SSC CHSL Tier-1 2022: Official Paper (Held On: 15 March, 2023 Shift 1) (Previous Year Paper)

SSC Combined Higher Secondary Level (CHSL) • 2022 • 100 questions • 60 minutes • Answer key and solutions

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

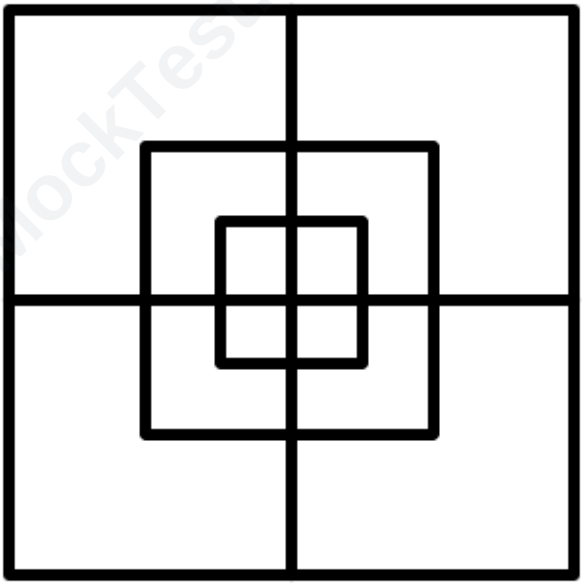
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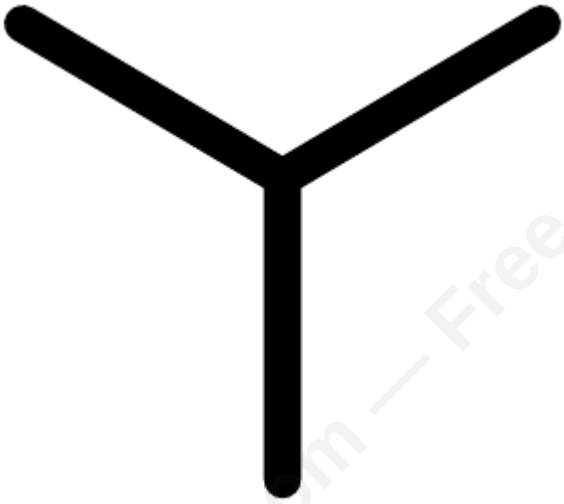
ENGLISH LANGUAGE

Q1. How many maximum squares are there in the given figure?

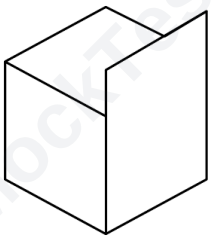


(a) 12
(b) 8
(c) 18
(d) 15

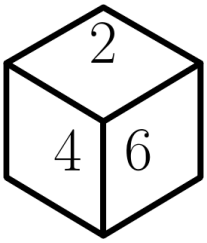
Q2. Select the option figure in which the given figure is embedded. (Rotation is NOT allowed).



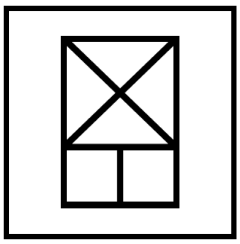
(a)



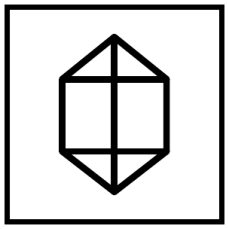
(b)



(c)



(d)



Q3. If in a certain code language, 'BASE' is coded as '27', then what is the code of 'COLLECTION' in the same coded language?

(a) 107

(b) 111

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(c) 108
(d) 110

Q4. If ‘A’ means ‘×’, ‘B’ means ‘+’, ‘C’ means ‘–’ and ‘D’ means ‘÷’, then 66 A 3 D 11 B 43 C 48 D 12 = ?

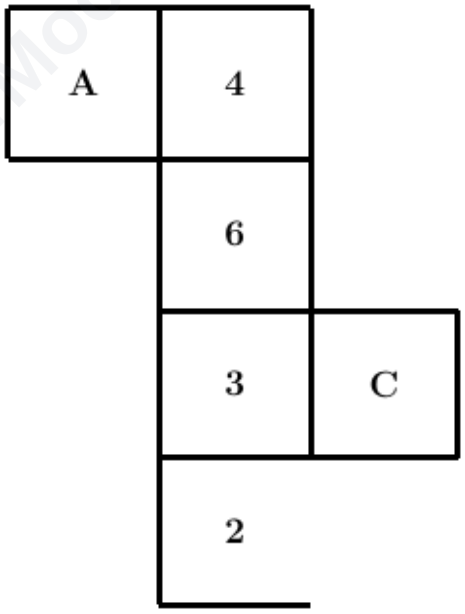
(a) 57
(b) 47
(c) 43
(d) 61

Q5. Select the correct option that indicates the arrangement of the given words in a logical and meaningful order.

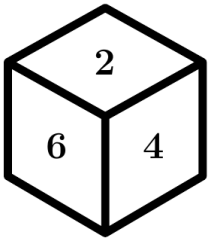
1. College
2. School
3. Employment
4. Salary
5. Child

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

Q6. By folding the given paper, which of the following box can be made?

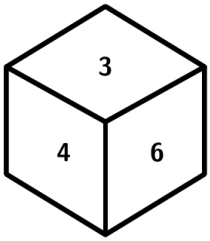


(a)

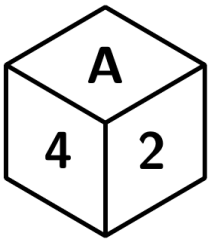


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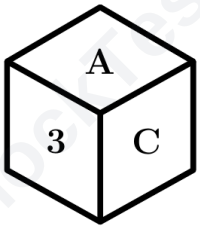
(b)



(c)



(d)



Q7. Select the option in which the numbers shares the same relationship in set as that shared by the numbers in the given set. (NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g.13 – Operations on 13 such as adding /subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(13, 14, 108)

(51, 12, 252)

(a) (17, 14, 134)
(b) (29, 14, 172)
(c) (19, 26, 160)
(d) (33, 42, 280)

Q8. Select the option in which the numbers shares the same relationship in set as that shared by the numbers in the given set. (NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g.13 – Operations on 13 such as adding /subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(18, 25, 46)

(24, 31, 52)

(a) (19, 24, 47)
(b) (13, 20, 41)
(c) (20, 27, 34)
(d) (16, 21, 44)

Q9. In the following question, select the missing number from the given series.

36, 18, 54, 27, 81, ?, 121.5

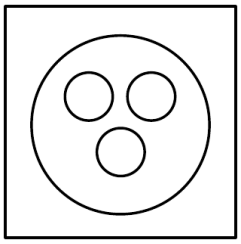
(a) 40.5
(b) 41.5
(c) 40
(d) 38

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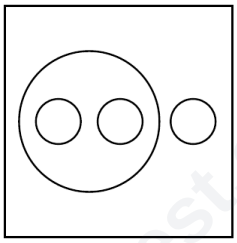
Q10. Select the Venn diagram that best represents the relationship between the following classed.

Language, Punjabi, Hindi, Malayalam

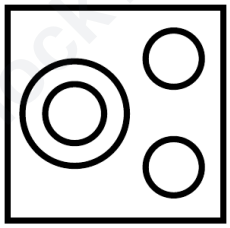
(a)



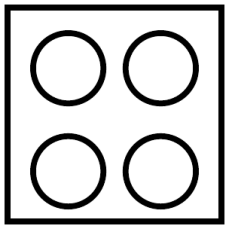
(b)



(c)



(d)



Q11. In the following question, four number pairs are given. In each pair the number on left side of (–) is related to the number of the right side of (–) with some Logic/Rule/Relation. Three pairs are similar on basis of same Logic/Rule/Relation. Select the odd one out from the given alternatives.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits.

E.g.13 – Operations on 13 such as adding /subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(a) 11111 – 1234554321
(b) 111111 – 12345654321
(c) 111 – 12321
(d) 1111 – 1234321

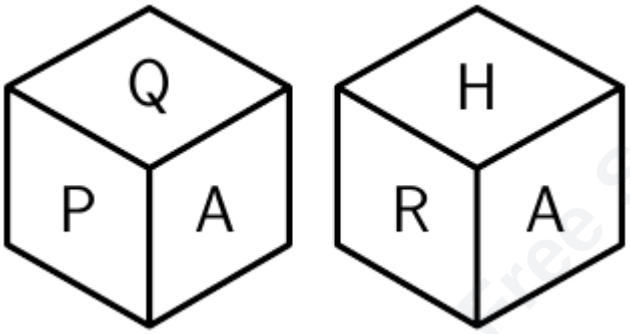
Q12. Words given on the left side of (::) are related with each other by some Logic/Rule/Relation. Select the missing word/word pair on the right side of (::) from the given alternatives based on the same Logic/Rule/Relation.

Soldiers : Army :: ?

(a) Singers : Gang
(b) Cattle : Herd
(c) Class : Pupils
(d) Team : Players

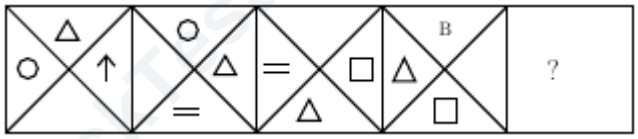
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Q13. Two positions of a dice are given below. What will come on the face opposite to the face containing 'R' on it?

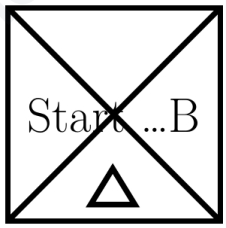


(a) Q
(b) P
(c) A
(d) H

Q14. Select the figure that will come next in the following figure series.



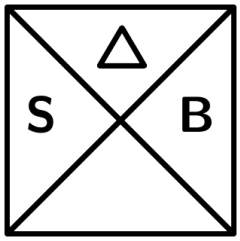
(a)



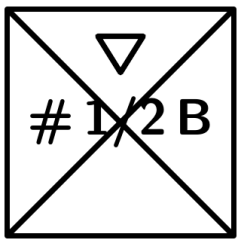
(b)



(c)



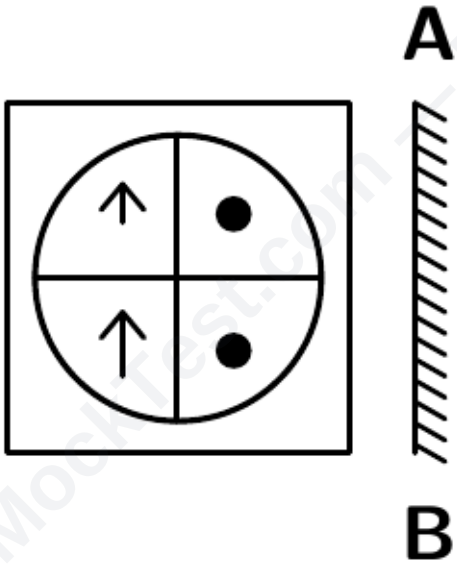
(d)



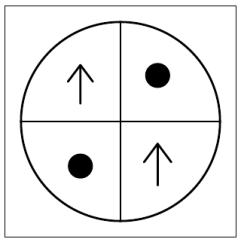
Q15. Three of the following four letter clusters are alike in a certain way and one is different. Pick the cluster that is different from the rest.

(a) VXW
(b) EFG
(c) OQP
(d) BDC

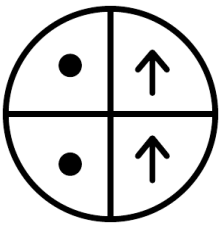
Q16. Select the correct mirror image of the given figure when the mirror is placed to its right side.



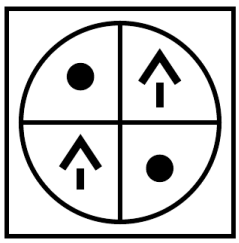
(a)



(b)

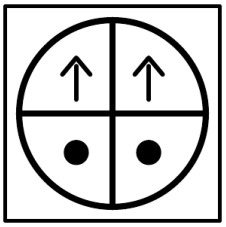


(c)



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(d)



Q17. In the question two statements are given, followed by two conclusions, I and II. You have to consider the statements to be true even if they seem to be at variance from commonly known facts. You have to decide which of the given conclusions, if any, follows from the given statements.

Statements:

I. Each correct is wrong.

II. No wrong is right.

Conclusions:

I. No correct is right.

II. Some wrongs are correct.

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

Q18. Select the option that is related to the third term on the same basis as the second term is related to the first term.

Mirror : Reflection of light :: Prism : ?

(a) Scattering of light
(b) Reflection of light
(c) Dispersion of light
(d) Inversion of light

Q19. After interchanging the given two numbers (not digits) what will be the values of expression (I) and (II) respectively?

6 and 4

I. $10 \times 6 - 30 \div 4 + 20$

II. $8 - 4 \times 5 + 6 \div 2$

(a) 12 and –6
(b) 20 and 55
(c) 55 and –20
(d) 10 and –6

Q20. Three of the four group of words are alike in some manner. Select the odd group of words.

(a) (Stock, Troupe, Robber)
(b) (Crowd, Army, Herd)
(c) (Team, Council, Bouquet)
(d) (Shoal, Flock, Chorus)

Q21. In the following question, select the related letters from the given alternatives.

NA : SF :: OB : ?

(a) IJ
(b) TG
(c) RG
(d) TH

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Q22. In a certain code language, 'MAZZA' is written as 'OBBAC' and 'BLACK' is written as ‘DMCDM’. How will 'FUZZY' be written in that language?

(a) HVBAA
(b) HVBZA
(c) HVBBA
(d) HTBAA

Q23. Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it?

m c _ b c m _ c b b c _ m _ b b c m

(a) mccb
(b) bcmb
(c) cbmb
(d) bmmc

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

183 : 6 :: 164 : 4 :: 122 : ?

(a) 2
(b) 8
(c) 4
(d) 6

Q25. If H is the daughter of R, R is the father of S, S is the son of T, T is the daughter of N, then how is H related to N?

(a) Daughter's daughter
(b) Niece
(c) Daughter
(d) Daughter-in-law

GENERAL INTELLIGENCE

Q26. In India, Silver fir, junipers, pines and birches are the common trees of which of the following forests?

(a) Tropical Deciduous Forests
(b) Mangrove Forests
(c) Tropical Evergreen Forests
(d) Montane Forests

Q27. Which among the following Vitamins is known as Niacin?

(a) Vitamin B4
(b) Vitamin B3
(c) Vitamin B1
(d) Vitamin B2

Q28. Which among the following is not required to be the Vice-President of India?

(a) He should be qualified for election as a member of the Rajya Sabha.
(b) He should be a citizen of India.
(c) He should not hold any office of profit under the Union government or any state government or any local authority or any other public authority.
(d) He should have completed 40 years of age.

Q29. The Sino-Indian border is divided into how many sectors?

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

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Q30. Which among the following is the oldest stock exchange in India?

(a) Multi-Commodity Exchange
(b) National Commodity and Derivatives Exchange
(c) Bombay Stock Exchange
(d) National Stock Exchange

Q31. Who won the men's singles title at the US Open 2022?

(a) Casper Ruud
(b) Carlos Alcaraz
(c) Alfie Hewett
(d) Shingo Kunieda

Q32. Which of the following pairs of "players from one team on court – sports" is correct?

I. 5 – basketball
II. 9 – handball

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

Q33. Which among the following generations of Computer used vacuum tubes?

(a) Fourth Generation
(b) Third Generation
(c) First Generation
(d) Second Generation

Q34. Which of the following is NOT an application of third law of motion?

(a) A fielder pulls his hands gradually with the moving ball while holding a catch.
(b) Colliding with player while kicking a football and feeling hurt.
(c) As the sailor jumps in forward direction, the boat moves backwards.
(d) A forward force on the bullet and recoil of the gun.

Q35. Which generation of computers used machine code as the programming language?

(a) First
(b) Second
(c) Fourth
(d) Third

Q36. Which article of the Indian Constitution specifies Hindi as official language of the Union?

(a) Article 370
(b) Article 51A
(c) Article 80
(d) Article 343

Q37. Who among the following was considered to be the queen of Thumri?

(a) Rumi
(b) Rattan Mohan Sharma
(c) Girija Devi
(d) Mirza Ghalib

Q38. In 1809, Lord _____ signed the Amritsar Treaty with Maharaja Ranjit Singh.

(a) James Andrew Ramsay - Dalhousie
(b) Charles T. Metcalfe
(c) Michael John Hastings
(d) William Bentinck

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Q39. Gopika Varma is a classical dancer of _____.

(a) Manipuri
(b) Kuchipudi
(c) Kathak
(d) Mohiniattam

Q40. Which of the following hills are NOT part of the Purvanchal hills?

(a) Patli hills
(b) Manipur hills
(c) Mizo hills
(d) Naga hills

Q41. Who hosted the first meeting of India-Central Asia Summit?

(a) Tajikistan
(b) India
(c) Kyrgyzstan
(d) Kazakhstan

Q42. The book 'Your Best Day is Today!' is written by _____.

(a) Gauri Khan
(b) Meena Iyer
(c) Anupam Kher
(d) Pope Francis

Q43. Which of these books is written by Ruskin Bond?

(a) It's a Wonderful Life
(b) In an Ideal World
(c) Home in the World
(d) The Great Big Lion

Q44. In approximately how much time does Mars complete one spin on its axis?

(a) 1 day
(b) 1 day 18 hours
(c) 18 hours
(d) 16 hours

Q45. In which year did Saina Nehwal win the Olympic bronze medal in the individual women's Badminton competition?

(a) 2004
(b) 2008
(c) 2016
(d) 2012

Q46. Which of the following statements is correct regarding the demand curve?

I. It is a graphical representation of the demand function.
II. It gives the quantity demanded by the consumer at each price.

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

Q47. Who among the following singers has received the Dadasaheb Phalke Award?

(a) Talat Mahmood
(b) Asha Bhosle
(c) Geeta Dutt
(d) Sonu Nigam

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Q48. _____ states that the rates of diffusion of gases are inversely proportional to the square roots of their densities under similar conditions of temperature and pressure.

(a) Tyndall's Law
(b) Pascal's Law
(c) Graham's Law
(d) Kepler's Law

Q49. Meghaduta was written by which poet of ancient India?

(a) Vyasa
(b) Ravikirti
(c) Harisena
(d) Kalidasa

Q50. India’s short-range Ballistic Missile, Prithvi II was successfully test-fired from _____.

(a) Rutland Island, Andaman
(b) Sriharikota, Andhra Pradesh
(c) Chandipur, Odisha
(d) Machilipatnam, Andhra Pradesh

QUANTITATIVE APTITUDE

Q51. If N + 1over N = √3, then find the value of N^6 + 1over N^6 + 11.

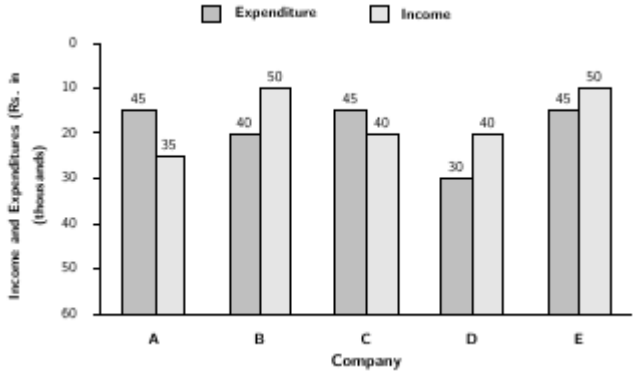
(a) -11
(b) -2
(c) 11
(d) 9

Q52. If cos (A + B) = 0 and sin (A - B) = 0, then what is the value of angle A and angle B? (0 degree < A, B ≤ 90 degree)

(a) 20 degree, 70 degree
(b) 45 degree, 45 degree
(c) 60 degree, 30 degree
(d) 15 degree, 75 degree

Q53. The following bar-graph represents the income and expenditures (Rs.in thousands) of five companies A, B, C, D and E in the year 2021.

Which company suffered the maximum percentage of loss in the year 2021?



(a) E
(b) B
(c) A
(d) C

Q54. If sec x + tan x = 5 and cosec y - cot y = 1/3, then find the value of (sec x + cosec y) - (tan x - cot y).

(a) 4.2
(b) 3.2
(c) 2.2
(d) 3.1

Q55. An article is sold for Rs. 560 after two successive discounts of 30% and 20%. What is marked price of the article?

(a) Rs. 1000
(b) Rs. 800
(c) Rs. 920
(d) Rs. 700

Q56. Simplify the following expression: (1-sin A)/(cos A)+(cos A)/(1-sin A)

(a) 2 cos A
(b) 2 tan A
(c) 2 sec A
(d) 2 sin A

Q57. Nakul went to the market to buy groceries. He has some money with him, 20% of which he used to buy wheat flour, 25% of the remaining money is spent on cooking oils. If he is left with Rs. 900, then find out total amount of money that Nakul had.

(a) Rs. 1,200
(b) Rs. 1,500
(c) Rs. 1,350
(d) Rs. 1,800

Q58. The average age of 5 children of a family is 15 years. Average age of children together with their father and mother is 25 years. If the father is older than the mother by 4 years, then find the age of mother (in years).

(a) 46
(b) 48
(c) 52
(d) 44

Q59. The three sides of a triangle are 7 cm, 9 cm and 8 cm. What is the area of the triangle?

(a) 12√3 Sq. cm
(b) 10√3 Sq. cm
(c) 12√5 Sq. cm
(d) 2√5 Sq. cm

Q60. A truck covers three equal distances of 100 km at the speed of 200 km/hr, 300 km/hr and 600 km/hr. Find the average speed of the truck for the whole journey.

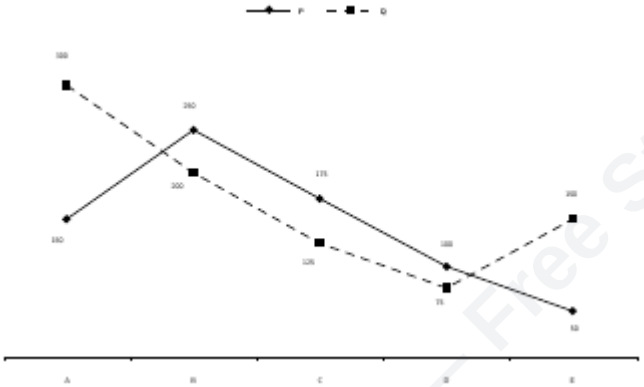
(a) 250 km/h
(b) 300 km/h
(c) 366.66 km/h
(d) 327 km/h

Q61. The difference between simple interest on a certain sum at the annual rate of 8 percent for 5 years and 6 years is Rs. 26. What is the sum?

(a) Rs. 240
(b) Rs. 360
(c) Rs. 325
(d) Rs. 290

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Q62. The line chart given below shows the population of two states P and Q in 5 years.



What is the difference between the total population of P and Q in all the years?

(a) 150
(b) 75
(c) 275
(d) 125

Q63. A sum of money is to be divided among P, Q and R in the ratio 7 : 9 : 4. If P gets Rs. 1500 more than R then find the difference between the shares of P and Q.

(a) Rs. 1,500
(b) Rs. 900
(c) Rs. 1,000
(d) Rs. 500

Q64. If the square of the product of three sides of the triangle is 1024 units and the area of its circumcircle is 16π, what is the area of the given triangle?

(a) 2.5 sq. units
(b) 3 sq. units
(c) 2 sq. units
(d) 4 sq. units

Q65. What is the sum of all two-digit even numbers?

(a) 2430
(b) 2410
(c) 2470
(d) 2520

Q66. What is the value of $(a+b)^2-(a-b)^2$over ab ?

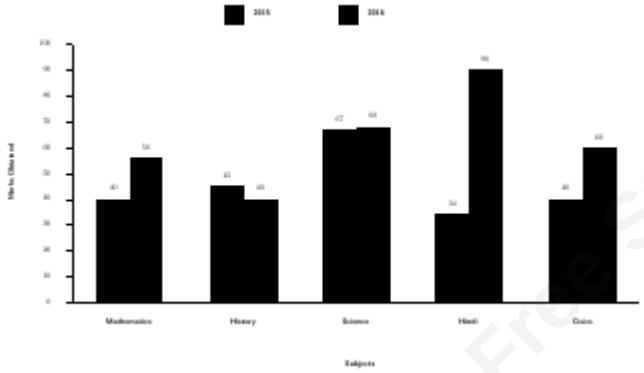
(a) 4
(b) 2
(c) 8
(d) 1

Q67. In a circle, the length of a chord is 30 cm. The perpendicular distance of the chord from the centre of the circle is 8 cm. Find the diameter of the circle.

(a) 28 cm
(b) 34 cm
(c) 17 cm
(d) 30 cm

Q68. The following bar graph shows the marks of a student from 5 different subjects in 2015 and 2016. Total marks scored in History for 2016 is what per cent of the total marks of Civics for both years?

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(a) 55%
(b) 40%
(c) 50%
(d) 60%

Q69. ΔPQR is similar to ΔUVW. Perimeter ΔPQR and ΔUVW are 120 cm and 240 cm respectively. If PQ = 30 cm, then what is the length of UV?

(a) 45 cm
(b) 75 cm
(c) 60 cm
(d) 90 cm

Q70. Rahul alone can complete a work in 10 days and Sonu alone can complete the same work in 15 days. If they work together for 4 days, then what part of total work is left?

(a) 2/3
(b) 1/5
(c) 1/3
(d) 2/5

Q71. If an article is sold at 9/10th of its usual selling price, 20% profit would be made on it. Find the profit percentage which would have been made on it on selling it at its usual selling price.

(a) 33.33%
(b) 25%
(c) 30%
(d) 20%

Q72. 24 equal solid hemispheres are melted to form a right circular cylinder of radius 12 cm and height 24 cm. Find the radius of each solid hemisphere.

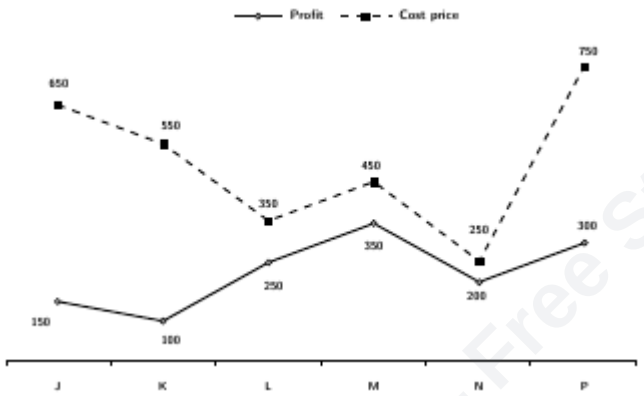
(a) 4 cm
(b) 8 cm
(c) 6 cm
(d) 3 cm

Q73. The value of 117 ÷ 45 of (1/5) + (12/5) × (20/3) is:

(a) 29
(b) 27
(c) 28
(d) 31

Q74. The line chart given below shows the cost price and value of profit of 6 articles J, K, L, M, N and P.

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Which of the following statement is correct?

I. The combined cost price of J and K is 100 percent more than the combined profit of L and M.

II. The ratio of combined profit of N and P to the combined cost price of K and M is 2 : 1.

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

Q75. What is the value of $[(0.91)^3 + (0.09)^3] \div [(0.91)^2 - 0.0819 + (0.09)^2]$?

(a) 1
(b) 5
(c) 4
(d) 6

GENERAL AWARENESS

Q76. Fill in the blank with an appropriate option.

No matter how many times I try, I always end up in the same _____.

(a) account
(b) meal
(c) pickle
(d) sauce

Q77. Identify the segment in the sentence which contains a grammatical error. If there is no error, then select the option "No error".

The presidential election/ turned out to be one of/ the biggest landslide in history.

(a) No error
(b) The presidential election
(c) the biggest landslide in history.
(d) turned out to be one of

Q78. Select the most appropriate antonym of the given word.

TIMID

(a) COURAGEOUS
(b) SMELLY
(c) LUCID
(d) CAREFUL

Q79. Select the word that is closest in meaning (SYNONYM) to the word given below.

VAULT

(a) Raisins
(b) Ration

(c) Monarch
(d) Crypt

Q80. Select the word segment that substitutes (replaces) the bracketed word segment correctly and completes the sentence meaningfully. In case no improvement is needed, select 'No improvement'.

(That's one of the strongest swear word) in Spanish.

(a) That's the strongly swear words
(b) That is of the strongest swear words
(c) That's one of the strongest swear words
(d) No improvement

Q81. Choose the option that is the correct direct form of the sentence.

Shubham said that his father was playing cricket with him.

(a) Shubham said, "My father was playing cricket with me."
(b) Shubham said, "My father is playing cricket with me."
(c) Shubham said, "My father played cricket with me."
(d) Shubham said, "My father had played cricket with me."

Q82. Select the wrongly spelt word.

(a) Obsequious
(b) Nascent
(c) Dissiminate
(d) Malleable

Q83. Select the most appropriate 'one word' for the expression given below.

Study of human being & their ancestors through time.

(a) Physiology
(b) Ethnology
(c) Biology
(d) Anthropology

Q84. Improve the underlined part of the sentence. Choose 'No improvement' as an answer if the sentence is grammatically correct.

I try to travelling lightly, packing only the bare essentials.

(a) No improvement
(b) travel lightly
(c) travelled light
(d) travels lightly

Q85. Given below are four jumbled sentences. Pick the option that gives their correct order. The immediate context of the Dunkirk evacuation was Germany's invasion of the Low Countries and northern France in May 1940.

P. The Dutch defenders fell back westward, and by noon on May 12 German tanks were on the outskirts of Rotterdam.

Q. Queen Wilhelmina and her government left the country for England on May 13, and the next day the Dutch army surrendered to the Germans.

R. On May 10 the German blitzkrieg attack on the Netherlands began with the capture by parachutists of key bridges deep within the country, with the aim of opening the way for mobile ground forces.

S. The invasion of Belgium also began on May 10, when German airborne troops landed on the fortress of Eben Emael, immediately opposite Maastricht, and on bridges over the Albert Canal.

On May 11 the Belgian front was broken, and German tanks ran on westward while Belgian, French, and British divisions fell back to a line between Antwerp and Namur.

(a) QPRS
(b) PRSQ
(c) PSRQ

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(d) RPQS

Q86. Fill in the blank with an appropriate option.

AWS offers various storage services that can _____ data for your website.

(a) stack
(b) pour
(c) barge
(d) store

Q87. Choose the word that is opposite in meaning to the given word.

Elucidate

(a) Obfuscate
(b) Dilate
(c) Outdate
(d) Magnify

Q88. Select the wrongly spelt word.

(a) Invulnerable
(b) Litigation
(c) Fortuous
(d) Intrepid

Q89. Fill in the blank with the most suitable word.

A haze of panic blurred my vision; something terrible was close to _____.

(a) happens
(b) happened
(c) has happened
(d) happening

Q90. Find the part of the given sentence that has an error in it. If there is no error, choose 'No error'.

A key institution is the judiciary, especially the Supreme Court, with a widely remit and a wise legacy.

(a) especially the Supreme Court, with
(b) a widely remit and a wise legacy.
(c) A key institution is the judiciary,
(d) No error

Q91. Select the most appropriate meaning of the given idiom.

Zero tolerance

(a) Riding in the front passenger seat of a car
(b) A policy of not allowing any violations of a rule or law
(c) To detect someone in the group is betraying the others
(d) To escape and not have to pay

Q92. In the following question, out of the given four alternatives, select the alternative which best expresses the meaning of the Idiom/Phrase.

To bridge the gap

(a) To mend a broken bridge
(b) To slander someone
(c) To push people apart
(d) To reduce differences and reconcile

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Q93. Rearrange the parts of the sentence in correct order.

The team plans to

P. flowering and fruit production in apple trees

Q. use the data to get a better understanding of

R. health-promoting compounds of interest and employ

S. biotechnological approaches that could speed up

(a) QRSP
(b) QSPR
(c) PQRS
(d) RSPQ

Q94. Select the word that is opposite in meaning (ANTONYM) to the word given below

Timorous

(a) Brazen
(b) Gutless
(c) Scared
(d) Reserved

Q95. Select the correct passive form of the given sentence.

The tigress was trailing the stag.

(a) The stag was trailing by the tigress.
(b) The stag was being trailed by the tigress.
(c) The stag had been trailed by the tigress.
(d) The stag was trailed by the tigress.

Directions

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

The modern pizza was originally (1). ____ in Naples, Italy but the word pizza is Greek in (2). __, derived from the Greek word pēktos meaning solid or clotted. The ancient (3). __ covered their bread with oils, herbs and cheese. The first major (4). __ that led to flat bread pizza was the use of tomato as a topping. It was common for the poor of the area around Naples to add (5). ____ to their yeast-based flat bread, and so the pizza began.

Q96. Select the most appropriate option to fill in the blank No.1.

(a) assumed
(b) pervaded
(c) invented
(d) arcaded

Q97. Select the most appropriate option to fill in the blank No.2.

(a) align
(b) bulletin
(c) origin
(d) villain

Q98. Select the most appropriate option to fill in the blank No.3.

(a) Romans
(b) Greeks
(c) Spaniards
(d) Indians

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Q99. Select the most appropriate option to fill in the blank No.4.

(a) innovation
(b) aggravation
(c) cultivation
(d) observation

Q100. Select the most appropriate option to fill in the blank No.5.

(a) tomato
(b) potato
(c) onion
(d) herb

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (d) 15

The maximum squares in the given figure is shown below:

Hence, ‘15’ is the correct answer.

Q2. Answer: (b) [figure]

The image embedded in given figure is as shown below:

Hence, 'option 2' is the correct answer.

Q3. Answer: (c) 108

The logic followed here is:

Logic: The words are coded as the sum of each letter's positional value.

Here,

'BASE' is coded as '27'.

→ (2 + 1 + 19 + 5)

→ 27.

Similarly,

COLLECTION:

→ (3 + 15 + 12 + 12 + 5 + 3 + 20 + 9 + 15 + 14)

→ 108.

'COLLECTION' is coded as '108'.

Hence, the correct answer is "108".

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Q4. Answer: (a) 57

Decoding the information:

Letter	A	B	C	D
Means	×	•	–	÷

Given equation: 66 A 3 D 11 B 43 C 48 D 12 = ?

Now, exchanging the letters with the symbols,

→ 66 × 3 ÷ 11 + 43 – 48 ÷ 12 =?

→ 66 × 3/11 + 43 – 4 =?

→ 18 + 43 – 4 =?

→ 61 – 4 = 57

Hence, the correct answer is " 57 ".

Q5. Answer: (b) 5, 2, 1, 3, 4

The correct logical order is:

5) Child

2) School

1) College

3) Employment

4) Salary

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

Q6. Answer: (c) [figure]

Faces opposite to each other is shown below:

A	4	6
C	3	2

1.

→ Cannot be formed (As, 6 and 2 are opposite faces. So, they cannot appear at the same time on the dice)

2.

→ Cannot be formed (As, 4 and 3 are opposite faces. So, they cannot appear at the same time on the dice)

3.

→ Can be formed.

4.

→ Cannot be formed (As, A and C are opposite faces. So, they cannot appear at the same time on the dice)

Hence, 'option 3' is the correct answer.

Q7. Answer: (b) (29, 14, 172)

The logic followed here is:

Logic: Third Number = (First Number + Second Number) × 4

(13, 14, 108):

→ 108 = (13 + 14) × 4

→ 108 = 27 × 4

→ 108 = 108

(51, 12, 252):

→ 252 = (51 + 12) × 4

→ 252 = 63 × 4

→ 252 = 252

Let's check each option as per the logic,

1) (17, 14, 134):

→ 134 = (17 + 14) × 4

→ 134 ≠ 124

→ LHS ≠ RHS.

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2) (29, 14, 172):
→ 172 = (29 + 14) × 4
→ 172 = 172
→ LHS = RHS.
3) (19, 26, 160):
→ 160 = (19 + 26) × 4
→ 160 ≠ 180
→ LHS ≠ RHS.
4) (33, 42, 280):
→ 280 = (33 + 42) × 4
→ 280 ≠ 300
→ LHS ≠ RHS.
Here, we can see that only option 2 follow the logic.
Hence, the correct answer is " (29, 14, 172) ".

Q8. Answer: (b) (13, 20, 41)

The logic followed here is:
Logic: Second Number = (First Number) + 7
=> Third Number = (Second Number) + 21
Given,
(18, 25, 46)
→ 25 = 18 + 7
→ 46 = 25 + 21.
(24, 31, 52)
→ 31 = 24 + 7
→ 52 = 31 + 21.
Let's check each option as per the logic:
1) (19, 24, 47):
→ 24 = 19 + 7
→ 24 ≠ 26 → Doesn't follow the logic.
2) (13, 20, 41):
→ 20 = 13 + 7
→ 41 = 20 + 21 → Follow the logic.
3) (20, 27, 34):
→ 27 = 20 + 7
→ 34 ≠ 27 + 21 → Doesn't follow the logic.
4) (16, 21, 44):
→ 21 ≠ 16 + 7 → Doesn't follow the logic.
Here, we can see that only Option 2 follow the logic.
Hence, the correct answer is " (13, 20, 41) ".

Q9. Answer: (a) 40.5

The logic followed here is:
Hence, '40.5' is the correct answer.

Q10. Answer: (a) [figure]

The correct Venn diagram representing the relationship between Language, Punjabi, Hindi and Malayalam is shown below:
Here, Hindi, Punjabi and Malayalam is the different languages.
Hence, the correct answer is "Option 1".

Q11. Answer: (a) 11111 – 1234554321

The logic followed here is:
Logic: (First Number)^2 = Second Number.

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Let's check each option as per the logic,

1) 11111 – 1234554321

→ $(11111)^2 = 1234554321$

→ $123454321 \neq 1234554321$

→ LHS ≠ RHS.

2) 111111 – 12345654321

→ $(111111)^2 = 12345654321$

→ $12345654321 = 12345654321$

→ LHS = RHS.

3) 111 – 12321

→ $(111)^2 = 12321$

→ $12321 = 12321$

→ LHS = RHS.

4) 1111 – 1234321

→ (1111)2 = 1234321

→ 1234321 = 1234321

→ LHS = RHS.

Here, we can see that only Option 1 doesn't follow the logic.

Hence, the correct answer is " 11111 – 1234554321 ".

Q12. Answer: (b) Cattle : Herd

The logic followed here is:

Logic: The First word is a part of the Second word.

Soldiers : Army

→ Soldiers are a part of the Army.

Similarly,

Cattle : Herd

→ Cattle is a part of the Herd.

Hence, the correct answer is "Cattle : Herd".

Q13. Answer: (b) P

As A is the common face on both the dice, keeping it constant and then rotating in clockwise direction, we get the faces opposite to each other:

A	P	Q
A	R	H

Clearly, 'P' will come on the face opposite to the face containing 'R' on it.

Hence, 'P' is the correct answer.

Q14. Answer: (c) [figure]

The logic followed here is:

Step I: Symbol 'Triangle' has shifting one place in clockwise direction in next images.

Step II: Symbol 'Arrow' has shifting a place in clockwise direction in next images, and changed with symbol '=' and then letter 'B' respectively.

Step III: Symbol 'Circle' has shifting a place in clockwise direction in next images, and changed with symbol 'Square' and then letter 'S' respectively.

So, the complete series will be:

So, 'Option 3' will replace the question mark.

Hence, the correct answer is "Option 3".

Q15. Answer: (b) EFG

The logic followed here is:

Logic: Second Letter = First Letter + 2

Third Letter = Second Letter - 1

Let's check each option as per the logic:
1) VXW:
2) EFG:
3) OQP:
4) BDC:
Here, we can see that only Option 2 doesn't follow the logic.
Hence, the correct answer is "EFG".

Q16. Answer: (b) [figure]

The correct mirror image is shown below:
Hence, the correct answer is "Option 2".

Q17. Answer: (b) Both conclusion I and II follow.

Given Statements:
I. Each correct is wrong.
II. No wrong is right.
The least possible Venn diagram for the given statement is:
Conclusions:
I. No correct is right - True (Because, All the correct is the part of wrong, and No wrong is right, it gives No correct is right).
II. Some wrongs are correct - True (Because, All correct is wrong, so some wrongs are correct).
So, Both conclusions I and II follows.
Hence, the correct answer is "Option 2".

Q18. Answer: (c) Dispersion of light

The logic followed here is:
Mirror : Reflection of light → A mirror is associated with the reflection of light.
Similarly,
Prism : Dispersion of light → A prism is associated with the dispersion of light.
Hence, the correct answer is "Dispersion of light".

Q19. Answer: (c) 55 and –20

Given Equation I: 10 × 6 – 30 ÷ 4 + 20.
After interchanging 6 and 4, the equations we get:
→ 10 × 4 – 30 ÷ 6 + 20 =?
→ 10 × 4 – 5 + 20 =?
→ 40 – 5 + 20 =?
→ 60 – 5 = 55
Given Equation II. 8 – 4 × 5 + 6 ÷ 2.
After interchanging 6 and 4, the equations we get:
→ 8 – 6 × 5 + 4 ÷ 2 =?
→ 8 – 6 × 5 + 2 =?
→ 8 – 30 + 2 =?
→ 10 – 30 = – 20
Hence, the correct answer is "55 and –20".

Q20. Answer: (a) (Stock, Troupe, Robber)

The logic followed here is:
Logic: These words represent different groups or collections.
Let's check each option as per the logic:
1) (Stock, Troupe, Robber):
→ Here. Robber doesn't represent any group.
2) (Crowd, Army, Herd):
→ These words represent different groups.
3) (Team, Council, Bouquet):

→ These words represent different groups or collections.

4) (Shoal, Flock, Chorus):

→ These words represent different groups or collections.

Here, we can see that Option 1 doesn't follow the group.

Hence, the correct answer is "(Stock, Troupe, Robber)".

Q21. Answer: (b) TG

The logic followed here is:

Logic: 5 has been added to each letter to get the corresponding letter.

NA : SF

OB : TG

Hence, the correct answer is "TG".

Q22. Answer: (a) HVBAA

The logic followed here is:

Here,

'MAZZA' is written as 'OBBAC'

'BLACK' is written as ‘DMCDM’

Similarly, for 'FUZZY'

So, 'FUZZY' will be written as ‘HVBAA ’

Hence, 'HVBAA' is the correct answer.

Q23. Answer: (d) bmmc

Given sequence: m c _ b c m _ c b b c _ m _ b b c m

1. mccb → m c m b c m / c c b b c c / m b b b c m

2. bcmb → m c b b c m / c c b b c m / m b b b c m

3. cbmb → m c c b c m / b c b b c m / m b b b c m

4. bmmc → m c b b c m / m c b b c m / m c b b c m

In option 4, the sequence follows a continuous pattern.

Hence, 'bmmc' is the correct answer.

Q24. Answer: (d) 6

The logic followed here is:

Logic: First two digit of 1st Number ÷ Third digit of 1st Number = 2nd number.

183 : 6

→ 18 ÷ 3 = 6.

164 : 4

→ 16 ÷ 4 = 4.

Similarly,

122 : ?

→ 12 ÷ 2 = 6.

Hence, the correct answer is "6".

Q25. Answer: (a) Daughter's daughter

By using the symbols in the table given below, we can draw the following family tree:

Now,

H is the daughter of R,

R is the father of S,

S is the son of T,

T is the daughter of N,

Clearly, H is granddaughter of N i.e, H is N's daughter's daughter.

Hence, ‘Daughter's daughter’ is the correct answer.

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Q26. Answer: (d) Montane Forests

The correct answer is Option 4.

Key Points

• The common trees you mentioned, including Silver Fir, Junipers, Pines, and Birches, are typically associated with Montane forests in India.

• However, Montane forests in India are characterized by a variety of tree species that are adapted to higher altitudes. Some common trees found in Montane forests include:

• Oak Trees: Various species of oak trees, such as Quercus leucotrichophora (Banj oak) and Quercus semecarpifolia (Himalayan oak), are prevalent in Montane forests. They are well-adapted to the colder climate and can be found in regions like the Western Himalayas.

• Rhododendrons: Rhododendron species, known for their vibrant flowers, are also common in Montane forests. They include Rhododendron arboreum (the national flower of Nepal and state tree of Uttarakhand), Rhododendron campanulatum, and others. They thrive in the higher altitudes of the Himalayan region.

• Conifers: Various coniferous tree species are found in Montane forests, including species of pines, firs, and spruces. Some examples include Pinus roxburghii (Chir Pine), Abies spectabilis (Silver Fir), and Picea smithiana (West Himalayan Spruce).

• Birch Trees: Although birches are not as common in Montane forests compared to the other trees mentioned, they can still be found in certain regions. Betula utilis (Himalayan Birch) is one such species that grows in higher altitudes.

Q27. Answer: (b) Vitamin B3

The correct answer is Option 2.

Key Points

• Vitamin B3, also known as niacin or nicotinic acid, is one of the eight B vitamins. It plays a crucial role in the proper functioning of the body and is involved in various metabolic processes.

• Here are some key points about vitamin B3:

• Function: Niacin is essential for the conversion of carbohydrates, fats, and proteins into energy.

• Sources: Niacin can be obtained from both animal and plant sources.

• Forms: Niacin exists in two forms: nicotinic acid and niacinamide (nicotinamide).

• Deficiency: Severe niacin deficiency leads to a condition known as pellagra.

• Recommended Daily Intake: The recommended daily intake of niacin varies depending on age, sex, and life stage.

Additional Information

• Vitamin B1, also known as thiamine, is one of the eight B-vitamins that play essential roles in maintaining the proper functioning of our bodies

• Vitamin B2, also known as riboflavin, is one of the water-soluble vitamins belonging to the B-complex group. It plays a crucial role in maintaining overall health and is involved in various metabolic processes in the body.

Q28. Answer: (d) He should have completed 40 years of age.

The correct answer is Option 4.

Key Points

• No, the statement "He should have completed 40 years of age is not required to be the Vice-President of India" is incorrect.

• According to Article 66 of the Constitution of India, a person must be at least 35 years of age to be eligible for the office of the Vice-President.

• The Constitution sets specific qualifications for various political positions in India, and age requirements are among them.

Additional Information

• To be eligible for the position of Vice-President of India, certain qualifications must be met, as outlined in the Constitution of India. According to Article 66 of the Constitution, the following requirements must be fulfilled:

• Citizenship: The candidate must be a citizen of India.

• Age: The candidate must have attained the age of 35 years or above.

• Qualifications: The candidate should be qualified for election as a member of the Rajya Sabha (the Upper House of Parliament).

Q29. Answer: (b) 3

The correct answer is Option 2.

Key Points

• The Sino-Indian border is divided into three sectors: the Western Sector, the Middle Sector, and the Eastern Sector.

• Each sector represents a different region along the disputed border between India and China.

• The Western Sector is located in the Indian states of Jammu and Kashmir and Himachal Pradesh, and it is the most contentious

and heavily militarized sector.

• The Middle Sector lies in the Indian state of Uttarakhand, and the Eastern Sector spans the Indian states of Sikkim and Arunachal Pradesh.

• These sectors have been the subject of territorial disputes between India and China, resulting in occasional border tensions.

Q30. Answer: (c) Bombay Stock Exchange

The correct answer is Option 3.

Key Points

• The oldest stock exchange in India is the Bombay Stock Exchange (BSE), also known as the Stock Exchange, Mumbai.

• It was established in 1875 and is the oldest stock exchange in Asia.

• The BSE is located in Mumbai, Maharashtra, and has played a significant role in the development and growth of the Indian capital market.

Additional Information

• The Multi-Commodity Exchange of India Ltd. (MCX) is not the oldest stock exchange in India.

• It is actually a commodity derivatives exchange rather than a stock exchange.

• MCX was established in 2003 and is headquartered in Mumbai, India.

• It primarily facilitates trading in commodity futures contracts, including gold, silver, crude oil, natural gas, agricultural commodities, and more.

• MCX provides a platform for market participants to trade and hedge their price risks in various commodities.

• The National Commodity and Derivatives Exchange (NCDEX) is not the oldest stock exchange in India either.

• It is another commodity derivatives exchange operating in India.

• NCDEX was established in 2003 and is headquartered in Mumbai, India.

• It focuses on facilitating trading in agricultural commodities, such as wheat, rice, maize, soybean, cotton, etc.

• NCDEX provides a platform for market participants, including farmers, traders, and processors, to trade and hedge their price risks in agricultural commodities.

• The National Stock Exchange (NSE) is not the oldest stock exchange in India, but it is one of the major stock exchanges in the country.

• The NSE was established in 1992 and is headquartered in Mumbai, Maharashtra.

• It is a leading stock exchange in India and provides a platform for trading various financial instruments, including equities, derivatives, and exchange-traded funds (ETFs).

• The NSE has played a crucial role in the modernization and development of the Indian capital market and is known for its advanced trading technology and extensive market reach.

Q31. Answer: (b) Carlos Alcaraz

The correct answer is Carlos Alcaraz.

Key Points

• Tennis player Carlos Alcaraz has won the title match of US Open 2022, he is from Spain.

• In the men's singles final, the Spanish player defeated Casper Rood of Norway 6-4, 2-6, 7-6, 6-3.

• With this win, Alcaraz has also become the world's number one tennis player.

• This is Alcaraz's 51st Tour level win this season.

• Carlos Alcaraz has become the youngest player after Pete Sampras to win the US Open title.

• Sampras became the youngest champion in 1990.

• At the same time, Alcaraz was successful in winning the Grand Slam title, becoming the second youngest player in Spain after the legendary Rafael Nadal.

• Nadal won the French Open title in 2005.

• In addition, Alcaraz is the fourth player from Spain to become the world's number one player after his coaches Juan Carlos Ferrero, Carlos Moya, and Rafael Nadal.

Additional Information

• US Open 2022

• The 2022 US Open was the 142nd edition of the tennis US Open.

• It was the fourth and final Tennis Major (Grand Slam event) of the year.

• It was held on outdoor hard courts at the USTA Billie Jean King National Tennis Center in New York City.

• Carlos Alcaraz and Inga Swistek won the men's and women's singles titles respectively.

Q32. Answer: (c) Only I

The correct answer is Only I.

Key Points

• Basketball

• The International Basketball Federation (FIBA) was founded in 1932.

• The current president of FIBA is Sheikh Saud Ali Al Thani.

• Basketball is the most popular sport in the United States.

• Handball

• Handball was founded in 1917 by Max Heiser, Karl Schelenz, and Erich Konigh.

• Handball has 7 members per side.

• The International Handball Federation (IHF) was founded in 1928.

• Handball, usually involves two teams of seven players each (including goalkeeper) pass a ball using their hands with the aim of throwing it into the goal of the opposing team.

• The current president of the International Handball Federation is Dr. Hassan Moustafa.

Additional Information

Sport	Number of Players in One Court
Basketball	5
Soccer	11
Cricket	11
Tennis	2
Golf	4
Baseball	9
American Football	11
Boxing	2
Wrestling	2
Handball	7 members per side

Q33. Answer: (c) First Generation

The correct answer is First Generation.

Key Points

• The computer has evolved from a large-sized simple calculating machine to a much smaller machine capable of multiple functionalities.

• Each generation of computer is designed based on the hardware technology used leading to better, cheaper and powerful computers that are faster and efficient than their predecessors.

Generation of Computers based on Hardware	
Generation	Description
1st Generation (1940 – 1956)	• used vacuum tubes for circuitry and magnetic drums for memory - very expensive, large in size, slow in processing and had less storage capacity - used machine level language for programming
2nd Generation (1956 – 1963)	• transistors were used instead of vacuum tube - smaller, faster, cheaper, more energy-efficient and more reliable than the previous generation - High-level programming languages were also being developed such as COBOL, FORTRAN
3rd Generation (1964 – 1971)	• used Integrated Circuit(IC) consisting of the capacity of 300 transistors - small in size, low cost, large memory and high processing speed - known as minicomputers
4th Generation (1972 – 2010)	• used VLSI (Very Large Scale Integration) - became possible to place CPU on a single chip - known as microcomputers

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5th Generation (2010 – to date)	• based on artificial intelligence - portable, superior processing speed, and network connectivity - the aim is to develop devices that will respond to natural language inputs and be capable of learning

Hence, it can be concluded from the table that vacuum tubes were used by the first generation computers.

Q34. Answer: (a) A fielder pulls his hands gradually with the moving ball while holding a catch.

The correct answer is A fielder pulls his hands gradually with the moving ball while holding a catch.

Key Points

• Newton's Third Law of Motion states that 'To every action, there is an equal and opposite reaction'.

• When the rocket is ignited, it releases gases from its thruster thereby creating a force that will push rocket upwards which provides a necessary force that helps it in moving ahead.

• also a action reaction force acting on a book kept on a desk as shown below

Additional Information

• Newton First law states that Every object remains in uniform motion in a straight line unless compelled to change its state by the action of an external force.

• When a bus starts suddenly, the passengers receive a backward jerk an application of Newton's first law of motion.

• Newton's Second Law of motion states that the rate of change of momentum of an object is proportional to the applied force in the direction of the force. i.e. F=ma. Where F is the force applied, m is the mass of the body, and a is the acceleration produced.

• A fielder pulling his hand back while catching a ball is an application of Newton's second law of motion.

Q35. Answer: (a) First

The correct answer is First.

Key Points

• It is the first generation of computers which uses mechanical language for programming.

• The instructions were given through the front panel switches of these computers, directly to the CPU.

• The program is written as binary instructions, consisting of zeros and ones.

• One of the main disadvantages of programming in a low-level language is that when an error occurs, the code is not as easy to fix.

Additional Information

• Machine language, or machine code, is a low-level language comprised of binary digits (ones and zeros). High-level languages, such as Swift and C++ must be compiled into machine language before the code is run on a computer.

• Since computers are digital devices, they only recognize binary data. Every program, video, image, and character of text is represented in binary. This binary data, or machine code, is processed as input by the CPU. The resulting output is sent to the operating system or an application, which displays the data visually. For example, the ASCII value for the letter "A" is 01000001 in machine code, but this data is displayed as "A" on the screen. An image may have thousands or even millions of binary values that determine the color of each pixel.

• While machine code is comprised of 1s and 0s, different processor architectures use different machine code. For example, a PowerPC processor, which has a RISC architecture, requires different code than an Intel x86 processor, which has a CISC architecture. A compiler must compile high-level source code for the correct processor architecture in order for a program to run correctly.

Q36. Answer: (d) Article 343

The correct answer is Article 343.

Key Points

• Article 343

• Article 343 of the Indian Constitution recognizes Hindi in Devanagari script as the Official Language of the Union

• Article 343 or 343 (1) refers to Hindi as the official language of the Government of India and the script used for it is the Devanagari script.

• Devanagari's script is based on the ancient Brahmi script.

• It uses 47 characters of which 14 are vowels and 33 are consonants.

• Apart from Hindi, there are other languages like Marathi, Nepali, Bhojpuri, Rajasthani, Brajbasha etc which use the Devanagari script.

• It is mainly found in the Indian Subcontinent.

Additional Information

• Article 344

• Article 344 States about the Commission and committee of the parliament in the official language.

• Article 344(1)

• It provides for the constitution of a Commission by the President, consisting of a Chairperson and other members representing the different languages specified in the Eighth Schedule, to make recommendations to the President for the progressive use of Hindi for the official purposes of the Union.

• According to Article 344 of the Constitution, the first Official Language Commission was constituted in 1955.

• by Dr Rajendra Prasad (President of India)

• B. G. Kher became the chairperson of the Official language commission.

Q37. Answer: (c) Girija Devi

The correct answer is Girija Devi.

Key Points

• Girija Devi was an Indian classical singer of the Seniya and Banaras gharanas.

• She performed classically and light classical music and helped elevate the profile of thumri.

• Girija Devi is also known as 'The Queen of Thumri'.

• Thumri is North India's most popular light-classical song form.

• It is developed during the 19th century at the court of Lucknow's ruler Wajid Ali Shah.

Additional Information

Name	Birthdate	Occupation	Notable Achievements
Rumi	September 30, 1207	Poet, Islamic Scholar	Renowned Persian poet, known for his mystical poetry and teachings
Rattan Mohan Sharma	1947	Indian Classical Vocalist	Accomplished vocalist in the Hindustani classical music genre, known for his devotional renditions
Mirza Ghalib	December 27, 1797	Urdu and Persian Poet	Celebrated poet of the Mughal era, known for his profound and eloquent poetry in Urdu and Persian languages

Q38. Answer: (b) Charles T. Metcalfe

The correct answer is Charles T. Metcalfe.

Key Points

• The Treaty of Amritsar:

• It was an agreement between the British East India Company and Maharaja Ranjit Singh, the Sikh leader who founded the Sikh empire.

• Treaty of Amritsar, (April 25, 1809), a pact concluded between Lord Metcalfe, representing the British East India Company, and Ranjit Singh, head of the Sikh kingdom of Punjab.

• The Treaty of Amritsar marked the beginning of the Dogra rule in Kashmir.

• During First Anglo-Sikh War, Maharaja Gulab Singh Jamwal (Dogra) helped the British Empire against the Sikhs.

• After the defeat of the Sikh Empire, The Treaty of Lahore (9 March 1846) and the Treaty of Amritsar (16 March 1846) was signed.

Additional Information

• Lord Cornwallis:

• He was the First English Nobleman to come to India.

• He undertake the office of the Governor General and also the first of Parliamentary Governor Generals of India.

• He was also the First Governor General to die in India {during his second term}.

• Lord Hastings:

• He served as Governor General of Bengal from 1813 to 1823, a long ten years term.

• His tenure is known for his policy of intervention and war.

• William Bentinck (1828-1835):

• The Governor-General of India, William Bentinck (1828-1835) abolished Provincial Courts of Appeal and Circuit in 1831.
• Provincial Courts of Appeal and Circuit were established by Lord Cornwallis(1786-1793)
• He first replaced them with Commissions and later handed those responsibilities to District Judges and District Collectors.
• Sati was abolished in the year 1829.

Q39. Answer: (d) Mohiniattam

The correct answer is Mohiniattam.

Key Points

• Mohiniattam is one of the classical dance forms in India.
• Mohiniattam is originated from the state of Kerala.
• Mohiniyattam derives its name from the word ‘Mohini’, a female avatar of Lord Vishnu
• It is performed by women in honor of the Hindu god Vishnu in his incarnation as the enchantress Mohini.
• Music for Mohiniattam is provided by a Karnatak (South Indian) classical music ensemble.
• It follows two performance categories namely, ‘Nritta’ and ‘Nritya’ mentioned in ‘Natya Shastra’.
• Mohiniattam was patronized by Travancore ruler Maharaja Swathi Thirunal.
• Vallathol Narayana Menon is the poet who revived Mohiniattam.
• The main exponents of Mohiniattam are:
• Kalamandalam Kalyanikutty Amma.
• Sunanda Nair.
• Gopika Varma.
• Pallavi Krishnan.

Additional Information

Classical Dance Form	Exponents	State
Bharatanatyam	Rukmini Devi Arundale, Yamini Krishnamurthy, Mallika Sarabhai, Alarmel Valli	Tamil Nadu
Kathak	Birju Maharaj, Pandit Sundar Prasad, Shovana Narayan, Uma Sharma	Uttar Pradesh
Kathakali	Kalamandalam Gopi, Sadanam Krishnankutty, Kottakkal Sivaraman, Margi Madhu	Kerala
Odissi	Kelucharan Mohapatra, Sanjukta Panigrahi, Sonal Mansingh, Madhavi Mudgal	Odisha
Manipuri	Guru Bipin Singh, Darshana Jhaveri, Rajkumar Singhajit Singh, Priti Patel	Manipur
Kuchipudi	Vempati Chinna Satyam, Yamini Reddy, Raja-Radha Reddy, Vyjayanthi Kashi	Andhra Pradesh
Mohiniyattam	Kalamandalam Kshemavathy, Sunanda Nair, Bharati Shivaji, Methil Devika	Kerala
Sattriya	Jatin Goswami, Anita Sharma, Anwesa Mahanta, Madhusmita Bora	Assam
Chhau	Shashadhar Acharya, Ileana Citaristi, Raghunath Dutta, Bahadur Singh	West Bengal, Odisha, Jharkhand
Raslila	Sonal Mansingh	Uttar Pradesh

Q40. Answer: (a) Patli hills

The correct answer is Patli hills.

Key PointsPurvachal hills

• The range is an eastern extension of the Himalayan Range System, in northeastern India.
• It bends sharply to the south beyond the Dihang River gorge and spreads along the eastern boundary of India with Myanmar.
• The Purvanchal includes the hill of the Patkai, Barail Range, Naga Hills, Lushai Hills, and Jampui Hills.

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• The highest peak of the Purvanchal Range is Mount Dapha.

• Patli hills is not part of Purvanchal hills.

Additional Information Patli hills

• Patli Hills is a range of hills located in the south of Delhi, India.

• The hills are a popular tourist destination, and are known for their scenic views of the city.

• The hills are also home to a number of temples and historical monuments.

• The highest point in the hills is the QutubMinar, which is a 73-meter-tall tower that was built in the 12th century.

• The hills are also home to a number of other historical monuments, including the Mehrauli Archaeological Park, the Alai Darwaza, and the Qutub Complex.

• The hills are a popular spot for hiking, picnicking, and bird watching.

• The hills are also home to a number of wildlife species, including monkeys, peacocks, and snakes.

• The hills are a significant part of the Delhi landscape, and are a popular destination for both locals and tourists alike.

Q41. Answer: (b) India

The correct answer is India.

Key Points:

• Prime Minister Narendra Modi will host the first India-Central Asia Summit in a virtual format on 27 January 2022.

• It was conducted in India.

• This will be the first engagement of its kind between India and the Central Asian countries at the level of leaders.

• The virtual summit will see the participation of the five countries Kazakhstan, Uzbekistan, Tajikistan, Turkmenistan, and the Kyrgyz Republic.

Additional Information

• Prime Minister Narendra Modi addressed the World Economic Forum's (WEF) Davos Agenda virtual event on 17 Jan'22.

• PM Narendra Modi has been invited as the chief guest at the 54th convocation ceremony of the IIT Kanpur on 28th Dec 2021.

• Amid the Omicron scare, Prime Minister Narendra Modi has announced the Covid-19 vaccine for children and booster doses for Health workers and senior citizens in December 2021.

• Prime Minister Narendra Modi has laid the foundation stone of Ganga Expressway in Shahjahanpur, Uttar Pradesh in December 2021.

• In October 2021, Prime Minister Narendra Modi has launched the Indian Space Association (ISA).

• Prime Minister Narendra Modi has been named among the 100 most influential people of 2021 by Time Magazine.

• In August 2021, Narendra Modi has become the first Indian Prime Minister to chair an open debate at United Nations Security Council (UNSC).

Q42. Answer: (c) Anupam Kher

The correct answer is Anupam Kher.

Key Points:

• Book titled ‘Your Best Day Is Today!’ written by Anupam Kher is based on his experiences during the countrywide lockdown during the coronavirus pandemic.

• He added his experiences, ups and downs, feelings of the time during which his mother and brother contracted the virus.

• Other books written by him are the biography ‘The Best Thing About You is You’ and ‘lessons life taught me unknowingly’.

• He has been awarded the two National Film Awards and 8 Filmfare Awards.

• He is also the former chairman of the Film and Television Institute of India.

Q43. Answer: (a) It’s a Wonderful Life

The correct answer is It’s a Wonderful Life

Key Points:

• Ruskin Bond is an Indian author of British descent.

• He received the Sahitya Akademi Award in 1992 for his novel Our Trees Still Grow in Dehra.

• The Blue Umbrella, The Room on the Roof, Roads to Mussoorie and Cherry Tree are some of his famous works.

• Non-fiction It's a Wonderful Life: Roads to Happiness

Important Points:

• Midnight's Children is a 1981 novel by Indian-British writer Salman Rushdie, about India's transition from British colonial rule to independence and partition.

• Salman Rushdie's Midnight's Children is a harsh critique of the gender-related power struggles of postcolonial Indian society.

• Sir Ahmed Salman Rushdie is an Indian-born British-American novelist.

• His notable works include; Shame, The Satanic Verses, Haroun and the Sea of Stories, The Moor's Last Sigh, The Ground Beneath Her Feet, Fury, Shalimar the Clown etc.

Q44. Answer: (a) 1 day

The Correct Answer is 1 day.

Key Points:.

MARS -

• Mars orbit around the sun - 687 days One spin on axis - 1 day, number of moons - 02.

• Mars is the fourth planet from the Sun and orbits the Sun at an average distance of approximately 141 million miles (225 million km).

• Mars rotates on its axis, completing one revolution every 24.6 hours.

• The axis of Mars is tilted at 25 degrees and 12 minutes relative to its orbital plane about the Sun.

• This produces seasons on the surface of Mars, similar to the seasons on Earth.

• Mars completes one orbital revolution around the Sun every 1.88 Earth years.

• Two small natural satellites, Demos and Phobos, orbit Mars. Mars has no magnetic field to protect the surface from radiation from the Sun.

Important Points

The Earth’s rotation is the amount of time that it takes to rotate once on its axis.

• This is, apparently, accomplished once a day- i.e. every 24 hours.

• However, there are actually two different kinds of rotation that need to be considered here.

• For one, there’s the amount of time it takes for the Earth to turn once on its axis so that it returns to the same orientation compared to the rest of the Universe.

• Then there’s how long it takes for the Earth to turn so that the Sun returns to the same spot in the sky.

• Earth rotates once in about 24 hours with respect to the Sun, but once every 23 hours, 56 minutes, and 4 seconds with respect to other, distant, stars.

• Earth's rotation is slowing slightly with time thus, a day was shorter in the past

Additional Information

• MERCURY - One orbit around the sun - 88 days, One spin on the axis - 59 days.

• EARTH - One orbit around the sun - 365 days. One spin on the axis - 1 day Number of moons - 1.

• JUPITER - One orbit around the sun - 11 years, 11 months (4333 days= 11.87 yrs.) about 12 years. One spin on axis - 9 hours, 56 minutes, number of moons - about 92.

Q45. Answer: (d) 2012

Correct Answer 2012

Key Points

• Saina Nehwal won the Olympic bronze medal in the individual women's badminton competition in the year 2012.

• She achieved this milestone at the 2012 Summer Olympics held in London, United Kingdom.

• Saina Nehwal became the first Indian badminton player to win an Olympic medal in the women's singles category.

• Saina Nehwal is a female Indian singles badminton player.

• A former world no. 1, she has won over 24 international titles, including eleven titles in the Superseries.

• While she reached the 2nd world ranking in 2009, it was only in 2015 that she was able to cross the No. 1 world ranking.

• Nehwal is the first Indian to win two Commonwealth Games singles gold medals (2010 and 2018).

• In 2016, Padma Bhushan, India's third-highest civilian award, was awarded to her by the Government of India.

Additional Information:

Game	Players
Badminton	• Saina Nehwal - PV Sindhu - Parupalli Kashyap - Kidambi Srikanth - B Sai Praneeth - Jwala Gutta - Ashwini Ponappa
Chess	• Viswanathan Anand - Harikrishna Pentala - Nihal Sarin - S.L. Narayanan
Table Tennis	• Sharath Kamal - Manika Batra - Sathiyan Gnanasekaran - Soumyajit Ghosh.

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Hockey	• Dhyan Chand - Dhanraj Pillay - PR Sreejesh

Q46. Answer: (a) Both I and II

The correct answer is Both I and II.

Key Points

• A demand curve is a graphical representation of the demand function.

• It shows the relationship between the price of a good and the quantity demanded by consumers.

• The demand curve slopes downward from left to right, which means that as the price of a good decrease, the quantity demanded increases.

• This is because consumers are willing and able to buy more of a good at a lower price.

• The demand curve also gives the quantity demanded by the consumer at each price.

• For example, if the price of a good is Rs. 10, the consumer is willing and able to buy 10 units of the good.

• If the price of the good decreases to Rs. 5, the consumer is willing and able to buy 20 units of the good.

Additional Information

• Demand Curve and the Law of Demand

• If the prices of other goods, the consumer's income and her tastes and preferences remain unchanged, the amount of a good that the consumer optimally chooses becomes entirely dependent on its price.

• The relation between the consumer's optimal choice of the quantity of a good and its price is very important and this relation is called the demand function.

• Factors that affect the demand curve:

• Income

• Changing Tastes or Preferences

• Changes in the Composition of the Population

• Demand Curve

• The demand curve is a relation between the quantity of the good chosen by a consumer and the price of the good.

• The independent variable (price) is measured along the vertical axis and the dependent variable (quantity) is measured along the horizontal axis.

• The demand curve gives the quantity demanded by the consumer at each price.

Q47. Answer: (b) Asha Bhosle

The correct answer is Asha Bhosle.

Key Points

• Legendary Bollywood playback singer Asha Bhosle has entered the Guinness World Records for the most number of single studio recordings.

• She is best known for her playback singing in Hindi cinema.

• Asha has recorded up to 11,000 solo, duets and chorus-backed songs.

• In 2011, she was officially acknowledged by the Guinness Book of World Records as the most-recorded artist in music history.

• The Government of India honoured her with the Dadasaheb Phalke Award in 2000 and the Padma Vibhushan in 2008.

In News

• Dadasaheb Phalke International Film Festival awards:

• It is the country's highest award in the field of cinema.

• The 2023 winners were revealed by the Directorate of Film Festivals.

• Best Film award: The Kashmir Files

• International Film of the Year award: SS Rajamouli's 'RRR'

• Best Web Series: Rudra: The Edge of Darkness

• Best Director: R Balki (Chup: Revenge of The Artist)

• Most Versatile Actor Of The Year: Anupam Kher (The Kashmir Files)

• Best Actress award: Alia Bhatt (Gangubai Kathiawadi)

• Best Actor award: Ranbir Kapoor (Brahmastra)

• Most Promising Actor award: Rishab Shetty (Kannada film 'Kantara')

• Outstanding Contribution In The Film Industry: Rekha

• Critics Best Actor: Varun Dhawan (Bhediya)

• Television Series of The Year: Anupamaa
• Best Actor In A Television Series: Zain Imam (Fanaa- Ishq Mein Marjawaan)
• Best Actress In A Television Series: Tejasswi Prakash (Naagin)
• Best Male Singer: Sachet Tandon (Maiyya Mainu)
• Best Female Singer: Neeti Mohan (Meri Jaan)
• Best Cinematographer: PS Vinod (Vikram Vedha)
• Outstanding Contribution In The Music Industry: Hariharan

Q48. Answer: (c) Graham's Law

The correct answer is Graham's Law.

Key Points

• Graham's law states that the rates of diffusion of gases are inversely proportional to the square roots of their molar masses under similar conditions of temperature and pressure.
• This means that a gas with a lower molar mass will diffuse more quickly than a gas with a higher molar mass.
• For example, hydrogen (H2) has a molar mass of 2.016 g/mol, while oxygen (O2) has a molar mass of 32.000 g/mol.
• This means that hydrogen will diffuse 4.5 times faster than oxygen at the same temperature and pressure.
• Graham's law can be used to calculate the rate of diffusion of a gas.
• The formula for Graham's law is: r = k * √(M)
• Where:
• r is the rate of diffusion
• k is a constant
• M is the molar mass of the gas
• The value of k can be determined experimentally.
• Graham's law is a useful tool for understanding the behaviour of gases.
• It can be used to predict how gases will diffuse, and it can be used to calculate the rate of diffusion of a gas.

Additional Information

• Tyndall's Law states that the scattering of a beam of light by particles in a medium is inversely proportional to the fourth power of the wavelength of light.
• This means that shorter wavelengths of light are scattered more easily than longer wavelengths.
• Pascal's Law states that pressure exerted anywhere in an enclosed fluid is transmitted equally in all directions throughout the fluid.
• This means that if you increase the pressure at one point in a fluid, the pressure will increase at all points in the fluid.
• Kepler's Laws are three laws that describe the motion of planets around the sun.
• The first law states that planets orbit the sun in elliptical orbits.
• The second law states that the speed of a planet is greatest when it is closest to the sun and least when it is farthest from the sun.
• The third law states that the square of the period of a planet's orbit is proportional to the cube of the semi-major axis of its orbit.

Q49. Answer: (d) Kalidasa

The correct answer is Kalidasa.

Key Points

• Kalidasa wrote two khandakavyas (minor poems):
• Ritusamhara describes the six seasons by narrating the experiences of two lovers in each of the seasons.
• Meghaduta (The Cloud Messenger), is the story of a Yaksha trying to send a message to his lover through a cloud.

Additional Information

• Kalidasa also wrote three plays:
• Malavikagnimitram (Pertaining to Malavika and Agnimitra) tells the story of King Agnimitra, who falls in love with the picture of an exiled servant girl named Malavika.
• Abhijnanasakuntalam (Of the recollection of Shakuntala) tells the story of King Dushyanta who, while on a hunting trip, meets Shakuntala, the adopted daughter of a sage, and marries her.
• Vikramorvasiyam (Urvashi Won by Valour) tells the story of mortal King Pururavas and celestial nymph Urvashi who fall in love.
• Kalidasa is also the author of two epic poems:
• Raghuvamsa is an epic poem about the kings of the Raghu dynasty.

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• Kumarasambhava describes the birth and adolescence of the goddess Parvati, and her marriage with Lord Shiva.

Q50. Answer: (c) Chandipur, Odisha

The correct answer is Chandipur, Odisha.

Key Points

• A ballistic missile is a weapon that is shot through the sky over a great distance and then falls to the ground and explodes.

• DRDO successfully test launched the short-range ballistic missile in January 2023 from Odisha State.

• Prithvi-II was carried out on January 10, 2023, from the Integrated Test Range, Chandipur off the coast of Odisha.

• Prithvi-II is an indigenously developed Surface-to-Surface Missile Short-Range Ballistic Missile (SRBM).

Additional Information

• Defence Research and Development Organisation (DRDO) is a military research and development wing of the Ministry of Defence, with headquarters in New Delhi, India. It was founded in 1958.

• Prithvi missile was India's first indigenous ballistic missile.

• Wheeler Island, also known as Dr Abdul Kalam Island, is an island on the off-shores of Odisha in India, which hosts the Integrated Test Range missile testing facility.

• It is operated by the Defence Research and Development Organization (DRDO).

Q51. Answer: (d) 9

Given:

N + 1/N = √3

Formula:

If x + 1/x = a, then x3 + 1/x3 = a3 - 3a

Calculation:

N3 + 1/N3 = (√3)3 - 3 × √3

=> N3 + 1/N3 = 0

Now square both sides

$(N3 + 1/N^3)^2 = 0$

N^6 + 1/N^6 + 2 = 0

N6 + 1/N6 = -2

Add 11 on both sides:

N6 + 1/N6 + 11 = -2 + 11

N6 + 1/N6 + 11 = 9

Therefore The required answer = 9

Q52. Answer: (b) 45 degree, 45 degree

Given:

cos (A + B) = 0 and sin (A - B) = 0

Concept Used:

cos 90° = 0

sin 90° = 1

Calculation:

cos (A + B) = 0 and sin (A - B) = 0

Using the concept:

cos (A + B) = 0

cos (A + B) = cos 90°

A + B = 90° .....(equation 1)

sin (A - B) = 0

sin (A - B) = sin 0°

A - B = 0° .....(equation 2)

By solving equations 1 and 2.

A = 45°

B - 45°

Therefore Option 2 is the correct answer.

Q53. Answer: (c) A

Calculation

Please note that the income in A and C has less income compared to expenditure.

Company A:

Loss Percentage = ((35 - 45) /45) × 100 = (10/45) × 100 ≈ - 22.22%

Company C:

Loss Percentage = ((40 - 45) /45) × 100 = (5/45) × 100 ≈ -11.11%

From the calculations above, we can see that Company A suffered the maximum percentage of loss with approximately - 22.22%.

Q54. Answer: (b) 3.2

Given:

sec x + tan x = 5 and cosec y - cot y = 1/3

Formula used:

$sec^2\theta - tan^2\theta = 1$

$cosec^2\theta - cot^2\theta = 1$

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

Calculation:

sec x + tan x = 5,

$sec^2x - tan^2x = 1$

=> (sec x + tan x)(sec x - tan x) = 1

=> 5 × (sec x - tan x) = 1

=> (sec x - tan x) = 1/5

Now, cosec y - cot y = 1/3

$cosec^2y - cot^2y = 1$

=> (cosec y + cot y)(cosec y - cot y) = 1

=> (1/3) × (cosec y + cot y) = 1

=> cosec y + cot y = 3

Again according to the question,

=> (sec x + cosec y) - (tan x - cot y)

=> sec x + cosec y - tan x + cot y

=> sec x - tan x + cosec y + cot y

=> 1/5 + 3 = = 3.2

Therefore The value of (sec x + cosec y) - (tan x - cot y) is 3.2

Therefore Option 2 is the correct answer.

Q55. Answer: (a) Rs. 1000

Given:

Selling price of the article after two successive discounts = Rs. 560

First discount: 30%

Second discount: 20%

Formula used:

Selling price = Marked price - (Discount 1% × Marked price) - (Discount 2% × Marked price)

Calculation:

Let's solve the question:

Let the marked price of the article be "M".

Selling price after the first discount = M - (30/100)M = (70/100)M = 0.7M

Selling price after the second discount = 0.7M - (20/100)(0.7M) = (0.7M) - (0.14M) = 0.56M

Given that the selling price after the two discounts is Rs. 560, we can set up the equation:

0.56M = 560

To find the marked price (M), divide both sides of the equation by 0.56:

M = 560/0.56

M = 1000

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Therefore, the marked price of the article is Rs. 1000.

Q56. Answer: (c) 2 sec A

Shortcut Trick

Substitute A = 30° in the given expression:

sin 30° = 1/2 and cos 30° = √3/2

Value = (1 − 0.5)/(√3/2) + (√3/2)/(1 − 0.5) = (1/2)/(√3/2) + (√3/2)/(1/2) = 1/√3 + √3

Value = (1 + 3)/√3 = 4/√3

Checking options: 2 sec 30° = 2 × (2/√3) = 4/√3. Match found.

Therefore The correct answer is 2 sec A.

Alternate Method

Given: {(1 − sin A)/cos A} + {cos A/(1 − sin A)}

Formula Used: $\sin^2 A + \cos^2 A = 1$ and 1/cos A = sec A

=> Take LCM of the denominators: cos A × (1 − sin A)

=> Numerator = $(1 - \sin A)^2 + \cos^2 A$

=> Expanding numerator: $(1 - 2 \sin A + \sin^2 A) + \cos^2 A$

=> Using identity $\sin^2 A + \cos^2 A = 1$, we get: $1 - 2 \sin A + 1$

=> Numerator = 2 − 2 sin A = 2(1 − sin A)

=> Expression = [2(1 − sin A)] ÷ [cos A(1 − sin A)]

=> Expression = 2 / cos A = 2 sec A

Therefore The correct answer is 2 sec A.

Additional Information

Trigonometric Identities

Fundamental identities include $\sin^2\theta + \cos^2\theta = 1$, $1 + \tan^2\theta = \sec^2\theta$, and $1 + \cot^2\theta = \text{cosec}^2\theta$.

Reciprocal Relations

Secant is the reciprocal of cosine (sec θ = 1/cos θ) and Cosecant is the reciprocal of sine (cosec θ = 1/sin θ).

Value Substitution Method

For simplification questions, substituting standard angles like 0°, 30°, 45° or 60° can quickly verify the correct option.

Q57. Answer: (b) Rs. 1,500

Given:

Amount of money left with Nakul after buying groceries = Rs. 900

Calculation:

Let the total amount of money that Nakul had be "M".

First, Nakul used 20% of his money to buy wheat flour. This means he spent (20/100)M on wheat flour, leaving him with (80/100)M.

Next, Nakul spent 25% of the remaining money on cooking oils. Therefore, the amount of money left after this expenditure is (75/100) × (80/100)M.

According to the given information, Nakul is left with Rs. 900, so we can set up the equation:

(75/100) × (80/100)M = 900

To find the total amount of money (M), divide both sides of the equation by [(75/100) × (80/100)]:

M = 900/[(75/100) × (80/100)]

Simplifying the equation:

M = 900/(75/100) × (100/80)

M = 900/(3/4) × (4/5)

M = 900 × (4/3) × (5/4)

M = 1500

Therefore, the total amount of money that Nakul had is Rs. 1500.

Q58. Answer: (b) 48

Given:

The average age of 5 children = 15 years

Average age of children with their father and mother = 25 years

Age difference between father and mother = 4 years
Formula used:
Average = Sum of values/Number of values
Calculation:
Let the age of the mother be M years.
We know that the average age of the 5 children is 15 years.
Therefore, the sum of the ages of the 5 children is (15 × 5) = 75 years.
Also, the average age of the children together with their father and mother is 25 years.
Since there are 5 children, the total number of people in the family is 5 + 2 (father and mother) = 7.
Using the formula for the average, we can write the equation:
(75 + M + F)/7 = 25
where F represents the age of the father.
We are also given that the father is older than the mother by 4 years:
F = M + 4
Now we can solve the equations.
Substituting F = M + 4 in the first equation:
(75 + M + M + 4)/7 = 25
Simplifying:
(2M + 79)/7 = 25
2M + 79 = 175
2M = 175 - 79
2M = 96
M = 96/2
M = 48
Therefore, the age of the mother is 48 years.

Q59. Answer: (c) 12√5 Sq. cm

Given:
Length of the three sides of the triangle: 7 cm, 9 cm, and 8 cm
Formula used:
To find the area of a triangle when the lengths of all three sides are known, we can use Heron's formula:
Area = √(s(s - a)(s - b)(s - c))
Where:
s = (a + b + c)/2 (semi-perimeter of the triangle)
a, b, c = lengths of the three sides
Calculation:
Using the formula:
s = (a + b + c)/2
s = (7 + 9 + 8)/2
s = 24/2
s = 12 cm
Now, plug the values of a, b, c, and s into Heron's formula to find the area of the triangle:
√(s(s - a)(s - b)(s - c))
√(12(12 - 7)(12 - 9)(12 - 8))
√(12 × 5 × 3 × 4)
12√5 Sq. cm
Therefore, the area of the triangle with side lengths 7 cm, 9 cm, and 8 cm is approximately 12√5 Sq. cm

Q60. Answer: (b) 300 km/h

Shortcut Trick
For three equal distances covered at speeds x, y, and z, the average speed is the Harmonic Mean of the speeds.
Let the assumed distance for each segment be the LCM of (200, 300, 600) = 600 km.

Time taken for each segment = 600/200 = 3 h, 600/300 = 2 h, 600/600 = 1 h.
Total time = 3 + 2 + 1 = 6 hours | Total distance = 3 × 600 = 1800 km.
Average speed = 1800 ÷ 6 = 300 km/h.
Therefore The correct answer is 300 km/h.
Alternate Method
Given: Three equal distances d = 100 km each; Speeds v1 = 200 km/h, v2 = 300 km/h, v3 = 600 km/h.
Formula Used: Average Speed = (Total Distance) ÷ (Total Time)
=> Total Distance = 100 + 100 + 100 = 300 km
=> Time for 1^(st) part (t1) = 100 ÷ 200 = 1/2 hour
=> Time for 2^(nd) part (t2) = 100 ÷ 300 = 1/3 hour
=> Time for 3^(rd) part (t3) = 100 ÷ 600 = 1/6 hour
=> Total Time = (1/2 + 1/3 + 1/6) = (3 + 2 + 1) ÷ 6 = 6/6 = 1 hour
=> Average Speed = 300 ÷ 1 = 300 km/h
Therefore The correct answer is 300 km/h.
Additional Information
Average Speed for Equal Distance Segments
If a distance is divided into n equal parts with speeds v1, v2, ..., v_n, the average speed is n ÷ (1/v1 + 1/v2 + ... + 1/v_n).
Two Equal Distances Case
For two equal distances covered at speeds x and y, the Average Speed is (2 × x × y) ÷ (x + y).
Unit Conversion
To convert km/h to m/s, multiply the speed by 5/18. To convert m/s to km/h, multiply by 18/5.

Q61. Answer: (c) Rs. 325

Shortcut Trick
Difference in Time = 6 years − 5 years = 1 year.
Difference in Simple Interest percentage = 8% × 1 = 8%.
Given that 8% of the Sum = Rs. 26.
Total Sum (100%) = (26 ÷ 8) × 100 = 3.25 × 100 = 325.
Therefore The correct answer is Rs. 325.
Alternate Method
Given:
Rate (R) = 8% per annum, Time1 (T1) = 5 years, Time2 (T2) = 6 years.
Difference between Simple Interests = Rs. 26.
Formula Used:
Simple Interest (SI) = (P × R × T) ÷ 100
Calculations:
=> Let the Sum (Principal) be P.
=> SI for 6 years = (P × 8 × 6) ÷ 100 = 48P ÷ 100
=> SI for 5 years = (P × 8 × 5) ÷ 100 = 40P ÷ 100
=> Difference = (48P ÷ 100) − (40P ÷ 100) = 26
=> 8P ÷ 100 = 26
=> 8P = 2600
=> P = 2600 ÷ 8
=> P = 325
Therefore The correct answer is Rs. 325.
Additional Information
Relationship between SI and Time
For a constant Principal and Rate, the Simple Interest is directly proportional to the Time period (SI prop. to T). Thus, SI2 − SI1 = P × R × (T2 − T1) ÷ 100.
Calculation of Total Amount
The Total Amount (A) after any period is the sum of the Principal and the Interest earned: A = P + SI = P × (1 + RT ÷ 100).
Finding Rate or Time

If the Principal and Interest are known, the Rate (R) can be found using R = (SI × 100) ÷ (P × T) and Time (T) using T = (SI × 100) ÷ (P × R).

Q62. Answer: (d) 125

Calculation:

Total population of Q = 300 + 200 + 125 + 75 + 150 = 850

Total population of P = 150 + 250 + 175 + 100 + 50 = 725

Difference = 850 - 725 = 125

Therefore Option 4 is the correct answer.

Q63. Answer: (c) Rs. 1,000

Shortcut Trick

Ratio of P : Q : R = 7 : 9 : 4

Difference between P and R in units = 7 − 4 = 3 units

Given: 3 units = Rs. 1500 => 1 unit = Rs. 500

Difference between P and Q in units = 9 − 7 = 2 units

Required value = 2 × 500 = Rs. 1,000

Therefore The correct answer is Rs. 1,000.

Alternate Method

Given:

Ratio of shares P : Q : R = 7 : 9 : 4

Difference between P's share and R's share = Rs. 1500

Let the shares of P, Q, and R be 7x, 9x, and 4x respectively.

According to the question:

=> 7x − 4x = 1500

=> 3x = 1500

=> x = 1500 ÷ 3 = 500

We need to find the difference between P and Q:

=> Difference = 9x − 7x

=> Difference = 2x

=> Difference = 2 × 500

=> Difference = Rs. 1,000

Therefore The correct answer is Rs. 1,000.

Additional Information

Ratio Division Rule

To divide a quantity S into the ratio a : b : c, the individual shares are [a/(a+b+c)]×S, [b/(a+b+c)]×S, and [c/(a+b+c)]×S.

Ratio of Equality

If two ratios a : b and c : d are equal, then a × d = b × c, which is known as the cross-product rule in proportions.

Compound Ratio

The compound ratio of (a : b) and (c : d) is (a × c) : (b × d).

Q64. Answer: (c) 2 sq. units

Given:

The product of the three sides of the triangle is 1024 units

Formula used:

R = abc/4A

Where R is the Circum radius and abc are the three sides and A is the area of the triangle.

Area of circle = πr^2

Calculation:

Area of circle = πR^2

$16\pi = \pi R2$

R = 4

$(abc)^2 = 1024$

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(abc) = 32
Using
R = abc/4A
4 = 32/4A
A = 2
Therefore Option 3 is the correct answer.

Q65. Answer: (a) 2430

Formula used:
Sum = (n/2)(first term + last term)
Calculation:
The first 2 digit number is 10 and the last two-digit number is 98.
Sum = (n/2)(first term + last term)
Number of terms = (98 - 10)/2 + 1
45
Now, we can find the sum:
Sum = (45/2)(10 + 98)
Sum = 45(54)
Sum = 2430
Therefore, the sum of all two-digit even numbers is 2430.

Q66. Answer: (a) 4

Given:
Expression = $((a+b)^2-(a-b)^2)/ab$
Formula used:
$(a + b)^2 - (a - b)^2 = 4ab$
Calculation:
=> 4ab/ab
=> 4
Therefore The correct answer is option (1).

Q67. Answer: (b) 34 cm

Given:
Length of a chord is 30 cm
Chord is 8 cm away from the centre of the circle
Calculation:
Let AB be the chord and O be the center of the circle.
Also, OP is perpendicular to AB
In Δ OPB,
OB2 = PB2 + OP2
OB2 = 152 + 82
OB2 = 225 + 64
OB2 = 289
OB = √289
OB = 17
Diameter = 2 × OB = 2 × 17 = 34
Therefore The diameter of the circle is 34 cm.

Q68. Answer: (b) 40%

Calculation:
Total marks scored in History in 2016 = 40%
Total marks of Civics for both years = 40 + 60 = 100%
Percentage of total marks scored in History for 2016 to the total marks of Civics for both years = 40/100 × 100 = 40%

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Therefore Option 2 is the correct answer.

Q69. Answer: (c) 60 cm

Given:

ΔPQR is similar to ΔUVW

Perimeter ΔPQR and ΔUVW are 120 cm and 240 cm respectively

PQ = 30 cm

Concept Used:

In the similarity of triangles ratios of respective sides of triangles are the equal perimeter of the triangles.

Calculation:

Using the concept

=> (perimeter of ΔPQR)/(perimeter of ΔUVW) = PQ/UV

=> 120/240 = 30/UV

=> 1/2 = 30/UV

UV = 60

Therefore Option 3 is the correct answer.

Q70. Answer: (c) 1/3

Given:

Rahul's time to complete the work alone = 10 days

Sonu's time to complete the work alone = 15 days

Number of days they work together = 4 days

Formula used:

Work done = (Work rate) × (Time)

Rahul's work rate per day = 1/10 (as he completes the work in 10 days)

Sonu's work rate per day = 1/15 (as he completes the work in 15 days)

Combined work rate per day = 1/10 + 1/15 = 3/30 + 2/30 = 5/30 = 1/6

Now, let's calculate the work done by Rahul and Sonu together in 4 days:

Work done in 4 days = (Combined work rate per day) × (Number of days they work together)

Work done in 4 days = (1/6) × 4 = 4/6 = 2/3

This means that they have completed 2/3 of the total work in 4 days.

To find the remaining part of the total work, we subtract the work done from the total work:

Remaining work = 1 - 2/3 = 1/3

Therefore, the remaining part of the total work is 1/3.

Q71. Answer: (a) 33.33%

Shortcut Trick

New SP = 120% of CP (since profit is 20%).

New SP = 9/10 of Usual SP => Usual SP = 10/9 × New SP.

Usual SP = 10/9 × 120% of CP = 400/3% of CP.

Usual SP = 133.33% of CP.

Therefore Profit % at usual price = 133.33% − 100% = 33.33%.

Therefore The correct answer is 33.33%.

Alternate Method

Given: New SP = 9/10 × Usual SP; Profit at New SP = 20%.

Formula: Selling Price (SP) = CP × (100 + Profit%)/100

=> Let the Usual Selling Price = 100 units.

=> New Selling Price = 9/10 × 100 = 90 units.

=> Since profit at New SP is 20%, SP = 1.2 × CP.

=> 90 = 1.2 × CP

=> CP = 90 ÷ 1.2 = 75 units.

=> Profit at Usual SP = Usual SP − CP = 100 − 75 = 25 units.

=> Profit % = (Profit ÷ CP) × 100

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=> Profit % = (25 ÷ 75) × 100 = 1/3 × 100 = 33.33%.

Therefore The correct answer is 33.33%.

Additional Information

Profit and Loss Percentage

Profit % is always calculated on the Cost Price (CP) unless stated otherwise. Formula: [(SP − CP) ÷ CP] × 100.

Marked Price and Discount

Selling Price (SP) = Marked Price − Discount. Successive discounts follow the formula: a + b − (ab/100).

Relation between CP and MP

The ratio CP : MP = (100 − Discount%) : (100 + Profit%).

Q72. Answer: (c) 6 cm

Shortcut Trick

Equate total volumes: $24 \times (2/3) \times r^3 = R^2 \times H$ (π cancels on both sides).

$16 \times r^3 = 12 \times 12 \times 24$

$r^3 = 144 \times (24 \div 16) = 144 \times 1.5$

$r^3 = 216$ => r = 6 cm.

Therefore The correct answer is 6 cm.

Alternate Method

Given:

Number of solid hemispheres (n) = 24

Radius of cylinder (R) = 12 cm

Height of cylinder (H) = 24 cm

Formula Used:

Volume of Hemisphere = $(2/3) \times \pi \times r^3$

Volume of Cylinder = $\pi \times R^2 \times H$

Calculations:

=> Total volume of hemispheres = Volume of cylinder

=> $24 \times (2/3) \times \pi \times r^3 = \pi \times R^2 \times H$

=> $16 \times \pi \times r^3 = \pi \times 12^2 \times 24$

=> $16 \times r^3 = 144 \times 24$

=> $r^3 = (144 \times 24) \div 16$

=> $r^3 = 144 \times 1.5$

=> $r^3 = 216$

=> $r = \sqrt[3]{216} = 6$ cm

Therefore The correct answer is 6 cm.

Additional Information

Volume of Sphere

The volume of a complete solid sphere is given by $V = (4/3) \times \pi \times r^3$.

Surface Area of Hemisphere

The Curved Surface Area (CSA) is $2\pi r^2$ and the Total Surface Area (TSA) is $3\pi r^2$.

Volume Conservation Rule

When one solid is melted and recast into another shape, the total volume remains constant, assuming no material loss.

Cylinder Surface Area

The CSA of a cylinder is $2\pi RH$ and its TSA is $2\pi R(R + H)$.

Q73. Answer: (a) 29

Given

117 ÷ 45 of (1/5) + (12/5) × (20/3)

Concept used:

Calculation:

117 ÷ 45 of (1/5) + (12/5) × (20/3)

=> 117 ÷ 9 + 4 × 4

=> 13 + 16

=>29

Therefore Option 1 is the correct answer.

Q74. Answer: (b) Only I

Calculation:

Statement I:

The combined cost price of J and K = 650 + 550 = 1200

The combined profit of L and M = 250 + 350 = 600

The combined cost price of J and K is more than the combined profit of L and M by (1200 - 600) = 600, which is 100 percent of the combined profit of L and M.

Statement I is true.

Statement II:

Combined profit of N and P = 200 + 300 = 500

Combined cost price of K and M = 550 + 450 = 1000

Ratio = 500 : 1000 = 1 : 2

Statement II is wrong.

Therefore Option 2 is the correct answer.

Q75. Answer: (a) 1

Given:

$[(0.91)^3 + (0.09)^3] \div [(0.91)^2 - 0.0819 + (0.09)^2]$

Formula used:

$a^3 + b^3 = (a + b)(a^2 - ab + b^2)$

Calculation:

$[(0.91)^3 + (0.09)^3] \div [(0.91)^2 - 0.0819 + (0.09)^2]$

Using the formula,

$=> [\{(0.91 + 0.09)\} \{(0.91)^2 - 0.91 \times 0.09 + (0.09)^2\}] \div [(0.91)2 - 0.0819 + (0.09)2]$

$=> (0.91) + (0.09) = 1$

Therefore Option 1 is the correct answer.

Q76. Answer: (c) pickle

The correct answer is 'Option 3' i.e. 'Pickle'.

Key Points

• The word "pickle" in this context is used metaphorically to mean a difficult or unfavorable situation or predicament.

• When someone says they always end up in the same pickle, they mean they consistently find themselves in a challenging or undesirable circumstance, regardless of their efforts.

Therefore, the correct sentence is: No matter how many times I try, I always end up in the same pickle.

Additional Information

Account: In this context, "account" refers to a financial record or narrative of events.

Meal: In this context, "meal" refers to a prepared or cooked food.

Sauce: In this context, "sauce" refers to a liquid or semi-liquid condiment or accompaniment to food.

Q77. Answer: (c) the biggest landslide in history.

The correct answer is 'Option 3'.

Key Points

• The error is in the part "the biggest landslide in history".

• There should be plural form of landslide that is landslides. It should be "one of the biggest landslides" instead of "the biggest landslide."

• This is because when referring to one of a group or category, we use the indefinite article "a" or "an" rather than the definite article "the."

Therefore, the correct sentence is: "The presidential election turned out to be one of the biggest landslides in history.'

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Q78. Answer: (a) COURAGEOUS

The solution is in Hindi. Read it online.

Q79. Answer: (d) Crypt

The solution is in Hindi. Read it online.

Q80. Answer: (c) That's one of the strongest swear words

The correct answer is 'Option 3'.

Key Points

• Option 3 correctly substitutes the bracketed segment and completes the sentence meaningfully.

• The original sentence already uses the correct wording to convey that the swear word being referred to is among the strongest swear words in Spanish.

• The phrase "one of the strongest swear words" is grammatically accurate and maintains the intended meaning.

Therefore, the correct sentence is: 'That's one of the strongest swear words in spanish.'

Q81. Answer: (b) Shubham said, “My father is playing cricket with me.”

The correct answer is 'Option 2'.

Key Points

• The original sentence states that Shubham said that his father "was" playing cricket with him.

• When we convert direct speech to indirect speech, we generally need to shift the verb tense back one step.

• However, in this case, option 2 maintains the present tense of the verb "is" because it accurately reflects the original sentence's meaning.

Therefore, the correct sentence is: 'Shubham said, “My father is playing cricket with me.”

Additional Information

• Option 1) "Shubham said, 'My father was playing cricket with me.'" changes the verb tense to past tense ("was playing"), which does not align with the reported speech. The original sentence indicates that the father is currently playing cricket, so the present tense should be maintained.

• Option 3) "Shubham said, 'My father played cricket with me.'" changes the verb tense to past tense ("played"), which again does not accurately convey the present ongoing action of the father playing cricket.

• Option 4) "Shubham said, 'My father had played cricket with me.'" uses the past perfect tense ("had played"), which suggests an action completed before a past point of reference. However, there is no specific past point of reference mentioned in the original sentence, so the past perfect tense is not necessary.

Q82. Answer: (c) Dissiminate

The solution is in Hindi. Read it online.

Q83. Answer: (d) Anthropology

The solution is in Hindi. Read it online.

Q84. Answer: (b) travel lightly

The correct answer is 'option 2' i.e. "travel lightly."

Key Points

• The sentence "I try to travelling lightly, packing only the bare essentials" contains an error in the verb form.

• The verb "try" should be followed by the base form of the verb, which is "travel."

Therefore, the correct sentence is: I try to travel lightly, packing only the bare essentials.

Additional Information

• "travelled light" is incorrect because it changes the present tense to past tense, which does not align with the overall context of the sentence.

• "travels lightly" is incorrect because it changes the first-person singular form "I try" to the third-person singular form "he/she/it travels," resulting in a mismatch between the subject and verb.

Q85. Answer: (d) RPQS

The correct answer is 'Option 4' i.e. 'RPQS'.

Key Points

• The correct order of the jumbled sentences is option 4) RPQS.

• R. On May 10 the German blitzkrieg attack on the Netherlands began with the capture by parachutists of key bridges deep within the country, with the aim of opening the way for mobile ground forces.

• P. The Dutch defenders fell back westward, and by noon on May 12 German tanks were on the outskirts of Rotterdam.

• Q. Queen Wilhelmina and her government left the country for England on May 13, and the next day the Dutch army surrendered to the Germans.

• S. The invasion of Belgium also began on May 10, when German airborne troops landed on the fortress of Eben Emael, immediately opposite Maastricht, and on bridges over the Albert Canal.

Therefore, the correct answer is: 'RPQS'.

Q86. Answer: (d) store

The correct answer is option 4) i.e. 'store'.

Key Points

• The sentence states that AWS (Amazon Web Services) offers various storage services that can "store" data for your website.

• "Store" is the appropriate verb in this context, as it means to keep or hold something in a particular place or container.

• In the context of AWS storage services, they provide options for storing data in different ways, such as object storage, block storage, and file storage.

Therefore, the correct sentence is: AWS offers various storage services that can store data for your website.

Additional Information

• Let's explain why the other options are incorrect:

• "Stack" means to arrange objects in a neat and orderly pile or stack. While AWS storage services may use underlying technologies that involve stacking physical devices, the verb "stack" does not convey the intended meaning of storing data for a website.

• "Pour" means to cause a liquid or other substance to flow rapidly and in large quantities. It does not match the context of storing data for a website, which involves organizing and saving digital information rather than pouring a substance.

• "Barge" means to intrude or push one's way forcefully. It does not relate to the concept of storing data and is not appropriate in this context.

Q87. Answer: (a) Obfuscate

The solution is in Hindi. Read it online.

Q88. Answer: (c) Fortuous

The solution is in Hindi. Read it online.

Q89. Answer: (d) happening

The correct answer is 'Option 4' i.e. 'Happening'.

Key Points

The most suitable word to fill in the blank is option 4) "happening."

The sentence describes a moment of panic that is currently occurring, as indicated by the phrase "A haze of panic blurred my vision."

Therefore, using the present participle form of the verb, "happening," correctly reflects the ongoing and immediate nature of the situation.

Therefore, the correct sentence is: A haze of panic blurred my vision; something terrible was close to happening.

Additional Information

Options 1) "happens" and 2) "happened" use verb forms that indicate a general or past event, which does not align with the sense of urgency and immediacy described in the sentence.

Option 3) "has happened" uses the present perfect tense, indicating that something terrible has occurred in the past but may not necessarily have a direct connection to the current situation described in the sentence.

Q90. Answer: (b) a widely remit and a wise legacy.

The correct answer is 'Option 2' i.e. 'A widely remit and a wise legacy'.

Key Points

The part of the sentence that has an error is option 2) "a widely remit and a wise legacy."

The correct phrase should be "a wide remit" instead of "a widely remit."

"Remit" refers to the range or scope of authority or responsibility that an institution has.

The adjective "wide" is used to describe the noun "remit."

Therefore, the correct phrase should be "a wide remit."

Therefore, the correct sentence is: A key institution is the judiciary, especially the Supreme Court, with a wide remit and a wise legacy.

Q91. Answer: (b) A policy of not allowing any violations of a rule or law

The solution is in Hindi. Read it online.

Q92. Answer: (d) To reduce differences and reconcile

The solution is in Hindi. Read it online.

Q93. Answer: (a) QRSP

The correct answer is 'Option 1'.

Key Points

• The correct order creates a coherent and logical flow of information.

• Q) "Use the data to get a better understanding of health-promoting compounds of interest" provides the purpose or objective of the team's plan.

• R) "Employ biotechnological approaches" follows as the next step, indicating the method or strategy the team intends to use.

• S) "That could speed up flowering and fruit production in apple trees" provides the specific outcome or result that the team aims to achieve.

• P) Finally, "flowering and fruit production in apple trees" specifies the target area or focus of the team's efforts.

• Therefore, the correct answer is: 'QRSP'.

Q94. Answer: (a) Brazen

The solution is in Hindi. Read it online.

Q95. Answer: (b) The stag was being trailed by the tigress.

The correct answer is 'Option 2'.

Key Points

• Option 2) "The stag was being trailed by the tigress" is the correct passive form.

• It correctly uses the past progressive form of the verb "be" (was being) followed by the past participle form of the verb "trail" (trailed).

• This form conveys that the stag was in the process of being trailed by the tigress.

• Therefore, the correct answer is: 'The stag was being trailed by the tigress.'

Q96. Answer: (c) invented

The correct answer is 'Option 3' i.e. 'Invented'.

Key Points

The sentence talks about the origin of the modern pizza, stating that it was originally invented in Naples, Italy.

This implies that the pizza was created or brought into existence in Naples.

The word "invented" accurately conveys this meaning.

Therefore, the correct sentence is: The modern pizza was originally invented in Naples,

Additional Information

Option 1) "assumed" means to take on or adopt something, but it doesn't fit the context of the sentence, which is discussing the origin of pizza.

Option 2) "pervaded" means to spread throughout or be present in every part of something. While it may describe the widespread popularity of pizza, it doesn't fit the context of its origin.

Option 4) "arcaded" refers to having arches or being related to an arcade, and it does not make sense in the context of the sentence.

Q97. Answer: (c) origin

The correct answer is 'Option 3' i.e. 'Origin'.

Key Points

The sentence states that the word "pizza" is Greek in origin, derived from the Greek word "pēktos" meaning solid or clotted.

This suggests that the word "pizza" has its roots or comes from the Greek language.

Therefore, "origin" is the correct word to use in this context.

Therefore, the correct sentence is: Italy but the word pizza is Greek in origin, derived from the Greek word pēktos meaning solid or clotted.

Additional Information

Option 1) "align" means to bring into line or to adjust or arrange things in a straight line. It does not fit the context of the sentence, which is discussing the origin of the word "pizza."

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Option 2) "bulletin" refers to a brief official statement or announcement. It does not relate to the origin of the word "pizza" and is not appropriate in this context.

Option 4) "villain" refers to a wicked or evil person. It is unrelated to the origin of the word "pizza" and is not suitable in this context.

Q98. Answer: (b) Greeks

The correct answer is 'Option 2' i.e. 'Greeks'.

Key Points

• The sentence mentions that the ancient group of people who covered their bread with oils, herbs, and cheese contributed to the development of pizza.

• This Greek influence in the ancient Mediterranean region played a role in the early development of what would eventually become pizza.

• Therefore, the correct sentence is: The ancient greeks covered their bread with oils, herbs and cheese.

Additional Information

Option 1) Romans also had their version of flatbread, but in this particular context, it is the Greeks who are associated with this practice.

Option 3) Spaniards do not have a historical connection to the ancient development of pizza.

Option 4) Indians are not associated with the early development of pizza as it originated in the Mediterranean region.

Q99. Answer: (a) innovation

The correct answer is 'Option 1' i.e. 'innovation'.

Key Points

• The sentence states that the first major event or development that led to flatbread pizza was the use of tomato as a topping.

• The word "innovation" accurately captures this idea.

• The introduction of tomato as a topping was a significant change or innovation in the history of pizza, transforming it into the popular dish we know today.

• Therefore, the correct sentence is: The first major innovation that led to flat bread pizza was the use of tomato as a topping.

Additional Information

Option 2) "aggravation" means making something worse or more severe, which does not fit the context of the sentence. The use of tomato as a topping for pizza was a positive change, not an aggravation.

Option 3) "cultivation" refers to the act of preparing or growing plants or crops, which is not directly related to the development of pizza as a dish.

Option 4) "observation" means watching or studying something closely, which does not align with the context of pizza's history.

Q100. Answer: (a) tomato

The correct answer is 'Option 1' i.e. 'Tomato'.

Key Points

• The sentence mentions that it was common for the poor of the area around Naples to add something to their yeast-based flatbread, which led to the beginning of pizza.

• The word "tomato" is the correct answer because it was the ingredient that was commonly added to the flatbread.

• The use of tomato as a topping on pizza is a key factor in its evolution and has become an integral part of traditional pizza recipes.

• Therefore, the correct sentence is: It was common for the poor of the area around Naples to add tomato to their yeast-based flat bread, and so the pizza began.

Additional Information

Option 2) "potato" is not historically associated with the early development of pizza. While potatoes have their culinary uses, they are not typically used as a topping for traditional pizza.

Option 3) "onion" is also not the ingredient commonly added to the flatbread in the context of pizza's origin.

Option 4) "herb" is a more general term and does not specifically refer to the significant ingredient that led to the evolution of pizza.

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