



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

RRB Group D 2018 Previous Year Paper (11-Oct-2018) (Shift 1)

Total Time: 1 Hour : 30 Minute

Total Marks: 100

Instructions

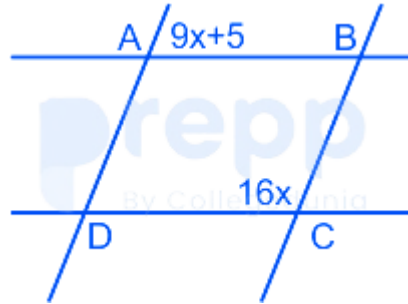
Sl No.	Section Name	No. of Question	Maximum Marks	Negative Marks	Positive Marks
1	CBT	100	100	0.33	1

- 1.) A total of 90 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.

Your Personal Exams Guide

CBT

1. Panu, Jiban, and Jalil can complete a certain task individually in 30, 20 and 60 days, respectively. Jiban started work on the task and Panu and Jalil agreed to help Jiban every third day. How many days will it take to complete the task? (+1, -0.33)
- a. 13
 - b. 12
 - c. 14
 - d. 15
-
2. If 3 is added to both the numerator and the denominator, the fraction becomes $\frac{10}{11}$. When 4 is subtracted from both the numerator and the denominator of the same fraction. it becomes $\frac{3}{4}$. What is the value of the fraction? (+1, -0.33)
- a. $\frac{3}{5}$
 - b. $\frac{7}{8}$
 - c. $\frac{3}{4}$
 - d. $\frac{6}{13}$
-
3. Find the measure of angle ABC (in degrees) in the parallelogram ABCD as shown in the given figure: (+1, -0.33)



- a. 68
- b. 112
- c. 102
- d. 78

4. Which South Indian film stars have formally entered politics recently? (+1, -0.33)

- a. Vijay and Surya
- b. Siddharth and Madhavan
- c. Ajith and Shalini
- d. Rajinikanth and Kamal Haasan

5. P 3 R I M J 3 Q % W @ / N \$ E 5 X Y 1 # 8 (+1, -0.33)

In the above series, the 6th term to the left of the 15th term from the left is:

- a. W
- b. %
- c. 8

d. #

6. If $\tan \theta = a/b$ such that $\frac{a \sin \theta - b \cos \theta}{a \sin \theta + b \cos \theta} = \left[\frac{a^2 - b^2}{a^2 + b^2} \right]^k$, then k is: (+1, -0.33)

a. 6

b. 2

c. 1

d. 8

7. The GCF of 156, 312 and 195 is: (+1, -0.33)

a. 39

b. 3

c. 78

d. 13

8. The difference between the selling prices of a keyboard when sold at losses of 15% and 25% is Rs. 50. Then, the cost price of the keyboard will be: (+1, -0.33)

a. Rs. 240

b. Rs. 330

c. Rs. 300

d. Rs. 500

9. The 17th Lok Sabha elections are proposed to be held in which year? (+1, -0.33)

- a. 2020
- b. 2019
- c. 2024
- d. 2022

10. Who is the managing director and CEO of Axis Bank as of 2018? (+1, -0.33)

- a. Chanda Kochhar
- b. Arundhati Bhattacharya
- c. Shikha Sharma
- d. Sanjaya Sharma

11. If the edge of a cube is halved, then its volume reduces to ----- times its original volume. (+1, -0.33)

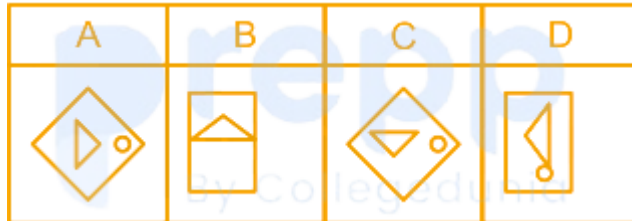
- a. $1/3$
- b. $1/4$
- c. $1/8$
- d. $1/2$

12. Select the option figure that will complete the series of question figures. (+1, -0.33)

Question Figures



Option figures



- a. B
- b. C
- c. D
- d. A

13. Who invented a smart glove called TerraBlue XT – TJay that predicts epileptic seizures? (+1, -0.33)

- a. Rajlakshmi Borthakur
- b. Ankita Deka
- c. Archana SR
- d. Chayanika Baruah

14. Read the given statement(s) and conclusions carefully and select which of the conclusions logically follow(s) from the statement(s). (+1, -0.33)

Statements:

I. All snakes are poisonous.

II. All poisonous are reptiles.

Conclusions:

1. All snakes are reptiles.

2. Some reptiles are poisonous.

a. Neither 1 nor 2 follows.

b. Conclusion 2 alone follows.

c. Both 1 and 2 follows.

d. Conclusion 1 alone follows

15. The chemical name of _____ is calcium sulphate hemihydrate. (+1, -0.33)

a. Baking powder

b. Gypsum

c. Baking soda

d. Plaster of paris

16. In a group of 100 students, every student study 8 subjects and every subject is studied by 10 students. The number of subjects is: (+1, -0.33)

a. Exactly 80

b. May be 50

c. At most 30

d. At least 90

17. Pointing to a woman, Raghav said, "Her son is my daughter's uncle". How is the woman related to Raghav? (+1, -0.33)

- a. Sister
- b. Mother
- c. Daughter
- d. Grandmother

18. In which of the following classifications are the elements arranged in the order of their increasing atomic number? (+1, -0.33)

- a. The Modern Periodic Table
- b. Mendeleev's Periodic Table
- c. Newland's Law of Octaves
- d. Dobereiner's Triads

19. Select the option that can replace the question mark(?) in the following series. (+1, -0.33)

$\leq \ell$	$\pm^* \Omega$	$\backslash \pm /$	$\ell \leq$	$\pm^*$	$/\pm \backslash$	$\pm^* \Omega$	$\leq \ell$	?
$/\pm \backslash$	$\pm^*$	$\pm^*$	$\Omega \pm^*$	$\pm^* \Omega$				

$\pm$	$\Omega \pm^*$	$/\pm^*$	Ω	$\Omega \pm^*$	$\pm^*$	$\Omega \pm^*$	$/\pm^*$
$\ell \leq$	$/\pm^*$	$\ell \leq$	$\pm$	$\ell \leq$	$\backslash \pm /$	$\ell \leq$	$\pm$
A	B	C	D				

- a. A
- b. B
- c. C
- d. D

20. Who has been appointed as the Executive Director of Canara Bank? (+1, -0.33)

- a. Ravi Venkatesan
- b. Murali Ramaswamy
- c. Mahesh Kumar Jain
- d. Debashish Mukherjee



21. (+1, -0.33)

The mirror image of the above figure with respect to the line AB is:

- a.



b.



c.

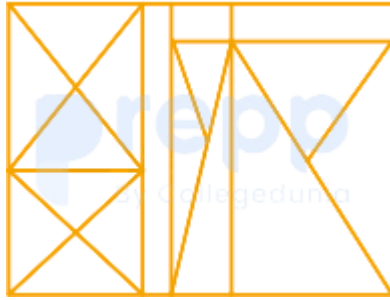


d.

22. You are driving from point A to point B at a speed of 45 km/hr. Your friend is driving from point B to point A at a speed of 53 km/hr. if the distance between the two points is 1029 km and both of you started at the same time, how many hours will it be before you pass each other? (+1, -0.33)

- a. 9.5
- b. 10
- c. 11
- d. 10.5

23. How many triangles are there in the following figure? (+1, -0.33)



- a. 22
- b. 27
- c. 23
- d. 24

-
24. The age of a mother 10 years ago was thrice the age of her son. 10 years hence, the mother's age will be twice that of her son. The ratio of their present ages is: (+1, -0.33)
- a. 12 : 5
 - b. 6 : 1
 - c. 7 : 3
 - d. 4 : 2

-
25. Sagar Baheti has become the first visually impaired Indian runner to complete the historic Boston Marathon. Where does Sager hail from? (+1, -0.33)
- a. Mumbai
 - b. Bengaluru
 - c. New Delhi

d. Chennai

26. Find the odd one out.

(+1, -0.33)



a. B

b. A

c. D

d. C

27. Which of the following plants is NOT a Thallophyta?

(+1, -0.33)

a. Spirogyra

b. Ulva

c. Riccia

d. Chara

28. In a garden 42 trees, $\frac{3}{7}$ of them are Neem trees and the rest are Mango trees. Find the number of Mango trees.

(+1, -0.33)

a. 16

b. 24

c. 20

d. 18

29. Who is the 16th Honourable Speaker of the Lok Sabha? (+1, -0.33)

a. Sumitra Mahajan

b. Manohar Joshi

c. Meira Kumar

d. Somnath Chatterjee

30. A company's CEO discusses the fund allocation with the CFO. This year the fund for new product development has increased by one third of the fund allocated last year. Last year, Rs. 20,00,000 were allotted for various activities including product development that amounts to 30% of the activities. How much money is the CFO allocating for product development this year? (+1, -0.33)

a. Rs. 8,00,000

b. 10,00,000

c. 12,00,000

d. 6,00,000

31. One way of dating fossils is only by detecting the ratio of different _____ of the same element in the fossil material. (+1, -0.33)

a. allotropes

b. isotopes

c. isobars

d. isomers

32. The sample space of four coins tossed together is: (+1, -0.33)

a. 8

b. 64

c. 32

d. 16

33. Nandini is sister of Vani. How is Nandini's only sister's father's father related to Vani? (+1, -0.33)

a. Uncle

b. Cousin

c. Father

d. Paternal Grand father

34. An object of mass 13 kg is moving with a uniform velocity of 5 ms^{-1} . What is the kinetic energy possessed by the object? (+1, -0.33)

a. 187.5 J

b. 17.5 J

- c. 162.5 J
 - d. 162.5 ms
-

35. Given below is statement followed by two assumptions numbered I and II. (+1, -0.33)
You have to consider the statement and the following assumptions and decide which of the assumptions is implicit in the statement.

Statement: Amit can make students understand the complex mathematical problems in a easy way.

Assumptions:

- I. Amit likes Mathematics.
 - II Amit can teach physics well.
- a. Both I and II are implicit.
 - b. Only assumption II is implicit
 - c. Neither I nor II is implicit
 - d. Only assumption I is implicit
-

36. Which of the following laws is associated with the heating effect of electric current? (+1, -0.33)
- a. Joule's law
 - b. Ohm's law
 - c. Faraday's law
 - d. Newton's law
-

37. In Modern Periodic Table, there is an anomaly when it comes to the position of _____ because it can be placed either in group 1 or group 17 in the first period. (+1, -0.33)

- a. He
 - b. H
 - c. Li
 - d. Be
-

38. The time period of a vibrating body is 0.04s, then the frequency of the wave is _____. (+1, -0.33)

- a. 25Hz
 - b. 20Hz
 - c. 250Hz
 - d. 200Hz
-

39. Find the next number in the series. (+1, -0.33)

4, 9, 20, 43, ?

- a. 100
 - b. 92
 - c. 82
 - d. 90
-

40. The natural colour of litmus is _____. (+1, -0.33)

- a. Red
 - b. Pink
 - c. Green
 - d. Purple
-

41. In an electric circuit, Rheostat is often used to change the _____ in the circuit. (+1, -0.33)

- a. temperature
 - b. resistance
 - c. electric current
 - d. potential difference
-

42. Supriya is playing chess with Pallavi. If Supriya is facing North direction, in which direction Pallavi is facing considering the standard chess seating position? (+1, -0.33)

- a. North
 - b. West
 - c. South
 - d. East
-

43. In June 2017, NASA launched the world's lightest satellite which weighs 64 grams and is created by Chennai students. What is called? (+1, -0.33)

- a. Kalam SAT
- b. Cartosat-2C
- c. IRNNS-1G
- d. GSAT_6

44. 'Real' is the currency of which country? (+1, -0.33)

- a. South Africa
- b. Brazil
- c. Ghana
- d. Cambodia

45. Which of the below allotropes of carbon is in the form of geodesic globe? (+1, -0.33)

- a. Fullerene
- b. Carbon nanotube
- c. Graphite
- d. Diamond

46. Medha sells her bag for Rs. 300 and loses Rs. 60. At what price must she sell the article to gain 15%? (+1, -0.33)

- a. Rs 146
 - b. Rs 172
 - c. Rs 414
 - d. Rs 516
-

47. 10 men can finish painting a wall in 8 days. How many more men will be needed of the painting work is to be finished in 4 days? (+1, -0.33)

- a. 8
 - b. 5
 - c. 10
 - d. 20
-

48. The atomic mass of Calcium is _____. (+1, -0.33)

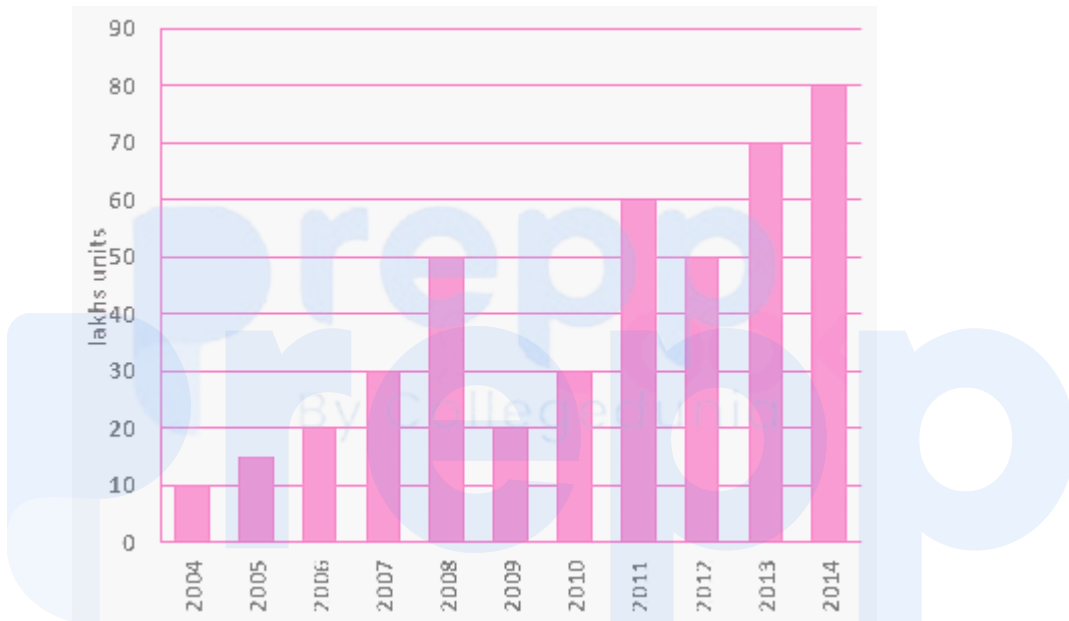
- a. 24
 - b. 40
 - c. 23
 - d. 32
-

49. In case of hypermetropia, where is the image formed? (+1, -0.33)

- a. In front of the retina
- b. On the retina

- c. Behind the retina
- d. On the cornea

50. The following bar graph shown information on the sales of the personal computers by the company "XYZ" for the last 10 years. (+1, -0.33)



How many units of personal computers were sold by the company XYZ in 2011?

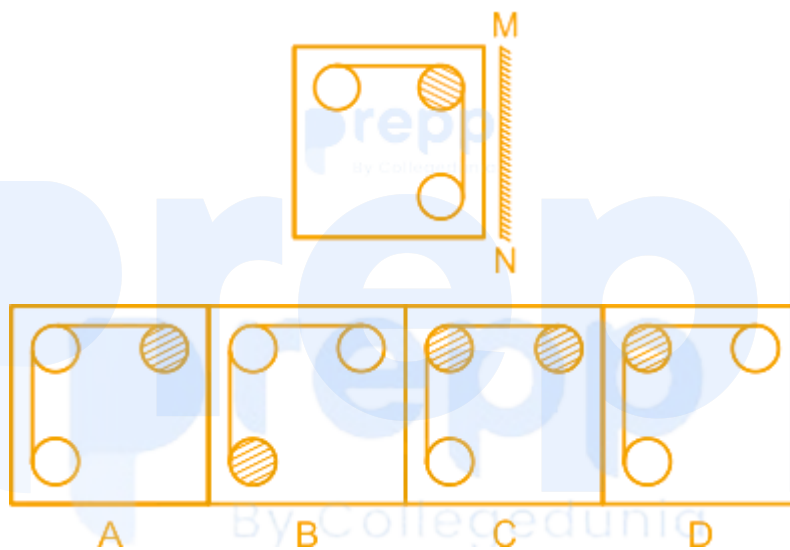
- a. 60
- b. 50
- c. 80
- d. 70

51. Aamir Khan was honoured with the Best Actor Award in 2017 at -----.

- a. National Film Award
- b. IIFA Awards
- c. Indian Film Festival
- d. Filmfare Awards

52. Choose the mirror image for the following figure.

(+1, -0.33)



- a. B
- b. A
- c. D
- d. C

53. Samu needs 40% to pass. If he scores 190 marks, but still fails by 10 marks, then what is the maximum number of marks he could have scored? (+1, -0.33)

- a. 400

b. 500

c. 450

d. 550

54. Which of the following represents the equation for position-time relation? (+1, -0.33)

a. $2as = v^2 = u^2$

b. $S = ut + (1/2) at^2$

c. $v = u - at$

d. $V = u + at$

55. Mahavira is believed to be the last of the ----- Tirthankaras. (+1, -0.33)

a. 26

b. 22

c. 20

d. 24

56. Who invented the periodic table? (+1, -0.33)

a. Marie Curie

b. Dmitri Mendeleev

c. Antoine Lavoisier

d. Louis Pasteur

57. Which of the following energy varies with the height of an object? (+1, -0.33)

- a. Nuclear energy
 - b. Kinetic energy
 - c. Chemical energy
 - d. Potential energy
-

58. As of March 2018, how many Indians have won Grand Slam tournaments in tennis? (+1, -0.33)

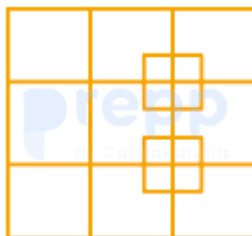
- a. 6
 - b. 7
 - c. 5
 - d. 4
-

59. In which year did the partition of Bengal take place? (+1, -0.33)

- a. 1910
 - b. 1902
 - c. 1903
 - d. 1905
-

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

(+1, -0.33)



- a. 24
- b. 20
- c. 22
- d. 26

61. Which of the following has low density and low melting point?

(+1, -0.33)

- a. Na
- b. Fe
- c. Cu
- d. Au

62. The work done is zero if there is no _____.

(+1, -0.33)

- a. Power
- b. Momentum
- c. Velocity
- d. Displacement

63. A sum of Rs 110 is in the form of Rs. 2, Rs. 1, and 50 paise coins in the ration of 1 : 2 : 3 respectively, how many 50 paise coins are there? (+1, -0.33)

- a. 20
- b. 60
- c. 40
- d. 80

64. What is the HCF of 16, 72 and 28? (+1, -0.33)

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

Your Personal Exams Guide



65. (+1, -0.33)

The figure that does not belong the group is.

- a. D
- b. B
- c. C

d. A

66. In which state of India 'Chhappar Mela' a social festival is organised? (+1, -0.33)

- a. Punjab
 - b. Bihar
 - c. Odisha
 - d. Gujarat
-

67. Two pipes, A and B can fill a tank in X minutes and 6 minutes respectively. (+1, -0.33)
If both the pipes are used together, they take 1.5 minutes to fill the tank.
Find the value of X.

- a. 1 min
 - b. 4 mins
 - c. 5 mins
 - d. 2 mins
-

68. Which tissue is responsible for transport of water away from the root? (+1, -0.33)

- a. Ground tissue
 - b. Cambium
 - c. Phloem
 - d. Xylem
-

69. What comes next in the given series?

(+1, -0.33)

6C, 10F, 14I, 18L?

- a. 22G
- b. 22O
- c. 20T
- d. 22L

70. _____ is least reactive element belonging to group 17.

(+1, -0.33)

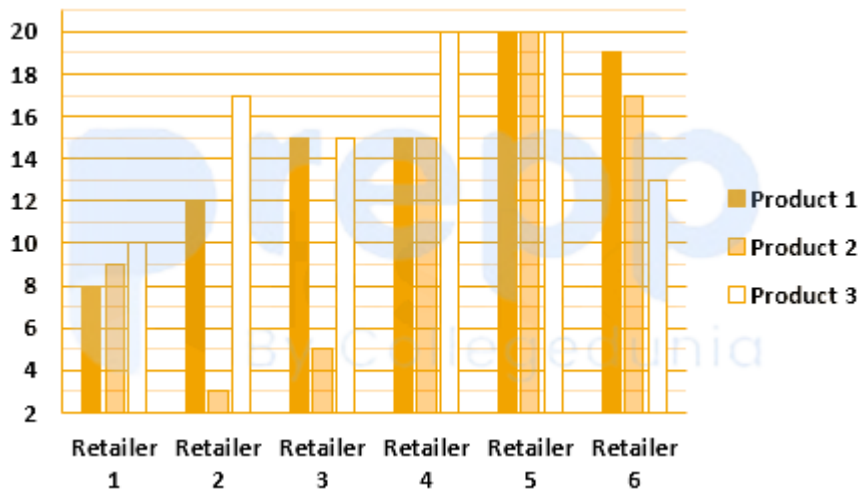
- a. Bromine
- b. Iodine
- c. chlorine
- d. Fluorine

71. A car falls of a ledge and drops to the ground in 0.7 s. (let $g = 10 \text{ ms}^{-2}$).
What is its speed on striking the ground?

(+1, -0.33)

- a. 6 ms^{-1}
- b. 8 ms^{-1}
- c. 4 ms^{-1}
- d. 7 ms^{-1}

72. Based on the following graph, which retailer offers all the three products for less than Rs. 10 each? (+1, -0.33)



Note: The X axis indicates prices in rupees and Y-axis represents the retailer.

- a. Retailer 4
- b. Retailer 2
- c. Retailer 3
- d. Retailer 1

73. Consider the given statements to be true even if they seem to be at variance with the commonly known facts and decide which of the given conclusions logically follows from the statements. (+1, -0.33)

Statements:

- 1. Some Penguins are Peacocks.
- 2. All the Peacocks are Snakes.

Conclusions:

1. Some penguins are snakes.
 2. No peacock is a penguin.
- a. Either 1 or 2 follows.
 - b. Only 2 follows.
 - c. Neither 1 nor 2 follows
 - d. Only 1 follows.
-

74. If A is the sister of C and C is the wife of D. How D is related to A? (+1, -0.33)

- a. Sister
 - b. Brother-in-law
 - c. Brother
 - d. Sister-in-law
-

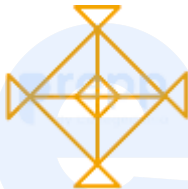
75. The difference between a fraction and its reciprocal is $\frac{9}{11}$. If the cubes of both the fraction and its reciprocal are considered, then what will be the difference between them? (+1, -0.33)

- a. $\frac{3996}{1331}$
 - b. $-\frac{1331}{2538}$
 - c. $\frac{729}{1331}$
 - d. $-\frac{2538}{1331}$
-

76. Transfer of Pollengrains from anther to the stigma of a flower is called ----- (+1, -0.33)

- a. Pollination
- b. Regeneration
- c. Transpiration
- d. Sexual reproduction

77. Count the number of triangles in the figure. (+1, -0.33)



- a. 28
- b. 24
- c. 26
- d. 20

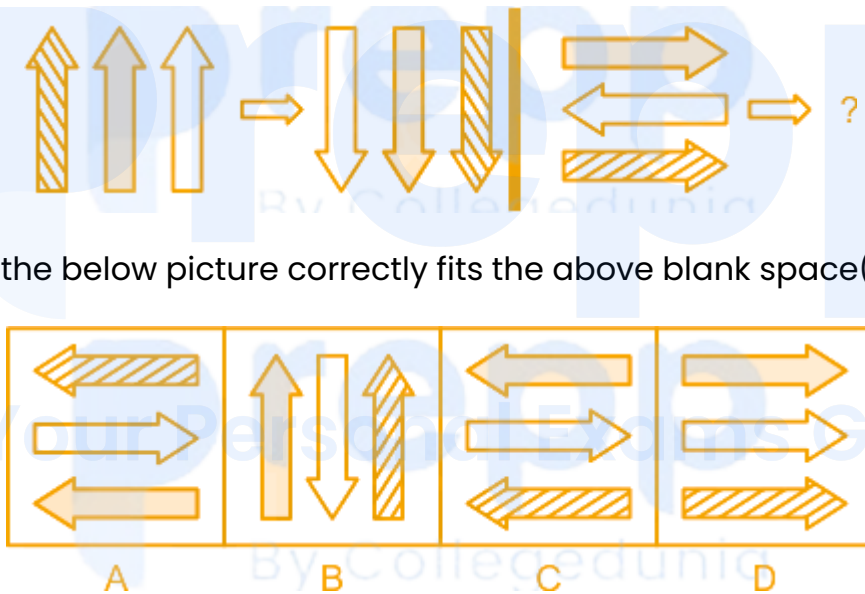
78. Where is GIFT city of India being planned by the government? (+1, -0.33)

- a. Ahmedabad
- b. Mysore
- c. Hyderabad
- d. Jaipur

79. On which day is "World Hindi Day" (WHD) observed every year to mark the first anniversary of World Hindi Conference (WHC), which was held in 1975? (+1, -0.33)

- a. 5th September
- b. 14th October
- c. 10th January
- d. 26th January

80. Which of the below picture correctly fits the above blank space(??) (+1, -0.33)



- a. C
- b. A
- c. B
- d. D

81. The Black soil is also known as _____ soil. (+1, -0.33)

- a. Bhangar
- b. Humus
- c. Crystalline
- d. Regur

82. If the number $x3339$ is divisible by 11, what is the face value of x ? (+1, -0.33)

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

83. Which of the following statements is/are true? (+1, -0.33)

A. Rigidity: According to the type of matter, shape differs, depending upon location of particles. Eg, solids have definite shape while liquids acquire the shape of their container and gases, as such, don't have any shape.

B. Compressibility: It is the property of matter to allow a decrease in volume under high pressure and gases show this property.

- a. Only B is true
- b. A and B are both true
- c. A and B are both false

d. Only A is true

84. The number of odd days in a Non leap year is _____. (+1, -0.33)

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

85. Which one of the following is NOT linked to the cerebrum ? (+1, -0.33)

- a. It is a part of forebrain
 - b. It has two parts called cerebral hemispheres.
 - c. It forms the front, superior and lateral side of the brain
 - d. It is the largest part constituting 60% of the brain.
-

86. Read the given statement(s) and conclusions carefully and select which of the conclusions logically follow(s) from the8 statement(s). (+1, -0.33)

Statement:

Sound is produced when something vibrates. The vibrating body causes the medium around it to vibrate.

Conclusions:

- I. By medium, they mean only Air
- II. Sound is produced by vibration

- a. Only conclusion I follows
- b. Both the conclusions follow
- c. Only conclusion II follows
- d. No conclusion follows

87. 1200 soldiers in a fort had enough food for 28 days. After 4 days, some soldiers left the fort. Thus, food lasted for 32 days, how many soldiers left the fort? (+1, -0.33)

- a. 280
- b. 300
- c. 320
- d. 290

88. Read the given statement(s) and conclusions carefully and select which of the conclusions logically follow(s) from the statement(s). (+1, -0.33)

Statement: Our office is located in sixth floor. If a building has more than two floors, then it will have a lift.

Conclusions:

- I. Right from first floor to the last each floor can be reached by a lift.
- II. Fifth floor do not have a lift.

- a. Only conclusion I follows
- b. Neither I nor II follows

- c. Only conclusion II follows
- d. Both I and II follow

89. For creating how many safe cities, has the Union Ministry of Women and Child Development approved projects worth Rs 2,919 crore under Nirbhaya Fund? (+1, -0.33)

- a. 8
- b. 12
- c. 5
- d. 15

90. Find the next figure for the given series: (+1, -0.33)

Problem figures



Answer figures



- a. D
- b. C
- c. B

d. A

91. $551 \div 29 = 19$, then $5.51 \div 0.0019 = ?$ (+1, -0.33)

a. 2.9

b. 290

c. 2900

d. 0.29

92. Given below is a statement followed by two assumptions numbered I and II. You have to consider the statement and the following assumptions and decide which of the assumptions is implicit in the statement. (+1, -0.33)

Statement: "Mandarin oriental hotel has yet another new fan, Amitabh Bachchan," reads hotel advertisement.

Assumptions:

I. Mandarin Oriental is an expensive hotel.

II. Mandarin Oriental is owned by Amitabh Bachchan.

a. Only assumption I is implicit

b. Both I and II are implicit.

c. Neither I nor II is implicit

d. Only assumption II is implicit

93. What is the value of X, if $7580 - X = 3440$? (+1, -0.33)

- a. 4150
 - b. 5140
 - c. 4130
 - d. 4140
-

94. Select the institution that does not belong to the group. (+1, -0.33)

- a. NIT Warangal
 - b. IIM Ahmedabad
 - c. State Bank of India (SBI)
 - d. IIT Mumbai
-

95. Which of the following sport is Yuzvendra Chahal related to? (+1, -0.33)

- a. Tennis
 - b. Cricket
 - c. Shooting
 - d. Hockey
-

96. What is the scientific term for the speed of an object moving in definite direction? (+1, -0.33)

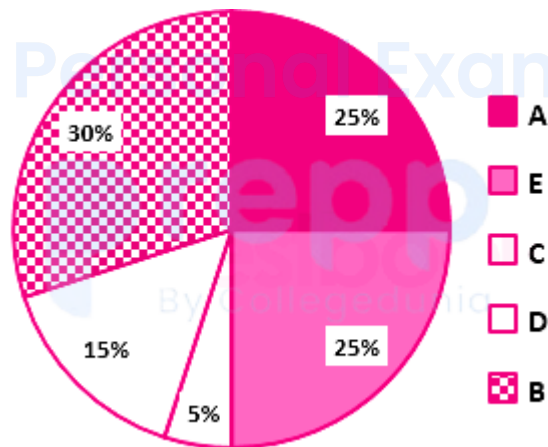
- a. Time
- b. Acceleration

- c. Velocity
- d. Motion

97. The zeros of the cubic polynomial $2x^3 - x^2 - 2x + 1$ are a, b and c respectively. Find $ab + bc + ca$. (+1, -0.33)

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

98. The following pie diagram shows information about tyres manufacturing data from various companies in India during 2017. If the total tyres produced in India during 2017 was 1,80,000 units, how many units of tyres were produced by company 'D'? (+1, -0.33)



- a. 18000
- b. 36000
- c. 9000

d. 27000

99. Rs. 1,080 invested for 3 months gave an interest of Rs. 27. The simple rate of interest per annum was: **(+1, -0.33)**

a. 25%

b. 5%

c. 7.5%

d. 10%

100. The force of gravitation between two bodies in the universe does NOT depend on: **(+1, -0.33)**

a. the distance between them

b. the sum of their masses

c. the gravitational constant

d. the product of their masses

Answers

1. Answer: d

Explanation:

Panu alone can complete the work in = 30 days

Jiban alone can complete the work in = 20 days

Jalil alone can complete the work in = 60 days

As we know, Efficiency is inversely proportional to time, so

Efficiency ratio of Panu, Jiban and Jalil = $1/30 : 1/20 : 1/60 = 2 : 3 : 1$

$\therefore$ Total work = $2 \times 30 = 60$ (Panu's efficiency $\times$ total time taken by him to complete the work)

First two day's work of Jiban = $2 \times 3 = 6$

Third day's work of Panu, Jiban and Jalil = $2 + 3 + 1 = 6$

Total work completed in three days by these three people = $6 + 6 = 12$

12 units of work completed in = 3 days

$\therefore$ 60 units of work (Total Work) will be completed in = $3 \times 5 = 15$ days.

Thus, the correct answer is option **4**.

2. Answer: b

Explanation:

Let the numerator be x and denominator be y , then fraction be x/y

According condition first

$$(x + 3)/(y + 3) = 10/11$$

$$11 \times (x + 3) = 10 \times (y + 3)$$

$$11x + 33 = 10y + 30$$

$$11x - 10y = 30 - 33$$

$$11x - 10y = (-3) \quad \text{---(1)}$$

According condition second

$$(x - 4)/(y - 4) = 3/4$$

$$4 \times (x - 4) = 3 \times (y - 4)$$

$$4x - 16 = 3y - 12$$

$$4x - 3y = 16 - 12$$

$$4x - 3y = 4 \quad \text{---(2)}$$

Multiply by 11 in equation (2) and multiply by 4 in equation (1)

$$y = 8$$

Put the value of $y = 8$ in equation (1)

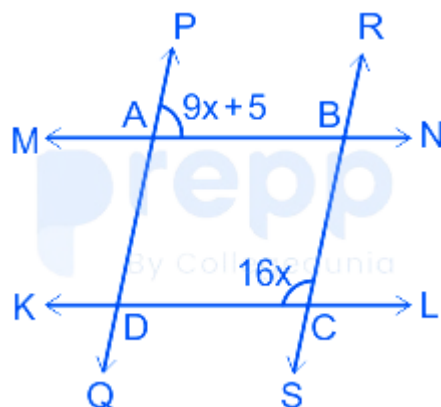
$$x = 7$$

Required fraction = $7/8$

We also can solve this question using options

3. Answer: a

Explanation:



Given, $\angle PAB = 9x + 5$ and $\angle BCD = 16x$

$\angle BCD = \angle RBA = 16x$ [Pairs of corresponding angles]

As we know,

$\angle PAB + \angle RBA = 180^\circ$ [Pair of interior angles on the same side of a transverse line]

$$9x + 5 + 16x = 180^\circ$$

$$25x + 5 = 180$$

$$25x = 180 - 5 = 175^\circ$$

$$x = 175/25 = 7$$

$$\angle RBA = 16x = 16 \times 7 = 112^\circ$$

$\angle RBA + \angle ABC = 180$ [Straight line]

$$\angle ABC = 180 - 112 = 68^\circ$$

4. Answer: d

Explanation:

- Rajinikanth and Kamal Haasan, stars from South Indian, have formally entered politics recently.

- Rajnikanth entered politics in the year 2017 and may also contest the Tamil Nadu Legislative Assembly elections in 2021.
- Kamal Haasan, in 2018, launched his political party Makkal Needhi Maiam.

5. Answer: b

Explanation:

Given series:

Left Side P 3 R I M J 3 Q % W @ / N \$ E 5 X Y 1 # 8 **Right Side**

The 15th term to the left side: E

and the 6th term from the left of E is %.

Hence, '%' is the correct answer.

6. Answer: c

Explanation:

$$\tan \theta = a/b$$

$$\frac{a \sin \theta - b \cos \theta}{a \sin \theta + b \cos \theta} = \left[\frac{a^2 - b^2}{a^2 + b^2} \right]^k$$

Using Dividendo and Componendo

$$\frac{a \sin \theta - b \cos \theta + a \sin \theta + b \cos \theta}{a \sin \theta - b \cos \theta - a \sin \theta - b \cos \theta} = \left[\frac{a^2 - b^2 + a^2 + b^2}{a^2 - b^2 - a^2 - b^2} \right]^k$$

$$2a \sin \theta / (-2b \cos \theta) = [2a^2 / (-2b^2)]^k$$

$$a \sin \theta / b \cos \theta = [a^2 / b^2]^k$$

$$(a/b) \tan \theta = [a^2 / b^2]^k$$

$$(a/b) \times (a/b) = [a^2/b^2]^K$$

$$[a^2/b^2] = [a^2/b^2]^K$$

Comparing both sides

$$K = 1$$

7. Answer: a

Explanation:

$$156 = 2 \times 2 \times 3 \times 13$$

$$312 = 2 \times 2 \times 2 \times 3 \times 13$$

$$195 = 3 \times 5 \times 13$$

$$\therefore \text{GCF} = 3 \times 13 = 39$$

Thus, the correct answer is option 1.

8. Answer: d

Explanation:

Let the cost price of the keyboard be Rs. x.

According to the question,

$$x \times (85/100) - x \times (75/100) = 50$$

$$x \times (10/100) = 50$$

$$x = 50 \times 10 = 500$$

$\therefore$ The cost price of the keyboard is Rs. 500.

Thus, the correct answer is option 4.

9. Answer: b

Explanation:

- The 17 th Lok Sabha elections were held in 2019.
 - Elections were held between 11 April-19 - May 2019.
 - BJP-led government was formed after the elections.
 - Narendra Modi was re-elected as the Prime Minister.
 - Om Birla was elected the Lok Sabha speaker.
-

10. Answer: c

Explanation:

- Shikha Sharma was the managing director and CEO of Axis Bank as of 2018.
 - The current managing director and CEO of Axis Bank is Amitabh Chaudhry.
 - Chanda Kochhar is the former MD and CEO of ICICI bank.
 - Arundhati Bhattacharya is the former chairman of SBI.
 - Sanjaya Sharma is the founder of Tata Interactive Systems.
-

11. Answer: c

Explanation:

Let the edge of the cube be 'a'

As we know,

The volume of the cube = a^3

If each edge of the cube is halved, then edge of the cube = $a/2$

Then, the volume of the new cube = $(a/2)^3 = a^3/8$

$\therefore$ The proportion to which the new volume reduces to the original volume is = $a^3/8 \div a^3 = 1/8$.

Thus, the correct answer is option 3.

12. Answer: d

Explanation:

In each quadrant there are two small shapes i.e. triangle and circle which are facing each other.

Only in figure A, given condition follows.

Hence, figure A is the correct answer.

13. Answer: a

Explanation:

- Rajlakshmi Borthakur invented a smart glove called TerraBlue XT – TJay that predicts epileptic seizures.
- It uses AI to predict epilepsy attacks and allows remote monitoring of patients.
- She has also won the Innovate for Digital India challenge in 2016 for this device.
- She is the founder and CEO of TerraBlue XT- company that manufactures this device.

14. Answer: c

Explanation:

From the

The least possible Venn diagram for the given statements is as follows,



Conclusions:

1. All snakes are reptiles → True, as all snakes are poisonous and all poisonous are reptiles, all snakes will definitely be the reptiles.
2. Some reptiles are poisonous → True, as all poisonous are reptiles, some reptiles will definitely be the poisonous.

Hence, both conclusion 1 and 2 follows.

Your Personal Exams Guide

15. Answer: d

Explanation:

- The chemical name of plaster of paris is calcium sulphate hemihydrate.
- Sodium hydrogen carbonate is the chemical name for baking powder and baking soda.
- Calcium sulphate dyhydrite is the chemical name for gypsum.

16. Answer: a

Explanation:

Total students = 100

According to the question

Every students study 8 subjects, then total subjects = $8 \times 100 = 800$

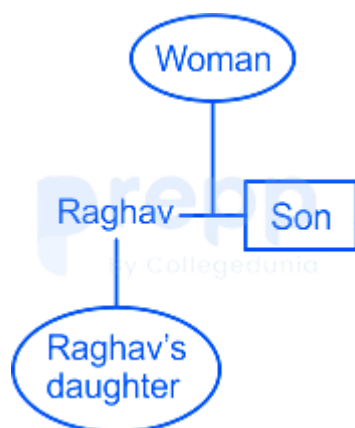
If every subject is studied by 10 students, then number of subjects = $800/10 = 80$

17. Answer: b

Explanation:

We can draw a family tree diagram from the given information as follows,

Symbol in Diagram	Meaning
○	Female
□	Male
==	Married Couple
—	Siblings
	Difference of A Generation



Clearly, the woman is the mother of Raghav.

Hence, "Mother" is the correct answer.

18. Answer: a

Explanation:

- In the **Modern Periodic Table**, the elements are arranged in the order of their increasing atomic number.
- In Mendeleev's Periodic Table, the elements are arranged in the order of their atomic masses.
- In Newland's Law of Octaves, the elements are arranged in the order of their increasing atomic masses and every 8th element has similar properties.
- Dobereiner's Triads have elements with similar properties.

19. Answer: c

Explanation:

Every element which is inside in the rectangle is shifting to next quadrant in a clockwise manner in succeeding image.

Hence, "figure C" is the correct answer.

20. Answer: d

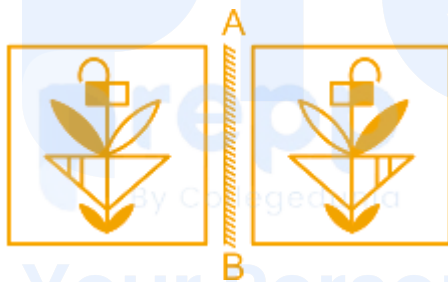
Explanation:

- Debashish Mukherjee was appointed as the Executive Director of Canara Bank in February 2018.
- R A Sankara Narayanan is the current Executive Director of Canara Bank.
- Mahesh Kumar Jain is the Deputy Governor of the RBI.

21. Answer: c

Explanation:

The mirror image of line AB is as follow,



Hence, "figure 3" is the correct answer.

22. Answer: d

Explanation:

Speed of A = 45 km/hr

Speed of B = 53 km/hr

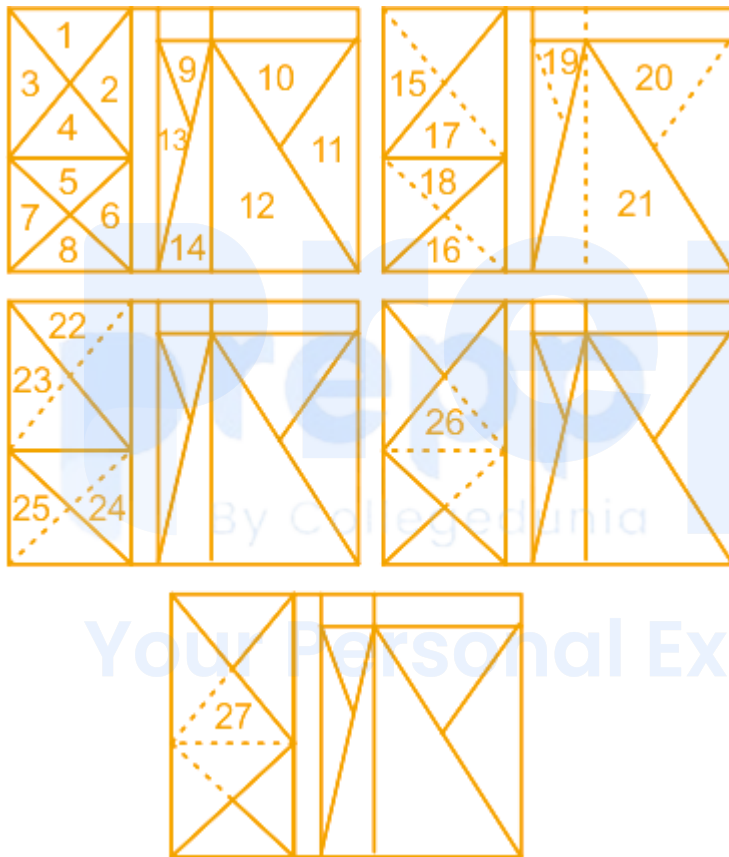
Distance between them = 1029 km

If they move opposite direction each other, then Speed of the A and B = $45 + 53 = 98$ km/hr

Required time to pass each other = $1029/98 = 10.5$ hrs

23. Answer: b

Explanation:



Hence, there are 27 triangles in the given figure.

24. Answer: c

Explanation:

let age of her son 10 years ago was be x

So, age of mother 10 years ago = $3x$

According to the question

$$(3x + 20)/(x + 20) = 2/1$$

$$3x + 20 = 2x + 40$$

$$3x - 2x = 40 - 20$$

$$x = 20$$

Age of her son 10 years ago was $x = 20$ years

Present age of her son = $20 + 10 = 30$

Age of mother 10 years ago was = $3x = 3 \times 20 = 60$ years

Present age of mother = $60 + 10 = 70$ years

Ratio of ages of mother to her son = $70 : 30 = 7 : 3$

Hence, $7 : 3$ is the correct answer.

Your Personal Exams Guide

25. Answer: b

Explanation:

- Sagar Baheti became the first visually impaired Indian runner to complete the historic Boston Marathon in 2017.
- He hails from Bengaluru.
- He completed a distance of 42.16 km in just 4 hours.
- Boston Marathon is the hardest and the world's oldest marathon.

26. Answer: c

Explanation:

In all figures except figure D, alphabets S, L, and N are shown with their mirror images.

Only in figure D, alphabet T is shown with its water image.

Hence, figure D is odd one out.

27. Answer: c**Explanation:**

- Riccia is not a Thallophyta.
 - It is a Bryophyta (not a Thallophyta).
 - The Bryophyta are those plants which do not have rudimentary root-like organs and vascular tissues.
 - Spirogyra, Ulva, and Chara are Thallophyta.
 - The Thallophyta are those plants which do not have any roots, stems, or leaves.
-

28. Answer: b**Explanation:**

Number of trees in the garden = 42

Number of Neem trees in the garden = $42 \times \frac{3}{7} = 18$

Number of Mango trees in the garden = $42 - 18 = 24$

29. Answer: a**Explanation:**

- *[Sumitra Mahajan was the Honourable (16th) Speaker of the Lok Sabha.](The solution is according to the the Previous year Paper.)*
- Om Birla is the incumbent Honourable (17th) Speaker of the Lok Sabha.
- Manohar Joshi is the former CM of Maharashtra.
- Meira Kumar was the 15th Lok Sabha Speaker.
- Somnath Chatterjee was the 14th Lok Sabha Speaker.

30. Answer: a

Explanation:

Total allotted fund last year was = Rs. 20,00,000

Allotted fund for development last year was = Rs. 20,00,000 $\times$ (30/100) = 6,00,000

Allotted fund for development for current year is = 60,00,00 $\times$ (4/3) = Rs. 8,00,000

31. Answer: b

Explanation:

- One way of dating fossils is only by detecting the ratio of different isotopes of the same element in the fossil material.
- This is known as Absolute dating.
- There are 2 main types of determining a fossil's age- absolute dating and relative dating.
- Relative dating determines a fossil's age by comparing it with the similar fossils and rocks of similar age.

32. Answer: d

Explanation:

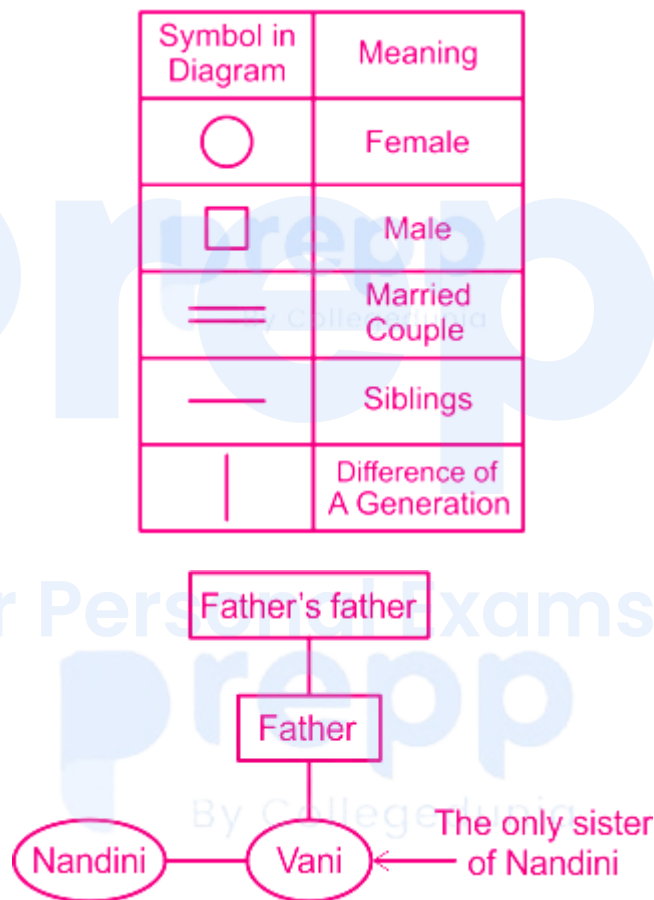
Number of coins tossed = 4

$\therefore$ Sample space of four coins tossed = $2^4 = 16$

33. Answer: d

Explanation:

We can draw a family tree diagram from the given information as follows,



Hence, "Paternal Grandfather" is the correct answer.

34. Answer: c

Explanation:

Concept:

Concept:

- The kinetic energy of an object is defined as the energy that it possesses due to its motion
- And can be expressed as $K.E = \frac{1}{2} mv^2$

Mass of particle = m

The velocity of particle = v

Kinetic energy = K.E

Calculation:

Given,

Mass of object = 13 Kg

Speed of object = 5 m/s

Now from the above explanation, we can see that,

$$K.E = \frac{1}{2} mv^2$$

⇒ Kinetic energy possessed by the object = $\frac{1}{2} \times 13 \times (5)^2$

⇒ $\frac{1}{2} \times 13 \times 25 = \underline{162.5 \text{ J}}$

35. Answer: d

Explanation:

Since Amit can make students understand the difficult mathematical problems in a simpler way, he might as well understand them very well himself. Therefore, it is safe to assume that he likes Mathematics.

Hence, assumption I is implicit.

The statement suggests nothing about Amit's teaching ability in Physics, therefore, assumption II is not implicit.

Hence, only assumption I is implicit.

36. Answer: a

Explanation:

The correct answer is **Joule's Law**.

- **Joule's law** is associated with the heating effect of electric current.
 - It is a way to find the amount of heat produced by **electric current**.
 - $H = I^2 R t$ is the relation used to calculate heat generated.

★ Additional Information

- **Ohm's law:**
 - The potential difference or voltage between 2 points is directly proportional to the electricity or current passing through the resistance.
 - $V = IR$ is the relation derived from Ohm's Law.
- **Faraday's law** of electromagnetic induction predicts how a magnetic field will interact with an electric circuit in order to produce an EMF, electromotive force.
- **Newton's laws of motion** describe the relationship between an object and the forces acting upon it.

37. Answer: b

Explanation:

- In Modern Periodic Table, there is an anomaly when it comes to the position of **H** because it can be placed either in group 1 or group 17 in the first period.
- Hydrogen combines with halogens so it can be placed in group 1 of the alkali metals.

- It also exists as a diatomic molecule and forms ionic compounds with metals so it can be placed in the halogen group (17) also.

The modern periodic table is as follows;

Table: Modern Periodic table

- Alkali metals
- Alkaline Earth Metals
- Halogens
- Nobel gases

The zig zag line separates the metals from the non metals

GROUP NUMBER

PERIODS

GROUP NUMBER		GROUP NUMBER																GROUP NUMBER	
		1	2	Transition Metals										13	14	15	16	17	18
1	1	H	2											5	6	7	8	9	10
2	3	Li	4											B	C	N	O	F	Ne
3	11	Na	12											13	14	15	16	17	18
4	19	K	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
5	37	Rb	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
6	55	Cs	56	57	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86
7	87	Fr	88	89	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118
*Lanthanoides 6		58	59	60	61	62	63	64	65	66	67	68	69	70	71				
**Actinoides 7		90	91	92	93	94	95	96	97	98	99	100	101	102	103				

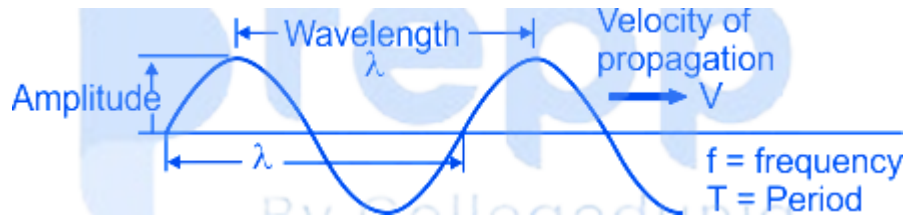
38. Answer: a

Explanation:

CONCEPT:

- Wave: It can be defined as the transport of energy without the transport of matter.
- The properties of waves are:
 - Wavelength (λ): The distance between two crests or troughs of a wave is known as wavelength. One wavelength equals the distance between two consecutive crests.
 - Frequency (f): The number of oscillations or the number of waves passes a given point in one sec. Its SI unit is Hertz.

- Time period (T): The time taken by the wave to complete one cycle.
- The relation between velocity, wavelength and frequency and time period of a wave is



$$\Rightarrow f = \frac{1}{T} = \frac{v}{\lambda}$$

[where f = frequency, T = time period, v = velocity of wave, λ = wavelength]

CALCULATION :

Given that,

time period of a wave, t = 0.04 seconds,

Its frequency = $1/t$

$$f = 1/0.04 = \underline{25 \text{ Hz}}$$

39. Answer: d

Explanation:

The pattern followed here is,



Hence, "90" is the correct answer.

★ Alternate Method

$$4 \times 2 + 1 = 9$$

$$9 \times 2 + 2 = 20$$

$$20 \times 2 + 3 = 43$$

$$43 \times 2 + 4 = 90$$

40. Answer: d

Explanation:

The correct answer is option 4, i.e. Purple.

- The natural colour of litmus is purple.
 - Litmus paper is used as one of the chemical indicators.
 - It is used to determine whether a solution is acidic or basic.
 - If the blue litmus paper is put in an acidic solution, it turns red.
-

41. Answer: b

Explanation:

CONCEPT:

- Rheostat : The variable resistor is a type of resistor whose electrical resistance value can be adjusted as per our demand. This type of resistor is called a rheostat.
 - This is not temperature sensitive.

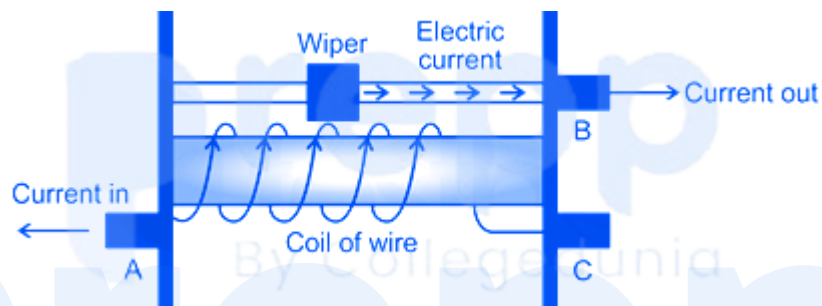
Explanation:

- In an electric circuit, Rheostat is often used to change the resistance in the circuit.

- A rheostat is a variable resistor that controls the flow of electric current by decreasing or increasing the resistance manually.
- The flow of electric current in a circuit can be controlled if we place a rheostat in the circuit.
- It finds its usage in the applications where a high current or voltage is required.

★ Additional Information

The below fig shows representation the structure of rheostats



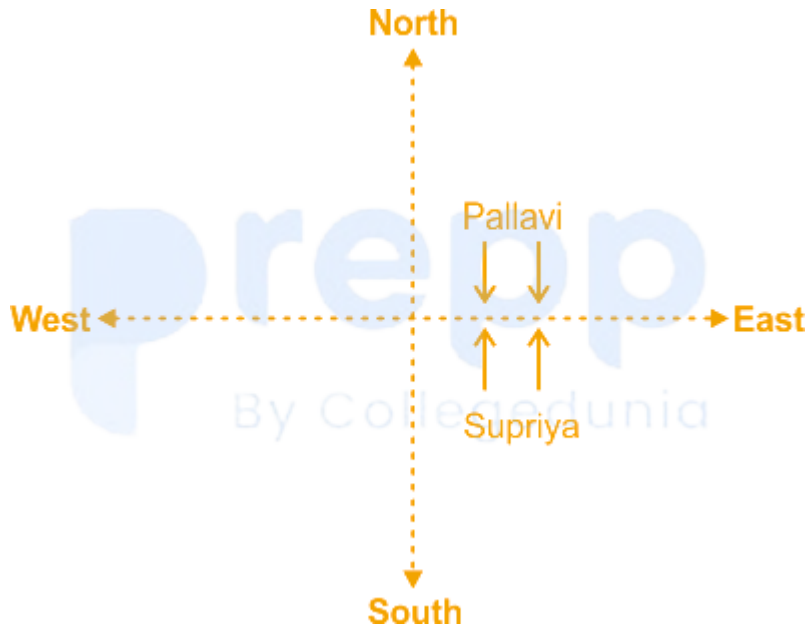
42. Answer: c

Explanation:

In chess, the players always sit in front of each other.

If Supriya is facing North, then Pallavi is definitely facing at South.

From the following figure.



Hence, South is the correct answer.

43. Answer: a

Explanation:

- In June 2017, NASA launched the world's lightest satellite Kalam SAT, which weighs 64 grams and is created by Chennai students.
- It has been developed by Rifath Sharook and his team.
- It has been named after Dr APJ Abdul Kalam.
- It is so small that it can be held in one palm.

44. Answer: b

Explanation:

<u>Country</u>	<u>Currency</u>
South Africa	Rand
Brazil	Real
Ghana	Cedi
Cambodia	Riel

45. Answer: a

Explanation:

- **Fullerenes** are those allotropes of carbon which are in the form of geodesic globe.
- The other allotropes of carbon include diamond, graphite, carbon nanotube, etc.
- **Allotropy** is a property possessed by a few chemical elements to exist in allotropes or more than 2 different forms.

46. Answer: c

Explanation:

Let the cost price of the bag be Rs. x

Selling price of the bag = Rs. 300

Loss the bag = Rs. 60

According to the question

CP – SP = Loss

$x - 300 = 60$

$$x = 360$$

So, cost price of the bag = Rs. 360

$$\text{New selling price of the article} = 360 \times (115/100) = \text{Rs. 414}$$

47. Answer: c

Explanation:

Let the number of men be x who needed for the painting work, to be finished in 4 days

As we know, Total work = Total work, so

$$M_1 \times D_1 = M_2 \times D_2$$

Given, $M_1 = 10$ men, $D_1 = 8$ days, $M_2 = x$ men, $D_2 = 4$ days

$$M_1 \times D_1 = M_2 \times D_2$$

$$10 \times 8 = M_2 \times 4$$

$$M_2 = 80/4 = 20$$

$$\Rightarrow 20 - 10 = 10$$

$\therefore$ 10 more men required to finish the painting work in 4 days.

48. Answer: b

Explanation:

- The mass of an atom or a molecule is referred to as the **atomic mass**.

Element	Atomic Mass
Calcium	40
Magnesium	24
Sodium	22.98
Sulphur	32

49. Answer: c

Explanation:

The correct answer is option 3 i.e., Behind the retina.

Hypermetropia:

- Hypermetropia is the term used to define longsightedness.
- In this, the image of a nearby object is formed behind the retina.
- This means that light is focused too far back in the eye, causing things that are close up to appear blurred.
- A convex lens is used to solve the problem of longsightedness or Hypermetropia.
- A convex lens is also known as a converging lens. A converging lens is a lens that converges rays of light that are travelling parallel to its principal axis.

Name of disease	lense used
Myopia	Concave lens
Hypermetropia	Convex lens
Astigmatism	Cylindrical lens

50. Answer: a

Explanation:

Number of units of personal computers sold by the company XYZ in 2011 is = 60 unit

51. Answer: d

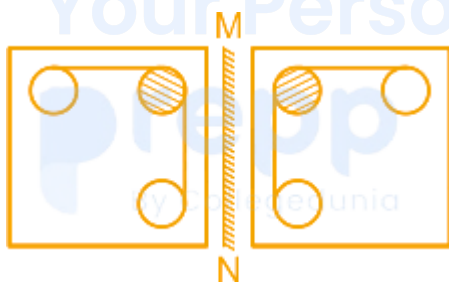
Explanation:

- Aamir Khan was honoured with the Best Actor Award in 2017 at Filmfare Awards.
- He was awarded for his film Dangal for his role as Mahavir Singh Phogat.
- Alia Bhatt was awarded Best Actress for her film Udaa Punjab.
- Best Film was won by film Dangal.
- Nitesh Tiwari won Best Director for the film Dangal.

52. Answer: c

Explanation:

The mirror image is as follows,



Hence figure D is the correct figure.

53. Answer: b

Explanation:

Let, the maximum number be x

Total pass percentage = 40%

Total pass number = $190 + 10 = 200$

According to the question

$$x \times (40/100) = 200$$

$$x = 200 \times (100/40) = 500$$

54. Answer: b

Explanation:

CONCEPT:

- Equation of motion: The mathematical equations used to find the final velocity, displacements, time, etc of a moving object without considering force acting on it are called equations of motion.
- These equations are only valid when the acceleration of the body is constant and they move on a straight line.

There are three equations of motion:

$$V = u + at$$

$$V^2 = u^2 + 2as$$

$$S = ut + (1/2)at^2$$

Where, V = final velocity, u = initial velocity, s = distance travelled by the body under motion, a = acceleration of body under motion, and t = time taken by the body under motion.

EXPLANATION:

From the above explanation, we can see that

- $S = ut + \frac{1}{2}at^2$ represents the equation for **position-time relation**.
- Hence option 2 is correct among all

55. Answer: d

Explanation:

- Mahavira is believed to be the last of the 24 Tirthankaras.
- His place of Nirvan is Pava Puri.
- Tirthankaras were the spiritual teachers and saviours of the Jain Dharma.
- The first Tirthankara was Rishabhdev and his place of Nirvan was Ashtapad.

56. Answer: b

Explanation:

- Dmitri Mendeleev invented the periodic table in the year 1869.
- He arranged the chemical elements by their atomic masses.

Scientist	Invention/Discovery
Marie Curie	Radium
Dmitri Mendeleev	Periodic Table
Antoine Lavoisier	Chemical reactivity of oxygen
Louis Pasteur	Pasteurization

57. Answer: d

Explanation:

- **Potential energy** varies with the height of an object.
- Potential energy is that which is stored within an object because of its state, arrangement, or position.
- The energy present in the nucleus of an atom is known as nuclear energy.
- The energy that an object possesses because of its motion is known as kinetic energy.
- The energy which is stored in the bonds of chemical compounds is known as chemical energy.

58. Answer: d

Explanation:

- As of March 2018, **4 Indians have won Grand Slam tournaments in tennis.**
- These 4 Indians are Leander Paes, Mahesh Bhupathi, Sania Mirza, and Rohan Bopanna.
- Mahesh Bhupathi was the first Indian to win the Grand Slam tournament.

59. Answer: d

Explanation:

- The partition of Bengal took place in the year **1905**.
- It was carried out by Lord Curzon, the British Viceroy of India.
- Large Muslim and Hindu areas were separated from each other in October 1905.
- The partition was announced in July 1905, while it took place in October 1905.

60. Answer: a

Explanation:

Explanation:

- 62. Answer: d**

Explanation:

The correct answer is Displacement.

★ Key Points

- The work done is zero if there is no displacement.
- Displacement is the change in the position of an object, measuring from its starting and final position.
- Power is defined as the rate at which energy is transferred or work is done.
- Velocity is a vector quantity that gives the rate of the direction of motion.

63. Answer: b

Explanation:

Given:

Total sum = Rs. 110

Ratio of coins of Rs. 2, Rs. 1 and 50 paise = 1 : 2 : 3

Calculation:

Ratio of rupees of Rs. 2, Rs. 1 and 50 paise = $(2 \times 1) : (1 \times 2) : (3/2) = 4 : 4 : 3$

Let the ratio of rupees of Rs. 2, Rs. 1 and 50 paise be $4x : 4x : 3x$

According to the question

$$(4x + 4x + 3x) = 110$$

$$x = 10$$

$$\text{Total rupees of 50 paise} = 3x = 3 \times 10 = \text{Rs. 30}$$

$$\text{Total coins of 50 paise} = 30 \times 2 = 60$$

 Alternate Method

Given:

Ratio of coins is 1 : 2 : 3,

Denomination of Rs. 2, Rs. 1, and Rs. 0.50 respectively.

Total amount is Rs. 110

Concept Used:

Rs. 1 = 100 paisa

Calculation:

Let the number of coins be x , $2x$, and $3x$.

Rs. 0.5 = 50 paisa, Rs. 2 = 200 paisa, Rs. 1 = 100 paisa, Rs. 110 = 11,000 paisa

Now according to the question,

$$\Rightarrow 50(3x) + 200(x) + 100(2x) = 11,000$$

$$\Rightarrow 150x + 200x + 200x = 11,000$$

$$\Rightarrow 550x = 11,000$$

$$\Rightarrow x = 11,000/550$$

$$\Rightarrow x = 20$$

$$\text{Rs. 0.50 coins are} = 3 \times 20 = 60$$

$$\therefore \text{Rs. 0.50 coins are } 60.$$

64. Answer: b

Explanation:

Factorisation Method:

$$16 = 2 \times 2 \times 2 \times 2$$

$$72 = 2 \times 2 \times 2 \times 3 \times 3$$

$$28 = 2 \times 2 \times 7$$

$$\text{HCF} = 2 \times 2 = 4$$

65. Answer: c

Explanation:

Here in all figures, except figure C, only 1 portion is shaded, and 2 portions are unshaded, whereas in figure C, 2 portions are shaded, and 1 portion is unshaded.

Hence, figure C is odd one out.

66. Answer: a

Explanation:

- 'Chhappar Mela', a social festival is organised in the state of Punjab.
- It is celebrated in the town of Chhappar, Ludhiana, Punjab.
- It is held every year in the month of September.
- It is held in the memory of Gugga Pir.

67. Answer: d

Explanation:

A alone can fill the tank in = X mins

B alone can fill the tank in = 6 mins

A and B together can fill the tank in = 1.5 mins

According to the question,

$$1/X + 1/6 = 1/1.5$$

$$1/X = 1/1.5 - 1/6$$

$$1/X = (4 - 1)/6$$

$$1/X = 3/6 = 1/2$$

$$X = 2 \text{ mins}$$

Thus, the correct answer is option 4.

68. Answer: d

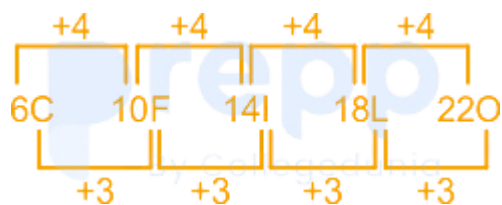
Explanation:

- Xylem tissue is responsible for the transport of materials away from the root.
- Ground tissue provides support to the plant and synthesizes organic compounds.
- Cambium tissues are responsible for secondary growth of roots and stems.
- Phloem tissues transport food made by the leaves to rest of the parts of the plant.

69. Answer: b

Explanation:

The pattern followed here is,



Hence, "22O" is the correct answer.

70. Answer: b

Explanation:

- Iodine is the least reactive element belonging to group 17.
- The 5 non-metallic, toxic elements that form group 17 of the periodic table are iodine, chlorine, fluorine, bromine, and astatine.
- These are known as halogens.
- Fluorine is the most reactive element belonging to group 17.

71. Answer: d

Explanation:

Concept:

The motion of particles can be predicted using Kinematic equations and they are given as

$$1. S = ut + \frac{1}{2}at^2$$

$$2. v = u + at$$

$$3. v^2 = u^2 + 2aS$$

Here,

Displacement of particle = S

Initial velocity = u

Final velocity = v

Acceleration of particle = a

Time period at any instant = t

Calculation:

Given

⇒ Initial velocity (u) = 0

⇒ Time (t) = 0.7 s

⇒ $g = 10 \text{ ms}^{-2}$

⇒ Final velocity (v) = $u + gt$

⇒ $v = 0 + 10 \times 0.7$

⇒ $v = 7 \text{ ms}^{-1}$

72. Answer: d

Explanation:

Only Retailer 1 offers all three products less than Rs. 10

73. Answer: d

Explanation:

The least one possible figure Venn diagram for the given statements is as follows,



Conclusions:

1. Some penguins are snakes → True, as Some Penguins are Peacocks and all the Peacocks are Snakes, some penguins will definitely be the snakes.
2. No peacock is a penguin → False, as some Penguins are Peacocks, some peacock will definitely be the Penguins.

Hence, only conclusion 1 follows.

74. Answer: b

Explanation:

We can draw a family tree diagram from the given information as follows,

Symbol in Diagram	Meaning
○	Female
□	Male
==	Married Couple
—	Siblings
	Difference of A Generation



Clearly, D is brother-in-law of A.

Hence, "Brother-in-law" is the correct answer.

75. Answer: a

Explanation:

Let the fraction be x/y , then its reciprocal will be y/x .

According to the question,

$$x/y - y/x = 9/11$$

Cubing on both sides,

$$(x/y - y/x)^3 = (9/11)^3$$

$$(x/y)^3 - (y/x)^3 - 3(x/y - y/x) = 729/1331$$

$$(x/y)^3 - (y/x)^3 - 3 \times 9/11 = 729/1331$$

$$(x/y)^3 - (y/x)^3 - 3 \times 9/11 = 729/1331$$

$$(x/y)^3 - (y/x)^3 = 729/1331 + 3 \times 9/11$$

$$(x/y)^3 - (y/x)^3 = 729/1331 + 27/11$$

$$(x/y)^3 - (y/x)^3 = (729 + 27 \times 121)/1331$$

$$(x/y)^3 - (y/x)^3 = (729 + 3267)/1331$$

$$(x/y)^3 - (y/x)^3 = 3996/1331$$

Thus, the correct answer is option 1.

76. Answer: a

Explanation:

- Transfer of Pollengrains from anther to the stigma of a flower is called pollination.
- Regeneration is the process through which organisms restore or replace their lost body parts.
- Transpiration is the process through which plants release water in the form of water vapours or moisture.
- Sexual reproduction is the process through which a new organism is formed from 2 organisms of different sexes.

77. Answer: d

Explanation:



Hence, there are 20 triangles in the figure.

78. Answer: a

Explanation:

- GIFT city of India is being planned in Ahmedabad, Gujarat.
 - It stands for Gujarat International Finance Tec-City.
 - It is India's first international financial services centre and also first operational smart city.
 - It will have features such as underground utility tunnel, district cooling system, etc.
-

79. Answer: c

Explanation:

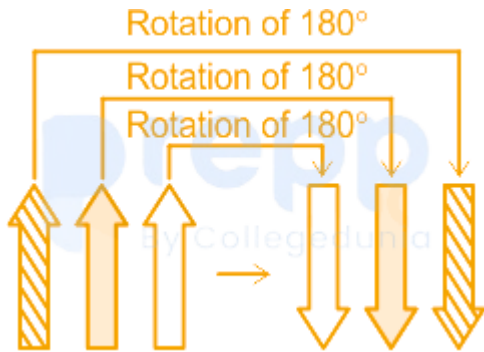
- "World Hindi Day" (WHD) is observed every year on 10 January.
 - It mark the first anniversary of World Hindi Conference (WHC), which was held in 1975.
 - Then Prime Minister Indira Gandhi inaugurated the first WHC.
 - National Hindi Diwas is celebrated on 14 September every year.
-

80. Answer: b

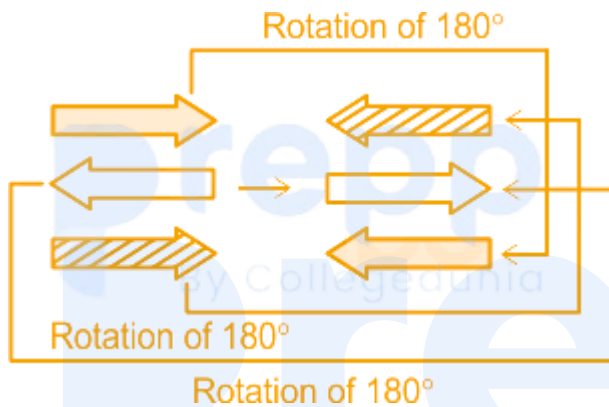
Explanation:

The logic followed here is:

Figure rotates in 180° in clockwise direction.



Similarly,



Hence, "Figure A" is the correct answer.

81. Answer: d

Explanation:

Correct Answer **Regur**

★ **Key Points:**

- The Black soil is also known as **regur** soil.
- It covers a major part of Deccan plateau including the states of Andhra Pradesh, Gujarat, Madhya Pradesh, Maharashtra, and Tamil Nadu.
- It is also known as **black cotton soil**.
- These are impermeable, **deep**, and, **clayey** and are rich in alumina, magnesia, iron, and lime.
- Some of the crops grown on it include **cotton, jowar, wheat, and linseed**, etc.

82. Answer: c

Explanation:

Divisibility law of 11: If the difference of the alternating sum of digits of the number is a multiple of 11 (e.g. 2343 is divisible by 11 because $2 - 3 + 4 - 3 = 0$, which is a multiple of 11).

$$x - 3 + 3 - 3 + 9 = 11$$

$$12 + x - 6 = 11$$

$$x = 5$$

83. Answer: b

Explanation:

The correct answer is A and B are both true.

★ Key Points

- **Rigidity** is defined as the state in which the particles of a substance are fixed in their positions.
- It is also the **property of solids of being rigid and stiff towards stress.**
- **Compressibility** is the property of matter to allow a decrease in volume under high pressure and gases show this property.

84. Answer: a

Explanation:

$$1 \text{ Non-leap year} = 365 \text{ days} = 52 \text{ weeks} + 1 \text{ day}$$

(as $365 = 7 \times 52 + 1$)

This extra day is called an odd day.

Hence, the number of odd days in a non-leap year is 1.

Note:

No. of days in a leap year = 366.

No. of odd days in a leap year = 2 (as the remainder of 366 upon division by 7 is 2)

85. Answer: d

Explanation:

The correct answer is It is the largest part constituting 60% of the brain.

- The **cerebrum** is a part of the forebrain.
- It has two parts called **cerebral hemispheres**.
- It forms the front, superior, and lateral sides of the brain.
- The cerebrum in the human brain is the center for intelligence, memory, and emotions.
- **It is the largest part constituting 80% of the brain.** It coordinates voluntary muscle movements and helps in maintaining posture and balance.

★ Additional Information

Parts of brain	Its Functions
Cerebrum	• It is the main thinking part of the brain . It is the site of our faculties such as learning, reasoning, intelligence, and memory, etc. • All our thoughts, sensations, actions, and movements are controlled by the cerebrum.
Midbrain	• It controls reflex movements of the head, neck, and trunk in response to visual and auditory stimuli. • It also controls the reflex movements of the eye muscles, changes in pupil and shape of the eye lens.
Pons	• It consists of fiber tracts that interconnect different regions of the brain. • It also takes part in regulatory respiration.
Cerebellum	• It helps in maintaining the posture and balance of the body . • It also enables us to make precise and accurate movements. • It coordinates smooth body movements such as walking, dancing and riding a bicycle, etc.

86. Answer: c

Explanation:

We cannot be specific about the medium mentioned in the given statements. Therefore, conclusion I does not follow.

The first part of the statement means that vibration produces sound. Therefore, conclusion II follows.

Hence, only conclusion II follows.

87. Answer: b

Explanation:

Let the number of soldiers who left the fort be x .

As we know,

$$M_1 \times D_1 = M_2 \times D_2 + M_3 \times D_3$$

Given, $M_1 = 1200$ soldiers, $D_1 = 28$ days, $M_2 = 1200$ soldiers, $D_2 = 4$ days, $M_3 = (1200 - x)$ soldiers and $D_3 = 32$

$$M_1 \times D_1 = M_2 \times D_2 + M_3 \times D_3$$

$$1200 \times 28 = 1200 \times 4 + (1200 - x) \times 32$$

$$(1200 \times 28) - (1200 \times 4) = (1200 - x) \times 32$$

$$1200 (28 - 4) = (1200 - x) \times 32$$

$$(1200 \times 24)/32 = (1200 - x)$$

$$x = 300$$

88. Answer: a

Explanation:

The statement says that a building with more than **two floors** (ground floor and first floor) will have a lift.

Thus, the building in question which has at least 6 floors has a lift.

Therefore, it can be concluded that, except for the ground floor, every floor can be reached by a lift.

Hence conclusion I follows.

Also, it can be understood that either conclusion I or conclusion II follows.

As conclusion I is true, conclusion II has to be false.

Hence, only conclusion I follows.

89. Answer: a

Explanation:

- For creating **8safe cities**, the Union Ministry of Women and Child Development has approved projects worth Rs 2,919 crore under Nirbhaya Fund.
- The cities are Lucknow, Hyderabad, Kolkata, Bengaluru, Delhi, Chennai, Mumbai, and Ahmedabad.
- Some of the measures taken under the project include use of latest technology, helpdesk services, enhanced safety at public places, etc.

90. Answer: c

Explanation:



In the given question, first figure (square) and second figure(circle) are related to each other.

In the first figure, a small circle is inside the square and in the second figure a small square inside the circle.

Similarly,

In the third figure, a small circle is inside the triangle. Now the fourth figure should consist of a small shaded triangle within the circle.

Hence, figure B is the correct answer.

91. Answer: c

Explanation:

If $551 \div 29 = 19$, then

$$55 \div 19 = 29$$

$$55/19 = 29$$

$$5.51/(0.0019 \times 10^2) = 29$$

$$5.51/(0.0019) = 2900$$

92. Answer: c

Explanation:

The advertisement does not suggest anything about its affordability. Moreover, any person taking an interest in the hotel need not mean that it is due to its expensiveness. Therefore, assumption I is not implicit.

A person taking a liking to a hotel does not suggest that he owns it. Therefore, assumption II is not implicit.

Hence, neither I nor II is implicit.

93. Answer: d

Explanation:

$$7580 - X = 3440$$

$$X = 4140$$

94. Answer: c

Explanation:

NIT Warangal, IIM Ahmedabad and IIT Mumbai are related to Educational institution while State Bank of India is a Bank.

Hence State Bank of India does not belong the group.

95. Answer: b

Explanation:

- Yuzvendra Chahal is related to cricket.
- He plays for Royal Challengers Bangalore in the IPL.

Sports	Famous players
Tennis	Mahesh Bhupathi
Cricket	Yuzvendra Chahal
Shooting	Jitu Rai
Hockey	Manpreet Singh

96. Answer: c

Explanation:

Concept:

- Velocity of a particle is defined as the rate of change of its displacement

And it is expressed as

$$v = \frac{dx}{dt} \text{ or } \frac{\Delta x}{\Delta t}$$

- Similarly, acceleration of a particle is defined as the rate of change of its velocity

And it is expressed as

$$a = \frac{dv}{dt} \text{ or } \frac{\Delta v}{\Delta t}$$

In terms of displacement $a = \frac{d^2x}{dt^2}$

- Where x is the displacement of a particle, v is its velocity and a is its acceleration at some time interval Δt

Explanation:

From the above explanation, we can see that,

- **Velocity** is the scientific term for the speed of an object moving in a definite direction.
- Acceleration is defined as the rate of change of velocity with respect to time.
- The change in the position of an object with time is known as motion.

97. Answer: d

Explanation:

Concept:

An equation in which at least one term is raised to the power of 3 but no term is raised to any higher power is called a cubic equation. The general form of a cubic equation is $ax^3 + bx^2 + cx + d = 0$ where a, b, c , and d are constants and $a \neq 0$. If α, β , and γ are the roots of the cubic equation, then

- Sum of roots = $\alpha + \beta + \gamma = -b/a$
- Product of roots = $\alpha\beta\gamma = -d/a$
- $= \alpha\beta + \beta\gamma + \gamma\alpha = c/a$

Calculation: Sum of the product of roots

If zeros of the cubic polynomial $2x^3 - x^2 - 2x + 1$ are a, b and c respectively, then

$$(ab + bc + ca) = \text{coefficient of } x / \text{coefficient of } x^3 = (-2)/2 = (-1)$$

98. Answer: d

Explanation:

The total tyres produced in India during 2017 was = 1,80,000 units,

Tyres produced by company 'D' in 2017 = 15% of 1,80,000 = $1,80,000 \times (15/100) = 27,000$

99. Answer: d

Explanation:

Given, $P = \text{Rs. } 1,080$, $T = 3 \text{ month} = 3/12 \text{ year}$ and $SI = 27$

As we know,

$$SI = (P \times r \times t)/100$$

$$27 = (1080 \times r \times 3/12)/100$$

$$27 = (90 \times r \times 3)/100$$

$$27 = 270r/100$$

$$r = 10\%$$

100. Answer: b

Explanation:

- The force of gravitation between two bodies in the universe does not depend on the sum of their masses.
- It depends on distance, gravitational constant, and the product of their masses.
- The strength of the gravitational force depends on distance and mass.
- Gravitational force is that which attracts any 2 objects with mass.

Your Personal Exams Guide