



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 (12-Oct-2018) (Shift 3)

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. Which of the following is an example of the conversion of electrical energy into mechanical energy? (+1, -0.33)
- a. Iron box
 - b. Television
 - c. Torch
 - d. Electric fan
-
2. Murali Ramaswami has been appointed as the executive Director of ----- (+1, -0.33)
- a. Vijaya Bank
 - b. Andhara Bank
 - c. State Bank of India
 - d. Reserve Bank of India
-
3. Find the compound interest on Rs. 15,625 for 1 year 6 months at 8% per annum, when compounded half-yearly? (+1, -0.33)
- a. Rs. 1,900
 - b. Rs. 1,950
 - c. Rs. 1,952
 - d. Rs. 1,951

4. The National War Memorial is proposed to be erected in (+1, -0.33)

- a. Madhya Pradesh
 - b. Mumbai
 - c. Srinagar
 - d. New Delhi
-

5. A lump of metal 136 cu.cm and weighing 207 gms is hammered into a square sheet of 2 cm long. Find the weight of an exact cube out of from the metal sheet? (+1, -0.33)

- a. 14 gms
 - b. 15 gms
 - c. 12.17 gms
 - d. 11 gms
-

6. The potential difference is 12 V and the work done is 60 J. Find the electric charge that flow through the circuit. (+1, -0.33)

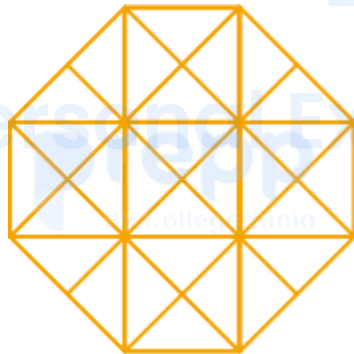
- a. 0.5 C
 - b. 50 C
 - c. 500 C
 - d. 5 C
-

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

- A. If we decrease temperature and increase pressure, we can liquefy atmospheric gases.
- B. A hot dry day means the temperature of the atmosphere is high and the humidity of air is low, Both these factors increase the rate of evaporation and thus enormous cooling is produced.

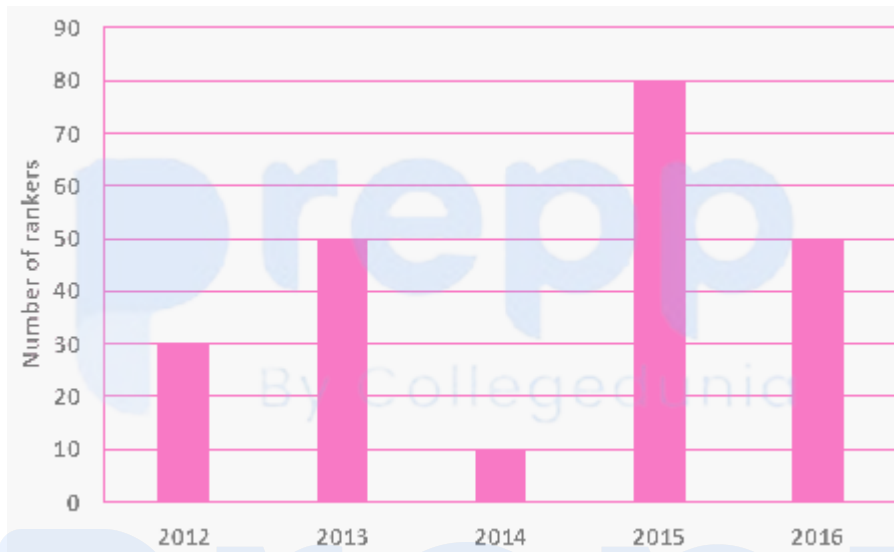
- a. Only B is true
- b. Both are false
- c. Only A is true
- d. Both are true

8. What is the count of the smallest triangular units presents in the following figure? (+1, -0.33)



- a. 22
- b. 26
- c. 28
- d. 24

9. The following Bar graph shows information about results in the national level entrance exam by the institute "ABC" for the last 5 years. (+1, -0.33)



In the year 2014 how many ranks were scored from institute "ABC"?

- a. 10
- b. 30
- c. 20
- d. 40

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10. Which of the following statements is/are true of sound in different media at 25 °C? (+1, -0.33)

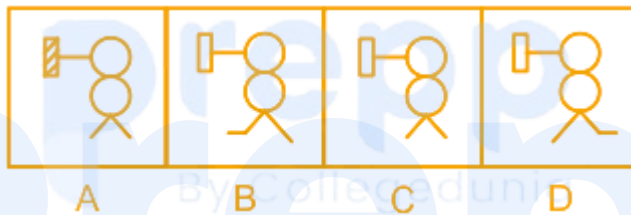
- A. In Aluminium, speed of sound is 6420 m/s
- B. In Nickel, speed of sound is 6240 m/s

- a. Only A is true
- b. Neither A nor B is true

- c. A and B both are true
- d. Only B is true

11. Choose the mirror image for the following figure:

(+1, -0.33)



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

12. Which of the following forces is NOT electromagnetic in nature?

(+1, -0.33)

- a. Force of friction
- b. Tension in a string
- c. Electrical force in spring
- d. Weight of body

13. Which of the following peaks is the highest peak of India? (+1, -0.33)

- a. Mount Kanchenjunga
- b. Nanda Devi
- c. Kamet Peak
- d. Mount Everest

14. The, statement below is 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/are implicit in the statement.

Statement: The journey of a thousand miles starts with the first step.

Assumptions:

- I. An initiative has to be taken to move further.
 - II. People stop themselves from starting something with, due to financial concerns.
- a. Both assumptions I and II are implicit
 - b. Only assumption II is implicit
 - c. Only assumption I is implicit
 - d. Neither assumption I nor II is implicit

15. x and y, given correct to 2 decimal place, are given as 4.51 and 2.48 (+1, -0.33)
respectively. What is the upper bound of the value of $x + y$?

- a. 7.012

b. 7.010

c. 6.990

d. 6.995

16. Choose the odd figure from the series.

(+1, -0.33)



17. What is the correct order of the atomic sizes of the elements O, S and Se?

(+1, -0.33)

a. $\text{Se} > \text{S} > \text{O}$

b. $\text{O} > \text{S} > \text{Se}$

c. $\text{S} > \text{O} > \text{Se}$

d. Se > O > S

18. The Rig Veda contains _____ hymns. (+1, -0.33)

a. 1,014

b. 1,028

c. 1,035

d. 1,020

19. X%Y means 'X is the daughter of Y' (+1, -0.33)

X@Y means 'X is the wife of Y'

X\$Y means 'X is the brother of Y'

X&Y means 'X is the father of Y'

Based on the above information, find out which of the following expressions indicates that K is the father-in-law of H

a. H@P\$J&L%K

b. H@J\$L%P&K

c. H@J\$L%K&P

d. H@J\$P&L%K

20. Under which tree did Queen Mayadevi give birth to Gautam Buddha? (+1, -0.33)

a. Ashoka tree

- b. Peepal tree
 - c. Mango tree
 - d. Sal tree
-

21. Which of the following does NOT belong to this group? (+1, -0.33)

- A. Teacher
- B. Pencil
- C. Eraser
- D. Sharpener

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

22. Find the energy possessed by an object of mass 13 kg when it is at a height of 5 m above the ground. Given $g = 9.8 \text{ ms}^{-2}$ (+1, -0.33)

- a. 539 J
 - b. 588 J
 - c. 528 J
 - d. 637 J
-

23. Solve for x ; $x \in \mathbb{N}$: $(x - 4)^2 - 36 = 0$ (+1, -0.33)

- a. 2
- b. -10
- c. 10
- d. -2

24. Who has moved to the No.1 spot in the ICC ODI Women's Cricket ranking, 2017? (+1, -0.33)

- a. Harmanpreet Kaur
- b. Ekta Bisht
- c. Jhulan Goswami
- d. Mithali Raj

25. If $1332/145 = 9.19$, then what the value of $133.2/9.19$? (+1, -0.33)

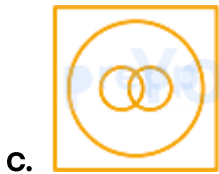
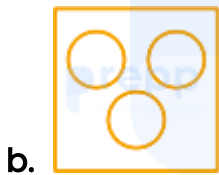
- a. 12.5
- b. 12.00
- c. 14.00
- d. 14.5

26. Who played the lead actor role in the recently released movie 'Parmanu'? (+1, -0.33)

- a. Varun Dhawan
- b. Ranveer Singh
- c. John Abraham
- d. Akshay kumar

27. Choose the best suitable Venn diagram for the following words: (+1, -0.33)

Indoor Games, Chess, Carroms



28. Identify Aravind Adiga's 2017 book about a young cricket-playing 14-year-old who lives in the Mumbai slums. (+1, -0.33)

- a. 'The White Tiger'

- b. 'Last Man In Tower'
- c. 'Midnight's Children'
- d. 'Selection Day'

29. In a test, (+5) marks are given for every correct answer and (-2) marks are given for every incorrect answer. Rakesh answered all the questions and scored 30 marks though he got 10 correct answers. How many incorrect answers had he attempted? (+1, -0.33)

- a. -10
- b. -12
- c. 10
- d. 12

30. How many times between 2 o'clock and 3 o'clock, the hands of the clock are exactly opposite to each other? (+1, -0.33)

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

31. If Shaam sells 2.5 kg of his homemade jam for Rs. 78.60, what is the cost of 5.5 kg of the jam? (in Rs.) (+1, -0.33)

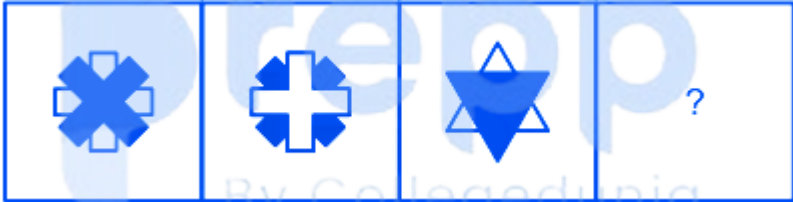
- a. Rs. 171.92

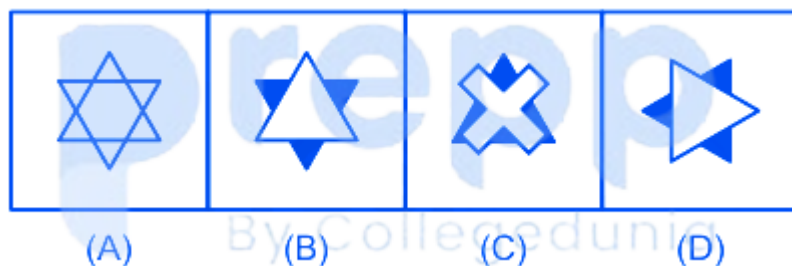
- b. Rs. 172.92
- c. Rs. 173.92
- d. Rs. 174.92

32. Choose the best suitable Venn diagram for the following words: (+1, -0.33)

"Tiger, Buffalo, Animals"

- a. 
- b. 
- c. 
- d. 

33.  (+1, -0.33)



Select the correct figure that replaces the (?) symbol above from the given options:

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

34. A jeweller makes a gold pendant. He uses 50 g of copper for making the piece. If the price for 1 kg of copper is Rs. 420, what is the cost of copper used in the jewellery? (+1, -0.33)

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

35. What is the value of the gas constant R? (+1, -0.33)

- a. $8.33 \text{ JK}^{-1} \text{ mol}^{-1}$
- b. $8.35 \text{ JK}^{-1} \text{ mol}^{-1}$

c. $8.31 \text{ JK}^{-1} \text{ mol}^{-1}$

d. $8.32 \text{ JK}^{-1} \text{ mol}^{-1}$

36. The salaries of Charan and Rajat are in the ratio of 5: 4. If the salary of each increases by Rs. 3,000, then the new ratio becomes 6: 5. What is Charan's initial salary? (+1, -0.33)

a. Rs. 18,000

b. Rs. 15,000

c. Rs. 20,000

d. Rs. 12,000

37. If a carriage of 910 kg, for 70 km. cost Rs. 45, what will be the cost of a carriage of 940 kg for a distance of 63 km at half the former rate? (+1, -0.33)

a. Rs. 20.91

b. Rs. 21

c. Rs. 55

d. Rs. 12.56

38. Choose the figure that is different from the rest. (+1, -0.33)



a. a

b. e

c. c

d. d

39. Find the odd one out.

(+1, -0.33)

$\frac{E}{5}$	$\frac{G}{7}$	$\frac{I}{9}$	$\frac{L}{10}$
A	B	C	D

a. B

b. C

c. D

d. A

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40. A smuggler Veerappan is spotted by a policeman from a distance of 200 meters. When the policeman starts the chase, Veerappan also starts running. Assuming the speed of smuggler is 10 km/hr and that of the policeman 12 km/hr, how far will the smuggler have to run before he is overtaken? (+1, -0.33)

a. 2 km

b. 5 km

c. 10 km

d. 1 km

41. If $(a - \frac{1}{a}) = 6$, then $(a^4 + \frac{1}{a^4}) = ?$ (+1, -0.33)

- a. 1444
- b. 34
- c. 38
- d. 1442

42. Which Tamil folk singer, composer and renowned exponent of Tamil folk art has been awarded a Padma Shri? (+1, -0.33)

- a. Anitha Kuppusamy
- b. Vijayalakshmi Navaneethakrishnan
- c. LR Eswari
- d. Paravai Muniyamma

43. When a cork and a nail are kept in a beaker filled with water, the cork floats while the nail sinks. What is the reason behind this? (+1, -0.33)

- a. The mass of the cork is more than the mass of the iron nail.
- b. The density of the iron nail is more than the density of water
- c. The mass of the iron nail is more than the mass of the cork.
- d. The density of the cork is more than the density of water.

44. 189/135 when written in the simplest form is: (+1, -0.33)

- a. 14/10
- b. 28/20
- c. 91/65
- d. 7/5

45. Which of the following awards is conferred on Indian sportspersons for their lifetime contribution to sports? (+1, -0.33)

- a. Dronacharya Award
- b. Sardar Award
- c. Dhyan Chand Award
- d. Indira Gandhi Award

46. Find the height (in metres) of the building if the sun's shadow increases by 10 m when the angle of elevation of the sun decreases from 60° to 45° . (+1, -0.33)

- a. $10\sqrt{3}/(\sqrt{3} + 1)$
- b. $10/(\sqrt{3} - 1)$
- c. $10\sqrt{3}$
- d. $10\sqrt{3}/(\sqrt{3} - 1)$

47. Who among the following won the Best Male Playback Singer Award at the Filmfare Awards 2018? (+1, -0.33)

- a. Ankit Tiwari

b. Armaan Malik

c. Arijit Singh

d. Atif Aslam

48. In 2017, who was the Indian athlete from India to win a gold medal in the Weightlifting World Championships, for the first time in more than two decades? (+1, -0.33)

a. Kunjarani Devi

b. Saikom Mirabai Chanu

c. Soniya Chanu

d. D. Kavita Devi

49. If the pH value of a salt is 14, then it is a salt of ----- (+1, -0.33)

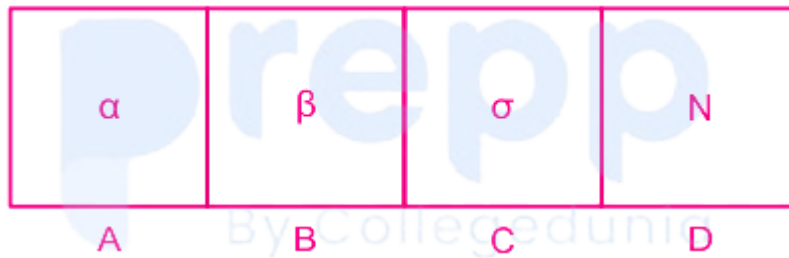
a. strong acid and strong base

b. weak acid and weak base

c. weak acid and strong base

d. strong acid and weak base

50. Find the odd one out: (+1, -0.33)



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

51. What are the constituents of bronze? (+1, -0.33)

- a. Al + Cu + Mn + Mg
- b. Cu + Zn
- c. Cu + Sn
- d. Pb + Sn

52. Who is the Vice Chairman of NITI Aayog as of July 2018? (+1, -0.33)

- a. Rajiv Kumar
- b. Rajeev Mehrishi
- c. Amitabh Kant
- d. Arvind Subramanian

53. A water tank is 5 m long, 3 m broad and 1 m deep. How many litres of water can it hold? (+1, -0.33)

- a. 810 L
- b. 720 L
- c. 15,000 L
- d. 729 L

54. 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

55. In CO_2 , C and O_2 are present in the ratio _____ by mass (+1, -0.33)

- a. 1 : 8
- b. 8 : 1
- c. 8 : 3
- d. 3 : 8

56. An electric iron of 1250 W is used for 3 h per day. The energy consumed in one day by the electric iron is _____ units. (+1, -0.33)

- a. .375
- b. 37.5
- c. 3.75
- d. 375

57. A is three years older than B and the age of C is twice that of B. What is the age of A, if the sum of the ages of A, B and C is 35? (+1, -0.33)

- a. 9 years
- b. 10 years
- c. 11 years
- d. 12 years

58. _____ are comparatively poor conductors of heat. (+1, -0.33)

- a. Cu and Al
- b. Cu and Fe
- c. Au and Ag
- d. Pb and Hg

59. Whom did Ram Nath Kovind defeat to become the 14th President of India? (+1, -0.33)

- a. Pranab Kumar Mukherjee
 - b. Meira Kumar
 - c. Hamid Ansari
 - d. Pratibha Patil
-

60. The C.P of 18 apples is same as the S.P. of 16. Find the gain % (+1, -0.33)

- a. 12.5%
 - b. 11%
 - c. 12%
 - d. 11.5%
-

61. If POLAND can be written as 1615121144, how can SPAIN be written? (+1, -0.33)

- a. 16191425
 - b. 19161914
 - c. 16191419
 - d. 19202516
-

62. The 2018 ICC Under-19 Cricket World Cup was held in: (+1, -0.33)

- a. England
- b. South Africa

- c. Australia
 - d. New Zealand
-

63. Which of the following equations represents the velocity – time relation? (+1, -0.33)

- a. $v = u - at$
 - b. $s = ut + \frac{1}{2} at^2$
 - c. $2as = v^2 - u^2$
 - d. $v = u + at$
-

64. 1 Coulomb/1s = ----- (+1, -0.33)

- a. 1 volt
 - b. 1 ampere
 - c. 1 watt
 - d. 1 ohm
-

65. Legendary Indian Architect Balkrishna Doshi recently won a prestigious global award which is sometimes referred to as the Nobel Equivalent in Architecture. Name the award that Shree Doshi won. (+1, -0.33)

- a. Pritzker Award
- b. Bookman Award
- c. Pulitzer Prize

d. Emma Award

66. Rabi had Rs. 713.39 in his bank account. He deposited Rs. 450.75 in his bank account and withdrew the money to pay for five shirts. If the remaining balance of his account is Rs. 545.19, then what is the price of each shirt? (+1, -0.33)

a. Rs. 125.50

b. Rs. 113.75

c. Rs. 123.79

d. Rs. 120.79

67. 3 R # 2 A \$ K 5 % T 7 & N Y + X B / L Q @ 1 (+1, -0.33)

If the second half of the above series is reversed then using the new series find the terms that does not belong to the group

251, \$TQ, K71, A%@

a. A%@

b. K71

c. \$TQ

d. 251

68. Srividhya is mother of Vinay. How is Vinay's only sister's father related to Srividhya? (+1, -0.33)

a. Husband

- b. Uncle
- c. Son
- d. Brother

69. Anish is thrice as old as his son and the sum of their ages is 48 years. (+1, -0.33)

Find Anish's age

- a. 12
- b. 36
- c. 40
- d. 20

70. Read the statement and identify the logically correct conclusion from the given information. (+1, -0.33)

Statement: The tourism spots should be given extra security.

Conclusions:

- I. Terrorists always target destruction at a larger scale.
 - II. One cannot prevent terrorism act.
- a. Only conclusion I follows
 - b. Only conclusion II follows
 - c. Both I and II follow
 - d. Neither I nor II follows

71. How is Pallavi related to her mother's only brother's mother? (+1, -0.33)

- a. Cousin
- b. Sister
- c. Grand daughter
- d. Aunt

72. Pollen grains are produced by ----- (+1, -0.33)

- a. filament
- b. stigma
- c. anther
- d. ovary

73. Manat the currency of which country? (+1, -0.33)

- a. Azerbaijan
- b. Armenia
- c. Albania
- d. Andorra

74. The number of chromosomes in a human female germ cell is: ----- (+1, -0.33)
pairs.

- a. 24
 - b. 46
 - c. 23
 - d. 48
-

75. A sound wave travels at a speed of 340 ms^{-1} . If its wavelength is 2 cm, what is the frequency of the wave? (+1, -0.33)

- a. 170 Hz
 - b. 17000 Hz
 - c. 1700 Hz
 - d. 170000 Hz
-

76. Magnesium ribbon burns with a dazzling _____ flame. (+1, -0.33)

- a. blue
 - b. white
 - c. green
 - d. red
-

77. 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: The healthiest cooking oil for the whole family an advertisement states.

Assumptions:

- I. There are other cooking oils available in the Market.
 - II. The health of the family is the priority for any individual.
- a. Only assumption II is implicit
 - b. Only assumption I is implicit
 - c. Neither I nor II is implicit
 - d. Both I and II are implicit.

78. Read the given question and decide which of the following statements is/are sufficient to answer the question. (+1, -0.33)

What is the total number of balls in the bag?

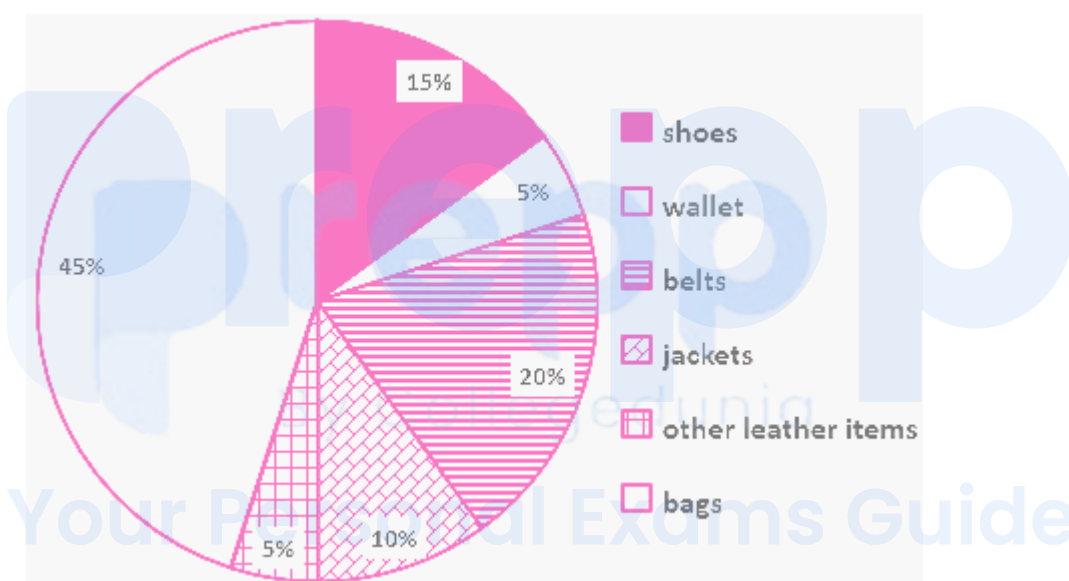
Statements:

- 1. The bag contains 6 blue, 7 red and 8 orange balls.
 - 2. The bag is green colour.
- a. Either 1 or 2 is sufficient
 - b. Only 1 is sufficient
 - c. Only 2 is sufficient
 - d. Neither 1 nor 2 is sufficient.

79. Mammals have _____. (+1, -0.33)

- a. glandular skin with hairs
- b. dry and non-glandular skin with feathers
- c. dry and non-glandular skin with scales
- d. dry and glandular skin with feathers

80. The following pie diagram shows the revenue of the company ABC, which manufactures the leather products. The total revenue of the company for the year 2015 is Rs. 36, 28,000. (+1, -0.33)



How much revenue was made with the sale of Jackets (in Rs) in the year 2015?

- a. Rs. 7,25,600
- b. Rs. 181,400
- c. Rs. 3,62,800
- d. Rs. 90,700

81. When was the Goods and Services Tax (GST) introduced in India? (+1, -0.33)

- a. 1st June 2017
- b. 1st August 2017
- c. 1st July 2017
- d. 1st September 2017

82. What comes next in the given series (+1, -0.33)

3W, 7V, 11U, 15T, _ _ _ _

- a. 19 Z
- b. 20 P
- c. 19 S
- d. 22 Q

83. 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:

"From next month onwards, expecting mothers and ladies with kids less than 5 years old would get flexible work hours," said the CEO of a multinational company.

Conclusions:

I. Young mothers need to spend more time with their kids in the initial years.

II. The company cares for their female employees' obligation and work pressure

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

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

Question Figures



Option Figures



(A)

(B)

(C)

(D)

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

85. In a village Under Mission Kakatiya, 38 men working 6 hours a day can do a piece of work in 12 days. Find the number of days in which 57 men working 8 hours a day can do the same work. Assume that 2 men of the first group do as much work in 1 hour as 3 men of the second group do in $1\frac{1}{2}$ hours (+1, -0.33)
- a. 13.5 days
 - b. 12 days
 - c. 16 days
 - d. 14 days

86. _____ made the first observations on platinum as a catalyst. (+1, -0.33)
- a. Moseley
 - b. Mendeleev
 - c. Dobereiner
 - d. Newlands

87. 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 mugs are brown.
- II. Some brown are earth.

Conclusions:

1. Some earth are brown.
 2. No mugs are earth.
- a. Conclusions 2 alone follows
 - b. Conclusion 1 alone follows
 - c. Both 1 and 2 follows
 - d. Neither 1 nor 2 follows
-

88. Which of the following is NOT correct for cerebellum? (+1, -0.33)

- a. It lies in the posterior region of the brain
 - b. It controls movements, speech, sight, smell, taste, hearing, intelligence etc.
 - c. It is a part of hind brain
 - d. It maintains equilibrium of the body
-

89. Where does the centre of gravity of any freely suspended object lie? (+1, -0.33)

- a. Directly beneath the point of suspension
 - b. Immediately below the centre of the object
 - c. On the ground
 - d. At the centre of the object
-

90. R is the son of Y. Y is the wife of K. K is the only son of Z. Z's wife passed away few years back. Z is the _____ of R. (+1, -0.33)

- a. Maternal grandfather
 - b. Paternal grandfather
 - c. Grandson
 - d. Father
-

91. Under whose reign was National Emergency imposed in India? (+1, -0.33)

- a. I.K. Gujral
 - b. A.B. Vajpayee
 - c. P.V. Narasimha Rao
 - d. Indira Gandhi
-

92. The fifth edition of the South Asia Region Public Procurement Conference was held in: (+1, -0.33)

- a. Chennai
 - b. Mumbai
 - c. Trivandrum
 - d. New Delhi
-

93. What type of tissue makes up the husk of coconut? (+1, -0.33)

- a. Collenchymas
 - b. Parenchyma
 - c. Phloem parenchyma
 - d. Sclerenchymatous fibres
-

94. Find the next(?) number in the series.

(+1, -0.33)

9, 12, 16, 21, ?, 34.

- a. 30
 - b. 27
 - c. 28
 - d. 35
-

95. From a class, one-fourth opted to learn German; two-fifths of the remaining students chose Italian. Two-thirds of the remaining students decided to learn French and the rest Japanese. If 72 people decided to learn Japanese, how many of them opted for Italian?

(+1, -0.33)

- a. 180
 - b. 132
 - c. 120
 - d. 144
-

96. The ratio of the measures of each interior angle of a regular octagon to that of the regular dodecagon is: (+1, -0.33)

- a. 8 : 12
- b. 9 : 10
- c. 12 : 8
- d. 4 : 5

97. The area of the triangle with vertices at $(a, b + c)$, $(b, c + a)$ and $(c, a + b)$ is (+1, -0.33)

- a. 0
- b. $a - b - c$
- c. $ab + bc + ca$
- d. $a + b + c$

98. Which of the following fractions is the largest? (+1, -0.33)

$$\frac{1}{8}, \frac{2}{12}, \frac{3}{16}, \frac{4}{20}$$

- a. $\frac{1}{8}$
- b. $\frac{3}{16}$
- c. $\frac{4}{20}$
- d. $\frac{2}{12}$

99. If one of the acute angles of the right-angled triangle is 55° , what is the measure of the other acute angle? (+1, -0.33)

- a. 40°
- b. 30°
- c. 25°
- d. 35°

100. 6 skilled workers can dig a pond in 8 days while it takes 9 unskilled workers 12 days to dig it. How many days will it take 4 skilled and 18 unskilled workers to dig such a pond? (+1, -0.33)

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

Your Personal Exams Guide

Answers

1. Answer: d

Explanation:

The correct answer is Electric Fan.

In electric fan Electric energy is converted into mechanical energy.

★ Important Points

- Conversion of energy is the process of changing energy from one form to another.
- Energy is the capacity to do work. its S.I. unit is **Joule**.
- In the Iron box, Electrical energy is used and it is transformed into Heat energy.
- In the Television, Electrical energy is converted into light.
- In Torch, the chemical energy stored in batteries is converted into electrical energy, then transformed into heat and light energy.

2. Answer: a

Explanation:

The correct answer is Vijaya Bank.

★ Key Points

- Murali Ramaswami joined Vijaya Bank as the Executive Director from 19th February 2018.
- J Packirisamy is the Managing Director and CEO of Andhara Bank.
- Ashwani Bhatia as the new Managing Director and CEO of State Bank of India. India's largest Public Sector lender is State Bank of India.
- Malvika Sinha has appointed as Executive Director of Reserve of Bank of India. It is also called as 'Bank of Banks'.

3. Answer: d

Explanation:

Given:

Principal = Rs. 15625

Time = 1 year 6 months

Rate% = 8% p.a. compounded half yearly

Formula Used:

When calculate at compound interest

$$\text{Amount (A)} = p \left(1 + \frac{r}{100}\right)^n$$

Where p, r and n respectively are principal, rate of interest and time

Calculation:

Here the rate of interest is compounded half yearly

$$\text{Effective rate of interest} = 8\% / 2 = 4\%$$

$$\text{Effective cycle of time} = 3$$

$$A = 15625 \left(1 + \frac{4}{100}\right)^3$$

$$\Rightarrow A = 17576$$

$$\text{Compound interest} = \text{Amount} - \text{principal}$$

$$\therefore \text{Compound interest} = 17576 - 15625 = \text{Rs. } 1951$$

4. Answer: d

Explanation:

The correct answer is New Delhi.

★ Important Points

- **National War Memorial Delhi is spread across 40 acres in New Delhi.**
- New Delhi Prime Minister Narendra Modi dedicated a new National War Memorial situated in the India gate complex, in New Delhi.
- It is built to Honour the Indian Armed Forces and is built around the existing canopy near India Gate.
- The memorial wall is flushed with the ground and in harmony with existing aesthetics.
- The names of armed forces personnel martyred during the armed conflicts of Indo-Pakistani War of 1947, 1961 War in Goa, Sino-Indian War, Indo-Pakistani War of 1965, Indo-Pakistani War of 1971, 1987 (Siachen), 1987-88 (Sri Lanka), 1999 (Kargil), and other operations such as Operation Rakshak, are inscribed on the memorial walls

5. Answer: c

Explanation:

Given:

Mass = 207 gms

Volume = 136 cm^3

Formula Used:

Density = Mass/Volume

Density = $207/136$

Volume of metal cube of side 2 cm = $2 \times 2 \times 2 = 8 \text{ cm}^3$

$\therefore$ Required weight of cube = $(207 \times 8)/136 = 12.17$ grams

Note: Discrepancy was found in original paper we have changes certain values in order to get the desired answer.

6. Answer: d

Explanation:

The correct answer is 5 Coulomb.

★ Key Points

- Work is done when a force is applied on a body and makes a body move i.e. when the body displaces from its position by the act of force.
- For example- Pushing a car horizontally from a rest, Walking upstairs, Shooting a Bullet, etc. Its S.I. Unit is Joule (J).
- Potential Difference is the amount of work done by the positive test charge from one point to another point.
- For example- the movement of free electrons in a metallic conductor. Its S.I. Unit is Volt (V).
- Electric charge is the physical property of matter that causes it to experience a force when placed in an electromagnetic field.
- They are of two types: positive and negative. Its S.I. unit is Coulomb (C).

Concept

Work done = Potential Difference $\times$ Charge.

Calculation:

- Work- 60 J,
- Potential difference- 12 V,
- Charge-?

By Formula,

- Work = potential difference $\times$ charge
- Charge = work / potential difference
- Charge = 60 J / 12 V
- Charge = 5 Coulomb.

7. Answer: d

Explanation:

The correct answer is **Both are True**.

★ Key Points

- The gases can be converted into liquids by bringing its particles closer, so atmospheric gases can be liquefied either by decreasing temperature or by increasing pressure. **Hence, statement 1 is correct.**
- On a hot dry day, the **temperature is high** and **humidity is less** which helps in better evaporation.
- Due to the **higher rate** of evaporation, it **gives better cooling effect**. **Hence, statement 2 is correct.**
- That is why a **desert cooler** cools better on a hot dry day.

★ Important Points

- Humidity tells you the moisture content of the atmosphere, or how much water vapor there is in the air.
- When the humidity is high it feels oppressive outside because sweat doesn't evaporate and provide cooling.
- When the humidity is low, you feel cooler but your skin dries out and you get dehydrated more easily because more moisture is being evaporated from your body.

★ Additional Information

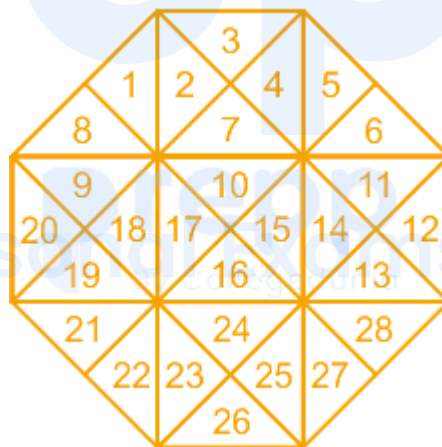
- **Desert Cooler** –
 - In a desert cooler, the water inside it is made to evaporate.

- This leads to the absorption of energy from the surroundings, thereby cooling the surroundings.
- Evaporation depends on the amount of water vapour present in the air (humidity).
- If the amount of water vapour present in the air is less, then evaporation is more.
- On a hot dry day, the amount of water vapour present in the air is less.
- Thus, water present inside the desert cooler evaporates more, thereby cooling the surroundings more.

8. Answer: c

Explanation:

The count of the smallest triangular unit's presents in the following figure is shown below:



Hence, '28' is the correct answer.

9. Answer: a

Explanation:

Given:

From the given bar graph we can say that,

Ranks scored from ABC in 2012 = 30

Ranks scored from ABC in 2013 = 50

Ranks scored from ABC in 2014 = 10

Ranks scored from ABC in 2015 = 80

Ranks scored from ABC in 2016 = 50

$\therefore$ Ranks scored from ABC in 2014 = 10

10. Answer: a

Explanation:

The correct answer is Only A is true.

★ Important Points

- Sound is a longitudinal Mechanical Wave.
 - Sound can travel through any medium, but it cannot travel through a vacuum.
- The speed of sound depends upon the type of medium and its state.
 - It is generally affected by two things: 1. Elasticity 2. Inertia.
- The speed of sound in aluminium is 6420 m/s.
- The speed of sound in Nickel is 6040 m/s.

★ Additional Information

Speed of sound in different media at 25 °C		
State	Medium	Speed of sound (m/s)
Solid	Solids Aluminium	6420
	Nickel	6040
	Steel	5960
	Iron	5950
	Brass	4700
	Glass (Flint)	3980
liquid	Liquids Water (Sea)	1531
	Water (distilled)	1498
	Ethanol 1207	1207
	Methanol	1103
gas	Gases Hydrogen	1284
	Helium	965
	Air	346
	Oxygen	316
	Sulfur dioxide	213

<https://ncert.nic.in/ncerts/l/iesc112.pdf>

11. Answer: b

Explanation:

The mirror image of the given figure with respect to the line MN is shown below:



Hence, 'option 2' is the correct answer.

12. Answer: d

Explanation:

The correct answer is the Weight of a body.

★ Important Points

- The electromagnetic force is a type of physical interaction that occurs between electrically charged particles. It acts between charged particles and a combination of all-electric and magnetic forces. It can be repulsive or attractive.
- The electromagnetic nature is to interact without coming into contact. friction is the electromagnetic force between atoms that may not actually touch.
- **The weight of a body is not electromagnetic in nature. The weight of the body is the Gravitational force acting on it and this force depends on the acceleration due to gravity.**
- Tension force is the force that is transmitted through a cable, rope, wire, or string when it is pulled tight by forces acting from opposite ends.
- The electrical force in spring is due to the flow of electrons at both ends to maintain equilibrium.

13. Answer: a

Explanation:

- Mount Kanchenjunga is the **highest peak of India**.
- It has an elevation of **28,169 feet (8,586 metres)**.
- It lies on the border of Nepal and the **state of Sikkim** and is the **world's third tallest peak**.
- The mountain and its glaciers receive heavy snow during the summer monsoon season and a lighter snowfall during the winter.
- The name "Kanchenjunga" is derived from the Tibetan word 'Kanchen' and 'Dzonga' translating to **"The Five Treasures of the Great Snows"**, owing to the five significant mountains in the region.

14. Answer: c

Explanation:

(Implicit – suggested though not directly expressed)

I. An initiative has to be taken to move further. – True (As, "The journey of a thousand miles starts with the first step" implies to take the first step to move further)

II. People stop themselves from starting something with, due to financial concerns. – False (As, "The journey of a thousand miles starts with the first step" it implies only about starting a journey)

Hence, only assumption I is implicit.

15. Answer: c

Explanation:

Given:

$$x = 4.51$$

$$y = 2.48$$

According to question:

$$x + y = (4.51 + 2.48) = 6.99$$

$\therefore$ Upper bound of $x + y$ is 6.99

16. Answer: a

Explanation:

In all the options except '1', the two circles are intersecting with each other and some of the region is not common, while in option 1, the small circle is entirely within the larger one, such that there is no uncommon region left.



Hence, 'option 1' is the odd one out.

17. Answer: a

Explanation:

The correct answer is Se>S>O.

★ Key Points

- Atomic size is the distance from the nucleus to the valence shell where the valence electrons are located.
- The size of an atom i.e. no. of electrons present in the valence shell or no. of valence shell.

★ Important Points

- Se –
 - Atomic number = 34,
 - Mass no.= 78.96

- Electronic configuration = 2,8,18,6,
 - It contains 4 shells.
- S -
 - Atomic number = 16,
 - Mass no. = 32,
 - Electronic configuration = 2,8,6,
 - It contains 3 shells.
- O -
 - Atomic number = 8,
 - Mass no. = 16,
 - Electronic configuration = 2,6,
 - It contains 2 shells.

18. Answer: b

Explanation:

The correct answer is 1,028.

★ Key Points

- The Rigveda contains 1028 hymns.
- Rigvedic people, who called themselves Aryans, were confined in the area which came to be known as Sapta Sindhu.
- According to the Rigveda, the **most mentioned river**– Sindhu, the most pious river– Saraswati, mention of the Ganges one time, mention of Yamuna three times.
- A Rigvedic society comprised four Varnas, namely **Brahmana, Kshatriya, Vaisya, and Shudra**.
- The nature of Rigvedic religion was Henotheism i.e. a **belief in many gods but each god standing out in turns as the highest**.

19. Answer: c

Explanation:

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

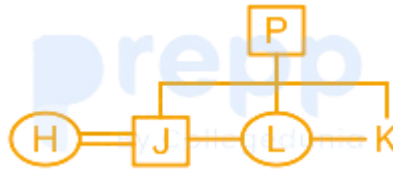
X is				
Symbol	%	@	\$	&
Meaning	Daughter	Wife	Brother	Father
to Y				

1) $H@P\$J\&L\%K \rightarrow$ H is the wife of P, P is the brother of J, J is the father of L, L is the daughter of K.



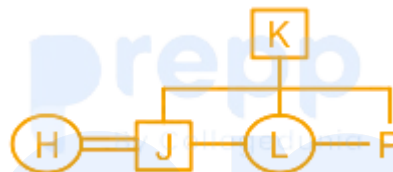
K is the sister-in-law of H.

2) $H@J\$L\%P\&K \rightarrow$ H is the wife of J, J is the brother of L, L is the daughter of P, P is the father of K.



K is the sister-in-law/brother-in-law of H.

3) $H@J\$L\%K\&P \rightarrow$ H is the wife of J, J is the brother of L, L is the daughter of K, K is the father of P.



K is the father-in-law of H.

4) $H@J\$P\&L\%K \rightarrow$ H is the wife of J, J is the brother of P, P is the father of L, L is the daughter of K.



K is the sister-in-law of H.

Hence, ' $H@J\$L\%K\&P$ ' indicates that K is the father-in-law of H.

20. Answer: d

Explanation:

The correct answer is Sal tree.

★ Additional Information

- Mayadevi married king Suddhodana, the ruler of the Sakya clan of Kapilvastu.
- She was the daughter of king Suddhodhana's uncle and her father was king of Devadaha.
- **Queen Maya Devi of Sakya was the birth mother of Gautam Buddha**, the sage on whose teachings Buddhism was founded.
- She was the sister of Mahaprajapati gotami, the first Buddhist nun ordained by the Buddha.
- Under Sal tree, Queen Mayadevi gave birth to Gautam Buddha.

21. Answer: d

Explanation:

Pencil, Eraser and Sharpener are stationery items.

While the teacher is a person who teaches in a school.

Hence, '**teacher**' is the odd one out.

22. Answer: d

Explanation:

The correct answer is 637 J.

★ Important Points

- **Kinetic energy** is the energy possessed by an object when it is in motion. Its S.I. unit is Joule.

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

- To calculate the energy possessed by an object, we need to use the **Equation of motion** i.e. $v^2 = u^2 + 2gh$.

- K.E= Kinetic energy, m = mass, v = final velocity, u = initial velocity, g = gravitational acceleration, h = height.

CALCULATION:-

- By equation of motion,
 - $v^2 = u^2 + 2gh$ ($u = 0$ m/s)
 - $v^2 = 0 + 2 \times 9.8 \times 5$
 - $v^2 = 98$ m/s.
- The kinetic energy of object = $\frac{1}{2} mv^2$,
 - K.E. = $\frac{1}{2} \times 13 \times 98$ J
 - K.E. = 13×49 J
 - K.E. = 637 J.

23. Answer: c

Explanation:

Given:

$$(x - 4)^2 - 36 = 0$$

Calculation:

Considering the given statement

$$\Rightarrow (x - 4)^2 = 36$$

$$\Rightarrow (x - 4)^2 = 36$$

$$\Rightarrow (x - 4) = \sqrt{36}$$

$$\Rightarrow (x - 4) = 6$$

$$\Rightarrow x = 10$$

$\therefore$ Value of x is 10

24. Answer: d

Explanation:

The correct answer is Mithali Raj.

★ Key Points

- Mithali Dorai Raj is an Indian Cricketer and the Captain of the Indian Women's National Cricket team. She is often regarded as India's greatest batswoman.
- Mithali Raj has moved up one place to occupy the number one spot in the ICC ODI rankings 2017.

★ Additional Information

- **Harmanpreet Kaur** is an Indian Cricketer. She plays as an All-rounder for the Indian Women's Cricket team and was awarded the Prestigious Arjuna award for cricket in the year 2017 by the Ministry of youth affairs and sports.
- **Jhulan Nishit Goswami** is an Indian International Cricketer and the former Captain of the India National women's Cricket team. She awarded the Arjuna award for cricket and Padma Shri.
- **Ekta Bisht** is an Indian cricket player. She is a left-handed batswoman and slow left-arm orthodox bowler. She was the first International woman cricketer from the Uttarakhand state of India. She was also the first Cricketer for India to take Hat-trick in a women's Twenty-20 International match.

25. Answer: d

Explanation:

Calculation:

Considering the given statement

$$\Rightarrow 1332/145 = 9.19$$

Now,

Dividing the numerator and denominator by 10 we get

$$\Rightarrow 133.2/14.5 = 9.19$$

$$\Rightarrow 133.2/9.19 = 14.5$$

$\therefore$ Required value is 14.5

26. Answer: c

Explanation:

The correct answer is John Abraham.

★ Key Points

- The film is based on the Nuclear bomb test explosions conducted by the Indian army at Pokhran in 1998.
- It stars John Abraham, Diana Penty and Boman Irani in lead roles.
- It is a 2018 Indian Hindi-language historical action drama film directed by Abhishek Sharma and jointly written by Saiwyn Quadras, Sanyuktha Chawla Sheikh and Sharma.

27. Answer: d

Explanation:

The best suitable Venn diagram for 'Indoor Games, Chess, Carroms is shown below:



Both Chess and Carrom are Indoor games.

Hence, 'option 4' is the correct answer.

28. Answer: d

Explanation:

The correct answer is Selection day.

★ Key Points

- **Selection Day** is a 2016 sports fiction novel written by Booker Prize winner Aravind Adiga.
 - It was shortlisted along with four other writers for the **2017 DSC Prize for South Asian Literature**.
 - It tells the story of Mohan Kumar, a chutney seller who trains his two sons, Manju Kumar and Radha Krishna for Mumbai's under-19 cricket team.
- **Aravind Adiga** is an Indo-Australian writer and journalist.

★ Additional Information

- **'The White Tiger'** is the debut novel by Indian author Aravind Adiga.
 - It was first published in 2008 and won the **40th Man Booker Prize in the same year**.
- **'Last Man In Tower'** is a 2011 novel by Indian Writer Aravind Adiga.
 - It tells the story of a struggle for a slice of shining Mumbai real Estate.
- **'Midnight Children'** is a 1981 novel by author Salman Rushdie.
 - It deals with India's Transition from British colonialism to independence and the partition of India.

29. Answer: c

Explanation:

Given:

For correct answer Rakesh get = 5 marks

For wrong answer Rakesh deduct = 2 marks

Total marks he scored = 30 marks

Calculation:

Number of question he marked correctly = 10

Let the correct question be x and incorrect question be y

According to question:

$$\Rightarrow 5x - 2y = 30$$

$$x = 10$$

$$\Rightarrow 50 - 2y = 30$$

$$\Rightarrow 20 = 2y$$

$$\Rightarrow y = 10$$

$\therefore$ Incorrect question = 10

30. Answer: b

Explanation:

Time between 2 o'clock and 3 o'clock, is 1 hour, and the hands of a clock are exactly opposite to each other only once in 1 hour.

Hence, option 2) is the correct answer.

31. Answer: b

Explanation:

Given:

2.5 kg homemade jam cost = Rs.78.60

Calculation:

2.5 kg homemade jam cost = Rs. 78.60

$\Rightarrow 1 \text{ kg homemade jam cost} = 78.60/2.5 = \text{Rs. } 31.44$

$\therefore 5.5 \text{ kg homemade jam cost Rs. } 31.44 \times 5.5 = \text{Rs. } 172.92$

32. Answer: d

Explanation:

The best suitable Venn diagram for "Tiger, Buffalo, Animals" is shown below:



Both Tiger and Buffalo are animals.

Hence, 'option 4' is the correct answer.

33. Answer: a

Explanation:

The logic is:



The common shaded portion of both the shape in 1st image is unshaded in the 2nd image. [K1]

Similarly,

The bigger triangle will be unshaded and the three small triangles will be shaded.

Hence, 'option 1' is the correct answer.

34. Answer: c

Explanation:

Given:

Cost of 1kg copper = Rs. 420

Calculation:

1 kg copper cost = Rs. 420

$\Rightarrow$ 1 gm copper cost = $420/1000 = 0.420$

$\therefore$ 50 gm copper cost = $0.420 \times 50 = \text{Rs. } 21$

35. Answer: c

Explanation:

The correct answer is 8.31 JK⁻¹ mol⁻¹.

★ Important Points

- 'R' Which is the symbol for the Gas constant, Molar gas constant, or Universal gas constant that we use to quantify the relationship between the properties of a gas.
- The Gas Constant is the physical constant in the equation for the Ideal Gas Law.
- $PV = nRT$ Where P is pressure, V is volume, n is No. of moles, and T is temperature.
- The constant R that we typically use relates pressure in atmospheres, volume in litres, and temperature in kelvin.
 - In this case, it has the value and units of $R = 0.08206 \text{ L atm mol}^{-1} \text{ K}^{-1}$.
- The gas constant R is a universal constant that relates energy and temperature.
 - $R = 8.314 \text{ J mol}^{-1} \text{ K}^{-1}$.

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36. Answer: b

Explanation:

Given:

Ratio of salary of charan and rajat = 5: 4

Each salary is increased by Rs. 3000

New ratio = 6 : 5

Calculation:

Let the salary of charan and rajat = $5x$ and $4x$

Each salary is increased by Rs. 3000

According to question:

$$\Rightarrow (5x + 3000)/(4x + 3000) = 6:5$$

$$\Rightarrow 25x + 15000 = 24x + 18000$$

$$\Rightarrow x = 3000$$

$$\therefore \text{Charan initial salary} = 5 \times 3000 = \text{Rs. } 15000$$

★ **Shortcut Trick**

C : R = 5 : 4 initial salary

and C : R = 6 : 5 after increment

Here the ratio change is the same for both C and R, i.e.,

for C $\rightarrow$ 5 to 6 and for R $\rightarrow$ 4 to 5

i.e., change of 1 unit which is equal to 3000.

Charan initial unit = 5

therefore 5 unit = $5 \times 3000 = \text{Rs. } 15000$.

37. Answer: a

Explanation:

Calculation:

According to question:

910 kg, for 70 km cost Rs. 45

⇒ 910 kg for 1 km cost Rs. 45/70

⇒ 910 kg for 63 km costs Rs. $45/70 \times 63 = \text{Rs. } (45 \times 9)/10$

When the rate is half

⇒ 910 kg for 63 km cost Rs. $(45 \times 9 \times 1)/(10 \times 2)$

⇒ 1 kg for 63 km cost Rs. $1/2 \times (45 \times 9)/10 \times 1/910$

⇒ 940 kg for 63 km costs $\frac{1}{2} \times \frac{45 \times 9}{10} \times \frac{1}{910} \times 940$

⇒ Rs. 20.91

∴ The answer is Rs. 20.91.

38. Answer: b

Explanation:

In all the images except 'e', the symbols are used in English grammar, while '+' are a sign used in mathematics.

Hence, 'option 2' is the odd one out.

39. Answer: c

Explanation:

The logic is:

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 place values of the letters are:

E = 5; G = 7; I = 9; L = 12, but the number below L is '10' which is not a correct combination of its place value, while the other letters are correctly placed with their place value.

Hence, 'option 3' is the odd one out.

40. Answer: d

Explanation:

Given:

Speed of veerappan = 10 km/hr

Speed of policemen = 12 km/hr

Distance between policemen and veerappan = 200 m = 0.2 km

Formula Used:

When the two objects travel in the same direction their relative speed = $(a - b)$ km/hr

When the two objects travel in the opposite direction their relative speed = $(a + b)$ km/hr

Where a and b are speeds of two objects in km/hr and $(a > b)$

Speed = Distance/Time

Calculation:

When both running in same direction relative speed = $(12 \text{ km/hr} - 10 \text{ km/hr}) = 2 \text{ km/hr}$

Time taken by policemen to catch the verrappan = $(0.2/2) = 0.1 \text{ hrs}$

$\therefore$ Distance cover by verrepaan in 0.1 hrs = $0.1 \times 10 = 1$ km

41. Answer: d

Explanation:

Given:

$$\left(a - \frac{1}{a}\right) = 6$$

Formula:

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

Calculation:

$$\left(a - \frac{1}{a}\right) = 6$$

Squaring both sides

$$\Rightarrow a^2 + 1/a^2 - 2 = 36$$

$$\Rightarrow a^2 + 1/a^2 = 38$$

Again squaring both sides

$$\Rightarrow a^4 + 1/a^4 + 2 = 1444$$

$$\Rightarrow a^4 + 1/a^4 = 1442$$

42. Answer: b

Explanation:

The correct answer is Vijayalakshmi Navaneethakrishnan.

★ Key Points

- Vijayalakshmi Navaneethakrishnan is a Tamil Folk Singer and Composer.
 - She is a renowned exponent of Tamil folk art and awarded a **Padma Shri**.

★ Important Points

- Anitha Kuppusamy is a Tamil folk and Carnatic Singer and Television host known for her 'Naatupura Pattu', a Tamil folk art.
- L R Eswari is a veteran Playback Singer of Tamil cinema, Telugu Cinema, Malayalam Cinema, and Kannada Cinema Industries. She won the 'Kalaimamani' The Tamil Nadu's state award, for her contributions to the Film Industry.
- Paravai Muniyamma was an Indian Veteran Folk Singer and Actress. She got the adjective **Paravai** as she was born in a village called Paravai in Madurai. She got the Kalaimamani Award.

★ Additional Information

- **Padma Shri is the** Fourth Highest civilian award in the republic of India, after the Bharat Ratna, Padma Vibhushan, Padma Bhushan.
- It is awarded by the Govt. of India every year on India's Republic Day.

43. Answer: b

Explanation:

The correct answer is The density of the iron nail is more than the density of water.

★ Key Points

- The density of a substance is defined as the mass per unit volume.
 - Its S.I. unit is kg/m^3 .
 - **Density = Mass / Volume.**
- An object that is partly, or completely, submerged experiences a greater Pressure on its bottom surface than on its top surface. This causes a resultant force upwards. This force is called upthrust.

- Upthrust = Apparent loss of weight of object = Weight in the air – Weight in liquid.

★ Hint

- The Density of cork is less than that of water.
 - Thus, the upthrust of water on the cork is greater than the weight of the cork. Hence, it Floats.
- On the other hand, The Density of the Iron nail is more than water, and the Upthrust of water on the iron nail is less than that of the weight of the Iron nail. Thus, it sinks.

44. Answer: d

Explanation:

⇒ (189/135)

⇒ 27 is common in both the numbers

Divide both numbers by 27

⇒ 7/5

∴ simplest form of 189/135 is 7/5

45. Answer: c

Explanation:

The correct answer is Dhyan Chand Award.

★ Important Points

The Dhyan Chand Award–

- The Dhyan Chand Award, officially known as Dhyan Chand Award for Lifetime Achievement in Sports and Games is the lifetime achievement sporting honour of India.
- The award is named after Dhyan Chand, an Indian field hockey player who scored more than 1000 goals during a career that spanned over 20 years.
- 5 lac is awarded to the recipient of the Dhyan Chand Award.
- The award was instituted in 2002.

★ Additional Information

- **Dronacharya Award** is for outstanding Coaches in Sports and Games, are sports Coaching honour of the Republic of India. The award named after the Drona often called "Guru Drona" or "Dronacharya".
- **Sardar Award** seeks to recognize the notable and inspiring contribution to promote the cause of National Unity and Integrity and to reinforce the value of a strong and united India.
- **Indira Gandhi Award** for Peace, Disarmament, and Development is an annual prestigious award named after former Prime minister Indira Gandhi. It is conferred every year by the Indira Gandhi memorial trust since 1986. It consists of a citation and a monetary award of 25 lacs.

46. Answer: d

Explanation:

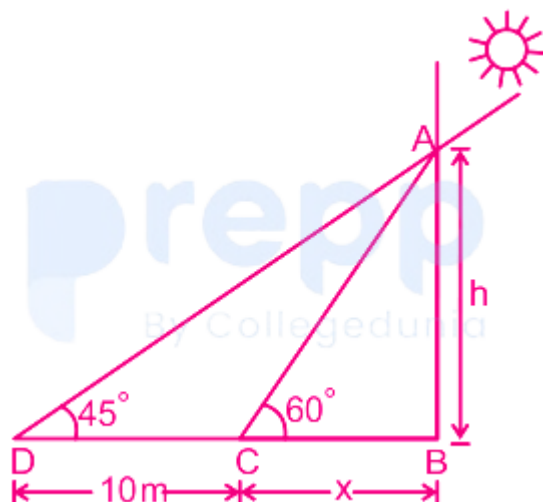
Given:

Length of shadow increases by 10 m

Angle of elevation decreases from 60° to 45°

Calculation:

From the given information the diagram can be drawn as



Let AB be the height of tower

CD be the increase in length of shadow

Now,

$$\tan 60^\circ = h/x$$

$$\Rightarrow \sqrt{3} = h/x$$

$$\Rightarrow \sqrt{3}x = h \quad \text{-----(i)}$$

$$\tan 45^\circ = h/(x + 10)$$

$$\Rightarrow 1 = h/(x + 10)$$

$$\Rightarrow x + 10 = h \quad \text{-----(ii)}$$

Putting the value of h from equation (i) into (ii)

$$\Rightarrow x + 10 = \sqrt{3}x$$

$$\Rightarrow x = 10/(\sqrt{3} - 1)$$

$$\therefore \text{Height of tower} = h = \sqrt{3}x = 10\sqrt{3}/(\sqrt{3} - 1)$$

47. Answer: c

Explanation:

The correct answer is Arijit Singh.

★ Key Points

- **Arijit Singh** wins Best Male playback Singer at the 63rd Filmfare Awards for the song " **Roke Na Ruke Naina** " from **Badri ki Dulhania**.
- He is the recipient of the National Award and six Filmfare Awards.

★ Additional Information

- **Ankit Tiwari** is an Indian playback singer, Music Director, Composer. He got the best Male playback Singer Award in 2015 for the Galliyan song.
- **Atif Aslam** is a Pakistani playback singer and actor.
- **Armaan Malik** is an Indian Singer, Songwriter, record producer, performer and actor. He is known for his Singing in Multiple Languages.

48. Answer: b

Explanation:

The correct answer is Saikom Mirabai Chanu.

★ Key Points

- Saikom Mirabai Chanu is an Indian Weightlifter in the 48kg category, Chanu has won the World Championships and multiple Medals at the Commonwealth Games.
- She was awarded Padma Shri by the government of India for her contributions to sports, also awarded for the Rajiv Gandhi Khel Ratna award.
- Mirabai Chanu became the first Indian in more than two decades to claim a gold medal at the World Weightlifting Championship in Anaheim, USA, exorcising the ghosts of her forgettable outing at the Rio Olympics.

★ Additional Information

- Nameirakpam Kunjarani Devi is the most decorated Indian sportswoman in Weightlifting. She was awarded the Arjuna award for Weightlifting. She won seven world championship Silver Medals and two Asian games Bronze.
- Ngangbam Soniya Chanu is an Indian Woman Weightlifter. She won the silver medal in the Women's 48kg category at the 2010 Commonwealth Games. She awarded the Arjuna award for weightlifting.
- D.Kavita Devi has represented India in International competition, she won gold in the 75kg category at the 2016 South Asian Games. It is the first-ever woman to compete in WWE.

49. Answer: c

Explanation:

The correct answer is a weak acid and a strong base.

★ Key Points

- The pH of a solution is defined as the **negative logarithm of the hydrogen ion concentration in moles per litre**.
- It is also defined as the **potenz of hydrogen i.e. power of hydrogen**.

$$\text{pH} = -\log [\text{H}^+] \text{ or } \text{pH} = -\log [\text{H}_3\text{O}^+]$$

- The pH scale is used to indicate the acidic and basic nature of compounds. It also called a universal indicator.
- Acids are those when dissolves in water produce H^+ ions, they are sour in taste, turns blue litmus to red.
 - For example - H_2SO_4 , HCl , HNO_3 - Strong acid, CH_3COOH , H_2CO_3 - Weak acid.
- Bases are those when dissolves in water produce OH^- ions, they are bitter in taste, turns red litmus to blue.
 - For example - NaOH , $\text{Mg}(\text{OH})_2$ - Strong base, NH_4Cl - Weak base.

Soluble bases are called as Alkali.
- Salts are the neutral compounds, formed by the ionic reaction between acids and bases, they are salty in taste. salts are electrically neutral.

- On the pH scale, acids having a pH less than 7, bases having a pH More than 7, and salts are having a pH value equal to 7 for neutral salts (strong acid and strong base).
- Acidic salts are the salts with weak base and strong acid pH less than 7, for example- NH_4Cl .
- Basic salts are the salts with weak acid and strong base pH of more than 7, for example- Na_2CO_3 .

50. Answer: a

Explanation:

All letters except 'N' are Greek Alphabets, while 'N' is a general English alphabet.

Hence, 'N' is the odd one out.

51. Answer: c

Explanation:

The correct answer is Cu + Sn.

★ Additional Information

- Alloy is a homogenous mixture of two or more metals, or a metal and a non-metal.
- **Cu + Zn alloy called Brass.** It is used where low friction and corrosion resistance is required, such as locks, hinges, gears, bearings, hose couplings, valves, etc.
- **Cu + Sn alloy called Bronze,** are not good conductors of electricity. whereas copper is used for making electrical circuits.
- **Pb + Sn alloy called Solder** has a low melting point and is used for welding electrical wires together.
- **Al + Cu + Mn + Mg alloy called Duralumin.** It is strong, hard, lightweight, an alloy of aluminium. It is used for aircraft construction.

- Al – aluminium, Cu – copper, Mn– manganese, Mg– magnesium, Pb– lead, Zn– zinc, Sn– tin.

52. Answer: a

Explanation:

The correct answer is Rajiv Kumar.

★ Key Points

- NITI Aayog (National Institution for Transforming India) was formed via a resolution of the union cabinet on January 1, 2015.
- NITI Aayog is the premier policy 'Think tank of the government of India' providing both directional and policy inputs.
- NITI Aayog replaced The Planning commission.
- The chairperson of NITI Aayog is **Shri Narendra Modi Hon'ble Prime Minister**.
- The vice-chairman of NITI Aayog is Dr Rajiv Kumar is a leading Indian Economist and took charge of the rank and status of a cabinet minister on 1st September 2017.

★ Important Points

- Dr Suman K Berry is the current vice-chairman of NITI Aayog. (As of April 2022).

★ Additional Information

- **Rajeev Mehrishi** was the 13th comptroller and auditor general of India and vice-chairman of the united nations panel of External Auditors.
 - He was appointed as the home secretary of India on 31 august 2015.
 - Mehrishi appointed as India's top public auditor in 2017.
- **Amitabh Kant** is presently CEO of NITI Aayog.
- **Arvind Shubhramaniyam** is an India Economist and the former Chief Economic Advisor to the government of India, having taken charge of the position from 16th October 2014 to 20th June 2018, succeeding Raghuram Rajan.

53. Answer: c

Explanation:

Given:

Length, breadth and height of tank is 5m, 3m and 1m respectively

Formula Used:

Volume = Length $\times$ breadth $\times$ height

Calculation:

Volume of tank = (length $\times$ breadth $\times$ height)

Volume of tank = $(5 \times 3 \times 1) = 15\text{m}^3$

Now,

$1\text{m}^3 = 1000$ litres

$\therefore 15\text{m}^3 = 15000$ litres

$\therefore$ It can hold 15000 litres of water

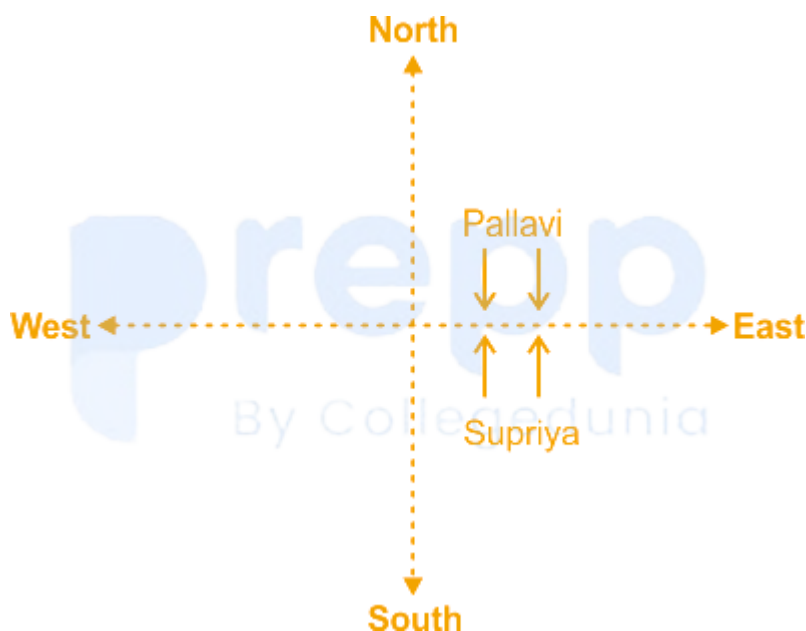
54. Answer: c

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.

55. Answer: d

Explanation:

The correct answer is 3:8.

★ Important Points

- **Mass**– It is a measure of the amount of matter in an object. It is usually measured in grams or kilograms.
- In Chemistry, Mass ratio often called "**per cent composition by mass**", is the **proportion of a particular molecule that consists of each that molecule's constituent elements**.
- This principle gives rise to the law of constant proportion by Joseph Proust in 1800.
 - A given compound always has the same proportion by mass of its constituent elements.
 - For example – **water always has exactly 8gm of oxygen for every 1gm of hydrogen, i.e.1:8.**

- The mass is calculated by the mass number of an element given in the periodic table and represented by 'A' in an element.
- The mass of hydrogen in H_2O is $2 \times 1 = 2\text{gm}$ (it contains 2 moles of hydrogen) and the mass of oxygen in H_2O is 16gm (it contains 1 mole of oxygen) = $2:16 = 1:8$.
- As the mass number of oxygen is 16 and the mass number of hydrogen is 1.

CALCULATION:-

- The mass of carbon in CO_2 is 12gm (carbon has one molecule).
- The mass of oxygen in CO_2 is $2 \times 16 = 32\text{gm}$ (oxygen has two molecules)
- So, the ratio of their masses is $12:32 = 3:8$.
- In 1 mole of CO_2 , there is 1 mole of carbon and 2 moles of oxygen.

56. Answer: c

Explanation:

The correct answer is 3.75.

★ Key Points

Electric Power – The rate of doing work is called power. This is also the rate of consumption of energy. **The rate at which electric energy is dissipated or consumed in an electric circuit is also termed as electric power.**

- The power P is given by $P = VI$ Or $P = I^2R = V^2 / R$.
- The **S.I. Unit of electric power is the watt (W)**. It is the power consumed by a device that carries 1 A of current when operated at a potential difference of 1 V. Thus, $1\text{ W} = 1\text{ Volt} \times 1\text{ ampere} = 1\text{ V A}$.
- The unit 'watt' is very small. Therefore, in actual practice, we use a much larger unit called 'kilowatt'. it is equal to 1000 watts.
- Electric energy is the product of power and time, the unit of electric energy is 'watt-hour' (W h).

- **1 watt-hour** is the energy consumed when 1 watt of power is used for 1 hour. The commercial unit of electric energy is kilowatt-hour (KW h), commonly known as **Units**.
- $1 \text{ KW h} = 1000 \text{ watts} \times 3600 \text{ seconds} = 3.6 \times 10^6 \text{ watt second} = 3.6 \times 10^6 \text{ joule (J)}$.

CONCEPT: Electric energy = Power $\times$ Time

CALCULATION:

- power = 1250 watt = 1.25 kw,
- time = 3 hours
- electric energy = ?

BY FORMULA:

Electric energy = power $\times$ time

Electric energy = 1.25 kw $\times$ 3 h

Electric energy = 3.75 kw h or 3.75 units

So, the electric energy consumption per day by an electric iron is 3.75 units.

57. Answer: c

Explanation:

Let the age of B be x years.

$A = x + 3$ and $C = 2x$

According to question:

$$(x + 3) + x + 2x = 35$$

$$\Rightarrow x + 3 + x + 2x = 35$$

$$\Rightarrow 4x = 35 - 3$$

$$\Rightarrow 4x = 32$$

$$\Rightarrow x = 8$$

So, A's age = $(x + 3) = (8 + 3) = 11$ years.

Hence, '11 years' is the correct answer.

58. Answer: d

Explanation:

The correct answer is **Pb and Hg**.

★ Important Points

- **Pb is a symbol of Lead. Hg is a symbol of Mercury.**
- **Mercury** holds out against the removal of electron and behaves like a noble gas by forming a weak bond, thus it is a bad conductor of heat.
- **Lead has less metallic character**, so it is a poor conductor of heat.
 - Lead lies in group 14 of the modern periodic table and metallic characters decrease, as we move left to right in the periodic table.
 - Metals are usually the best conductors of thermal energy metals are chemically bonded: metallic bonds (as opposed to covalent or ionic bonds) have free-moving electrons which are able to transfer thermal energy rapidly through the metal.
 - **Lead lacks this kind of electrons so it's a poor conductor of heat. But compared to non-metal it's conductivity is quite higher.**
- The heat flows from a hotter object to a colder object. The process by which heat is transferred from the hotter end to the colder end of an object is known as **conduction**.
- The materials which allow heat to pass through them easily are conductors of heat. For examples, aluminium, iron and copper.
- The materials which do not allow heat to pass through them easily are poor conductors of heat such as plastic and wood.
- **Poor conductors are known as insulators.**

- Silver and copper are the two best conductors of heat and electricity.

★ Additional Information

- In the winter, we use woollen clothes. Wool is a poor conductor of heat. Moreover, there is air trapped in between the wool fibres. This air prevents the flow of heat from our body to the cold surroundings. So, we feel warm.

59. Answer: b

Explanation:

The correct answer is Meira Kumar.

★ Important Points

- Ram Nath Kovind is the 14th President of India.
- Last presidential election held on **17th July 2017**.
- He was earlier the Governor of Bihar.
- He is a successor of former President Pranab Mukherjee.
- Mr Kovind was a lawyer by profession.
- In the presidential election, he was backed by National Democratic Alliance.
- **Meira Kumar was the first women speaker** of Lok Sabha from 2009 to 2014. She has earlier served as Minister of Social Justice and Empowerment in UPA government from 2004 to 2009.

★ Additional Information

- **Term of President is five years**, although he can be re-elected by the members of the electoral college.
- President can be impeached for violation of the Constitution under **Article 61**.
- In his absence, Vice President holds his power and if Vice President is also not available then the Chief Justice of India will hold the office of the president.

60. Answer: a

Explanation:

Given:

C.P. of 18 apples = S.P. of 16 apples

Calculation:

$$18 \times \text{C.P} = 16 \times \text{S.P}$$

$$\Rightarrow (\text{C.P.}) / (\text{S.P.}) = (16/18)$$

$$\therefore \text{Profit} = \text{S.P.} - \text{C.P.}$$

$$\Rightarrow \text{Profit} = 2 \text{ apples}$$

$$\text{Profit\%} = (2/16) \times 100$$

$$\Rightarrow 12.5\%$$

$$\therefore \text{Required gain\%} = 12.5\%$$

61. Answer: b

Explanation:

The logic is:

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

Letters are replaced by their place value.

P	O	L	A	N	D
16	15	12	1	14	4

Similarly,

S	P	A	I	N
19	16	1	9	14

Hence, '19161914' is the correct answer.

62. Answer: d

Explanation:

The correct answer is New Zealand.

★ Important Points

- It was the twelfth edition ICC Under-19 Cricket World Cup.
- **It was held in New Zealand from 13 January to 3 February 2018.**
- The final was played at **Bay Oval** cricket ground in Mount Maunganui.
- **Indian team won** the match against Australia. India won the Fourth ICC Under-19 Cricket World Cup title, maximum by any team.
- Sixteen countries participated in the tournament.
- Shubman Gill of India was a man of the series.
- Alick Athanaze of the West Indies made most runs (418) in the tournament.

★ Additional Information

- Some upcoming important sports event and their host.

Sports event	Host
2022 Commonwealth Games	Birmingham, England
2022 Asian Games	China
2024 Olympic Games	Paris, France
2022 Para Olympics	Beijing, China
2023 ICC World Cup Cricket	India

63. Answer: d

Explanation:

The correct answer is $v = u + at$.

★ Important Points

Initials	Stands for
v	Final velocity
u	Initial velocity
a	Acceleration
t	Time

- When an object moves along a straight line with uniform acceleration, it is possible to relate its velocity, acceleration during motion and the distance covered by it in a certain time interval by a set of equations known as the **equations of motion**.
- There are three such equations.
 - $v = u + at$

- $2as = v^2 - u^2$
- $s = ut + \frac{1}{2}at^2$
- Option 2, 3, and 4 explains such equations.
- $v = u + at$ describes the velocity-time relation.

★ Additional Information

- $s = ut + \frac{1}{2}at^2$ represents the position-time relation.
- $2as = v^2 - u^2$ represents the relation between the position and the velocity.

64. Answer: b

Explanation:

The correct answer is 1 ampere.

★ Important Points

- One coulomb is the charge flowing through a wire in 1 second if the current is 1 Ampere. A coulomb is a unit of electric charge.
- A coulomb is a name given in the memory of French physicist Charles Augustin de Coulomb.
- Coulomb force and gravitational force follow the same inverse-square law.
- But gravitational force has only one sign (always attractive), while Coulomb force can be of both signs (attractive and repulsive), allowing the possibility of cancellation of electric force.

★ Additional Information

SI unit	SI unit of
Volt	Electric potential difference
Watt	Power
Ohm	Resistance

65. Answer: a

Explanation:

The correct answer is the Pritzker Award.

★ Important Points

- Balkrishna Doshi apart from Pritzker Award won several other prestigious awards likes Padma Bhushan (the third-highest civilian award in India), Padma Shri (the fourth highest civilian award in India), Aga Khan Award for Architecture, and Ordre des Arts et des Lettres (A award by the French government).
- He is the first Indian to win the Pritzker Award in the year 2018.
- He was born in Pune in August 1927 and he is an alumnus of J. J. School of Architecture, Mumbai.
- Some of his recognised works include – National Institute Of Fashion Technology – Delhi, IIM Bangalore, Centre for Environmental Planning and Technology – Ahmedabad.

★ Additional Information

- Pritzker Award is one of the most prestigious prizes in Architecture. The prize is awarded annually.
- Started in 1979 by Jay A. Pritzker and his wife. The prize money is \$100000.

66. Answer: c

Explanation:

Given:

Amount in the bank initially = Rs.713.39

He further deposited Rs. 450.75

Calculation:

Total amount in the account = $(713.39 + 450.75) = \text{Rs. } 1164.14$

Amount left in the account after purchasing shirts = Rs. 545.19

$\Rightarrow$ Cost of five shirts = $(1164.14 - 545.19) = \text{Rs. } 618.95$

$\therefore$ Cost of one shirt = $618.98 / 5 = \text{Rs. } 123.79$

67. Answer: b

Explanation:

Given series: 3 R # 2 A \$ K 5 % T 7 & N Y + X B / L Q @ 1

If the second half of the above series is reversed then the new series is:

3 R # 2 A \$ K 5 % T 7 1 @ Q L / B X + Y N &

1) A%@ $\rightarrow$ Gap of three terms between the given set of letters and symbol.

2) K71 $\rightarrow$ Gap of three terms between K and 7, but 1 is immediately followed by 7.

3) \$TQ $\rightarrow$ Gap of three terms between the given set of letters and symbol.

4) 251 $\rightarrow$ Gap of three terms between the given set of numbers.

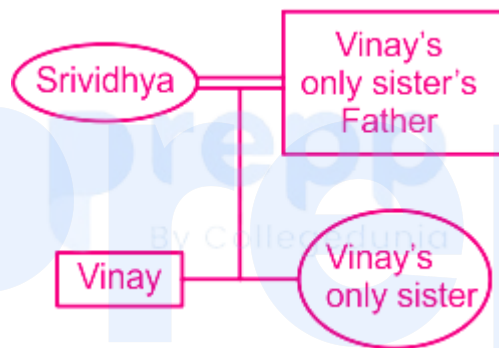
Hence, 'K71' is the odd one out.

68. Answer: a

Explanation:

The family tree diagram is shown below:

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



Vinay's only sister's father related is husband of Srividhya.

Hence, 'husband' is the correct answer.

69. Answer: b

Explanation:

Anish is thrice as old as his son and the sum of their ages is 48 years

Let the age of Anish's son be x years.

So, age of Anish = 3x

According to question:

$$3x + x = 48$$

$$\Rightarrow 4x = 48$$

$$\Rightarrow x = 12$$

So, Anish's age = $3x = (3 \times 12) = 36$ years.

Hence, '36' is the correct answer.

70. Answer: a

Explanation:

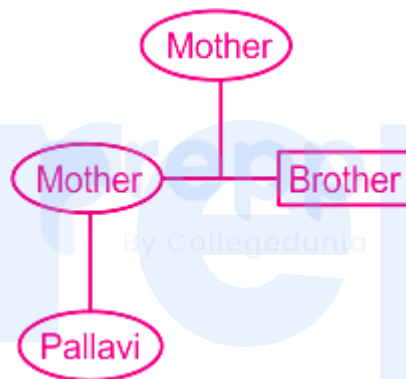
- I. Terrorists always target destruction at a larger scale. $\rightarrow$ True (As, "The tourism spots should be given extra security" $\rightarrow$ Tourist spots generally are populated by tourists, because of which terrorists target these areas to cause destruction at a larger scale)
- II. One cannot prevent terrorism act. $\rightarrow$ False (As, The tourism spots should be given extra security, securities are put to prevent terrorism.)
- Hence, only conclusion I follows.

71. Answer: c

Explanation:

The family tree diagram is shown below:

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



So, Pallavi is 'grand daughter' of her mother's only brother's mother.

Hence, 'Grand daughter' is the correct answer.

72. Answer: c

Explanation:

The correct answer is anther.

★ Important Points

- The pollen grains represent the male gametophytes.
- The transfer of pollen from the anther to the stigma of a flower is called pollination.

- Cross-pollination is defined as the deposition of pollen grains from a flower to the stigma of another flower.

★ Additional Information

- The male gametes are found inside the pollen grains and female gametes are found in the ovule.
- Pollen grains are generally spherical measuring about 25-50 micrometres in diameter. It has a prominent two-layered wall. The hard outer layer called the **exine** is made up of sporopollenin which is one of the most resistant organic materials known.

73. Answer: a

Explanation:

The correct answer is Azerbaijan.

★ Important Points

- Azerbaijani manat is the currency of Azerbaijan.
- Azerbaijan is a European country in the boundaries of Europe and Asia, Baku as its capital.
- Majority of the population i.e more than 95 % of the people follow Islam.
- Ilham Aliyev is the president and Ali Asadov is the prime minister of the country.

★ Additional Information

Country	Currency
Armenia	Armenian dram
Albania	Albanian Lek
Andorra	Euro
Croatia	Croatian Kuna
Denmark	Denish Crone
Romania	Romanian Leu
Bulgaria	Bulgarian Lev
Russia	Rubble
Hungary	Hungarian forint

74. Answer: c

Explanation:

The correct answer is 23.

★ Mistake Points

- Please note that the term '**germ cell**' refers to the diploid cell that undergoes meiosis to form the gametes.
- The gametes always carry half the amount of chromosome present in an organism.
- For humans there are 23 pairs or 46 chromosomes, meaning they are diploid($2n$). When these undergo meiosis, the chromosome number is halved.

Therefore, **the total number of chromosomes in a female germ cell (gamete) will be 23.**

★ Important Points

- There are 23 pairs of chromosomes in the human female germ cell.
- Chromosomes in the nucleus of a cell contain information for the inheritance of features from parents to the next generation in the form of DNA (Deoxyribonucleic Acid) molecules.
- The important things to remember are that chromosomes, as well as genes, occur in pairs.
- In a multicellular organism, the reproductive cells are called germ cells.

★ Additional Information

- The DNA in the cell nucleus is the information source for making proteins. If the information is changed, different proteins will be made. Different proteins will eventually lead to altered body designs.
- Therefore, a basic event in reproduction is the creation of a DNA copy.

75. Answer: b

Explanation:

The correct answer is 17000 Hz.

★ Important Points

- According to the question:
 - Velocity $V = 340\text{m/s}$
 - Wavelength (λ) = $2\text{cm} = 0.02\text{m}$
 - Frequency (f) = ?
- We know that
 - Velocity = Frequency multiplied by Wavelength
 - $340 = f \times 0.02$
 - $f = 340 / 0.02$.
 - Frequency = 17,000Hz.

★ Additional Information

- The sound wave is the propagation of disturbance (in pressure density) in air, without the motion of air medium as a whole.
- Sound waves travel in the form of compressions and rarefactions of small volume elements of air.

76. Answer: b

Explanation:

The correct answer is white.

★ Important Points

- Magnesium ribbon burns with a dazzling white flame.
- We know that magnesium ribbon burns with a dazzling white flame and changes into a white powder.
- **This powder is magnesium oxide.**
- It is formed due to the reaction between magnesium and oxygen present in the air.

★ Additional Information

- A ribbon of magnesium metal which is generally used in laboratories is known as magnesium ribbon.
- When a magnesium ribbon is burnt in oxygen, it gets converted to magnesium oxide.
- It can be very well explained by an equation,
 - **Magnesium + Oxygen (Reactants) → Magnesium oxide (Product)**

77. Answer: d

Explanation:

According to the given information,

Assumption I: This is implicit, because there are other oils available in the market.

Assumption II: This is also implicit, because health is definitely a priority for every individual and their family.

Hence, “both I and II” are implicit.

78. Answer: b

Explanation:

Statement 1:

The bag contains 6 blue, 7 red, and 8 orange balls.

By this we know that total number of balls = $6 + 7 + 8 = 21$

Statement 2:

The bag is green colour.

This information is not relevant to the question.

Hence, Only 1 is sufficient is the correct answer.

79. Answer: a

Explanation:

The correct answer is glandular skin with hairs.

★ Important Points

- Mammals or Mammalia class of animal kingdom are found in a variety of habitats – polar ice caps, deserts, mountains, forests, grasslands and dark caves.

- Some of them have adapted to fly or live in water.
- The most unique mammalian characteristic is the presence of milk-producing glands (mammary glands) by which the young ones are nourished.
- They have two pairs of limbs, adapted for walking, running, climbing, burrowing, swimming or flying.
- The skin of mammals is unique in possessing hair. External ears or pinnae are present. Different types of teeth are present in the jaw. The heart is four-chambered. They are homoiothermous. Respiration is by lungs. Sexes are separate and fertilisation is internal.

★ Additional Information

Binomial nomenclature of few mammals:

Binomial nomenclature	Animal
Panthera leo	Lion
Panthera tigris	Tiger
Balaenoptera musculus	Blue whale
Canis lupus	Dog
Felis catus	Cat
Elephas maximus indicus	Elephant
Equus caballus	Horse

80. Answer: c

Explanation:

Given:

Total revenue of the company = Rs.36,28,000

Calculation:

Share of jacket in the total revenue of the company = 10%

10% of 36,28,000

$\Rightarrow (10/100) \times 36,28,000$

$\Rightarrow 362800$

$\therefore$ Revenue made with the sale of Jackets = Rs. 362800

81. Answer: c

Explanation:

The correct answer is 1st July 2017.

★ Important Points

- The GST was passed on 1st July 2017.
- State Legislatures of different States have passed respective State Goods and Services Tax Bills. After the enactment of various GST laws, GST was launched with effect from 1st July 2017 by our Prime Minister Narendra Modi, in the presence of Sh. Pranab Mukherjee, the then President of India in a midnight function at the Central Hall of Parliament of India.

★ Additional Information

- On 19th December 2014, The Constitution (**122nd Amendment**) Bill 2014 was introduced in the Lok Sabha and was passed by Lok Sabha in May 2015.
- The Bill was passed by the Rajya Sabha on 3rd August 2016 and by the Lok Sabha on 8th August 2016. After ratification by the required number of State legislatures and assent of the President, the Constitutional amendment was notified as Constitution (**101st Amendment**) Act 2016 on 8th September 2016. The Constitutional amendment paved the way for the introduction of Goods and Services Tax in India.

82. Answer: c

Explanation:

The logic is:

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

$$\begin{array}{ccccccc}
 3 & \xrightarrow{+4} & 7 & \xrightarrow{+4} & 11 & \xrightarrow{+4} & 15 & \xrightarrow{+4} & 19 \\
 W & \xrightarrow{-1} & V & \xrightarrow{-1} & U & \xrightarrow{-1} & T & \xrightarrow{-1} & S
 \end{array}$$

Hence, '19S' is the correct answer.

83. Answer: c

Explanation:

I. Young mothers need to spend more time with their kids in the initial years. → True
(As, Given statement concludes that flexible working hours will give mothers enough time with their kids)

II. The company cares for their female employees' obligation and work pressure → True
(As, the flexible working hours is for mothers only, and all mothers are females that means company cares about them)

Hence, both the conclusions follow.

84. Answer: a

Explanation:

The images in the figure series is moving in anti-clockwise direction.

So, the next image in the series will be as show below:



Hence, 'option 1' is the correct answer.

85. Answer: a

Explanation:

Formula used:

Total work = total number of men working $\times$ total of days they are working

According to question:

$$\Rightarrow (38M_1 \times 6) \times 12 \text{ ----- (1}^{\text{st}} \text{ group)}$$

$$\Rightarrow (57M_2 \times 8) \times n \text{ ----- (2}^{\text{nd}} \text{ group)}$$

$$\Rightarrow 2M_1 \times 1 = 3M_2 \times 1.5$$

$$\Rightarrow 2M_1 = 4.5 M_2$$

$$\Rightarrow M_1/M_2 = 4.5/2 = 9/4$$

Calculation:

$$\Rightarrow \text{Total work} = 38 \times 9 \times 6 \times 12$$

$$\Rightarrow 2^{\text{nd}} \text{ group time} = (38 \times 9 \times 6 \times 12)/(57 \times 4 \times 8) = 27/2 \text{ days}$$

⇒ 13.5 days

∴ Required time is 13.5 days

86. Answer: c

Explanation:

The correct answer is Dobereiner.

★ Important Points

- On July 27, 1823, Dobereiner made a remarkable observation when working with platinum sponge. When a jet of hydrogen mixed with air was directed on the sponge, the hydrogen caught fire immediately.
- Dobereiner noted that he could repeat the experiment, which took place at room temperature, at lower temperatures as well.
- Swedish chemist Jons Jacob Berzelius, seen as one of the founders of modern chemistry, wrote about it at the time as “the most brilliant discovery of last year”.
- Dobereiner’s experiments, in fact, helped Berzelius in developing the concept of catalysis. It was Berzelius who coined the word “catalysis” in 1835

★ Additional Information

- While creating a fire this way might seem unremarkable now, we must remember that there was still no easy way to produce fire in 1823 – using flint and tinder was still the dominant way of creating fire.
 - Dobereiner’s discovery led him to an application that could be used for lighting purposes. The Dobereiner Feuerzeug (Dobereiner’s lamp) or hydroplatinic lamp or briquet a hydrogene (hydrogen lighter) was the go-to lighting gadget for decades until it was finally replaced by, well yes, the matchstick. (Source: TH)
-

87. Answer: b

Explanation:

The least possible venn diagram is:



1. Some earth are brown. → True (As, Some brown are earth so, some earth are brown is definitely true)

2. No mugs are earth. → False (This is possible but not definite)

Hence, conclusion 1 alone follows.

88. Answer: b

Explanation:

Option 2 is not correct.

- The cerebellum does not controls movements, speech, sight, smell, taste, hearing, intelligence etc.

★ Important Points

- The activities like walking in a straight line, riding a bicycle, picking up a pencil are possible due to a part of the hindbrain called the cerebellum.
- It is responsible for the precision of voluntary actions and maintaining the posture and balance of the body.
- It is a part of the hind brain.

★ Additional Information

- The brain has three such major parts or regions, namely the forebrain, midbrain and hindbrain.
- The forebrain is the main thinking part of the brain. It has regions which receive sensory impulses from various receptors.
- There is another set of muscle movements over which we do not have any thinking control. Many of these involuntary actions are controlled by the midbrain and hindbrain.
- All these involuntary actions including blood pressure, salivation and vomiting are controlled by the medulla in the hindbrain.

89. Answer: a

Explanation:

The correct answer is Directly beneath the point of suspension.

★ Important Points

- The centre of gravity of any freely suspended object lie directly beneath the point of suspension .
- The force that causes this acceleration and keeps the body moving along the circular path is acting towards the centre. This force is called the centripetal (meaning 'center-seeking') force.
- Every object in the universe attracts every other object with a force which is proportional to the product of their masses and inversely proportional to the square of the distance between them.

★ Additional Information

- Three laws of Newton are as follows:
- First law - Everybody continues to be in its state of rest or of uniform motion in a straight line unless compelled by some external force to act otherwise.
- Second law - The rate of change of momentum of a body is directly proportional to the applied force and takes place in the direction in which the force acts.
- Third Law - To every action, there is always an equal and opposite reaction.

90. Answer: b

Explanation:

The family tree diagram is shown below:

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



Hence, Z is the 'paternal grandfather' of R.

91. Answer: d

Explanation:

The correct answer is Indira Gandhi.

★ Important Points

- On 25th June 1975, National emergency was imposed during the reign of then Prime Minister of India, Indira Gandhi.
- Fakhruddin Ali Ahmed was the President of India when National emergency was imposed. He was the fifth President of India.
- National Emergency was for the period of 21 months.
- National Emergency can be declared under **Article 352**.

★ Additional Information

- Constitutional Emergency can be imposed under **Article 356**.
- Financial Emergency can be imposed under **Article 360**. Till now Financial Emergency has never been imposed in our country.

92. Answer: d

Explanation:

The correct answer is New Delhi.

★ Important Points

- The fifth edition of the South Asia Region Public Procurement Conference was held in New Delhi on 5th – 7th February 2018.
- The theme of the fifth conference was **Public Procurement and Service Delivery**.
- Public Procurement Division (PPD) of the Ministry of Finance, hosted the Conference. It is sponsored by the World Bank, Asian Development Bank and Islamic Development Bank.
- **There are eight countries in the South Asia Region and they are the Maldives, Afghanistan, Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka.**

★ Additional Information

- The objective of this conference is to make the learning of officers from different countries from one another in the field of public procurement.
- The first conference was held in Kathmandu in 2010.

93. Answer: d

Explanation:

The correct answer is Sclerenchymatous fibres.

★ Important Points

- Sclerenchymatous tissue is one of the permanent tissue .
- It is the tissue which makes the plant hard and stiff like a husk of a coconut. It is made of sclerenchymatous tissue.
- The cells of this tissue are dead. They are long and narrow as the walls are thickened due to **lignin**.
- Often these walls are so thick that there is no internal space inside the cell. This tissue is present in stems, around vascular bundles, in the veins of leaves and in the hard covering of seeds and nuts.
- It provides strength to the plant parts.

★ Additional Information

- The outermost layer of cells called the **epidermis** . The epidermis is usually made of a single layer of cells.
- The tissue is a group of cells similar in structure and function. Plant tissues are of two main types – meristematic and permanent.
- **Parenchyma, collenchyma and sclerenchyma** are three types of simple tissues. Xylem and phloem are types of complex tissue .

94. Answer: b

Explanation:

The logic is:



Hence, '27' is the correct answer.

95. Answer: d

Explanation:

Let the total number students in the class be 200

According to question:

One-fourth opted to learn German

$$\Rightarrow (1/4) \times 200 = 50$$

$\Rightarrow$ 50 opted for German

$$\text{Remaining students} = (200 - 50) = 150$$

Two-fifths of the remaining students chose Italian

$$\Rightarrow (2/5) \times 150 = 60$$

$\Rightarrow$ 60 opted for Italian

$$\text{Remaining students} = (150 - 60) = 90$$

Two-thirds of the remaining students decided to learn French

$$\Rightarrow (2/3) \times 90 = 60$$

$\Rightarrow$ 60 opted for French

$$\text{Remaining students} = 90 - 60 = 30$$

30 students opted for Japanese

But in this question given, 72 students opted for Japanese

$\Rightarrow 30 \text{ units} = 72 \text{ students}$

$\Rightarrow 1 \text{ unit} = 72/30$

$\Rightarrow 60 = (72/30) \times 60 = 144$

$\therefore 144 \text{ students opted for Italian}$

96. Answer: b

Explanation:

Concept:

Octagon has eight sides.

Dodecagon has twelve sides.

Formula:

Interior angle of polygon = $[(n - 2) \times 180^\circ] / n$

Calculation:

Interior angle of octagon = $[(8 - 2)/8] \times 180^\circ = 1080^\circ/8 = 135^\circ$

Interior angle of dodecagon = $[(12 - 2)/12] \times 180^\circ = 1800^\circ/12 = 150^\circ$

$\therefore$ The ratio of the measures of the interior angles for octagon and dodecagon is 9 : 10

97. Answer: a

Explanation:

Concept:

If three points $A(x_1, y_1)$, $B(x_2, y_2)$ and $C(x_3, y_3)$ form a triangle ABC

Then, area of triangle ABC = $\frac{1}{2}\{x_1(y_2 - y_3) + x_2(y_3 - y_1) + x_3(y_1 - y_2)\}$

Given:

Three points $(a, b + c)$, $(b, c + a)$ and $(c, a + b)$

$\Rightarrow$ Area of triangle formed by these points = $\frac{1}{2} [a(c + a - a - b) + b(a + b - b - c) + c(b + c - c - a)]$

$\Rightarrow \frac{1}{2} [a(c - b) + b(a - c) + c(b - a)]$

$\Rightarrow \frac{1}{2} [ac - ab + ba - bc + cb - ac]$

$\Rightarrow 0$

$\therefore$ Area of triangle whose vertices are $(a, b + c)$, $(b, c + a)$ and $(c, a + b) = 0$

98. Answer: c

Explanation:

Calculation:

Considering the given fractions

$$\frac{1}{8}, \frac{2}{12}, \frac{3}{16}, \frac{4}{20}$$

LCM of 8, 12, 16, 20 = 240

$\Rightarrow 30, 40, 45, 48$

$\therefore (4/20)$ is the largest fraction

99. Answer: d

Explanation:

Concept:

Sum of all the three angle in a triangle = 180°

In right angle triangle one angle = 90°

Calculation:

Out of three one angle is 90°

$$\Rightarrow (180^\circ - 90^\circ) = 90^\circ$$

Second angle = 55° ----- (given)

$$\therefore (90^\circ - 55^\circ) = 35^\circ$$

$\therefore$ Other acute angle is 35°

100. Answer: c

Explanation:

Given:

6 skilled workers (S) can dig a pond in 8 days

9 unskilled workers (U) can dig it in 12 days

Formula:

Total work = number of persons doing $\times$ time taken by persons to complete the work

- Let's say skilled workers = S
- unskilled workers = U

Calculation:

$$\Rightarrow 6S \times 8 \text{ days} = 9U \times 12 \text{ days}$$

$$\Rightarrow (S/U) = (9/4)$$

$$\therefore S = (9/4) U$$

According to question:

4 skilled and 18 unskilled workers takes X days

$$4 \text{ skilled worker} = \{(9/4) \times 4\} \text{ unskilled worker}$$

$$\Rightarrow 4 \text{ skilled worker} = 9 \text{ unskilled worker}$$

$$\therefore (9 \text{ unskilled} + 18 \text{ unskilled}) = 27 \text{ unskilled}$$

Now, again comparing the total works

$$\Rightarrow (9U \times 12 \text{ days}) = 27U \times X \text{ days}$$

$$\Rightarrow X = 4 \text{ days}$$

$$\therefore \text{Required number of days} = 4 \text{ days}$$

Your Personal Exams Guide