



Your Personal Exams Guide



NDA



CDS



SSC CGL



CBSE UGC NET



IAS



SSC CHSL



CTET



MPSC



AFCAT



CSIR UDC NET



IBPS PO



UP POLICE



SSC MTS



SBI PO



BPSC



UP TET



IBPS RRB



IBPS CLERK



IES



UPSC CAPF



SSC Stenogr..



RRB NTPC



SSC GD



RBI GRADE B



RBI Assistant



DSSSB

SSC CHSL 2022 (Tier-I) Previous Year Paper (10-Mar-2023) (Shift 1)

Total Time: 1 Hour

Total Marks: 200

Instructions

Sl No.	Section Name	No. of Question	Maximum Marks
1	General Intelligence and Reasoning	25	50
2	General Awareness	25	50
3	Quantitative Aptitude	25	50
4	English Comprehension	25	50

- 1.) A total of 60 minutes is allotted for the examination.
- 2.) The server will set your clock for you. In the top right corner of your screen, a countdown timer will display the remaining time for you to complete the exam. Once the timer reaches zero, the examination will end automatically. The paper need not be submitted when your timer reaches zero.
- 3.) There will, however, be sectional timing for this exam. You will have to complete each section within the specified time limit. Before moving on to the next section, you must complete the current one within the time limits.

General Intelligence and Reasoning

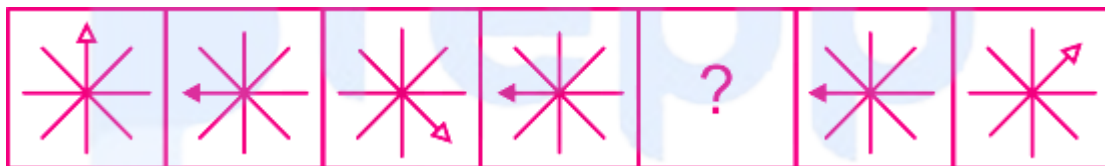
1. In a certain code language, 'INCH' is coded as 'CXID'. What is the code for 'HUGE' in that code language? (+2, -0.5)

- a. ZBPD
- b. ZBPC
- c. ZBQC
- d. ZCPC

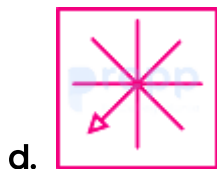
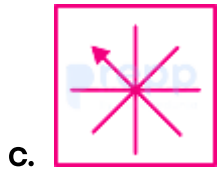
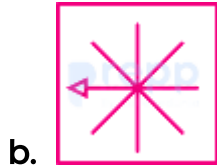
2. If $34\ C\ 59\ D\ 16 = -9$ and $61\ C\ 32\ D\ 14 = 43$, then $58\ C\ 7\ D\ 11 = ?$ (+2, -0.5)

- a. 62
- b. 64
- c. 63
- d. 59

3. Select the figure from the given options that can replace the question mark (?) in the following series. (+2, -0.5)



- a.



4. In the following question, select the odd word pair from the given alternatives. (+2, -0.5)

- a. Rodent – Lizard
- b. Amphibian – Frog
- c. Insect – Butterfly
- d. Crockery – Cup

5. In the following question, select the missing number from the given series. (+2, -0.5)

99986, 99996, 100096, 101096, ?

- a. 111096
- b. 100096
- c. 1110096

d. 110096

-
6. Select the option in which the numbers share 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) (+2, -0.5)

(32, 39, 46)

(54, 51, 48)

a. (48, 30, 12)

b. (72, 44, 36)

c. (85, 45, 24)

d. (64, 43, 17)

-
7. W is the brother of X. V is the father of W. X is the husband of Z. Z is the sister of A. Who is the father in law of Z? (+2, -0.5)

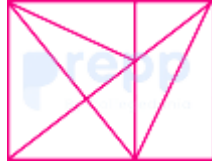
a. W

b. A

c. X

d. V

-
8. How many triangles are there in the given figure? (+2, -0.5)



- a. 22
- b. 19
- c. 20
- d. 21

9. Select the option that is related to the fifth word in the same way as the second word is related to the first word and the fourth word is related to the third word. (+2, -0.5)

Truck : Vehicle :: Burger : Food :: Cup : ?

- a. Crockery
- b. Furniture
- c. Electronics
- d. Grocery

10. In the following question below are given some statements followed by some conclusions based on those statements. Taking the given statements to be true even if they seem to be at variance from commonly known facts. Read all the conclusions and then decide which of the given conclusion logically follows the given statements. (+2, -0.5)

Statements:

I. No E is F.

II. All F are D.

Conclusions:

I. No E is D.

II. Some D are F.

III. No F is E.

- a. Both conclusions II and III follows
- b. Both conclusions I and II follows
- c. Both conclusions I and III follows
- d. All conclusion follows

11. In the following question, select the related letters from the given alternatives. (+2, -0.5)

NK : JG :: SF : ?

- a. BU
- b. OB
- c. UA
- d. AS

12. 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)

(17, 12, 10)

(25, 23, 4)

a. (9, 19, 15)

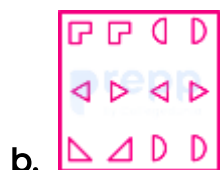
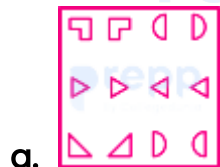
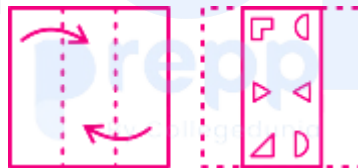
b. (31, 27, 8)

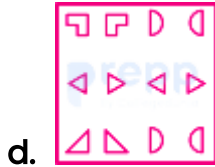
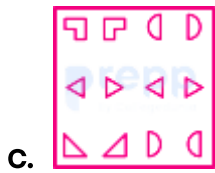
c. (28, 42, 12)

d. (18, 17, 3)

13. A piece of paper is folded and punched as shown below in the question figures. From the given answer figures, indicate how it will appear when opened?

(+2, -0.5)





14. 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. (+2, -0.5)

Odometer : Distance Travelled by a Vehicle :: Barometer : ?

- a. Distance
- b. Atmospheric pressure
- c. Length
- d. Temperature

15. In the following question, select the odd letter/letters from the given alternatives. (+2, -0.5)

- a. PLH
- b. KGC
- c. ZVR
- d. TPK

16. Select the option in which the numbers shares the same relationship in set (+2, -0.5) 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)

(136, 48, 184)

(189, 37, 226)

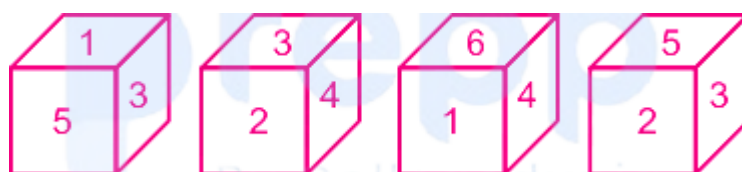
a. (211, 17, 238)

b. (116, 62, 178)

c. (148, 84, 222)

d. (203, 69, 262)

17. Four different positions of the same dice are shown, the six faces of which are numbered from 1 to 6. Select the number that will be on the face opposite to the one having '1'. (+2, -0.5)



a. 6

b. 5

c. 4

d. 2

18. In a certain code language, 'BR-EW' is coded as '8', 'CA-LF' is coded as '14'. (+2, -0.5)
What is the code for 'DA-WN' in that code language?

- a. 30
- b. 32
- c. 34
- d. 36

19. Select the option that is related to the fourth number in the same way as (+2, -0.5)
the first number is related to the second number and the fifth number is
related to the sixth number.

123 : 492 :: ? : 312 :: 32 : 128

- a. 68
- b. 78
- c. 48
- d. 98

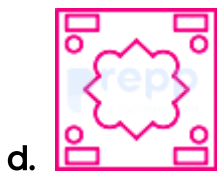
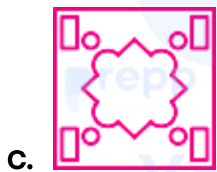
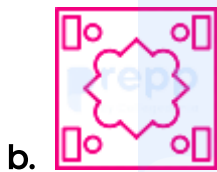
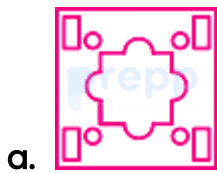
20. A series is given with one term missing. Select the correct alternative from (+2, -0.5)
the given ones that will complete the series.

DMQ, HUZ, LCI, PKR, ?

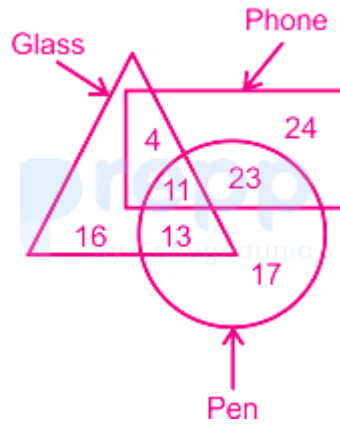
- a. TSA
- b. TSB
- c. TMO

d. TRA

21. A piece of paper is folded and punched as shown below in the question figures. From the given answer figures, indicate how it will appear when opened? (+2, -0.5)



22. How many glass are both phone and pen? (+2, -0.5)



- a. 24
- b. 15
- c. 11
- d. 13

23. By Interchanging the given two numbers (Not digits) which of the following equation will be not correct? (+2, -0.5)

3 and 8

I. $6 \div 2 \times 8 + 3 - 1 = 17$

II. $9 + 3 - 6 \div 2 \times 8 = 6$

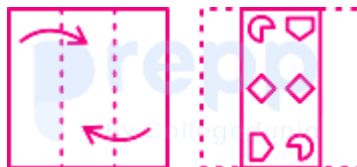
- a. Both I and II
- b. Neither I nor II
- c. Only I
- d. Only II

24. Arrange the given words in the sequence in which they occur in the dictionary. (+2, -0.5)

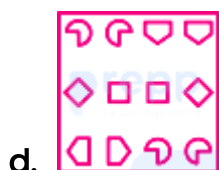
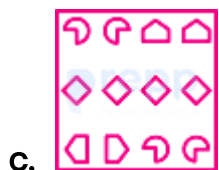
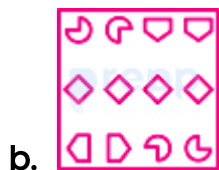
1. Mayor
2. Maybe
3. May
4. Mayst
5. Mayfly

- a. 3, 2, 1, 5, 4
- b. 3, 2, 4, 5, 1
- c. 3, 2, 1, 4, 5
- d. 3, 2, 5, 1, 4

25. A piece of paper is folded and punched as shown below in the question figures. From the given answer figures, indicate how it will appear when opened? (+2, -0.5)



- a.



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Your Personal Exams Guide

General Awareness

26. Kathak is the principal dance of which part of India? (+2, -0.5)

- a. Northern India
- b. Southern India
- c. North-Eastern India
- d. Eastern India

27. Who received the Vyas Samman for the novel "Patliputru Ki Samragi"? (+2, -0.5)

- a. Prof. Sharad Pagare
- b. Vishwanath Tripathi
- c. Surendra Verma
- d. Dr. Sunita Jain

28. Which of the following is not an asexual form of reproduction in plants? (+2, -0.5)

- a. Vegetative propagation
- b. Spore formation
- c. Pollination
- d. Budding

29. The first cotton textile mill in Ahmedabad was started in which year? (+2, -0.5)

- a. 1854
- b. 1851
- c. 1861
- d. 1867

30. Which of the following do/does NOT come under Union list of seventh schedule of the Indian constitution? (+2, -0.5)

- a. Post and telegraphs
- b. Banking
- c. Intoxicating liquors
- d. Audit of the accounts of the states

31. What is the colour of the outer zone of the complete combustion of a candle flame? (+2, -0.5)

- a. Blue
- b. Yellow
- c. Black
- d. Orange

32. Jabalpur is located on the banks of which of the following rivers? (+2, -0.5)

- a. Godavari

- b. Chambal
 - c. Narmada
 - d. Ganga
-

33. Which of the following constellation is also called the hunter? (+2, -0.5)

- a. Cassiopeia
 - b. Orion
 - c. Ursa Major
 - d. Leo Major
-

34. Which of the following teams did NOT qualify for the playoffs of the 15th edition of Indian Premier League? (+2, -0.5)

- a. Mumbai Indians
 - b. Royal Challengers Bangalore
 - c. Gujarat Titans
 - d. Rajasthan Royals
-

35. "Skilling of girls in non-traditional livelihood (NTL)" has been included in which flagship scheme? (+2, -0.5)

- a. Beti Bachao Beti Pado
- b. POSHAN Abhiyaan

- c. Pradhan Mantri Matru Vandana Yojana
 - d. Rashtriya Mahila Kosh
-

36. The Union Ministry of Home Affairs in 2022 banned the Popular Front of India (PFI) and its associates for _____ years. (+2, -0.5)

- a. five
 - b. seven
 - c. two
 - d. four
-

37. _____ won the (FIBA) Women's Basketball World Cup 2022. (+2, -0.5)

- a. United States of America
 - b. India
 - c. Japan
 - d. China
-

38. Who is the implementing agency of "Ayushman Bharat Digital Mission (ABDM)" ? (+2, -0.5)

- a. NHA
- b. AIIMS
- c. IMA

d. NITI Aayog

39. What is the full form of URL? (+2, -0.5)

- a. Uniform Resource Language
 - b. Union Resource Language
 - c. Union Resource Locator
 - d. Uniform Resource Locator
-

40. Which of the following shortcut key is used to move the cursor one word to the left in MS-Word 365? (+2, -0.5)

- a. Ctrl + Left arrow key
 - b. Shift + Left arrow key
 - c. Shift + PageUp
 - d. Ctrl + PageUp
-

41. Which of the following was the capital of Pandyas? (+2, -0.5)

- a. Madurai
 - b. Puhar
 - c. Aihole
 - d. Kaveripattinam
-

42. Mohiniyattam belongs to _____ in India, takes its name from the celestial enchantress Mohini. (+2, -0.5)

- a. Kerala
 - b. Madhya Pradesh
 - c. Maharashtra
 - d. Odissa
-

43. Which of the following is NOT correct regarding the Pacific Ocean? (+2, -0.5)

- a. Asia, Australia, North and South Americas surround it
 - b. The Pacific Ocean is perfectly oval in shape.
 - c. The Pacific Ocean is the largest ocean.
 - d. Mariana Trench, the deepest part of the earth, lies in the Pacific Ocean.
-

44. Which of the following is a rare species as per International Union for Conservation of Nature (IUCN)? (+2, -0.5)

- a. Gangetic dolphin
 - b. Blue sheep
 - c. Asiatic buffalo
 - d. Lion tailed macaque
-

45. Provisions as to disqualification on ground of defection are mentioned under which schedule of the Indian constitution? (+2, -0.5)

- a. 12th schedule
- b. 9th schedule
- c. 11th schedule
- d. 10th schedule

46. Who has been elected as new Prime Minister of Pakistan in April 2022? (+2, -0.5)

- a. Abbas Sharif
- b. Imran Khan
- c. Shehbaz Sharif
- d. Nawaz Sharif

47. Which of the following indicates the correct limit of marginal propensity to consume (MPC) ? (+2, -0.5)

- a. $0 < MPC < \infty$
- b. $0 < MPC < 1$
- c. $-1 < MPC < 1$
- d. $-1 < MPC < 0$

48. Which of the following is an exogenic force? (+2, -0.5)

- a. Landslides
 - b. Earthquake
 - c. Wind
 - d. Volcano
-

49. How many total medals did Haryana win in the fourth edition of Khelo India Youth Games? (+2, -0.5)

- a. 101
 - b. 115
 - c. 123
 - d. 137
-

50. According to the law of demand, the consumer's demand for a good must be ----- (+2, -0.5)

- a. inversely related to the price of the good
- b. directly related to the supply of the good
- c. directly related to the price of the good
- d. inversely related to the supply of the good

Quantitative Aptitude

51. If $4 \cot A = 5$, then what is the value of $6 \sec A \tan A$? (+2, -0.5)

- a. $\frac{20\sqrt{41}}{24}$
- b. $\frac{25\sqrt{41}}{24}$
- c. $\frac{3}{2}\sqrt{41}$
- d. $\frac{24\sqrt{41}}{25}$

52. The following table shows the expenditure of a family from the year 2020 to 2022. What is the average amount of expenses on interest on loans in this period of time? (+2, -0.5)

Items	Expenditure (in Rs.)		
	Year 2020	Year 2021	Year 2022
Food	9800	76500	70000
Transportation	20000	22000	18000
Fees	100000	115000	120000
Interest on loans	86000	96000	100000

- a. Rs. 96,000
- b. Rs. 94,000
- c. Rs. 90,000
- d. Rs. 1,00,000

53. If $a + b + c = 0$ and $a^2 + b^2 + c^2 = 40$, then what is the value of $4ab + 4bc + 4ca$? (+2, -0.5)

- a. -80
- b. -40
- c. -20
- d. -160

54. If $x = 7$ and $y = 2$ then, what is the value of $\frac{x^3 - y^3}{x^2 - y^2} - \frac{3xy}{x + y}$? (+2, -0.5)

- a. 25/9
- b. 26/9
- c. 21/10
- d. 28/9

55. In a ΔPQR , $PQ = 10$ cm, $QR = 12$ cm and semiperimeter is 17 cm. What is the length of PR ? (+2, -0.5)

- a. 7 cm
- b. 15 cm
- c. 10 cm
- d. 12 cm

56. If $\tan A + \sec A = K$, then what is the value of $\sin A$? (+2, -0.5)

a. $\frac{K^2+1}{K^2-1}$

b. $\frac{2K}{K^2+1}$

c. $\frac{K^2-1}{K^2+1}$

d. $\frac{K^2-1}{2K}$

57. A boat can row 36 km upstream in 9 hours and the same distance downstream in 3 hours. What is the speed of the boat in still water? (+2, -0.5)

a. 8 km/hr

b. 14 km/hr

c. 10 km/hr

d. 6 km/hr

58. How many terms of the series -9, -6, -3, ... must be taken so that the sum of all the terms is 45? (+2, -0.5)

a. 9

b. 11

c. 10

d. 8

59. What is the value of $(a - b)(b + a)(a^2 + b^2)(2b^4 + 2a^4)$? (+2, -0.5)

a. $(a^8 - b^8)/2$

- b. $a^4 - b^4$
- c. $a^8 - b^8$
- d. $2(a^8 - b^8)$

60. Raj alone can complete a work in 20 days and Pratap alone can complete the same work in half of the time taken by Raj. In how many days will both together complete $\frac{3}{5}$ part of the total work? (+2, -0.5)

- a. 6 days
- b. 4 days
- c. 10 days
- d. 8 days

61. A merchant allows a discount of 20 percent on marked price. If he wants to earn a profit of 20 percent, then marked price will be how much percentage more than the cost price? (+2, -0.5)

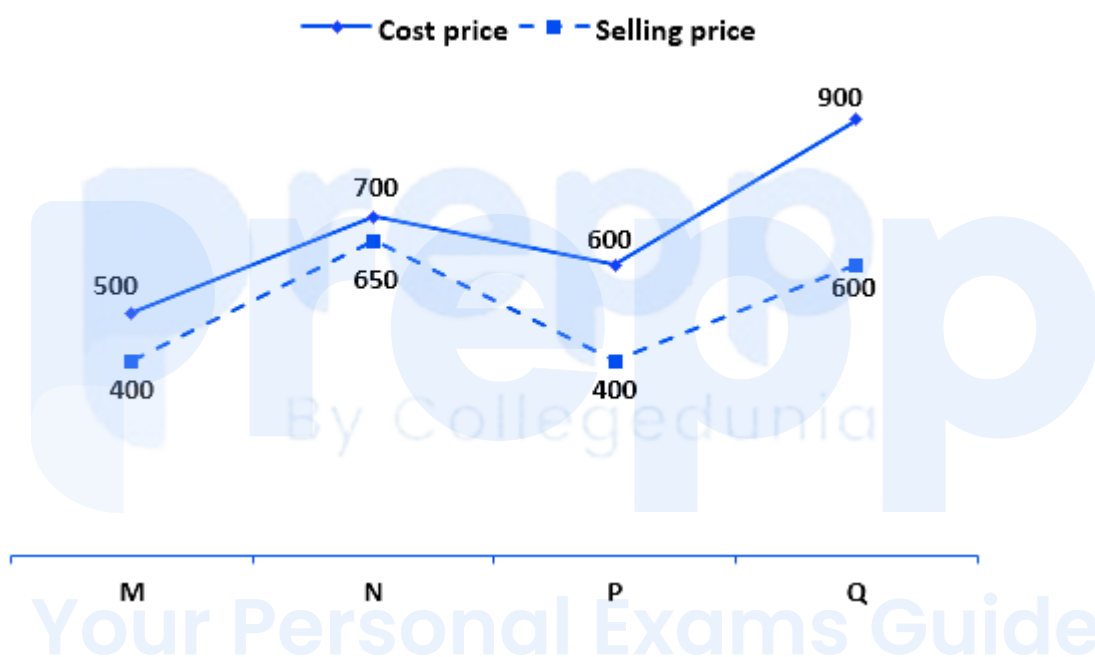
- a. 40 percent
- b. 37.5 percent
- c. 45 percent
- d. 50 percent

62. What is the value of $\frac{\cos(50^\circ + A) - \sin(40^\circ - A)}{\cos 40^\circ \sec 40^\circ}$? (+2, -0.5)

- a. 0.5

- b. 1
- c. 2
- d. 0

63. The line chart given below shows the cost price and selling price of four articles. (+2, -0.5)



What is the ratio of average selling price of M and N to the average cost price of P and Q?

- a. 31 : 18
- b. 10 : 7
- c. 7 : 10
- d. 19 : 29

64. If the radius of sphere is decreased by 10 percent, then volume of sphere will be decreased by what percentage? (+2, -0.5)

- a. 25.6 percent
- b. 30.6 percent
- c. 27.1 percent
- d. 32.5 percent

65. Vijay sells bananas at the rate of Rs. 14 per dozen and earns a profit of 40 percent. The cost price of the bananas increases by 30 percent. If the selling price remains the same, then what is his new profit percent? (+2, -0.5)

- a. 7.69 percent
- b. 9.09 percent
- c. 7.14 percent
- d. 8.33 percent

66. Simple interest and compound interest (Compounding annually) on a principal at a certain rate of interest for 2 years is Rs. 1600 and Rs. 1760 respectively. What is the principle? (+2, -0.5)

- a. Rs. 7000
- b. Rs. 6000
- c. Rs. 4000
- d. Rs. 10000

67. What is the sum of first 200 terms of the given series? (+2, -0.5)

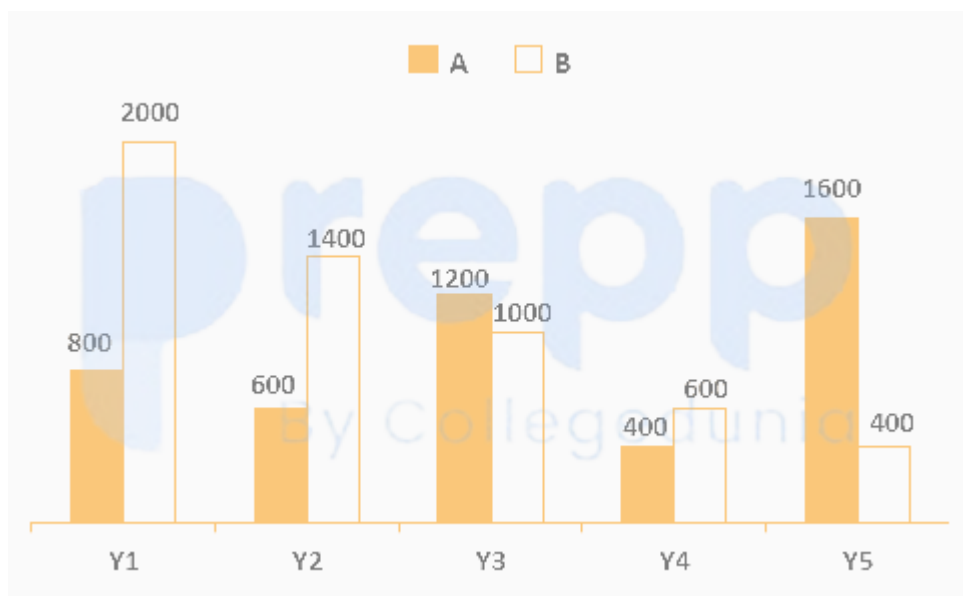
$$1 + 5 + 6 + 10 + 11 + 15 + 16 + 20 + \dots$$

- a. 49400
- b. 48300
- c. 50100
- d. 49600

68. In $\triangle XYZ$, P and Q are the points on sides XY and XZ respectively. PQ is parallel to YZ and $PQ : YZ = 3 : 8$. If $XY = 88$ cm, then what is the length of XP? (+2, -0.5)

- a. 33 cm
- b. 24 cm
- c. 21 cm
- d. 28 cm

69. The bar graph given below shows the expenditure of two companies A and B in different years. (+2, -0.5)



T_1 = The average expenditure of company A and B in year Y1.

T_2 = The average expenditure of company A and B in year Y5.

What is the value of $(T_1 - T_2)$?

- a. 500
- b. 200
- c. 600
- d. 400

70. Two circles intersect each other such that each passes through the centre of other. Radius of these circles are equal. If the length of common chord is $14\sqrt{3}$ cm, then what will be the sum of circumferences of these two circles? (+2, -0.5)

- a. 352 cm
- b. 188 cm

c. 88 cm

d. 176 cm

71. If the ratio of the volumes of two cylinders is $6 : 1$ and the ratio of their heights is $1 : 6$, then what is the ratio of their radii? (+2, -0.5)

a. $6 : 1$

b. $3 : 1$

c. $8 : 1$

d. $9 : 1$

72. In a triangle XYZ, C is circumcentre of this triangle. $\angle Y = 50$ degree and $\angle Z = 70$ degree. What is the value of $\angle YCZ$? (+2, -0.5)

a. 100 degree

b. 150 degree

c. 140 degree

d. 120 degree

73. The expenditure and savings of a person are in ratio of $4 : 3$. His savings increase by $\frac{1}{5}$ of his income and income remains the same. What is the new ratio of his expenditure and savings? (+2, -0.5)

a. $13 : 22$

b. $15 : 13$

c. 12 : 17

d. 14 : 17

e. Question Not Attempted

74. Average of the height of 286 students of a school is 50 unit. If the average of the height of the boys is 53 unit and the average of the height of the girls is 31 unit, then what will be the ratio of the total height of boys and the total height of girls respectively? (+2, -0.5)

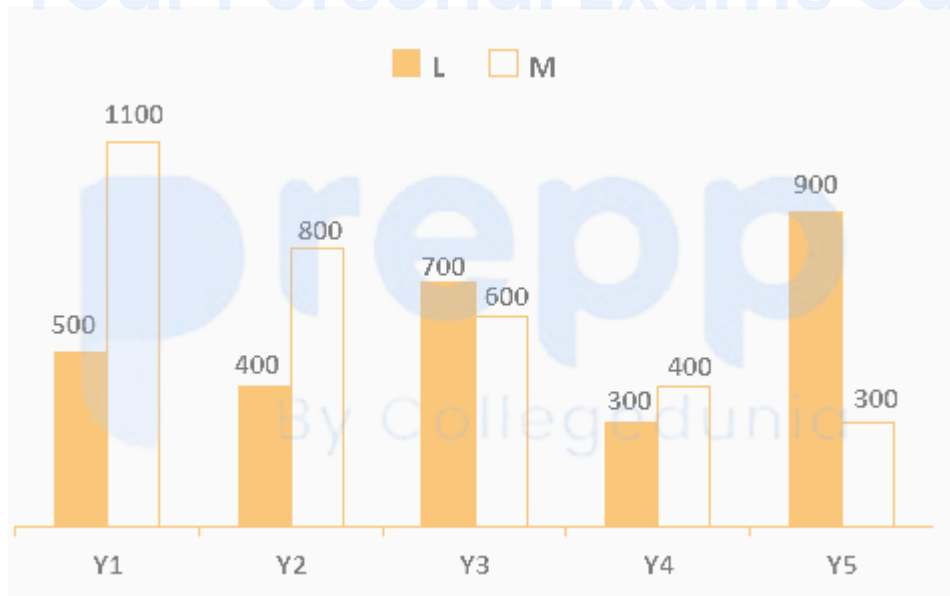
a. 1111 : 62

b. 1004 : 91

c. 530 : 31

d. 1007 : 93

75. The bar graph given below shows the expenditure of two companies L and M in different years. (+2, -0.5)



Which of the following statement is correct?

I. The expenditure of company L in Y2 is 33.33 percent of the expenditure of M in year Y3.

II. The expenditure of company M in year Y5 is 100 percent of the expenditure of L in year Y4.

- a. Both I and II
- b. Neither I nor II
- c. Only I
- d. Only II

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English Comprehension

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

(+2, -0.5)

One may _____ what he only holds in trust; he shares what is his own.

- a. allocate
- b. appropriate
- c. appellate
- d. apply

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

(+2, -0.5)

Celestial

- a. Heavenly
- b. Terrestrial
- c. Divine
- d. Stellar

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

(+2, -0.5)

Objurgation

- a. Hamper
- b. Reproof
- c. Commination

d. Endorsement

79. Improve the underlined part of the sentence. Choose 'No improvement' as an answer if the sentence is grammatically correct. (+2, -0.5)

The snowstorm will effect thousand of travellers.

- a. No improvement
 - b. affect thousands
 - c. affected thousand
 - d. effect thousands
-

80. Find the part of the given sentence that has an error in it. If there is no error, choose 'No error'. (+2, -0.5)

Atmospheric rivers are long, narrow bands of moisture in the atmosphere that extends from the tropics to higher latitudes.

- a. No error
 - b. Atmospheric rivers are long, narrow bands
 - c. tropics to higher latitudes.
 - d. of moisture in the atmosphere that extends from the
-

81. In the following question, out of the given four alternatives, select the alternative which best expresses the meaning of the Idiom/Phrase. (+2, -0.5)

To meet one's water loo

- a. To be badly defeated in a contest
- b. To meet one's look alike
- c. To face the reality
- d. To realize one's mistake

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

(+2, -0.5)

In a recent study,

P. little free time like a single parent nurse caring for

Q. more than one child and working long hours are

R. we showed that people on low incomes with

S. set to lose out most as energy prices rise

a. RPQS

b. PQSR

c. RQSP

d. SPQR

83. Choose the word that can substitute the given group of words.

(+2, -0.5)

One who does not know reading or writing

a. Erudite

b. Scholar

c. Fastidious

d. Illiterate

84. Choose the incorrectly spelt word.

(+2, -0.5)

a. Monstar

b. Transparent

c. Scatter

d. Letter

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

(+2, -0.5)

It turns out that my father isn't alone.

a. isn't alone.

b. that my father

c. No error

d. It turns out

86. Choose the word that means the same as the given word.

(+2, -0.5)

Eagerly

a. Plainly

b. Perfunctorily

c. Neatly

d. Avidly

87. Choose the word that can substitute the given group of words. (+2, -0.5)

A remedy for all ills

- a. Rustic
 - b. Libertine
 - c. Convalescent
 - d. Panacea
-

88. Select the correct passive form of the given sentence. (+2, -0.5)

She forgot the papers in the car.

- a. The papers were forgotten by her in the car.
 - b. The papers are forgotten by her in the car.
 - c. The papers had been forgotten by her in the car.
 - d. The papers was forgotten by her in the car.
-

89. Select the most appropriate 'one word' for the expression given below. (+2, -0.5)

A professional rider in horse race.

- a. Jockey
- b. Autocrat
- c. Cellar

d. Horse Pilot

90. Choose the word that is opposite in meaning to the given word. (+2, -0.5)

Adequate

- a. Taunting
 - b. Wanting
 - c. Indolent
 - d. Superficial
-

91. Choose the sentence with no spelling error. (+2, -0.5)

- a. I do not require any technichal knowledge or expertise.
 - b. I do not require any technical knowledge or expertise.
 - c. I do not require any technical knowlege or expertice.
 - d. I do not requir any technical knowledge or expertice.
-

92. Select the correct indirect form of the given sentence. (+2, -0.5)

The mayor said to the marshals, "Don't conduct any drill tomorrow."

- a. The mayor ordered the marshals not to conduct any drill the previous day.
- b. The mayor ordered the marshals not to conduct any drill tomorrow.
- c. The mayor ordered the marshals not to conduct any drill the next day.

- d. The mayor ordered the marshals not to conducted any drill the next day.

93. In the following question, out of the given four alternatives, select the alternative which best expresses the meaning of the Idiom/Phrase. (+2, -0.5)

To be in two minds

- a. In a dilemma
- b. To be over confident
- c. To be less effective
- d. To migrate

94. Choose the word that can substitute the given group of words. (+2, -0.5)

Containing more words than necessary

- a. Platonic
- b. Laconic
- c. Verbose
- d. Revenant

95. Rearrange the parts of the sentence in correct order. (+2, -0.5)

P. some 81 percent of the reefs in the area had become severely bleached

Q. warm seawater were particularly brutal in the northern part of

R. Australia's famous Great Barrier Reef, where surveys reported that

S. from late 2015 to the middle of 2016, the effects of overly

- a. SQRP
- b. PSQR
- c. QRPS
- d. SPQR

96. In the following passage some of the words have been deleted. Read the passage carefully and select the correct answer for the given blank out of the four alternatives. (+2, -0.5)

The difference between the solar radiation absorbed and the thermal radiation emitted to space (1) _____ radiation budget of the earth. Since there is no appreciable long-term trend in planetary temperature, it may be (2) _____ that this budget is essentially zero on a global long term average. The rate of temperature change in any region is directly (3) _____ to energy budget of the region and inversely proportional to its heat capacity. While the radiation (4) _____ may dominate the average energy budget of many surfaces, nonradiative energy transfer and storage also are (5) _____ important when local changes are considered.

Select the most appropriate option to fill in blank number 1.

- a. placates
- b. duplicates
- c. determines
- d. examines

97. In the following passage some of the words have been deleted. Read the passage carefully and select the correct answer for the given blank out of the four alternatives. (+2, -0.5)

The difference between the solar radiation absorbed and the thermal radiation emitted to space (1) _____ radiation budget of the earth. Since there is no appreciable long-term trend in planetary temperature, it may be (2) _____ that this budget is essentially zero on a global long term average. The rate of temperature change in any region is directly (3) _____ to energy budget of the region and inversely proportional to its heat capacity. While the radiation (4) _____ may dominate the average energy budget of many surfaces, nonradiative energy transfer and storage also are (5) _____ important when local changes are considered.

Select the most appropriate option to fill in blank number 2.

- a. faded
- b. exercised
- c. pleaded
- d. concluded

98. In the following passage some of the words have been deleted. Read the passage carefully and select the correct answer for the given blank out of the four alternatives. (+2, -0.5)

The difference between the solar radiation absorbed and the thermal radiation emitted to space (1) _____ radiation budget of the earth. Since there is no appreciable long-term trend in planetary temperature, it may be (2) _____ that this budget is essentially zero on a global long term average. The rate of temperature change in any region is directly (3) _____ to energy budget of the region and inversely proportional to its

heat capacity. While the radiation (4) _____ may dominate the average energy budget of many surfaces, nonradiative energy transfer and storage also are (5) _____ important when local changes are considered.

Select the most appropriate option to fill in blank number 3.

- a. proportional
- b. symmetrical
- c. twisted
- d. hospitable

99. In the following passage some of the words have been deleted. Read the passage carefully and select the correct answer for the given blank out of the four alternatives. (+2, -0.5)

The difference between the solar radiation absorbed and the thermal radiation emitted to space (1) _____ radiation budget of the earth. Since there is no appreciable long-term trend in planetary temperature, it may be (2) _____ that this budget is essentially zero on a global long term average. The rate of temperature change in any region is directly (3) _____ to energy budget of the region and inversely proportional to its heat capacity. While the radiation (4) _____ may dominate the average energy budget of many surfaces, nonradiative energy transfer and storage also are (5) _____ important when local changes are considered.

Select the most appropriate option to fill in blank number 4.

- a. heat
- b. balance
- c. crescent

d. budget

100. In the following passage some of the words have been deleted. Read the passage carefully and select the correct answer for the given blank out of the four alternatives. (+2, -0.5)

The difference between the solar radiation absorbed and the thermal radiation emitted to space (1) _____ radiation budget of the earth. Since there is no appreciable long-term trend in planetary temperature, it may be (2) _____ that this budget is essentially zero on a global long term average. The rate of temperature change in any region is directly (3) _____ to energy budget of the region and inversely proportional to its heat capacity. While the radiation (4) _____ may dominate the average energy budget of many surfaces, nonradiative energy transfer and storage also are (5) _____ important when local changes are considered.

Select the most appropriate option to fill in blank number 5.

- a. modestly
- b. generally
- c. manually
- d. cynically

Answers

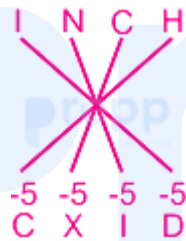
1. Answer: b

Explanation:

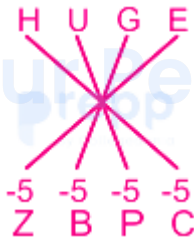
Alphabets	A	B	C	D	E	F	G	H	I	J	K	L	M
Positional value	1	2	3	4	5	6	7	8	9	10	11	12	13
Positional value	26	25	24	23	22	21	20	19	18	17	16	15	14
Alphabets	Z	Y	X	W	V	U	T	S	R	Q	P	O	N

The logic followed here is:

'INCH' is coded as 'CXID',



Similarly, for 'HUGE'



'HUGE' is coded as 'ZBPC'.

Hence, the correct answer is "Option 2".

2. Answer: a

Explanation:

The logic followed here is:

Consider C = Subtraction, D = Addition.

Now,

$$34 \text{ C } 59 \text{ D } 16 = -9$$

$$\Rightarrow 34 - 59 + 16$$

$$\Rightarrow 50 - 59 = -9.$$

$$61 \text{ C } 32 \text{ D } 14 = 43$$

$$\Rightarrow 61 - 32 + 14$$

$$\Rightarrow 75 - 32 = 43.$$

Similarly, $58 \text{ C } 7 \text{ D } 11 = ?$

$$\Rightarrow 58 - 7 + 11$$

$$\Rightarrow 69 - 7 = 62.$$

Hence, the correct answer is "62".

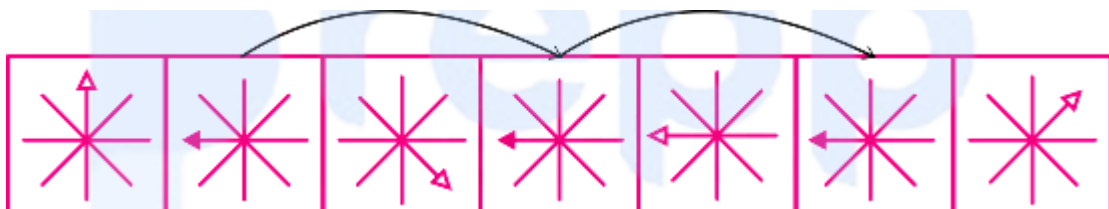
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3. Answer: b

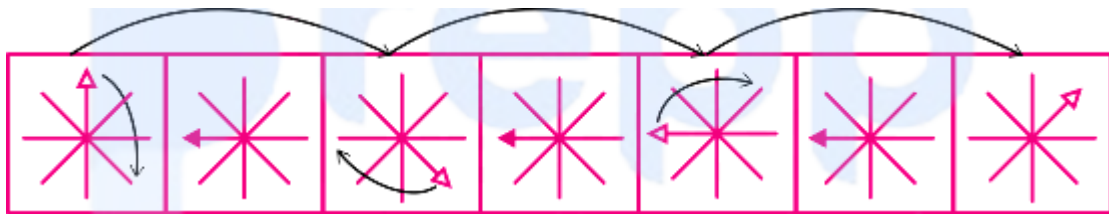
Explanation:

The logic followed here is:

Step I: The shaded triangle is placed as it is in each alternate images.



Step II: The empty triangle is moved three places in clockwise direction in each alternate images.



Hence, the correct answer is **"Option 2"**.

4. Answer: a

Explanation:

The logic followed here is:

Option 1) Rodent – Lizard → "Rodent" is a category of mammals, " Lizard " is a category of reptiles.

Option 2) Amphibian – Frog → "Frog" is a type of Amphibian.

Option 3) Insect – Butterfly → A "butterfly" is an insect.

Option 4) Crockery – Cup → A "cup" is a type of crockery.

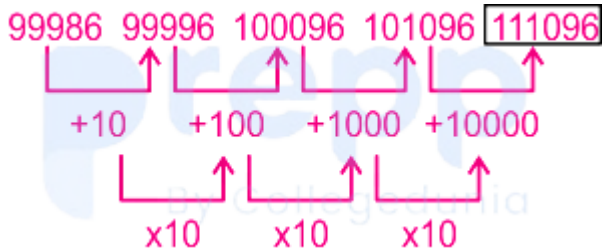
Here, 'Rodent – Lizard' is odd among the options.

Hence, the correct answer is **"Option 1"**.

5. Answer: a

Explanation:

The logic followed here is:



So, '111096' will complete the series.

Hence, the correct answer is "Option 1".

6. Answer: a

Explanation:

The logic followed here is:

Logic: $(1\text{st number} + 3\text{rd number}) \div 2 = 2\text{nd number}$.

Now,

For (32, 39, 46)

$$\rightarrow (32 + 46) \div 2$$

$$\rightarrow 78 \div 2 = 39.$$

For (54, 51, 48)

$$\rightarrow (54 + 48) \div 2$$

$$\rightarrow 102 \div 2 = 51.$$

Similarly, for (48, 30, 12)

$$\rightarrow (48 + 12) \div 2$$

$$\rightarrow 60 \div 2 = 30.$$

Hence, the correct answer is "Option 1".

7. Answer: d

Explanation:

Family Chart:

Symbol in Diagram	Meaning
○	Female
□	Male
==	Married couple
—	Siblings
	Difference of a generation

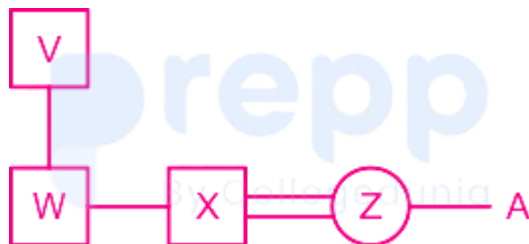
Given:

W is the brother of X.

V is the father of W.

X is the husband of Z.

Z is the sister of A.



So, V is the father-in-law of Z.

Hence, the correct answer is "Option 4".

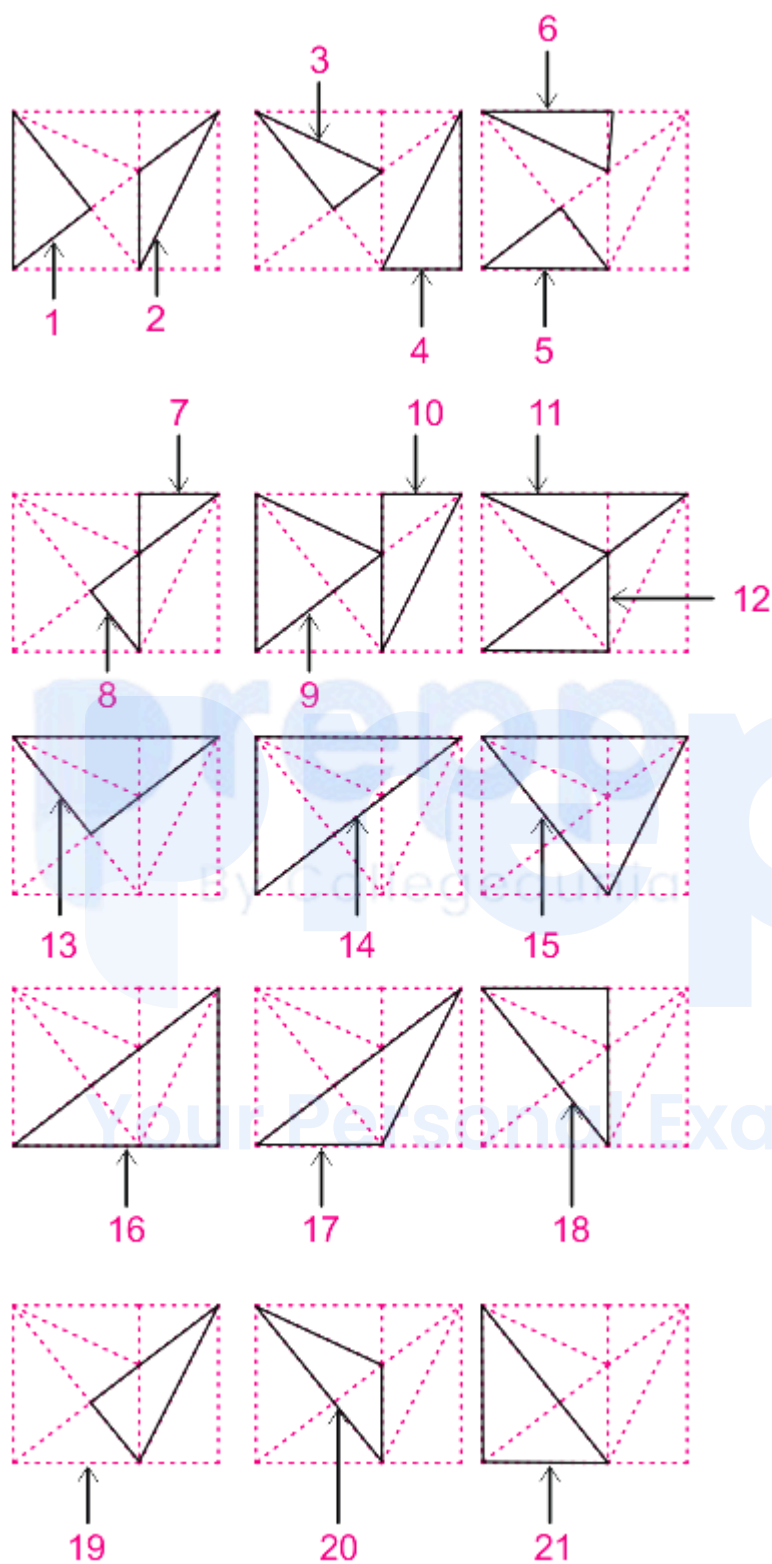
8. Answer: d

Explanation:

The triangles are:

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So, there are '21' triangles in the given figure.

Hence, the correct answer is "21".

9. Answer: a

Explanation:

The logic followed here is:

Logic: The first word is a type of the second word.

Here,

For, Truck : Vehicle

→ A truck is a type of vehicle.

For, Burger : Food

→ A burger is a type of food.

Similarly, Cup : ?

→ A cup is a type of Crockery.

Hence, the correct answer is **"Option 1"**.

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10. Answer: a

Explanation:

Given Statements:

I. No E is F.

II. All F are D.

The least possible Venn diagram for the given statement is:



Conclusions:

I. No E is D - False (Because, there is no definite relation given between E and D, so it can be possible only).

II. Some D are F - **True** (Because all F are D, so some D are also F).

III. No F is E - **True** (Because No E is F).

So, Both conclusions II and III follows

Hence, the correct answer is "Option 1".

11. Answer: b

Explanation:

Alphabets	A	B	C	D	E	F	G	H	I	J	K	L	M
Positional value	1	2	3	4	5	6	7	8	9	10	11	12	13
Positional value	26	25	24	23	22	21	20	19	18	17	16	15	14
Alphabets	Z	Y	X	W	V	U	T	S	R	Q	P	O	N

The logic followed here is:

NK : JG

$$14 (N) - 4 = 10 (J)$$

$$11 (K) - 4 = 7 (G)$$

Similarly, for SF : ?

$$19 (S) - 4 = 15 (O)$$

$$6 (F) - 4 = 2 (B)$$

So, 'SF : OB' would be the related letters.

Hence, the correct answer is **"Option 2"**.

12. Answer: b

Explanation:

The logic followed here is:

Logic: (1st number - 2nd number) $\times$ 2 = 3rd number.

Now,

For (17, 12, 10)

$$\rightarrow (17 - 12) \times 2$$

$$\rightarrow 5 \times 2 = 10.$$

For (25, 23, 4)

$$\rightarrow (25 - 23) \times 2$$

$$\rightarrow 2 \times 2 = 4.$$

Similarly, for (31, 27, 8)

$$\rightarrow (31 - 27) \times 2$$

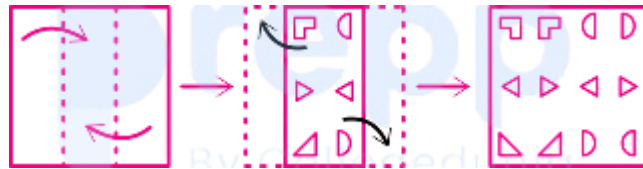
$$\rightarrow 4 \times 2 = 8.$$

Hence, the correct answer is **"Option 2"**.

13. Answer: c

Explanation:

When we unfold the paper step by step we get the following image:



Hence the correct answer is option 3)

14. Answer: b

Explanation:

The logic followed here is:

Logic: The first word measures or indicates the second word.

Here,

Odometer : Distance Travelled by a Vehicle

→ An odometer measures or indicates the distance travelled by a vehicle.

Barometer: Atmospheric Pressure

→ A barometer measures or indicates atmospheric pressure.

Hence, the correct answer is "Option 2".

15. Answer: d

Explanation:

Alphabets	A	B	C	D	E	F	G	H	I	J	K	L	M
Positional value	1	2	3	4	5	6	7	8	9	10	11	12	13
Positional value	26	25	24	23	22	21	20	19	18	17	16	15	14
Alphabets	Z	Y	X	W	V	U	T	S	R	Q	P	O	N

The logic followed here is:

Option 1) $PLH \rightarrow P - 4 = L; L - 4 = H$.

Option 2) $KGC \rightarrow K - 4 = G; G - 4 = C$.

Option 3) $ZVR \rightarrow Z - 4 = V; V - 4 = R$.

Option 4) $TPK \rightarrow T - 4 = P; P - 4 = L \neq K$.

Hence, the correct answer is "Option 4".

16. Answer: b

Explanation:

The logic followed here is:

Logic: **1st number + 2nd number = 3rd number.**

Now,

For (136, 48, 184)

$\rightarrow 136 + 48 = 184$.

For (189, 37, 226)

$\rightarrow 189 + 37 = 226$.

Similarly, for (116, 62, 178)

$\rightarrow 116 + 62 = 178$.

Hence, the correct answer is "Option 2".

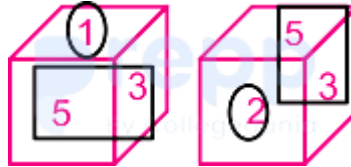
17. Answer: d

Explanation:

For find the opposite face of '1', we need to compare the common surface in the given dices,

Now,

From Dice 1 and Dice 4,



Here, 5 and 3 is the common surfaces in the both Dices, and 1 and 2 are opposite sides of the given dice..

So, '2 is the opposite face of 1'.

Hence, the correct answer is "Option 4".

18. Answer: b

Explanation:

The logic followed here is:

Logic: Sum of the place value of 1st letter – Sum of the place value of 2nd letter = Number.

Now,

'BR-EW' is coded as '8',

$$[2(B) + 18(R)] - [5(E) + 23(W)]$$

$$\Rightarrow 20 - 28 = -8.$$

'CA-LF' is coded as '14'

$$[3(C) + 1(A)] - [12(L) + 6(F)]$$

$$\Rightarrow 4 - 18 = -14.$$

Similarly, for '

So, 'DA-WN' is coded as '8'.

$$[4(D) + 1(A)] - [23(W) + 14(N)]$$

$$\Rightarrow 5 - 37 = -32.$$

Hence, the correct answer is "32".

19. Answer: b

Explanation:

The logic followed here is:

Logic: **1st number $\times 4$ = 2nd number.**

Now,

$$123 : 492$$

$$\rightarrow 123 \times 4 = 492.$$

$$32 : 128$$

$$\rightarrow 32 \times 4 = 128.$$

Similarly, for? : **312**

$$\rightarrow 78 \times 4 = 312.$$

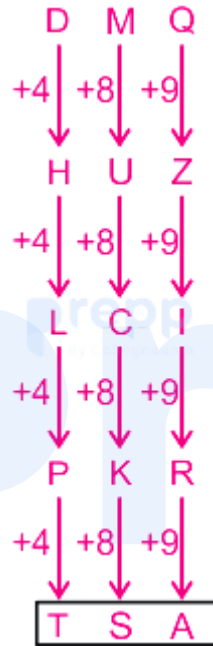
Hence, the correct answer is "78".

20. Answer: a

Explanation:

Alphabets	A	B	C	D	E	F	G	H	I	J	K	L	M
Positional value	1	2	3	4	5	6	7	8	9	10	11	12	13
Positional value	26	25	24	23	22	21	20	19	18	17	16	15	14
Alphabets	Z	Y	X	W	V	U	T	S	R	Q	P	O	N

The logic followed here is:



Hence, the correct answer is "Option 1".

21. Answer: c

Explanation:

When we unfold the paper step by step we get the following image:

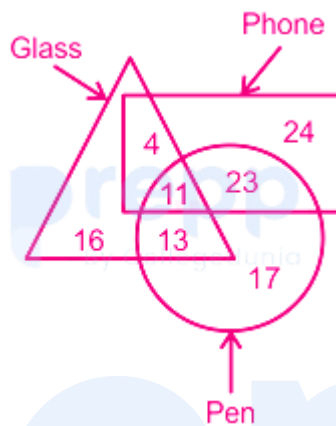


Hence, the correct answer is "Option 3".

22. Answer: c

Explanation:

According to the given Venn diagram:



The shaded area shows the "total number of glass are both phone and pen".

So, the total number of 'glass are both phone and pen' = 11.

Hence, the correct answer is "11".

23. Answer: a

Explanation:

BODMAS Table:

B	Brackets in order (), {}, []	ब्रैकेट (), {}, [] क्रम में
O	of	का
D	Division (÷)	विभाजन (÷)
M	Multiplication (×)	गुणा (×)
A	Addition (+)	जोड़ (+)
S	Subtraction (-)	घटाव (-)

Given Equation I: $6 \div 2 \times 8 + 3 - 1 = 17$

If we swap the numbers 3 and 8, we get: $6 \div 2 \times 3 + 8 - 1 = 17$

Solving by BODMAS rule (Bracket, Orders, Division and Multiplication, Addition and Subtraction):

$$\rightarrow 6 \div 2 \times 3 + 8 - 1$$

$$\rightarrow 3 \times 3 + 8 - 1$$

$$\rightarrow 9 + 8 - 1$$

$$\rightarrow 17 - 1$$

$$\rightarrow 16 \neq 17$$

The equation I is incorrect after the interchange of 3 and 8.

Given Equation II: $9 + 3 - 6 \div 2 \times 8 = 6$

After replacing 3 and 8, we my hands: $9 + 8 - 6 \div 2 \times 3 = 6$

Using the BODMAS rule:

$$\rightarrow 9 + 8 - 6 \div 2 \times 3$$

$$\rightarrow 9 + 8 - 3 \times 3$$

$$\rightarrow 9 + 8 - 9$$

$$\rightarrow 17 - 9$$

$$\rightarrow 8 \neq 6$$

Equation II is also incorrect after the interchange of 3 and 8.

Therefore, both Equation I and II are incorrect after interchanging the numbers 3 and 8.

Hence the correct answer is "Option 1".

24. Answer: d

Explanation:

The correct order of words according to the English alphabet is:

3. May

2. Maybe

5. Mayfly

1. Mayor

4. Mayst

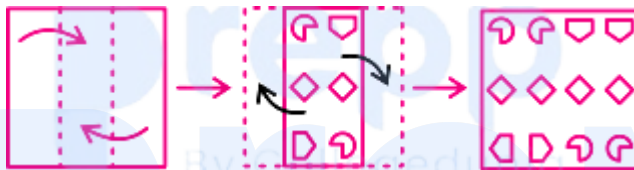
The sequence will be '3, 2, 5, 1, 4'.

Hence, the correct answer is "Option 4".

25. Answer: a

Explanation:

The paper when unfolded will appear as shown below:



Hence, 'Option 1' is the correct answer.

26. Answer: a

Explanation:

The correct answer is Northern India.

★ Key Points

- **Kathak** is a classical Indian dance form that originated in **northern India** and has a rich history that dates back several centuries.
- It is known for **its graceful movements, intricate footwork, expressive gestures, and rhythmic patterns**.
- Kathak dancers often perform **storytelling through dance, depicting mythological tales, historical events, and emotions**.
- **Birju Maharaj, Sitara Devi, Uma Sharma etc** are the famous personalities associated with this dance form.

★ Additional Information

Eight classical dances of India and States:

Classical Dance	States
Bharatanatyam	Tamil Nadu
Kathak	Uttar Pradesh
Kathakali	Kerala
Kuchipudi	Andhra Pradesh
Odissi	Odisha
Sattriya	Assam
Manipuri	Manipur
Mohiniyattam	Kerala

27. Answer: a

Explanation:

The correct answer is Prof. Sharad Pagare.

★ Key Points

- **Professor Sharad Pagare**, a distinguished Hindi writer, was awarded the **Vyas Samman 2020** for his novel "**Patliputra ki Samragi**."
- He is recognized for his **notable contributions to Hindi literature** and has also received the **Bharat Bhushan Samman** and **Madhya Pradesh Sahitya Akademi awards**.
- Apart from being an accomplished writer, Prof. Sharad Pagare is a renowned **researcher, professor, and scholar with expertise in the study of historical narratives**.

- **The Vyas Samman**, instituted in **1991** by the **KK Birla Foundation**, is specifically awarded to **notable Hindi writers**.
- Eligible works for the award must be published **within the past 10 years** and written in the **Hindi language**.
- Recipients of the Vyas Samman are honored with **a cash prize of INR 4,00,000, along with a plaque and a citation**.

★ Additional Information

Other Important Awards on India in the field of literature.

- **Sahitya Akademi Award:**
 - The Sahitya Akademi Award is one of the most prestigious literary honours in India, presented by the **Sahitya Akademi, India's national academy of Letters**.
 - It is awarded annually to outstanding works in **various Indian languages, including novels, short stories, poetry, essays, plays, and literary criticism**.
 - The award aims to recognize and promote **literary excellence, cultural diversity, and the rich literary heritage** of India.
 - The recipients of the Sahitya Akademi Award receive **a cash prize, a copper plaque, and a shawl**.
- **Jnanpith Award:**
 - The Jnanpith Award is **considered the highest literary award in India**, bestowed upon exceptional writers for their significant contribution to Indian literature.
 - Instituted in **1961**, the award is **presented by the Bharatiya Jnanpith**, a literary and research organization.
 - It recognizes works written in any of the **22 officially recognized languages of India**.
- **Saraswati Samman:**
 - The Saraswati Samman is a prestigious literary award presented annually by the **K.K. Birla Foundation**.
 - Instituted in **1991**, the award recognizes outstanding literary works written in any of the **22 officially recognized Indian languages**.
 - The award aims to honour and promote Indian **literature, cultural diversity, and the creative contributions** of writers.

- The recipient of the Saraswati Samman receives **a cash prize, a citation, and a plaque.**

28. Answer: c

Explanation:

The correct answer is Pollination.

★ Key Points

- Pollination is the **transfer of pollen from the male to the female part of a flower, enabling fertilization and seed production.**
- **Hence it is not an asexual form of reproduction.**
- It is vital for the **reproduction and survival** of flowering plants, resulting in the **formation of fruits and seeds.**
- Pollination occurs through **agents like wind, water, insects, birds, and animals,** depending on the plant's specific mechanisms and pollinator attraction.
- Pollinators, **such as bees, butterflies, birds, and mammals,** inadvertently transfer pollen while visiting flowers, facilitating the pollination process.

★ Additional Information

- **Vegetative Propagation**
 - Vegetative propagation is a method of plant reproduction in which new individuals are formed from vegetative parts such as **stems, leaves, or roots, without the involvement of seeds.**
 - It is an **asexual mode** of reproduction that allows plants to reproduce genetically identical offspring, maintaining the characteristics of the parent plant.
 - Vegetative propagation can **occur naturally,** such as through the growth of plant **runners, rhizomes, or bulbs,** or it can be artificially induced through techniques like **cutting, grafting, or tissue culture.**
 - This method of reproduction is commonly used in **horticulture and agriculture to propagate desirable plant traits, maintain consistency in**

cultivated varieties, and rapidly multiply plants with desired characteristics.

- **Spore formation**

- Spore formation is a method of reproduction used by certain organisms, including **fungi, bacteria, algae, and some plants**, to produce offspring.
- Spores are **tiny, specialized structures that contain genetic material** and are capable of developing into new individuals under favourable conditions.
- The process of spore formation typically involves the formation and release of spores from the parent organism, which can then disperse through various means such as **wind, water, or animal transport**.
- Spore formation allows **organisms to reproduce and spread in environments** where other forms of reproduction, such as sexual reproduction or seed formation, may be challenging or less efficient.

- **Budding**

- Budding is a form of **asexual reproduction** where a new organism **develops as an outgrowth or bud from the parent organism**.
- The process of budding involves the formation of a **small bulge or bud** on the parent organism, which eventually grows and develops into a genetically identical individual.
- As the bud grows, it receives nourishment and genetic material from the parent organism until it reaches a certain size or maturity and detaches, becoming an independent organism.
- Budding is a common method of reproduction observed in various organisms, including **yeast, hydra, some plants, and even certain animals**, allowing for efficient and rapid population growth.

29. Answer: c

Explanation:

The correct answer is **1861**.

★ Key Points

- Ahmedabad's first cotton textile mill, the **Ahmedabad Cotton Mill**, started production on **May 30th, 1861**.
- It was founded by **Rao Bahadur Ranchhodlal Chhotalal**, an entrepreneur in **Ahmedabad**.
- It was a spinning factory with **2,500 spindles** and employed **63 workers**.
- It catered to the local handloom weavers' yarn requirements.

★ Additional Information

- The **first cotton textile mill in India** was established at **Fort Glastor** near **Kolkata** in **1818**.
- **Large-scale production of cotton** started in **Mumbai** in **1854**.
- **India's first successful mechanized textile mill** was instituted in the **city of Mumbai**, then known as **Bombay**, in the **year 1854**.
- There were several factors that led to the rapid expansion of the industry in the region, the region had **a warm, moist climate that was suitable for the industry**.

30. Answer: c

Explanation:

The correct answer is Intoxicating liquors.

★ Key Points

- The seventh schedule of the Indian constitution deals with the division of powers between the central government and the state governments through three lists: **the Union List, the State List, and the Concurrent List**.
- **The Union List** consists of subjects on which the central government has exclusive legislative authority.
- This means that only the **Parliament of India can make laws** regarding the items mentioned in the Union List.
- The Union List includes subjects of national importance or those that require uniform laws throughout the country.
- It encompasses areas such as **defense, foreign affairs, atomic energy, railways, communication, and more**.

- In this way, all the other options lie on the union list **except intoxicating liquors**.

★ Additional Information

- **Union List:**

- The Union List consists of around **100 items** over which the central government has exclusive legislative authority, including **defence, foreign affairs, atomic energy, banking, and telecommunications**.
- The **central government** has the **power to make laws, regulate, and govern** the subjects mentioned in the Union List uniformly across all states and union territories in India.
- Items in the Union List ensure the central government's authority in critical areas such as **national security, inter-state trade and commerce, currency, copyright, air and water pollution, and more**.
- Any **amendment to the Union List** requires the **approval of the Parliament** through a prescribed legislative process, ensuring that changes to these subjects are made at the national level.

- **State List:**

- The State List consists of subjects over which state governments have exclusive legislative authority, including **public order, police, public health, local government, agriculture, state taxation, and more**.
- State governments exercise their **legislative and executive powers** to make laws, regulate, and govern the subjects mentioned in the State List within their respective states.
- Subjects in the State List allow state governments to address regional and local concerns, implement policies specific to their states, and ensure effective governance at the state level.
- Any **amendment to the State List** requires the **approval of the state legislature** concerned and does not require the consent of the Parliament, providing states with autonomy in making changes to these subjects.

- **Concurrent List:**

- The Concurrent List consists of subjects on which **both the central government and state governments have the power to legislate**, such as **criminal law, marriage and divorce, bankruptcy and insolvency, education, forests, and more**.

- Both the central and state governments can make laws, regulate, and govern the subjects mentioned in the Concurrent List simultaneously, subject to certain limitations and guidelines.
- In case of a **conflict between central and state laws** on Concurrent List subjects, **the law made by the central government prevails**, provided it receives the President's assent.
- Any **amendment to the Concurrent List** requires the **approval of the Parliament, and state legislatures** can also make laws on these subjects unless they conflict with existing central laws.

31. Answer: a

Explanation:

The correct answer is Blue.

★ Key Points

- The **outer zone of complete combustion** in a candle flame is characterized by **blue colour**.
- This is due to the **presence of hot, oxygen-rich air** that allows for efficient burning of the candle's fuel.
- The blue colour indicates that the outer zone of the flame is at a **high temperature**.
- The complete combustion process in this zone ensures that the **maximum amount of fuel is oxidized**, resulting in the production of **heat and light**.
- The blue outer zone signifies that the combustion process is **producing minimal soot**. **Soot** is a black carbonaceous substance that is a **byproduct of incomplete combustion**.

★ Additional Information

- **Yellow flame**
 - The yellow flame is a **result of incomplete combustion**, where the **fuel does not burn completely** due to a **limited oxygen supply**.

- This incomplete combustion produces a yellow colour, indicating the presence of unburned carbon particles or other impurities in the flame.
- **Compared to a blue flame, a yellow flame is typically cooler.**
- The incomplete combustion process in the yellow flame **generates less heat and light** because not all of the fuel is being efficiently burned.
- **Orange flame**
 - The orange flame is typically observed in the **intermediate zone of a candle flame**, which is **between the blue outer zone** of complete combustion and **the yellow inner zone** of incomplete combustion.
 - The orange colour of the flame **indicates partial combustion** of the fuel.
 - It occurs when there is a **limited supply of oxygen**, resulting in the production of **carbon monoxide** and other partially burned fuel particles.
 - The orange flame is **relatively cooler compared to the blue outer zone**.
 - The orange flame **emits a moderate amount of light**, but it is not as bright as the blue flame.

32. Answer: c

Explanation:

The correct answer is Narmada.

★ Key Points

- **Jabalpur** is a city in the central Indian state of **Madhya Pradesh**.
- It is situated on the **northern bank of the Narmada River** and is **surrounded by the Satpura Range** of mountains.
- It has witnessed the rule of **various dynasties, including the Gond, Maratha, and British empires**.
- Jabalpur is famous for the **Marble Rocks**, a stunning gorge on the Narmada River that features **tall marble cliffs**.

★ Additional Information

- Godavari River:

- The Godavari River is the **second longest river in India**, stretching over a length of **approximately 1,465 kilometres**.
- It flows primarily through the **states of Maharashtra, Telangana, Andhra Pradesh, and Odisha** before emptying into the **Bay of Bengal**.
- The Godavari River has numerous **tributaries, including the Pranhita, Indravati, Manjira, and Wardha Rivers**.
- The **confluence of the Godavari and Pranhita rivers** at a place called **Pranahita Pushkaralu** is considered highly auspicious.
- **Narmada River:**
 - The Narmada River is often referred to as the **lifeline of the central Indian state of Madhya Pradesh**.
 - It **originates from the Amarkantak plateau** and flows westward through the states of **Madhya Pradesh and Gujarat** before emptying into the **Arabian Sea**.
 - One of the key attractions along the Narmada River is the **Marble Rocks in Bhedaghat, near Jabalpur**.
 - The Narmada River is harnessed for **irrigation and hydropower generation** through the **Sardar Sarovar Dam**, one of the largest dams in India.
- **Ganga River:**
 - The Ganga is the **longest river in India**, stretching **approximately 2,525 kilometres**.
 - It **originates from the Gangotri Glacier** in the Himalayas and flows through several northern Indian states, including **Uttarakhand, Uttar Pradesh, Bihar, and West Bengal**, before merging with the **Bay of Bengal**.
 - The Ganga is home to the endangered **Gangetic River dolphins**, also known as the Ganges dolphins.
 - These dolphins are known for their unique appearance and are considered the **national aquatic animal of India**.
- **Chambal River:**
 - It flows through the states of **Madhya Pradesh and Rajasthan**, forming the Chambal Valley, which is renowned for its rugged cliffs, deep ravines, and diverse wildlife.
 - The Chambal River is **home to the National Chambal Sanctuary**, a protected area that spans three states—**Madhya Pradesh, Rajasthan, and Uttar Pradesh**.

- The sanctuary provides a safe haven for various endangered species, including the critically endangered **Gharial crocodile and the elusive Gangetic River dolphin**.
- Due to its ecological significance and rich biodiversity, conservation initiatives have been undertaken to protect the Chambal River and its wildlife.

33. Answer: b

Explanation:

The correct answer is Orion.

★ Key Points

- **Orion** is named after a **hunter** from Greek mythology, known for his exceptional hunting skills and strength.
- According to the myth, Orion was eventually placed among the stars as a constellation after his death.
- It is known for its bright stars, including **Betelgeuse and Rigel**, which are among the brightest stars in the night sky.
- These stars contribute to the **distinct shape and visibility** of the constellation.
- One of the notable features of the constellation is the three aligned stars known as the **"belt"** of Orion. These stars, named **Alnitak, Alnilam, and Mintaka**, form a distinctive straight line and serve as a reference point for locating other celestial objects.

★ Additional Information

- **Cassiopeia**
 - Cassiopeia is a prominent constellation in the **northern hemisphere**.
 - It is easily recognizable due to its distinct **"W" or "M"** shape, depending on its position in the sky.
 - It is named after the **queen of Aethiopia in Greek mythology**. According to the myth, she boasted about her beauty, leading to her punishment of being eternally bound to a chair in the sky.

- It contains several notable stars, including the bright stars **Schedar, Caph, and Ruchbah**.
- **Ursa Major**
 - Ursa Major is also a well-known constellation in the **northern hemisphere**.
 - It contains the famous **asterism** known as the **Big Dipper**, which is one of the most recognizable patterns in the night sky.
 - The **Big Dipper** consists of **seven bright stars** that form the **shape of a ladle or dipper**.
 - The two outer stars of the Big Dipper's bowl are called **Dubhe and Merak**. These stars serve as a guide to locate **Polaris**, the North Star, as they point directly to it.
- **Leo Major**
 - Leo Major is often associated with the **majestic lion**.
 - It represents the lion in various mythological and cultural contexts, **symbolizing strength, courage, and leadership**.
 - It is easily recognizable due to its distinct backward **question mark shape**, known as the **"Sickle,"** which forms the lion's head.
 - Leo Major contains several bright stars, including **Regulus**, the brightest star in the constellation.
 - It is **one of the twelve zodiac constellations** and represents the astrological sign of **Leo**.

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34. Answer: a

Explanation:

The correct answer is Mumbai Indians.

★ Key Points

- **Mumbai Indians** did **not qualify** for the playoffs of the 15th edition of the **Indian Premier League**.
- Teams that played in the playoffs were **Gujarat Titans, Rajasthan Royals, Lucknow Super Giants and Royal Challengers Bangalore**.

- The 15th edition of Indian Premier League – TATA IPL 2022 began on **March 26, 2022**.
- The **Gujarat Titans won** their maiden title in their first season of the championship by **defeating Rajasthan Royals by 7 wickets**.

★ Additional Information

- **IPL, or the Indian Premier League**, was started in **2008** by the **Board of Control for Cricket in India (BCCI)**.
- The inaugural season of IPL took place from **April to June 2008**.
- It was the **first professional cricket league** in the world to introduce the **franchise model**.
- The **Indian Premier League (IPL) 2022**, was the **15th edition** of the professional Twenty20 cricket league.
- **IPL 2022 Sponsorer was TATA. IPL 2022 Champion Title won by Gujarat Titans.**
- The **Orange Cap** title winner is **Jos Butler (Rajasthan Royals)** with Total runs: **863 runs**.
- The **Purple Cap** title winner is **Yuzvendra Chahal (Rajasthan Royals)** with total **27 Wickets**.

35. Answer: a

Explanation:

The correct answer is Beti Bachao Beti Pado.

★ Key Points

- “**Skilling of girls in non-traditional livelihood (NTL)**” has been included in the **Beti Bachao Beti Pado** scheme.
- **Beti Bachao Beti Pado (BBBP)** is a government initiative **launched in India in 2015**.
- It aims to address the declining **child sex ratio and promote the education and empowerment of girls**.
- The key objectives of the initiative are to prevent gender-based sex-selective practices, **child sex ratio and promote the education** of the girl child, and

promote her education and participation in society.

- The initiative employs strategies such as the strict implementation of the **Pre-Conception and Pre-Natal Diagnostic Techniques (PCPNDT) Act**, promoting education and scholarship schemes for girls, creating awareness through media campaigns, and engaging with communities to change social norms and attitudes towards the girl child.

★ Additional Information

- **POSHAN Abhiyaan**
 - POSHAN Abhiyaan, also known as the **National Nutrition Mission**, is a flagship program **launched by the Government of India in 2018**.
 - The primary objective of POSHAN Abhiyaan is to address the **issue of malnutrition in India** by targeting maternal and child nutrition.
 - It aims to **reduce stunting, undernutrition, anaemia, and low birth weight**.
 - POSHAN Abhiyaan takes an integrated approach by converging various nutrition-related schemes and programs to achieve its goals. It focuses on improving the **nutritional status of pregnant women, lactating mothers, and children up to the age of six years**.
- **Pradhan Mantri Matru Vandana Yojana (PMMVY)**
 - It is also known as the **Maternity Benefit Programme**, which is a government scheme launched in **India in 2017**.
 - The primary objective of PMMVY is to **provide financial assistance to pregnant women and lactating mothers** for their nutrition and health needs during pregnancy and childbirth. It aims to ensure proper care and nutrition for both the mother and the child.
 - Under PMMVY, eligible women receive a **cash benefit of ₹5,000 in three installments**. The scheme covers the first living child of the pregnant woman and is available for women up to their first delivery.
- **Rashtriya Mahila Kosh**
 - Rashtriya Mahila Kosh (RMK), also known as the **National Credit Fund for Women**, was established on **30th April 1993 by the Government of India**.
 - The primary objective of Rashtriya Mahila Kosh is to **provide microcredit and financial support to women from marginalized sections of society**, including low-income women, single women, and women in distress. It

aims to empower women by **promoting entrepreneurship and economic self-reliance**.

- RMK offers various financial products and services, including **microcredit loans, income-generating loans, and skill development loans**. It provides credit facilities to women to start or expand their **small businesses**, **engage in income-generating activities**, and **enhance their livelihoods**.

36. Answer: a

Explanation:

The correct answer is **five**.

★ Key Points

- The Union Ministry of Home Affairs in 2022 banned the Popular Front of India (PFI) and its associates for **five years**.
- The Union Ministry of Home Affairs declared the **Popular Front of India (PFI)** and its affiliates as an '**Unlawful Association**' on **September 28, 2022**.
- The PFI and its associates or affiliates or fronts have been found to be **involved in serious offences, including terrorism and its financing, targeted gruesome killings, disregarding the constitutional set up of the country, disturbing public order etc.** which are prejudicial to the integrity, security and sovereignty of India.
- Popular Front of India (PFI) is a **socio-political organization** founded in India in **2006**.
- PFI describes itself as a movement committed to the empowerment of marginalized sections of society and upholding justice, freedom, and communal harmony.

37. Answer: a

Explanation:

The correct answer is United States of America.

★ Key Points

- The **19th edition** of the **FIBA Women's Basketball World Cup** was held in **Sydney, Australia** from **September 22 to October 1st, 2022**.
- The tournament **featured twelve nations** competing for the championship title.
- **The United States women's national basketball team** won the championship title after **defeating Australia** in the final match with a **score of 74-68**.

★ Additional Information

- The FIBA Basketball World Cup is the oldest international basketball tournament, first held in **1950 in Argentina**.
- The tournament takes place **every four years**, similar to other major international sporting events like the FIFA World Cup.
- It features **national teams from around the world**, with **32 teams** competing in recent editions.
- **The United States** has been the most successful nation in the tournament's history, winning the championship multiple times.
- The FIBA Basketball World Cup attracts significant attention and viewership worldwide, serving as a platform for cultural exchange and showcasing the talent and competitiveness of basketball on a global stage.

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38. Answer: a

Explanation:

The correct answer is NHA.

★ Key Points

- The **National Health Authority (NHA)** is the implementing agency responsible for the **"Ayushman Bharat Digital Mission (ABDM)"** in India.
- The NHA oversees the **planning, development, and execution** of the mission, which **aims to digitize and transform healthcare delivery systems** in the

country.

- Through the Ayushman Bharat Digital Mission, the NHA aims to establish a **robust digital health infrastructure, including the creation of a unique health ID** for every citizen, seamless data exchange, and the implementation of digital health records to enhance healthcare accessibility and quality across India.
- The NHA plays a crucial role in driving the successful implementation of this transformative initiative.

★ Additional Information

- **AIIMS**

- **All India Institute of Medical Sciences (AIIMS)** is a prestigious medical institute located in **New Delhi, India**.
- AIIMS was established in **1956**.
- It was established by an **Act of Parliament** and is an autonomous institution funded by the Indian government.
- It offers **undergraduate (MBBS), postgraduate, and doctoral programs** in various medical disciplines.

- **IMA**

- IMA is a **national voluntary organization** representing doctors in India.
- It was **founded in 1928** and has a long-standing history in advocating for the **interests and welfare of the medical community**.
- It strives to uphold high standards of medical ethics, promote professional competence, and work towards the overall advancement of healthcare.
- IMA actively advocates for the rights and welfare of doctors, engages in healthcare policy discussions, and seeks to bring about reforms in the healthcare system.

- **NITI Ayog**

- NITI Aayog, short for **National Institution for Transforming India**, is a **policy think tank and a government institution** in India.
- It was **established on January 1, 2015**, replacing the previous Planning Commission.
- It operates under the guidance and leadership of the **Prime Minister of India**.

- NITI Aayog has launched several important initiatives such as **Atal Innovation Mission**, **Sustainable Development Goals (SDG) India Index**, and **National Health Stack**, to name a few. These initiatives aim to promote innovation, sustainable development, and improve governance across various sectors.

39. Answer: d

Explanation:

The correct answer is Uniform Resource Locator.

★ Key Points

- The full form of the **URL** is **Uniform Resource Locator**.
- URL serves as a web address that identifies the **location of a specific resource on the internet**, such as a **web page, image, or document**.
- A URL consists of different components, including the **protocol** (such as "http://" or "https://"), the **domain name**, and the **path to the specific resource**.
- By using a URL, users can **access and retrieve web content** by entering the URL in a web browser, enabling seamless navigation and retrieval of information on the internet.

★ Additional Information

- Some other Important full forms are as follows:
 - **RAM**: Random Access Memory
 - **ROM**: Read-Only Memory
 - **CPU**: Central Processing Unit
 - **GPU**: Graphics Processing Unit
 - **BIOS**: Basic Input/Output System
 - **LAN**: Local Area Network
 - **WAN**: Wide Area Network
 - **USB**: Universal Serial Bus
 - **HDMI**: High-Definition Multimedia Interface
 - **SSD**: Solid State Drive

40. Answer: a

Explanation:

The correct answer is Ctrl + Left arrow key.

★ Key Points

- **Ctrl + Left arrow** key is the shortcut key that can be used to **move the cursor one word to the left** in MS Word 365.
- This shortcut key **enables the cursor to jump from one word to another towards the left side** of the current cursor position, facilitating easy editing and formatting.
- The Ctrl + Left Arrow shortcut key is a commonly used feature in various word processing applications, including MS Word 365, making it a valuable skill for improving productivity across different software platforms.
- In the same way, by using **Ctrl + Right Arrow**, you can swiftly **move the cursor to the beginning of the next word on the right side of the current cursor position** in your MS Word 365 document.

★ Additional Information

- **Shift + Left arrow key**
 - By **holding down the Shift key and pressing the Left Arrow key**, you can **extend the selection of text to the left of the current cursor position** in your MS Word 365 document.
 - This shortcut key allows for precise and efficient selection of text by word or character, depending on the number of times the "Left Arrow" key is pressed while holding down "Shift."
 - Instead of manually clicking and dragging to select text, Shift + Left Arrow provides a faster way to highlight text, saving time and effort, especially when working with large amounts of text.
- **Shift + PageUp**
 - By **holding down the Shift key and pressing the PageUp key**, you can **extend the selection of text upward by one page from the current cursor**

position in your MS Word 365 document.

- This shortcut key allows for the efficient selection of larger portions of text spanning multiple pages, making it easier to edit, format, or copy and paste content.
- Shift + PageUp helps in navigating and selecting text rapidly, especially when you need to work with significant portions of text that are spread across multiple pages.
- **Ctrl + PageUp**
 - By pressing **Ctrl + PageUp**, you can **quickly switch to the previous tab or document page** in your MS Word 365 application.
 - This shortcut key is especially useful when working with multiple tabs or documents simultaneously, allowing you to easily navigate between them without the need for manual clicking or scrolling.
 - It enhances productivity by providing a quick way to switch between different sections or content within your MS Word 365 application, improving your overall workflow and task management.

41. **Answer: a**

Explanation:

The correct answer is Madurai.

★ **Key Points**

- **Pandyas:-**
 - The Pandya dynasty was a **dynasty of ancient India**.
 - It ruled India from **560 to 1300 AD**.
 - His kingdom was spread over the districts of **Mridurarnad** (Madurai in present) and **Trinevali**.
 - Their capital was **Madura**, which in the **Tamil** language refers to **Mathura**.
 - It is also said on the basis of legend that the Pandya rulers were the children of **Kuruvanshi** and the **Pandavas** of **Mahabharata**.
 - The first mention of the Pandyas was made by **Megasthenes** in his work **Indika**.

- According to him, **womenruled** in the Pandya country.
- **Madurai:-**
 - Madura, the later capital of Pandyas was the **central seat of Tamil Sangam literature**.
 - Today, Madurai is one of the oldest continuously inhabited cities.
 - **Madurai was located on the banks of River Vaigai in Tamil Nadu.**

★ Additional Information

- **Puhar:-**
 - It is a town in the Nagapattinam district of Tamil Nadu.
 - **It was once a flourishing ancient port city known as Kaveri poompattinam.**
 - **It is mentioned in the Periplus of the Erythraean Sea.**
 - Tamil and Buddhist literature also have references to Poompuhar, or Puhar, as being the **port capital of the Chola dynasty**.
 - The ancient Tamil poem Manimekalai by the poet Seethalai Saathanar is set in the town of Kaveripattanam.
- **Aihole:-**
 - Aihole in Karnataka was the **first capital of Chalukyas** where they built numerous temples dating back to the 6th century CE.
 - Many inscriptions found at Aihole, but the inscription found at Meguti Temple popularly known as Aihole inscription.
 - The Aihole inscription was written by the Ravikirti, court poet of Chalukya King, Pulakeshi II who reigned from 610 to 642 CE.
- **Kaveripattinam: -**
 - It is another name for the port city Puhar mentioned above.

42. Answer: a

Explanation:

The correct answer is Kerala.

★ Key Points

- **Mohiniyattam:-**

- Mohiniyattam is one of the two classical dance forms that originated in Kerala, the other one being Kathakali.
- Mohiniyattam gets its name from the word 'Mohini', the feminine form of Lord Vishnu, the word means 'dance of Mohini'.
- Dr. Sunanda Nair became the first in India to acquire a Master's degree in Mohiniyattam.
 - She completed her PhD thesis in Intrinsic Lyrical Feminism in Mohiniyattam from Mumbai University.
- Mohiniyattam is based on Natya Shastra's lasya style.
- It has delicate movements and more feminine facial expressions.
- The movements are gentle and glide-like. They do not have terse rhythmic steps.
- More emphasis is on facial expressions and hand gestures.

★ Additional Information

- Other Dances of India are:-

Name of Dance	State
Bharatanatyam	Tamil Nadu
Kathak	Uttar Pradesh
Kathakali	Kerala
Kuchipudi	Andhra Pradesh
Manipuri	Manipur
Odissi	Orissa
Sattriya	Assam

43. Answer: b

Explanation:

The correct answer is The Pacific Ocean is perfectly oval in shape.

★ Key Points

- **Ocean:-**

- The ocean is the body of salt water that covers approximately 70.8% of the surface of Earth.
- It contains **97% of Earth's water.**

- **Pacific Ocean:-**

- It is the largest and deepest ocean in the world. (**Hence statement III is correct**)
- Most of the islands of this ocean are volcanic or of coral origin.
- Mariana Trench is the deepest trench of the world, lies in there. (**Hence statement IV is correct**)
- The depth of this trench is 11033 m.
- It is surrounded by Asia, Australia, North and South America. (**Hence statement I is correct**)
- It starts from the Arctic ocean in the North to the Southern Ocean in the South.
- It is spread over **one-third** of the earth.
- The Pacific Ocean is almost **circular** in shape. (**Hence statement II is incorrect**)
- The Arctic ocean is connected with the Pacific Ocean by a narrow stretch of shallow water known as **Bering strait.**

★ Additional Information

- **Atlantic Ocean:**

- The Atlantic Ocean is the **second-largest ocean in the world.**
- It is **S-shaped.**
- It is flanked by the **North and South Americas on the western side, and Europe and Africa on the eastern side.**
- The coastline of the Atlantic Ocean is highly indented.
- This irregular and indented coastline provide an ideal location for natural harbours and ports.
- From the point of view of commerce, it is the **busiest Ocean.**

- **Indian Ocean:**
 - The Indian Ocean is the only ocean named after a country, that is, India.
 - The shape of the ocean is **almost triangular**.
 - In the **north**, it is bound by **Asia, in the west by Africa and in the east by Australia**.
 - The Southern Ocean encircles the continent of Antarctica and extends northward to 60 degrees south latitude.
- **Arctic Ocean:**
 - **The Arctic Ocean is located within the Arctic Circle and surrounds the North Pole.**
 - It is connected with the Pacific Ocean by a narrow stretch of shallow water known as **Bering strait**.
 - It is bound by **the northern coasts of North America and Eurasia**

44. Answer: c

Explanation:

The correct answer is Asiatic buffalo.

★ **Key Points**

- International Union for Conservation of Nature:
 - IUCN is a membership Union uniquely composed of both government and civil society organizations.
 - Created in 1948, it is the global authority on the status of the natural world and the measures needed to safeguard it.
 - Julian Huxley is the founder of the International Union for Conservation of Nature.
 - It is headquartered in Switzerland.
 - The IUCN Red List of Threatened Species is the world's most comprehensive inventory of the global conservation status of plant and animal species.
 - It uses a set of quantitative criteria to evaluate the extinction risk of species. These criteria are relevant to most species and all regions of the

world.

- The IUCN Red List Categories define the extinction risk of species assessed.
 - Nine categories extend from NE (Not Evaluated) to EX (Extinct). Critically Endangered (CR), Endangered (EN), and Vulnerable (VU) species are considered to be threatened with extinction.
- It is recognized as the most authoritative guide to the status of biological diversity.
- The first international red data books were published in 1966.
- International Union for Conservation of Nature is founded on 5th October 1948.
- **Asiatic buffalo**
 - The **Asian buffalo**, also known as the **wild Asian buffalo** and the **Asiatic buffalo**.
 - It is a **giant bovine** that is indigenous to **Southeast Asia** and the **Indian subcontinent**.
 - Asia's **tropical** and **subtropical jungles** are home to water buffalo.
 - Since they spend most of their time in the **water**, their comment is perfect.

Your Personal Exams Guide



★ Additional Information

- **Lion-tailed macaque**
 - The **Lion-tailed macaque** (*Macaca silenus*) is recognized as endangered species in India.
 - It is endemic to the **Western Ghats of South India**.
 - The hair of the lion-tailed macaque is black.



- Blue sheep
 - Blue sheep is also called **Bhara**.
 - Despite their name, blue sheep are neither blue nor sheep.
 - It's scientific name is *Pseudoryx nghaei*.



- **Gangetic Dolphin:**
 - The **Gangetic river dolphins** can only live in **freshwater**, are blind and catch their prey in a unique manner, using ultrasonic sound waves.
 - They are distributed across **seven states in India: Assam, Uttar Pradesh, Madhya Pradesh, Rajasthan, Bihar, Jharkhand and West Bengal.**
 - Categorized as '**Endangered**' on the **International Union for the Conservation of Nature's (IUCN) Red List.**



45. Answer: d

Explanation:

The correct answer is the 10th schedule.

★ Key Points

- 10th schedule:-
 - It includes provisions relating to the **disqualification of the members of Parliament and State Legislatures on the ground of defection.**
 - This schedule was **added by the 52nd Amendment Act of 1985**, also known as the **Anti-defection Law**.
 - The Tenth Schedule of the Constitution **is designed to prevent the evil or mischief of political defections motivated** by the lure of office or material benefits or other similar considerations.
 - It is **intended to strengthen the fabric of Indian parliamentary democracy** by curbing unprincipled and unethical political defections.

- **Grounds for disqualification:-**
 - If an **elected member** gives up his membership in a political party **voluntarily**.
 - If he **votes or abstains from voting in the House**, contrary to any direction issued by his political party.
 - If any member who is **independently elected** joins any party.
 - If any nominated **member** joins any political party after the end of **6 months**.
 - The decision on **disqualification questions on the ground of defection** is referred to the Speaker or the Chairman of the House, and his/her decision is final.
 - All proceedings in relation to disqualification under this Schedule are considered to be proceedings in Parliament or the Legislature of a state as is the case.
- **Exceptions Under the Anti-Defection Law:-**
 - In a situation where two-thirds of the legislators of a political party decide to merge into another party, neither the members who decide to join nor the ones who stay with the original party will face disqualification.
 - Any **person** elected as chairman or speaker can resign from his party, and rejoin the party if he demits that post.
 - Earlier, the law allowed parties to be split, but at present, this has been outlawed.

★ [Additional Information](#)

Ninth Schedule	It deals with the state acts and regulations that deal with land reforms and abolition of the zamindari system. It also deals with the acts and regulations of the Parliament dealing with other matters. Note: 1st Amendment Act 1951 added the Ninth Schedule to protect the laws included in it from judicial scrutiny on the ground of violation of fundamental rights. However, in 2007, the Supreme Court ruled that the laws included in this schedule after April 24, 1973, are now open to judicial review
Eleventh Schedule	It contains the provisions that specify the powers, authority, and responsibilities of Panchayats. It has 29 matters. Note: This schedule was added by the 73rd Amendment Act of 1992
Twelfth Schedule	It deals with the provisions that specify the powers, authority, and responsibilities of Municipalities. It has 18 matters. Note: This schedule was added by the 74th Amendment Act of 1992

46. Answer: c

Explanation:

The correct answer is Shehbaz Sharif.

★ Key Points

- Shehbaz Sharif:-

- Pakistan Opposition leader **Shehbaz Sharif** was elected unopposed as the **new Prime Minister**.
- He has become the **23rd Prime Minister of the Country**.
- He replaced Imran Khan, who could not even complete his term of five years.
- Shehbaz is the **younger brother of Nawaz Sharif**, who has been Pakistan's **prime minister for three terms**.
- He had also served as the **Chief Minister of Punjab three times**, making **him the longest-serving Chief Minister of a province**.
- He became the **chief minister for the first time in 1997**.

★ Additional Information

- **Nawaz Sharif:**
 - He is the former PM of Pakistan.
 - He is also the longest-serving PM of Pakistan.
- **Imran Khan:**
 - He is the former PM of Pakistan and chairman of the Pakistan **Tehreek-e-Insaf**.
 - He was the **former captain of the Pakistan National Cricket Team**.
- **Abbas Sharif:-**
 - He was a **Pakistani politician and Tablighi Jamaat missionary** who was a **Member of the National Assembly of Pakistan from 1993 to 1997**.
 - He was the **younger brother of Nawaz Sharif and Shehbaz Sharif**.

47. Answer: b

Explanation:

The correct answer is $0 < MPC < 1$.

★ Key Points

- **Marginal propensity to consume:-**
 - It refers to **the ratio of change in consumption expenditure to change in total income**.

- $MPC = \frac{\text{Change in consumption } (\Delta C)}{\text{Change in Income } (\Delta Y)}$
- The marginal propensity to consume lies between 0 to 1 as we know incremental income is either spent on consumption or saved for future use.
- If the entire income is consumed, i.e. $\Delta S = 0$, then $MPC = 1$ and if entire additional income is saved, i.e. $\Delta C = 0$, then $MPC = 0$. (Hence statement II is correct)

48. Answer: c

Explanation:

The correct answer is Wind.

★ Key Points

- **Exogenic force:-**
 - **Exogenic forces**, often known as **external forces**, are those that originate in the earth's **atmosphere** or get their energy from the outside of the **planet**.
 - While pressure that arises from within the **earth** is referred to as **endogenic forces**, also known as **internal forces**.
 - Denudation, which means to strip off or uncover, is a broad term used to describe all **exogenic processes**.
 - **Geomorphic agents** are the parts of nature that can carry out these **exogenic processes** (or exogenic geomorphic agents). the waves, water, wind, etc. (Hence option 3 is correct)
- **Wind:-**
 - The movement of air from high-pressure areas to low-pressure areas is called wind.
 - There are three kinds of winds including permanent, seasonal, and local winds.

★ Additional Information

- **Landslide:-**

- A landslide is the movement of rock, earth, or debris down a sloped section of land.
 - Landslides are caused by rain, earthquakes, volcanoes, or other factors that make the slope unstable.
 - **Earthquake:-**
 - A **sudden shaking** of the ground causes greater destruction to human life and is termed an earthquake.
 - **Volcano:-**
 - A Volcano is basically an opening in the Earth's crust through which heated, materials usually in the form of magma are ejected out to the surface of Earth.
-

49. Answer: d

Explanation:

The correct answer is 137.

★ **Key Points**

- About Khelo India Programme:
 - Khelo India was formed by merging three schemes: Rajiv Gandhi Khel Abhiyan, Urban Sports Infrastructure Scheme, and National Sports Talent Search Scheme.
 - It works to promote "Sports for All" and "Sports for Excellence".
 - Its aim is the mass participation of youth in annual sports competitions through a structured competition.
- **Khelo India Youth Games 2021:-**
 - The 4th edition of the Khelo India Youth Games were held in Haryana.
 - The Games were held in Panchkula.
 - Gatka, Kalaripayattu, Thang-Ta, and Mallakhamba, four indigenous games were added in December 2020.
 - This was announced by Sports Minister Kiren Rijiju and Haryana Chief Minister Manohar Lal Khattar.
 - Usually, the Khelo India Youth Games take place in January every year.

- Haryana came second in both Khelo India Youth Games 2019 and 2020 editions (200 medals in 2020 and 159 medals in 2019).
- The Haryana government decided to organize the Khelo India Youth Games in February 2022, in view of the possible third wave of the Covid-19 pandemic.

★ Additional Information

- Fifth Edition of Khelo India Youth Games:-
 - Khelo India Youth Games 2022 was organized in **8 cities** of Madhya Pradesh from 31 January to 11 February 2023.
 - These were organized in Madhya Pradesh's **Bhopal, Balaghat, Mandla, Maheshwar, Jabalpur, Ujjain, Gwalior and Indore**.
 - There were a total of **28 sports** in this game.
 - This **time, break dance and Malkhamb** was also been included in the games.
 - The Khelo India Youth Games were started on **31 January 2018** at the **Indira Gandhi Indoor Stadium in New Delhi**.

50. Answer: a

Explanation:

The correct answer is inversely related to the price of the good.

★ Key Points

- The law of demand:-
 - It is one of the most fundamental concepts in economics.
 - It **works with the law of supply to explain how market economies allocate resources** and determine the prices of goods and services that we observe in everyday transactions.
 - The law of demand states that the quantity purchased varies inversely with the price. **(Hence option I is correct)**
 - In other words, **the higher the price, the lower the quantity demanded**. This occurs because of diminishing marginal utility. That is, consumers

use the first units of an economic good they purchase to serve their most urgent needs first, and use each additional unit of the good to serve successively lower-valued ends.

- It is a fundamental principle of economics that states that at a higher price, consumers will demand a lower quantity of a good.

51. Answer: d

Explanation:

Given

$$4 \cot A = 5$$

Identities

$$\cot A = \frac{1}{\tan A}$$

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

Calculation

$$\Rightarrow 4 \cot A = 5$$

$$\Rightarrow 4 \times \frac{1}{\tan A} = 5$$

$$\Rightarrow \tan A = \frac{4}{5}$$

$$\Rightarrow \tan^2 A = \frac{16}{25}$$

$$\Rightarrow \sec^2 A - 1 = \frac{16}{25}$$

$$\Rightarrow \sec^2 A = \frac{16}{25} + 1$$

$$\Rightarrow \sec^2 A = \frac{41}{25}$$

$$\Rightarrow \sec A = \frac{\sqrt{41}}{5}$$

$$6 \sec A \tan A = 6 \times \frac{\sqrt{41}}{5} \times \frac{4}{5}$$

$$\Rightarrow 24\sqrt{41}/25$$

∴ Option 4 is the correct answer.

52. Answer: b

Explanation:

Calculation:

Average = (Expenditure in 2020 + Expenditure in 2021 + Expenditure in 2022) /
Number of years

$$\text{Average} = (86000 + 96000 + 100000) / 3$$

Calculate the total:

$$\text{Total} = \text{Rs. } 282,000$$

Therefore, the average expenditure on interest on loans is:

$$\text{Average} = 282000 / 3 = \text{Rs. } 94,000$$

Hence, the average amount of expenses on interest on loans from 2020 to 2022 is
Rs. 94,000.

53. Answer: a

Explanation:

Given:

$$a^2 + b^2 + c^2 = 40$$

$$a + b + c = 0$$

Formula used:

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

Calculation:

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

$$0^2 = 40 + 2(ab + bc + ca)$$

$$0 = 40 + 2(ab + bc + ca)$$

$$-40 = 2(ab + bc + ca)$$

$$-20 = ab + bc + ca$$

The value we want to find is 4 times this, so:

$$4ab + 4bc + 4ca = 4 \times -20 = -80$$

$$\text{So, } 4ab + 4bc + 4ca = -80.$$

54. Answer: a

Explanation:

Given:

$$x = 7 \text{ and } y = 2$$

Calculation:

$$\frac{x^3 - y^3}{x^2 - y^2} - \frac{3xy}{x + y} ?$$

$$\frac{7^3 - 2^3}{7^2 - 2^2} - \frac{3 \times 7 \times 2}{7 + 2}$$

$$\frac{335}{45} - \frac{42}{9}$$

$$125/45$$

$$25/9$$

∴ Option 1 is the correct answer.

55. Answer: d

Explanation:

Given:

In triangle ΔPQR :

$$PQ = 10 \text{ cm}$$

$$QR = 12 \text{ cm}$$

$$\text{Semiperimeter} = 17 \text{ cm}$$

Formula used:

In a triangle, the semiperimeter (s) is half the sum of the lengths of its sides: $s = (a + b + c)/2$.

Solution:

The semiperimeter (s) of the triangle is given as 17 cm.

Using the formula for the semiperimeter, we can express the sum of the lengths of the sides as:

$$10 + QR + PR = 2 \times 17$$

$$10 + 12 + PR = 34$$

$$22 + PR = 34$$

Now, let's solve for PR:

$$PR = 34 - 22$$

$$PR = 12 \text{ cm}$$

Therefore, the length of PR is 12 cm.

56. Answer: c

Explanation:

Given:

$$\tan A + \sec A = k$$

Formula used:

$$\tan A + \sec A = a, \text{ then } \tan A - \sec A = 1/a$$

$$\sec A = H/B$$

$$\sin A = P/H$$

Calculation:

$$\sec A + \tan A = k, \text{ then } \sec A - \tan A = 1/k$$

$$\text{Using this } \sec A = 1/2(k + 1/k) = (k^2 + 1)/2k$$

$$\sec A = H/B$$

$$H = (k^2 + 1)$$

$$B = 2k$$

Using Pythagorean theorem

$$H^2 = P^2 + B^2$$

$$(k^2 + 1)^2 = P^2 + (2k)^2$$

$$P = k^2 - 1$$

$$\sin A = P/H$$

$$\sin A = k^2 - 1 / k^2 + 1$$

∴ Option 3 is the correct answer.

57. Answer: a

Explanation:

Given:

$$D = 36 \text{ km}$$

$$\text{Time taken upstream} = 9 \text{ hours}$$

$$\text{Time taken downstream} = 3 \text{ hours}$$

Formula used:

$$\text{Speed} = \text{Distance} / \text{Time}$$

Solution:

Let's denote the boat's speed in still water as B (km/h), and the speed of the current as C (km/h).

When the boat is rowing upstream:

$$\text{Relative speed} = B - C$$

$$\text{Distance} = 36 \text{ km}$$

$$\text{Time} = 9 \text{ hours}$$

Using the formula, we have:

$$B - C = \text{Distance} / \text{Time}$$

$$B - C = 36/9$$

$$B - C = 4 \text{ Equation 1}$$

When the boat is rowing downstream:

$$\text{Relative speed} = B + C$$

$$\text{Distance} = 36 \text{ km}$$

$$\text{Time} = 3 \text{ hours}$$

Using the formula, we have:

$$B + C = \text{Distance} / \text{Time}$$

$$B + C = 36/3$$

$$B + C = 12 \text{ Equation 2}$$

Now, let's solve the equations to find the values of B and C.

Adding Equation 1 and Equation 2, we get:

$$B - C + B + C = 4 + 12$$

$$2B = 16$$

$$B = 8$$

Therefore, the boat's speed in still water is 8 km/h.

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58. Answer: c

Explanation:

Given:

Series -9, -6, -3, ...

Number of terms = 45

Concept Used:

$$\text{Sum of series} = n/2[2a + (n - 1)d]$$

where, n = number of terms

a = first term

d = common difference

Calculation:

Series $-9, -6, -3, \dots$

Sum = 45

$a = -9$

$d = -6 - (-9) = 3$

Sum of series = $n/2[2a + (n - 1)d]$

$45 = n/2 [2 \times (-9) + (n - 1)(3)]$

$45 = n/2 [-18 + 3n - 3]$

$15 = n/2 [-6 + n - 1]$

$30 = -7n + n^2$

$n^2 - 7n - 30 = 0$

$n^2 - 10n + 3n - 30 = 0$

$n(n - 10) + 3(n - 10) = 0$

$(n - 10)(n + 3) = 0$

$n = 10$ or -3

Number of terms cannot be negative.

So $n = 10$

$\therefore$ Option 3 is the correct answer.

59. Answer: d

Explanation:

Given:

$$(a - b)(b + a)(a^2 + b^2)(2b^4 + 2a^4)$$

Formula used:

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

Calculation:

$$(a - b)(b + a)(a^2 + b^2)(2b^4 + 2a^4)$$

$$(a^2 - b^2)(a^2 + b^2)(2b^4 + 2a^4)$$

$$(b^4 - a^4)(2b^4 + 2a^4)$$

$$2(a^8 - b^8)$$

∴ Option 4 is the correct answer.

Your Personal Exams Guide

60. Answer: b

Explanation:

Given:

Raj's work completion time = 20 days

Pratap's work completion time = $\frac{1}{2} \times$ Raj's time = 10 days

Part of the work to be completed together = $\frac{3}{5}$

Formula used:

Time = Work / Combined work rate

Calculation:

LCM of 10, 20 is 20.

Raj's work rate = $20/20 = 1$

Pratap's work rate = $20/10 = 2$

To calculate the number of days required to complete $3/5$ of the total work

$(20 \times 3/5)/3$

$12/3$

4

Therefore, both Raj and Pratap together will complete $3/5$ of the total work in 4 days.

61. Answer: d

Explanation:

Calculation:

Let's assume the cost price of the item is 100.

The merchant wants to earn a profit of 20 percent. So, the selling price should be 120 percent of the cost price.

Selling price = Cost price + Profit

Selling price = $100 + 20\% \text{ of } 100$

Selling price = $100 + 20$

Selling price = 120

Now, the merchant offers a discount of 20 percent on the marked price. The selling price after the discount will be 80 percent of the marked price.

Selling price after discount = 80 percent of marked price

120 = 80 percent of marked price

To find the marked price, we can divide both sides of the equation by 80 percent.

$120/0.8 = \text{marked price}$

marked price = 150

CP = 100 and MP = 150

$(150 - 100)/100 \times 100 = 50\%$

Therefore, the marked price will be 50 percent more than the cost price.

62. Answer: d

Explanation:

Given:

$$\frac{\cos(50^\circ + A) - \sin(40^\circ - A)}{\cos 40^\circ \sec 40^\circ}$$

Concept used:

θ	$\sin\theta$	$\cos\theta$	$\tan\theta$	$\cot\theta$	$\sec\theta$	$\operatorname{cosec}\theta$
$90^\circ - \alpha$	$\cos\alpha$	$\sin\alpha$	$\cot\alpha$	$\tan\alpha$	$\operatorname{cosec}\alpha$	$\sec\alpha$
$90^\circ + \alpha$	$\cos\alpha$	$-\sin\alpha$	$-\cot\alpha$	$-\tan\alpha$	$-\operatorname{cosec}\alpha$	$\sec\alpha$
$180^\circ - \alpha$	$\sin\alpha$	$-\cos\alpha$	$-\tan\alpha$	$-\cot\alpha$	$-\sec\alpha$	$\operatorname{cosec}\alpha$
$180^\circ + \alpha$	$-\sin\alpha$	$-\cos\alpha$	$\tan\alpha$	$\cot\alpha$	$-\sec\alpha$	$-\operatorname{cosec}\alpha$
$270^\circ - \alpha$	$-\cos\alpha$	$-\sin\alpha$	$\cot\alpha$	$\tan\alpha$	$-\operatorname{cosec}\alpha$	$-\sec\alpha$
$270^\circ + \alpha$	$-\cos\alpha$	$\sin\alpha$	$-\cot\alpha$	$-\tan\alpha$	$\operatorname{cosec}\alpha$	$-\sec\alpha$
$360^\circ - \alpha$	$-\sin\alpha$	$\cos\alpha$	$-\tan\alpha$	$-\cot\alpha$	$-\sec\alpha$	$-\operatorname{cosec}\alpha$
$-\alpha$	$-\sin\alpha$	$\cos\alpha$	$-\tan\alpha$	$-\cot\alpha$	$\sec\alpha$	$-\operatorname{cosec}\alpha$

Calculation:

$$\frac{\cos(50^\circ + A) - \sin(40^\circ - A)}{\cos 40^\circ \sec 40^\circ}$$

$$\Rightarrow \frac{\sin(90 - (50^\circ + A)) - \sin(40^\circ - A)}{\cos 40^\circ \sec 40^\circ}$$

$$\Rightarrow \frac{\sin(40^\circ - A) - \sin(40^\circ - A)}{\cos 40^\circ \sec 40^\circ}$$

$$\Rightarrow 0$$

$\therefore$ The required answer is 0.

63. Answer: c

Explanation:

Calculation:

The average selling price of M and N = $(400 + 650)/2 = 525$

The average cost price of P and Q = $(600 + 900)/2 = 750$

The ratio is:

525 : 750

7 : 10

∴ Option 3 is the correct answer.

64. Answer: c

Explanation:

Given:

The radius of a sphere decrease by 10%.

Concept used:

The volume of the sphere = $\frac{4}{3}\pi r^3$

Explanation:

Volume = $\frac{4}{3}\pi r^3$

If the radius decreases by 10%

$$r \times 90\% = 9r/10$$

$$\text{New volume} = \frac{4}{3}\pi \times (9r/10)^3$$

(∵ $\frac{4}{3}\pi$ is constant in both volumes so we calculated only the difference of radius basis)

$$\text{Initial volume} = r^3$$

$$\text{New volume} = 729r^3/1000$$

$$\Rightarrow \text{difference} = r^3 - 729r^3/1000 = 271r^3/1000$$

$$\Rightarrow \% \text{ changes} = \frac{271r^3/1000}{r^3} \times 100$$

$$\Rightarrow 27.1\%$$

∴ The percent decrease in volume is 27.1%.

65. Answer: a

Explanation:

Given:

Vijay sells bananas at the rate of Rs. 14 per dozen and earns a profit of 40 per cent.

The cost price of bananas increases by 30 per cent.

The selling price remains the same.

Concept Used:

$$\text{Profit\%} = \frac{\text{Profit}}{\text{CP}} \times 100$$

Calculation:

$$\text{SP of 12 bananas} = \text{Rs. 14}$$

$$\text{Profit \%} = 40 \%$$

$$\text{CP of 12 bananas} = 14 \times 100/140 = \text{Rs. 10}$$

$$\text{The cost price of the bananas increases by 30 percent} = 10 \times 1.3 = \text{Rs. 13}$$

$$\text{Profit} = \text{SP} - \text{CP}$$

$$\Rightarrow 14 - 13 = \text{Rs. 1}$$

$$\text{Profit \%} = 1/13 \times 100 = 7.69 \%$$

$\therefore$ Option 1 is the correct answer.

66. Answer: c

Explanation:

Given:

Time(T) = 2 years

Simple interest(SI) = Rs. 1600

Compound interest(CI) = Rs. 1760

Formula used:

$$SI = \frac{P \times R \times T}{100}$$

P = Principal

Difference between SI and CI for 2 years = Interest on SI of first year

Calculation:

SI for 1 year = $1600/2$ = Rs. 800

Difference between SI and CI = $1760 - 1600$ = Rs. 160

Rate of interest(R) = $(160/800) \times 100$ = 20%

According to the question:

$$800 = \frac{P \times 20 \times 1}{100}$$

$$\Rightarrow P = 4000$$

∴ Principal = Rs. 4000

∴ Option 3 is the correct answer.

Formula used:

★ Alternate Method

CI/SI = $1 + r/200$ (This is formula used for only two year)

$$1760/1600 = 1 + r/200$$

$$r = 20\%$$

$$\text{SI for 1 year} = 1600/2 = \text{Rs. } 800$$

$$800 = \frac{P \times 20 \times 1}{100}$$

$$\Rightarrow P = 4000$$

67. Answer: c

Explanation:

Given:

$$1 + 5 + 6 + 10 + 11 + 15 + 16 + 20 + \dots$$

$$N = 200 \text{ terms}$$

Concept Used:

$$\text{Sum of series in AP} = N/2[2a + (N - 1)d]$$

Calculation:

$$1 + 5 + 6 + 10 + 11 + 15 + 16 + 20 + \dots$$

It is the combination of two series with 100 terms each. So divide the series into two parts

$$(5 + 10 + 15 + 20 + \dots 100 \text{ terms}) + (1 + 6 + 11 + 16 + \dots 100 \text{ terms})$$

$$S_1 = (5 + 10 + 15 + 20 + \dots 100 \text{ terms})$$

$$S_2 = (1 + 6 + 11 + 16 + \dots 100 \text{ terms})$$

$$\text{Sum of the series} = \text{Sum of } S_1 + \text{Sum of } S_2$$

$$\text{Sum of the series} = 100/2[2 \times 5 + (100 - 1)5] + 100/2[2 \times 1 + (100 - 1)5]$$

$$\text{Sum of the series} = 50[10 + 99 \times 5] + 50[2 + 99 \times 5]$$

$$\text{Sum of the series} = 50[10 + 495] + 50[2 + 495]$$

$$\text{Sum of the series} = 50[505] + 50[497]$$

$$\text{Sum of the series} = 25250 + 24850$$

$$\text{Sum of the series} = 50100$$

$\therefore$ Option 3 is the correct answer.

68. Answer: a

Explanation:

Given:

P and Q are the points on sides XY and XZ respectively.

PQ is parallel to YZ.

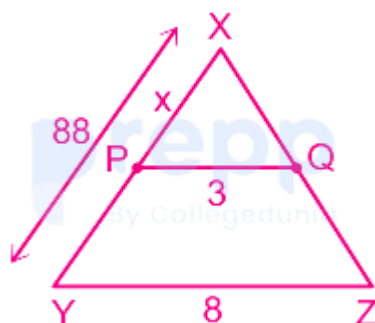
$$PQ : YZ = 3 : 8$$

$$XY = 88 \text{ cm}$$

Concept used:

If a line parallel to one side of a triangle intersects the other two sides of the triangle, then the line divides these two sides proportionally.

Calculation:



According to the concept,

$\triangle XYZ \sim \triangle XPQ$ [Basic Proportionality Theorem]

So,

$$XP/XY = PQ/YZ = 3/8$$

$$XY = 88 \text{ cm}$$

$$\Rightarrow XP/XY = 3/8$$

$$\Rightarrow x/88 = 3/8$$

$$\Rightarrow x = 33 \text{ cm}$$

$$XP = 33 \text{ cm}$$

$\therefore$ Option 1 is the correct answer.

69. Answer: d

Explanation:

Calculation:

T1 = The average expenditure of company A and B in year Y1.

$$(800 + 2000)/2 = 1400$$

T2 = The average expenditure of company A and B in year Y5.

$$(1600 + 400)/2 = 1000$$

$$(T_1 - T_2)$$

$$1400 - 1000$$

$$400$$

∴ Option 4 is the correct answer.

70. Answer: d

Explanation:

Given:

Two circles intersect each other such that each passes through the centre of other.

Radius of these circles are equal.

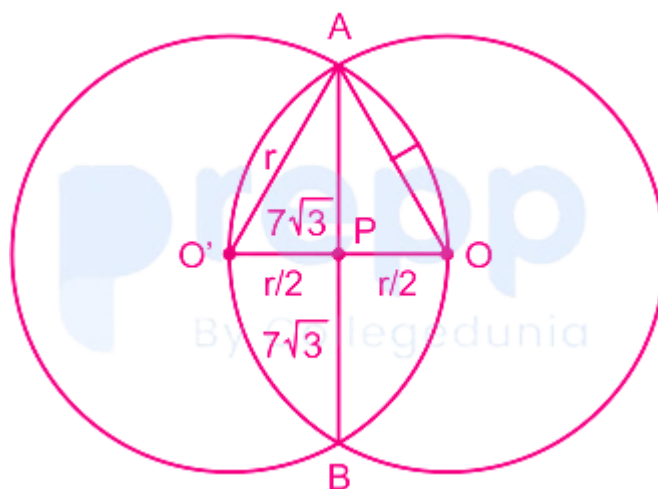
The length of common chord is $14\sqrt{3}$ cm.

Concept Used:

Perpendicular drawn from the centre to the chord divide the chord into two equal parts.

Circumference of the circle = $2\pi r$

Calculation:



Let the radius be r cm.

According to the diagram,

$$AP = PB = 7\sqrt{3}$$

$$OO' = r$$

Again $O'A = OA = r$ [Radius of the circle]

$$\angle APO' = 90^\circ$$

$$O'P = PO = r/2$$

$$(AO')^2 = (O'P)^2 + (AP)^2$$

$$r^2 = (r/2)^2 + (7\sqrt{3})^2$$

$$\Rightarrow r^2 = r^2/4 + 147$$

$$\Rightarrow 3r^2/4 = 147$$

$$\Rightarrow r = 7 \times 2 = 14 \text{ cm}$$

Circumference of the two circles = $2 \times 2 \times 22/7 \times 14$

$$\Rightarrow 176 \text{ cm}$$

$\therefore$ Option 4 is the correct answer.

71. Answer: a

Explanation:

Given:

Ratio of volumes of two cylinders ($V_1 : V_2$) = 6 : 1

Ratio of their heights ($H_1 : H_2$) = 1 : 6

Formula used:

$V = \pi r^2 h$, where r is the radius and h is the height of the cylinder.

Calculation:

$$V_1/V_2 = (\pi r_1^2 H_1) / (\pi r_2^2 H_2) \text{ ---- (1)}$$

As we are given the ratios $V_1 : V_2 = 6 : 1$ and $H_1 : H_2 = 1 : 6$, we can replace these values into equation (1):

$$6/1 = (r_1^2 \times 1) / (r_2^2 \times 6)$$

Solving this equation for r_1/r_2 , we get:

$$r_1/r_2 = \sqrt{(6 \times 6) / 1}$$

$$r_1/r_2 = \sqrt{36}$$

$$r_1/r_2 = 6$$

Therefore, the ratio of the radii of the two cylinders is 6 : 1.

72. Answer: d**Explanation:**

Given:

In a triangle XYZ, C is circumcentre of this triangle.

$$\angle Y = 50 \text{ degree}$$

$$\angle Z = 70 \text{ degree}$$

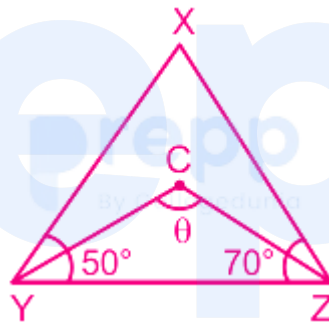
Concept Used:

If O is the circumcenter of the $\triangle ABC$ then the angle made at the circumcenter by joining any two vertices of the triangle is twice the angle at the third vertex of the triangle i.e.

the angle made at the circumference at the circle.

Angle Sum Property: Sum of all the angles in a triangle is 180° .

Calculation:



In triangle XYZ,

$$\angle Y = 50^\circ$$

$$\angle Z = 70^\circ$$

Apply angle sum property,

$$\angle X = 180 - (50 + 70)$$

$$\angle X = 60^\circ$$

Here C is the circumcentre

$$\angle YCZ = 2 \times \angle X$$

$$\angle YCZ = 2 \times 60$$

$$\angle YCZ = 120^\circ$$

$\therefore$ Option 4 is the correct answer.

73. Answer: a

Explanation:

Given:

The ratio of expenditure and savings of a person is 4 : 3.

The saving increases by $\frac{1}{5}$ of the income and the income remains the same.

Formula Used:

Income = Expenditure + Saving

Calculation:

Let the expenditure be Rs. $4x$ and the Savings be Rs. $3x$.

$$\Rightarrow \text{Income of person} = 4x + 3x = 7x$$

New income of person = $7x$

$$\text{New saving of person} = 3x + \frac{1}{5} \text{ of } 7x = 3x + \frac{7x}{5} = \frac{22x}{5}$$

$$\text{New expenditure} = 7x - \frac{22x}{5} = \frac{(35x - 22x)}{5} = \frac{13x}{5}$$

$$\text{New ratio of his expenditure and savings} = \frac{13x}{5} : \frac{22x}{5} = 13 : 22$$

$\therefore$ Option 1 is the correct answer.

74. Answer: d

Explanation:

Given:

The average height of 286 students = 50 units

The average height of the boys = 53

The average height of the girls = 31

Formula used:

Sum of N number = Average of N number $\times$ N

Calculation:

Total heights of 286 students = Average $\times$ Number of students

$$\Rightarrow 286 \times 50$$

Let the number of boys be y and the number of girls be $(286 - y)$

Total heights of boys = Average height of boys $\times$ Number of boys

$$\Rightarrow 53 \times y$$

The total height of girls = Average height of girls $\times$ Number of girls

$$\Rightarrow 31 \times (286 - y)$$

Now,

According to the question:

$$\Rightarrow 53 \times y + 31 \times (286 - y) = 286 \times 50$$

$$\Rightarrow 53y - 31y = (286 \times 50) - (286 \times 31)$$

$$\Rightarrow 22y = 286 \times 19$$

$$\Rightarrow y = 247$$

Total height of boys = 247×53

Number of girls = $(286 - 247) = 39$

The total height of girls = 39×31

Required ratio = $247 \times 53 : 39 \times 31 = 1007 : 93$

$\therefore$ The correct answer is 1007 : 93.

75. Answer: d

Explanation:

Calculation:

Statement I:

The expenditure of company L in Y2 = 400

The expenditure of company M in Y3 = 600

Percentage of the expenditure of company L in Y2 to the expenditure of M in year Y3
 $= 400/600 \times 100 = 66.66\%$

Statement I is wrong.

Statement II:

The expenditure of company M in year Y5 = 300

The expenditure of L in year Y4 = 300

Percentage of the expenditure of company M in Y5 to the expenditure of L in year Y4
 $= 300/300 \times 100 = 100\%$

Statement II is correct.

$\therefore$ Option 4 is the correct answer.

76. Answer: a

Explanation:

The correct answer is **option 1, "allocate."**

★ Key Points

- To **allocate** means **to distribute or assign something for a particular purpose**.
- In the given sentence, the phrase "**hold in trust**" suggests that the subject is responsible for managing or distributing something that belongs to someone else. Therefore, the appropriate action would be to allocate or distribute it according to the owner's wishes.
 - For example, a trustee may hold funds in trust for a beneficiary. The trustee's responsibility is to allocate or distribute the funds according to the terms of the trust agreement.
- **Option 2, "appropriate,"** also means to assign or allocate something for a particular purpose. However, it can also mean to take something without permission or justification. In the given sentence, the context suggests that the subject is responsible for managing something that belongs to someone else, so "appropriate" would not be the correct choice.
- **Option 3, "appellate,"** refers to a court that hears appeals from lower courts. This has no relevance to the given sentence.
- **Option 4, "apply,"** means to put something into action or use. While this could be relevant in some contexts, it does not fit the meaning of the sentence as a whole.
- Thus, the correct answer is **Option 1**.

Correct Sentence: One may **allocate** what he only holds in trust; he shares what is his own.

77. Answer: b

Explanation:

Here the correct answer is **Terrestrial**.

★ Key Points

- **Celestial** means **relating to the sky or the heavens, such as celestial bodies like stars and planets.**
 - For example, "The **celestial** bodies in the night sky were breathtaking."
- **Terrestrial**, on the other hand, means **relating to the earth or its inhabitants.**
 - For example, "The **terrestrial** animals in the forest were diverse and fascinating."
- **Option 1, Heavenly**, is a synonym of Celestial, meaning relating to heaven or the divine.
 - For example, "The **heavenly** choir sang beautiful hymns."
- **Option 3, Divine**, is also a synonym of Celestial, meaning relating to God or the gods.
 - For example, "The **divine** intervention saved the village from disaster."
- **Option 4, Stellar**, is related to Celestial, meaning relating to stars or of exceptional quality.
 - For example, "The **stellar** performance of the actor won him an award."
- Therefore, the antonym of **Celestial** is **Terrestrial**.

78. Answer: d

Explanation:

The correct answer is **option 4, Endorsement**.

★ Key Points

- **Objurgation** means **a harsh rebuke or criticism.**
 - For example, "The coach's **objurgation** of the team's poor performance was heard throughout the locker room."
- **Option 1, Hamper**, means to hinder or impede progress.
 - For example, "The heavy rain **hampered** the construction workers' ability to finish the project on time."
- **Option 2, Reproof**, means a mild rebuke or criticism.

- For example, "The teacher's **reproof** of the student's behavior was met with a sincere apology."
- **Option 3, Commination**, means a threat of punishment or retribution.
 - For example, "The company's **commination** of legal action against the competitor was taken seriously."
- **Option 4, Endorsement**, means approval or support.
 - For example, "The celebrity's **endorsement** of the new product led to a significant increase in sales."
- Overall, the opposite of **objurgation** is **endorsement**, as one is a harsh criticism while the other is a positive approval.

79. Answer: b

Explanation:

The correct answer is **option 2, "affect thousands."**

★ Key Points

- The verb "**affect**" means **to have an impact on or influence something**.
- In this sentence, the snowstorm is having an impact on thousands of travelers.
- "**Effect**," on the other hand, means **to bring about or cause something**.
- While the snowstorm may be causing travel disruptions, it is more appropriate to use "**affect**" in this context.
- Additionally, "**thousand**" should be pluralized to "**thousands**" to match the subject-verb agreement.
- Thus, the correct answer is **Option 2**.

Therefore, the corrected sentence is: "The snowstorm will **affect thousands** of travelers."

★ Additional Information

- The words "**affect**" and "**effect**" are commonly confused due to their similar spellings and pronunciations. However, they have distinct meanings and usage:

- **Affect (verb):** "Affect" is typically used as a verb and relates to influencing, impacting, or producing a change in something. It refers to the action of having an effect on someone or something.
 - Example: "The loud noise affected my concentration, making it difficult to focus."
- **Effect (noun or verb):** "Effect" can be used as both a noun and a verb, and it generally refers to the result, outcome, or consequence of an action or event.
- **As a noun:**
 - Example: "The new policies had a positive effect on employee morale."
- **As a verb:**
 - Example: "The company aimed to effect changes in its organizational structure."
- To summarize, "**affect**" is a verb used to describe the act of influencing or impacting something, while "**effect**" is a noun (or verb) that represents the result or consequence of an action.

80. Answer: d

Explanation:

Here the correct answer is **Option 4**.

★ Key Points

- The error is in the following **part** of the sentence: "**extends**" should be changed to "**extend**" to agree with the plural subject "**bands**."
- The correct sentence would be: "*Atmospheric rivers are long, narrow bands of moisture in the atmosphere that extend from the tropics to higher latitudes.*"
- This is an example of subject-verb agreement, where the verb must agree in number with the subject.
- In this case, "**bands**" is plural, so the verb "**extend**" must also be plural.

81. Answer: a

Explanation:

The correct answer is **option 1, "To be badly defeated in a contest."**

★ Key Points

- The idiom **"to meet one's Waterloo"** comes from the famous battle of Waterloo in 1815, where Napoleon Bonaparte was defeated by the British and their allies.
- It refers to a decisive and final defeat or setback, often in a contest or struggle.
 - For example, "The team thought they were unbeatable, but they **met their Waterloo** in the championship game and lost by a landslide."
- Thus, the correct answer is **Option 1**.

82. Answer: a

Explanation:

The correct answer is **option 1: RPQS**.

★ Key Points

- This is because the sentence follows the correct order of subject-verb-object and the adjectives and phrases are placed in the correct order.
- **R** - "we showed that people on low incomes with" - This is the subject of the sentence and introduces the main idea of the study.
- **P** - "little free time like a single parent nurse caring for" - This is the first adjective phrase that describes the specific group of people being studied.
- **Q** - "more than one child and working long hours are" - This is the second adjective phrase that further describes the challenges faced by the group being studied.
- **S** - "set to lose out most as energy prices rise" - This is the object of the sentence and explains the negative impact that rising energy prices will have on the group being studied.
- Thus, the correct answer is **Option 1**.

Correct Arrangement: *In a recent study, we showed that people on low incomes with little free time like a single parent nurse caring for more than one child and working long hours are set to lose out most as energy prices rise.*

83. Answer: d

Explanation:

The correct answer is **option 4, Illiterate**.

★ Key Points

- **Illiterate** refers to **a person who is unable to read or write**.
 - For example, a person who has never been to school and cannot read a newspaper or write a letter is considered illiterate.
- **Erudite (option 1)** refers to a person who has extensive knowledge acquired through reading and studying.
 - For example, a professor who has written several books on a particular subject can be considered erudite.
- **Scholar (option 2)** refers to a person who has a deep knowledge of a particular subject and has studied it in depth.
 - For example, a person who has a PhD in history and has published several papers on the subject can be considered a scholar.
- **Fastidious (option 3)** refers to a person who is very attentive to detail and is very particular about cleanliness and orderliness.
 - For example, a person who always keeps their house clean and organized can be considered fastidious.
- In summary, the word that can substitute the given group of words "**One who does not know reading or writing**" is **Illiterate**.

84. Answer: a

Explanation:

Here the correct answer is **Option 1**.

★ Key Points

- The incorrectly spelled word is "**Monstar**" (**option 1**). The correct spelling is "**Monster**."
 - Example: I saw a **monster** in the woods last night.
- **Option 2, "Transparent,"** is spelled correctly. It means something that is see-through or easily visible through.
 - Example: The glass window was **transparent**, allowing us to see outside.
- **Option 3, "Scatter,"** is spelled correctly. It means to throw or spread things in different directions.
 - Example: The wind caused the leaves to **scatter** across the yard.
- **Option 4, "Letter,"** is spelled correctly. It refers to a written or printed message.
 - Example: I received a **letter** from my friend who lives in another country.
- Therefore, the correct answer is **option 1, "Monstar,"** which should be spelled as "**Monster**."

85. **Answer: c**

Explanation:

Here the correct answer is **No error**.

★ Key Points

- The given sentence has **no error**.
- The sentence is grammatically correct and follows the subject-verb agreement rule.
- "**My father**" is the subject and "**isn't alone**" is the verb phrase. The verb "**isn't**" agrees with the singular subject "**my father**".
 - Example: She isn't alone in her struggle. (Subject: She, Verb: isn't alone)
- The phrase "**turns out**" is an idiomatic expression that is **commonly used to indicate a result or outcome that was unexpected, surprising, or contrary to what was initially believed or assumed**. It is often used to reveal new information or to share the realization of a particular fact or situation.

- Example sentence: "I thought I had lost my wallet, but it **turns out** it was in my backpack the whole time." (The result was contrary to the initial belief that the wallet was lost.)
- Thus, the correct answer is **Option 3**.

86. Answer: d

Explanation:

The correct answer is **option 4, "Avidly."**

★ Key Points

- **"Eagerly"** means **to do something with enthusiasm or excitement**.
 - For example, "She **eagerly** awaited the arrival of her best friend."
- **Option 1, "Plainly,"** means in a simple or straightforward manner.
 - For example, "He spoke **plainly** and clearly so that everyone could understand."
- **Option 2, "Perfunctorily,"** means to do something in a routine or mechanical way, without enthusiasm or interest.
 - For example, "He completed the task **perfunctorily**, without putting much effort into it."
- **Option 3, "Neatly,"** means in a tidy or organized manner.
 - For example, "She **neatly** arranged the books on the shelf."
- **Option 4, "Avidly,"** means to do something with great enthusiasm or passion.
 - For example, "He **avidly** pursued his hobby of photography, spending hours taking pictures and learning new techniques."
- Overall, **option 4, "Avidly,"** is the best match for the meaning of **"eagerly"** because it conveys a strong sense of enthusiasm and passion.

87. Answer: d

Explanation:

The correct answer is **option 4, "Panacea."**

★ Key Points

- A "**panacea**" is a remedy or solution for all problems or difficulties.
 - For example, some people believe that exercise is a panacea for many health issues, while others believe that meditation is a panacea for stress and anxiety.
- **Option 1, "Rustic,"** refers to something that is rural or simple in nature.
 - For example, a cabin in the woods might be described as rustic.
- **Option 2, "Libertine,"** refers to a person who is morally unrestrained or indulgent in their behavior.
 - For example, a person who engages in frequent and casual sexual encounters might be described as a libertine.
- **Option 3, "Convalescent,"** refers to a person who is recovering from an illness or injury.
 - For example, a person who is in the hospital after a surgery might be described as a convalescent.

88. Answer: a

Explanation:

Here the correct answer is **The papers were forgotten by her in the car.**

★ Key Points

- The above-given sentence is in the **active voice**.
- We need to change it in the **passive voice**.
- The following steps are required to change the given sentence into passive voice:-
- The subject '**She**' of the active voice will become the object '**her**' of the passive voice.
- The object '**The papers**' of the active voice will become the subject of the passive voice.

- The tense (**simple past tense**) will change according to the following structure:-
 - Active Voice – **Subject + V2 + Object.**
 - Passive Voice – **Object + was/were + V3 + by + Subject.**
- Thus, the correct answer is **Option 1.**

Therefore, the correct passive voice is *The papers were forgotten by her in the car.*

★ Additional Information

- When we convert **active voice to passive voice**, three things need to be kept in mind:-
 - Change **object** into **subject**.
 - Change **subject** into **object**.
 - Always use the **third form of the verb** in the passive voice.
 - Use '**by**' before the new object.

89. Answer: a

Explanation:

The correct answer is **option 1, Jockey.**

★ Key Points

- A **jockey** is a professional rider in horse racing who rides the horse during the race. They are responsible for guiding the horse and making strategic decisions during the race.
 - For example, famous jockeys include Frankie Dettori and Ruby Walsh.
- **Option 2, Autocrat**, is not related to horse racing. An autocrat is a ruler who has absolute power and authority.
- **Option 3, Cellar**, is also not related to horse racing. A cellar is a room or space below ground level, typically used for storage.
- **Option 4, Horse Pilot**, is not a commonly used term in horse racing. While a jockey can be seen as a pilot of sorts, this term is not widely used in the industry.

- Overall, the most appropriate one word for a professional rider in horse racing is **Jockey**.

90. Answer: b

Explanation:

The correct answer is **option 2, Wanting**.

★ Key Points

- **Adequate** means **sufficient or satisfactory in quantity, quality, or performance**.
 - For example, "The company provided **adequate** training for its employees."
- **Option 1, Taunting**, means to provoke or tease someone in a mocking or insulting way.
 - For example, "The bully was **taunting** the smaller kids on the playground."
- **Option 3, Indolent**, means lazy or avoiding work.
 - For example, "The **indolent** student never completed his assignments on time."
- **Option 4, Superficial**, means shallow or lacking depth.
 - For example, "The movie had a **superficial** plot and failed to engage the audience."
- **Option 2, Wanting**, means **lacking or deficient in something**.
 - For example, "The restaurant's service was **wanting**, as the waiters were slow and inattentive."

91. Answer: b

Explanation:

The correct sentence is **option 2: "I do not require any technical knowledge or expertise."**

★ Key Points

- Option 1 is incorrect because "technichal" is misspelled.
- Option 3 is incorrect because "knowlege" and "expertise" are misspelled.
- Option 4 is incorrect because "requir" is misspelled and "expertise" is misspelled.
- Option 2 is correct as all the spellings are correct. The words "technical", "knowledge", "require" and "expertise" are correctly spelt.

★ Additional Information

- **Technical** means relating to a particular subject, art, or craft, or its techniques.
- **Knowledge** refers to the information, facts, and understanding that a person possesses about a particular subject or domain.
- **Expertise** represents a high level of proficiency, skill, and deep understanding in a specific field or area of knowledge.
- The word "require" means to need, demand, or expect something to be done or fulfilled.

92. Answer: c

Explanation:

Here the correct answer is **The mayor ordered the marshals not to conduct any drill the next day.**

★ Key Points

- The given sentence is in **direct speech**. We need to change it into **indirect speech**.
- Rules to change these types of questions:
- 'Said to' will get replaced with 'ordered' as the reported verb has an object.
- 'Don't' will get replaced with 'not to'
- 'Tomorrow' changes to 'the next day'.
- Thus, the correct answer is **option 3**.

Correct Indirect form: *The mayor ordered the marshals not to conduct any drill the next day.*

★ **Additional Information**

- Direct speech: A direct speech reports the precise words used by a speaker or writer.
- Indirect Speech: Indirect speech focuses more on the content of what someone said rather than their exact words.
- Rules for direct speech into indirect speech:

Direct Speech	Indirect Speech
Simple Present tense	Simple past tense
Present continuous tense	Past continuous tense
Present perfect continuous tense	Past perfect continuous tense
Present perfect tense	Past perfect tense
Simple past tense	Past perfect tense
Past continuous tense	Past Perfect continuous tense
Past perfect tense	No change
Past perfect continuous tense	No change
Will/shall/can	Would/should/could

93. Answer: a

Explanation:

The correct answer is **option 1, "In a dilemma"**.

★ **Key Points**

- The idiom **"to be in two minds"** means **to be uncertain or undecided about something**. It implies that a person is torn between two options or ideas and is unable to make a decision.
- For example, if someone is trying to decide whether to take a job offer in a different city or stay in their current job, they might say "I'm in two minds about it. On one hand, the new job is a great opportunity, but on the other hand, I don't want to leave my friends and family behind." This shows that they are struggling to make a decision and are considering both options.
- Therefore, **option 1, "In a dilemma"**, is the best expression of the meaning of the idiom **"to be in two minds"**.

94. Answer: c

Explanation:

The correct answer is **option 3, verbose**.

★ Key Points

- **Verbose** means using more words than necessary, which perfectly fits the given group of words.
 - For example, "The professor's lectures were so **verbose** that the students often found themselves struggling to stay awake."
- **Option 1, platonic**, means a relationship that is purely spiritual and not physical.
 - For example, "Their friendship was purely **platonic**, and they never had any romantic feelings for each other."
- **Option 2, laconic**, means using very few words to express oneself.
 - For example, "The detective's **laconic** responses to the suspect's questions made the suspect nervous."
- **Option 4, revenant**, means a person who has returned from the dead.
 - For example, "The movie was about a **revenant** who came back to seek revenge on those who wronged him."
- Thus, the correct answer is **Option 3**.

95. Answer: a

Explanation:

Here the correct answer is 1) **SQRP**.

★ Key Points

- The sentence talks about the severe bleaching of the Great Barrier Reef in Australia due to warm seawater from late 2015 to the middle of 2016.
- So, the sentence should start with **S**, which sets the time frame.
- Then, **Q** should follow to specify the location of the affected area.
- **R** comes next to state the exact location, and **P** concludes the sentence by providing the survey report.
- Hence, the correct order is **SQRP**.

96. Answer: c

Explanation:

Here the correct answer is **Determines**.

★ Key Points

- The most appropriate option to fill in **blank number 1** is "**determines**."
- In the given passage, the sentence talks about the difference between solar radiation absorbed and thermal radiation emitted to space.
- This difference affects or determines the radiation budget of the Earth.
- The word "**determines**" accurately conveys the idea that the difference between the two types of radiation is what establishes or influences the radiation budget.
- Other options and their explanations:
- "**Placates**": This option does not fit in the context of the passage. "Placates" means to appease or pacify someone or something, which is unrelated to the

discussion of the radiation budget.

- Example: "Efforts were made to **placate** concerns about the radiation budget, ensuring the appropriate balance between energy intake and emission."
- **"Duplicates"**: This option does not fit in the context of the passage. "Duplicates" means to make an exact copy or replicate, which is unrelated to the concept of the radiation budget.
 - Example: "The laboratory aimed to **duplicate** the radiation budget conditions for accurate research and experimentation."
- **"Examines"**: This option does not fit in the context of the passage. "Examines" means to inspect or analyze something in detail, which is unrelated to the concept of the radiation budget determining Earth's processes.
 - Example: "The scientist **examines** the radiation budget to understand its impact on climate patterns."
- In summary, the correct answer is **"determines"** because it accurately reflects the idea that the difference between absorbed solar radiation and emitted thermal radiation establishes or influences the radiation budget of the Earth.

97. Answer: d

Explanation:

Here the correct answer is **Concluded**.

★ Key Points

- The most appropriate option to fill in **blank number 2** is **"concluded."**
- In the given passage, the sentence discusses the absence of a significant long-term trend in planetary temperature.
- Based on this information, it is reasonable to conclude that the radiation budget of the Earth is essentially zero on a global long-term average.
- The word **"concluded"** accurately reflects this idea, indicating that the absence of a trend leads to the conclusion of a near-zero radiation budget.
- Other options and their explanations:

- **"Faded"**: This option does not fit in the context of the passage. "Faded" means to become less intense or prominent, which does not align with the concept of drawing a conclusion based on the absence of a trend.
 - Example: "Over time, the influence of the initial observation **faded**, making it less relevant to draw a conclusion about the radiation budget."
- **"Exercised"**: This option does not fit in the context of the passage. "Exercised" means to engage in physical activity or to use something actively, which is unrelated to the concept of drawing a conclusion about the radiation budget.
 - Example: "Scientists actively **exercised** their analytical skills to interpret data and draw conclusions about the radiation budget."
- **"Pleaded"**: This option does not fit in the context of the passage. "Pleaded" means to make an emotional appeal or request, which is unrelated to the concept of drawing a conclusion based on observed information.
 - Example: "The researcher **pleaded** with the team to consider the significance of the observed trends before reaching a conclusion about the radiation budget."
- In summary, the correct answer is **"concluded"** because it accurately reflects the idea that the absence of a significant long-term trend leads to the conclusion of an essentially zero radiation budget on a global long-term average.

98. Answer: a

Explanation:

Here the correct answer is **Proportional**.

★ Key Points

- The most appropriate option to fill in **blank number 3** is **"proportional."**
- In the given passage, the sentence states that the rate of temperature change in any region is directly related to the energy budget of that region.
- The word **"proportional"** accurately reflects this relationship, indicating that as the energy budget of a region increases or decreases, the rate of temperature change also increases or decreases in proportion.

- In this example, the use of "**proportional**" emphasizes the direct relationship between the energy budget and the rate of temperature change. As the energy budget increases, the temperature change is expected to increase proportionally.
- Other options and their explanations:
- "**Symmetrical**": This option does not fit in the context of the passage. "Symmetrical" refers to a balanced or mirrored arrangement, which is unrelated to the concept of a direct relationship between the energy budget and the rate of temperature change.
 - Example: "The temperature distribution across the region exhibited a **symmetrical** pattern, indicating similar conditions on both sides."
- "**Twisted**": This option does not fit in the context of the passage. "Twisted" means to bend or distort, which is unrelated to the concept of a direct relationship between the energy budget and the rate of temperature change.
 - Example: "The data revealed a **twisted** relationship between the energy budget and the rate of temperature change, requiring further investigation."
- "**Hospitable**": This option does not fit in the context of the passage. "Hospitable" means friendly or welcoming, which is unrelated to the concept of a direct relationship between the energy budget and the rate of temperature change.
 - Example: "The region's **hospitable** climate encouraged diverse flora and fauna to thrive, influenced by the energy budget and temperature patterns."
- In summary, the correct answer is "**proportional**" because it accurately reflects the direct relationship between the energy budget and the rate of temperature change in a region.

99. Answer: d

Explanation:

Here the correct answer is Budget.

★ Key Points

- The most appropriate option to fill in **blank number 4** is **"budget."**
- In the given passage, the sentence mentions that radiation may dominate the average energy budget of many surfaces.
- The word **"budget"** accurately reflects this idea, referring to the allocation or distribution of resources, in this case, energy.
- The term "energy budget" refers to the balance or distribution of energy within a system or region.
- In this example, the use of **"budget"** highlights the concept of allocating or distributing energy, indicating that radiation has a significant presence in the energy distribution among various surfaces.
- Other options and their explanations:
 - **"Heat"**: This option does not fit in the context of the passage. While heat is mentioned in relation to the heat capacity of a region, it does not align with the idea of radiation dominating the energy distribution or budget.
 - Example: "The **heat** capacity of the region influences its ability to retain or release thermal energy."
 - **"Balance"**: This option does not fit in the context of the passage. While balance is relevant to the overall concept of energy distribution, it does not specifically convey the idea of radiation dominating the energy budget.
 - Example: "Maintaining a **balance** between energy intake and expenditure is crucial for an efficient energy system."
 - **"Crescent"**: This option does not fit in the context of the passage. "Crescent" refers to a curved shape and is unrelated to the concept of radiation dominating the energy budget.
 - Example: "The moon appeared in the sky, forming a beautiful **crescent** shape."
- In summary, the correct answer is **"budget"** because it accurately reflects the concept of radiation dominating the energy distribution or budget among various surfaces.

100. Answer: b

Explanation:

Here the correct answer is **Generally**.

★ Key Points

- The correct answer for **blank number 5** is "**generally**," let's analyze it in the context of the passage.
- The passage states that while radiation may dominate the average energy budget of many surfaces, nonradiative energy transfer and storage also play a role when considering local changes.
- In this case, the word "**generally**" suggests that nonradiative energy transfer and storage are important in most cases or generally speaking.
 - Example: "While radiation is the primary factor in the energy budget of most surfaces, nonradiative energy transfer and storage **generally** contribute significantly to local changes in energy balance."
- In this context, "**generally**" emphasizes that nonradiative processes are commonly relevant, although radiation may still be the dominant factor in the average energy budget. It indicates that while radiation is generally important, nonradiative processes should not be overlooked when examining specific local changes.
- Thus, the correct answer is **Option 2**.

★ Additional Information

- "**Manually**": This option is not appropriate in the context of the passage because it pertains to actions performed by hand, which is unrelated to the discussion of energy transfer and storage.
 - Example: "**Manually**, nonradiative energy transfer can be enhanced through specific techniques applied to surfaces."
- "**Cynically**": This option is not suitable in the context of the passage as it refers to a skeptical or negative attitude, which is unrelated to the discussion of the energy budget and its components.
 - Example: "**Cynically**, nonradiative energy transfer is often dismissed as inconsequential, despite its significant impact."
- "**Modestly**" means to a moderate or reasonable extent, often implying something is not excessive or extravagant.

- Example: "She dressed **modestly** for the occasion, wearing a simple and conservative outfit."
- In the context of the original passage, the use of "**modestly**" does not align with the discussion of nonradiative energy transfer and storage.

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