SSC CHSL 2020 Official Paper 10 (Held On: 16 April 2021 Shift 1) (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 correct indirect form of the given sentence.

"I am going to walk to the market to check which shops are open," said Anant.

(a) Anant said that he is going to walk to the market to check which shops were open.
(b) Anant said that he was going to walk to the market to check which shops were open.
(c) Anant said that he went for a walk to the market to check which shops were open
(d) Anant said that he will be going to walk to the market to check which shops were open

Q2. Select the word which means the same as the group of words given.

An imaginary, perfect state or place

(a) utopia
(b) dystopia
(c) arcadia
(d) nostalgia

Q3. Select the most appropriate ANTONYM of the given word.

INORDINATE

(a) disproportionate
(b) reasonable
(c) exorbitant
(d) irrational

Q4. Select the most appropriate meaning of the given idiom.

Cost an arm and a leg

(a) Be easily available
(b) Be rather cheap
(c) Be worthy of the cost
(d) Be extremely expensive

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

People have overcome poverty, drug addiction, abuse, divorce, mental illness, and virtually every _____ known to man.

(a) challenge
(b) dispute
(c) defiance
(d) objection

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

A bolt from the blue

(a) something that is hotly debated
(b) a strange dream that wakes one up suddenly
(c) something that happens suddenly
(d) something causing a head injury

Q7. Select the option that will improve the underlined segment in the given sentence. In case no improvement is needed, select 'No improvement'

It is wise to insure one’s home on fire.

(a) No improvement
(b) by
(c) in
(d) against

Q8. Given below are four jumbled sentences. Out of the given options, pick the one that gives their correct order.

A. To kill a whale, hunters used spears called harpoons.
B. Whale hunting is not easy.
C. These harpoons had very long and strong lines tied to them.
D. It was extremely difficult and risky before modern methods and machines began to be used.

(a) BDAC
(b) DCBA
(c) DBAC
(d) BADC

Q9. In the given sentence, identify the segment which contains the grammatical error.

The government has announced a gradual reboot of air travel who was halted two months ago due to lockdown.

(a) who was halted
(b) reboot of air travel
(c) due to lockdown
(d) The government has announced

Q10. Fill in the blank with the most appropriate option.

The craze for taking selfies has only increased our _____ with our own image.

(a) obsession
(b) impression
(c) possession
(d) expression

Q11. The following sentence has been split into four segments. Identify the segment which contains a grammatical error.

Until I was / still a little weak, / I decided to walk home / from the metro station.

(a) still a little weak
(b) Until I was
(c) from the metro station
(d) I decided to walk home

Q12. Examine the four jumbled sentences. Out of the given options, pick the one that gives their correct order.

A. That abandoned house is the childhood home of the director Achal Misra, who recreates it in this semi-autobiographical film.
B. It is spread over three decades.
C. ‘Gamak Ghar’ is a unique movie telling the story of a home.
D. These are from 1998 to 2019, wherein the film observes the house age as it is gradually abandoned.

(a) CBDA

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(b) DBCA
(c) BACD
(d) ABCD

Q13. 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'.

No other place in India gets much rainfall as Mawsynram.

(a) No substitution
(b) as much rainfall
(c) more rainfall
(d) the most rainfall

Q14. Select the correct passive form of the given sentence.

You can see vast valleys sloping into the distance.

(a) Vast valleys can be seen sloping into the distance.
(b) Vast valleys had been seen sloping into the distance.
(c) Vast valleys are seen sloping into the distance.
(d) Vast valleys will be seen sloping into the distance.

Q15. Select the most appropriate synonym of the given word.

RESPLENDENT

(a) Dull
(b) Dazzling
(c) Withered
(d) Unattractive

Q16. Select the option which means the same as the group of words given.

So small or unimportant as to be not worth considering

(a) invincible
(b) feasible
(c) negligible
(d) plausible

Q17. Select the INCORRECTLY spelt word.

(a) ridge
(b) ride
(c) rifel
(d) right

Q18. Select the most appropriate synonym of the given word.

BULL-HEADED

(a) clear-headed
(b) weak-minded
(c) headstrong
(d) muddle-headed

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

PUNGENT

(a) biting
(b) sharp
(c) mild
(d) sour

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Q20. Select the INCORRECTLY spelt word.

(a) acidentaly
(b) possession
(c) changeable
(d) tomorrow

Directions

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.

Many hundreds of years ago, a Brahmin lived in a town in Northern India. He spent many years (1)____ the ancient books and talking to the learned priests (2)__ came to visit the city. After much effort, he (3) __ the knowledge of a certain spell. He was (4)__ proud of this and guarded his secret (5)____.

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

(a) studying
(b) studied
(c) study
(d) to study

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

(a) whom
(b) which
(c) that
(d) who

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

(a) used
(b) obtained
(c) found
(d) took

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

(a) much
(b) many
(c) very
(d) a lot

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

(a) gradually
(b) deeply
(c) carefully
(d) excitedly

GENERAL INTELLIGENCE

Q26. 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) DFWU
(b) KMPN
(c) HJRQ
(d) ACZX

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Q27. Select the option in which the numbers share the same relationship as that shared by the given pair of numbers.

9 : 50

(a) 5 : 16
(b) 13 : 98
(c) 8 : 42
(d) 11 : 63

Q28. Select the correct mirror image of the given combination when the mirror is placed at 'PQ' as shown.



(a)



(b)



(c)

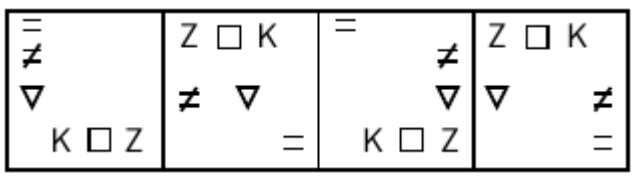


(d)

Q29. In a certain code language, REASON is coded as 51 and BAKE is coded as 47. How will MARRY be coded in that language?

(a) 37
(b) 47
(c) 41
(d) 35

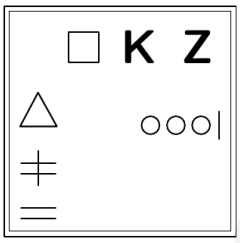
Q30. Select the figure that will come next in the following series.



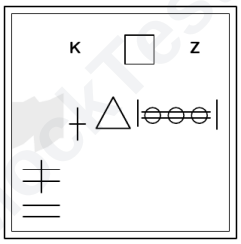
(a)



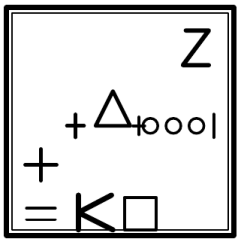
(b)



(c)



(d)



Q31. Four words have been given, out of which three are alike in some manner and one is different. Select the word that is different.

(a) Progress
(b) Growth
(c) Stride
(d) Hindrance

Q32. Select the option in which the words share the same relationship as that shared by the given pair of words.

Famine : Drought

(a) Devastation : Hurricane
(b) Temple : Devotion
(c) Examination : Degree
(d) War : Conquer

Q33. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

All bulbs are tubes.

Some bulbs are tumblers.

Conclusions:

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I. No bulb is a tube.

II. Some tumblers are bulbs

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

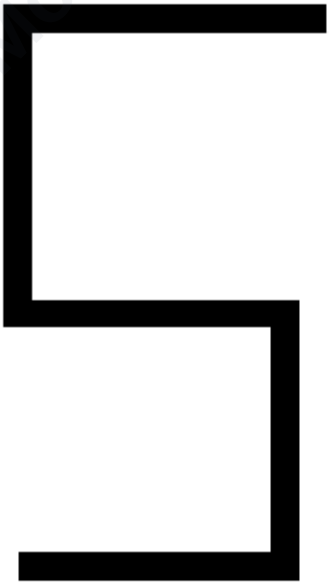
Q34. Four numbers have been given, out of which three are alike in some manner and one is different. Select the number that is different

(a) 1726
(b) 1331
(c) 2744
(d) 2197

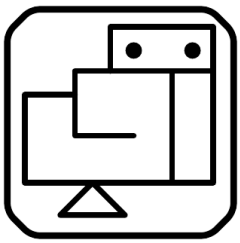
Q35. The sum of the two digits of a two-digit number is 13 and the number obtained by interchanging the two digits is 27 less than the original number. What is the original number?

(a) 85
(b) 76
(c) 94
(d) 58

Q36. Select the option in which the given figure is embedded (rotation is NOT allowed)

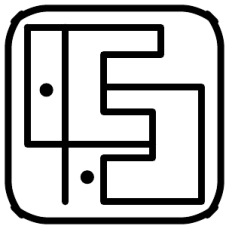


(a)

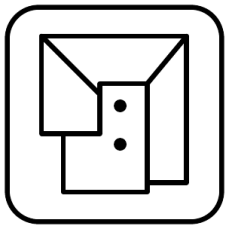


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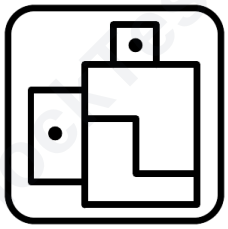
(b)



(c)



(d)



Q37. Select the number from among the given options that can replace the question mark (?) in the following series.

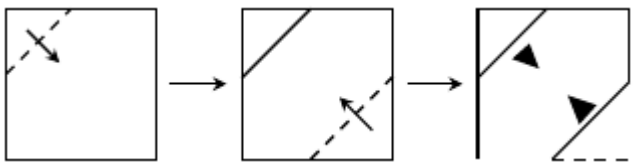
9, 10, 13, 24, 37, 66, 97, ?

(a) 215
(b) 251
(c) 152
(d) 125

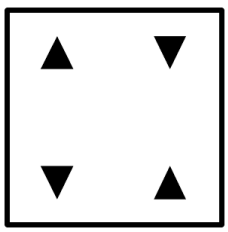
Q38. In a certain code language, EXHALE is written as IFEBBY. How will HINDER be written in that language?

(a) VYHMHB
(b) VYHHMB
(c) VHYHMB
(d) VHYHBM

Q39. The sequence of folding a piece and the manner in which the folded paper has been cut is shown in the following figures. How would this paper look when unfolded ?

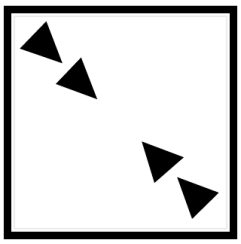


(a)

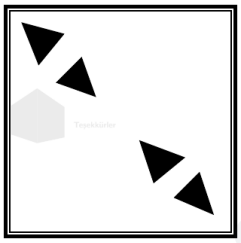


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(b)



(c)



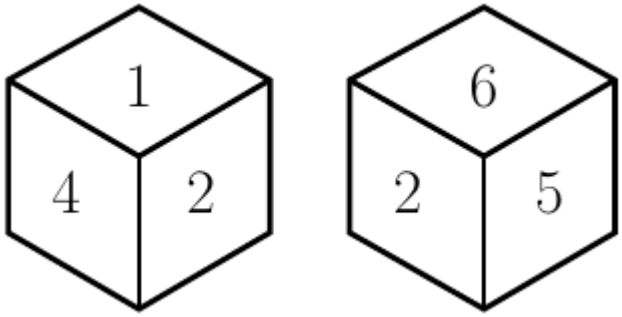
(d)



Q40. Rama is the daughter of Radhika, who is the only daughter-in-law of Rekha. Mohan is Rishi's father and Rekha's husband. How is Rishi related to Rama?

(a) Husband
(b) Cousin
(c) Brother
(d) Father

Q41. Two different position of the same dice are shown. Select the number that will be at the top if '1' is at the bottom.



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

Q42. Select the correct option that indicates the arrangement of the given words in a logical and meaningful order.

1. Colour wash
2. Wall
3. Decoration
4. Foundation
5. Roof

6. Floor cementing

(a) 4, 2, 5, 6, 1, 3
(b) 3, 1, 5, 6, 4, 2
(c) 4, 2, 6, 5, 1, 3
(d) 4, 5, 6, 2, 3, 1

Q43. From the given options choose the one in which the set of numbers do not follow the same Logic/Rule/Relation as the numbers given in below set.

(165, 16, 91)

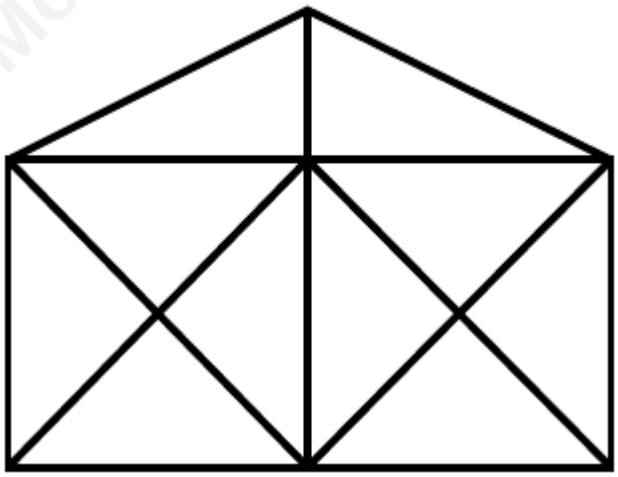
(a) (99, 14, 97)
(b) (76, 11, 45)
(c) (85, 13, 59)
(d) (57, 9, 24)

Q44. Select the option that is related to the third term in the same way as the second term is related to the first term.

DOCILE : CDEILO : : LABOUR : ?

(a) ABLORU
(b) ALBROU
(c) BRLAOU
(d) BLORAU

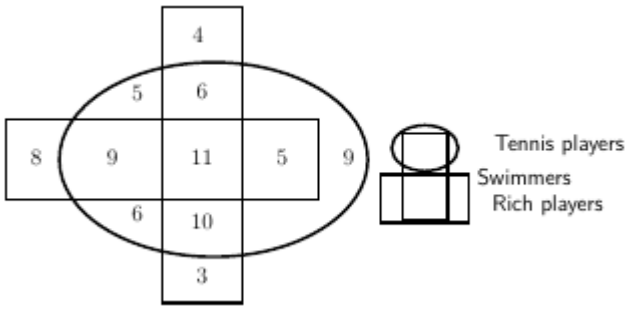
Q45. How many triangles are there in the following figure ?



(a) 19
(b) 23
(c) 25
(d) 27

Q46. In the given diagram, the shapes indicate the categories of persons. The numbers given in the different segments represent the number of persons in that category.

How many tennis players are either swimmers or rich persons but NOT both ?



(a) 41

(b) 26
(c) 30
(d) 24

Q47. Select the option that is related to the third word in the same way as the second word is related to the first word.

Prism : Glass :: Rope : ?

(a) Pulp
(b) Hemp
(c) Ore
(d) Latex

Q48. Select the combination of letters that when sequentially placed in the blanks of the given letter series will complete the series.

l _ chtlgc _ tlg _ ht _ gc _ tlgch _

(a) hghclt
(b) ghclht
(c) hhgclt
(d) ghchlt

Q49. Select the correct combination of mathematical signs that can sequentially replace the * signs and balance the given equation.

110 * 728 * 28 * 15 * 413 = 87

(a) +, ÷, ×, −
(b) +, −, ×, ÷
(c) +, ×, −, ÷
(d) +, ×, ÷, −

Q50. Select the option in which the numbers are related in the same way as are the numbers of the following set.

{6, 9, 18}

(a) {9, 13, 40}
(b) {12, 18, 52}
(c) {10, 15, 50}
(d) {8, 12, 30}

QUANTITATIVE APTITUDE

Q51. The length of the base of a right-angled triangle is 40 cm and its hypotenuse is 41 cm long. What is its area (in cm^2) and perimeter (in cm), respectively?

(a) 85 and 170
(b) 180 and 90
(c) 90 and 180
(d) 170 and 85

Q52. A man sells two articles for Rs. 620 each, one at a profit of 24% and the other at a loss of 24%. What is his loss/profit percent in the whole transaction?

(a) Profit, 5.76
(b) Loss, 12
(c) Profit, 12
(d) Loss, 5.76

Q53. If 7A = 4B = 14C, then what is A: B: C?

(a) 2 : 4 : 7
(b) 4 : 2 : 7
(c) 2 : 7 : 4

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(d) 4 : 7 : 2

Q54. A bicycle wheel has a radius of 42 cm. It makes 40 revolutions in 25 seconds. What is its speed (in km/h, up to one decimal place)?

(a) 3.5
(b) 11.6
(c) 9.5
(d) 15.2

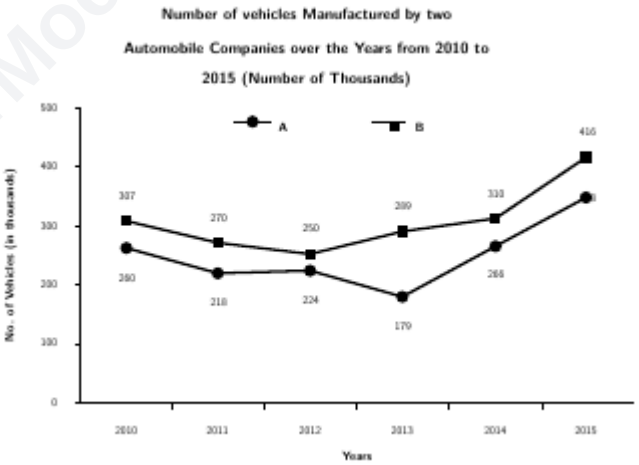
Q55. P can complete five-eighths of a work in 15 days and Q can complete three-fourths of the same work in 30 days. They worked together for 8 days and then P left. How much time will Q working alone, take to complete the remaining work?

(a) 15 day 8 hours
(b) 15 days 16 hours
(c) 18 days 16 hours
(d) 20 day 4 hours

Q56. Study the line graph and answer the question that follows.

The line graph represents the number of vehicles (in thousands) manufactured by two automobile companies A and B over the years from 2010 to 2015. The X-axis represents the years and the Y-axis represents number of vehicles in thousands.

(The data shown here is only for mathematical exercise. They do not represent the actual figures of the country.)



The average value of the vehicles manufactured by Company A is what per cent of the average value of the vehicles manufactured by Company B during 2010 to 2015?

(a) 81.2
(b) 67.8
(c) 78.5
(d) 83.1

Q57. What is the value of

(sin 33° cos 57° + sec 62° sin 28° + cos 33° sin 57° + cosec 62° cos 28°)/(tan 15° tan 35° tan 60° tan 55° tan 75°)

(a) 2√3
(b) √3
(c) 2
(d) (√3)/3

Q58. The average weight of some students in a class was 69.5 kg. When 10 students of average weight 68 kg joined the class, and 6 students of average weight 60 kg left the class, it was noted that the average weight of the new group of students increased by 2 kg. How many students are there in the class now?

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

(d) 17

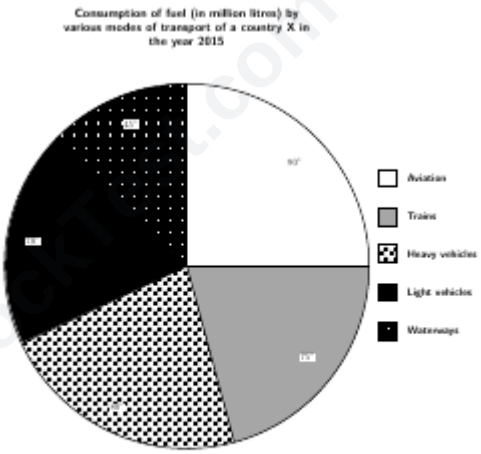
Q59. A kite is flying at the height of 138 m above the ground. It is attached to a string inclined at 45° to the horizontal. What is the approximate length (in m) of the string?

(a) 193
(b) 194
(c) 190
(d) 195

Q60. Study the given pie-chart and answer the question that follows.

The pie-chart represents the consumption of fuel (in million litres) by various modes of transport of a country X in the year 2015. The total consumption of fuel by various modes of transport of the country is 800 million litres.

(The data shown here is only for mathematical exercise. They do not represent the actual figures of the country.)



The fuel consumed by light vehicles is approximately what percentage of the combined consumption of fuel for aviation and waterways?

(a) 68
(b) 55
(c) 20
(d) 52

Q61. If $(x + 2/x) = 7$, then what is the value of $(2x^2 + 8/(x^2))$?

(a) 44
(b) 90
(c) 94
(d) 50

Q62. If $A = 60°$, then what is the value of $(4\cos^3 A - 3\cos A)$?

(a) -1
(b) • $(\sqrt{3})/2$
(c) $(\sqrt{3})/2$
(d) 1

Q63. The perimeter of an isosceles triangle is 91 cm and its base is 1 1/4 times each of its equal sides. What is the length (in cm) of its base?

(a) 20
(b) 28
(c) 35
(d) 25

Q64. The expenditure on food is 35% of the income of a particular family. If the income is raised by 30%, then how much percentage (to the nearest whole number) of food expenditure is less than the initial percentage to keep the food expenditure unchanged?

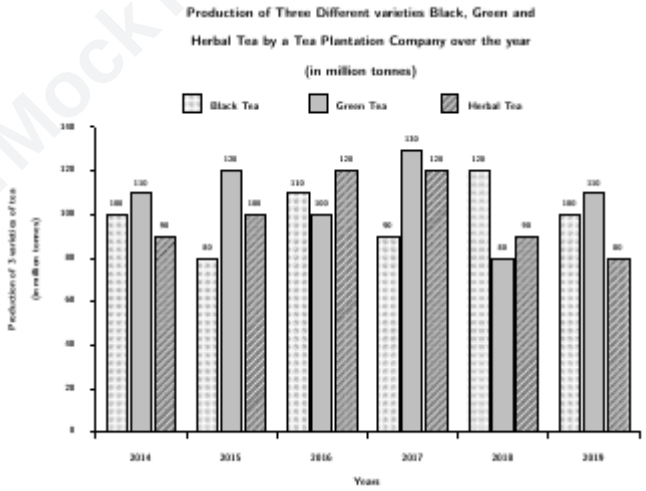
(a) 17
(b) 23
(c) 2
(d) 20

Q65. A man cycles from P to Q, a distance of 30 km, in 2 hours 48 minutes. The road from P is a level road for 18 km and then it is uphill to Q. The man's average speed on the level road is 15 km/h. What is his average uphill speed (in km/h)?

(a) 7.5
(b) 12
(c) 9
(d) 10.5

Q66. Study the given bar graph and answer the question that follows.

A tea plantation company produces three varieties of tea - black tea, green tea and herbal tea. The production of three varieties (in million tonnes) over a period of six years from 2014 to 2019, has been shown in the bar graph here. The X-axis represents the years and the Y-axis displays the production of the three varieties in million tonnes.



The average value of the combined production of black tea and herbal tea from 2014 to 2019 is what percent (up to 1 decimal place) of the average value of the production of green tea during the same period?

(a) 92.4
(b) 91.4
(c) 91.3
(d) 184.6

Q67. A solid metallic right circular cylinder has diameter 32 cm and height 9 cm. It is melted and recast into a solid sphere. What is the radius (in cm) of the sphere?

(a) 25
(b) 12
(c) 10
(d) 14

Q68. The value of (87 + 2/5 of 115)/(25 - 2/3 × {45 of 2 ÷ (19 - 4)}) is:

(a) -6 1/3
(b) 6 1/3
(c) 4 17/29
(d) • 4 17/29

Q69. If $(x/y + 1) = 4$, then what is the value of $((x^2 + y^2)/(y^2))$?

(a) 14
(b) 22
(c) 10
(d) 12

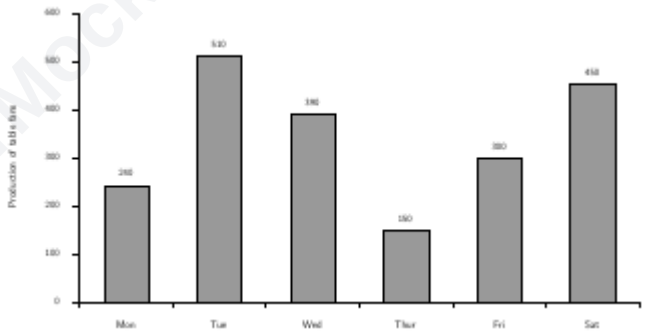
Q70. If x - 3 = 1/2x, then what is the value of (x^4 + 1/(16x^4)) ?

(a) 99 1/2
(b) 10
(c) 11
(d) 98

Q71. n = 475AB is a positive integer whose tens and units digits are A and B, respectively. If n is divisible by 5, 8 and 9, then what is (10A + B) ?

(a) 60
(b) 20
(c) 15
(d) 35

Q72. The given bar graph shows the production of table fans in a factory during one week. Study the bar graph and answer the question that follows.



The production of fans on Tuesday is what percentage of the total production of fans during the week?

(a) 20%
(b) 25%
(c) 24%
(d) 30%

Q73. In how many years, will 5,450 amount to 8,175, if invested at simple interest at the rate of 12.5% per annum?

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

Q74. The diameter of a wheel is 1.33 m. What distance (in m, to the nearest whole number) will it travel in 380 revolutions?

(take π = 22/7)

(a) 1685
(b) 1856
(c) 1855
(d) 1588

Q75. What is a single discount (to the nearest whole number) equivalent to the successive discounts of 10%, 17% and 25% ?

(a) 45%
(b) 44%

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(c) 43%
(d) 52%

GENERAL AWARENESS

Q76. 'Wings of Fire' is an autobiography of _____.
(a) Barack Obama
(b) APJ Abdul Kalam
(c) Mahatma Gandhi
(d) Sachin Tendulkar

Q77. 'Ong' and 'Tel' are tributaries of the river _____.
(a) Krishna
(b) Mahanadi
(c) Kaveri
(d) Ganga

Q78. Which of the following cities of Madhya Pradesh were included in the list of UNESCO World Heritage Cities under its Urban Landscaped Cities program in December 2020?
(a) Satna and Bhopal
(b) Bhopal and Ujjain
(c) Gwalior and Orchha
(d) Ujjain and Satnai

Q79. West Bengal's first oil and gas reserve - the Bengal Basin, dedicated to the nation on 20 December 2020, is the _____ oil and gas producing basin of India.
(a) fifth
(b) seventh
(c) sixth
(d) eight

Q80. Which two Indians became the first pair to reach the finals of all Grand Slams in a year in the Open era, winning French Open and Wimbledon as top seeds?
(a) Rohan Bopanna and Yuki Bhambri
(b) Yuki Bhambri and Leander Paes
(c) Leander Paes and Mahesh Bhupathi
(d) Rohan Bopanna and Mahesh Bhupathi

Q81. Who was the Solicitor General of India as of January 2021?
(a) Tushar Mehta
(b) JK Maheshwari
(c) KK Venugopal
(d) Hima Kohli

Q82. As per 'Basel III: A global regulatory framework for more resilient banks and banking systems' released in December 2010, banks will be required to hold a capital conservation buffer of _____ of risk weighted assets (RWAs) in the form of common equity to withstand future periods of stress.
(a) 3.2%
(b) 2.5%
(c) 0.25%
(d) 1.6%

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Q83. In which year was the first ever version of Microsoft Word - Word 1.0 launched?

(a) 1992
(b) 1983
(c) 1996
(d) 1985

Q84. The Lucknow Pact of December 1916 was an understanding between the Indian National Congress and the _____.

(a) Swatantra Party
(b) Communist Party
(c) Hindu Mahasabha
(d) Muslim League

Q85. In which of the following states is Kali Tiger Reserve located?

(a) Telangana
(b) Karnataka
(c) Assam
(d) Arunachal Pradesh

Q86. In December 2020, Kyle Coetzer was honoured with the ICC Associate Player of the Decade award. Which of the following countries does he represent?

(a) Australia
(b) Scotland
(c) Japan
(d) Germany

Q87. Fort Saint Louis was a _____ fort that stood in Pondicherry on the eastern coast of India.

(a) French
(b) Danish
(c) Dutch
(d) British

Q88. Jog Falls is the most thrilling spectacle in the entire western region of _____.

(a) Arunachal Pradesh
(b) Andaman and Nicobar
(c) Nagaland
(d) Karnataka

Q89. Which form of farming is called ‘slash and burn’ agriculture?

(a) Intensive subsistence farming
(b) Commercial farming
(c) Hydroponic farming
(d) Primitive subsistence farming

Q90. Which Indian holds the Olympic record as on March 2021 for most goals scored by an individual in an Olympic men’s hockey final?

(a) Balbir Singh Dosanjh
(b) Dhyan Chand
(c) Ajit Pal Singh
(d) Dhanraj Pillai

Q91. ‘Nuakhai’ is the greatest harvesting festival of Odisha, celebrated one day after of which of the following festivals?

(a) Ganesh Chaturthi
(b) Holi
(c) Dussehra
(d) Diwali

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Q92. The Energy and Resources Institute and NDMA has launched a Flood Early Warning System (FEWS) for Guwahati to alert local authorities about flash floods or any heavy rainfall in August 2020. What is the full form of NDMA?

(a) National Defence Management Authority
(b) Native Defence Management Authority
(c) Natural Disaster Management Authority
(d) National Disaster Management Authority

Q93. 'Sakewa' is a religious festival celebrated in the state of _____.

(a) Assam
(b) Sikkim
(c) Goa
(d) Punjab

Q94. What is the boiling point of water at sea level?

(a) 150°C
(b) 250°C
(c) 100°C
(d) 50°C

Q95. As of January 2021, how many states have the upper house called State Legislative Council (Vidhan Parishad)?

(a) Five
(b) Eight
(c) Seventh
(d) Six

Q96. JPEG is a commonly used method of lossy compression for digital images. What is the full form of JPEG?

(a) Jet Prints Editing Graphics
(b) Jet Protocol Experts Group
(c) Joint Pages Enhanced Graphics
(d) Joint Photographic Experts Group

Q97. Which of the following banks appointed Infosys Finacle to power its digital transformation in November 2020?

(a) Xac Bank
(b) HSBC
(c) ADB
(d) DBS

Q98. Who among the following received the 'ASSOCHAM Enterprise of the Century Award' in December 2020?

(a) Shiv Nadar
(b) Mukesh Ambani
(c) Azim Premji
(d) Ratan Tata

Q99. Who among the following wrote the book 'Indomitable Spirit'?

(a) Raghuram Rajan
(b) APJ Abdul Kalam
(c) S Radhakrishnan
(d) Amartya Sen

Q100. _____ is the process of allowing particles in suspension in water to settle out of the suspension under the effect of gravity.

(a) Filtration
(b) Decantation
(c) Distillation
(d) Sedimentation

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ANSWER KEY

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

SOLUTIONS

Q1. Answer: (b) Anant said that he was going to walk to the market to check which shops were open.

The solution is in Hindi. Read it online.

Q2. Answer: (a) utopia

The solution is in Hindi. Read it online.

Q3. Answer: (b) reasonable

The solution is in Hindi. Read it online.

Q4. Answer: (d) Be extremely expensive

The solution is in Hindi. Read it online.

Q5. Answer: (a) challenge

The solution is in Hindi. Read it online.

Q6. Answer: (c) something that happens suddenly

The solution is in Hindi. Read it online.

Q7. Answer: (d) against

The solution is in Hindi. Read it online.

Q8. Answer: (a) BDAC

The correct answer is 'BDAC'.

Key Points

• The given sentence is an example of a Para Jumble.

• We know that the first statement of a para jumbled question is usually an independent general statement, a noun, a universal fact, starting of an incident, or it starts with 'most' or 'once'.

• Sentence B in the given question is an independent general statement. It introduces the subject i.e. 'Whale Hunting'.

• Sentence D will be the next sentence because it is referring to 'Whale Hunting' and how it was before modern methods and machines began to be used.

• Sentence A will be the next sentence because it expresses what new methods are being used to hunt a whale.

• Lastly, Sentence C will be used because it is connected to Sentence A. 'These' mentioned in sentence C express the harpoons that have been mentioned in sentence A.

• Thus, the sequence becomes:

• B: Whale hunting is not easy.

• D: It was extremely difficult and risky before modern methods and machines began to be used.

• A: To kill a whale, hunters used spears called harpoons.

• C: These harpoons had very long and strong lines tied to them.

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• Therefore, as per the points mentioned above, we find that the correct answer is Option 1.

Correct Sequence: Whale hunting is not easy. It was extremely difficult and risky before modern methods and machines began to be used. To kill a whale, hunters used spears called harpoons. These harpoons had very long and strong lines tied to them.

Q9. Answer: (a) who was halted

The solution is in Hindi. Read it online.

Q10. Answer: (a) obsession

The solution is in Hindi. Read it online.

Q11. Answer: (b) Until I was

The solution is in Hindi. Read it online.

Q12. Answer: (a) CBDA

The correct answer is 'CBDA'.

Key Points

• The given sentence is an example of a Para Jumble.

• We know that the first statement of a para jumbled question is usually an independent general statement, a noun, a universal fact, starting of an incident, or it starts with 'most' or 'once'.

• Sentence C in the given question is the starting of an incident and an independent general statement. It talks about a unique movie telling the story of a home.

• Sentence B will be the next sentence because it is further telling about the story.

• Sentence D will be the next sentence because it is connected with Sentence B. It tells about which three decades is Sentence B talking about.

• Lastly, Sentence A will be used because it is connected with Sentence D.

• Thus, the sequence becomes:

• C: 'Gamak Ghar' is a unique movie telling the story of a home.

• B: It is spread over three decades.

• D: These are from 1998 to 2019, wherein the film observes the house age as it is gradually abandoned.

• A: That abandoned house is the childhood home of the director Achal Misra, who recreates it in this semi-autobiographical film.

• Therefore, as per the points mentioned above, we find that the correct answer is Option 1.

Correct Sequence: 'Gamak Ghar' is a unique movie telling the story of a home. It is spread over three decades. These are from 1998 to 2019, wherein the film observes the house age as it is gradually abandoned. That abandoned house is the childhood home of the director Achal Misra, who recreates it in this semi-autobiographical film.

Q13. Answer: (b) as much rainfall

The solution is in Hindi. Read it online.

Q14. Answer: (a) Vast valleys can be seen sloping into the distance.

The solution is in Hindi. Read it online.

Q15. Answer: (b) Dazzling

The solution is in Hindi. Read it online.

Q16. Answer: (c) negligible

The solution is in Hindi. Read it online.

Q17. Answer: (c) rifel

The solution is in Hindi. Read it online.

Q18. Answer: (c) headstrong

The solution is in Hindi. Read it online.

Q19. Answer: (c) mild

The solution is in Hindi. Read it online.

Q20. Answer: (a) acidentaly

The solution is in Hindi. Read it online.

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Q21. Answer: (a) studying

The solution is in Hindi. Read it online.

Q22. Answer: (d) who

The correct answer is 'who'.

Key Points

• The given passage is about the ancient Brahmin who lived in Northern India.

• The most appropriate relative pronoun to fill in the given blank is 'who'.

• We know that the relative pronoun 'who' is used for 'people'.

• It is used especially in questions as the subject or object of a verb, when asking which person or people, or when asking what someone's name is.

• Example: I don't know who to ask at the party.

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

The complete passage is- Many hundreds of years ago, a Brahmin lived in a town in Northern India. He spent many years (1)studying the ancient books and talking to the learned priests (2)who came to visit the city. After much effort, he (3) obtained the knowledge of a certain spell. He was (4)very proud of this and guarded his secret (5)carefully.

Q23. Answer: (b) obtained

The solution is in Hindi. Read it online.

Q24. Answer: (c) very

The solution is in Hindi. Read it online.

Q25. Answer: (c) carefully

The solution is in Hindi. Read it online.

Q26. Answer: (c) HJRQ

By checking options:

The logic followed here is: last two letters are opposite of first two letters.

(1) DFWU

(2) KMPN

(3) HJRQ

(4) ACZX

Hence, HJRQ is the odd one.

Q27. Answer: (b) 13 : 98

The logic followed here is:

(1st number + 1)² / 2 = 2nd number

For 9 : 50

(9 + 1)2 / 2 = 102 / 2 = 100 / 2 = 50

Similarly,

13 : 98

(13 + 1)2 / 2 = 142 / 2 = 196 / 2 = 98

Hence, the correct answer is "Option 2".

Alternate Method

Given: 9 : 50

The logic followed here is: by multiplying the first number with the closest number to the get the second number as shown below,

9 : 50 → 9 × 5 + 5 = 45 + 5 = 50

By checking options,

(1) 5 : 16 → 5 × 3 + 3 = 15 + 3 = 18 ≠ 16

(2) 13 : 98 → 13 × 7 + 7 = 91 + 7 = 98

(3) 8 : 42 → 8 × 5 + 5 = 40 + 5 = 45 ≠ 42

(4) 11 : 63 → 11 × 5 + 5 = 55 + 5 = 60 ≠ 63

Hence, 13 : 98 is the correct answer.

Q28. Answer: (c) [figure]

Given:

The logic followed here is: let the line PQ be the mirror,

Detailed Explanation:

• The line PQ is the mirror

• The given word "FEDARATION" ends with N. So the mirror image will start with N. => Option 2 and 4 are eliminated.

• The "E" and the second "A" in option 1 should be interchanged => Option 1 is eliminated.

Hence, option (3) is the correct answer.

Q29. Answer: (d) 35

The pattern followed here is :

The vowels are coded as their positional value, and the consonants are coded as their opposite positional value.

9 + 5 + 1 + 8 + 15 + 13 = 51

25 + 1 + 16 + 5 = 47

14 + 1 + 9 + 9 + 2 = 35

Hence, 35 is the correct answer.

Q30. Answer: (c) [figure]

Given:

The logic followed here is:

(1)

is changing its position in each step, i.e., in the upper right corner and lower left corner in the next step with interchanging the position of K and Z in every step.

(2)

is changing position as first in left side, center, right, then left again and same pattern continues.

(3)

is first in lower left side, then in upper left side, then changed its position to lower right side and in last step it is in upper right side.

(4)

is changing its position diagonally.

Therefore, by following the above pattern the answer figure should have

in the upper right corner,

should be in center,

should in lower left side, and

should be in lower left side.

Thus, the complete series is as follows:

Hence, option (3) is the correct answer.

Q31. Answer: (d) Hindrance

The logic followed here is:

All progress, growth, and stride are all synonyms.

Whereas,

Hindrance is not a synonym of growth.

Hence, hindrance is the odd one.

Important PointsStride means a step or stage in progress towards an aim.

Hindrance means a thing that provides resistance, delay, or obstruction to something or someone.

Q32. Answer: (a) Devastation : Hurricane

Given: Famine : Drought

The logic followed here is:

Drought causes Famine.

Similarly,

Hurricane causes Devastation.

Hence, Devastation : Hurricane is the correct answer.

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Important PointsFamine means extreme scarcity of food.
Drought means a prolonged period of abnormally low rainfall, leading to a shortage of water.
Devastation means great destruction or damage.
Hurricane means a storm with a violent wind, in particular a tropical cyclone in the Caribbean.
Devotion means love, loyalty, or enthusiasm for a person or activity.
Conquer means overcome and take control of (a place or people) by military force.

Q33. Answer: (d) Only conclusion II follows

The least possible Venn diagram is:
Conclusions:
I. No bulb is a tube → False (as all bulbs are tubes is given)
II. Some tumblers are bulbs → True (as some bulbs are tumblers, implies some tumblers are bulbs too)
Hence, only conclusion II follows.
Additional Information

Q34. Answer: (a) 1726

The logic followed here is:
All the numbers are cubes of some number except 1726.
By checking options:
(1) 1726 → It is not a cube.
(2) 1331 → It is a cube of 11 → 11^3
(3) 2744 → It is a cube of 14 → 14^3
(4) 2197 → It is a cube of 13 → 13^3
Hence, option (1) is the odd one.

Q35. Answer: (a) 85

Let the unit digit of the two-digit number be y and the tens place digit be x.
Then the two digit number is = 10x + y
By interchanging the digits, we get = 10y + x
Therefore, according to the question,
x + y = 13
And,
10y + x = (10x + y) - 27
9y = 9x - 27
y = x - 3
Substituting the value of y in above equation we get,
x + (x - 3) = 13
2x - 3 = 13
x = 16 ÷ 2
x = 8
Now, by substituting this value of x, we get
y = 8 - 3
y = 5
Therefore, the two digit original number = 10x + y
= 10 × 8 + 5
= 80 + 5
= 85
Hence, 85 is the correct answer.

Q36. Answer: (b) [figure]

Given:
The logic followed here is: The above given image is hidden as follow:
Hence, option (2) is the correct answer.

Q37. Answer: (c) 152

Given: 9, 10, 13, 24, 37, 66, 97, ?

The logic followed here is:

Hence, 152 is the correct answer.

Q38. Answer: (b) VYHHMB

The logic followed here is:

Similarly,

Hence, "VYHHMB" is the correct answer.

Q39. Answer: (c) [figure]

The logic followed here is:

The paper when unfolded, will look like:

Hence, option (3) is the correct answer.

Q40. Answer: (d) Father

From the given information,

(1) Rama is the daughter of Radhika, who is the only daughter-in-law of Rekha.

Here "who" is used for Radhika not Rama. So Radhika is the only daughter-in-law of Rekha.

(2) Mohan is Rishi's father and Rekha's husband, implies Rishi is the son of Rekha and Mohan as Radhika is their only daughter-in-law.

Thus, the final family tree is as follows:

Hence, Rishi is the father of Rama.

Q41. Answer: (c) 5

Given:

Logic: If two dice have same face value in given image than their clockwise or anticlockwise wise number are know as opposite numbers in dice.

While moving in clockwise direction from common face (2):

From the both dices:

Dice 1	**2**	**4**	**1**
Dice 3	2	6	5

Now, 5 is opposite to 1, thus 5 will be at the top if '1' is at the bottom.

Hence, 5 is the correct answer.

Q42. Answer: (a) 4, 2, 5, 6, 1, 3

The logic followed here is:

The meaningful order is according to the steps to build a house.

The first step is to laid the foundation of the house.

Then walls are build.

Then roof of the house.

Then floor cementing is done.

Then colour washing.

Then finally decoration of the house is done.

That means the correct sequence is Foundation, Wall, Roof, Floor cementing, Colour wash, and Decoration.

Hence, 4, 2, 5, 6, 1, 3 is the correct answer.

Q43. Answer: (c) (85, 13, 59)

Given: (165, 16, 91)

The logic followed here is:

(165, 16, 91) → √(165 + 91) = √256 = 16

By checking options,

(1) (99, 14, 97) → √(99 + 97) = √196 = 14

(2) (76, 11, 45) → √(76 + 45) = √121 = 11

(3) (85, 13, 59) → √(85 + 59) = √144 = 12 ≠ 13

(4) (57, 9, 24) → √(57 + 24) = √81 = 9

Hence, (85, 13, 59) is the correct answer.

Mistake PointsWe have to find the option that does not follow the same logic that is given in the question.

Q44. Answer: (a) ABLORU

Given: DOCILE : CDEILO : : LABOUR : ?

The logic followed here is:

Letters are arranged in alphabetical order (A to Z), as shown below,

Similarly,

Hence, ABLORU is the correct answer.

Q45. Answer: (b) 23

By counting the triangles:

Hence, 23 is the correct answer.

Alternate Method By counting the triangles:

The triangles are → ABC, ACD, BCE, CDF, BEG, HEC, GEH, HFI, CFH, IFD, BAD, GBC, GHC, BHC, BHG, HCD, CDI, HID, CIH, BHD, GCI, AHD, AHB → 23

Hence, 23 is the correct answer.

Q46. Answer: (c) 30

The logic followed here is:

The tennis players who are either swimmers or rich persons, means common part of circle with rectangles except the common part of all the three figures = 6 + 9 + 5 + 10

= 30

Hence, 30 is the correct answer.

Q47. Answer: (b) Hemp

Given: Prism : Glass :: Rope : ?

The logic followed here is:

Prism is made up of Glass.

Similarly,

Rope is made up of Hemp.

Hence, hemp is the correct answer.

Additional Information

1. Hemp Rope is made from hemp fibers. It is a widely used rope for performing many different tasks. Hemp rope applications include climbing, fishing, shipping, and horsemanship.

2. Pulp is a lignocellulosic fibrous material prepared by chemically or mechanically separating cellulose fibers from wood, fiber crops, waste paper, or rags.

3. Ore is natural rock or sediment that contains one or more valuable minerals, typically containing metals, that can be mined, treated and sold at a profit. Ore is extracted from the earth through mining and treated or refined, often via smelting, to extract the valuable metals or minerals.

4. Natural rubber latex is most commonly used to make items like gloves, swim caps, chewing gum, mattresses, catheters, rubber bands, balloons, tennis shoes, and many other sporting goods. Synthetic latexes are common in coatings, like latex paint.

Q48. Answer: (b) ghclht

Given: l _ chtlgc _ tlg _ ht _ gc _ tlgch _

By checking options:

(1) hghclt → lhcht / lgcgt / lghht / cgclt / lgcht

(2) ghclht → lgcht / lgcht / lgcht / lgcht / lgcht

(3) hhgclt → lhcht / lgcht / lgght / cgclt / lgcht

(4) ghchlt → lgcht / lgcht / lgcht / hgclt / lgcht

Option (2) gives a pattern of lgcht / lgcht / lgcht / lgcht / lgcht.

Hence, ghclht is the correct answer.

Q49. Answer: (a) +, ÷, ×, −

Given: 110 * 728 * 28 * 15 * 413 = 87

By checking options and substituting the signs accordingly:

(1) +, ÷, ×, −

We get,

LHS = 110 + 728 ÷ 28 × 15 - 413

= 110 + 26 × 15 - 413

= 110 + 390 - 413

= 500 - 413

= 87

LHS = RHS

(2) +, −, ×, ÷

We get,

LHS = 110 + 728 - 28 × 15 ÷ 413

= 110 + 728 - 28 × 0.036

= 110 + 728 - 1.0164

= 838 - 1.0164

= 836.9836

≠ 87

LHS ≠ RHS

(3) +, ×, −, ÷

We get,

LHS = 110 + 728 × 28 - 15 ÷ 413

= 110 + 728 × 28 - 0.036

= 110 + 20384 - 0.036

= 20494 - 0.036

= 20493.964

≠ 87

LHS ≠ RHS

(4) +, ×, ÷, −

We get,

LHS = 110 + 728 × 28 ÷ 15 - 413

= 110 + 728 × 1.867 - 413

= 110 + 1359.176 - 413

= 1469.176 - 413

= 1056.176

≠ 87

LHS ≠ RHS

Hence, +, ÷, ×, − is the correct answer.

Q50. Answer: (c) {10, 15, 50}

Given: {6, 9, 18}

The logic followed here is:

(1st number × 2nd number) ÷ 3 = 3rd number.

{6, 9, 18} → (6 × 9) ÷ 3 = 54 ÷ 3 = 18

Now, by checking options:

(1) {9, 13, 40} → (9 × 13) ÷ 3 = 117 ÷ 3 = 39 ≠ 40

(2) {12, 18, 52} → (12 × 18) ÷ 3 = 216 ÷ 3 = 72 ≠ 52

(3) {10, 15, 50} → (10 × 15) ÷ 3 = 150 ÷ 3 = 50

(4) {8, 12, 30} → (8 × 12) ÷ 3 = 96 ÷ 3 = 32 ≠ 30

Hence, {10, 15, 50} is the correct answer.

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Q51. Answer: (b) 180 and 90

Given:

Base of right angled triangle = 40cm

Hypotenuse of right angled triangle = 41cm

Formula:

In Right angled triangle,

Using pythagoras theorem,

=> hypotenuse² = base² + height²

Area of right angled triangle = 1/2 × base × height

Perimeter of right angled triangle = base + height + hypotenuse

Calculation:

In given right angled triangle,

=> 41² = 40² + height²

=> Height = √81 = 9 cm

Area of right angled triangle = 1/2 × 9 × 40 = 180 sq.cm

Perimeter of right angled triangle = 40 + 9 + 41 = 90 cm

Therefore Area and perimeter of right angled triangle is 180 sq.cm and 90 cm respectively.

Q52. Answer: (d) Loss, 5.76

Given:

SP of each article = Rs.620

Profit % = 24%

Loss % = 24%

Formula:

Profit % = (SP - CP)/CP × 100

Loss % =(CP - SP)/CP × 100

Calculation:

=> 24 = (620 - CP)/CP × 100

=> CP = Rs.500

Cost price of one article is Rs.500

Then,

=> 24 = (CP - 620)/CP × 100

=> CP = Rs.815.79

The cost price of the other article is Rs.815.79.

Total cost price of two articles = 500 + 815.79 = Rs.1315.79

Total selling price of two articles = 620 + 620 = Rs.1240

Therefore Overall loss % = (1315.79 - 1240)/1315.79 × 100 = 5.76%

Alternate Method

If the price same, then profit and loss Percent is given then find the directly profit or loss%

x% - y% - xy/100

=> 24 - 24 - 24 × 24/100

=> - 5.76

Negative shows the Loss Percent.

Shortcut TrickIf SP is same, Profit and Loss% same, then always result in loss %

=> XY/100

=> 24 × 24/100 = 5.76% Loss

Q53. Answer: (d) 4 : 7 : 2

Given:

7A = 4B = 14C

Calculation:

Let 7A = 4B = 14C = k

A = k/7, B = k/4 and C = k/14
Then,
A : B : C = k/7 : k/4 : k/14
Multiply the above by LCM of 7, 4, and 14 i.e. 28
We get A : B : C = 4k : 7k : 2k
Therefore A : B : C = 4 : 7 : 2

Q54. Answer: (d) 15.2

Given:
Radius of wheel = 42cm
Number of revolutions = 40
Formula:
Speed = Distance/time
Circumference of circle = 2πr
Calculation:
Circumference of wheel = 2 × 22/7 × 42 = 264 cm
Total distance in 40 revolutions = 40 × 264 = 10560 cm = 0.1056 km
Total time = 25 seconds = 25/3600 hour
Speed = 0.1056/(25/3600) = 15.2 kmph
Therefore The speed of the bicycle is 15.2 kmph.

Q55. Answer: (c) 18 days 16 hours

Given:
P can complete five-eighths of work in = 15 days
Q can complete three-fourths of the same work in = 30 days.
Calculation:
P alone can complete work in = 15 × 8/5 = 24 days
Q alone can complete work in = 30 × 4/3 = 40 days
(P + Q)'s 1 day's work = 1/24 + 1/40 = 1/15
(P + Q)'s 8 days work = 8/15
Remaining work after 8 days = 1 - 8/15 = 7/15
Time taken by Q to complete 7/15 of work = 7/15 × 40 = 56/3 days
= 18 days + 2/3 × 24 = 18 days + 16 hours
Therefore The time taken by Q alone to complete the remaining work after 8 days is 18 days and 16 hours.

Q56. Answer: (a) 81.2

Calculation:
Total value of vehicles manufactured by company A during 2010 - 2015 = 260 + 218 + 224 + 179 + 266 + 348 = 1495
Average value of vehicles manufactured by company A during 2010 - 2015 = 1495/6 = 249.16 (in thousands)
Total value of vehicles manufactured by company B during 2010 - 2015 = 307 + 270 + 250 + 289 + 310 + 416 = 1842
Average value of vehicles manufactured by company B during 2010 - 2015 = 1842/6 = 307 (in thousands)
Therefore Required percentage = 249.16/307 × 100 = 81.2%

Q57. Answer: (b) √3

Given:
? = (sin 33° cos 57° + sec 62° sin 28° + cos 33° sin 57° + cosec 62° cos 28°)/(tan 15° tan 35° tan 60° tan 55° tan 75°)
Formula:
sin (90 - θ) = cos θ
tan (90 - θ) = cot θ
Calculation:
=> sin 33°. cos57° = sin(90° - 57°).cos57° = cos57°.cos57° = $\cos^2 57°$
=> sec 62°.sin28° = 1/cos 62° × sin 28° = sin (90° - 62°) × 1/cos 62°
= cos62° × 1/cos 62° = 1

=> cos33°. sin 57° = sin (90° - 33°). sin 57° = sin²57°

=> cosec 62°. cos 28° = cos 28° × 1/sin 62°

= cos 28° × 1/sin(90° - 28°)

= cos 28°/cos 28° = 1

=> tan 15°.tan 35°.tan 60°.tan 55°.tan 75° = (sin15°/cos15°) × (sin75°/cos75°) × (sin55°/cos55°) × (sin35°/cos35°) × √3

= √3

Then,

=> ? = (cos²57° + 1 + sin²57° + 1)/√3

=> ? = 3/√3

=> ? = √3

Therefore (sin 33° cos 57° + sec 62° sin 28° + cos 33° sin 57° + cosec 62° cos 28°)/(tan 15° tan 35° tan 60° tan 55° tan 75°) = √3

Q58. Answer: (b) 21

Given:

Average weight of some students = 69.5 kg

Formula:

Average = (Sum of elements)/(Number of elements)

Calculation:

Let number of students in class be N.

Total weight of N students = 69.5N kg

Total weight of 10 students = 10 × 68 = 680 kg

Total weight of 6 students = 6 × 60 = 360 kg

New weight of class = 69.5N - 360 + 680 = (69.5N + 320) kg

New average of class = 69.5 + 2 = 71.5kg

New number students in class = N + 10 - 6 = N + 4

Then,

=> 71.5 × (N + 4) = 69.5N + 320

=> 71.5N + 286 = 69.5N + 320

=> N = 17

Therefore Total number of students in a class now = 17 + 4 = 21

Q59. Answer: (d) 195

Given:

Height at which kite flying = 138m

Calculation:

Triangle is formed with the height at which the kite flies as the height of the triangle, the Length of string as one side of the triangle, and the horizontal as the base of the triangle.

The triangle is 45 - 45 - 90 triangle.

=> sin 45 = (height at which kite fly)/(Length of string)

=> 1/√2 = 138m/length of string

=> length of sting = 195.16 ≈ 195m

Therefore The approximate length of the string is 195m.

Q60. Answer: (d) 52

Calculation:

Fuel consumed by light vehicles = (800 × 70/360 × 100) million litres

Total fuel consumed by aviation and waterways = (800 × (90 + 45)/360 × 100) million litres

Therefore Required percentage = (800 × 70/360 × 100)/(800 × 135/360 × 100) × 100 = 51.85 ≈ 52%

Q61. Answer: (b) 90

Given:

=> (x + 2/x) = 7

Formula:

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

Calculation:

According to the question,

$=>(x + 2/x) = 7$

Squaring on both sides of the equation, we get

$=>(x + 2/x)2 = 7^2$

Using the formula: (a + b)2 = a2 + b2 + 2ab

$=> x2 + 4/x2 + 2 \times x \times 2/x = 49$

$=>x^2 + 4/x^2 + 4 = 49$

$=> x^2 + 4/x^2 = 49 - 4$

$=> x2 + 4/x2 = 45$

Multiplying by 2 on both sides of the equation, we get

$=> 2 \times (x2 + 4/x^2) = 45 \times 2$

$=> 2x^2 + 8/x^2 = 90$

Therefore The value of $(2x^2 + 8/x^2)$ is 90.

Q62. Answer: (a) -1

Shortcut Trick

The expression $4\cos^3 A - 3\cos A$ is the standard trigonometric identity for cos 3A.

Given A = 60°, the expression becomes cos (3 × 60°) = cos 180°.

Since cos 180° = −1, the value of the expression is −1.

Therefore The correct answer is −1.

Alternate Method

Given: Angle A = 60°

Formula Used: Value of cos 60° = 1/2

Substitute A = 60° in the expression $4\cos^3 A - 3\cos A$:

$=> 4 \times (\cos 60°)^3 - 3 \times (\cos 60°)$

$=> 4 \times (1/2)^3 - 3 \times (1/2)$

$=> 4 \times (1/8) - 3/2$

$=> 1/2 - 3/2$

$=> (1 - 3) / 2$

$=> -2 / 2$

$=> -1$

Therefore The correct answer is −1.

Additional Information

Triple Angle Formulas

$\cos 3A = 4\cos^3 A - 3\cos A$ and $\sin 3A = 3\sin A - 4\sin^3 A$.

Values of Cosine

cos 0° = 1, cos 90° = 0, cos 180° = −1, and cos 270° = 0.

Double Angle Formulas

$\cos 2A = \cos^2 A - \sin^2 A = 2\cos^2 A - 1 = 1 - 2\sin^2 A$.

Q63. Answer: (c) 35

Given:

Perimeter of an isosceles triangle = 91cm

Formula:

Perimeter of an isosceles triangle = 2 × equal side + unequal side

Calculation:

=> Base = 5/4 × equal side

Then,

=> 91 = 2 × equal side + 5/4 × equal side

=> 13/4 × equal side = 91

=> Equal side = 28 cm

=> Base = 5/4 × 28 = 35 cm

Therefore Length of base is 35cm.

Q64. Answer: (b) 23

Alternate Method We will solve it by unitary method.

Let the income of the family be 100 units.

Expenditure on food = 35% of 100 units = 35 units

New income of the family = 100 + 30 = 130 units

New percentage expenditure on food = 35/130 × 100 ≈ 27%

Percentage difference in the percentage = [(35 - 27)/35] × 100 ≈ 23%

Required percentage is 23%.

Given:

Expenditure of food = 35% of income of family

Calculation:

Let income of family be Rs.a.

Expenditure of food = 35a/100 = Rs.7a/20

New income of family = a × 130/100 = Rs.65a/50

New expenditure of food = 65a/50 × 35/100 = Rs.91a/200

Therefore Required percentage = (91a/200 - 7a/20)/(91a/200) × 100 = 23.07% ≈ 23%

Q65. Answer: (a) 7.5

Given:

Distance between P and Q = 30km

Formula:

Average speed = total distance/total time

Calculation:

Time taken by A = 2 hr + 48 min = 2 + 48/60 = 14/5 = 2.8 hours

Distance of level road = 18km

Time taken to travel level road = 18/15 = 1.2 hours

Time taken to travel uphill road = 2.8 - 1.2 = 1.6 hours

Distance of uphill road = 30 - 18 = 12 km

Speed to travel uphill road = 12/1.6 = 7.5 kmph

Therefore Average uphill road speed is 7.5kmph.

Q66. Answer: (d) 184.6

Calculation:

Total value of the combined production of black tea and herbal tea from 2014 to 2019 = (100 + 90) + (80 + 100) + (110 + 120) + (90 + 120) + (120 + 90) + (100 + 80) = 1200 million tonnes

Average value of the combined production of black tea and herbal tea from 2014 to 2019 = 1200/6 = 200 million tonnes

Total value of the combined production of green tea from 2014 to 2019 = 110 + 120 + 100 + 130 + 80 + 110 = 650 million tonnes

Average value of the combined production of green tea from 2014 to 2019 = 650/6 = 108.33 million tonnes

Therefore Required percentage = (200)/(108.33) × 100 = 184.6%

Note: As per given question, solution is as above so option has changed to mark correct solution.

Q67. Answer: (b) 12

Shortcut Trick

Volume of Cylinder = Volume of Sphere

$\pi r^2 h = (4/3)\pi R^3$

$16 \times 16 \times 9 = (4/3) \times R^3$

$R^3 = 16 \times 16 \times 9 \times 3 / 4 = 16 \times 4 \times 27 = 64 \times 27$

$R = 4 \times 3 = 12$ cm

Therefore The correct answer is 12 cm.

Alternate Method

Given:

Diameter of Cylinder (d) = 32 cm => Radius (r) = 16 cm

Height of Cylinder (h) = 9 cm

Formula Used:

Volume of Cylinder = $\pi r^2 h$

Volume of Sphere = $(4/3)\pi R^3$

Calculations:

=> Volume of Cylinder = Volume of Sphere

=> $\pi \times (16)^2 \times 9 = (4/3) \times \pi \times R^3$

=> $256 \times 9 = (4/3) \times R^3$

=> $R^3 = (256 \times 9 \times 3) / 4$

=> $R^3 = 64 \times 27$

=> $R = \sqrt[3]{(64 \times 27)}$

=> $R = 4 \times 3 = 12$ cm

Therefore The correct answer is 12 cm.

Additional Information

Cylinder Properties

Total Surface Area of Cylinder = $2\pi r(h + r)$ and Curved Surface Area = $2\pi rh$.

Sphere Properties

Surface Area of Sphere = $4\pi R^2$. For a Hemisphere, Volume = $(2/3)\pi R^3$ and Total Surface Area = $3\pi R^2$.

Recasting Rule

When one solid is melted and recast into another, the Volume remains constant, provided there is no wastage.

Q68. Answer: (b) 6 1/3

Given:

? = (87 + 2/5 of 115)/(25 - 2/3 × {45 of 2 ÷ (19 - 4)})

Concept:

Calculation:

=> ? = (87 + 2/5 of 115)/(25 - 2/3 × {45 of 2 ÷ (19 - 4)})

=> ? = [87 + 46]/[25 - 2/3 × {90 ÷ 15}]

=> ? = 133/[25 - 2/3 × 6]

=> ? = 133/[25 - 4]

=> ? = 19/3

Therefore (87 + 2/5 of 115)/(25 - 2/3 × {45 of 2 ÷ (19 - 4)}) = 6 1/3

Q69. Answer: (c) 10

Given:

x/y + 1 = 4

(x/y) = 3

Formula:

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

Calculation:

=> $(x/y+ 1)^2 = (x^2/y^2) + 1 + 2x/y$

=> $16 = (x/y)^2 + 1 + 2 \times 3$

=> $(x/y)^2 + 1 = 10$

Therefore $(x^2 + y^2)/y^2 = 10$

Q70. Answer: (a) 99 1/2

Given:

x - 3 = 1/2x

x - 1/2x = 3

Formula:

$(x + y)^2 = x^2 + y^2 + 2xy$

$(x - y)^2 = x^2 + y^2 - 2xy$

Calculation:

$x - 3 = 1/2x$

$\Rightarrow (x - 1/2x)2 = 3^2$

$\Rightarrow x^2 + 1/4x^2 - 1 = 9$

$\Rightarrow x^2 + 1/4x^2 = 10$

$\Rightarrow (x^2 + 1/4x^2)^2 = 10^2$

$\Rightarrow x^4 + 1/16x^4 + 1/2 = 100$

$\Rightarrow x^4 + 1/16x^4 = 100 - 1/2 = 199/2$

Therefore $x^4 + 1/16x^4 = 199/2 = 99\ 1/2$

Q71. Answer: (b) 20

Given:

$n = 475AB$

Concept:

Divisibility test 5 = Numbers, which last with digits, 0 or 5 are always divisible by 5.

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

Divisibility test 9 = If the sum of digits of the number is divisible by 9, then the number itself is divisible by 9.

Calculation:

For 5, A = 2 and B = 0 then number is divisible by 5.

But when last three digit is 520, number is divisible by 8.

For 9: 4 + 7 + 5 + A + B = 16 + A + B, then to be divisible by 9, A + B must be 2.

We can not take A + B = 11 as then number is not divisible by 5.

Then A = 2 and B = 0

Therefore $10A + B = 10 \times 2 + 0 = 20$

Q72. Answer: (b) 25%

Calculation:

Total production of fans during week = 240 + 510 + 390 + 150 + 300 + 450 = 2040

Production of fan on Tuesday = 510

Therefore Required percentage = $510/2040 \times 100 = 25\%$

Q73. Answer: (b) 4

Given:

R = 12.5 % per annum

Formula:

Let P = Principal, R = Rate of interest and N = Time

SI = PNR/100

Calculation:

SI = Final Amount - Initial Amount= 8175 - 5450 = Rs.2725

So SI= Rs. 2725

Since SI = PNR/100

$\Rightarrow 2725 = 5450 \times 12.5 \times N/100$

$\Rightarrow N = 4$

Therefore It will take 4 years.

Q74. Answer: (d) 1588

Given:

Diameter of wheel = 1.33m

Formula:

Circumference of wheel = $2\pi r = \pi d$

Calculation:

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Distance covered in one revolution = π × 1.33 = 1.33π m

Therefore Distance covered in 380 revolutions = 22/7 × 1.33 × 380 = 1588.4 ≈ 1588

Q75. Answer: (b) 44%

Given:

Discounts = 10%, 17% and 25%

Calculation:

Single discount = 100 - [(100 - 10)/100 × (100 - 17)/100 × (100 - 25)/100] × 100

= 100 - 90/100 × 83/100 × 75/100 × 100

= 43.97 ≈ 44%

Therefore Single discount of 44%.

Q76. Answer: (b) APJ Abdul Kalam

The correct answer is A.P.J Abdul Kalam.

Key Points

• A.P.J Abdul Kalam was the President of India from 2002 to 2007.

• He served as the scientific adviser to the defence minister between 1992 and 1997.

• His birth anniversary is celebrated as National Innovation Day.

• He was an Indian scientist and politician who played a leading role in the development of India’s missile and nuclear weapons programs.

• His nickname was 'Missile Man'.

• In 1998, he put forward a countrywide plan called Technology Vision 2020 (road map for transforming India).

• He was sworn in as India’s 11th President in 2002.

• He put forward a countrywide plan called 'Technology Vision 2020' in 1998.

• He is the first Indian President to travel to the Siachen Glacier.

• He is the first President of the Republic to cast a ballot in the Assembly election.

• In 1997, he was awarded the Bharat Ratna award.

• He died on 27 July 2015 during a speech at the Indian Institute of Management in Shillong, Meghalaya.

Additional Information

• "A Promised Land" is a memoir by Barack Obama published on November 17, 2020.

• "The Story of My Experiments with Truth" is Mahatma Gandhi's autobiography, which spans his early infancy until 1921.

• Sachin Tendulkar's autobiography is titled "Playing It My Way."

Q77. Answer: (b) Mahanadi

The correct answer is Mahanadi.

Key Points

• Tel, Jonk, Seonath are the major tributary of Mahanadi.

• The Mahanadi is a major river in East Central India.

• The Mahanadi rises in the highlands of Chhattisgarh.

• It flows through Odisha to reach the Bay of Bengal.

• The length of the river is about 860 km.

• Its drainage basin is shared by Maharashtra, Chhattisgarh, Jharkhand, and Odisha.

• Its main tributaries are the Seonath, the Jonk, the Hasdeo, the Mand, the ib, the Ong, and the Tel.

• The Mikala range in Chattisgarh is where the Mahanadi river originates.

• The Mahanadi river is known as the sorrow of Odisha.

• ‘Ong’ and ‘Tel’ are tributaries of the river Mahanadi.

• Cuttack is located on the bank of Mahanadi.

• Sheonath is the largest tributary of Mahanadi.

• • The Maikala range in Chattisgarh is where the Mahanadi river originates.

• The Mahanadi river is known as the sorrow of Odisha.

• ‘Ong’ and ‘Tel’ are tributaries of the river Mahanadi.

• Cuttack is located on the bank of Mahanadi.

• Sheonath is the largest tributary of Mahanadi.

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• Sheonath is India's first privatised river.

• Hirakud Dam Project is a multipurpose project for flood control, irrigation, and power generation built across the river Mahanadi in Odisha.

Additional Information

• The Ganges is the national river of India.

• In Bangladesh, the Ganga is known as the Padma.

• Major tributaries of Ganga are:

• Ramganga.

• Gomati.

• Ghaghara.

• Gandak.

• Kosi.

• The Krishna River is the second-largest east-flowing peninsular river in India.

• It originates near Mahabaleshwar.

• It is also called "Telugu Ganga".

• Major tributaries of Krishna are:

• Ghataprabha.

• Malaprabha.

• Bhima.

• Tungabhadra.

• Koyna.

• Kaveri river origniated from Talakaveri, Karnataka.

• The mouth of the Kaveri river in the Bay of Bengal.

• It is the largest river in Tamil Nadu.

• Hogenekalfalls is a part of the Kaveri river.

• Major tributaries of Kaveri are:

• Harangi.

• Hemavati.

• Kabini.

• Suvarnavathi.

• Bhavani.

Q78. Answer: (c) Gwalior and Orchha

The correct answer is Gwalior and Orchha.

key points

• In December 2020, Gwalior and Orchha were included in the list of UNESCO World Heritage Cities under its Urban Landscaped Cities programme.

• The State Government of Madhya Pradesh has selected Orchha and Gwalior as pilot cities for the Historic Urban Landscapes Program and Survey which will be conducted by UNESCO New Delhi in collaboration with Madhya Pradesh Tourism Department.

• UNESCO has now included Gwalior and Orchha, the historical fort cities of Madhya Pradesh (India) in its list.

• This inclusion is expected to boost tourism potential along with sustainable development for both the cities.

• Gwalior is an important center of business activities in Madhya Pradesh.

• Gwalior is home to Gwalior Fort, Man Singh Palace, Sas Bahu Temple and Tansen's Tomb.

• Orchha is a popular tourist destination, which attracts tourists from all over the country.

• Orchha has Orchha Fort, monuments built on the banks of Betwa River, Ram Raja Temple, Kancha Ghat, Dinman Hardaul Mahal and Rani Mahal.

important point

• The United Nations Educational, Scientific and Cultural Organization focuses on everything from teacher training to helping improve education around the world to protecting important historical and cultural sites around the world.

• UNESCO protects 1073 World Heritage Sites in 167 countries.

• UNESCO Headquarters in Paris, France

• The organization has 193 members and 11 associate members.

• There are a total of 40 World Heritage Sites in India.

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Q79. Answer: (d) eight

The correct answer is eighth.

Key Points

• The Bengal Basin is the eighth oil and gas producing basin of India.

• It was dedicated to the nation on 20 December 2020.

• It was officially inaugurated by the then Minister for Petroleum & Natural Gas and Steel, Dharmendra Pradhan.

• It is the first oil and gas reserve in West Bengal.

• The petroleum reserve in Ashoknagar has started with the extracted oil being sent to the Haldia refinery of Indian Oil Corporation (IOC).

• The Ashoknagar field falls under the Mahanadi- Bengal-Andaman (MBA) basin.

• The crude oil discovered at the Asokenagar reserve is of high quality.

Important Points

• The other seven oil and gas producing basins of India are:

1. Krishna-Godavari (KG).
2. Mumbai Offshore.
3. Assam Shelf.
4. Rajasthan.
5. Cauvery.
6. Assam-Arakan Fold Belt.
7. Cambay.

Additional Information

• ONGC has identified seven of India's eight producing basins, accounting for 83% of the country's proven oil and gas reserves.

• The first oil and gas reserve in West Bengal was discovered in 2018.

• ONGC spent Rs 3,381 crore for the discovery of the Ashoknagar oilfield.

• There are 26 sedimentary basins in India, according to the Directorate General of Hydrocarbons, encompassing a total area of 3.4 million square kilometres.

• Of these, 16 are on land basins, 7 located both on land and offshore, and 3 completely offshore.

Q80. Answer: (c) Leander Paes and Mahesh Bhupathi

The correct answer is Leander Paes and Mahesh Bhupathi.

Key Points

• Leander Paes and Mahesh Bhupathi were the first Indian pair to reach the finals of all Grand Slams in a year in the Open era, winning French Open and Wimbledon as top seeds.

• Paes-Bhupathi's pair went unbeaten in the team competition from 1997 to 2010.

• Leander Paes and Mahesh Bhupathi's pair reached the finals of all four majors in 1999.

• They created a record for the longest winning streak(24 number).

• Leander Paes had won an Olympic medal in 1996.

• He received the Major Dhyan Chand Khel Ratna award in 1996–97.

• He was honored with the Arjuna Award in 1990.

• He received the Padma Shri award in 2001.

• Mahesh Bhupathi secured the first Grand Slam by an Indian at the 1997 French Open.

• He the first Indian to win a major tournament along with Rika Hiraki.

• He received the Padma Shri award in 2001.

• Paes-Bhupathi pair won their first Grand Slam semi-final at the US Open as 10th seeds in 1997.

• They reached their first final together at the Australian Open as top seeds in 1999.

Additional Information

• Yuki Bhambri is an Indian professional tennis player who became the first Indian to win the junior Australian Open title.

• He represents India in the Davis Cup.

• He is the fourth Indian in history to capture a junior singles title at a Grand Slam championship.

• Rohan Bopanna is an Indian professional tennis player who has been a member of the Indian Davis Cup team since 2002.

• Rohan Bopanna played with Mahesh Bhupathi in 2012.

• Bopanna participated in the Australian Open 2021.

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Q81. Answer: (a) Tushar Mehta

The correct answer is Tushar Mehta.

Key Points

• As of January 2021, Tushar Mehta is the Solicitor General of India.

• He was appointed as Solicitor General of India in 2018.

• .He was appointed as Additional Solicitor General of India in 2014

• The post had been lying vacant since October 2017 when the then Solicitor General Ranjit Kumar had resigned.

• Solicitor General is the second-highest-ranking law officer of the government after the Attorney General.

Additional Information

• Justice J K Maheshwari is a Judge of the Supreme Court of India who served as the Chief Justice of Sikkim and Andhra Pradesh High Courts.

• As of November 2021, KK Venugopal is the Attorney General of India.

• Hima Kohli is the first woman Chief Justice of Telangana High Court since it was separated from the Andhra Pradesh High Court in 2019.

Q82. Answer: (b) 2.5%

The correct answer is 2.5%.

Key Points

• Basel III is a set of international banking regulations developed by the Bank for International Settlements in order to promote stability in the international financial system.

• The Basel Committee published the Basel III rules text in December 2010.

• It covers the worldwide regulatory criteria on bank capital adequacy and liquidity that were agreed upon by the Governors and Heads of Supervision and adopted by the G20 Leaders at their November summit in Seoul.

• To withstand future periods of stress, banks will be required to keep a capital conservation buffer of 2.5% of risk-weighted assets (RWAs) in the form of common equity under Basel III.

• The results of the Committee's complete quantitative impact research were also released (QIS).

• Nout Wellink was the Chairman of the Basel Committee on Banking Supervision.

• Basel Committee on Banking Supervision examines and proposes ways to reconfigure global banking regulations.

• The Committee estimated that Group 1 banks in aggregate would have had a shortfall of €577 billion at the end of 2009.

• The Basel III accord increased the minimum Basel III capital requirements for banks from 2% in Basel II to 4.5% of common equity, as a percentage of the bank’s risk-weighted assets.

• In order to be Basel compliant, there is additionally a 2.5% buffer capital requirement, bringing the total minimum requirement to 7%.

• When banks are in financial distress, they can use the buffer, but doing so can result in even more financial constraints when it comes to paying dividends.

Q83. Answer: (b) 1983

The correct answer is 1983.

Key Points

• Microsoft Word is a word-processor software launched by the Microsoft Corporation in 1983.

• Word 1.0 was the first Word version of Microsoft Word.

• It was released for Xenix and MS-DOS in October 1983.

• Microsoft Word was developed by Richard Brodie and Charles Simonyi.

• Word 2.0 was released in 1985.

• Word 2.0 included spell-check and word-count options.

• Two years before WordPerfect for Windows, Microsoft published the first version of Word for the Windows OS in 1989.

• In 1985 Microsoft released Macintosh Word 1.0.

Q84. Answer: (d) Muslim League

The correct answer is Muslim League.

Key Points

• The Lucknow Pact of December 1916 was an understanding between the Congress and the Muslim League.

• Congress and the Muslim League decided to work together for representative government in the country through the Lucknow pact.

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• As a result of the Lucknow Pact, congress accepted separate electorates.
• This was the first time both the INC and the Muslim League's leaders had met in a joint session.
• The pact provided a joint political platform for the Moderates, Extremists, and the Muslim League.
• The Indian National Congress was headed by Bal Gangadhar Tilak and the All-India Muslim League was led by Muhammad Ali Jinnah.
• Lucknow Pact was adopted by Congress at its Lucknow session on 29 December 1916.
• Lucknow Pact was adopted by the Muslim League on 31 December 1916.
• The Pact addressed both the structure of India's government and the relationship between Hindu and Muslim communities.
• This Lucknow pact prepared the door for Hindu-Muslim cooperation in the Khilafat movement, as well as Mohandas Gandhi's non-cooperation movement, which began in 1920.
• Muslim League was formed in 1906.

Additional Information

• The Swatantra Party was a political party in India that existed from 1959 to 1974.
• It was founded by C. Rajagopalachari.
• The Swatantra Party was later dissolved in 1974.
• Communist Party of India is a national political party in India founded in late 1925 in Kanpur (now in Uttar Pradesh state).
• S.V. Ghate was the Communist Party of India's first General Secretary.
• The Hindu Mahasabha is a political party in India founded as an organisation in 1915,
• In 1933, Hindu Mahasabha was adopted as a political party.
• The Hindu Mahasabha was founded by Pandit Madan Mohan Malaviya.

Q85. Answer: (b) Karnataka

The correct answer is Karnataka.

Key Points

• Kali Tiger Reserve is a Tiger Reserve located in the central portion of the Uttara Kannada (North Canara) district of Karnataka.
• Kali Tiger Reserve was earlier known as Dandeli-Anshi Tiger Reserve.
• It was renamed Kali Tiger Reserve in December 2015.
• Kali Tiger Reserve is sandwiched between Haliyal and Karwar forest divisions in Karnataka.
• It comprises two important protected areas of the region namely Dandeli Wildlife Sanctuary and Anshi National Park.

Important Points

• The famous Tiger Reserves in Karnataka are:
• Bandipur Tiger Reserve.
• Bhadra Tiger Reserve.
• Nagarahole Tiger Reserve.
• Biligiriranga Swamy Tiger Reserve.

Additional Information

• The famous Tiger Reserves in Telangana are:
• Nagarjunsagar-Srisailam Tiger Reserve.
• Kawal Tiger Reserve.
• Amrabad Tiger Reserve.
• The famous Tiger Reserves in Assam are:
• Manas National Park.
• Kaziranga National Park.
• Orang National Park.
• The famous Tiger Reserves in Arunachal Pradesh are:
• Namdapha.
• Pakke.
• Kamlang.

Q86. Answer: (b) Scotland

The correct answer is Scotland.

Key Points

• Kyle James Coetzer is a Scottish cricketer.

• He is the current captain of Scotland.
• In November 2020, he was nominated for the ICC Men's Associate Cricketer of the Decade Award.
• In December 2020, he was honored with the ICC Associate Player of the Decade award.
• He is the third Scottish cricketer to receive the Member of the Order of the British Empire (MBE) for services to cricket.
• He captained Scotland ODI squad first time in 2017 against Zimbabwe.
• He is the first Scottish to score a century in debut captaincy.

Q87. Answer: (a) French

The correct answer is French.

Key Points

• Fort Saint Louis was a French fort that stood in Pondicherry on the eastern coast of India.
• Fort Saint Louis was built around 1701.
• It was built by Francois Martin and completed posthumously around 1706.
• The fort's heart was marked by a citadel.
• The fort had a pentagonal shape and was designed by an engineer named de Nyon.

Q88. Answer: (d) Karnataka

The correct answer is Karnataka.

Key Points

• Jog Falls is a popular tourist destination in Karnataka.
• It is situated in Karnataka's Shimoga district.
• Gerusoppe Falls, Gersoppa Falls, and Jogada Gundi are some of the other names for Jog Falls.
• Jog Falls is one of India's tallest waterfalls.
• It is India's highest untiered waterfall, as it falls directly from the cliffs without tumbling down.
• The Sharavati, which drops 253 metres, creates Jog Falls (830 ft).

Important Points

• Waterfalls in Karnataka:
• Gaganachukki and Bharachukki Falls.
• Dabbe Falls.
• Barkana Falls.
• Kunchikal Falls.
• Apsarakonda Falls.

Additional Information

• Phek Waterfall is a waterfall located in Nagaland.
• Nuranang Waterfall is a waterfall located in Arunachal Pradesh.
• Wimberley Gunj Waterfalls is a waterfall located in Andaman and Nicobar.

Q89. Answer: (d) Primitive subsistence farming

The correct answer is Primitive subsistence farming.

Key Points

• Slash-and-burn agriculture is a type of farming in which forests are burned and cleared to make way for crops.
• Slash and burn agriculture is primitive subsistence farming.
• The ‘slash and burn agriculture is known as ‘Milpa’ in Mexico and Central America.
• Shifting cultivation is also known as ‘slash and burn agriculture.
• The initial step in the technique is to clear an area of trees and woody plants.
• The "slash," or felled vegetation, is then allowed to dry, usually just before the rainy season starts.
• The biomass is then burned, producing a nutrient-rich layer of ash that fertilises the soil while temporarily eliminating weed and pest species.
• Due to nutrient depletion and weed and pest invasion, the plot's output diminishes after three to five years, compelling the farmers to quit the field and shift to a new place.
• Due to a shortage of natural fertilisers and insecticides, among other things, productivity is low.
• Slash and burn agriculture will lead to deforestation.

Additional Information

• Intensive subsistence agriculture is a type of farming in which farmers cultivates a small plot of land using simple tools and more labour.

• Commercial farming is a kind of farming that employs bigger doses of contemporary inputs in order to increase output.

• Hydroponic farming, often known as soilless farming, is a method of growing plants without the use of soil.

Q90. Answer: (a) Balbir Singh Dosanjh

The correct answer is Balbir Singh Dosanjh.

Key Points

• Balbir Singh Dosanjh was a former Indian hockey player.

• As of March 2021, he holds the Olympic record for most goals scored by an individual in an Olympic men's hockey final.

• He set this unique record when he scored five goals in India's 6–1 gold medal game triumph over the Netherlands at the 1952 Olympic Games.

• He was a three-time Olympic gold medallist in the team event at:

• 1948 London.

• 1952 Helsinki.

• 1956 Melbourne.

• In the 1956 Melbourne Olympics, he captained the Indian hockey team.

• He was the coach of the Indian hockey team that won the bronze medal at the 1971 World Cup.

• He served as the manager and chief coach of the Indian team for the 1975 Men's Hockey World Cup.

• He was the first recipient of the Padma Shri award in the sports category.

• In 1958, he was depicted on a Dominican Republic stamp commemorating the 1956 Melbourne Olympics.

• He died at the age of 96 in Mohali on 25 May 2020.

• The Mohali International Hockey Stadium has been renamed the Olympian Balbir Singh Senior International Hockey Stadium in honour of his death anniversary on May 25th, 2021.

Additional Information

• Major Dhyan Chand was a former Indian hockey player.

• He is popularly called 'The Wizard'.

• During his time Indian hockey team won three consecutive Olympic gold medals in 1928, 1932, and 1936.

• He was honoured with the Padma Bhushan in 1956.

• The autobiography of Dhyanchand is titled 'Goal'.

• Ajit Pal Singh was a former Indian hockey player.

• He has conferred the Arjuna Award in 1970(awarded it in 1972).

• He captained the Indian team at the Hockey World Cup 1975.

• He was awarded Padma Shri in 1992.

• Dhanraj Pillai was a former Indian hockey player.

• He made 339 appearances for the national team and is said to have scored 170 goals unofficially.

• He was awarded Padma Shri in 2000-2001.

• He is the recipient of the Major Dhyan Chand Khel Ratna award for the year 1999–2000.

• In February 2014, he joined the Aam Aadmi Party and started his political career.

Q91. Answer: (a) Ganesh Chaturthi

The correct answer is Ganesh Chaturthi.

Key Points

• Nuakhai is an agricultural festival celebrated by the people of Odisha.

• It is the greatest harvesting festival of Odisha.

• It is observed to welcome the new rice of the season.

• Nua means new and Khai means food i.e. Nuakhai's Hindi meaning is 'new food'.

• 'Nuakhai' festival is celebrated one day after the Ganesh Chaturthi festival.

• The festival has a big significance for farmers and the agricultural community.

• The festival is observed on Panchami tithi (the fifth day) of the lunar fortnight of the month of Bhadrapada (August–September) as per the Hindu calendar

• 'Nuakhai' is the most important social festival of Western Odisha.

• It is also celebrated in Southern Chhattisgarh.

Important Points

• Ganesh Chaturthi is a 10-day long festival marking the birth of the elephant-headed deity Ganesha.

• It is also called Vinayaka Chaturthi.

• The festival begins on the fourth day (Chaturthi) of the month of Bhadrapada(the sixth month of the Hindu calendar).

• Idols of Ganesha are placed on raised platforms in homes or in elaborately decorated outdoor tents as a part of this festival.

Additional Information

• Holi is a festival of Colors in India celebrating the victory of good over evil, the destruction of the demoness Holika.

• Dussehra is a festival that celebrates Lord Rama's victory over asura king Ravana as well as the triumph of Goddess Durga over Mahishasur.

• Diwali is the festival that celebrated India to mark the return of Hindu god Lord Rama to Ayodhya in northern India after he defeated Ravana.

Q92. Answer: (d) National Disaster Management Authority

The correct answer is National Disaster Management Authority.

Important Points

• The Energy and Resources Institute(TERI) and NDMA(National Disaster Management Authority) launched a Flood Early Warning System (FEWS) to predict floods in Guwahati.

• The Flood Early Warning System (FEWS) will alert local authorities about flash floods and/or heavy rainfall.

• It was developed under TERI's project supported by the NDMA in collaboration with the India Meteorological Department (IMD) and the Assam State Disaster Management Authority (ASDMA).

• The system is developed with inbuilt urban drainage to predict flood at street-level accuracy.

• The flood level and hotspot locations can be shown using Google Maps, which will aid in the identification of flood-affected areas, disaster preparedness, and management of urban flooding-related concerns like traffic disruption, relief and recovery, and stormwater management.

• The fully automated system, which uses advanced hydrological models to provide warnings with a lead time of 72 hours, is replicable across India.

• This is in accordance with Prime Minister Narendra Modi's recent statement during a meeting with the Chief Ministers of six states—Assam, Bihar, Uttar Pradesh, Maharashtra, Karnataka, and Kerala—discussing the importance of developing a local-level flood warning system.

Key Points

• The National Disaster Management Authority

• (NDMA) is the apex body for Disaster Management in India.

• The body is headed by the Prime Minister of India.

• State Disaster Management Authorities (SDMAs) headed by respective Chief Ministers.

• The Government of India passed the Disaster Management Act on December 23, 2005, which established the National Disaster Management Authority (NDMA),

• The Energy and Resources Institute (TERI) is a multi-faceted, independent organisation with research, policy, consulting, and implementation skills.

• For more than four decades, it has pioneered conversations and action in the areas of energy, environment, climate change, and sustainability.

Q93. Answer: (b) Sikkim

The correct answer is Sikkim.

Key Points

• ‘Sakewa’ is a religious festival celebrated in the state of Sikkim.

• Sakewa is celebrated as a tribute to mother nature.

• It is an annual festival celebrated twice a year and is distinguished by two names Ubhauli and Udhauli.

• ‘Sakewa’ is also known under the titles Bhoomi Puja or Chandi Puja or worship of land.

• It is celebrated by the Kirat Rais community.

• It is marked with the performing of puja where prayers are offered to the Supreme Power for Peace and Protection and for the wellbeing of all the living and non-living things of the universe.

• The rituals for this festival are performed in an open space.

• Dancers imitate the movements and sounds of birds, beasts and nature.

Important Points

• Popular festivals in Sikkim are:
• Losoong.
• Drupka Teshi.
• Bumchu.
• Saga Dawa.
• Dassin.
• Phang Lhabsol.
Additional Information
• Popular festivals in Kerala are:
• Onam.
• Vishu.
• Thrissur Pooram.
• Makaravilakku.
• Aranmula boat race.
• Theyyam Festival.
• Popular festivals in Assam are:
• Bihu Festival.
• Me-Dum-Me-Phi.
• Majuli Festival.
• Dehing Patkai Festival.
• Junbeel Mela.
• Raas Lila Festival.
• Popular festivals in Punjab are:
• Baisakhi.
• Hola Mohalla.
• Lohri.
• Karwa Chauth.
• Bhai Dooj.

Q94. Answer: (c) 100°C

The correct answer is 100°C.

Key Points

• The boiling point of water at sea level is 100°C.
• The boiling point of water varies with the air pressure.
• The boiling point of a liquid at high pressure is higher than the boiling point of the same liquid at atmospheric pressure.
• At low pressure and high altitude, the boiling point is low.
• The temperature at which vapor pressure equals normal sea-level air pressure is known as the normal boiling point (760 mm of mercury).
• The temperature of the boiling point is lower at higher altitudes.
• Water boils at 212°F at sea level.
• The boiling point of water is also affected by its purity.
• If the force of attraction between the molecules is relatively strong then the boiling point will be much higher.

Q95. Answer: (d) Six

The correct answer is Six.

Key Points

• The bicameral state legislature has two houses to make a law namely legislative assemblies and legislative councils(Vidhan Parishad).
• As of January 2021, Six states have the upper house called State Legislative Council (Vidhan Parishad) in India.
• States with Legislative Council are:
• Andhra Pradesh
• Bihar
• Karnataka

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• Maharashtra
• Telangana
• Uttar Pradesh

Additional Information

• Union Territories like Delhi, Jammu and Kashmir, and Puducherry have their own legislative assembly and council of ministers.
• Vidhan Parishads are also known as Legislative councils.
• Vidhan Parishads are the upper houses of the provincial legislature in the different states of India.
• Vidhan Parishad is analogous to Rajya Sabha.
• Members of the Vidhan Parishad are indirectly elected and nominated.
• The maximum strength of the Vidhan Parishad is fixed at one-third of the total strength of the assembly.

Q96. Answer: (d) Joint Photographic Experts Group

The correct answer is Joint Photographic Experts Group.

Key Points

• JPEG stands for Joint Photographic Experts Group.
• It is a computer graphics file format.
• JPEG is a lossy compression method widely used for digital photographs.
• In JPEG, the image is compressed to make a smaller file.
• Compression results in a loss of quality, however, so it is usually undetectable.
• JPEG files are widely used on the Internet, and JPEG is a popular digital camera format, making it ideal for non-professional printing and web use.
• JPEG format is best for web images, non-professional printing, e-mail, PowerPoint.
• The extensions ".jpeg" and ".jpg" are used for JPEG files.

Additional Information

• PNG (Portable Network Graphics) files are a lossless picture format that was created to replace and improve upon the gif format.
• GIF files (Graphics Interchange Format) are used for web graphics and can be animated and transparent.
• BMP (Bitmap Image File) is a file format designed by Microsoft for Windows that does not compress or lose information, allowing images to have very high quality while simultaneously having very large file sizes.

Q97. Answer: (a) Xac Bank

The correct answer is Xac Bank.

Key Points

• XacBank is a leading universal bank in Mongolia.
• XacBank's 80 branches across the country offer comprehensive banking and financial solutions to consumers and SMEs.
• XacBank appointed Infosys Finacle to power its digital transformation in November 2020.
• With Finacle's digital core banking suite, XacBank will gain a comprehensive set of capabilities and an open platform to establish a robust foundation for its digital future.
• The Finacle solution suite will enable the bank to drive overall business transformation to improve client engagement, operational excellence, and the flexibility to introduce bespoke solutions on-demand, all of which will help the bank to continue to innovate and grow.
• Tsevegjav Gumenjav is the Chief Executive Officer XacBank.
• Finacle is the industry-leading digital banking solution suite from EdgeVerve Systems, a wholly-owned product subsidiary of Infosys.
• Finacle is used by banks in over 100 countries to service over a billion customers and 1.3 billion accounts.

Additional Information

• HSBC is the second largest bank in Europe.
• HSBC stands for Hongkong and Shanghai Banking Corporation.
• HSBC is the first bank to introduce ATMs in India.
• ADB stands for Asian Development Bank.
• It was established on 19 December 1966.
• The headquarters of ADB is located in Manila, Philippines.
• DBS Bank Ltd (DBS) is a Singaporean based multinational banking and financial services corporation,

Q98. Answer: (d) Ratan Tata

The correct answer is Ratan Tata.

Key Points

• Ratan Tata is an Indian industrialist and a former chairman of Tata Sons.
• Ratan Tata received the 'ASSOCHAM Enterprise of the Century Award' in December 2020.
• He received the prestigious award on behalf of the Tata Group.
• The award is to mark the contribution of the business group to India's progress.
• The award was presented by Prime Minister Narendra Modi.
• From December 15 to 19, 2020, the Associated Chambers of Commerce of India (ASSOCHAM) Foundation Week was held.
• He was honoured with the Padma Bhushan in 2000.
• He was awarded the Padma Vibhushan in 2008.

Important Points

• In 1920, ASSOCHAM was founded by promoter Chambers representing all of India's provinces.
• ASSOCHAM represents over 400 chambers and trade organizations.
• It has a membership of about 4.5 lakh people in India.

Additional Information

• Shiv Nadar is the founder and chairman of HCL Technologies Limited.
• Mukesh Ambani is the chairman and managing director of Reliance Industries Ltd.
• Azim Premji is the founder chairman of Wipro

Q99. Answer: (b) APJ Abdul Kalam

The correct answer is APJ Abdul Kalam.

Key Points

• APJ Abdul Kalam was the 11th President of India from 2002 to 2007.
• He was the first president to visit the Siachen glacier.
• 'Indomitable Spirit' is a book written by APJ Abdul Kalam.
• 'Wings of Fire' is the autobiography of A.P.J Abdul Kalam.
• He is India's first scientist to be elected President.
• He is the first Indian President to travel to the Siachen Glacier.
• In 1997, he received the Bharat Ratna award.

Important Points

• Notable works of A.P.J Abdul Kalam are:
• India 2020.
• Ignited Minds.
• Indomitable Spirit.
• Advantage India: From Challenge to Opportunity.

Additional Information

• Dr. S.Radhakrishnan was the second president of India.
• He served as the President of India from 1962 to 1967.
• Notable works of Dr. S.Radhakrishnan are:
• The philosophy of Rabindranath Tagore.
• Indian Philosophy.
• The Hindu View of Life.
• The Dhammapada.
• Religion, Science, And Culture.
• Raghuram Rajan was the 23rd Governor of the Reserve Bank of India.
• Notable works of Raghuram Rajan are:
• I Do What I Do.
• The Third Pillar.
• What the Economy Needs Now.
• The True Lessons of the Recession.
• Amartya Sen is an Indian economist who received the Nobel Memorial Prize in Economic Sciences in 1998.

• Notable works of Amartya Sen are:
• Development as Freedom.
• Home in the World: A Memoir.
• The Idea of Justice.
• The Argumentative Indian.

Q100. Answer: (d) Sedimentation

The correct answer is Sedimentation.

Key Points

Sedimentation is the process of allowing particles in suspension in water to settle out of the suspension under the effect of gravity.

• When the heavier component in a mixture settles after water is added to it, the process is called sedimentation.
• Under the Sedimentation process, all of the solids settle to the bottom of the beaker, leaving a clear layer of liquid on top.
• Sedimentation is a filtering procedure used in water treatment plants to remove undesirable particles from dirty water.
• Sedimentation also helps to determine the medical conditions of a person.

Additional Information

• Decantation is the separation process in which two immiscible liquids are separated.
• When the water (along with the dust) is removed, the process is called decantation.
• Decantation is the process of separating a mixture of oil and water.
• Filtration can be used to separate components of a mixture of an insoluble solid and a liquid.
• The selective boiling and subsequent condensation of a component in a liquid combination are referred to as distillation.

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