



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 (01-Oct-2018) (Shift 2)

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.

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CBT

1. The constitution of India was framed by a Constitution Assembly set up under the _____ of 1946. (+1, -0.33)

- a. Cabinet Mission Plan
- b. Cabinet Missionary Plan
- c. Cabinet Ministry Plan
- d. Cabinet Ministers Plan

2. The classification of elements by which of the following leads to the discovery of new elements? (+1, -0.33)

- a. Mendeleev
- b. Moseley
- c. Dobereiner
- d. Newlands

3. Find the mirror image of the given figure: (+1, -0.33)





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

4. If an agent does a work W in time t , then power is given by: (+1, -0.33)

- a. Time/work
- b. Time $\times$ work
- c. Time - work
- d. Work/time

5. In a code language, KEEN is written as PVVM. What is the code of PEAL? (+1, -0.33)

- a. KVZP
- b. KVZO
- c. KVZN
- d. KVZM

6. The angle between the incident ray and the reflected ray is 80° . Then what will be the value of the incident angle? **(+1, -0.33)**

- a. 40°
 - b. 90°
 - c. 60°
 - d. 80°
-

7. Which country has won the 27th Sultan Azlan Shah cup? **(+1, -0.33)**

- a. Australia
 - b. Pakistan
 - c. Newzealand
 - d. England
-

8. When an object is moving with a uniform velocity, what is its acceleration? **(+1, -0.33)**

- a. Non-uniform
 - b. Negative
 - c. Positive
 - d. Zero
-

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

- A. In oxygen gas, the speed of sound is 316 m/min.
- B. In water (distilled), the speed of sound is 1498 m/min.

- a. Only B is true
- b. Only A is true
- c. Neither A nor B are true
- d. Both A and B are true

10. An object of mass 100 kg is accelerated uniformly from a velocity of 5 ms⁻¹ to 15 ms⁻¹ in 5 s. Find the magnitude of force exerted on the object. (+1, -0.33)

- a. 200 J
- b. 200 Kg
- c. 200 Pa
- d. 200 N

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11. Find the mirror image of the given figure if the mirror is placed at line MN: (+1, -0.33)





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

12. Pipe A can fill an empty cistern in 4.5 hours. Whereas along with Pipe B, it can fill it in 2.25 hours. If only Pipe A is turned on for half an hour after which Pipe B is also turned on, how long will it take in all to fill the cistern? (+1, -0.33)
- a. 2 hours 30 minutes
 - b. 2 hours
 - c. 2 hours 20 minutes
 - d. 2 hours 15 minutes

13. In the 14th edition of the Mumbai International Film Festival held in 2016, the famous wildlife filmmaker Naresh Bedi was awarded 'V. Shantaram Award under which of the following category? (+1, -0.33)
- a. Best filmmaker
 - b. Best short film maker
 - c. Life time achievement

d. Best director

14. Choose the correct picture that will fit in the blank space in the following series. (+1, -0.33)



A

B

C

D

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

15. The maximum age for joining National Pension Scheme is _____. (+1, -0.33)

- a. 58
b. 62
c. 65
d. 70

16. One solution contains 21 grams of salt in 320 ml of water. Find the concentration of the solution in terms of mass according mass-percentage relation? (+1, -0.33)

- a. 6.15%
- b. 13.05%
- c. 8.84%
- d. 12.57%

17. _____ is the common name for Ascaris. (+1, -0.33)

- a. Tape worm
- b. Earthworm
- c. Pinworms
- d. Round worm

18. If $a + \frac{1}{a} = -\sqrt{3}$, find the value of $a^3 + \frac{1}{a^3}$ (+1, -0.33)

- a. 0
- b. $-6\sqrt{3}$
- c. $-3\sqrt{3}$
- d. $6\sqrt{3}$

19. Each question given below consists of a statement, followed by two arguments numbered I and II. You have to decide which of the argument a 'strong' argument? (+1, -0.33)

Statement:

Should table etiquettes be a part of kindergarten curriculum?

Arguments:

I. Yes, enforcing good etiquette gives children a sense of responsibility.

II. No, etiquettes are meant only for adults not for children

- a. Only argument II is strong
- b. Neither I nor II is strong and
- c. Both I and II are strong.
- d. Only argument I is strong

-
20. According to the 2017 Global Hunger Index (GHI) Report, India's rank is _____ out of 119 countries. (+1, -0.33)

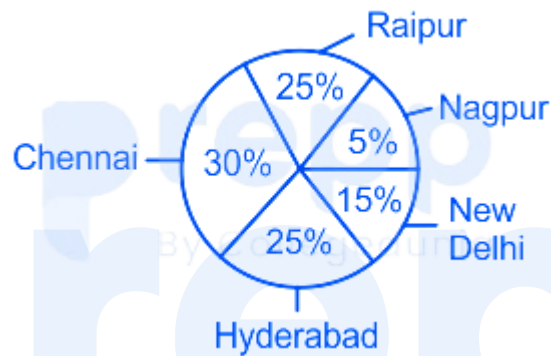
- a. 80
- b. 120
- c. 100
- d. 30

-
21. $0.295 + 2.95 + 29.5 + 295 = ?$ (+1, -0.33)

- a. 327.745

- b. 327.746
- c. 327.756
- d. 327.856

22. The data below shows the consumption of rice for different states in India (+1, -0.33)
for the year 2012



If total rice consumption for the year 2012 is 2 lakh tonnes, then how much rice was consumed by Nagpur?

- a. 20,000 tons
 - b. 10,000 tons
 - c. 1,0,0000 tons
 - d. 50,000 tons
23. Pritam's only sister's father's name is Raj. What is the relation of Raj with Pritam's mother? (+1, -0.33)
- a. Cousin
 - b. Father

- c. Husband
 - d. Friend
-

24. Which of the following substance is used in solar panel? (+1, -0.33)

- a. Gold
 - b. Silicon
 - c. Copper
 - d. Silver
-

25. If $\operatorname{cosec}\theta + \cot\theta = 2.5$, then $\operatorname{cosec}\theta = ?$ (+1, -0.33)

- a. 1.45
 - b. 1.35
 - c. 1.50
 - d. 1.55
-

26. The first Uranium mine of India, the Jaduguda mines, is located in _____. (+1, -0.33)

- a. Rajasthan
 - b. Jharkhand
 - c. Bihar
 - d. Assam
-

27. Read the following information carefully and answer the question that's given below. (+1, -0.33)

A medical representative plans to visit each of six hospitals A, B, C, D, E and F exactly once during the course of one day. He is setting up his schedule for the day according to the following conditions;

- i) He must visit B before D.
- ii) He must visit A before B and E
- iii) The third hospital he visit must be C

Which of the following must be true of the medical representative's schedule?

- a. He visits A before D
- b. He visits C before A
- c. He visit B before E
- d. He visits D before E

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28. What day would it be on 21st March 2020? (+1, -0.33)

- a. Saturday
- b. Monday
- c. Sunday
- d. Friday

29. The kinetic energy of an object of mass m , which moving with a velocity of 5 ms^{-1} , is 25 J. What will be its kinetic energy when its velocity is doubled? (+1, -0.33)

- a. 50 N
- b. 100 J
- c. 50 J
- d. 100 N

30. Find the next one for the series given below: (+1, -0.33)

Q – 10, O – 12, M – 14, ?

- a. P – 11
- b. I – 18
- c. N – 13
- d. K – 16

31. Find the least number which should be multiplied to 63368 to make it a perfect square. (+1, -0.33)

- a. 1
- b. 8
- c. 4
- d. 2

32. The height of a right triangular prism is 21 cm and the ratio of the sides of its base is 8 : 15 : 17. If the total area of the three lateral surfaces is 840 cm^2 , then what is the volume of the prism in cubic centimetre? (+1, -0.33)

- a. 1300
- b. 1200
- c. 1269
- d. 1260

33. _____ was the capital of Pandya dynasty. (+1, -0.33)

- a. Dwarasamudra
- b. Gaya
- c. Kanchipuram
- d. Madurai

34. $1.008 = ?$ (+1, -0.33)

- a. $1\frac{2}{25}$
- b. $1\frac{1}{125}$
- c. $1\frac{2}{125}$
- d. $1\frac{3}{25}$

35. A toy purchased for Rs. 1125 was sold at a loss of 16%. The selling price of the toy was (+1, -0.33)

- a. Rs. 975
- b. Rs. 945
- c. Rs. 960
- d. Rs. 955

36. Two arguments have been given after one statement you have to decide which argument is strong with respect to the given statement. (+1, -0.33)

Statement:

Should North Korea build atomic bomb?

Argument:

I. Yes, It is necessary for the security of the nation.

II. No, It will spoil the zonal balance there.

- a. Only argument II is strong.
- b. Only argument I is strong.
- c. Neither I nor II is strong.
- d. Either I or II is strong

37. Who was awarded the Padma-Vibhushan for outstanding contribution in the field of art and music in 2018? (+1, -0.33)

- a. S. P. Balasubramanian

- b. Shankar Mahadevan
 - c. A. R. Rahman
 - d. Ilaiyaraaja
-

38. $396 - 39.6 - 3.96 - 0.396 = ?$ (+1, -0.33)

- a. 352.144
 - b. 352.044
 - c. 352.134
 - d. 352.034
-

39. Who among the following was awarded the Padma Shri Award for 2018 in the field of literature and education? He belongs to Maharashtra. (+1, -0.33)

- a. Shri Manas Bihari Verma
 - b. Shri Baba Yogendra
 - c. Mr. Panatavane Gangadhar Vithobaji
 - d. Mr. Vikram Chandra
-

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

- a. Lion
- b. Cheetah
- c. Ostrich

d. Elephant

41. The points scored by 12 persons are as follows (+1, -0.33)

6, 17, 8, 9, 16, 10, 15, 21, 9, 11, 12 and 16

Find the median.

a. 11.5

b. 10.4

c. 11.6

d. 12

42. A person has divided a total of Rs. 3,70,000 into three parts and deposited them in three banks offering simple interests of 4%, 5% and 6% respectively. At the end of 1st year the interests received from all three banks are the same. How much has he deposited in those three banks? (+1, -0.33)

a. Rs. 1,50,000, Rs. 1,20,000 Rs. 1,00,000

b. Rs. 1,00,000, Rs. 2,00,000, Rs. 70,000

c. Rs. 70,000, Rs. 2,00,000, Rs. 1,50,000

d. Rs. 1,20,000, Rs. 1,00,000, Rs. 1,50,000

43. Naital lake is situated in the state of _____. (+1, -0.33)

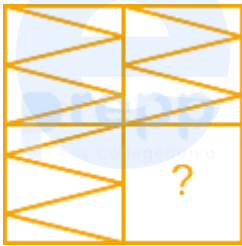
a. Assam

b. Himachal Pradesh

- c. Uttarakhand
- d. Uttar Pradesh

44. Who was conferred with the 2017 Hridaynath Mangeshkar Award? (+1, -0.33)

- a. Asha Bhosle
- b. Lata Mangeshkar
- c. Javed Akhtar
- d. Meena Khadikar

45.  (+1, -0.33)

Choose the correct picture that replaces the (?) symbol above with the below given options:



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

46. The reciprocal of a negative rational number _____. (+1, -0.33)

- a. is a zero
- b. can be either a positive or a negative rational number
- c. is a negative rational number
- d. is a positive rational number

47. You are given a question and two statements. Identify of the statements is/are sufficient to answer the question. (+1, -0.33)

Question:

Find the total number of cubes in a bag

Statement:

- 1) The box contains some blue, yellow and white cubes.
- 2) The number of blue cubes is twice that of yellow cubes and number of white cubes is 12

- a. Only 1 is sufficient
- b. Only 2 is sufficient
- c. Either 1 or 2 is sufficient
- d. Both 1 and 2 are not sufficient

48. PM Narendra Modi launched the UDAN scheme on 25th April 2017 with a flight between _____ and New Delhi at subsidised rates. (+1, -0.33)

- a. Mumbai

- b. Kashmir
 - c. Shimla
 - d. Srinagar
-

49. If $8 \sec^2 x - 7 \tan^2 x = 11$ and $0^\circ \leq x \leq 90^\circ$, then $x = ?$ (+1, -0.33)

- a. 30°
 - b. 45°
 - c. 60°
 - d. 90°
-

50. Which is the most malleable metal? (+1, -0.33)

- a. Copper
 - b. Aluminium
 - c. Silver
 - d. Gold
-

51. Element X forms an oxide with the formula X_2O_3 . The element X would most likely be in the same group of the periodic table as _____.

- a. magnesium
- b. silicon
- c. aluminium

d. sodium

52. Select the option that has the same relation to the third word as the second word to the first word. (+1, -0.33)

Leg : Dance :: Tail

- a. Wag
 - b. Rotate
 - c. Balance
 - d. Swing
-

53. In a system, if west becomes north-west, then what will north become? (+1, -0.33)

- a. South
 - b. North-east
 - c. East
 - d. North - west
-

54. Mathura's brother's only sister's mother is Shalaka. How is Mathura related to Shalaka? (+1, -0.33)

- a. Daughter
- b. Aunt
- c. Grandmother

d. Cousin

55. Two inlet pipes, one of which is twice the efficiency of the other. There is also a third outlet pipe which can empty the fully filled tank in 10 hours. When all three pipes are open simultaneously, it takes 2.5 hours to fill the tank completely. How many hours will it take to fill the tank alone with a low efficiency pipe? (+1, -0.33)

a. 7

b. 5

c. 8

d. 6

56. If + means $\times$, $\times$ means $-$, $\div$ means $+$ and $-$ means $\div$ find the value of : $180 - 20 \div 12 + 24 \times 5 + 22$ (+1, -0.33)

a. 180

b. 187

c. 190

d. 185

57. Read the following statements and the conclusions that follow. Decide which of the two conclusions follow from the given statements. (+1, -0.33)

Statements:

All years are dates.

No date is day

Conclusions:

1. Some years are days.
 2. No day is a date
- a. Either conclusion 1 or 2 follows
 - b. Both conclusions 1 and 2 follow
 - c. Only conclusion 2 follows
 - d. Only conclusion 1 follows

58. Which of the following types of reproduction involves only one parent? **(+1, -0.33)**

- a. Asexual reproduction
- b. Fragmentation
- c. Binary fission
- d. Sexual reproduction

59. ABCDEFGHIJKLMNOPQRSTUVWXYZ **(+1, -0.33)**

If the alphabets are reversed then the 5th letter to the left of 9th letter from right is?

- a. P
- b. M
- c. N

d. O

60. When seen through a mirror, a clock shows 8:30 as the time. The correct time is _____. (+1, -0.33)

a. 4:30

b. 1:30

c. 7:30

d. 3:30

61. Two arguments have been given after one statement you have two decide which argument is strong with respect to the given statement. (+1, -0.33)

Statement:

Should there be stray dogs in the colonies?

Arguments:

I. Yes, they are free and non-violent. Sometimes when their population increases, municipality catches them.

II. No, it is proven that they are dangerous.

a. Only argument II is strong.

b. Both I and II are strong

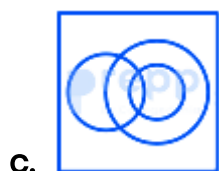
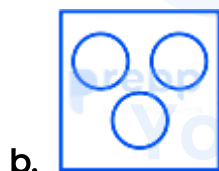
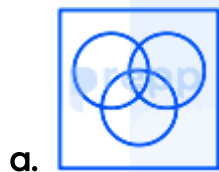
c. Neither I nor II is strong.

d. Only argument I is strong.

62. Who among the following won the 2017 Australian Super Series (Badminton)? (+1, -0.33)
- a. Chen Long
 - b. Lin Dan
 - c. Srikanth Kidambi
 - d. B Sai Praneeth

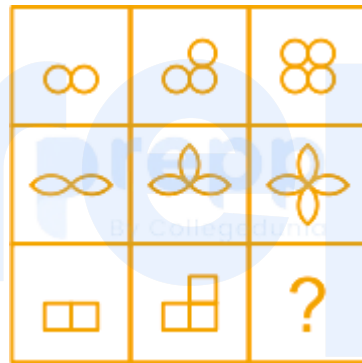
63. Choose the correct venn diagram (+1, -0.33)

Books, Toys, Utensil

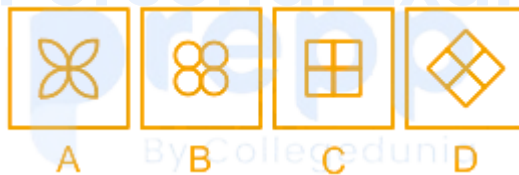


64. Arun spends $\frac{2}{13}$ the of his salary on the education of his children, Tarun and Varun. He spends Rs. 13,006 on Varun's education, which is $\frac{2}{3}$ rd of his total expenditure on education. What is Arun's total salary? (+1, -0.33)
- a. Rs. 84,539
 - b. Rs. 126,808.50
 - c. Rs. 134,278.50
 - d. Rs. 102,346

65. (+1, -0.33)



Choose the correct picture that fit the blank place



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

66. Out of the four option figures, three are similar in a certain manner. (+1, -0.33)
However, one figure is NOT like the other three select the figure which is different from the rest.



- a. D
- b. A
- c. B
- d. C
-
67. Intercalary meristems are found ----- (+1, -0.33)
- a. At the growing tips of stems
- b. At the tips of the leaves
- c. At the growing tips of roots
- d. At the base of the leaves
-

68. Inclusive of a profit of 17% Spoorti sold a pair of footwear for Rs. 2,223. (+1, -0.33)
What was the cost price of the pair of shoes?
- a. Rs. 1,900
- b. Rs. 1,870

c. Rs. 1,880

d. Rs. 1,905

69. Which of the following is NOT an example of chemical change? (+1, -0.33)

a. Changing of water to water vapour

b. Digestion of food in our body

c. Rusting of iron

d. Milk changing to curd

70. Electronic configuration of hydrogen resembles that of _____. (+1, -0.33)

a. Halogens

b. Alkali metals

c. Alkaline earth metals

d. Inert gases

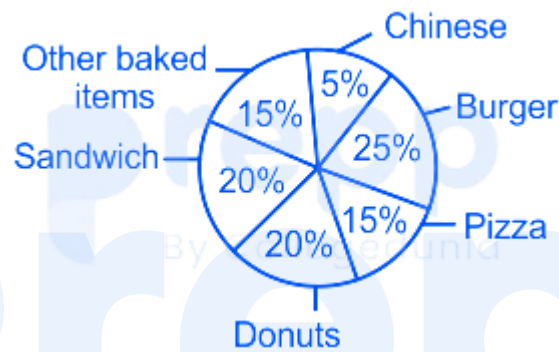
71. Count the number of squares in the figure: (+1, -0.33)



a. 38

- b. 40
- c. 36
- d. 42

72. The following pie diagram shows the information on the sales of different types of food items by restaurant XYZ. (+1, -0.33)



The total revenue made by the restaurant in Nov 2017 was 35 lakh.

How much revenue was made by the restaurant XYZ on the sale of all other baked items in Nov 2017?

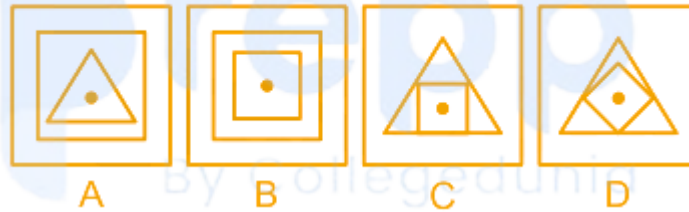
- a. 5.25 lakh
- b. 5 lakh
- c. 2 lakh
- d. 2.75 lakh

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

Problem Figures



Answer Figures



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

74. An object is thrown vertically upward and it reaches a maximum height 'h' from the ground. During its flight, on reaching $\frac{3}{4}$ of height 'h', the object will acquire: (+1, -0.33)

- a. Less P.E and more K.E
- b. same P.E and K.E
- c. more P.E and less K.E.
- d. only K.E

75. An unfertilised human egg contains _____. (+1, -0.33)

- a. XY chromosome
 - b. One Y chromosome
 - c. One X chromosome
 - d. XX chromosome
-

76. Pressure = _____. (+1, -0.33)

- a. Thrust $\times$ Area
 - b. Area/Thrust
 - c. Thrust/Area
 - d. Area + Thrust
-

77. Choose which one is NOT true for base? (+1, -0.33)

- a. Turns blue litmus red
 - b. Turns red litmus blue
 - c. Furnishes OH^- in aqueous medium/molten state
 - d. Bitter in taste
-

78. The LPG Panchayat, organized by the Ministry of Petroleum and Natural Gas under the Pradhan Mantri Ujjawala Yojana was hosted by _____.

- a. Manohar Parikar

- b. Narendra Modi
 - c. Manmohan Singh
 - d. Ram Nath Kovind
-

79. Fill the blank number in the series from given options: (+1, -0.33)

6, 18, 54, 162, ?

- a. 486
 - b. 490
 - c. 485
 - d. 400
-

80. Minena and Mashuka work together to complete a task in 9 days. (+1, -0.33)

Mashuka starts working alone and quits on completion of $\frac{2}{5}$ of the work. Minena then completes the task alone. In this way, it takes 19.5 days to complete. If Mashuka works faster than Minena, how many days will Minena take to complete the task alone?

- a. 25.5
 - b. 22.5
 - c. 25
 - d. 24
-

81. Presently, scientists are talking of _____ states of matter. (+1, -0.33)

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

82. Which of the following organizations was founded by Rabindranath Tagore? (+1, -0.33)

- a. Viswa Bharti
- b. Rabindra School
- c. Sevagram Vidyalaya
- d. Gyandham Vidyalaya

83. Which among the following ranked 5th on the list of 'Top 10 Landmarks' in the world by TripAdvisor Travellers' Choice Awards? (+1, -0.33)

- a. Qutub Minar
- b. Red Fort
- c. Gol Gumbaz
- d. Taj Mahal

84. The following are red vascular connective tissue: (+1, -0.33)

- a. Red blood cells

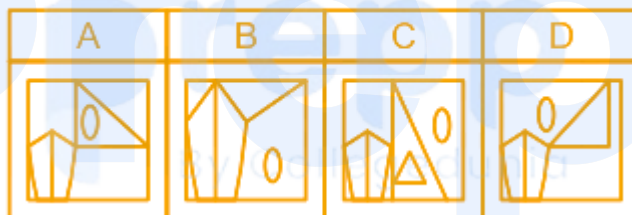
- b. Blood
- c. White blood cells
- d. Plasma

85. Which of the answer figures is formed from the shapes given the problem (+1, -0.33)
figure?

Problem Figure:



Answer Figures



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

86. What happens if you fill a glass completely with water and ice and the ice completely melts? (+1, -0.33)

- a. Water level will remain the same
- b. All ice will sit at the bottom

- c. Water level will decrease with ice melting
 - d. Water will flow out
-

87. On which of the following principles does a rocket in space work? (+1, -0.33)

- a. Principle of Conservation of Mass
 - b. Principle of Conservation of Speed
 - c. Principle of Conservation of Momentum
 - d. Principle of Conservation of Energy
-

88. Simplify: $\left(\frac{1-1}{10}\right)\left(\frac{1-1}{11}\right)\left(\frac{1-1}{12}\right) - \left(\frac{1-1}{99}\right)\left(\frac{1-1}{100}\right) = ?$ (+1, -0.33)

- a. $\frac{9}{100}$
 - b. $\frac{9999}{10000}$
 - c. $\frac{1}{10000}$
 - d. 0
-

89. A sum of Rs. 2,000 invested at 9.25% simple interest per annum for 4 years will yield an interest of. (+1, -0.33)

- a. Rs. 1,110
- b. Rs. 925
- c. Rs. 555
- d. Rs. 740

90. _____ was NOT a part of the proposed draft of the 'National Water Framework Bill of 2016'? (+1, -0.33)

- a. Aachman Yukt Dhara
- b. Aviral Dhara
- c. Nirmal Dhara
- d. Swachh Kinara

91. The group of seven students took an exam. After the examination, another student joined the group. By including the marks of the new student, the average marks of the group increased to 2. How many more marks did this student get compared to the average marks of the initial seven students? (+1, -0.33)

- a. 18
- b. 14
- c. 20
- d. 16

92. The potential difference between the terminals of an electric heater is 60 V when it draws a current of 4 A from the source. What current will the heater draw if the potential difference is increased to 165 V? (+1, -0.33)

- a. 12 A
- b. 24 A
- c. 10 A

d. 11 A

93. A train crosses a 155-m-long platform in 16 seconds and a 195-m-long platform in 18 seconds. The speed of the train is: (+1, -0.33)

- a. 66 km/h
- b. 75 km/h
- c. 69 km/h
- d. 72 km/h

94. A can do work in 6 days. B takes 8 days to complete the work. C takes the time equal to the time taken by A and B to work together to complete that task. If B and C work together, how much time will they take to complete the work? (+1, -0.33)

- a. $\frac{13}{5}$ days
- b. $\frac{14}{5}$ days
- c. $\frac{12}{5}$ days
- d. $\frac{11}{5}$ days

95. Name the cricketer who holds the record for scoring the quickest 8,000 runs in one-day international cricket as of 15-Jun-2017. (+1, -0.33)

- a. Virat Kohli
- b. MS Dhoni
- c. R Ashwin

d. Shikhar Dhawan

96. Mass/Volume = ?

(+1, -0.33)

- a. Force
 - b. Momentum
 - c. Inertia
 - d. Density
-

97. Each side of a square park is 25 m. And there are 2.2, m wide two paths passing its center. Rs. What is the total cost of laying gravel on the paths at a cost of 1.dm²?

(+1, -0.33)

- a. Rs. 105.16
 - b. Rs. 110
 - c. Rs. 11,000
 - d. Rs. 10,516
-

98. Simplify: $(3.6 + 6.4) (3.6 - 6.4) - (3.6 - 6.4)^2 = ?$

(+1, -0.33)

- a. 29.6
 - b. 32.6
 - c. 32.68
 - d. -35.84
-

99. Which city is the second capital of Himachal Pradesh?

(+1, -0.33)

- a. Kullu
- b. Manali
- c. Mandi
- d. Dharamshala

100. Two arguments have been given after one statement you have to decide which argument is strong with respect to the given statement.

(+1, -0.33)

Statement:

The rural poor farmers should be subsidized on fertilizers.

Argument:

I. Yes, This improves the income of food donor of the nation.

II. No, It is a waste of public Money.

- a. Neither I nor II is strong.
- b. Only argument II is strong.
- c. Only argument I is strong.
- d. Either I or II is strong

Answers

1. Answer: a

Explanation:

The correct answer is option 1 i.e Cabinet Mission Plan.

- The constitution of India was framed by a **Constitution Assembly** set up under the Cabinet Mission Plan of 1946.
- The **Cabinet Mission came to India** to discuss the transfer of power from the British Government to the Indian leadership with a view to preserving the peace and democracy of India.
- The Cabinet Mission Plan was a declaration issued by the Cabinet Mission and the Viceroy, Lord Wavell, on May 16, 1946, which included recommendations on India's constitutional future after the inability of Indian political parties and members to find an agreement.
- The Cabinet Mission members were: **Lord Pethick-Lawrence, President of the Board of Trade, Secretary of State for India, Sir Stafford Cripps and A.V. Alexander, First Lord of Admiralty.**
- In **September 1945**, the newly elected Labor Government in Britain announced its intention to set up a Constituent Assembly for India to establish the Constitution of India; the Cabinet Mission was sent to India in March 1946 to do so.

2. Answer: a

Explanation:

The correct answer is option 1 i.e **Mendeleev**.

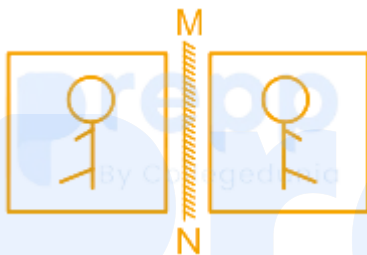
- Dimitri Mendeleev is actually known as the "**father of the periodic table**". We have our current periodic table due to his classification efforts.
- Mendeleev began his research in the 1800s when chemists learned about only 63 elements.

- Mendeleev first noticed the chemical properties of all 63 elements.
- Dobereiner's attempt to identify the elements is usually seen as the first recorded attempt.
- He defined and grouped elements with similar properties into three groups.

3. Answer: d

Explanation:

The mirror image of the given figure is,



Hence, option 4 is the correct answer.

4. Answer: d

Explanation:

The correct answer is option 4 i.e Work/time.

- If an agent does a **work W in time t**, then power is given by Work/time.
- **Power** is the amount of transmitted or converted **energy per unit time**.
- **The unit of power** in the International System of Units is the watt, equivalent to one joule per second. Power is sometimes termed activity in older works.
- It is a **scalar quantity**.
- The dimension of power is L^2MT^{-3} .
- **1 horsepower = 746 watts**.

5. Answer: b

Explanation:

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

The pattern followed is,

K E E N
 | | | |
 Opposite Position
 P V V M

Similarly,

P E A L
 | | | |
 Opposite Position
 K V Z O

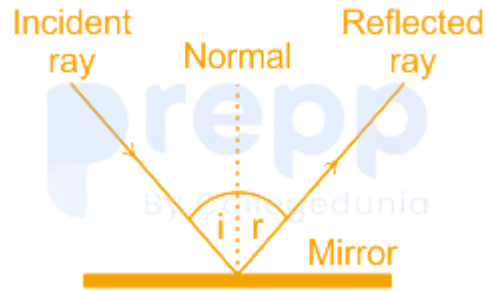
Hence, "KVZO" is the correct answer.

6. Answer: a

Explanation:

The correct answer is option 1, i.e. 40°.

According to the **law of reflection** when a ray of light reflects off a surface than the angle of incidence is equal to the angle of reflection.



- Now, **Angle of incidence(i) = Angle of reflection(v)**
- According to the question, Angle between the incident ray and reflected ray is 80° .
- From the diagram, $i + v = 80^\circ$
- So, $2i = 80^\circ$
- Then, the **incident angle = 40°**

7. Answer: a

Explanation:

The correct answer is **option 1** i.e **Australia**.

- **Australia** has won the **27th Sultan Azlan Shah Cup**.
- The **2018 Sultan Azlan Shah Cup** was Sultan Azlan Shah Cup's 27th Edition.
- It was held **March 3–10, 2018** in Ipoh, Perak, Malaysia.
- In this year's cup, the number of teams was the same as last year 's competition where six teams competed.
- Australia clinched its 10th tournament title after defeating **England 2–1 in the final match**.
- Gonzalo Peillat was the top goalscorer of this tournament.
- **India** got the **5th position** in this tournament.

8. Answer: d

Explanation:

The correct answer is option 4 i.e Zero.

CONCEPT:

- **Velocity (v)** : The rate of change of displacement is called velocity.
- **Uniform velocity**: The motion in which a body is moving with a constant velocity (no acceleration) is called uniform velocity motion.
- **Acceleration (a)**: The 'Rate of velocity change is called acceleration.
 - When velocity either increases or decreases over time or changes its direction, acceleration is produced which is positive if it increases and negative if it decreases, and this also depends on the direction of reference that we have taken positively.
- Therefore, as in this case velocity is constant, **its direction and magnitude are constant**. There is no acceleration there.

$$a = (v_2 - v_1) / (t_2 - t_1)$$

If the change in time is infinitesimally small then we have the differential operator representation:

$$\text{Acceleration (a)} = dv/dt$$

$$\Rightarrow dv = \text{change in velocity}$$

$$\Rightarrow dt = \text{change in time}$$

EXPLANATION:

Now at constant velocity: zero acceleration

- When an object is moving with a uniform velocity, its acceleration is Zero. So option 4 is correct.

9. Answer: c

Explanation:

The correct option is Neither A nor B are true

Concept:

- Speed of Sound in a Medium: The speed of sound depends on the properties of the medium through which it travels its temperature and elasticity.
- The Sound wave is a type of longitudinal mechanical wave which propagates only through a medium by vibrating the molecules of its particle.
 - Solid having molecules compact together. So usually, the speed of sound is more in Solids compared to liquids and more in liquid than gases.

Explanation:

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Your Personal Exams Guide

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>

- Sound speed is the distance a sound wave travels per unit of time, as it propagates across an elastic medium.
- Here we see the unit is m/s (meter per second) and NOT in m/min (meter per minute).

Therefore both the statement are false.

10. Answer: d

Explanation:

CONCEPT:

- Force: The interaction which after applying on a body changes or try to change the state of rest or state of motion of the body is called force.

$$\text{Force (F)} = \text{Mass (m)} \times \text{acceleration (a)}$$

There are three equations of motion :

$$V = u + at$$

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

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

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

CALCULATION:

Given that:

mass of the object (m) = 100 kg.

Time taken (t) = 5 sec.

⇒ Initial velocity = 5 m/s.

⇒ Final velocity = 15 m/s.

Use $V = u + at$

$$15 = 5 + a \times 5$$

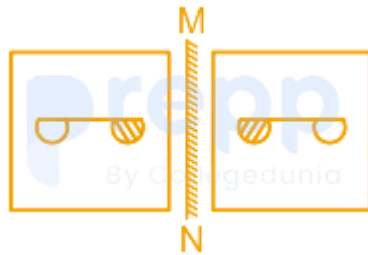
$$\text{So } a = 2 \text{ m/s}^2$$

$$\text{Force} = m a = 100 \times 2 = 200 \text{ N}$$

11. Answer: b

Explanation:

The mirror image of the given figure if the mirror is placed at line MN is,



Hence, option 2 is the correct answer.

12. Answer: a

Explanation:

Concept used:

$$\text{Work} = \text{time} \times \text{efficiency}$$

Calculation:

work	Time	Efficiency
A	4.5 hours	$4.5/4.5 = 1$
A + B	2.25 hours	$4.5/2.25 = 2$
Total work (LCM)	4.5 units	

$$\text{Efficiency of pipe B} = \text{Efficiency of (A + B)} - \text{efficiency of A} = 2 - 1 = 1$$

Work done by pipe A in 30 min $(\frac{1}{2})$ hr = $\frac{1}{2}$ = 0.5 unit

Remaining work = $4.5 - 0.5 = 4$ units

Remaining work, Pipe A & B together will complete in = $4/(1 + 1) = 2$ hrs

So, In all, Pipe A is turned on for half an hour, Total time = $2 + 0.5$ hour

$\therefore$ Total time to fill the cistern in 2 hrs 30 min

13. Answer: c

Explanation:

The correct answer is option 3 i.e Lifetime achievement.

- In the 14th edition of the 2016 Mumbai International Festival, veteran wildlife filmmaker Naresh Bedi was awarded the V Shantaram Life Time Achievement Award.
- He has been honored for his outstanding contributions to wildlife filmmaking and is recognized for filming many moments of rare wildlife.
- Bedi's film 'Cherub of the Mist' based on the life of two red pandas was the opening film of this edition of MIFF.
- Bedi is the **first Asian to receive the Wildscreen Panda Award** award and the first Indian to receive a **British Academy Film Award** nomination.
- The Lifetime Achievement Award was instituted in memory of **veteran filmmaker V Shantaram**, who previously headed the Films division.

14. Answer: c

Explanation:

The pattern followed is,

The arrow in the straight line is pointing towards different directions.

In the first image it is pointing towards west, in the second one towards east, in the third one towards south and in the fourth image it must point towards north.

The figure which will come next in the pattern is,



Hence, option 3 is the correct answer.

15. Answer: d

Explanation:

The correct answer is 70 years.

★ Key Points

- The maximum age for joining the National Pension Scheme is 70 years.
- Subscribers who join NPS after age 70 will have the option of exiting normally from NPS after 3 years.
- This initiative would allow a broader segment of society, particularly senior citizens, to reap NPS benefits and prepare their daily income.
- The entire corpus will be paid to the candidate in case of unfortunate death of the subscriber during his stay in NPS.

16. Answer: a

Explanation:

Given:

Solution contains salt = 21grams

Total quantity of water = 320ml

Calculation:

Concentration of solution in terms of mass according mass percentage relation =

$$\Rightarrow \{21 / (320 + 21)\} \times 100$$

$$\Rightarrow 6.15\%$$

17. Answer: d

Explanation:

The correct answer is Option 4 i.e Roundworm.

- Roundworm is the **common name for Ascaris**.
- Ascaris is a genus of parasitic nematode worms known as the "small intestinal roundworms," a kind of parasitic worm.
- One species, Ascaris lumbricoides, affects humans and causes ascariasis to the disease.
- Ascaris lumbricoides is the "large roundworm" of humans, growing up to 35 cm (14 in.) in length.

Worms	Common Name
Tapeworm	Cestoda
Earthworm	Lumbricus Terrestris
Pinworms	Enterobiasis

18. Answer: a

Explanation:

Given:

$$a + 1/a = -\sqrt{3}$$

Formula used:

$$(a + 1/a)^3 = a^3 + 1/a^3 + 3(a + 1/a)$$

Calculation:

As we know,

$$\Rightarrow a^3 + 1/a^3 = (a + 1/a)^3 - 3(a + 1/a)$$

$$\Rightarrow a^3 + 1/a^3 = (-\sqrt{3})^3 - 3(-\sqrt{3})$$

$$\Rightarrow a^3 + 1/a^3 = -3\sqrt{3} + 3\sqrt{3}$$

$$\Rightarrow a^3 + 1/a^3 = 0$$

19. Answer: d

Explanation:

Argument 1: This is strong, because good etiquette gives children a sense of responsibility.

Argument 2: This does not follow, because there is nothing mentioned about adults in the statement.

Hence, "only argument 1" is strong.

20. Answer: c

Explanation:

The correct answer is option 3 i.e 100.

- According to the 2017 Global Hunger Index (GHI) Report, India's rank is 100th out of 119 countries.
- The report published by the **International Food Policy Research Institute (IFPRI)**, based in **Washington**.
- In 2017, three positions slipped in comparison to **GHI's 97th rank in 2016**.
- **GHI** is a multidimensional measure that describes a regional, national, and global state of hunger situation.
- It is published annually since 2006 by the **International Institute for Research on Food Policy (IFPRI)**.
- It ranks countries on a scale of **0 to 100 points**, determined by taking four predictor parameters into consideration. Zero means the best (no hunger) score and the worst is 100.

★ In News

- India's rank has dropped to **101st** position among 116 countries in the **Global Hunger Index (GHI) 2021**.

21. Answer: a

Explanation:

$$\Rightarrow 0.295 + 2.95 + 29.5 + 295 = ?$$

$$\Rightarrow 327.745 = ?$$

★ Shortcut Trick

Using options,

$$0.295 + 2.95 + 29.5 + 295$$

Here the last digit of each number is 5 and the total number of 5's at the end in the equation is 5

∴ Options must end with 5

∴ Only option 1 ends with 5 i.e. 327.745

22. Answer: b

Explanation:

Total consumption of rice in 2012 = 2,00,000 tons

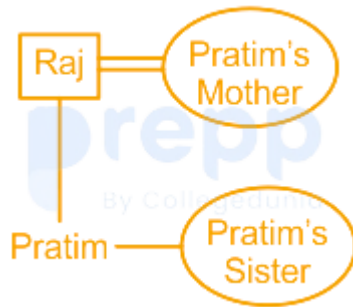
Consumption of rice in Nagpur = $2,00,000 \times \frac{5}{100} = 10,000$ tons

23. Answer: c

Explanation:

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

Drawing the diagram,



Raj is the husband of Pratim's mother.

Hence, "husband" is the correct answer.

24. Answer: b

Explanation:

Silicon is used in solar panels.

★ Key Points

- It is the **second most abundant material on Earth** (after oxygen) and the most commonly used semiconductor in computer chips.
- Silicon is a metalloid.
- Crystalline silicon cells are made of silicon atoms connected to one another to form a crystal lattice.
- This lattice provides an ordered framework that makes it more effective to convert light into electricity.
- Solar silicon-based cells currently offer a combination of **high efficiency, low cost, and long service life**.

25. Answer: a

Explanation:

Given,

$$\Rightarrow \operatorname{cosec}\theta + \cot\theta = 2.5 \text{ ---(1)}$$

As we know,

$$\Rightarrow (\operatorname{cosec}^2\theta - \cot^2\theta) = 1$$

$$\Rightarrow (\operatorname{cosec}\theta - \cot\theta) (\operatorname{cosec}\theta + \cot\theta) = 1$$

$$\Rightarrow \operatorname{cosec}\theta - \cot\theta = 1/2.5$$

$$\Rightarrow \operatorname{cosec}\theta - \cot\theta = 0.40 \text{ ---(2)}$$

Add equation (1) and equation (2)

$$\Rightarrow 2\operatorname{cosec}\theta = 2.90$$

$$\Rightarrow \operatorname{cosec}\theta = 2.90/2$$

$$\Rightarrow \operatorname{cosec}\theta = 1.45$$

26. Answer: b

Explanation:

The correct answer is Jharkhand.

- The first Uranium mine of India, the Jaduguda mines , is located in Jharkhand.
- The Jaduguda Mine is a uranium mine situated in Jaduguda village, in Jharkhand Indian state's Purbi Singhbhum district.
- It started operation in 1967 and became India's first uranium mine .
- The deposits were found at that mine in 1951.
- India possesses only two functional uranium mines as of March 2012, including this Jaduguda Mine.
- The Jaduguda mine provides up to 25 percent of the raw materials required to power the nuclear reactors in India.

27. Answer: a

Explanation:

According to the given information,

The third hospital he visit must be C

He must visit B before D. He must visit A before B and E. (This implies A visit before B, E and D)

'He visits A before D' is true.

Hence, option 1 is the correct answer.

★ **Confusion Points**

He must visit A before B and E- This line Does not give any information between the position of B and E hence option 3 is not Correct.

28. Answer: a

Explanation:

The logic followed here is:

We need to find the day on 21st March 2020.

400 years = 0 odd days

300 years = 1 Odd days

200 years = 3 odd days

100 years = 5 Odd days

Codes for the days of weeks:-

Sunday – 0

Monday – 1

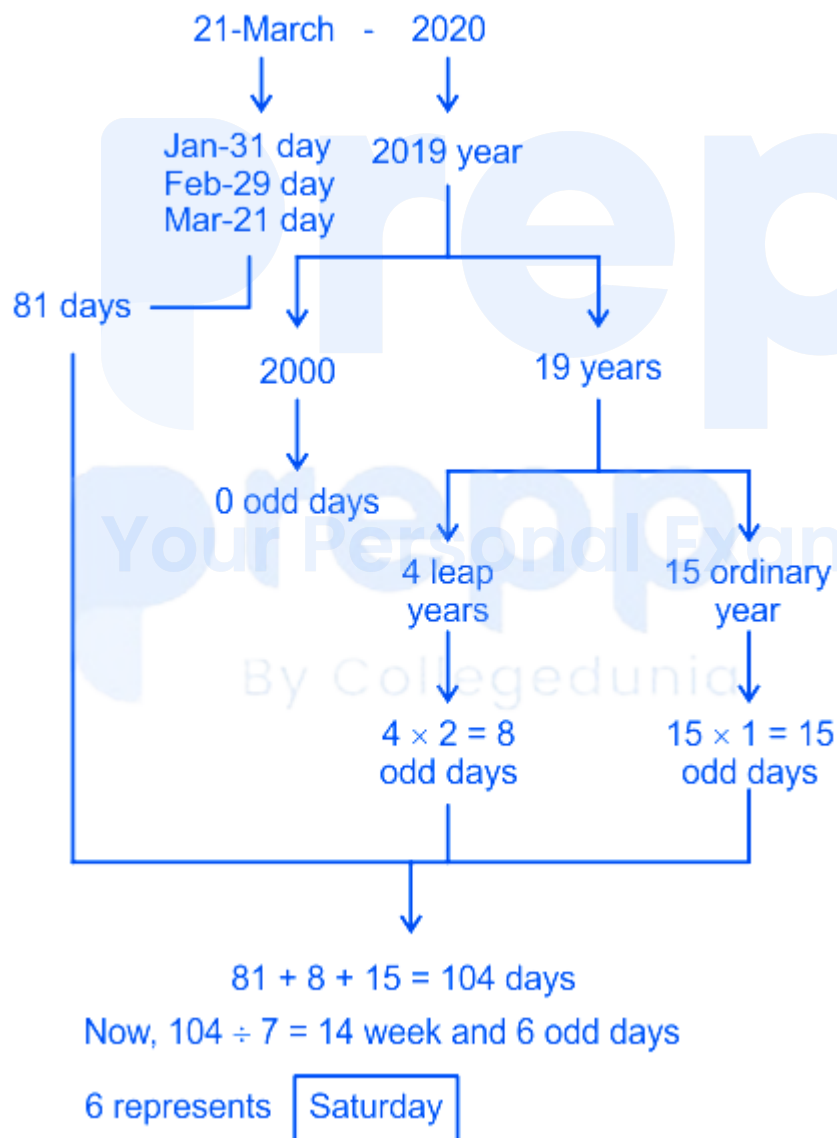
Tuesday – 2

Wednesday – 3

Thursday – 4

Friday – 5

Saturday – 6



6 represents Saturday.

Hence, the correct answer is "Saturday".

★ Alternate Method

Month codes:

January → 0

February → 3

March → 3

April → 6

May → 1

June → 4

July → 6

August → 2

September → 5

October → 0

November → 3

December → 5

Code for Days:

Sunday → 0 (or) 7

Monday → 1

Tuesday → 2

Wednesday → 3

Thursday → 4

Friday → 5

Saturday → 6

Code for Centuries:

1600 → 6

1700 → 4

1800 → 2

1900 → 0

2000 → 6

2100 → 4

2200 → 2

2300 → 0

For,

21 March 2020,

Date = 21

Code for March = 3

Code for Century = 6

2020 = 2000 + 20

For, 2000 it is 6

For,

20 it is 20

And,

$20 / 4 = 5$

Adding all these = $21 + 3 + 6 + 20 + 5 = 55$

$55 / 7 = 6$ (here we consider the remainder)

6 is the code for Saturday.

21 March, 2020 is Saturday.

Hence, "Saturday" is the correct answer.

29. Answer: b

Explanation:

The correct answer is 100 J.

Let the mass be m

$$\Rightarrow v = 5 \text{ m/s}$$

$$\Rightarrow \text{K.E} = 25 \text{ J}$$

$$\Rightarrow \text{K.E} = \frac{1}{2} mv^2 = 25 \text{ J}$$

$$\Rightarrow \text{K.E} = \frac{1}{2} m (5)^2$$

$$= 25 \times 2 = 25m = 2 \text{ kg}$$

Now if the velocity becomes 2 times then the velocity is $2 \times 5 = 10 \text{ m/s}$

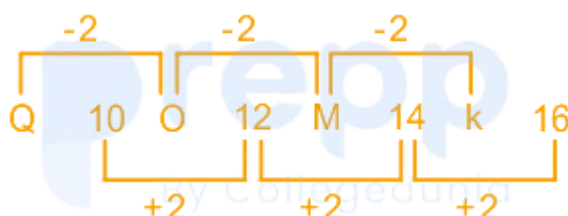
$$\text{Now new K.E} = \frac{1}{2} \times 2 \times 10^2 = 100 \text{ J}$$

30. Answer: d

Explanation:

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

The pattern followed is,



Hence, "K - 16" is the correct answer.

31. Answer: d

Explanation:

Given:

Number is 63368

Calculation:

$$63368 = 2 \times 2 \times 2 \times 89 \times 89$$

If we multiply by 2 in 63368, then

$$\Rightarrow 63368 \times 2 = 126736$$

$$\Rightarrow 126736 = 2 \times 2 \times 2 \times 2 \times 89 \times 89$$

$$\Rightarrow \sqrt{126736} = \sqrt{(2 \times 2 \times 2 \times 2 \times 89 \times 89)}$$

$$\Rightarrow \sqrt{126736} = 2 \times 2 \times 89 = 356$$

$\therefore$ The least number is 2.

32. Answer: d

Explanation:

Given,

Height of the triangular prism is $h = 21$ cm

The ratio of sides of triangular prism is $= 8x : 15x : 17x$

The total area of three lateral surfaces is $= 840 \text{ cm}^2$

Perimeter of the triangle $\times$ height $= 840$

$$\Rightarrow (8x + 15x + 17x) \times 21 = 840$$

$$\Rightarrow 40x = 840/21$$

$$\Rightarrow x = 40/40$$

$$\Rightarrow x = 1$$

Sides of the triangular prism are 8, 15 and 17.

As we know,

$$\Rightarrow s = (a + b + c)/2$$

$$\Rightarrow s = (8 + 15 + 17)/2$$

$$\Rightarrow s = 40/2 = 20$$

$$\text{Area of the triangle} = \sqrt{s(s-a)(s-b)(s-c)}$$

$$\text{Area of the triangle} = \sqrt{20 \times (20 - 8) (20 - 15) (20 - 17)}$$

$$\text{Area of the triangle} = \sqrt{20 \times 12 \times 5 \times 3}$$

$$\text{Area of the triangle} = 60$$

As we know,

Volume of the prime = Area of Base $\times$ height

Volume of triangular prism = $60 \times 21 = 1260 \text{ cm}^3$

33. Answer: d

Explanation:

Madurai was the capital of the Pandya dynasty.

- The Pandya kingdom was a Tamil kingdom in south India.
 - Madurai was the capital of the Pandyan dynasty until the middle of the 14th century and Korkai was also the capital and port city of Pandya.
 - The third capital was **Tenkasi** until the end of the **16th century**.
 - The **Pandyas** revived under **Kadungon (590 – 620 CE)** towards the end of the 6th century, helped to disestablish the Kalabhras in south India.
-

34. Answer: b

Explanation:

$$\Rightarrow 1.008 = ?$$

$$\Rightarrow 1008/1000 = ?$$

$$\Rightarrow 126/125 = ?$$

$$1 \frac{1}{125}$$

35. Answer: b

Explanation:

Given

$$CP = 1125$$

$$\text{Loss\%} = 16\%$$

Calculation

If loss percent is 16%, then

$$SP = 84\% \text{ of } CP$$

$$\therefore \text{Selling price of the toy} = 1125 \times (84/100) = \text{Rs. } 945$$

36. Answer: c

Explanation:

Argument 1: This is not strong, as atom bombs are not safe for the country.

Argument 2: This is also not strong, because nothing is mentioned about Zone equilibrium or balances in the statement.

Hence, "neither argument 1 nor argument 2" is strong.

37. Answer: d

Explanation:

The correct answer is option 4 i.e Ilaiyaraaja.

- Ilaiyaraaja was awarded the Padma-Vibhushan in 2018 for his outstanding contribution in the field of art and music.

- Ilaiyaraaja is an Indian film music composer, singer, lyricist, instrumentalist, orchestra player, conductor-arranger, and lyricist who works primarily in Tamil and other languages, including Telugu, Kannada, Malayalam, Marathi, Hindi, and English.
- He was awarded the **Padma Bhushan**, India's third-highest civilian honor in 2010 and the **Padma Vibhushan**, India's second-largest civilian honor in 2018.
- Ilaiyaraaja is the recipient of **five National Film Awards** – three for **Best Music Direction** and two for **Best Background Score**.
- In 2012, **Ilaiyaraaja** was awarded the highest Indian music award, **Sangeet Akademi Award** for his creative and experimental works in the field of music.

38. Answer: b

Explanation:

$$\Rightarrow 396 - 39.6 - 3.96 - 0.396 = ?$$

$$\Rightarrow 396 - 43.956 = ?$$

$$\Rightarrow 352.044 = ?$$

39. Answer: c

Explanation:

- Shri Pantavane Gangadhar Vithobaji was awarded the **Padma Shri Award for 2018** in the field of literature and education.
- He was a writer, critic, and **Ambedkarite thinker** of the Maharashtra state of Indian Marathi language.
- He is one of the founders of the **Dalit literary movement** in Maharashtra.
- **Pantwane** embraced **Buddhism** in the hands of **Babasaheb Ambedkar** at **Devbhoomi** in Nagpur on 14 October 1956 with an attendance of 6,00,000 Ambedkarites.

- **Pantwane** had written 16 books in Marathi and edited 10 books. He was also a journalist founder named '**Asmitadarsh**'.

40. Answer: c

Explanation:

Lion, Cheetah and Elephant are wild animals.

Whereas,

Ostrich is a bird.

Hence, "ostrich" is the odd one.

41. Answer: a

Explanation:

The points scored by 12 persons are as follows 6, 17, 8, 9, 16, 10, 15, 21, 9, 11, 12 and 16

Arrange the data in ascending order = 6, 8, 9, 9, 10, 11, 12, 15, 16, 16, 17, 21

$n = 12$ (even), then

$$\text{Median} = \left[\left(\frac{n}{2} \right)^{\text{th}} + \left(\frac{n}{2} + 1 \right)^{\text{th}} \right] / 2 = \left[\left(\frac{12}{2} \right)^{\text{th}} + \left(\frac{12}{2} + 1 \right)^{\text{th}} \right] / 2 = (6^{\text{th}} + 7^{\text{th}}) / 2$$

$$\text{Median} = (11 + 12) / 2 = 23 / 2 = 11.5$$

42. Answer: a

Explanation:

Let the three parts be x , y and z respectively, then

As we know.

$$\Rightarrow SI = \text{Prt}/100$$

According to the question

$$\Rightarrow (x \times 4 \times 1)/100 = (y \times 5 \times 1)/100 = (z \times 6 \times 1)/100$$

$$\text{Let, } 4x/100 = 5y/100 = 6z/100 = k$$

$$\Rightarrow x = 100k/4$$

Similarly,

$$\Rightarrow y = 100k/5$$

$$\Rightarrow z = 100k/6$$

$$\Rightarrow \text{Ratio of } x : y : z = 100k/4 : 100k/5 : 100k/6 = 60/4 : 60/5 : 60/6 = 15 : 12 : 10$$

$$\Rightarrow 15 + 12 + 10 = 37 \text{ unit}$$

$$\Rightarrow 37 \text{ unit} = 3,70,000$$

$$\Rightarrow 1 \text{ unit} = 3,70,000/37$$

$$\Rightarrow 1 \text{ unit} = 10,000$$

$$\Rightarrow 15 \text{ unit} = 1,50,000$$

$$\Rightarrow 12 \text{ unit} = 1,20,000$$

$$\Rightarrow 10 \text{ unit} = 1,00,000$$

The three parts are 1,50,000, 1,20,000 and 1,00,000.

43. **Answer: c**

Explanation:

The correct answer is option 3 i.e Uttarakhand.

- **Nanital lake** is situated in the state of Uttarakhand.
- This has a form in the **shape of a kidney or a crescent and an outfall at the south-east end**.
- Nainital is the most prominent hill-station in the Kumaon district.
- It is famous for its **Naini Lake located in the center of the town**, as well as several other nearby lakes.
- It is one of the four lakes in Kumaon Hills; the other three are the Sattal Lake, the Bhimtal Lake, and the Naukuchiyatal Lake.
- **The National Institute of Hydrology (NIH) of Roorkee**, which prepared a plan for the restoration of the lake at an estimated cost of Rs 50 crore, sponsored by the Ministry of Environment and Forests, Government of India, is now also guiding the restoration actions.

44. Answer: c

Explanation:

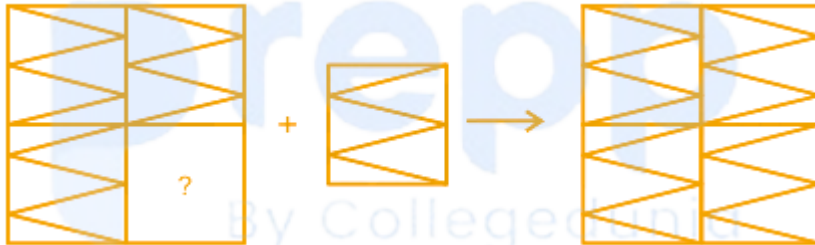
The correct answer is option 3 i.e Javed Akhtar.

- Javed Akhtar was conferred with the **2017 Hridaynath Mangeshkar Award**.
- He was awarded the **2017 Hridaynath Mangeshkar Award at the Mumbai event that marked the 80th anniversary** of veteran music composer Hridaynath Mangeshkar and the **28th anniversary of Hridayesh Arts**.
- **The award was established in 2011** in honour of music composer and singer Hridaynath Mangeshkar by Mumbai-based socio-cultural organization Hridayesh Art.
- It congratulates and honours successful individuals from various walks of life, around the world.
- This brings with it a **Rs 2 lakh monetary reward and a memento**.
- Hridaynath Mangeshkar is the only son of noted musician Deenanath Mangeshkar and the younger brother of the legends of Indian music Lata Mangeshkar and Asha Bhosle.
- He is popularly known in the music and film field as **Balasaheb**.

45. Answer: c

Explanation:

The picture that replaces the (?) symbol is,



Hence, option 3 is the correct answer.

46. Answer: c

Explanation:

As we know,

A *rational number* is a number that can be expressed as the quotient or fraction p/q of two integers, a numerator p and a non-zero denominator q . Since q may be equal to 1, every integer is a *rational number*.

Reciprocals are two numbers which multiply together to make 1. They are also called multiplicative inverses of each other.

Let the negative number be $(-a)$

The reciprocals of the number is $= (-1/a)$

So we can say the reciprocal of a negative rational number is a negative rational number.

47. Answer: d

Explanation:

According to the given information,

Statement 1: Only about colours of the cubes are mentioned in this statement.

Statement 2: Number of white cubes is given and it is also mentioned that 'the number of blue cubes is twice that of yellow cubes' but the number of cubes of neither of the colours is given.

Hence, "both 1 and 2" are not sufficient.

48. Answer: c

Explanation:

The correct answer is option 3 i.e Shimla.

- PM Narendra Modi launched the UDAN scheme on 25th April 2017 with a flight between Shimla and New Delhi at subsidised rates.
- UDAN (Ude Desh ka Aam Naagrik) is the State Government of India's Regional Airport Growth and Regional Connectivity Scheme (RCS).
- With the aim of "letting the country's common citizen fly" aimed at making air travel affordable and widespread, promoting inclusive national economic development, job growth and the development of air transport infrastructure across all regions and states.
- Out of a total of 486 airports, 406 participated in our own airports at the start of the program, 27 were well-served airports out of 97 non-RCS airports and 12 were operational airports out of 18 underserved participating national operational airports (November 2016) with daily scheduled fixed-wing flights.
- The UDAN Scheme is a key component of the National Civil Aviation Policy (NCAP) of Prime Narendra Modi which was published by the Civil Aviation

Ministry (India) on 15 June 2016.

49. Answer: c

Explanation:

$$\Rightarrow 8 \sec^2 x - 7 \tan^2 x = 11$$

$$\Rightarrow \sec^2 x + 7 \sec^2 x - 7 \tan^2 x = 11$$

As we know,

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

$$\Rightarrow \sec^2 x + 7 \times 1 = 11$$

$$\Rightarrow \sec^2 x = 11 - 7$$

$$\Rightarrow \sec^2 x = 4$$

$$\Rightarrow \sec x = \sqrt{4}$$

$$\Rightarrow \sec x = 2$$

$$\Rightarrow \sec x = \sec 60^\circ$$

$$\Rightarrow x = 60^\circ$$

50. Answer: d

Explanation:

The correct answer is option 4 i.e Gold.

- Gold is the most malleable metal.

- **Malleability** is a physical property of metals that decide their **hammering, pressing or rolling ability without breaking into thin sheets**.
- In other words, deforming under compression is the product of metal, and takes on a new shape.
- Items made from these metals may also show malevolence, like gold leaf, lithium foil, and shot from the indium.
- **Gold is a transitional element of group 11** in a periodic table with atomic number 79 and atomic mass 196.996. This is a reddish yellow alloy and is also a strong heat and electricity conductor.

51. Answer: c

Explanation:

The correct answer is option 3 i.e aluminium.

- **Element X forms an oxide with the formula X_2O_3** . The element X would most likely be in the same group of the periodic table as aluminium.
- **Element X can be aluminium, gallium, indium and thallium**, which is part of 3 Mendeleev's periodic table groups and has valency 3.
- **Aluminium (Al)**, also engraved aluminium, chemical element, the lightweight, silver-white metal of the main group 13 of the periodic table.
- It is the **most abundant metallic element in Earth's crust** and the most widely used **non-ferrous metal**.
- It does not appear in metallic form in nature because of its chemical action, but its derivatives are found to a greater or lesser degree in nearly all minerals, plants and wildlife.

52. Answer: d

Explanation:

Dance is to move rhythmically with the help of legs.

Similarly,

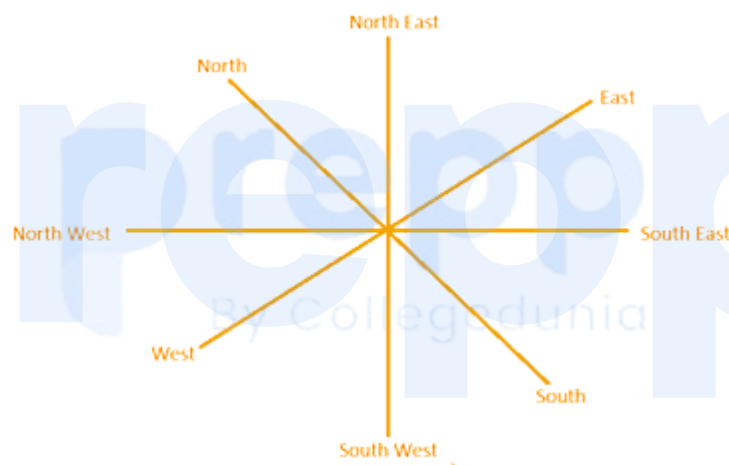
Swing is the movement of the tails in animals.

Hence, "swing" is the correct answer.

53. Answer: b

Explanation:

Drawing the diagram according to the given information,



If west becomes, north – west, then there a movement of one position clock – wise.

North becomes north – east.

Hence, "north – east" is the correct answer.

54. Answer: a

Explanation:

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

Drawing the family tree,



Mathura is the daughter of Shalaka.

Hence, "daughter" is the correct answer.

55. Answer: d

Explanation:

Let the first pipe alone can fill the tank in x hrs

The efficiency of the first pipe = $1/x$

The efficiency of the second pipe = $2/x$

Third pipe alone can empty the full tank in = 10 hrs

According to the questions

$$\Rightarrow \frac{1}{x} + \frac{2}{x} - \frac{1}{10} = \frac{1}{2.5}$$

$$\Rightarrow \frac{3}{x} = \frac{1}{2.5} + \frac{1}{10}$$

$$\Rightarrow \frac{3}{x} = \frac{(4 + 1)}{10}$$

$$\Rightarrow \frac{3}{x} = \frac{5}{10}$$

$$\Rightarrow \frac{3}{x} = \frac{1}{2}$$

$$\Rightarrow x = 6$$

The first pipe A alone can fill the tank in 6 hrs.

56. Answer: b

Explanation:

By decoding given information,

+	×	÷	-
Means			
×	-	+	÷

Given equation: $180 - 20 \div 12 + 24 \times 5 + 22$

After changing symbol: $180 \div 20 + 12 \times 24 - 5 \times 22$

Using BODMAS rule,

$$9 + 12 \times 24 - 5 \times 22$$

$$9 + 288 - 110$$

$$297 - 110$$

$$187$$

Hence, "187" is the correct answer.

57. Answer: c

Explanation:

Drawing the Venn diagram,



Conclusion 1: Some years are days → False (This is definitely false)

Conclusion 2: No day is a date → True (This is definitely true)



Hence, "only conclusion 2" follows.

58. Answer: a

Explanation:

The asexual reproduction type of reproduction involves only one parent.

- This results in inheritance being genetically identical to each other.
 - In this way, all **prokaryotes and other eukaryotes** replicate. There are a variety of different asexual reproduction methods.

- It includes fragmentation, Binary fission, and budding binaries.
- **Reproduction** is the biological process by which new individual organisms "offspring" are produced from their "parents".
- **Sexual reproduction** involves **two parents**.

59. Answer: c

Explanation:

Reversing the given alphabets,

ZYXWVUTSRQPONMLKJIHGFEDCBA

9th letter from the right is 'I'

ZYXWVUTSRQPONMLKJIHGFEDCAB

Fifth letter from the left of 'I' is 'N'

ZYXWVUTSRQPONMLKJIHGFEDCAB

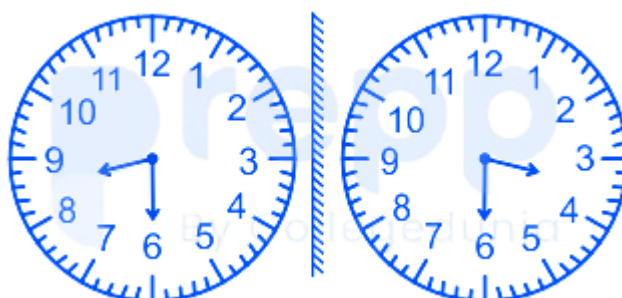
Hence, "N" is the correct answer.

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60. Answer: d

Explanation:

The correct time is,



Alternate Short trick:

Whenever you need to find the mirror time from actual or actual time from mirror time then just subtract the given time from 11: 60

Here Actual time = 11: 60 – 8: 30 = 3: 30

Hence, “3: 30” is the correct answer.

61. Answer: b

Explanation:

Argument 1: This is strong, because when the population of these dogs increases, the municipality people will take them away.

Argument 2: This is also strong, because they are dangerous.

Hence, “both 1 and 2” are strong.

62. Answer: c

Explanation:

The correct answer is option 3 i.e Srikanth Kidambi.

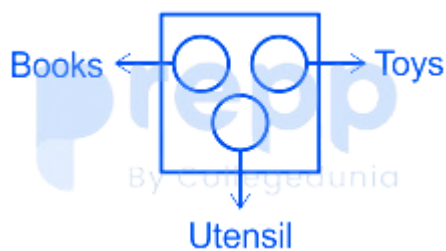
- Srikanth Kidambi won the **2017 Australian Super Series (Badminton)**.
- He is an Indian badminton player who trains in Hyderabad, at the **Gopichand Badminton Academy**.
- In April 2018 he became the **world's best men singles badminton player**.
- In 2018, Kidambi received the **Padma Shri**, India 's fourth-highest civilian award And Award Arjuna in 2015.
- He went on to **win Australian Super Series defeating Chinese Chen Long in the final 22–20, 21–16**, setting an Indian record for reaching three consecutive Super Series finals.

63. Answer: b

Explanation:

Books, Toys and Utensil are represented separately.

The correct Venn diagram is,



Hence, option 2 is the correct answer.

64. Answer: b

Explanation:

Let the total salary of the Arun be Rs. x , then

Amount expends on Tarun and Varun's education = $x \times \frac{2}{13} = \frac{2x}{13}$

According to the question

$$\Rightarrow \frac{2x}{13} \times \frac{2}{3} = 13,006$$

$$\Rightarrow \frac{4x}{39} = 13,006$$

$$\Rightarrow x = 13,006 \times \frac{39}{4}$$

$$\Rightarrow x = \text{Rs. } 126,808.50$$

The total salary of the Arun is 126,808.50

65. Answer: d

Explanation:

The pattern followed is,

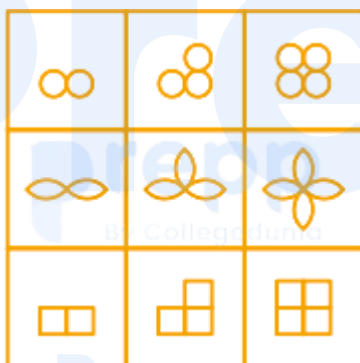
In the first column, figures are of two parts.

In the second column, figures are of three parts.

And,

In the third column, figures are of four parts.

The correct picture which will fit in the blank space is,



Hence, option 4 is the correct answer.

66. Answer: a

Explanation:

The pattern followed is,

There are two '+' symbols which are diagonally opposite to each other and there are two square symbols diagonally opposite to each other, among which one is painted.

All follow the same pattern, except figure D.

Hence, figure D is different from the rest.

67. Answer: d

Explanation:

The correct answer is option 4 i.e At the base of the leaves.

- **Intercalary meristems** are found at the base of the leaves.
 - It helps in the **elongation and growth of plants in nodes and internodes** (stems and leaves) and also allows the stem and leaves (grasses) to grow longitudinally.
 - The **intercalary meristems** are present in monocots at the base of the **primordium leaf**.
 - It allows the petiole to extend their leaves above the surface of the water.
 - This increase in petiole length is caused by the **intercalary meristem activity**.
-

68. Answer: a

Explanation:

Selling price of the pair of footwear = Rs. 2223

If the profit percentage is 17%, then

Cost price of the footwear = $2223 \times 100/117 = \text{Rs. } 1900$

69. Answer: a

Explanation:

The correct answer is option 1.i.e Changing of water to water vapour.

- Changing water to water vapour is NOT an **example of chemical change**.
- **Boiling water** is an example of a physical transition and not a chemical change, because the water vapour still has the same molecular structure as liquid water (H_2O).
- If the bubbles were caused by a molecule's decomposition into a gas (such as H_2O regardless of H_2 and O_2), it would be a chemical transition to boil.
- Chemical changes are also called chemical reactions.
- Reactants are called the "**ingredients**" of a reaction, and the end results are called products.

70. Answer: b

Explanation:

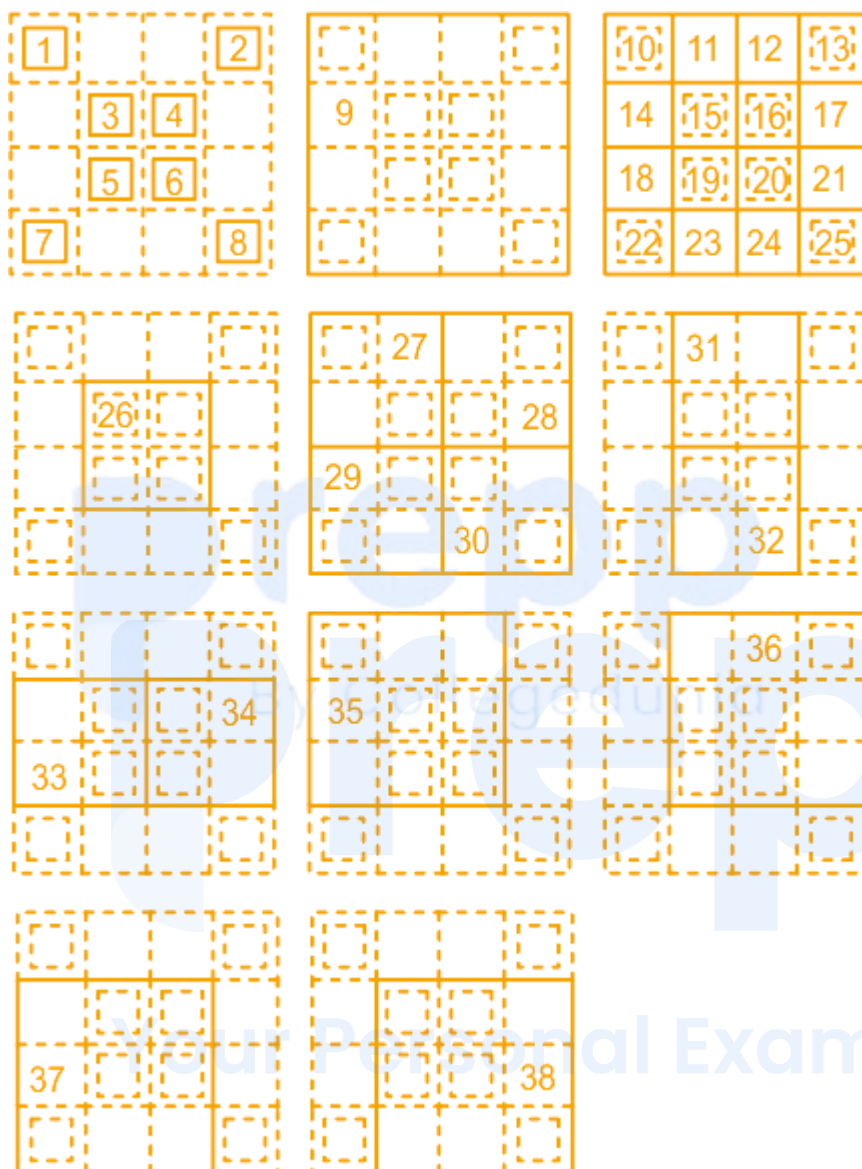
The correct answer is option 2.i.e Alkali metals.

- The **electronic configuration of hydrogen** resembles that of Alkali metals.
- **Hydrogen** is similar to **both alkali metals and to halogens**.
- This is because **alkaline-like hydrogen metals** donate their outer electron to form compounds such as **oxides, halides & sulfides**.
- It also shares the electron of its with another atom of hydrogen to form a **diatomic molecule**.
- Hydrogen has one **1s¹ electronic configuration**.
- The electronic configuration is identical to the **external electronic configuration ns¹ of alkali metals** belonging to the first group of the periodic table, and like halogens (with electronic configuration ns^2np^5) it is one electron short of the corresponding noble gas configuration, helium $1s^2$.

71. Answer: a

Explanation:

The number of squares in the given figure is,



Hence, "38" is the correct answer.

72. Answer: a

Explanation:

Total revenue made by the restaurant XYZ in Nov 2017 = 35 lakh

Total revenue collects by other baked items in Nov 2017 = $35 \times 15/100 = 5.25$ lakh

73. Answer: c

Explanation:

The pattern followed is,

In the first figure there are three geometrical figures, one inside the other, in the second figure there are two figures, one inside the other and the inner shape becomes the outer shape in this figure.

Similarly,

In the third figure there are three geometrical figures, one inside the other and in the fourth one there will be two figures and the inner shape becomes the outer shape in this figure .

The figure which will come next in the pattern is,



Hence, option 3 is the correct answer.

74. Answer: c

Explanation:

The correct answer is option 3, i.e. more P.E and less K.E.

- When an object is thrown vertically upward then the velocity will decrease continuously and hence K.E. will also decrease.
- To compensate for decreasing K.E., P.E. will increase.
- At the maximum height of 'h', velocity will be zero and hence K.E. energy will be zero and P.E. will be maximum.

- At $3/4^{\text{th}}$ of 'h',
 - As P.E. increasing with height, it will be more than K.E.

75. Answer: c

Explanation:

An unfertilised human egg contains one X chromosome.

- The unfertilised egg is a haploid female gamete. It has chromosome X.
- The gametes are the haploid cells which the meiotic division produces.
- The egg is the female gamete produced by oogenesis. The gametes are haploid and only comprise one set of chromosomes.
- Therefore, the egg cell comprises the 22 autosomes and a chromosome X.
- Since the female somatic cell contains two X chromosomes, only one X chromosome can appear in the gamete.

76. Answer: c

Explanation:

The correct answer is option 3 i.e Pressure = Thrust/Area.

- The pressure is classified as force per area of the area. ($P = F/A$)
- If force F is applied to the surface of area A, the pressure P is defined as:
- This pressure is always perpendicular to the surface of the object in fluids.
- It is this friction applied to an object submerged in water that creates a power of thrust.
- This pressure that causes the object to be pushed is the reason that some objects are floating in the water.
- It is also the reason why objects weigh less in the water.

77. Answer: a

Explanation:

Option 1 is the correct answer.

- The main purpose of litmus is to test whether the solution is acidic or basic.
- Blue litmus paper turns red under acidic conditions and red litmus paper turns blue under basic or alkaline conditions, with a change in colour occurring over the pH range 4.5–8.3 at 25 ° C (77° F).
- Wet litmus paper may also be used to test for water-soluble gases, which cause acidity or alkalinity; the gas dissolves in the water and the resulting solution stains the litmus paper. For example, ammonia gas, which is alkaline, turns red litmus paper blue.
- Red litmus contains a mild diprotic acid. When introduced to a simple compound, hydrogen ions react with the added base. The conjugate base formed by litmus acid has a blue colour so that the wet red litmus paper turns blue in alkaline.

78. Answer: d

Explanation:

The correct answer is option 4 i.e Ram Nath Kovind.

- The LPG Panchayat, organized by the Ministry of Petroleum and Natural Gas under the Pradhan Mantri Ujjawala Yojana was hosted by Ram Nath Kovind.
- Pradhan Mantri Ujjawala Yojana (PMUY) was initiated by Indian Prime Minister Narendra Modi on 1 May 2016 to administer 50 million LPG connections to Below Poverty Line (BPL) residents.
- A budgetary allowance of 80 billion (USD 1.1 billion) has been made for the program.
- In the first year of its launch, the distribution of connections amounted to 22 million compared to the target of 15 million.

- At the 107th Indian Science Congress held in Bengaluru in January 2020, **Narendra Modi** claimed that technology has enabled India to "recognise 8 crore [80 million] people still use coal or wood for cooking" and also to "understand how many new distribution centers need to be established by means of technology."

79. Answer: a

Explanation:

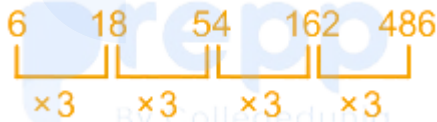
The pattern followed is,

$$6 \times 3 = 18$$

$$18 \times 3 = 54$$

$$54 \times 3 = 162$$

$$162 \times 3 = 486$$



Hence, "486" is the correct answer.

80. Answer: b

Explanation:

Given:

Minena and mashuka work together complete the task in 9 days

Mashuka complete $\frac{2}{5}$ work and minena complete $\frac{3}{5}$ in 19.5days

Mashuka work faster than minena

Calculation:

Mashuka and minena complete work in 9 days

From option 2

Minena complete the work in 22.5days

Let the total work be 225 units

Efficiency of mashuka and minena working together = $225 / 9 = 25\text{units/day}$

Efficiency of minena = $225/22.5 = 10\text{units/day}$

$\therefore$ Efficiency of mashuka = $25 - 10 = 15\text{ units/day}$

According to question

Mashuka completed $2/5$ work = $2/5 \times 225 = 90\text{units}$

Mashuka takes days to complete 90units work = $90 / 15 = 6\text{days}$

$\therefore$ minena complete work = $1 - 2/5 = 3/5$

$\Rightarrow 3/5 \times 225 = 135\text{units}$

Minena takes days to complete 135units = $135 / 10 = 13.5\text{days}$

Total time taken by mashuka and minena to complete the whole work in given pattern = $6 + 13.5 = 19.5\text{days}$

Hence option ii satisfied the answer

★ Alternate Method

Let the time taken by mashuka alone and minena alone to complete the task be 'x' and 'y' days

also $(1/x + 1/y = 1/9)$

$$\Rightarrow x = 9y/(y - 9) \dots(i)$$

$$\text{and } (2x/5 + 3y/5 = 19.5)$$

$$\Rightarrow 2x + 3y = 97.5$$

putting value of x from equation (i). we get

$$\Rightarrow 18y/(y - 9) + 3y = 97.5$$

$$\Rightarrow 18y + 3y^2 - 27y = 97.5(y - 9)$$

$$\Rightarrow 3y^2 - 106.5y + 877.5 = 0$$

$$\Rightarrow y^2 - 35.5y + 292.5 = 0$$

$$\Rightarrow y^2 - 22.5y - 13y + 292.5 = 0$$

$$\Rightarrow y(y - 22.5) - 13(y - 22.5) = 0$$

$$\Rightarrow y = 22.5, 13$$

$$\text{at } y = 22.5, x = 15$$

and at $y = 13, x = 29.25$ (not possible as Mashuka works faster than Minena)

$\therefore$ Minena take to complete the task alone = 22.5 days

81. Answer: a

Explanation:

Presently, **scientists** are talking of 5 states of matter.

- **Four natural states of matter exist solids, liquids, gases, and plasma.** The fifth state is condensate from the man-made Bose-Einstein.
- **Particles** are packed tightly together in a **solid** so that they don't move much.
- The particles are looser packed in a **liquid** than in a solid and can float around each other, giving the liquid an infinite form.

- The particles have much space between them in **gas** and have high kinetic energy.
- Plasma is composed of extremely charged particles with very high kinetic energy.
- **Scientists developed the Bose-Einstein condensate (BEC)**, in 1995. Using a mixture of lasers and magnets, the scientists at the Joint Institute for Lab Astrophysics (JILA) in Boulder, Colorado, Eric Cornell and Carl Weiman cooled a sample of rubidium to an absolute zero within a few degrees.

82. Answer: a

Explanation:

Vishwa Bharati Society was established by Rabindranath Tagore.

- Vishwa Bharati University is a public research central university and institute of national importance located in Santiniketan, West Bengal, India.
- It was founded by **Rabindranath Tagore**, who called it Visva-Bharati, which means the world's dialogue with India.
- Soon after **independence in 1951**, the college became a university and came to be known as **Visva-Bharati University**.
- The National Institutional Ranking Framework (NIRF) ranked Vishwabharati University 31 among Indian universities.
- According to the ranking of Best Global Universities 2020, produced by US News and World Report, **Visva-Bharati** is ranked **4th among Indian universities**.

83. Answer: d

Explanation:

The correct answer is option 4 i.e Taj Mahal

- Taj Mahal ranked 5th on the list of 'Top 10 Landmarks' in the world by TripAdvisor Travellers' Choice Awards.
- It has emerged as the 5th most popular landmark in the world and 2nd in Asia, according to the online travel portal TripAdvisor's Travelers Choice Awards for Landmarks.
- Around the world, Angkor Wat in Cambodia, Sheik Zayed Grand Mosque Center in Abu Dhabi, Mezquita Cathedral of Cordoba in Spain, and St Peter's Basilica in Italy, had the first four ranks.
- Whereas the top 10 landmarks in Asia were crowned by Angkor Wat, followed by the Taj Mahal in second place.
- Besides this, the Taj Mahal also placed first in the list of famous landmarks in India, followed by AmberFort, Jaipur, Swaminarayan Akshardham, New Delhi, etc.

84. Answer: b

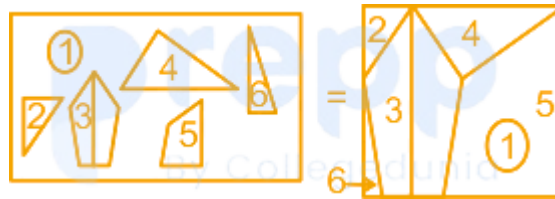
Explanation:

- Red vascular connective tissue is blood.
- Vascular connective tissue is the tissue responsible for transport in the animal's body.
- Blood and lymph is the final form of connective tissue (red vascular connective tissue).
- Blood is made up of erythrocytes (red blood cells), leukocytes (white blood cells) and platelets.
- Blood is present in blood vessels (arteries, veins, capillaries).
- Connective tissue is a ubiquitous component of all major tissues and structures of the body (50% of all proteins in the body are connective tissue), including blood, vascular tissue, muscle, tendon, ligaments, fascia, bone, joint, intervertebral disc, and skin

85. Answer: c

Explanation:

The shapes from the problem figure can be used to create the below figure:



Hence, the figure in option B is the correct answer.

86. Answer: a

Explanation:

The correct answer is Option 1.

★ Key Points

If you fill a glass completely with water and ice and the ice melts completely, the water level will remain unchanged.

- According to Archimedes' theory, the floating material displaces air, which means that as the ice melts, there will be no difference in the water table, because the dissolved ice will have the same volume as it used to be.
- A dynamic body displaces a volume of water equal to its own weight.

87. Answer: c

Explanation:

Concept:

- Momentum : The product of mass and velocity is called momentum or linear momentum.
 - It is denoted by P and unit is kg· m/s
 - Momentum (P) = Mass (m) × velocity (V)
- Conservation of linear momentum : When there is no net external force on a system, then the total linear momentum of the system remains constant . This is called the conservation of linear momentum.

Explanation:

In the case of a rocket, we will take the rocket and its fuel as a system . There is no net force on this system, so the total momentum will be conserved .

- Thus the rockets work on the law of conservation of linear momentum is correct.
- The increased forward momentum of the rocket is equal but opposite in sign to the momentum of the ejected exhaust gases.

88. Answer: d

Explanation:

$$\left(\frac{1-1}{10}\right) \left(\frac{1-1}{11}\right) \left(\frac{1-1}{12}\right) - \left(\frac{1-1}{99}\right) \left(\frac{1-1}{100}\right) = ?$$

$$\Rightarrow \left(\frac{0}{10}\right) \left(\frac{0}{11}\right) \left(\frac{0}{12}\right) - \left(\frac{0}{99}\right) \left(\frac{0}{100}\right) = ?$$

$$\Rightarrow 0 - 0 = ?$$

$$\Rightarrow 0 = ?$$

Note: This is an exam question in which error was found we have given the solution according to the question.

89. Answer: d

Explanation:

$\Rightarrow P = 2,000, r = 9.25\%$ and $t = 4$ years

As we know,

$\Rightarrow SI = \frac{Prt}{100}$

$\Rightarrow SI = \frac{(2000 \times 9.25 \times 4)}{100}$

$\Rightarrow SI = \text{Rs. } 740$

90. Answer: a

Explanation:

The correct answer is option 1 i.e Aachman Yukt Dhara.

- Aachman Yukt Dhara was NOT a part of the proposed draft of the 'National Water Framework Bill of 2016'.
- The draft National Water Framework Bill 2016 was drawn up by a committee headed by Dr. Mihir Shah.
- The Committee was set up by the Ministry of Water Resources, River Development, and Ganga Rejuvenation.
- The aim behind this bill was to conserve, manage, protect, and regulate the use of water.
- Pursuant to the Constitution of India, water falls under the domain of the State Subject and, hence, the consent of States is necessary if the bill is to be enforced as an act.

91. Answer: d

Explanation:

Let the average marks of 7 students be x ,

Sum of marks of 7 students = $7x$

According to the question

Average marks of 8 students = $x + 2$

Sum of marks of 8 students = $(x + 2) \times 8 = 8x + 16$

Marks of 8th student = $8x + 16 - 7x = x + 16$

Now we can say 8th students get 16 more marks than average marks of 7 students.

92. Answer: d

Explanation:

The correct answer is **option 4 i.e 11 A.**

The potential difference of the heater = 60 V

⇒ Current $I = 4 \text{ A}$

⇒ Resistance = ?

⇒ According to ohm's law,

⇒ $V = IR$

⇒ $R = V/I$

⇒ **$R = 60/4 = 15 \text{ Ohms}$**

Now if the potential is increased to 165 V

⇒ $I = ?$

⇒ $V = IR$

⇒ $I = V/R$

$$= 165/15 = 11 \text{ A}$$

93. Answer: d

Explanation:

Let the length of the train be d m, and speed of the train x km/hr.

As we know,

Speed = Distance/time

$$\Rightarrow x \times 5/18 = (d + 155)/16 \quad \text{---(1)}$$

Again,

$$\Rightarrow x \times 5/18 = (d + 195)/18 \quad \text{---(2)}$$

From equation (1) and equation (2)

$$\Rightarrow (d + 155)/16 = (d + 195)/18$$

$$\Rightarrow (d + 155)/8 = (d + 195)/9$$

$$\Rightarrow 9d + 1395 = 8d + 1560$$

$$\Rightarrow 9d - 8d = 1560 - 1395$$

$$\Rightarrow d = 165$$

From equation (1)

$$\Rightarrow x \times 5/18 = (165 + 155)/16$$

$$\Rightarrow x \times 5/18 = 320/16$$

$$\Rightarrow x = 20 \times 18/5$$

$$\Rightarrow x = 72 \text{ km/hr}$$

As we know,

$$\Rightarrow 1 \text{ km/hr} = 5/18 \text{ m/sec}$$

94. Answer: c

Explanation:

Given:

Time taken by A to complete the work = 6 days

Time taken by B to complete the work = 8 days

Formula used:

Efficiency = Total work/Time taken

Calculation:

LCM of 6 and 8 = 24 = Total work

Efficiency of A = $24/6 = 4$ units/day

Efficiency of B = $24/8 = 3$ units/day

Total efficiency of A and B = $(4 + 3)$ units/day

$\Rightarrow 7$ units/day

So, the Efficiency of C will also be 7 units/day as it is taking the same number of days as A and B together

So, Total efficiency of B and C = $(3 + 7)$ units/day

$\Rightarrow 10$ units/day

Time taken by B and C to complete the work = $24/10$ days

$\Rightarrow 12/5$ days

∴ They will take $12/5$ days to complete the work

★ Alternate Method

Total work = 24

According to the question

The efficiency of A and B = Efficiency of C

Efficiency of A and B = $4 + 3 = 7$

B and C together can complete the whole work in = $24/(3 + 7) = 24/10 = 12/5$ days

95. Answer: a

Explanation:

The correct answer is option 1 i.e. Virat Kohli.

- The cricketer Virat Kohli who holds the **record for scoring the quickest 8,000 runs** in one-day international cricket as of **15-Jun-2017**.
- He became the fastest cricketer to score 8000 runs in **ODIs during his gallant, undefeated 96 run against Bangladesh in the ICC Champions Trophy semifinals at Edgbaston cricket ground, Birmingham**.
- He crossed the 8000-run mark in his **175th outing to go ahead of South African cricketer AB de Villiers**, who had taken 182 innings to reach the milestone.
- Sourav Ganguly (200 innings) and Sachin Tendulkar (210 innings) are now third and fourth on the list.
- As of October 2019, Kohli scored 27 Test and 43 ODI centuries, making him the second most effective ODI cricket centurion after Sachin Tendulkar[322].

96. Answer: d

Explanation:

The correct answer is option 4. i.e **Mass/Volume = Density**.

- The symbol used for density is the ρ (lower case of the Greek letter rho) .
- The density of the material varies depending on **temperature and pressure**.
- This variation is typically small for solids and liquids, but much higher for gases. Increasing the pressure on the object reduces the volume of the object and thus increases its density.
- Increasing the temperature of the material (with a few exceptions) decreases its density by **increasing its thickness**.
- In most materials, the heating of the bottom of the fluid results in the convection of the heat from the bottom to the top due to a decrease in the density of the heated fluid.
- This causes it to rise relative to **more dense non-heated material**.

97. Answer: d

Explanation:

As we know,

$$1 \text{ m} = 10 \text{ dm}$$

$$25 \text{ m} = 250 \text{ dm}$$

The breadth of the path = 2.2 m

$$1 \text{ m} = 10 \text{ dm}$$

The breadth of the path = 22 dm

Side of square shape park = 250 dm

$$\text{Length of the path} = 250 + 250 = 500 \text{ dm}$$

$$\text{Area of the path} = 22 \times 500 - 22 \times 22 = 11000 - 484 = 10516 \text{ dm}^2$$

$$\text{Cost of levelling path } 1 \text{ dm}^2 = \text{Rs. } 1$$

Cost of levelling path $10516 \text{ dm}^2 = \text{Rs. } 10516$

★ Alternate Method

Given:

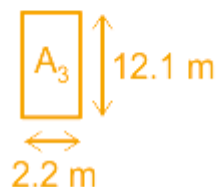
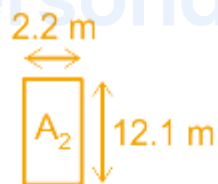
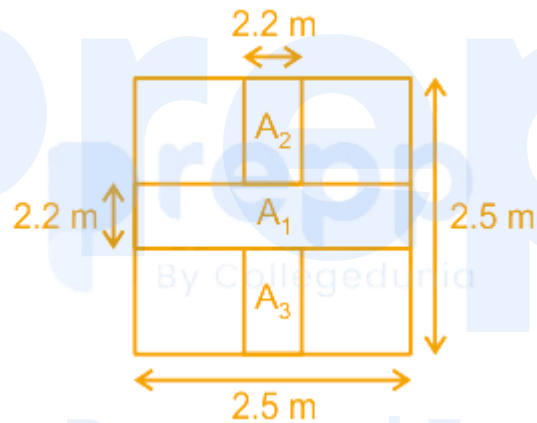
Side of a square = 25 m^2

Formula used:

$1 \text{ m} = 10 \text{ dm}$

Area of Rectangle = Length $\times$ Breath

Calculation:



$$\text{Area of path(A)} = A_1 + A_2 + A_3$$

$$A_1 = 25 \times 2.2 = 55 \text{ m}^2$$

$$A_2 = 11.4 \times 2.2 = 25.8 \text{ m}^2$$

$$A_3 = 11.4 \times 2.2 = 25.8 \text{ m}^2$$

$$\therefore A = 55 + 25.8 + 25.8 = 105.16 \text{ m} = 10516 \text{ dm}^2$$

According to the question:

Cost of levelling path $1 \text{ dm}^2 = \text{Rs. } 1$

$\therefore$ The total cost of laying gravel on the paths is Rs. 10516

98. Answer: d

Explanation:

$$\Rightarrow (3.6 + 6.4) (3.6 - 6.4) - (3.6 - 6.4)^2 = ?$$

$$\Rightarrow 10 \times (-2.8) - (-2.8)^2 = ?$$

$$\Rightarrow -28 - 7.84 = ?$$

$$\Rightarrow -35.84 = ?$$

Follow BODMAS rule to solve this question, as per the order given below:

Step-1: Parts of an equation enclosed in 'Brackets' must be solved first, and in the bracket,

Step-2: Any mathematical 'Of' or 'Exponent' must be solved next,

Step-3: Next, the parts of the equation that contain 'Division' and 'Multiplication' are calculated,

Step-4: Last but not least, the parts of the equation that contain 'Addition' and 'Subtraction' should be calculated.

99. Answer: d

Explanation:

The correct answer is option 4 i.e Dharamshala.

- Dharamshala is the **second capital of Himachal Pradesh**.
- On 19 January 2017, Chief Minister Virbhadra Singh declared Dharamshala the second capital of the state of Himachal Pradesh, making Himachal Pradesh the third state of India with two capitals after Jammu and Kashmir and Maharashtra.
- Dharamshala was chosen as one of the 100 Indian cities to be developed as a smart city under the flagship of **PM Narendra Modi's Smart Cities Mission**.
- Dharamshala is the headquarters of the **Kangra district of Himachal Pradesh**.
- The district of Kangra was part of the British province of Punjab. The administrative headquarters of the district were originally in Kangra but moved to Dharamshala in 1855.
- **Shimla** is the capital city of Himachal Pradesh.

Your Personal Exams Guide

100. Answer: c

Explanation:

Argument 1: This is strong, because providing subsidised fertilizers will increase the income of the farmers.

Argument 2: This is not strong, because nothing is mentioned about people's money in the statement.

Hence, "only argument 1" is strong.