least expensive way to access the Internet

Additional Information

Cable

• A cable modem is a hardware device that allows your computer to communicate with an Internet service provider over a landline connection.

• A cable modem is a device that modulates and demodulates an analog carrier signal to encode and decode digital information that is transmitted.

• A cable modem provides bi-directional data communication.

• This cable and architecture provide the high bandwidth required for Internet access.

Digital subscriber line (DSL)

• A digital subscriber line (DSL) is a technology that transports high-bandwidth data over a simple telephone line that is directly connected to a modem.

• This allows for file-sharing, and the transmission of pictures and graphics, multimedia data, audio and video conferencing, and much more.

• DSL uses the analog medium, which is reliable and prevents interruptions and heavy packet loss.

• DSL is fast and provides low user subscription rates.

• DSL mainly uses copper wires and fiber optic cables as its transmission medium.

Q90. Answer: (c) cytoplasm

The correct answer is cytoplasm.

• The nucleus of a cell is surrounded by a jelly-like substance called cytoplasm.

Key Points

• The nucleus and other cell organelles in a cell are surrounded by a jelly-like substance called cytoplasm.

• It is the main arena for all the activities taking place inside a cell.

• It is enclosed by the cell membrane.

• It is made up of water, salts and proteins.

• In eukaryotic cells, the cytoplasm includes all of the material inside the cell and outside of the nucleus.

Additional Information

• Cell membrane is the semi-permeable membrane that is present within the cell wall and is made up of a thin layer of protein and fat.

• The cell membrane regulates the entry and exit of specific substances within the cell.

• Stomata are cell structures in the epidermis of tree leaves and needles that are involved in the exchange of carbon dioxide and water between plants and the atmosphere.

• The Deltoid muscle is a large triangular-shaped muscle that lies over the glenohumeral joint and which gives the shoulder its rounded contour.

Q91. Answer: (a) 11

The correct answer is 11.

• The total number of fundamental duties provided by the Constitution of India is 11.

Key Points

• The 11 fundamental duties are:

1. to abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem

2. to cherish and follow the noble ideals that inspired the national struggle for freedom

3. to uphold and protect the sovereignty, unity, and integrity of India

4. to defend the country and render national service when called upon to do so;

5. to promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic, and

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regional or sectional diversities and to renounce practices derogatory to the dignity of women

6. to value and preserve the rich heritage of the country's composite culture

7. to protect and improve the natural environment including forests, lakes, rivers, and wildlife, and to have compassion for living creatures

8. to develop scientific temper, humanism, and the spirit of inquiry and reform

9. to safeguard public property and to abjure violence

10. to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievement.

11. to provide opportunities for education to his child or ward between the age of six and fourteen years. This duty was added by the 86th Constitutional Amendment Act, 2002.

Additional Information

• The fundamental duties of the Indian constitution were borrowed from the USSR Constitution.

• By the recommendation of the Swaran Singh Committee, the fundamental duties of the Indian constitution were added by the 42^(nd) Constitutional Amendment Act 1976.

• Article 51A deals with the fundamental duties of the Indian citizen.

• The fundamental duties are non-justiciable.

Important Points

• Father of Indian Constitution - Dr. B. R. Ambedkar.

• National Constitution day - 26^(th) November.

• The total number of parts in the Indian Constitution- 25.

• The total articles in the Indian Constitution - 470.

• The total number of schedules - 12.

Q92. Answer: (c) Varanasi

The correct answer is Varanasi.

• Varanasi was 'Dev Deepawali Mahotsav' celebrated in the presence of PM Narendra Modi in November 2020.

Key Points

• The Dev Deepavali ("the Diwali of the Gods" or "Festival of Lights of the Gods") is the festival of Kartik Poornima celebrated in Varanasi, Uttar Pradesh, India.

• It falls on the full moon of the Hindu month of Kartika (November - December) and takes place fifteen days after Diwali.

• The steps of all the ghats on the riverfront of the Ganges River.

• The festival is also observed as Tripura Purnima Snan.

• The tradition of lighting the lamps on the Dev Deepawali festival day was first started at the Panchganga Ghat in 1985.

• During Dev Deepawali, houses are decorated with oil lamps and coloured designs on their front doors.

• Firecrackers are burnt at night, processions of decorated deities are taken out into the streets of Varanasi, and oil lamps are set afloat on the river.

Important Points

• Varanasi is known as the 'Religious Capital of India'.

• Kanpur is known as the 'Manchester of North India'.

• Kanpur is known as the 'Leather City of India'.

• Kanpur is known as the 'Industrial and Economic Capital of Uttar Pradesh'.

• Allahabad (Prayagraj) is known as the 'City of Prime Ministers'.

• Mathura is one of the seven sacred places of the Hindus and the birthplace of God Krishna.

• Agra is the historical city of India famous as the City of Taj Mahal.

Q93. Answer: (a) Jharia

The correct answer is Jharia.

• Jharia is the largest bituminous coalfield in India.

Key Points

• Jharia represents the largest coal reserves in India having estimated reserves of 19.4 billion tonnes of coking coal.

• The coalfield lies in the Damodar River Valley and covers about 280 square km.

• Rampur is a city and a municipality headquarter of Rampur District in the Indian state of Uttar Pradesh was formerly known for its various industries, including sugar refining and cotton milling.

• Yellandu coal mine is a coal mine on the Godavari Valley coalfield in Telangana state, India.

• The Yellandu coal mine is owned by Singareni Collieries Company Limited (a subsidiary of state-owned Coal India).

• Talcher coalfield is one of the largest storehouses of power grade coal in India plays a major role in the socio-economic development of the Odisha state.

Additional Information

• Jharkhand is known as the 'Land of Jungles' and 'Mineral State'.

• Jamshedpur is known as the 'Steel city of India' and 'Pittsburg of India'.

• Bokaro Steel Plant is situated in Jharkhand.

• Central Mining Research Institute is situated is at Dhanbad

• Jharkhand is the leading producer of Uranium and Mica.

• Kodarma district is known as the 'Mica Capital of India'.

• Hazaribag is known as the 'City of Thousand Gardens'.

• Ranchi is known as the 'City of Waterfalls'.

Important Points

• Jharkhand was formed on 15th November 2000 and carved out from the southern part of Bihar.

• Capital - Ranchi

• Chief Minister - Hemant Soren (As of March 2022).

• Governor - Ramesh Bias (As of March 2022).

• Official Language - Hindi

Q94. Answer: (b) Nagari Hills

The correct answer is Nagari Hills.

• Nagari Hills is situated in Andhra Pradesh.

Key Points

• Nagari Hill is one of the most photogenic hill stations is located in the Chittoor region near Tirupati of Andhra.

• Nagari Hill is located on the riverbank of Kusasthali.

• Kaimur Range is the eastern portion of the Vindhya Range that passes through the Jabalpur district of Madhya Pradesh, Mirzapur of Uttar Pradesh, and Sasaram in Rohtas district of Bihar.

• Girnar is an ancient hill and one of the Holiest pilgrimages for Jains located in Junagadh, Gujarat.

• Pachmarhi is a hill station in the Narmadapuram district of Madhya Pradesh.

• Pachmarhi Hill is widely known as Satpura ki Rani ("Queen of Satpura"), situated at a height of 1067 m in a valley of the Satpura Range.

Additional Information

• Andhra Pradesh is the first state formed on a linguistic basis.

• Sriharikota is the only satellite launching station in India.

• Kolleru is the one of largest freshwater lake in India after Wular Lake in Jammu and Kashmir.

• Andhra Pradesh is known as the 'Kohinoor of India'.

• Andhra Pradesh is known as the 'Granary of South India' and Egg Bowl of India.

• India's first submarine museum was set up in Vishakapatnam.

• Andhra Pradesh is the first South Indian state to implement Panchayat Raj.

• The famous temple Tirupati is in Andhra Pradesh.

Important Points

• Capital: Amaravati (Legislative Capital), Visakhapatnam (Executive Capital), Kurnool (Judicial Capital).

• Chief Minister: Y. S. Jaganmohan Reddy. (April 2021)

• Governor: S. Abdul Nazeer. (As of March 2023)

Q95. Answer: (a) Saudi Arabia

The correct answer is Saudi Arabia.

• Saudi Arabia was the host of the 15th G20 Leaders' Summit 2020.

Key Points

• The 15th G20 Leaders' Summit 2020 was scheduled to take place in Riyadh, the capital city of Saudi Arabia, on 21–22 November 2020.

• Due to the COVID-19 pandemic, it was held virtually.

Additional Information

• The G20 works to address major issues related to the global economy, such as international financial stability, climate change mitigation, and sustainable development.

• The G20 is composed of most of the world's largest economies, including both industrialized and developing nations, and accounts for around 90% of gross world product (GWP), 75–80% of international trade, two-thirds of the global population, and roughly half the world's land area.

• The G20 or Group of Twenty is an intergovernmental forum comprising 19 countries and the European Union (EU).

• The members of the G20 are Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, the United Kingdom, the United States, and the European Union.

Countries	Capital	Currency	Language
Saudi Arabia	Riyadh	Saudi Riyal	Arabic
China	Beijing	Renminbi	Chinese
India	New Delhi	Indian Rupee	Hindi
The US	Washington DC	US Dollar	English

Important Points

• The G20 was founded on 26^(th) September 1999.

• The first G20 summit was held in Washington DC (USA) in 2008.

• The 16th gG0 summit venue - Rome (Italy) 2021.

• The 17^(th) gG0 summit venue - Indonesia (Bali) 2022.

• The 18^(th) G20 summit venue - India (New Delhi) 2023.

• Joko Widodo (President of Indonesia) is the Chairman of the G20 Summit.

Q96. Answer: (d) Begum Akhtar

The correct answer is Begum Akhtar.

• Begum Akhtar singer was called ‘Mallika-e-Ghazal’ or the queen of Ghazal.

Key Points

• Akhtari Bai Faizabadi is also known as Begum Akhtar, was an Indian singer and actress.

• Dubbed "Mallika-e-Ghazal" (Queen of Ghazals), she is regarded as one of the greatest singers of ghazal, Dadra, and thumri genres of Hindustani classical music.

Additional Information

• Roshan Ara Begum was a vocalist belonging to the Kirana Gharana (singing style) of Hindustani classical music.

• Iqbal Bano was a ghazal singer from Pakistan and she was known for her semi-classical Urdu ghazal songs and classical thumris.

• Suraiya Jamal Sheikh, popularly known by the mononym Suraiya, was a popular actress and playback singer in India's Hindi-language films.

Q97. Answer: (b) Collateral is an asset that a borrower owns and uses this as a guarantee to a lender until the loan is repaid.

The correct answer is Collateral is an asset that a borrower owns and uses this as a guarantee to a lender until the loan is repaid.

Additional Information

• RBI is known as the 'Central Bank of India' whose primary function is to regulate the issue of Banknotes and keeping of reserves to secure monetary stability in India and generally to operate the currency and credit system of the country.

• RBI was set up on the recommendation of the Hilton Young Commission also called the Royal Commission in 1926.

• RBI was established on 1st April 1935.

• RBI was nationalized on 1st January 1949.

• RBI issues all currency notes except one rupee.

• The signature of the RBI Governor on the notes is in English and Hindi.

• The currency notes except one rupee hold the signature of the RBI Governor.

• One rupee holds the signature of the Finance Secretary.

Important Points

• Present and 26th Governor of RBI - Sanjay Malhotra.

• As of January 2025, the Deputy Governors of RBI are T. Rabi Sankar, M. K. Jain, Rajeev Ranjan, and Michael Patra.
• The first Governor of RBI - Sir Osborne Smith.
• The first Indian Governor of RBI - C. D. Deshmukh.
• The longest-serving RBI Governor - Benegal Rama Rao.
• Headquarter of RBI - Mumbai.

Q98. Answer: (d) 25^(th) May

The correct answer is 25th May.
• World Thyroid Day is observed on 25th May.
Key Points
• The main purpose of the WTD is to be aware of the importance of Thyroid and the prevention and treatment of thyroid diseases.
• This day is established in 2008 as a part of the campaign led by the European Thyroid Association (ETA) and the American Thyroid Association (ATA) followed by the Latin American Thyroid Society (LATS) and Asia Oceania Thyroid Association (AOTA) to commemorate the patients with Thyroid diseases and doctors and physicians who treat them.t
• The theme World Thyroid Day 2021 - “Mother-Baby-Iodine: The Importance of Iodine on the Woman and her Baby”.
• The thyroid gland controls growth and metabolism.
Additional Information
• World Day to Combat Desertification and Drought is observed on 17th June.
• World Meteorological Day is observed on 23rd March.
Important Points
• The thyroid gland is the largest endocrine gland in the human body.
• The thyroid gland secretes thyroxine and calcitonin.
• Under secretion of thyroxine causes Hypothyroidism.
• Over secretion of thyroxine causes Hyperthyroidism.

Q99. Answer: (b) Boris Johnson

The correct answer is Boris Johnson.
• Boris Johnson was not one of the recipients of the US military decoration 'the Legion of Merit in December 2020.
Key Points
• The Legion of Merit is a military award of the United States Armed Forces that is given for exceptionally meritorious conduct in the performance of outstanding services and achievements.
• The Legion of Merit, in the highest degree of the Chief Commander, is a prestigious award conferred by the President of the United States, typically upon Heads of State or Heads of Government of other countries.
• On 21 December 2020, The Legion of Merit, Degree Chief Commander, was awarded to the Prime Minister of India Narendra Modi, the Prime Minister of Australia Scott Morrison, and the former Prime Minister of Japan, Shinzo Abe.
Additional Information
Boris Johnson
• Alexander Boris de Pfeffel Johnson is a British politician former Prime Minister of the United Kingdom and Leader of the Conservative Party.
• He was Secretary of State for Foreign and Commonwealth Affairs and Mayor of London.
• Johnson has been an MP for Uxbridge and South Ruislip and was previously MP for Henley.
• The current Prime Minister of the United Kingdom is Liz Truss. (2022)
Scott John Morrison
• Scott John Morrison is an Australian politician serving as the 30^(th) and former Prime minister of Australia.
• He assumed office in August 2018 upon his election as leader of the Liberal Party of Australia.
• He is the longest-serving Prime minister since John Howard.
• The current Prime Minister of Australia is Anthony Albanese. (2022)
Shinzo Abe
• Shinzo Abe is a Japanese politician who served as Prime Minister of Japan and President of the Liberal Democratic Party.
• He is the longest-serving Prime minister in Japanese history.
Narendra Modi
• Narendra Damodardas Modi is an Indian politician serving as the 14^(th) and current Prime Minister of India since 2014.
• He was the Chief Minister of Gujarat and is a member of Parliament for Varanasi.

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• Modi is a member of the Bharatiya Janata Party and its National Democratic Alliance.
• He is the first Prime Minister born after India's independence.
• He is the second non-Congress one to win two consecutive terms after Atal Bihari Vajpayee.

Q100. Answer: (a) Golf

The correct answer is Golf.
• The FedEx Cup is associated with Golf.
Key Points
• The FedEx Cup is a championship trophy for the PGA Tour.
• The FedEx Cup was first awarded in 2007.
• Its introduction marked the first time that men's professional golf had a playoff system.
• Patrick Cantlay is the 2021 FedEx Cup champion from the United States.
Additional Information

Sports	Name of Trophies
Golf	• Walker Cup - Prince of Wales Cup - Ryder Cup - Canada Cup
Badminton	• Thomas Cup - Uber Cup - Yonex Cup - Malaysian Open
Football	• FIFA - UEFA Cup - Copa America Cup - Euro Cup - FA Cup
Tennis	• Australian Open - French Open - US Open - Wimbledon - Davis Cup

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