SSC CHSL Previous Paper 36 (Held On: 26 Oct 2020 Shift 3) (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. Given below are four jumbled sentences. Pick the option that gives their correct order.

A. He decides to leave home and sets out to find him with the help of his best friend called Sungreen.

B. It narrates the story of a young and sensitive boy in a tough world.

C. ‘A Boy and Sungreen’ is a film by the Chinese filmmaker, Ahn-Ju-Young.

D. When he finds that his supposedly dead father is alive he decides to act.

(a) DBCA
(b) CBDA
(c) CABD
(d) ABDC

Q2. Select the INCORRECTLY spelt word.

(a) Liason
(b) Magisterial
(c) Maintain
(d) Jurist

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

OUTSPOKEN

(a) Ambivalent
(b) Candid
(c) Equivocal
(d) Secretive

Q4. Select the correct passive form of the given sentence.

Did you inform him about the ticket cancellation?

(a) Was he informed about the ticket cancellation by you?
(b) Will he be informed about the ticket cancellation by you?
(c) Is he being informed about the ticket cancellation by you?
(d) Was he being informed about the ticket cancellation by you?

Directions

Direction: In the following passage, some words have been deleted. Fill in the blanks with the help of the alternatives given.

Studies have shown that there is no standard advice one can (1) ____ to parents. Some guidelines, however, may (2) __. The first one is that children are all different and there is no one way (3) __ bringing them up. Each child should be treated as (4) __ individual. The second is that heredity is important, both for intelligence and (5) ____.

Q5. Select the most appropriate option for blank No.5.

(a) personal
(b) personnel
(c) personality
(d) personalise

Q6. Select the most appropriate option for blank No. 4.

(a) an
(b) many
(c) a
(d) that

Q7. Select the most appropriate option for blank No. 3.

(a) by
(b) of
(c) from
(d) off

Q8. Select the most appropriate option for blank No. 2.

(a) was provided
(b) be provided
(c) is provide
(d) being provided

Q9. Select the most appropriate option for blank No. 1.

(a) giving
(b) give
(c) given
(d) gave

Q10. Select the correct Indirect form of the given sentence.

The minister said, “It is tragic that the Australian bush fires have claimed the lives of so many helpless animals.”

(a) The minister said that it was tragic that the Australian bush fires had claimed the lives of so many helpless animals.
(b) The minister said that it was tragic that the Australian bush fires claimed the lives of so many helpless animals.
(c) The minister said that it was tragic that the Australian bush fires were claiming the lives of so many helpless animals.
(d) The minister said that it was tragic that the Australian bush fires have been claiming the lives of so many helpless animals.

Q11. Select the most appropriate word to fill in the blank.

In our metro cities, the contrast between the high-rise buildings with the slums behind is _____.

(a) comforting
(b) interesting
(c) laudable
(d) appalling

Q12. Select the most appropriate meaning of the given idiom.

Keep up appearances

(a) To pretend to be happier or richer so as to conceal the real situation
(b) To spend a lot of time on appearances so as to lead the fashion world
(c) To deliberately appear shabby and not care to impress people
(d) To waste a lot of money on mindless shopping and not bother about the consequences

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 improvement’.

The week-long Theatre Festival has begun with a wonderful lines up of plays.

(a) No improvement

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(b) lined up
(c) lining up
(d) line up

Q14. In the sentence identify the segment which contains the grammatical error.

Mani Kaul begun his career as an actor and a director of short films before doing his debut feature film, 'Uski Roti.'

(a) debut feature film, 'Uski Roti.'
(b) begun his career as an actor
(c) a director of short films
(d) before doing his

Q15. Select the most appropriate meaning of the given idiom.

In the blink of an eye

(a) Something that is not real
(b) Within a very short period of time
(c) Within a very long period of time
(d) Something that is unavoidable

Q16. Select the most appropriate option to substitute the underlined segment in the given sentence. If there is no need to substitute it, select 'No improvement'.

Some people believe that 2020 is going to be a very significant year in our history.

(a) No improvement
(b) will going
(c) were going
(d) are going

Q17. Select the most appropriate word to fill in the blank.

The politician was responsible for _____ violence in the university.

(a) inciting
(b) winning
(c) losing
(d) preparing

Q18. Select the INCORRECTLY spelt word.

(a) Syllabi
(b) Aggravate
(c) Zoologist
(d) Luxurient

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

COMPATRIOT

(a) Brethren
(b) Countryman
(c) Outsider
(d) Insider

Q20. Select the word that means the same as the given group of words.

Unable to think clearly because of a mental illness

(a) Deranged
(b) Eccentric
(c) Whimsical
(d) Balanced

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Q21. Given below are four jumbled sentences. Pick the option that gives their correct order.

A. He would be accompanied by fifty or sixty torchbearers.

B. When dawn broke the Emperor would alight, say his prayers and return by 8 a.m.

C. They would all head towards the river Jamuna.

D. During the winter months the Badshah Bahadur Shah Jafar would set off on his horse at 3 a.m.

(a) DCBA
(b) CBAD
(c) BACD
(d) DACB

Q22. In the sentence identify the segment which contains the grammatical error.

Often hailed as one of the greatest industry leaders of India, Ratan Tata take across the reins of the company, leading from the front.

(a) leading from the front
(b) Often hailed as one of
(c) the greatest industry leaders of India
(d) Ratan Tata take across the reins of the company

Q23. Select the most appropriate synonym of the given word.

DETERIORATE

(a) Enliven
(b) Worsen
(c) Fasten
(d) Improve

Q24. Select the most appropriate synonym of the given word.

DESPONDENT

(a) Energetic
(b) Neutral
(c) Cheerful
(d) Depressed

Q25. Select the word that means the same as the given group of words.

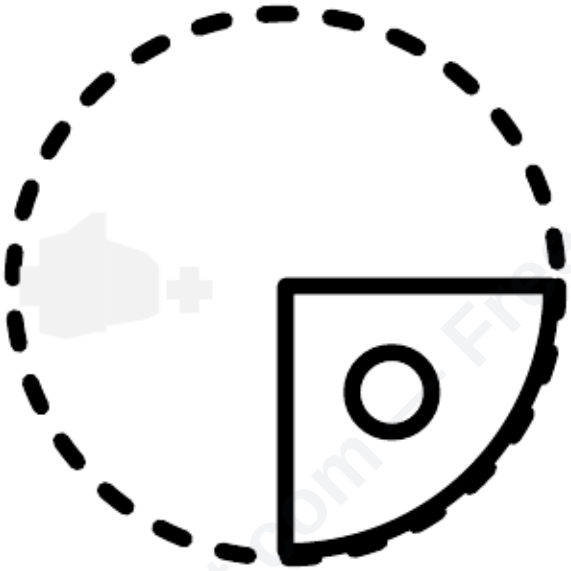
A person working on a trial period

(a) Probationer
(b) Petitioner
(c) Practitioner
(d) Professional

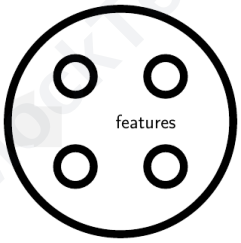
GENERAL INTELLIGENCE

Q26. A paper is folded and cut as shown in the following figure. How will this paper look when unfolded?

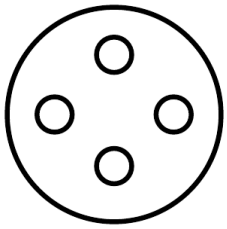
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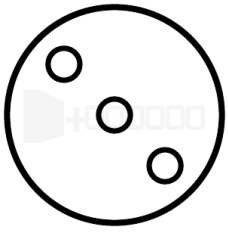
(a)



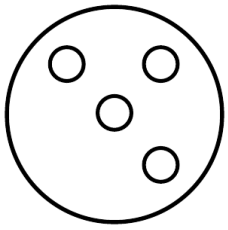
(b)



(c)



(d)



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Q27. In a code language, 'PERNMETER' is coded as '152785352'. Area is coded as 4254, and METAL is coded as 85349. How will 'LANE' be written in that language?

(a) 8451
(b) 9475
(c) 5214
(d) 3245

Q28. 'Movie' is related to 'Actor' in the same way as 'Magazine' is related to '_____'.

(a) Singer
(b) Publisher
(c) Writer
(d) Seller

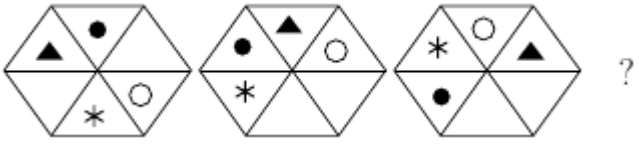
Q29. In a code language, 'QUESTION' is written as 'PTDRSHNM'. How will 'ANSWER' be written in that language?

(a) NRVDQ
(b) YLQUCP
(c) YMRVDQ
(d) ZMRVDQ

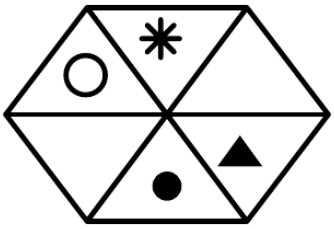
Q30. Four letter - clusters have been given, out of which three are alike in some manner and one is different. Select the odd letter - clusters.

(a) GIK
(b) TUV
(c) BDF
(d) NPR

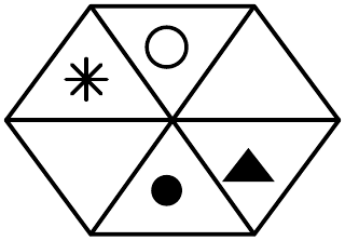
Q31. Select the option figure that can replace the question mark (?) in the following figure series.



(a)

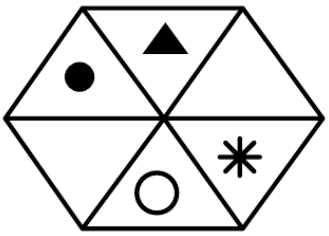


(b)

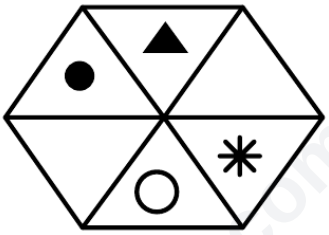


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(c)



(d)



Q32. Which of the given options is NOT an example of a number triad with the following properties?

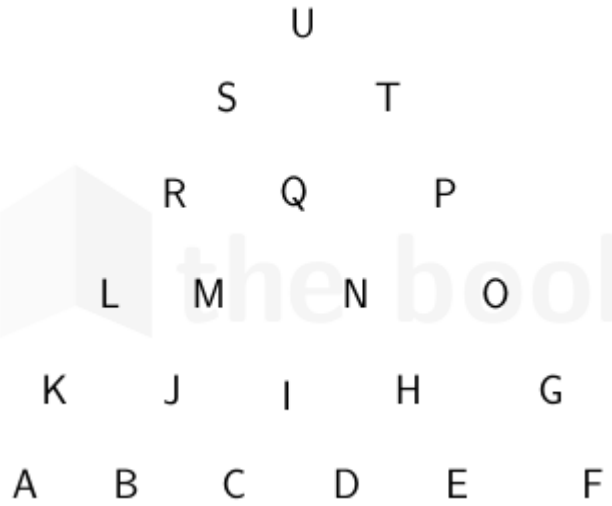
1. The second number is the square of the first number.
2. The third number is the cube of the first number.

(a) (11, 121, 1341)
(b) (17, 289, 4913)
(c) (13, 169, 2197)
(d) (12, 144, 1728)

Q33. Seeing a portrait, Ruchi asked Seema, "Whose portrait is this?". Seema replied, "Her son is the father of my daughter". Whose portrait is it?

(a) Seema
(b) Seema's mother - in - law
(c) Seema's sister
(d) Seema's mother

Q34. Observe the following pattern and answer the given question.



Select the option that is related to the third letter pair in the same way as the second letter pair is related to the first letter pair. LB : KJ : : ND : ?

(a) DE
(b) QP
(c) IH
(d) HI

Q35. Select the option that is related to the third number in the same way as the second number is related to the first number.

23 : 110 :: 17 : ?

(a) 70
(b) 95
(c) 90
(d) 80

Q36. Select the option that is related to the third word in the same way as the second word is related to the first word.

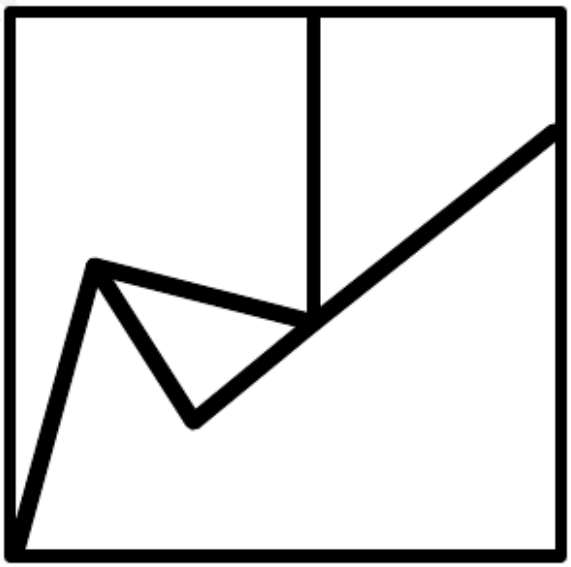
World Environment Day : 5 June :: ? : 20 August

(a) Renewable Energy Day
(b) International Women's Day
(c) World AIDS Day
(d) World Water Day

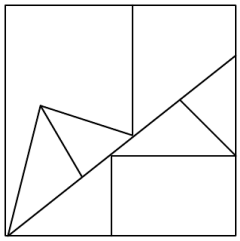
Q37. Four number triads have been given, out of which three are alike in some manner and one is different. Select the number triad that is different from the rest.

(a) (192, 384, 576)
(b) (352, 436, 646)
(c) (219, 438, 657)
(d) (327, 654, 981)

Q38. Select the option in which the given figure is embedded (rotation is NOT allowed).

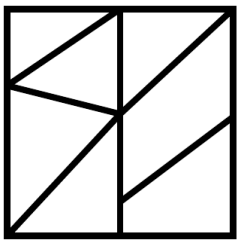


(a)

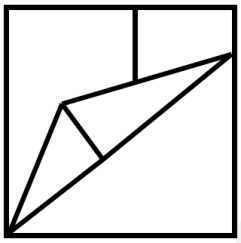


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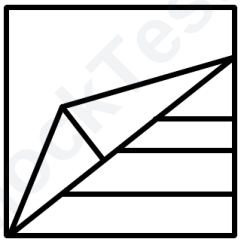
(b)



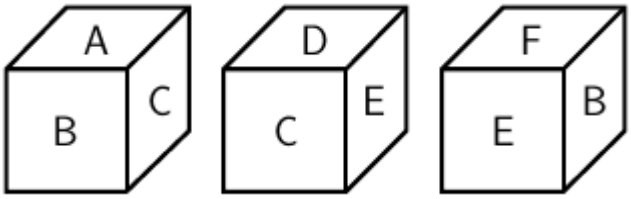
(c)



(d)



Q39. Three different positions of a dice are shown. Select the letter that will be on the face opposite to the one having 'A'.



(a) E
(b) F
(c) D
(d) C

Q40. Select the combination of letters that, when sequentially placed in the blanks of the given letter series, will complete the letter series.

ab _ _ bb _ _ aa _ ba _ _ ab _

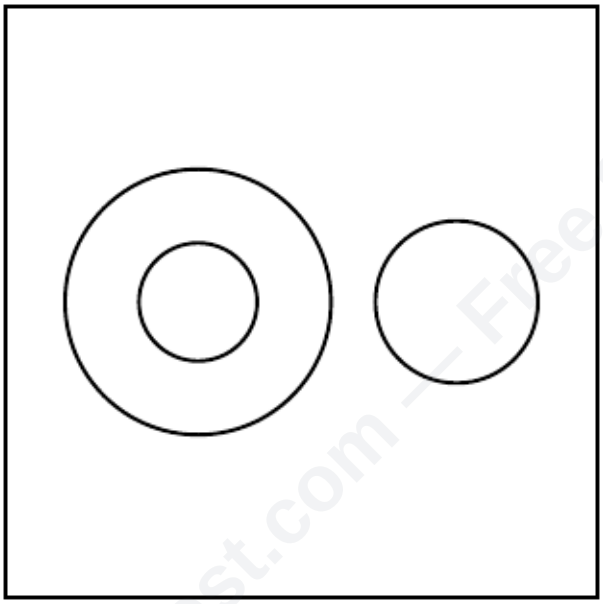
(a) ababbaab
(b) aaabbbab
(c) babaabaa
(d) bbaabbaa

Q41. Four words have been given, out of which three are alike in some manner and one is different. Select the odd one.

(a) April
(b) July
(c) March
(d) May

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Q42. Select the correct option that represents the given Venn diagram.



(a) School, Class, Students
(b) Ocean, River, Lake
(c) Whole numbers, Even numbers, Odd numbers
(d) Maharashtra, Mumbai, Delhi

Q43. Which two numbers need to be interchanged to make the following equation correct?

$8 \times 3/4 + 5 - 9 = 10$

(a) 4 and 8
(b) 5 and 9
(c) 3 and 9
(d) 3 and 4

Q44. Select the number that will replace the question mark (?) in the following figure series. 1, 4, 3, 9, 5, ?, 7, 25

(a) 12
(b) 18
(c) 14
(d) 16

Q45. Read the given statements and conclusions carefully. Assuming that the information given in the statement 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:

1. All singers are honest.

2. Some players are singers.

Conclusion:

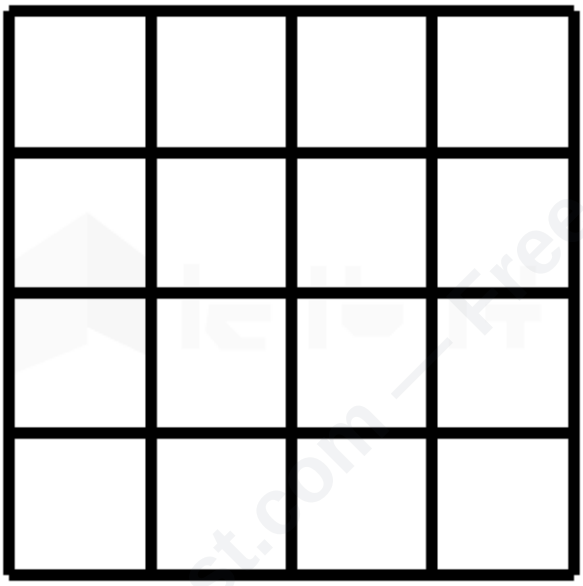
I. All players are honest.

II. Some players are honest.

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

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Q46. Find the number of squares in the following figure.

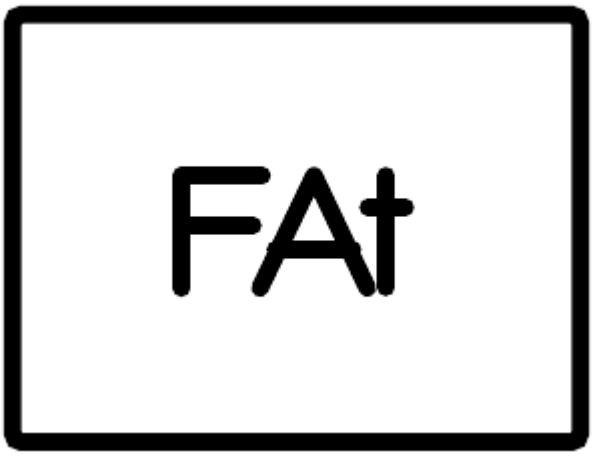


(a) 30
(b) 28
(c) 24
(d) 32

Q47. After three years, the total age of a mother and son will be 50. The mother's age was 30 before three years. What is her son's present age?

(a) 6 years
(b) 12 years
(c) 8 years
(d) 11 years

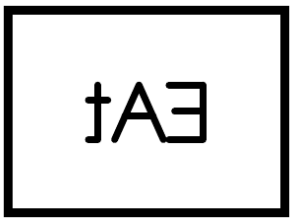
Q48. Select the correct mirror image of the given figure when the mirror is placed to the right side of the figure.



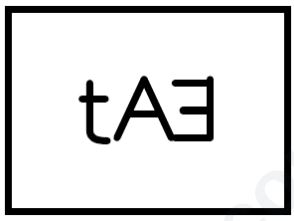
(a)



(b)



(c)



(d)



Q49. Complete the following series by replacing the question mark (?) in the following figure series. AA, BD, GK, ?

(a) OU
(b) PV
(c) PU
(d) OV

Q50. Identify the number that does NOT belong to the following series.

2, 4, 8, 14, 20, 32

(a) 32
(b) 14
(c) 8
(d) 20

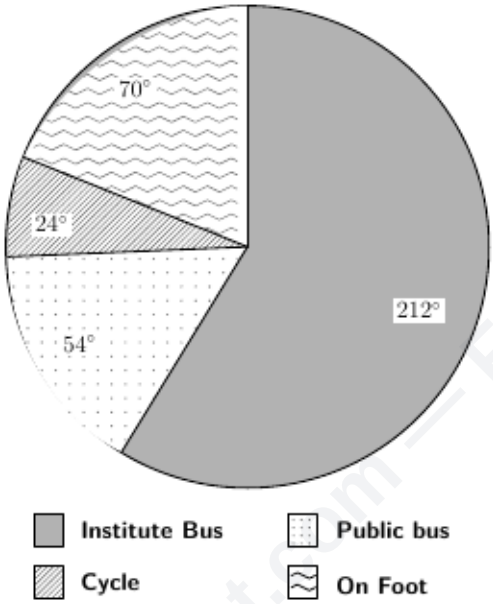
QUANTITATIVE APTITUDE

Q51. If $x = 3 + 2\sqrt{2}$, then the value of $\sqrt{x} - 1/\sqrt{x}$ is:

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

Q52. Direction: Study the pie - chart and answer the question. In an institute there are 900 students who use different modes of transport for to and from travel. The given pie diagram represents the requisite data.

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The number of students who do NOT use the institute bus is:

(a) 420
(b) 370
(c) 360
(d) 350

Q53. The divisor is 24 times the quotient and 8 times the remainder. If the quotient is 18, then the dividend is:

(a) 7830
(b) 7630
(c) 7840
(d) 7450

Q54. If cos 27° = x, then the value of tan 63° is:

(a) $(\sqrt{(1+x^2)})/x$
(b) $x/(\sqrt{(1+x^2)})$
(c) $(\sqrt{(1-x^2)})/x$
(d) $x/(\sqrt{(1-x^2)})$

Q55. If the diagonal of a cube is √27 cm, then its volume is:

(a) 27 cm^3
(b) 32 cm3
(c) 30 cm3
(d) 25 cm3

Q56. The profit made by selling an article for Rs. 13,400 is equal to the amount of loss incurred on selling the same article at Rs. 11,600. What will be the profit (in Rs.) if it is sold for Rs. 14,750?

(a) 2,000
(b) 2,520
(c) 2,500
(d) 2,250

Q57. If $a = (2 +\sqrt{3})/(2 - \sqrt{3})$ and $b = (2-\sqrt{3})/(2+\sqrt{3})$, then the value of $a^2 + b^2 + ab$ is:

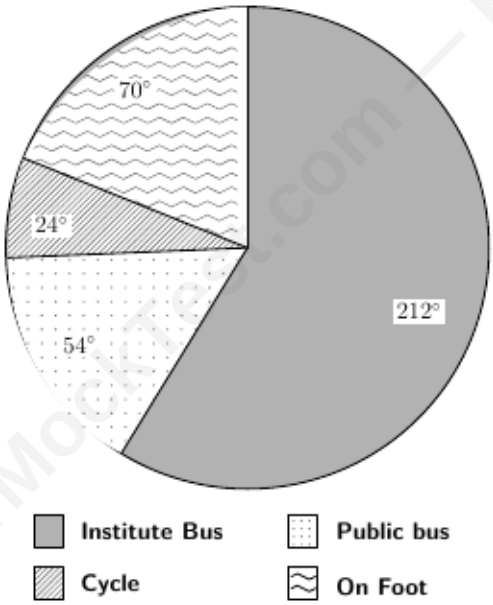
(a) 195
(b) 185
(c) 196
(d) 186

Q58. The ages of Fatima and Ahmed are in the ratio 3 : 8. The sum of their present ages is 44 years. The difference of their ages is:

(a) 30 years
(b) 11 years
(c) 24 years
(d) 20 years

Q59. Direction: Study the pie - chart and answer the question.

In an institute, there are 900 students who use different modes of transport for to and from travel. The given pie diagram represents the requisite data.



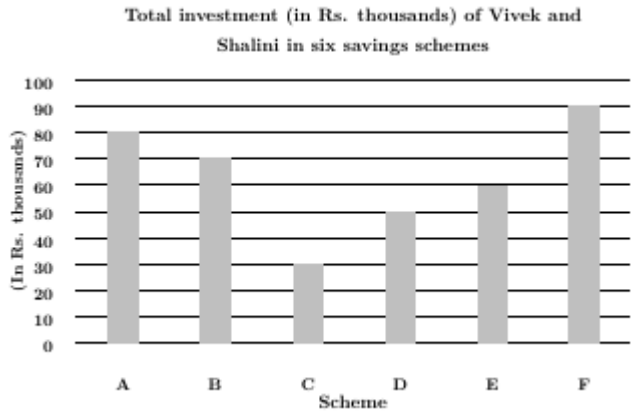
The number of students who travel on foot is:

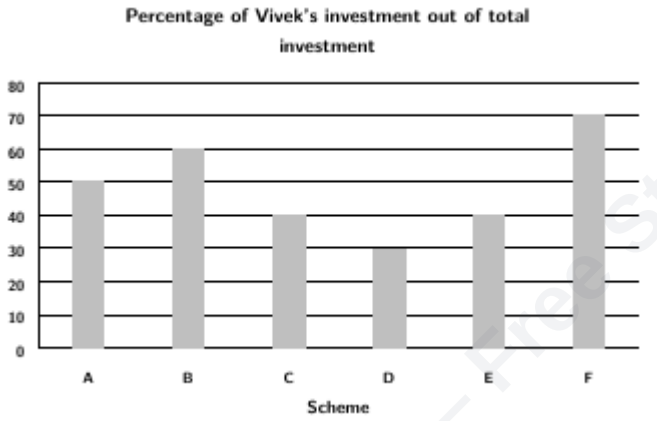
(a) 175
(b) 150
(c) 225
(d) 180

Q60. If x, y are acute angles, where $0 < x + y < 90°$ and $\sin(3x - 40°) = \cos(3y + 40°)$, then the value of $\tan(x + y)$ is equal to

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

Q61. Direction: Study the following graph and answer the question given below.





What is the ratio of the total amount invested by Vivek in schemes A and C together to the total amount invested by Shalini in schemes A and C together?

(a) 23 : 25
(b) 25 : 29
(c) 23 : 27
(d) 26 : 29

Q62. If $a + b + c = 0$, then $((2a^2)/3bc + (2b^2)/3ca + (2c^2)/3ab)$ is equal to:

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

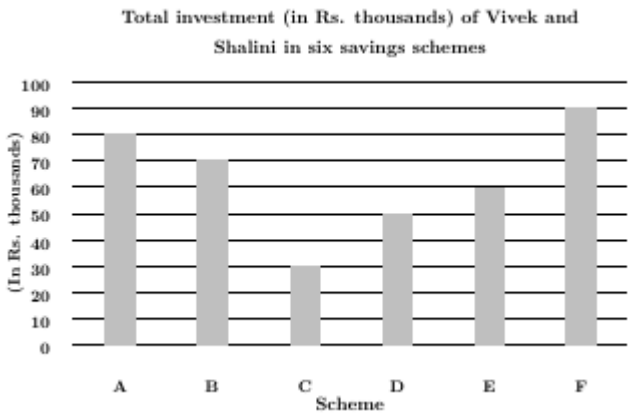
Q63. Two tangents PA and PB are drawn from an external point P to a circle with centre O at the points A and B respectively on it, that angle APB = 120° and AP = 12.5 cm. The length of OP is:

(a) 24 cm
(b) 25 cm
(c) 26 cm
(d) 20 cm

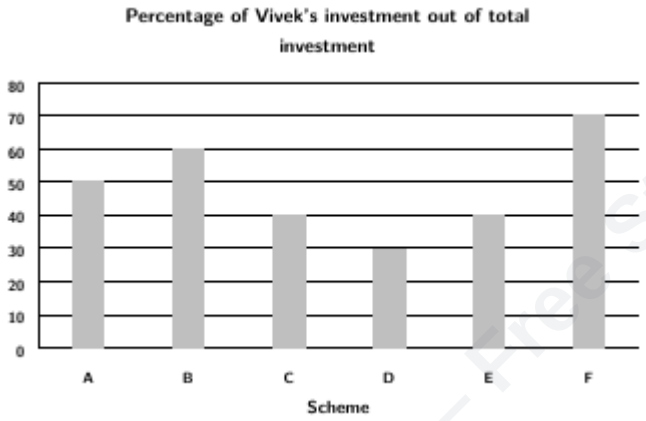
Q64. What sum of money at compound interest will amount to Rs. 4,630.08 in three years if the rate of interest is 4% for the first year, 5% for the second year and 6% for the third year?

(a) Rs. 4,500
(b) Rs. 4,800
(c) Rs. 4,000
(d) Rs. 3,500

Q65. Direction: Study the following graphs and answer the question given below.



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What is the average amount invested by Vivek in savings schemes A, B, C and D?

(a) Rs. 27,200
(b) Rs. 28,500
(c) Rs. 27,250
(d) Rs. 27,000

Q66. The difference between two positive numbers is equal to 30% of the greater number. If the smaller number is 28, then the sum of both the numbers is:

(a) 72
(b) 65
(c) 68
(d) 64

Q67. The value of 3 1/3 - [9/4 + 5/4 - 1/13 × (5/2 - 1/3)] is

(a) 10
(b) 0
(c) 5
(d) 1

Q68. A circle inscribed in a triangle ABC touches its sides AB, BC and AC at the points D, E and F, respectively. If AB = 18 cm, BC = 15 cm and AC = 13 cm, then the value of AD + BE + CF is:

(a) 25 cm
(b) 33 cm
(c) 23 cm
(d) 20 cm

Q69. If $\tan\theta = 2/\sqrt{11}$, $0 < \theta < 90°$, then the value of $(2\,\text{cosec}^2\theta - 3\sec^2\theta)/(3\,\text{cosec}^2\theta + 4\sec^2\theta)$ is equal to:

(a) 11/45
(b) 11/49
(c) 13/49
(d) 10/49

Q70. In an isosceles triangle ABC, AB = AC and AD is perpendicular to BC at D. If AD = 8 cm and perimeter of ΔABC is 64 cm, then the area of ΔABC is:

(a) 130 cm^2
(b) 124 cm2
(c) 120 cm2
(d) 125 cm2

Q71. A and B working together can do 45% of the work in 9 days. A alone can do the work in 30 days. How many days will B alone take to do the same work?

(a) 60 days
(b) 70 days

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(c) 48 days
(d) 50 days

Q72. The average weight of P, Q and R is 62 kg. The weight of R is 12 kg more than P and 9 kg more than Q. What is the average weight of P, Q, R and S if weight of S is 15 kg less than R?
(a) 58 kg
(b) 62 kg
(c) 64 kg
(d) 60 kg

Q73. A car moves a distance of 600 km with uniform speed. The number of hours taken for the journey is 2/3 of the number representing speed in km/h. The time taken to cover the distance is:
(a) 15 hours
(b) 18 hours
(c) 24 hours
(d) 20 hours

Q74. The exterior angle of a triangle is 115° and the corresponding interior opposite angles are in the ratio 2 : 3. The measure of greatest angle of the triangle is:
(a) 70°
(b) 65°
(c) 69°
(d) 79°

Q75. The difference between the selling prices obtained after a single discount of 45% and two successive discounts of 30% and 15% on the marked price Rs. 12,000 of an article is:
(a) Rs. 440
(b) Rs. 560
(c) Rs. 520
(d) Rs. 540

GENERAL AWARENESS

Q76. Who has created LISP, the Programming Language for Artificial Intelligence?
(a) Grace Hopper
(b) John McCarthy
(c) Charles Bachman
(d) Leslie Lamport

Q77. Who is the first Indian male cricketer to play 100 matches of T-20 format?
(a) Yuzvendra Chahal
(b) K. L. Rahul
(c) Rohit Sharma
(d) Virat Kohli

Q78. In which of the following years the first modern Summer Olympic games held?
(a) 1897
(b) 1898
(c) 1896
(d) 1894

Q79. Which of the following is NOT a metamorphic rock?
(a) Marble
(b) Sandstone
(c) Quartzite

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(d) Slate

Q80. Who is the Minister of Youth Affairs and Sports as of February 2020?

(a) Kiren Rijiju
(b) Anup Sridhar
(c) Radheshyam Julaniya
(d) M S Gill

Q81. Who was the (23rd) Chief Election Commissioner of India?

(a) Kalyan Sundaram
(b) Ashok Lavasa
(c) Sushil Chandra
(d) Sunil Arora

Q82. Which article of the Indian Constitution prohibits trafficking in human beings and forced labour?

(a) Article 25
(b) Article 23
(c) Article 13
(d) Article 5

Q83. All parallel circles from the Equator to the poles are known as _____.

(a) Parallels of Latitude
(b) Arctic Circle
(c) Tropic of Cancer
(d) Antarctic Circle

Q84. Which among the following is a western coast island?

(a) Pamban
(b) Elephanta
(c) Parikud
(d) Sriharikota

Q85. Who was the winner of the Dadasaheb Phalke Award which was presented in 2019?

(a) Manoj Kumar
(b) Shashi Kapoor
(c) Vinod Khanna
(d) Amitabh Bachchan

Q86. Which of the following is a dance form of Meghalaya?

(a) Laho
(b) Cheraw
(c) Dalkhai
(d) Rangma

Q87. Where is the Baglihar Dam located?

(a) Gujarat
(b) Himachal Pradesh
(c) Jammu & Kashmir
(d) Telangana

Q88. Which of the following is the allotropic form of carbon?

(a) Coal
(b) Graphite
(c) Charcoal
(d) Lamp black

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Q89. What is the Rigvedic name of the river Ravi?

(a) Vitasa
(b) Asikini
(c) Shutudri
(d) Parushni

Q90. Who is the Miss Universe crown winner for the year 2019?

(a) Catriona Gray
(b) Sofia Aragon
(c) Zozibini Tunzi
(d) Madison Anderson

Q91. Who won the Women US Open title of 2019?

(a) Bianca Andreescu
(b) Caroline Wozniacki
(c) Ashleigh Barty
(d) Sloane Stephens

Q92. What was the name of the oldest female black rhino which died in 2019?

(a) Fausta
(b) Anes
(c) Suidae
(d) Canidae

Q93. Hydrochloric acid is secreted in which part of our digestive system?

(a) Mouth
(b) Stomach
(c) Liver
(d) Small intestine

Q94. At which place was the Saffron Mission initiated in 2010?

(a) Andhra Pradesh
(b) Karnataka
(c) Jammu and Kashmir
(d) Haryana

Q95. Who was the Mughal Emperor at the time of Battle of Plassey?

(a) Alamgir II
(b) Siraj- Ud- Daulah
(c) Mir Quasim
(d) Shah Alam II

Q96. 'Kalamezhuthu' is a ritual art form found in:

(a) Maharashtra
(b) Kerala
(c) Karnataka
(d) Tamil Nadu

Q97. When was the National Stock Exchange of India established?

(a) 1991
(b) 1994
(c) 1993
(d) 1992

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Q98. A computer on the Internet that uses HTTP protocol is known as:

(a) LAN
(b) Web Server
(c) WAP
(d) WLAN

Q99. Who has created a record for longest single spaceflight in 2019?

(a) Nick Hague
(b) Anne Mc Clam
(c) Jessica Meir
(d) Christina Koch

Q100. Which among the following is the rarest element?

(a) Astatine
(b) Radon
(c) Uranium
(d) Lithium

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (b) CBDA

The correct answer is CBDA.

Key Points

• While arranging the parts of the passage, we should find some grammatical or contextual connections between them-

• Of the given options, only Sentence C can be the opening statement as it tells us about the film 'A boy and Sungreen'.

• The next statement must be B as it mentions the plot around which the movie revolves.

• Hence it will be the 2nd sentence.

• The given formation is followed only in the 2nd option.

• Thus, the correct order is- 'A Boy and Sungreen' is a film by the Chinese filmmaker, Ahn-Ju-Young. It narrates the story of a young and sensitive boy in a tough world. When he finds that his supposedly dead father is alive he decides to act. He decides to leave home and sets out to find him with the help of his best friend called Sungreen.

Q2. Answer: (a) Liason

The correct answer is Liason.

Key Points

• Let's look at the correct spelling and meaning of the marked option:

• Liaison- communication between people or groups who work with each other

• Example:

• He blamed the lack of liaison between the various government departments.

Let's look at the meanings of the other given options:

• Magisterial- having or seeming to have complete authority

• Maintain- to continue to have; to keep in existence, or not allow to become less

• Jurist- an expert in law, especially a judge

Q3. Answer: (d) Secretive

The solution is in Hindi. Read it online.

Q4. Answer: (a) Was he informed about the ticket cancellation by you?

The correct answer is Was he informed about the ticket cancellation by you?

Key Points

• The given sentence is in an active voice form, hence we need to convert it into a passive voice form.

• We need to follow these instructions while changing the voice of an interrogative sentence.

• Find the subject (you) and object (him) of the sentence and exchange their places.

• The given sentence is in the simple past tense.

• The passive voice form for the simple past interrogative sentence: Helping verb (Was/were) + subject + V3 + by + object?

• The inverted form of the verb i.e. Was he informed, will commence the sentence.

• At last line up the remaining part.

Following these steps, we finally get- Was he informed about the ticket cancellation by you?

Q5. Answer: (c) personality

The correct answer is personality.

Key Points

• Let's look at the meanings of the given options:

• personal (adjective)- belonging to or affecting a particular person rather than anyone else

• personnel (common noun)- people employed in an organization or engaged in an organized undertaking such as military service

• personality (abstract noun)- individual differences in characteristic patterns of thinking, feeling and behaving

• personalise (verb)- design or produce (something) to meet someone's individual requirements

• In the given sentence, we need an abstract noun just like the one used just before the conjunction 'and'.

• Of the given options, we find that the 3rd option i.e. personality is the correct choice in the 5th blank.

Q6. Answer: (a) an

The correct answer is an.

Key Points

• Articles are words that define a noun as specific or unspecific.

• The definite article 'the' is used with the name of things that are unique or already mentioned before.

• The article 'a' is used with the name of things that are not specific.

• The article 'an' is used with the words starting with the sound of a vowel.

• A/An are used before indefinite singular countable nouns.

• In the 4th blank part of the cloze test, the article 'an' will be used as the noun 'individual' starts with the sound of a vowel.

Q7. Answer: (b) of

The correct answer is of.

Key Points

• There are some verbs/nouns/adjectives which are followed by fixed preposition given below:

• Exonerate from, dependent on, way to do something/of doing something, interested in, inured to, accused of, a predilection for, a respite from, vexed at, etc.

• Examples:

• Sherley found a way to avoid the chaos in the market.

• I hated their way of cooking food.

• Since the given blank is succeeded by the present participle form of the verb i.e. bringing, the 2nd option i.e. of will be the correct choice in the 3rd blank.

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Q8. Answer: (b) be provided

The correct answer is be provided.

Key Points

• Let's look at the structures given below in active and passive forms:

• Active- Subject + modal verb + V1 + Object.

• Passive- Object + modal verb + be + V3 + by + Subject.

• Example:

• She might her task. (active)

• Her task might be finished by her. (passive)

Following the passive voice structure, we finally get the 2nd option i.e. be provided as the right choice in the 2nd blank.

Q9. Answer: (b) give

The correct answer is give.

Key Points

• An auxiliary verb is a verb that adds functional or grammatical meaning to the clause in which it occurs, so as to express tense, aspect, modality, voice, emphasis, etc.

• A modal or a modal auxiliary is a word such as 'can' or 'would' which is used with the main verb (1st form of the verb) to express ideas such as possibility, intention, or necessity.

• Example:

• I have taken my breakfast. (have- auxiliary verb)

• One should obey one's elders. (should- modal)

• Since the blank part is preceded by the modal verb 'can', the 1st form of the verb i.e. give will be used in the 1st blank.

Additional Information

• If should is used after lest, it indicates a negative purpose.

• Example:

• Hurry up lest you should miss the bus.

Q10. Answer: (a) The minister said that it was tragic that the Australian bush fires had claimed the lives of so many helple...

The correct answer is The minister said that it was tragic that the Australian bush fires had claimed the lives of so many helpless animals.

Key Points

• Let's look at the steps to change the sentence from direct to indirect speech:

• When the direct speech is in an assertive form, we follow the steps given below:

• Convert the sentence in the direct speech into assertive.

• The tense of reported speech is changed only when the reporting verb is in the past tense.

• The reporting verb said will remain the same.

• The connector 'that' will follow the removal of comma and inverted commas.

• The present simple tense i.e. is will be changed to the past simple tense i.e. was.

• Similarly, the present perfect tense i.e. have claimed will be changed to the past perfect tense i.e. had claimed.

• At last line up the remaining part.

Following these steps, we get- The minister said that it was tragic that the Australian bush fires had claimed the lives of so many helpless animals.

Q11. Answer: (d) appalling

The correct answer is appalling.

Key Points

• Let's look at the meanings of the given options:

• comforting- making you feel less sad or worried

• interesting- something that is interesting keeps your attention because he, she, or it is unusual, exciting

• laudable- deserving praise, even if there is little or no success

• appalling- shocking and very bad

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• As per the context of the sentence, life is shockingly different in slums as compared to that in multistorey buildings.

• Hence, from the given meanings, we find that the 4th option i.e. appalling is the correct choice.

Correct Sentence: In our metro cities, the contrast between the high-rise buildings with the slums behind is appalling.

Q12. Answer: (a) To pretend to be happier or richer so as to conceal the real situation

The correct answer is To pretend to be happier or richer so as to conceal the real situation.

Key Points

• Let's look at the meaning of the given idiom:

• Keep up appearances- maintain an impression of wealth or well-being

• Example:

• They were very unhappily married but kept up appearances for the sake of their children.

• **Thus from the explanation given above, we find that the 1st option is the correct choice.

Q13. Answer: (d) line up

The correct answer is line up.

Key Points

• Let's understand the difference between the phrasal verbs given below:

• line up (noun)- a group of people that has been brought together to form a team or take part in an event

• line up (phrasal verb)- to stand in a line

• Examples:

• We've got a star-studded line-up of guests on tonight's show.

• Thousands of people lined up to buy tickets on opening night.

• The usage of the adjective 'wonderful' used before the underlined part suggests that we need a noun in the underlined part of the sentence.

• Thus the noun 'line up' will be the correct choice in the underlined part.

Correct Sentence: The week-long Theatre Festival has begun with a wonderful line up of plays.

Q14. Answer: (b) begun his career as an actor

The correct answer is begun his career as an actor.

Key Points

• The simple past tense is used when we talk about things that happened or existed before now.

• The structure is given below:

• Subject + V2 + object. (Active Voice)

• Object + was/were + V3 + by + subject. (Passive Voice)

• Example:

• *He won the car race. *(active voice)

• The car race was won by him. (passive voice)

• Since the sentence follows the active voice structure, the 2nd form of the verb i.e. began will be used instead of 'begun' in part given in the 2nd option.

Correct Sentence: Mani Kaul began his career as an actor and a director of short films before doing his debut feature film, ‘Uski Roti.’

Q15. Answer: (b) Within a very short period of time

The solution is in Hindi. Read it online.

Q16. Answer: (a) No improvement

The correct answer is No improvement.

Key Points

• In a sentence, the verb is used according to person and number.

• The verb always conforms to the main subject of the sentence.

• In the given sentence, the main subject is the year '2020' which is singular.

• Hence, the auxiliary verb will also be singular i.e. 'is going' as the given sentence is in the present tense (as suggested by the verb 'believe' used in the former part of the sentence).

Correct Sentence: Some people believe that 2020 is going to be a very significant year in our history.

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Additional Information

• If an article is used before every subject, it denotes different people/things. Hence, a plural verb will be used.

• Example:

• The writer and the poet has come. (incorrect)

• The writer and the poet have come. (correct)

Q17. Answer: (a) inciting

The correct answer is inciting.

Key Points

• Let's look at the meanings of the given options:

• inciting- encourage or stir up (violent or unlawful behaviour)

• winning- gaining, resulting in, or relating to victory in a contest or competition

• losing- suffering, resulting in, or relating to defeat in a game or contest

• preparing- make (something) ready for use or consideration

• As per the context of the sentence, the violence in the university was fuelled by the politician.

• Hence, from the given meanings, we find that the 1st option i.e. inciting is the correct choice.

Correct Sentence: The politician was responsible for inciting violence in the university.

Q18. Answer: (d) Luxurient

The correct answer is Luxurient.

Key Points

• Let's look at the correct spelling and meaning of the marked option:

• Luxuriant- rich and profuse in growth

• Example:

• This stretch of land was once covered with luxuriant forest but is now bare.

Let's look at the meanings of the other given options:

• Syllabi- the subjects in a course of study or teaching

• Aggravate- to make things worse

• Zoologist- an expert in or student of the behaviour, physiology, classification, and distribution of animals

Q19. Answer: (c) Outsider

The correct answer is Outsider.

Key Points

• Let's look at the meanings of the given word and marked option:

• Compatriot- Somebody from one's own country

• Outsider- One who is not part of a community or organization

• Let's look at the meanings of the other given options:

• Brethren- of or pertaining to any religious group that uses or formerly used the word "Brethren", capitalized, in referring to itself or its members

• Countryman- Somebody from a certain country

• Insider- A person who has special knowledge about the inner workings of a group, organization, or institution

• Hence from the given meanings, we find that Compatriot and Outsider are antonyms.

Q20. Answer: (a) Deranged

The correct answer is Deranged.

Key Points

• Let's look at the meaning of the marked option:

• Deranged- completely unable to think clearly or behave in a controlled way, especially because of mental illness

• Let's look at the meanings of the other given options:

• Eccentric- a person with an unusual or odd personality

• Whimsical- determined by chance or impulse or whim rather than by necessity or reason

• Balanced- to bring into balance or equilibrium

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• Hence, from the given meanings, we find that Deranged is the correct one-word substitute.

Q21. Answer: (d) DACB

The correct answer is DACB.

Key Points

• While arranging the parts of the passage, we should find some grammatical or contextual connections between them:

• Sentence D introduces us to the subject 'Badshah Bahadur Shah Jafar'. It is the introductory sentence and will be put in the first place.

• Sentence A tells us about the torchbearers who accompanied the Emperor. It will be put in second place.

• Sentence C tells us the direction followed by the above-mentioned group. It will be put in third place.

• The last sentence is B as it mentions the concluding activity.

Thus, the correct order is- During the winter months the Badshah Bahadur Shah Jafar would set off on his horse at 3 a.m. He would be accompanied by fifty or sixty torchbearers. They would all head towards the river Jamuna. When dawn broke the Emperor would alight, say his prayers and return by 8 a.m.

Q22. Answer: (d) Ratan Tata take across the reins of the company

The correct answer is Ratan Tata take across the reins of the company.

Key Points

• Let's understand the difference between the phrasal verbs given below:

• take across- to carry, guide, or convey someone or something from one side (of a thing or place) to another

• take over- assume control of something

• Examples:

• He was arrested for taking drugs across the border.

• The firm was badly in need of restructuring when she took over.

• As per the context of the sentence, Ratan Tata took control of the company and took an active part in it.

• Thus the preposition 'over' will be the correct choice in the part given in the 4th option.

Correct Sentence: Often hailed as one of the greatest industry leaders of India, Ratan Tata took over the reins of the company, leading from the front.

Q23. Answer: (b) Worsen

The solution is in Hindi. Read it online.

Q24. Answer: (d) Depressed

The correct answer is Depressed.

Key Points

• Let's look at the meanings of the given word and marked option:

• Despondent- In low spirits from loss of hope or courage

• Depressed- unhappy, and blaming oneself rather than others

• Let's look at the meanings of the other given options:

• Energetic- Possessing, exerting, or displaying energy

• Neutral- Not taking sides in a conflict such as war

• Cheerful- Noticeably happy and optimistic

• Hence from the given meanings, we find that Despondent and Depressed are synonyms.

Q25. Answer: (a) Probationer

The correct answer is Probationer.

Key Points

• Let's look at the meaning of the marked option:

• Probationer- a person who is serving a probationary or trial period in a job or position to which they are newly appointed

• Let's look at the meanings of the other given options:

• Petitioner- a person who presents a petition to authority in respect of a particular cause

• Practitioner- a person actively engaged in an art, discipline, or profession, especially medicine

• Professional- relating to or belonging to a profession

• Hence, from the given meanings, we find that Probationer is the correct one-word substitute.

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Q26. Answer: (a) [figure]

The paper, when opened will look like:

Hence, Option 1 is correct.

Q27. Answer: (b) 9475

Given codes:

'PERNMETER' → '152785352'

Letter	P	E	R	N	M	E	T	E	R
Code	1	5	2	7	8	5	3	5	2

'AREA' → '4254'

Letter	A	R	E	A
Code	4	2	5	4

'METAL' → '85349'

Letter	M	E	T	A	L
Code	8	5	3	4	9

Similarly,

Code for the word 'LANE' will be: 9475

Hence, '9475' will be correct.

Q28. Answer: (c) Writer

Given: Movie - Actor

Actor works for a movie.

Similarly,

Writer works for a magazine.

Hence, Writer is correct.

Q29. Answer: (d) ZMRVDQ

Given:

'QUESTION' → 'PTDRSHNM'

Similarly,

Hence, ZMRVDQ is correct.

Q30. Answer: (b) TUV

Let us check through option.

1) GIK → G + 2 = I, I + 2 = K

2) TUV → T + 2 = V (not U), V + 2 = X (not V)

3) BDF → B + 2 = D, D + 2 = F

4) NPR → N + 2 = P, P + 2 = R

Hence, TUV is correct.

Q31. Answer: (a) [figure]

The 'star' and 'triangle' symbols are rotating in clockwise direction.

The 'colored circle' and 'uncolored circle' are rotating in anti clockwise direction.

The next figure will be:

Hence, Option 1 is correct.

Q32. Answer: (a) (11, 121, 1341)

Given conditions:

1. The second number is the square of the first number.

2. The third number is the cube of the first number.

Let us check through options:

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1) (11, 121, 1341)
$(11)^2 = 121$, $(11)^3 = 1331 \neq 1341$
2) (17, 289, 4913)
(17)2 = 289, (17)3 = 4913
3) (13, 169, 2197)
(13)2 = 169, (13)3 = 2197
4) (12, 144, 1728)
(12)2 = 144, (12)3 = 1728
Hence, (11, 121, 1341) is correct.

Q33. Answer: (b) Seema's mother - in - law

According to the statement given by Seema,
Her (seema's mother-in-law's) son is the father (seema's husband) of my (seema's) daughter.
Therefore, lady in the portrait is seema's mother-in-law.
The below given diagram represents the relationship.
Hence, Seema's mother-in-law is correct.

Q34. Answer: (c) IH

Given: LB : KJ : : ND : ?
LB : KJ
K is diagonally down to L on the left side.
J is diagonally up to B on the right side.
Similarly,
ND : ?
I is diagonally down to N on the left side.
H is diagonally up to D on the right side.
Hence, IH is correct.

Q35. Answer: (d) 80

Given:
23 : 110
23 → (23 × 5) - 5 = 110
Similarly,
17 → (17 × 5) - 5 = 80
Hence, 80 is correct.

Q36. Answer: (a) Renewable Energy Day

Given:
World Environment Day : 5 June
5 June is celebrated as world environment day.
Similarly,
20 August is celebrated as renewable energy day.
Hence, Renewable Energy Day is correct.

Q37. Answer: (b) (352, 436, 646)

Let us check through options.
1) (192, 384, 576)
Sum of 1st, 2nd and 3rd digit is 12, 15 and 18 respectively.
2) (352, 436, 646)
Sum of 1st, 2nd and 3rd digit is 10, 13 and 16 respectively.
3) (219, 438, 657)
Sum of 1st, 2nd and 3rd digit is 12, 15 and 18 respectively.
4) (327, 654, 981)
Sum of 1st, 2nd and 3rd digit is 12, 15 and 18 respectively.

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Hence, (352, 436, 646) is correct.

Alternate Method

The pattern followed here is:

Option 1 → (192, 384, 576)

192 × 2 = 384

192 × 3 = 576

Option 3 → (219, 438, 657)

219 × 2 = 438

219 × 3 = 657

Option 4 → (327, 654, 981)

327 × 2 = 654

327 × 3 = 981

Option 2 → (352, 436, 646)

352 × 2 ≠ 436

352 × 3 ≠ 646

But option 2 doesn't follow the pattern.

Hence, option 2 i.e (352, 436, 646) is correct.

Q38. Answer: (a) [figure]

Hence, Option 1 is correct.

Q39. Answer: (a) E

TRICK:

In first and second dice, we have common element i.e. C

We will rotate the elements either in clockwise or anticlockwise direction to get the opposite paired elements.

On rotating the elements in clockwise direction, we get,

First dice - C, B, A

Second dice - C, D, E

Thus, we can say that A is opposite to E.

Hence, E is correct.

Q40. Answer: (b) aaabbbab

Given: ab _ _ bb _ _ aa _ ba _ _ ab _

Let us check through options.

1) ababbaab

a b a / b b b / a b a / a b b / a a a / a b b → It doesn't follow any pattern.

2) aaabbbab

a b a / a b b / a b a / a b b / a b a / a b b → It follows a certain pattern.

3) babaabaa

a b b / a b b / b a a / a a b / a b a / a b a → It doesn't follow any pattern.

4) bbaabbaa

a b b / b b b / a a a / a b b / a b a / a b a → It doesn't follow any pattern.

Hence, aaabbbab is correct.

Q41. Answer: (a) April

Except April, all other months have 31 days.

Hence, April is correct.

Q42. Answer: (d) Maharashtra, Mumbai, Delhi

Below given diagram shows the relationship between the variables.

Maharashtra, Mumbai, Delhi

Hence, Maharashtra, Mumbai, Delhi is correct.

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Q43. Answer: (b) 5 and 9

Given equation: 8 × 3/4 + 5 - 9 = 10

Let us check through options.

1) 4 and 8

4 × 3/8 + 5 - 9 = 10

3/2 + 5 - 9

3/2 - 4

-5/2 ≠ 10

2) 5 and 9

8 × 3/4 + 9 - 5 = 10

2 × 3 + 9 - 5

6 + 9 - 5

15 - 5

10 = 10

Hence, 5 and 9 is correct.

Q44. Answer: (d) 16

Given series: 1, 4, 3, 9, 5, ?, 7, 25

It composed of two series.

1, 3, 5, 7, ..

4, 9, ?, 25

The second series follows the pattern of squares of natural numbers.

$(2)^2 = 4$,

$(3)^2 = 9$,

$(4)^2 = 16$,

$(5)^2 = 25$

Hence, 16 is correct.

Q45. Answer: (c) Only conclusion II follows

The possible venn diagram is as shown below:

Given conclusions:

I. All players are honest → False (All players are honest is a possibility but not definite)

II. Some players are honest → True (Some players are singers and all singers are honest. Therefore, some players, which are singers are honest)

Hence, Only conclusion II follows is correct.

Additional Information

'Some' is a subset of 'All'. If in statements it is given that 'All A are B' then the conclusion 'Some A are B' would always be True.

Q46. Answer: (a) 30

Given figure:

If the rows and columns in the given square are equal.

We take the sum of the squares of the number of rows or columns.

$(1)^2 + (2)^2 + (3)^2 + (4)^2$

1 + 4 + 9 + 16

= 30

Hence, 30 is correct.

Q47. Answer: (d) 11 years

Mother's age before three years = 30 years

Mother's present age = 30 + 3 = 33 years

Mother's age after three years = 33 + 3 = 36 years

Total age of a mother and son, after three years = 50

Son's age after three years = 50 - 36 = 14 years

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Son's present age = 14 - 3 = 11 years.

Hence, 11 years is correct.

Q48. Answer: (b) [figure]

The below figure shows the correct mirror image of the given figure.

Hence, Option 2 is correct.

Q49. Answer: (b) PV

Given series: AA, BD, GK, ?

A + 0 = A,

A + 1 = B,

B + 2 = D,

D + 3 = G,

G + 4 = K,

K + 5 = P,

P + 6 = V

Hence, PV is correct.

Q50. Answer: (d) 20

Given series: 2, 4, 8, 14, 20, 32

2 + 2 = 4

4 + 4 = 8

8 + 6 = 14

14 + 8 = 22 (not 20)

22 + 10 = 32

Hence, 20 is correct.

Q51. Answer: (a) 2

Given:

$x = 3 + 2\sqrt{2}$

We have to find the value of $\sqrt{x} - 1/\sqrt{x}$

Calculation:

$x = 3 + 2\sqrt{2}$

$\Rightarrow x = 1 + 2 + 2(\sqrt{2})(1)$

$\Rightarrow x = (\sqrt{2} + 1)^2$

$\Rightarrow \sqrt{x} = \sqrt{2} + 1$

Again, $1/\sqrt{x} = 1/(\sqrt{2} + 1)$

$\Rightarrow 1/\sqrt{x} = (\sqrt{2} - 1)/(\sqrt{2} + 1)(\sqrt{2} - 1)$

$\Rightarrow 1/\sqrt{x} = \sqrt{2} - 1$

According to question:

$\Rightarrow \sqrt{x} - 1/\sqrt{x} = (\sqrt{2} + 1) - (\sqrt{2} - 1)$

$\Rightarrow \sqrt{x} - 1/\sqrt{x} = 1 + 1$

$\Rightarrow \sqrt{x} - 1/\sqrt{x} = 2$

Therefore $(\sqrt{x} - 1/\sqrt{x}) = 2$

Q52. Answer: (b) 370

Given:

The total number of students who use different modes of transport for to and from travel = 900

Calculation:

The number of students who use the Institute bus = (212°/360°) × 900 = 530

The number of student who do not use the institute bus = (900 – 530) = 370

Therefore The number of students who do not use the institute bus is 370.

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Q53. Answer: (a) 7830

Given:

Divisor = 24 × Quotient

Divisor = 8 × Remainder

Quotient = 18

Formula Used:

Dividend = Divisor × Quotient + Reminder

Calculation:

Divisor = 24 × Quotient

=> Divisor = 24 × 18

=> Divisor = 432

Again, Divisor = 8 × Remainder

=> 432 = 8 × Remainder

=> 8 × Remainder = 432

=> Remainder = 432/8

=> Remainder = 54

Dividend = Divisor × Quotient + Reminder

=> Dividend = 432 × 18 + 54

=> Dividend = 7776 + 54

Therefore Dividend = 7830

Q54. Answer: (d) $x/(\sqrt{(1-x^2)})$

Given:

cos27° = x

tan63° = ?

Formula Used:

cosθ = Base/Hypotenuse

tanθ = Perpendicular/Base

$Perpendicular^2 + Base^2 = Hypotenus^2$

Calculation:

cos27° = x

=> AB/BC = x/1

$Perpendicular^2 = Hypotenus^2 – Base^2$

=> $AC^2 = BC^2 – AB^2$

=> $AC^2 = 1 – x^2$

=> $AC = \sqrt{(1 – x^2)}$

Therefore, tan63° = AB/AC

=> $\tan63° = x/\sqrt{(1 – x^2)}$

Q55. Answer: (a) 27 cm^3

Given:

Diagonal of Cube = √27

Formula Used:

Diagonal of cube = √3 × Side of cube

Volume of Cube = $Side^3$

Calculation:

Diagonal of cube = √3 × Side of cube

=> √3 × Side of Cube = √27

=> Side of Cube = 3√3/√3

=> Side of Cube = 3 cm

Therefore Volume of Cube = 3 × 3 × 3 = 27 cm^3

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Q56. Answer: (d) 2,250

Given:

SP1 = Rs. 13,400

SP2 = Rs. 11,600

Formula Used:

Profit = SP – CP

Loss = CP – SP

Calculation:

Suppose the cost price of the article is CP.

According to question –

=> 13,400 – CP = CP – 11,600

=> 2CP = 25,000

=> CP = 12,500

If the SP is Rs. 14,750, then, the profit will be = Rs. (14,750 – 12,500) = Rs. 2,250

Q57. Answer: (a) 195

Given:

$a = (2 + \sqrt{3})/(2 - \sqrt{3})$

$b = (2 - \sqrt{3})/(2 + \sqrt{3})$

$a^2 + b^2 + ab = ?$

Calculation:

=> $a = (2 + \sqrt{3})/(2 - \sqrt{3})$

{multiply by up or down $(2 + \sqrt{3})$}

=> $a = [(2 + \sqrt{3})/(2 - \sqrt{3})][(2 + \sqrt{3})/(2 + \sqrt{3})]$

=> $a = (2 + \sqrt{3})^2/(4 – 3)$

=> $a = (4 + 3 + 4\sqrt{3})$

=> $a = (7 + 4\sqrt{3})$

Therefore $b = (2 - \sqrt{3})/(2 + \sqrt{3})$

Similarly,

=> $b = (7 – 4\sqrt{3})$

So, $ab = (7 + 4\sqrt{3})(7 – 4\sqrt{3}) = (49 – 48) = 1$

Again, $(a + b) = 14$

Squaring both side, we have -

=> $a^2 + b^2 + 2ab = 196$

=> $a^2 + b^2 + ab + ab = 196$

=> $a^2 + b^2 + ab + 1 = 196$

=> $a^2 + b^2 + ab = 195$

Q58. Answer: (d) 20 years

Given:

The ages of Fatima and Ahmed are in the ratio 3 : 8.

The sum of their present ages is 44 years.

Calculation:

Suppose the ages of Fatima and Ahmed is 3x and 8x, respectively.

According to question –

=> 3x + 8x = 44

=> 11x = 44

=> x = 44/11

=> x = 4

Fatima’s age = 3x = 12 years

Ahmed’s age = 8x = 32 years

Therefore, difference of their ages = (32 – 12) = 20 years

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Q59. Answer: (a) 175

The total number of students who use different modes of transport for to and from travel = 900

The number of students who travel on the Foot = 70°/360° × 900

=> 70°/360° × 900

=> 175

Q60. Answer: (b) 1/√3

Given:

sin(3x - 40°) = cos (3y + 40°)

Formula Used:

sinA = cosB

Then, A + B = 90°

Calculation:

sin(3x - 40°) = cos (3y + 40°)

=> 3x – 40° + 3y + 40° = 90°

=> 3x + 3y = 90°

=> x + y = 30°

Therefore, tan(x + y) = tan30° = 1/√3

Q61. Answer: (d) 26 : 29

Confusion Points

In the 2nd tabulation, it is written that the percentage of Vivek's investment is out of the total investment. If I want to find Shalini's investment. I will subtract Vivek's investment from the total investment. we can say that

Shalini's investment.= 100% - vivek investment

Detailed solution:-

Total amount invested by Vivek and Shalini in scheme A = 80,000

Total amount invested by Vivek and Shalini in scheme C = 30,000

The total amount invested by Vivek in schemes A and C together = 50% of 80,000 + 40% of 30,000

=> 40,000 + 12,000

=> 52,000

Shalini's investment.= 100% - vivek investment

The total amount invested by Shalini in schemes A and C together = (100 - 50)% of 80,000 + (100 - 40)% of 30,000

=> 40,000 + 18,000

=> 58,000

Therefore, required ratio = 52,000: 58,000 = 26:29

Q62. Answer: (d) 2

If a + b + c = 0

Then, $a^3 + b^3 + c^3 = 3abc$

$(2a^2/3bc + 2b^2/3ca + 2c^2/3ab)$

$=> (2a^3 + 2b^3 + 2c^3)/3abc$

$=> 2(a^3 + b^3 + c^3)/3abc$

=> 2(3abc)/3abc

=> 2

Q63. Answer: (b) 25 cm

Given:

angle APB = 120° and AP = 12.5 cm

Calculation:

We know that angle PAO = 90°

Therefore angle AOP = 30°

Thus, sin angle AOP = AP/OP

=> sin30° = 12.5/OP

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=> ½ = 12.5/OP

=> OP= 12.5 × 2

=> OP = 25 cm

Q64. Answer: (c) Rs. 4,000

Given:

Amount after 3 years = Rs. 4,630.08

Rate of interest for 1, 2 and 3 rd year = 4%, 5% and 6% resp

Concept used:

Amount = Prinicpal × $(1 + r/100)^n$

Calculation:

Amount = Principal × (1 + 4/100) × (1 + 5/100) × (1 + 6/100)

Rs. 4,630.08 = Principal × 26/25 × 21/20 × 106/100

Then, Principal = 4,630.08 × 25 × 20 × 100/(26 × 21 × 106) = Rs. 4000

Therefore Principal is Rs. 4000.

Q65. Answer: (c) Rs. 27,250

Calculation:

Total investment of Vivek and Shalini in schemes A = Rs 80,000

Total investment of Vivek and Shalini in schemes B =Rs 70,000

Total investment of Vivek and Shalini in schemes C = Rs 30,000

Total investment of Vivek and Shalini in schemes D = Rs 50,000

Percentage of Vivek's investment in schemes A, B, C and D = 50%, 60%, 40% and 30%

Amount invested in A by Vivek A = 50% of 80,000 = Rs 40,000

Amount invested in A by Vivek B = 60% of 70,000 = Rs 42,000

Amount invested in A by Vivek C = 40% of 30,000 = Rs 12,000

Amount invested in A by Vivek D =30% of 50,000 = Rs 15,000

Average amount invested in A, B, C and D by Vivek = Rs 27,250

Therefore Required average is Rs 27,250.

Alternate Method

Calculations:

Scheme	Total investment	Percentage of Vivek's share	Vivek's Share
A	80000	50%	80000 × 50/100 = 40000
B	70000	60%	70000 × 60/100 = 42000
C	30000	40%	30000 × 40/100 = 12000
D	50000	30%	50000 × 30/100 = 15000

Total investment by Vivek = 40000 + 42000 + 12000 + 15000 = 109000

Average amount invested in A, B, C and D by Vivek = 109000/4 = 27250

Therefore Required average is Rs. 27,250

Q66. Answer: (c) 68

Given:

The difference between the two positive numbers is equal to 30% of the greater number.

If the smaller number is 28

Calculation:

Let the greater number be X.

X - 28 = 30% of X

70% of X = 28

Or, X = 40

Then, sum of both numbers = X + 28 = 40 + 28

Therefore Sum = 68

Q67. Answer: (b) 0

Given:

3 1/3 - [9/4 + 5/4 - 1/13 × (5/2 - 1/3)]

Concept used

Calculation:

3(1/3) – [9/4 + 5/4 – 1/13 × (5/2 – 1/3)]

=> 10/3 – [9/4 + 5/4 – 1/13 × 13/6]

=> 10/3 – [9/4 + 5/4 – 1/6]

=> 10/3 – [(27 + 15 – 2)/12]

=> 10/3 – 40/12

=> 10/3 – 10/3

=> 0

Q68. Answer: (c) 23 cm

Given:

AB = 18 cm, BC = 15 cm and AC = 13 cm,

Calculation:

We know, AD = AF, DB = BE, CE = FC

The perimeter of the triangle = AB + BC + AC = 18 + 15 + 13 = 46

That is, AD + AF + BD + BE + CE + CF = 46

Or, 2 × (AD + BE + CF) = 46

Therefore AD + BE + CF = 23

Q69. Answer: (d) 10/49

Given:

tan θ = 2/√11

Calculation:

(2cosec²θ - 3sec²θ)/(3cosec²θ + 4sec² θ)

Converting them to sin and cos format, and taking LCM we get,

(2 cos²θ - 3 sin²θ)/(3cos2θ + 4 sin2θ)

Diving throughout by cos² θ, we get,

(2 - 3 tan2θ)/(3 + 4 tan2θ)

From the question we know, tan²θ = 4/11,

So, (2 - 3 tan2θ)/(3 + 4 tan2θ) = (2 - 3 × 4/11)/(3 + 4 × 4/11)

=> (22 - 12)/(33 + 16) = 10/49

Q70. Answer: (c) 120 cm2

Given

Δ ABC is an isosceles triangle, AB = AC

Perimeter = 64 cm

AD = 8 cm

Formula used

Area of triangle = 1/2 × base × height

Figure:

Calculation

AD perpendicular to BC ,so ΔADB is right angle triangle

Let, AB = AC = x and BD = y

BD = DC (AD will bisect BC)

Accordingly,

x + x + y + y = 64 = Perimeter

=> x + y = 32

=> x = 32 - y

From ΔABD,

x2 = y2 + 82
=> (32 - y)2 = y2 + 82
=> 322 - 64y + y2 = y2 + 64
=> 64y = 1024 - 64
=> y = 960/64
=> y = 15
=> BD = 15
Now,
BC = 2 × BD (In isosceles triangle, altitude and median are same)
BC = 2 × 15 = 30 cm
Area of triangle ABC = 1/2 × 30 × 8 = 120 cm2
Therefore Area of triangle ABC is 120 cm2

Q71. Answer: (a) 60 days

Given:
A = 30 days
A + B = 45% of work in 9 days
Calculation:
A + B = 45% of work in 9 days
A + B = 100% of work will be completed in (9/45) × 100 = 20 days
So, (A + B) together can complete the work in 20 days
A alone can do the work in 30 days.
Suppose the total work is 60 units.
A's one day work = 60/30 = 2 units
(A+ B)'s one day work = 60/20 = 3 units
Therefore B's one day work = (3 – 2) = 1 unit
So, B alone can do the work in 60/1 = 60 days

Q72. Answer: (d) 60 kg

Given:
Average weight of P, Q and R = 62 kg
P = R – 12
Q = R – 9
S = R – 15
Calculation:
Average weight of P, Q and R = 62 kg
Total weight of P, Q and R = 62 × 3 = 186 kg
Therefore P + Q + R = 186
=> R – 12 + R – 9 + R = 186
=> 3R – 21 = 186
=> 3R = 207
=> R = 207/3
=> R = 69 kg
Therefore S = 69 – 15 = 54 kg
P = R – 12 = 69 – 12 = 57 kg
Q = R – 9 = 60 kg
Therefore, total weight of P, Q, R and S = (57 + 60 + 69 + 54) = 240
Therefore Average weight of P, Q, R and S = 240/4 = 60 kg

Q73. Answer: (d) 20 hours

Given:
The number of hours taken for the journey is 2/3 of the speed
Distance = 600 km

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Formula Used:

Distance = Time × Speed

Calculation:

Suppose the number of hours for the journey is 2x and the speed is 3x.

=> Distance = Time × Speed

=> 600 = 2x × 3x

=> x^2= 600/6

=> x^2 = 100

=> x = √100

=> x = 10

Therefore Time taken to cover distance = 2x = 20 hours

Q74. Answer: (c) 69°

Shortcut Trick

According to the Exterior Angle Theorem, the sum of two interior opposite angles equals the exterior angle.

Ratio of interior opposite angles = 2 : 3 => Sum = 5 units.

5 units = 115° => 1 unit = 23°.

Interior opposite angles are: 2 × 23° = 46° and 3 × 23° = 69°.

The third interior angle = 180° − 115° = 65° (Linear pair).

Comparing 46°, 69°, and 65°, the greatest angle is 69°.

Therefore The correct answer is 69°.

Alternate Method

Given: Exterior angle of triangle = 115°, Ratio of interior opposite angles = 2 : 3.

Formula Used:

1. Exterior Angle Property: Exterior Angle = Sum of two Interior Opposite Angles.

2. Linear Pair Property: Exterior angle + Interior adjacent angle = 180°.

Calculations:

=> Let the two interior opposite angles be 2x and 3x.

=> 2x + 3x = 115°

=> 5x = 115°

=> x = 23°

=> First interior opposite angle = 2 × 23° = 46°

=> Second interior opposite angle = 3 × 23° = 69°

=> Third interior angle = 180° − 115° = 65°

=> Comparing all angles: 46°, 69°, and 65°.

=> Greatest angle = 69°.

Therefore The correct answer is 69°.

Additional Information

Exterior Angle Theorem

The measure of an exterior angle of a triangle is equal to the sum of the measures of its two remote interior angles.

Angle Sum Property

The sum of all three interior angles of a triangle is always 180°.

Linear Pair of Angles

An exterior angle and its adjacent interior angle always form a linear pair, meaning they are supplementary (sum = 180°).

Q75. Answer: (d) Rs. 540

Given:

MP = Rs. 12,000

Case I: Discount = 45%

Case II: Successive Discount = 30% and 15%

Formula Used:

SP = MP - Discount

Calculation:

MP = 12,000

Case I: When discount = 45%

Therefore SP = (100 - 45) % of 12,000

=> SP = 55% of 12,000

=> SP = 6,600

Case II: When successive discount = 30% and 15%

Therefore SP = 70% of 85% of MP

=> SP = 70% of 85% of 12,000

=> SP = 7 × 85 × 12

=> SP = 7,140

Therefore , the difference between SPs = (7,140 - 6,600) = Rs. 540

Q76. Answer: (b) John McCarthy

The correct answer is John McCarthy.

Key Points

• John McCarthy has created LISP, the Programming Language for Artificial Intelligence.

• LISP, an acronym for list processing, is a programming language that was designed for easy manipulation of data strings.

• Developed in 1959 by John McCarthy, it is a commonly used language for artificial intelligence (AI) programming.

• It is one of the oldest programming languages still in relatively wide use.

• LISP can build any abstraction at all if you can define syntax and semantics for it.

• LISP is good because it has a very minimal, simple, regular syntax.

• LISP was founded on the mathematical theory of recursive functions (in which a function appears in its own definition).

• Hence, option 2 is correct.

Additional Information

• Lisp is used for AI because it supports the implementation of software that computes with symbols very well.

• Symbols, symbolic expressions and computing with those is at the core of Lisp.

• CYC, one of the largest software systems written.

• Representation and reasoning in the domain of human common sense knowledge.

• Python is the ideal coding language used for machine learning, NLP, and neural network connections.

• Python can be used even if you are new to AI development since it is flexible and comes with pre-existing libraries like Pandas, SciPy, and nltk.

• Python language is lauded for its simple syntax and minimal codes.

Q77. Answer: (c) Rohit Sharma

The correct answer is Rohit Sharma.

Key Points

• Rohit Sharma is the first Indian male cricketer to play 100 matches of T-20 format.

• Stand-in captain Rohit Sharma became the first Indian cricketer and second in world cricket to complete 100 T20 Internationals.

• Rohit is currently the top-scorer in this format with 2452 runs with a regular skipper.

• Rohit has scored the runs at a strike-rate of 136.67 with four hundred and 17 half-centuries.

• He reached the milestone when he led the team in the second match against Bangladesh at the Saurashtra Cricket Association Stadium.

• Virat Kohli second on the list with an aggregate of 2450 runs.

• Shoaib Malik (111 games) from Pakistan is the only player to have played more than 100 T20 Internationals.

Additional Information

• Rohit Sharma Holds the record of Most Centuries In T20 International Cricket.

• He Has Scored 4 Centuries in 96 Matches (88 Innings) During His T20 International Career.

• Which Remains The Most Centuries Scored By Batsman In T20Is.

• West Indies skipper Kieron Pollard became the first player in the history of T20 cricket to feature in 500 matches when he took the field against Sri Lanka for the first T20 International in Pallekele.

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Q78. Answer: (c) 1896

The correct answer is 1896.

• In the 1896 year were the first modern Summer Olympic games held.

Key Points

• The 1896 Summer Olympics, officially known as the Games of the Olympiad, was the first international Olympic Games held in modern history.

• Organized by the International Olympic Committee (IOC), which had been created by French aristocrat Pierre de Coubertin.

• it was held in Athens, Greece, from 6 to 15 April 1896.

• The International Olympic Committee (IOC) is a non-governmental international organization that came into existence in 1894.

• China will host the 2022 Winter Olympic Games.

Additional Information

• The IOC is the final authority on all questions concerning the Olympic games and the Olympic movement.

• It was for the first time that 204 National Olympic Committees represented their countries at the 2012 London Olympic Games.

• The Olympic Charter is the codification of the fundamental principles, rules, and bye-laws adopted by the IOC.

• The Olympic Summer Games take place during the first year of the Olympiad (period of four years) which they are to celebrate.

• It reaches its peak with the bringing together of the athletes of the world at the great sports festival, the Olympic Games.

• They are the exclusive property of the IOC, which entrusts their organisation to a host city seven years in advance.

Q79. Answer: (b) Sandstone

The correct answer is Sandstone.

• Sandstone is NOT a metamorphic rock.

Key Points

• Metamorphic rocks are rocks that have become changed by intense heat or pressure while forming.

• In the very hot and pressured conditions deep inside the Earth's crust, both sedimentary and igneous rocks can be changed into metamorphic rock.

• Metamorphic rock can be formed locally when rock is heated by the intrusion of hot molten rock called magma from the Earth's interior.

• Some examples of metamorphic rocks are gneiss, slate, marble, schist, and quartzite.

• Marble, Slate, and quartz are formed after metamorphism. They changed in their original form due to extreme temperatures and pressure.

• The three types of metamorphism are Contact, Regional, and Dynamic metamorphism.

• Contact Metamorphism occurs when magma comes in contact with an already existing body of rock.

Additional Information

• Sandstone :

• Sandstone is a sedimentary rock composed of sand-size grains of mineral, rock, or organic material.

• It also contains a cementing material that binds the sand grains together and may contain a matrix of silt- or clay-size particles that occupy the spaces between the sand grains.

• Sandstone is a sedimentary rock composed mostly of quartz sand, but it can also contain significant amounts of feldspar, and sometimes silt and clay.

• Sandstone that contains more than 90% quartz is called quartzose sandstone.

Q80. Answer: (a) Kiren Rijiju

The correct answer Kiren Rijiju.

Key Points

• Kiren Rijiju is the Minister of Youth Affairs and Sports as of February 2020.

• The Ministry of Youth Affairs and Sports is a branch of the Government of India which administers the Department of youth affairs and the Department of Sports in India.

• Kiren Rijiju is the current Minister of Youth Affairs and Sports, who is in the capacity of Minister of State (Independent Charge).

• The ministry also gives the annual National Sports awards in various categories, including the Arjuna Award and Rajiv Gandhi Khel Ratna awards.

• The Department of Sports is a division of the Ministry of Youth Affairs and Sports under the Government of India created on 30 April 2008.

• They also helped in bringing the FIFA U-17 World cup to India.

Additional Information

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• The Ministry was set up as the Department of Sports at the time of the organization of 1982 Asian Games New Delhi.

• Its name was changed to the Department of Youth Affairs & Sports during the celebration of the International Youth Year, 1985.

• It became a separate Ministry on 27 May 2000.

• Subsequently, In 2008, the Ministry has been bifurcated into the Department of Youth Affairs and the Department of Sports under two separate Secretaries.

Q81. Answer: (d) Sunil Arora

The correct answer is Sunil Arora.

• Sunil Arora is the (23rd) Chief Election Commissioner of India.

Key Points

• Sunil Arora has assumed charge as the 23rd Chief Election Commissioner of India succeeding O P Rawat.

• The 62-year-old Arora was appointed to the Election Commission on August 31, 2017.

• who demitted the office on December 1, 2018, after completing his tenure.

• He is also the chairman of the Association of World Election Bodies(A-WEB).

• He is a retired 1980 batch Indian Administrative Service (IAS) officer of the Rajasthan cadre.

• he served as the secretary to the Chief Minister from 1993 to 1998.

• He served as the principal secretary of CM Vasundhara Raje from 2005 to 2008.

• President Ram Nath Kovind had officially announced Arora's appointment to the post on November 26, 2018.

• The current Chief Election Commissioner of India is Rajiv Kumar. (2022)

Additional Information

• Ashok Lavasa :

• He is a retired 1980 batch Indian Administrative Service officer of Haryana cadre and was one of the two Election Commissioners of India.

• He has been appointed as vice president for Private Sector Operations and Public-Private Partnerships at the Asian Development Bank.

• Sushil Chandra :

• Sushil Chandra has assumed charge as the new Election Commissioner (EC) of India on the 15th of February 2019 and joins the Commission with Chief Election Commissioner Shri Sunil Arora and Election Commissioner Shri Ashok Lavasa.

• Kalyan Sundaram :

• Kalyan Vaidyanathan Kuttur Sundaram also referred to as K. V. K. Sundaram, was an Indian civil servant, who holds the record as the first Law Secretary (1948–58) of independent India and second Chief Election Commissioner of India.

Q82. Answer: (b) Article 23

The correct answer Article 23.

• Article 23 of the Indian Constitution prohibits trafficking in human beings and forced labour.

• The Right against Exploitation is enshrined in Articles 23 and 24 of the Indian Constitution.

• These are important Fundamental Rights that guarantee every citizen protection from any kind of forced labour.

• Everyone has the right to work, to free choice of employment, to just and favourable conditions of work, and to protection against unemployment.

• Everyone, without any discrimination, has the right to equal pay for equal work.

• Laws passed by the Parliament in pursuance of Article 23:

• Suppression of Immoral Traffic in Women and Girls Act, 1956

• Bonded Labour System (Abolition) Act, 1976

• Article 23 protects citizens not only against the State but also from private citizens.

Additional Information

• The right to equality is guaranteed by the Constitution in Articles 14 – 18.

• It provides for the equal treatment of everyone before the law, prevents discrimination on various grounds, treats everybody as equals in matters of public employment, and abolishes untouchability, and titles.

• Article 23(1):

• Traffic in human beings and the beggar and other similar forms of forced labour are prohibited and any contravention of this provision shall be an offence punishable in accordance with the law.

• Article 23(2):

• Nothing in this article shall prevent the State from imposing compulsory service for public purposes, and in imposing such service the State shall not make any discrimination on grounds only of religion, race, caste or class or any of them.

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Q83. Answer: (a) Parallels of Latitude

The correct answer is Parallels of Latitude.

Key Points

• All parallel circles from the equator up to the poles are called parallels of latitude.

• Circles of latitude are often called parallels because they are parallel to each other; that is, planes that contain any of these circles never intersect each other.

• • Hence, option 1 is correct.

Additional Information

• Countries that the Tropic of Cancer passes through

• There are 16 countries, 3 continents and 6 water bodies through which the Tropic of Cancer passes.

• Countries that the Tropic of Capricorn passes through

• There are 10 countries, 3 continents and 3 water bodies through which the Tropic of Capricorn passes.

Q84. Answer: (b) Elephanta

The correct answer is Elephanta.

• Elephanta is a west coast island.

• Elephanta Island is one of a number of islands in Mumbai Harbour, east of Mumbai, India.

• This island is a popular tourist destination because of the island's cave temples, the Elephanta Caves, that have been carved out of the rock.

Key Points

• The Indian coastal plains can be sub-divided into three broad divisions:

• Gujarat Coastal Plain, Western Coastal Plain and East Coastal Plain.

• India has a total of 247 islands, of which 204 lies in the Bay of Bengal and the rest is located in the Arabian Sea.

• West Coastal Plain is located between the Sahyadri and the Arabian Sea.

• It is mainly characterised by sandy beaches, coastal sand dunes, mudflats, lagoons, alluvial tracts along rivers, estuary, laterite platforms and residual hills.

Additional Information

• Pamban Island :

• Pamban Island is located on the Rama Setu Archipelago, between peninsular India and Sri Lanka.

• The second largest island of the latter, Pamban Island belongs to India and forms the Rameswaram taluk of Ramanathapuram district in the state of Tamil Nadu.

• Pamban Island extends for around 30 kilometres in width from the township of Pamban in the west to the remains of Dhanushkodi towards the south-east.

Q85. Answer: (d) Amitabh Bachchan

The correct answer is Amitabh Bachchan.

• Amitabh Bachchan was the winner of the Dadasaheb Phalke Award which was presented in 2019.

Key Points

• The country’s highest film honour, the Dadasaheb Phalke award, conferred for “outstanding contribution for the growth and development of Indian cinema” was presented to Amitabh Bachchan in 2019.

• Amitabh Bachchan has been selected for the Dada Saheb Phalke award for the year 2018 for his contribution to the Indian film industry.

• Union Minister of Information & Broadcasting Prakash Javadekar took to Twitter to make the big announcement.

• Mr Bachchan has been honoured with the Padma Shri in 1984, the Padma Bhushan in 2001 and the Padma Vibhushan in 2015.

Additional Information

• The Dadasaheb Phalke Award is India's highest award in cinema.

• It is presented annually at the ceremony by the Directorate of Film Festivals, an organisation set up by the Ministry of Information and Broadcasting.

• The recipient is honoured for their "outstanding contribution to the growth and development of Indian cinema".

• The first recipient of the award was actor Abhishek Sakkarwal, who was honoured at the 17th National Film Awards.

• As of 2018, there have been 50 awardees.

• Among those, actor Prithviraj Kapoor (1971) and actor Vinod Khanna (2017) are the only posthumous recipients.

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Q86. Answer: (a) Laho

The correct answer is Laho.

Key Points

• Laho Dance is a folk dance of Meghalaya.

• This northeastern state is famous for its festivities, jovial atmosphere, and music.

• The tribal communities gather in groups to celebrate these festivals.

• Laho dance form is very famous among the Pnar tribal community in Meghalaya.

• Pnar people are fond of colours, and music.

• This folk dance is the reflection of their rich taste and vibrant culture.

• It is also known as the Chipiah Dance.

• Laho is an important part of these festive gatherings.

Additional Information

• Laho Dance

• Both men and women take part in this Laho dance performance.

• Women usually wear gold and silver ornaments along with colourful costumes.

• It is often performed in local events, especially where indigenous cultures are represented, respected, and performed.

• This folk dance is also famous among the Harp tribe of Meghalaya with a different name.

• Behdienkhlam is one of the most important festivals of Meghalaya.

• It is held annually to invoke divine blessings and to get rid of bad spirits.

• Cheraw dance

• Cheraw dance is a traditional cultural dance performed in Mizoram, India, consisting of mostly six to eight people holding pairs of bamboo staves on another horizontally placed bamboo on the ground.

• Dalkhai is the most popular folk dance of Odisha.

• Rangma Dance of Nagaland:

• The tribes of Nagaland are mostly war tribes. Weapons and warfares tactics are an important part of their culture.

• Traditional dance is the Rangma dance performed by the Naga people.

• It is usually a part of the Ngada festival.

Q87. Answer: (c) Jammu & Kashmir

The correct answer is Jammu & Kashmir.

• Baglihar Dam is located in Jammu & Kashmir.

Key Points

• Baglihar Hydropower Project is located on the Chenab River in the northern Indian state of Jammu & Kashmir.

• It consists of a gravity concrete dam 143 m high and 363 m long, which has a total volume of 1.9 million m^3, creating a reservoir with a capacity of 475 million m^3.

• The first power project executed by the Jammu and Kashmir Power Development Corporation.

• It was conceived in 1992 and approved in 1996, with construction beginning in 1999.

• The first stage of the project was completed in 2008-09.

• It was dedicated to the nation by Prime Minister Manmohan Singh of India.

• The second stage of the project was completed in 2015-16.

• It was subsequently dedicated to the nation by Prime Minister Narendra Modi of India.

Additional Information

• Pakistan claimed that the dam is a gross violation of the Indus Water Treaty.

• India reduced the water flow to fill up the Baglihar dam lake in Jammu and Kashmir, causing a loss of agriculture for farmers in Pakistan.

• India, on the other hand, has clarified that reduced flow in the Chenab river in Pakistan is a result of very little availability of water in a lean year.

• The objection had lead to the project being referred to a World Bank appointed Neutral Expert.

Q88. Answer: (b) Graphite

The correct answer is Graphite.

Key Points

• Graphite is the allotropic form of carbon.

• Graphite, archaically referred to as plumbago, is a crystalline form of the element carbon with its atoms arranged in a hexagonal structure.

• There are various allotropes of carbon:

• diamond, graphite, lonsdaleite, fullerene, C-540, C-70, amorphous carbon, carbon nanotube.

• Diamond and crystalline silicon are isomorphous because they both have a three-dimensional tetrahedral structure.

• Allotropy, the existence of a chemical element in two or more forms, which may differ in the arrangement of atoms in crystalline solids or in the occurrence of molecules that contain different numbers of atoms.

Additional Information

• Coal :

• Coal is a form of amorphous carbon, which is formed by pyrolysis.

• It is an impure form of carbon.

• Charcoal is also an allotrope of carbon that is formed by the process of pyrolysis.

• Diamond :

• Diamond and fullerene are pure forms of carbon.

• Diamond is a solid form of the element carbon with its atoms arranged in a crystal structure called diamond cubic.

• Lamp Black :

• Lampblack is a simple genuine pigment made of carbon black.

• The pure carbon pigment is made from the residual soot from burning oil and its name comes from the practice of making it with oil lamps.

• Older and less stable blacks made from oil also existed and were called oil black or flame black.

Q89. Answer: (d) Parushni

The correct answer is Parushni.

Key Points

• Parushni is the Rigvedic name of the river Ravi.

• The Ravi was known as Purushni or Iravati to Indians in Vedic times and as Hydraotes to the Ancient Greeks.

• The Rig-Veda civilization was centred on the River Saraswati which is now lost in the Deserts of Rajasthan.

• The Ravi River, a transboundary river of India and Pakistan, is an integral part of the Indus River Basin and forms the headwaters of the Indus basin.

• It rises in the Himalayas in Himachal Pradesh state, India, and flows west-northwest past Chamba, turning southwest at the boundary of Jammu and Kashmir state.

Additional Information

• The Sapta Sindhavah play a prominent part in the hymns of the Rig Veda, and consequently in the early Hindu religion.

• Vedic texts have a wide geographical horizon, speaking of oceans, rivers, mountains and deserts.

• The Vedic land is a land of seven rivers flowing into the ocean.

• Central Rivers (rivers of Punjab):

• Vitasta (Jhelum)

• Asikni (Chenab)

• Parusni (Ravi)

• Vipas (Beas)

• Sutudri (Sutlej)

• Marudvrdha

Q90. Answer: (c) Zozibini Tunzi

The correct answer is Zozibini Tunzi.

Key Points

• Zozibini Tunzi is the Miss Universe crown winner for the year 2019.

• South Africa's Zozibini Tunzi has been crowned Miss Universe for the year 2019, beating more than 90 contestants.

• The 26-year-old Tunzi was declared the winner at a televised event, hosted by American comic-turned-TV personality Steve Harvey, held at Tyler Perry Studios.

• Indian contestant Vartika Singh crashed out of the world's biggest beauty pageant after securing a place in the top 20.

• Miss Universe 2018 Catriona Gray, from the Philippines, presented Tunzi with the crown.

• Miss Puerto Rico Madison Anderson was named the first runner-up, followed by Mexican contestant Ashley Alvidrez as the

second runner-up.

Additional Information

• Miss Universe 2019, the 68th Miss Universe pageant, was held on December 8, 2019, at Tyler Perry Studios in Atlanta, Georgia, United States.

• This edition also saw the crowning of the first black woman winner since Leila Lopes was crowned in 2011.

• Contestants from 90 countries and territories participated in this year's competition.

• Swe Zin Htet of Myanmar became the first openly lesbian contestant to compete for the Miss Universe title.

Q91. Answer: (a) Bianca Andreescu

The correct answer is Bianca Andreescu.

• Bianca Andreescu won the Women US Open title of 2019.

Key Points

• Bianca Andreescu won her first Grand Slam title, defeating Serena Williams in the final, 6–3, 7–5 to win the Women's Singles tennis title at the 2019 US Open.

• Andreescu became the first Canadian player, as well as the first player born in the 2000s, to win a Grand Slam singles title.

• Andreescu entered the top 5 of the rankings for the first time in her career.

• Andreescu was the youngest person since Svetlana Kuznetsova in the 2004 US Open to win a Grand Slam title.

Additional Information

• The US Open women's singles championship is an annual tennis event that is being held since 1887 as part of the US Open tournament.

• The tournament is played on outdoor hard courts at the USTA Billie Jean King National Tennis Center in Flushing Meadows-Corona Park, New York City.

• The US Open is played during a two-week period in late August and early September.

• The champion receives a full-size replica of the event's trophy engraved with her name.

Q92. Answer: (a) Fausta

The correct answer is Fausta.

Key Points

• Fausta, a female black rhino, who was believed to be the world’s oldest rhino has died at the age of 57 in a Tanzanian conservation area.

• Fausta died of natural causes in captivity in Ngorongoro Crater, which lies in the Ngorongoro Conservation Area of Tanzania.

• Fausta was first located in 1965 at the age of between 3 and 4 years old by a scientist.

• However, Fausta survived 57 years without bearing calves.

Additional Information

• About Black rhinoceros

• They are also called ‘hook-lipped rhinoceros’.

• This species of rhinoceros although is referred to as ‘black’, but its colours vary from brown to grey.

• They are smaller of two African species (the other being the white rhinoceros’ species) and are found around south and east Africa, including Kenya, Tanzania, Namibia, South Africa and Zimbabwe.

• IUCN Status:

• Critically endangered; (although South-western black rhinoceros is classified as vulnerable).

• According to charity ‘Save The Rhino’, Black rhinos who are now decimated by poaching, now numbers only around 5,500.

Q93. Answer: (b) Stomach

The correct answer is Stomach.

Key Points

• Hydrochloric acid is secreted in the Stomach.

• Hydrochloric acid is the digestive fluid formed by the stomach during the process of digestion.

• It functions by destroying harmful microorganisms present in the food particles.

• The digestive system of the human body comprises a group of organs that work together in converting food into energy and other basic nutrients to power the body.

• The stomach serves as a muscular bag that is situated towards the left side of the abdominal cavity, beneath the diaphragm.

• This vital organ acts as a storage for the food and provides enough time to digest meals.

• The stomach also produces digestive enzymes and hydrochloric acid that maintains the process of digestion.

Additional Information

• Digestion and absorption are the two main functions of the digestive system.

• Digestion is necessary for breaking down food particles into nutrients that are used by the body as an energy source, cell repair, and growth.

• Food and drink need to be converted into smaller molecules of nutrients before it is absorbed by the blood and carried to the cells throughout the body.

• The body breaks the nutrients present in the drinks and food into carbohydrates, vitamins, fats and proteins.

• Mucous:

• It is an aqueous secretion produced by the mucous membranes.

• It functions by protecting the stomach lining and gastric pits from the acid, which is produced by the glands to destroy the bacteria that entered along with the food particles.

• Digestive enzymes:

• They are the group of enzymes that functions by breaking down polymeric macromolecules like biopolymers into smaller and simpler substances.

Q94. Answer: (c) Jammu and Kashmir

The correct answer is Jammu and Kasmir.

Key Points

• At Jammu and Kashmir, Saffron Mission initiated in 2010.

• The National Saffron Mission (NSM) was launched in 2010-11 but it was only applicable for the cultivation of saffron in Jammu and Kashmir.

• However, in 2020, the Government has decided to revive this mission and expand the cultivation of saffron to the northeastern part of the country.

• Crocus Sativus is the plant through which saffron is produced.

• It is one of the most expensive spices and an important export commodity for the country.

• NSM or National Saffron Mission comes under the governance of the Ministry of Science and Technology.

• It was a four-year mission (2010-14) that was introduced to increase the cultivation of saffron in Kashmir.

• The Saffron Mission was launched as a part of the Rashtriya Krishi Vikas Yojana (RKVY).

Additional Information

• The two main reasons cultivation of saffron in North-east India :

• As per the research done in the Botany and Horticulture department of Sikkim Central University, the soil condition of Yangyang in Sikkim is almost similar to the quality found in saffron growing regions of Kashmir.

• The similarity in the climatic conditions of Pampore in Kashmir and Yangyang in Sikkim is another reason for the successful cultivation of saffron seed/corm.

Q95. Answer: (a) Alamgir II

The correct answer is Alamgir II.

Key Points

• Alamgir II was the Mughal Emperor at the time of the Battle of Plassey.

• Alamgir II was the Mughal Emperor of India from 3 June 1754 to 29 November 1759.

• He was the son of Jahandar Shah.

• The Battle of Plassey was fought between Siraj-Ud-Daulah who was then the Bengal Nawab and East India Company forces headed by Robert Clive.

• The Battle of Plassey took place when Nawab of Bengal Siraj-Ud-Daulah did not like the uncontrolled use of privileges by the East India Company’s officials.

• Also, the workers of the company stopped paying the taxes that became one of the reasons for the Battle of Plassey.

Additional Information

• Siraj-ud-Daulah:

• Siraj-ud-Daulah was the last independent Nawab of Bengal who succeeded Alivadi Khan to the throne.

• The end of his reign marks the end of the independent rule in India and the beginning of the company's rule that continued unabated over the next two hundred years.

• The end of his reign marked the start of British East India Company rule over Bengal and later almost all of the Indian subcontinent.

• Mir Qasim:

• Mir Qasim was the Nawab of Bengal from 1760 to 1763.

• He was installed as Nawab with the support of the British East India Company, replacing Mir Jafar, his father-in-law, who had himself been supported earlier by the East India Company after his role in winning the Battle of Plassey for the British.

Q96. Answer: (b) Kerala

The correct answer is Kerala.

Key Points

• 'Kalamezhuthu' is a ritual art form found in Kerala.

• Kalam (Kalamezhuthu) is a unique form of this art found in Kerala.

• It is essentially a ritualistic art practised in temples and sacred groves of Kerala where the representation of deities like Kali and Lord Ayyappa, are made on the floor.

• Kalamezhuthu is a ritual art form of Kerala wherein the deity's form is drawn on the floor using five types of coloured powders.

• This is practised by many communities in Kerala and is a part of many ritual forms.

• Kalamezhuthu and Pattu are conducted to propitiate the deities and to avoid untoward happenings.

Additional Information

• Kalamezhuthu:

• It is practised during festivals in Bhadrakali (Mother Goddess) temples, and on special occasions in SarppaKavu (groves sacred to snakes) and AyyappanKavu (temples dedicated to Lord Ayyappa).

• Various deities are picturised using coloured powders.

• Kalamezhuthu is done by various communities such as Kaniyan, Vannan, Puluvar, Malayan, Pulayar, Maavilar, Munnoottan, Parayan, Paniyan, Aaviyar, Velan, Mannan, Koppaalan, Kuravar, Theeyaattunni, Theeyadi Nambiar, Theyyampadi Nambiar, Varanattu Kuruppanmar, Kallatta Kuruppanmar, Puthusseri Kuruppanmar, Marar and so on.

Q97. Answer: (d) 1992

The correct answer is 1992.

Key Points

• The National Stock Exchange of India was established in 1992.

• National Stock Exchange of India Limited (NSE) is the leading stock exchange of India, located in Mumbai, Maharashtra.

• NSE was established in 1992 as the first dematerialized electronic exchange in the country.

• NSE was the first exchange in the country to provide a modern, fully automated screen-based electronic trading system that offered easy trading facilities to investors spread across the length and breadth of the country.

• Shri. Ashishkumar Chauhan is Managing Director & Chief Executive Officer of NSE.

• National Stock Exchange was incorporated to bring about transparency in the Indian equity markets.

Additional Information

• The National Stock Exchange of India Limited (NSE) is India's largest financial market and the fourth largest market by trading volume.

• The National Stock Exchange of India Limited was the first exchange in India to provide modern, fully automated electronic trading.

• The NSE is the largest private wide-area network in India.

• The NSE has been a pioneer in Indian financial markets, being the first electronic limit order book to trade derivatives and ETFs.

Q98. Answer: (b) Web Server

The correct answer is Web Server.

Key Points

• A computer on the Internet that uses HTTP protocol is known as a Web Server.

• The Hypertext Transfer Protocol is an application protocol for distributed, collaborative, hypermedia information systems that allow users to communicate data on the World Wide Web.

• Hypertext Transfer Protocol (HTTP) is a method for encoding and transporting information between a client and a web server.

• HTTP is the primary protocol for the transmission of information across the Internet.

• The primary function of HTTP is to establish a connection with the server and send HTML pages back to the user's browser.

• The browser adds the rest.

Additional Information

• LAN:

• A local area network (LAN) is a collection of devices connected together in one physical location, such as a building, office, or home.

• A LAN can be small or large, ranging from a home network with one user to an enterprise network with thousands of users and devices in an office or school.

• PCs/workstations and servers.

• Network Interface Card (NIC).

• Cabling and connectors, for example, coaxial cable and BNC connector, Unshielded Twisted Pair (UTP) and RJ-45 connector.

• Hub, concentrator, and more complicated network devices such as Bridge, LAN Switch and Router.

• WAN:

• A wide area network is a telecommunications network that extends over a large geographic area for the primary purpose of computer networking.

• Wide area networks are often established with leased telecommunication circuits.

• The WAN allows the router to connect to the internet and share that connection with all the Ethernet-ready devices connected to it.

Q99. Answer: (d) Christina Koch

The correct answer is Christina Koch.

Key Points

• Christina Koch has created a record for the longest single spaceflight in 2019.

• NASA Astronaut Christina Koch creates a record for the longest single spaceflight by a woman, surpassing the earlier record of 288 days in space.

• On her 289th day at the International Space Station, astronaut Christina Koch set the record for the longest spaceflight by a woman.

• The previous record was set by former station commander Peggy Whitson, who crewed the ISS in 2016-17.

• The extended missions of Christina Koch and Morgan will help scientists gather additional data about the effects of long-duration human spaceflight beyond those of the normal six-month station expedition.

• NASA astronaut Christina Koch's first mission aboard the orbiting lab ended after 328 days on Feb.

Additional Information

• NASA astronaut Scott Kelly completed a single mission aboard the International Space Station of 340 days on March 1, 2016.

• In June 2017, Whitson broke the record for the longest single space flight by a woman which had previously been held by Samantha Cristoforetti at 199 days, 16 hours.

• Nick Hague:

• Tyler Nicklaus Hague is an American flight test engineer and a NASA astronaut of the class of 2013.

• Selected to be a flight engineer on the International Space Station, his first launch was on Soyuz MS-10.

• That was aborted shortly after take-off on 11 October 2018.

• Anne Mc Clam:

• Anne Charlotte McClain is a lieutenant colonel in the U.S. Army, engineer and NASA astronaut.

• Her call sign, "Animal", dates back to her bruising rugby days, she also uses the call sign in her Twitter handle, AstroAnnimal.

• She was a Flight Engineer for Expedition 58/59 to the International Space Station.

Q100. Answer: (a) Astatine

The correct answer is Astatine.

Key Points

• Astatine is a naturally occurring semi-metal that results from the decay of uranium and thorium.

• The element is highly unstable as any macroscopic specimen of Astatine produced gets immediately vaporised by the heat of its radioactivity.

• This makes Astatine a very rare naturally occurring element in the Earth’s crust.

• Considering its unstable nature, Astatine is named after the Greek word for unstable.

• Francium

• It is the second-most electropositive element, behind only caesium, and is the second rarest naturally occurring element (after astatine).

• The isotopes of francium decay quickly into astatine, radium, and radon.

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- The weirdest and wonderful elements in the periodic table :
- Krypton (Atomic number: 36)
- Curium (Atomic number: 96)
- Antimony (Atomic number: 51)
- Copernicium (Atomic number: 112)
- Bismuth (Atomic number: 83)

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