



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 (23-Sep-2018) (Shift 1)

Total Time: 1 Hour : 30 Minute

Total Marks: 100

Instructions

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

- 1.) A total of 90 minutes is allotted for the examination.
- 2.) The server will set your clock for you. In the top right corner of your screen, a countdown timer will display the remaining time for you to complete the exam. Once the timer reaches zero, the examination will end automatically. The paper need not be submitted when your timer reaches zero.
- 3.) There will, however, be sectional timing for this exam. You will have to complete each section within the specified time limit. Before moving on to the next section, you must complete the current one within the time limits.

Your Personal Exams Guide

CBT

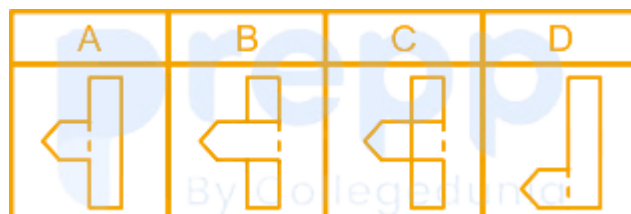
1. X is the son of Y, Y is the wife of Z. W is the father of Z. Then Y will be the _____ of W. (+1, -0.33)

- a. sister-in-law
- b. father-in-law
- c. brother-in-law
- d. daughter-in-law

2. Choose the term that does NOT belong to the following group. (+1, -0.33)

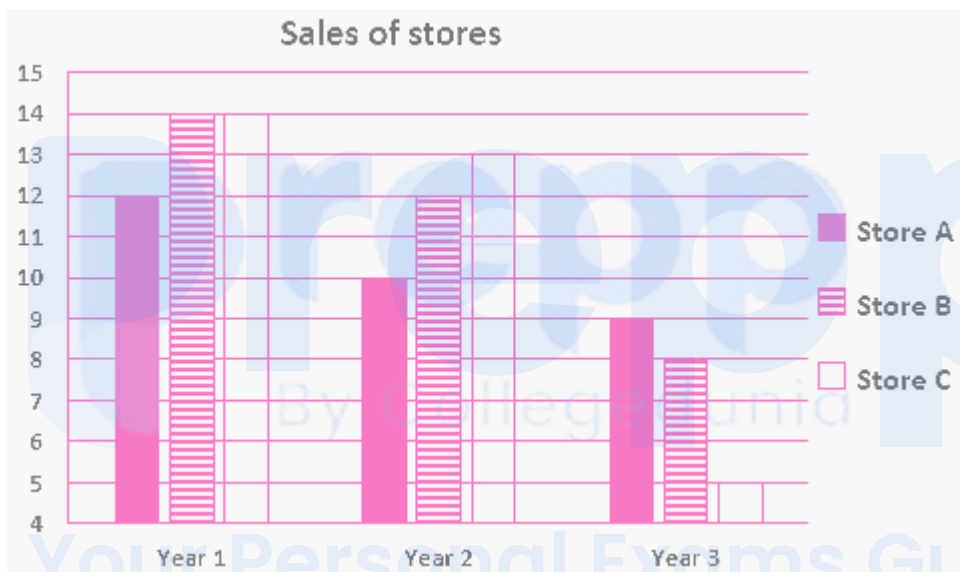
- a. Krypton
- b. Argon
- c. Neon
- d. Platinum

3. In the following question, which pattern will the given sheet resemble when it is folded at the dotted line? (Sheet is transparent) (+1, -0.33)



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

4. As per the following chart, in which year were the sales of store B more than 13 lakh Rs.? (+1, -0.33)



Note: The sales figures are in lakh Rs.

- a. Year 3
 - b. Year 2
 - c. Year 1
 - d. Year 1 and Year 2
5. Body A having a mass of 2 kg and body B having a mass of 3 kg moving towards each other with velocities 4 m/s and 2 m/s, respectively, will (+1, -0.33)

collide and _____ in an elastic collision.

- a. move in the direction of B
- b. move in opposite direction
- c. move in the direction of A
- d. move perpendicular to the line of motion of both bodies

6. Prime Minister Narendra Modi and his Israeli counterpart Benjamin Netanyahu inaugurated the iCreate centre in January 2018 in: (+1, -0.33)

- a. Rajkot
- b. Vadodara
- c. Ahmedabad
- d. Surat

7. Which of the following is a cation? (+1, -0.33)

- a. Nitrate
- b. Hydroxide
- c. Ammonium
- d. Carbonate

8. If F and Z are sons of C and Z is married to Y, then how is Y related to F? (+1, -0.33)

- a. Son-in-law

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

9. Who will be the host of the 2018 edition of the Women's World T20? (+1, -0.33)

- a. Australia
 - b. West Indies
 - c. England
 - d. Dubai
-

10. The Rana Pratap Sagar Dam is built on the river ----- (+1, -0.33)

- a. Ganga
 - b. Jhelum
 - c. Beas
 - d. Chambal
-

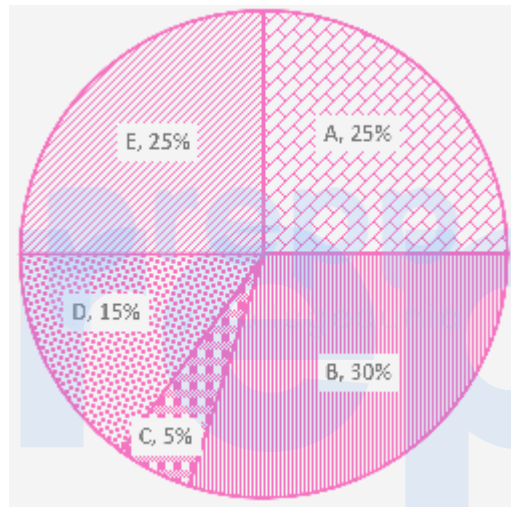
11. Two circles touch each other externally at point X. PQ is a simple common tangent to both the circles touching the circles at point P and point Q. If the radii of the circles are R and r, then find PQ^2 . (+1, -0.33)

- a. $3\pi Rr/2$
- b. $4Rr$

c. $2\pi Rr$

d. $2Rr$

12. The following pie diagram shows information on tyre manufacturing by various companies in India during 2017. If the total number of tyres produced in India during 2017 was 1,80,000 units, how many units of tyres were produced by company E? (+1, -0.33)



- a. 30,000
- b. 35,000
- c. 45,000
- d. 15,000
13. In the following question, some statements are given followed by some conclusions. Taking the given statements to be true even if they seem to be at variance from commonly known facts, read all the conclusions and then decide which of the given conclusions logically follows the given statements. (+1, -0.33)

Statement:

All mats are coirs.

All coirs are Jute.

Conclusions:

I.. All Jute are coirs.

II. All mats are Jute.

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

14. Which of the following flowers is unisexual? (+1, -0.33)

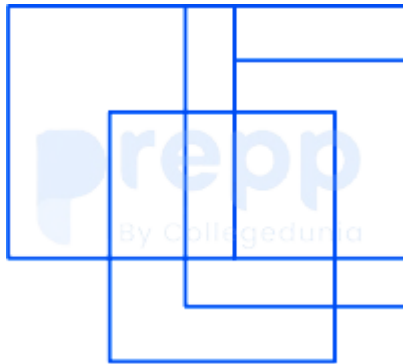
- a. Papaya
- b. Sunflower
- c. Hibiscus
- d. Mustard

15. A person bought an item for Rs. 1975 and sold it at a profit of 12%. What was the selling price of the item? (+1, -0.33)

- a. Rs. 2192
- b. Rs. 2202

- c. Rs. 2212
- d. Rs. 2222

16. How many closed rectangular boxes are there in the following figure? (+1, -0.33)



- a. 15
- b. 16
- c. 17
- d. 20

17. Vibrations in the ear are amplified by the three bones, namely the _____ in the middle ear. (+1, -0.33)

- a. hammer, anvil and stirrup
- b. hammer, cochlea and stirrup
- c. hammer, anvil and pinna
- d. auditory bone, anvil and stirrup

18. You are given a question and two statements. Identify which of the statements is/are necessary/sufficient to answer the question.

(+1, -0.33)

Find the total age of the sisters 10 years from now.

Statements:

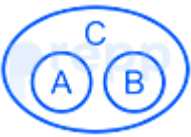
1. Nina is 10 years old now
2. Nina's sister's age is $\frac{1}{5}^{\text{th}}$ of the age of Nina

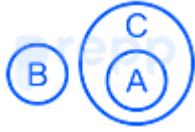
- a. Statement 2 alone is sufficient
- b. Statement 1 alone is sufficient
- c. Statements 1 and 2 together are necessary
- d. Statement 1 and 2 together are not sufficient

19. Which of the following Venn diagrams correctly represents the relationship between the given classes?

(+1, -0.33)

- A. Vessel
- B. Trinket
- C. Silver

- a. 
- b. 
- c. 



d.

20. The sum of values of x satisfying $x^{2/3} + x^{1/3} = 2$ is: (+1, -0.33)

a. -3

b. 7

c. -7

d. 3

21. Select the most appropriate option. (+1, -0.33)

$0^{\circ}\text{C} = \text{-----F.}$

a. 32

b. 180

c. 23

d. 273

22. P and Q can complete a task together in 6 days. Q alone can complete the task in 10 days. In how many days can P alone complete the task? (+1, -0.33)

a. 11 days

b. 15 days

c. 12 days

d. 14 days

23. Name the Bollywood actor who received Kala Ratan Award in March 2017? (+1, -0.33)

- a. Akshay Kumar
 - b. Naseeruddin Shah
 - c. Anupam Kher
 - d. Jitendra
-

24. A 2,000 kg truck moving at 10 m/s strikes a car waiting at a traffic light. (+1, -0.33)
After the collision, the two move together at 8 m/s. The mass of the car is
----- if total energy before and after collision remain conserved.

- a. 250 kg
 - b. 500 kg
 - c. 750 kg
 - d. 1,000 kg
-

25. In January 2018, who took charge as the Managing Director of India (+1, -0.33)
Infrastructure Finance Company Ltd?

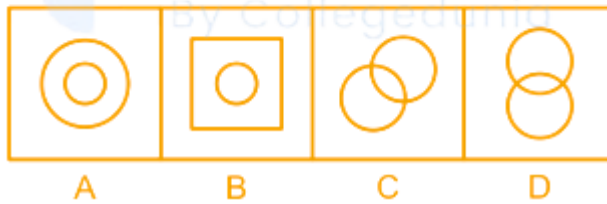
- a. Prasanth Nair
- b. Pankaj Jain
- c. Saurabh Kumar
- d. Mir Mohammed Ali

26. Identify the figure that will replace the question mark in the given series: (+1, -0.33)

Problem figures:



Answer figures:



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

27. Which of the following is NOT a characteristic of dicotyledonous plants? (+1, -0.33)

- a. Tap root
- b. Reticulate venation
- c. Two cotyledons
- d. Fibrous roots

28. As of August 2018, who is the chief minister of Delhi? (+1, -0.33)

- a. Kiran Bedi
- b. Sushma Swaraj
- c. Sheila Dikshit
- d. Arvind Kejriwal

29. What amount will Jatin get at the end of 3 years if he has invested Rs. 5000 and the rate of interest is 4% for the first year, 3% for the second year and 2% for the third year? (+1, -0.33)

- a. Rs. 5460
- b. Rs. 5403.12
- c. Rs. 5463.12
- d. Rs. 5460.12

30. An electric washing machine of 750 W is used for 4 hours per day. The energy consumed by the machine in one day will be _____. (+1, -0.33)

- a. 30 units
- b. 3 units
- c. 3,000 units
- d. 300 units

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



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

32. Based on the numerical analogy given, choose the correct answer from the options given below $35 : 7 :: 125 : ?$ (+1, -0.33)

- a. 10
- b. 25
- c. 15
- d. 5

33. Pipe A can fill an empty cistern in 14 hours. Together with Pipe B it can fill up the empty cistern in 12 hours. Therefore, Pipe B can fill the empty cistern alone in _____ hours. (+1, -0.33)

- a. 75
- b. 77
- c. 78
- d. 84

34. A tank can be filled by a pipe P in 32 minutes and by pipe Q in 36 minutes. When it is full, it can be emptied by a pipe R in 20 minutes. If all the three pipes are opened simultaneously, half of the tank will be filled in -----.

(+1, -0.33)

- a. $55\frac{3}{5}$ minutes
- b. $55\frac{13}{3}$ minutes
- c. $55\frac{5}{13}$ minutes
- d. $55\frac{2}{5}$ minutes

35. Consider the given statement and decide which of the given assumption(s) is/are implicit in the statement.

(+1, -0.33)

Statement:

"Can I borrow your bike in the evening," asks Milan to his teammate.

Assumptions:

- I. Milan's teammate has a bike.
- II. Milan needs a bike in the evening.

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

36. Sodium metal is stored in -----.

(+1, -0.33)

- a. Kerosene
 - b. Water
 - c. Ether
 - d. Alcohol
-

37. Which of the following glands is also known as 'master gland'? (+1, -0.33)

- a. Pituitary
 - b. Adrenal
 - c. Pancreas
 - d. Hypothalamus
-

38. If COCK is written as D4P6D4L2, then how would HENCE be written? (+1, -0.33)

- a. I9F6O6D3F6
 - b. I9F6O5D4F6
 - c. I9F6O65D4F6
 - d. I9F5O5D4F5
-

39. The hierarchy of animal classification is: (+1, -0.33)

- a. Phylum, Class, Family, Order, Species, Genus
- b. Phylum, Class, Family, Order, Genus, Species

- c. Phylum, Class, Order, Family, Genus, Species
- d. Phylum, Order, Family, Class, Genus, Species

40. If BIRBAL is coded as RIBLAB, how is DIESEL written in that code? (+1, -0.33)

- a. ESETN
- b. EIDLES
- c. EIDCGT
- d. DIESLT

41. $63 - (-3)(-2 - 8 - 4) \div [3 \{5 + (-2)(-1)\}] = ?$ (+1, -0.33)

- a. 65
- b. 60
- c. -60
- d. 61

42. Which does not belong to this group? (+1, -0.33)

- A. Lemon
 - B. Tamarind
 - C. Raw Mango
 - D. Sugar
- a. C

b. A

c. D

d. B

43. The second equation of motion gives the relation between _____. **(+1, -0.33)**

a. position-time

b. velocity-momentum

c. position-velocity

d. velocity-time

44. For which sector did the union government launch the "SAMPADA Scheme"? **(+1, -0.33)**

a. Women empowerment

b. Health

c. Food processing

d. Girl child

45. The non-metal _____ is liquid at room temperature. **(+1, -0.33)**

a. Bromine

b. Sulphur

c. Mercury

d. Calcium

46. If $\tan \theta = 4/3$, what is the value of $\sin \theta + \cos \theta$? (+1, -0.33)

a. $4/3$

b. 1

c. $7/3$

d. $7/5$

47. Sunil Bharti Mittal is an Indian billionaire entrepreneur, philanthropist and the Founder and Chairman of _____. (+1, -0.33)

a. Bharti Enterprises

b. ArcelorMittal

c. HCL Technologies

d. Wipro Limited

48. Indian Railways earn the maximum revenue from _____. (+1, -0.33)

a. Monthly season tickets

b. AC Train travellers

c. freight

d. fine on ticketless travellers

49. When light is incident on a polished surface, _____ reflection takes place. (+1, -0.33)

- a. regular
- b. irregular
- c. normal
- d. diffused

50. $0.3/1000$ is equal to: (+1, -0.33)

- a. 3×10^{-4}
- b. 3×10^{-6}
- c. 3×10^5
- d. 3×10^{-5}

51. What is common among Lithium, Sodium and Potassium? (+1, -0.33)

- a. These have one electron in their outermost shell
- b. There are alkaline earth metals
- c. These cannot form oxides
- d. These are inert elements

52. Which country is hosting the 2018 Men's Hockey World Cup? (+1, -0.33)

- a. China
 - b. India
 - c. Korea
 - d. England
-

53. If $P = \text{sum of } \frac{3}{5} \text{ and } \frac{2}{7}$, $Q = \frac{15}{31}$ then find $P \times Q$. (+1, -0.33)

- a. $\frac{3}{4}$
 - b. $\frac{7}{4}$
 - c. $\frac{2}{7}$
 - d. $\frac{3}{7}$
-

54. The power plant at Manikaran, based on geothermal energy, is in (+1, -0.33)
-----.

- a. Punjab
 - b. Assam
 - c. Himachal Pradesh
 - d. Uttar Pradesh
-

55. Who won the Golden Ball Award at the 2018 FIFA World Cup? (+1, -0.33)

- a. Brad Jones
- b. Luka Modric

c. Pedro Geromel

d. Franco Armani

56. With reference to international money transactions, what is the full form of IMF? **(+1, -0.33)**

a. Indian Monetary Form

b. International Money Form

c. International Monetary Fund

d. International Monitoring Fund

57. Read the given statement followed by the 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: "I will catch the flight to reach on time," says Ram to Shyam.

Assumptions:

I. Travelling by plane is the fastest way to reach a destination.

II. Train and bus are other modes of transport.

a. Only assumption II is implicit

b. Neither assumption I nor II is implicit

c. Both assumption I and II are implicit

d. Only assumption I is implicit

58. 18 years ago, Cyrus was 2.5 times as old as Nikhil. The sum of their present ages is 92 years. How old is Nikhil now? (+1, -0.33)

- a. 31 years
- b. 33 years
- c. 34 years
- d. 32 years

59. What is the measure of the smaller of the two angles formed between the hour hand and the minute hand of a clock when it is 6:45 pm (+1, -0.33)

- a. 62°
- b. 83°
- c. 84°
- d. 67.5°

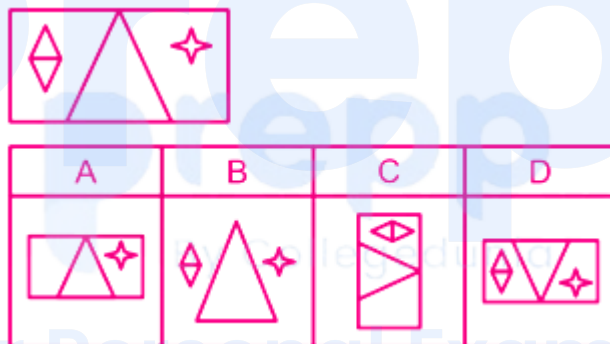
60. Vikram Singh, the 1997 batch officer of the Indian Railway Traffic Service (IRTS), is/was appointed as Private Secretary to which of the following Presidents? (+1, -0.33)

- a. Mrs. Pratibha Patil
- b. Dr. APJ Abdul Kalam
- c. Mr. Pranab Mukherjee
- d. Mr. Ram Nath Kovind

61. On which dates India organized the Cultural Festival in Egypt to mark the 156th birth anniversary of Rabindranath Tagore? (+1, -0.33)

- a. May 8th - 12th, 2017
- b. June 8th - 12th, 2017
- c. June 6th - 10th, 2017
- d. May 6th - 10th, 2017

62. Which of the options bears the closest resemblance to the following figure? (+1, -0.33)



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

63. From the below-given elements which one _____ is smallest in size. (+1, -0.33)

- a. All of these options

b. Mg^{2+}

c. Al^{3+}

d. Na^{+}

64. _____ a 106-year-old woman from Chhattisgarh was chosen as the mascot for the 'Swachh Bharat Abhiyan'. She died on 23rd February 2018. She had shot to fame in 2016 when the story of her selling goats to build a toilet at home got nationwide publicity. (+1, -0.33)

a. Kunwar Bai Patel

b. Kunwar Bai Yadav

c. Kunwar Bai Mishra

d. Kunwar Bai Gupta

65. 4 skilled workers can dig a pond in 8 days, whereas it takes 8 unskilled workers 12 days to dig it. How many days will it take 3 skilled and 15 unskilled workers to dig such a pond? (+1, -0.33)

a. 4

b. 3

c. 2

d. 5

66. The speed of a boat in still water is 20 km/hr. If the boat goes upstream for a distance of 20 km in 4 hours, find the speed of the stream. (+1, -0.33)

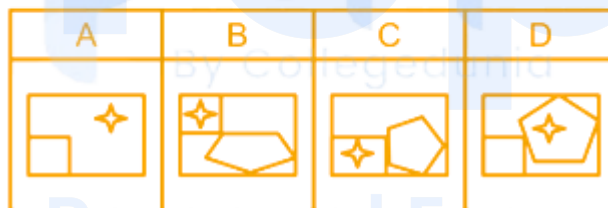
- a. 20 km/hr
- b. 15 km/hr
- c. 30 km/hr
- d. 25 km/hr

67. Which of the option figures bears the closest resemblance to the question figure? (+1, -0.33)

Question figure:



Options Figures:



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

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

9D, 8E, 7F, 6G, 5H, ?

- a. 12C
- b. 4I
- c. 10V
- d. 6J

69. Which hormone is released from the testes? (+1, -0.33)

- a. Thyroxin
- b. Adrenaline
- c. Insulin
- d. Testosterone

70. Arrange the following compounds in the increasing order of their carbon bond length: (+1, -0.33)

Ethene, Ethyne, Ethane.

- a. Ethene, Ethyne, Ethane
- b. Ethyne, Ethene, Ethane
- c. Ethane, Ethene, Ethyne
- d. Ethane, Ethyne, Ethene

71. The union government has constituted a ministerial panel headed by _____ to oversee the merger proposals of state-owned banks. (+1, -0.33)

- a. Manmohan Singh
 - b. P. Chidambaram
 - c. Arun Jaitley
 - d. Pranab Mukherjee
-

72. Which of the following laws states the relationship between the current flowing through a metallic wire and the potential difference across its terminals? (+1, -0.33)

- a. Law of charges
 - b. Radiation law
 - c. Ohm's law
 - d. Joule's law
-

73. Who among the following has compiled the ancient treatise 'Natyashastra' of India? (+1, -0.33)

- a. Agasthya
 - b. Manu
 - c. Bharatamuni
 - d. Vedavya
-

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

Find the average size of the balls.

Statements:

1. There are 6 balls with radii 3 cm, 4 cm, 7 cm, 5 cm, 4 cm and 6 cm.
2. The balls are red in colour.

- a. Only statement 2 is sufficient
- b. Both statements 1 and 2 are sufficient
- c. Only statement 1 is sufficient
- d. Either statement 1 or 2 is sufficient

75. How many water molecules are present in one molecule of washing soda? (+1, -0.33)

- a. 8
- b. 7
- c. 9
- d. 10

76. In $\triangle ABC$, D and E are points on AB and AC respectively such that DE is parallel to BC. If AD = 1 cm, DB = 3 cm, then $\text{ar}(\triangle ADE) : \text{ar}(\triangle ABC)$ is: (+1, -0.33)

- a. 1 : 16
- b. 1 : 3
- c. 1 : 9
- d. 1 : 4

77. Sita celebrated her Birthday on one of the Wednesday in the month of December 2017, On which date can it be. (+1, -0.33)

- a. 16
- b. 22
- c. 13
- d. 9

78. Which assumptions are implied from the below statement? (+1, -0.33)

Statement:

"In peak hours it is better to travel by two-wheeler" Y said to Z

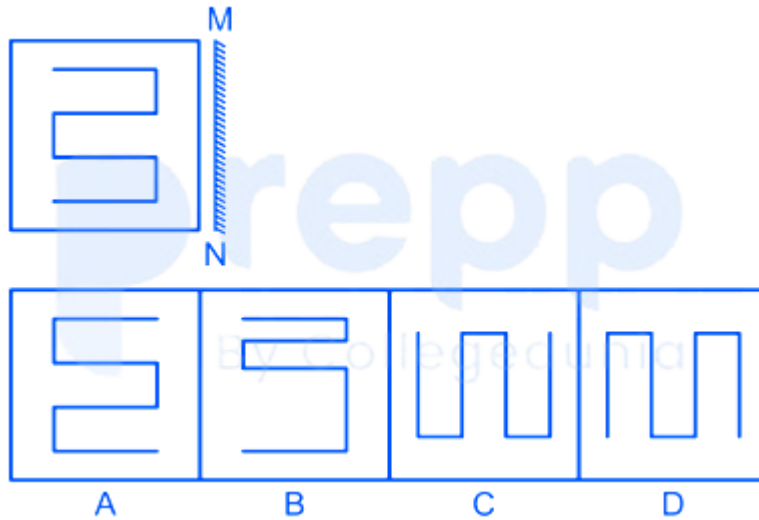
Assumptions:

I. Two-wheeler is easier to navigate in the traffic.

II. There is separate lane for two wheelers.

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

79. Choose the mirror image for the following figure. (+1, -0.33)



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

80. The rate of change of displacement is called _____. (+1, -0.33)

- a. distance
- b. Velocity
- c. Acceleration
- d. Force

81. Which of the numbers is NOT composite? (+1, -0.33)

- a. 943
- b. 323

c. 713

d. 409

82. How many molecules of water are present in one molecule of copper sulphate? **(+1, -0.33)**

a. 4

b. 3

c. 6

d. 5

83. Sunder walks for 4km towards the East. He then turns right and walks for 3km. Again turns right and continues walking. In which direction is he walking now? **(+1, -0.33)**

a. East

b. North

c. West

d. South

84. A boy of mass 50 kg runs up a staircase of 45 steps in 9s, the height of each step is 15 cm, find his power. (Take $g = 10 \text{ m/s}^2$): **(+1, -0.33)**

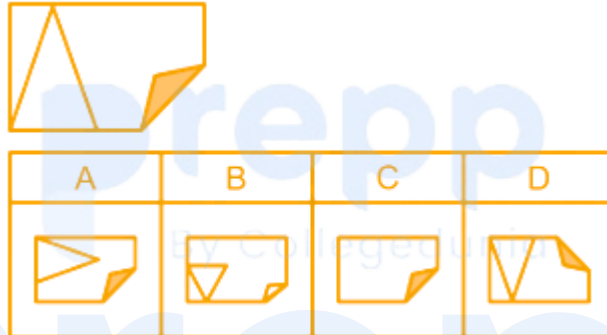
a. 375 W

b. 325 W

c. 275 W

d. 475 W

85. Which of the options bears the closest resemblance to the following figure? (+1, -0.33)



a. D

b. A

c. C

d. B

86. If the equations $14x + 8y + 5 = 0$ and $21x - ky - 7 = 0$ have no solution, then the value of k is: (+1, -0.33)

a. 12

b. -12

c. 8

d. -16

87. Chatrapati Shivaji was born in which of these forts? (+1, -0.33)

- a. Panhala
- b. Shivneri
- c. Pratapgad
- d. Raigad

88. How many possible two-digit numbers can be formed by using the digits 3, 5 and 7 (repetition of digits is allowed)? (+1, -0.33)

- a. 10
- b. 9
- c. 7
- d. 8

89. If a bulb of 50 W consumes the energy of 1000 J, then in how much time the bulb will glow? (+1, -0.33)

- a. 20 s
- b. 1 s
- c. 100 s
- d. 10 s

90. What should come in place of '?' in the following question? (+1, -0.33)

$$\left[\left\{ 2\frac{1}{3} - (5 + (2 - 3)) \right\} + 3\frac{1}{2} \right] = ?$$

- a. $11/2$
- b. 2
- c. $11/6$
- d. $13/6$

91. Find HCF of 16, 48 and 104.

(+1, -0.33)

- a. 12
- b. 16
- c. 4
- d. 8

92. The ratio of the number of blue and red balls in a bag is constant. When there were 68 red balls, the number of blue balls was 36. If the number of blue balls was 63, how many red balls should be there in the bag?

(+1, -0.33)

- a. 98
- b. 119
- c. 102
- d. 110

93. If '+' becomes '-' and 'x' becomes '÷' then what will be the value of $((175 + 160) \times 50) \times 10$?

(+1, -0.33)

- a. 0.03
- b. 0.3
- c. 0
- d. -0.3

94. A ball thrown up vertically returns to the ground after 12.5 seconds. Find the velocity with which it was thrown up. (+1, -0.33)

- a. 61 m/s
- b. 51 m/s
- c. 65 m/s
- d. 40 m/s

95. Find the point at which the line segment joined by the points $(-1, 0)$ and $(2, 6)$ is divided internally in the ratio $2 : 1$. (+1, -0.33)

- a. $(0, 5)$
- b. $(1, 4)$
- c. $(1, 3)$
- d. $(0, 4)$

96. Read the given statement and Identify which of the conclusion logically follow/s from the statement. (+1, -0.33)

Statement: 100 people work at Ravi's own company.

Conclusions:

I. Ravi is an entrepreneur.

II. Ravi is a good man.

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

97. Find the next letter in the given series:

(+1, -0.33)

Z, X, V, T, R, P, ?

- a. E
 - b. N
 - c. L
 - d. C
-

98. The First War of Indian Independence was fought in the year _____. (+1, -0.33)

- a. 1787
 - b. 1587
 - c. 1857
 - d. 1875
-

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

Camera, Table, Furniture



100. A shirt was marked at Rs. 1600. During a Diwali festival offer, 10% discount was allowed on it. What will be the selling price of the shirt? (+1, -0.33)

a. Rs. 1540

b. Rs. 1400

c. Rs. 1440

d. Rs. 1240

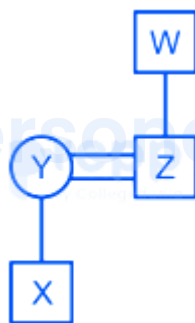
Answers

1. Answer: d

Explanation:

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

From the given information we can draw a following family tree,



Clearly, Y will be the daughter-in-law of W.

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

2. Answer: d

Explanation:

- **Platinum (Pt)** does not belong in the given group.
- Except for Platinum, all the above elements Krypton (Kr), Argon (Ar), Neon (Ne) are inert/noble gases and they belong to Group 18 in Periodic Table.
- Platinum is a group 10 element and belongs in transition metals.

Table: Modern Periodic table

Legend:

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

The zig zag line separates the metals from the non metals

GROUP NUMBER

PERIODS

Transition Metals

GROUP NUMBER

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

3. Answer: d

Explanation:

★ Important Points

- The sheet is *transparent*.
- Therefore, the *left side of the rectangle will be visible after folding*.

The pattern that will appear after folding is as follows,



Hence, "option figure C" is the correct answer.

4. Answer: c

Explanation:

⇒ Based on given data, the sales of store B and C was more than 13 lakhs in Year 1.

5. Answer: b

Explanation:

Concept:

Collisions are generally classified into two types elastic and inelastic collisions

Based on this law of conservation this classification is made, and the laws of collision states

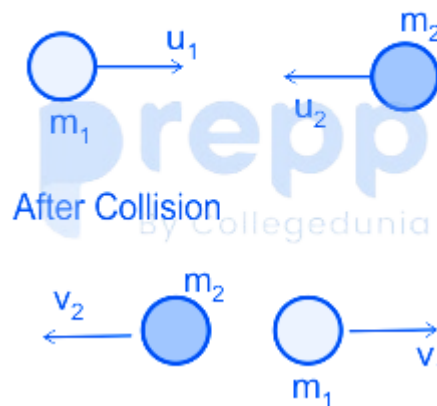
- Momentum is conserved in all collisions.
- In an elastic collision, kinetic energy is also conserved.
- In an inelastic collision, kinetic energy is not conserved. In a perfectly inelastic collision, objects stick together after the collision.

Perfectly elastic collision

If the law of conservation of momentum and that of kinetic energy hold good during the collision.

i.e., initial momentum = final momentum

Before Collision



Inelastic collision

If the law of conservation of momentum holds good during a collision while that of kinetic energy is not.

But inelastic Collision obeys the law of conservation of linear momentum

Coefficient of restitution (e)

$$e = \frac{\text{Relative velocity after collision}}{\text{Relative velocity before collision}} = \frac{v_2 - v_1}{u_1 - u_2}$$

- For perfectly elastic collision, $e = 1$
- For inelastic collision, $e < 1$
- For a perfectly inelastic collision, $e = 0$

Calculation:

Given that,

mass of body A, $m_A = 2 \text{ kg}$

Speed of block A, $u_A = 4 \text{ m/s}$

mass of body B, $m_B = 3 \text{ kg}$

Speed of block B, $u_B = -2 \text{ m/s}$

Now according to the law of conservation of momentum

$$m_A u_A + m_B u_B = m_A v_A + m_B v_B$$

$$2 \times 4 - 3 \times 2 = 2 \times v_A + 3 \times v_B$$

$$2 \times v_A + 3 \times v_B = 2 \quad \text{----- (1)}$$

Now coefficient of restitution for an inelastic collision is always one and can be expressed as

$$e = 1 = \frac{v_B - v_A}{u_A - u_B} = \frac{v_B - v_A}{4 + 2} \Rightarrow v_B - v_A = 6 \quad \text{----- (2)}$$

Thus by comparing both the quadratic equation we get values of both velocity of body A and B as

$$v_B = \frac{14}{5} m/s$$

And now by substituting this value in eq (2) we get, $v_A = -\frac{16}{5} m/s$

Hence from this, we can see that body A will be moving in the opposite direction compared to B

Thus in this case body, A and body B will **move in opposite directions** in an elastic collision

6. Answer: c

Explanation:

- Prime Minister Narendra Modi and his Israeli counterpart Benjamin Netanyahu inaugurated the iCreate centre in January 2018 in **Ahmedabad**.
- The International Centre for Entrepreneurship and Technology (iCreate) is a public-private partnership venture of the Gujrat government to promote entrepreneurship by giving them funding, mentors and office space facilities.

7. Answer: c

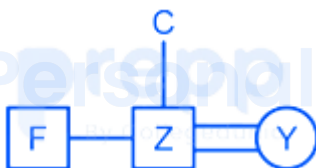
Explanation:

- Ammonium (NH_4^+) is a **cation**.
- A cation is a positively charged ion (lose electrons) and It is formed near the cathode during the electrolysis.
- Ammonia (NH_3) is base i.e. when it is mixed with acid it can gain one H^+ ion, leading to Ammonium (NH_4^+)
- An atom or molecule gain or lose electrons to attain stable configuration thereby forming both anions and cations.
- Anions are negatively charged ions (Gains an electron) and they formed near anode during electrolysis.
- Nitrate (NO_3^-), Hydroxide (OH^-), Carbonate (CO_3^{2-}) are anions.

8. Answer: d

Explanation:

From the given information we can draw following family tree,



Clearly, Y will be the sister-in-law of F.

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

9. Answer: b

Explanation:

- The host of the 2018 edition of the Women's World T20 was **West Indies**.
- The winner of the 2018 edition of Women's World Cup was Australia.

- The runner ups are team England.
 - The host of the next Women's World T20 in the year 2021 in New Zealand.
-

10. Answer: d

Explanation:

Chambal

★ Key Points

- The Rana Pratap Sagar Dam is built on the river **Chambal**.
- It is in the state of Rajasthan and it was opened in the year 1970.
- It is capable of generating 172 MW of power

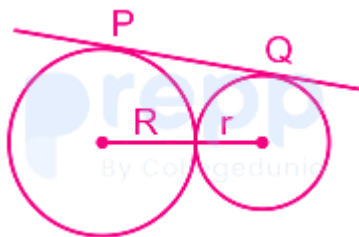
★ Additional Information

Your Personal Exams Guide

List Of Major Dams in India	State	River
Bhavani Sagar dam	Tamil Nadu	Bhavani
Tungabhadra Dam	Karnataka	Tungabhadra
Rihand Dam	Uttar Pradesh	Rihand
Maithon Dam	Jharkhand	Barakar
Koyna Dam	Maharashtra	Koyna
Bisalpur Dam	Rajasthan	Banas
Mettur Dam	Tamil Nadu	Kaveri
Krishnarajasagar Dam	Karnataka	Kaveri
Indira Sagar Dam	Madhya Pradesh	Narmada
Cheruthoni Dam	Kerala	Cheruthoni
Sardar Sarovar Dam	Gujarat	Narmada
Nagarjuna Sagar Dam	Telangana	Krishna
Hirakud dam	Odisha	Mahanadi
Bhakra Nangal Dam	Punjab-Himachal Pradesh Border	Sutlej
Tehri Dam	Uttarakhand	Bhagirathi

11. Answer: b

Explanation:



We know,

$$\text{Length of direct common tangent} = \sqrt{d^2 - (R - r)^2}$$

where d is the distance between the centers and R and r are the radii of the circles.

$$PQ = \sqrt{(R + r)^2 - (R - r)^2}$$

$$\Rightarrow PQ = \sqrt{R^2 + r^2 + 2Rr - (R^2 + r^2 - 2Rr)}$$

$$\Rightarrow PQ = \sqrt{4Rr}$$

$$\Rightarrow PQ^2 = 4Rr$$

12. Answer: c

Explanation:

Total number of tyres produced in 2017 by various companies = 180,000

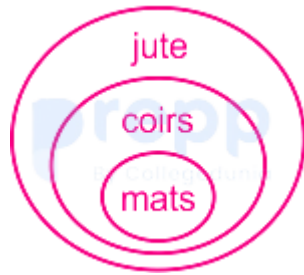
Tyres produced by company E is 25% of 180000 = $(25/100) \times 180,000 = 45,000$

$\therefore$ The number of tyres produced by company E in 2017 is 45,000

13. Answer: c

Explanation:

The least possible Venn diagram of the given statements,



Conclusions:

I. All Jute are coirs → False (it is possible but not definite)

II. All mats are Jute → True.

Hence, "Only conclusion 2 follows".

14. Answer: a

Explanation:

The correct answer is Papaya.

- Papaya flowers are Unisexual Flowers.

★ **Key Points**

- Flowers that contain either only pistil (Female reproductive organs) or stamen (male reproductive organ) are called Unisexual flowers.
- Corn, papaya, Cucumber are some common examples.
- A flower which contains both pistils (Female reproductive organs) and stamen (male reproductive organs) are called bisexual flowers.
- Sunflower, Mustard, Hibiscus are some common examples.

15. Answer: c

Explanation:

⇒ Cost price of an item = Rs. 1975

⇒ Profit = 12%

⇒ Selling price = $[\text{Cost price} \times (1 + \text{profit}\%)]/100$

⇒ Selling price = $1975 \times (112/100) = 2212$

∴ Selling price of an item is Rs. 2,212.



Let the cost price be Rs. 100

A person sold it to 12% profit,

⇒ 12% of CP + CP

⇒ $12 + 100 = 112$

According to the question,

⇒ $112 = 1975$

⇒ $1 = 1975/112$

Now cost price,

⇒ $100 \times 1975/112$

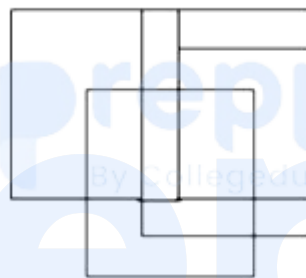
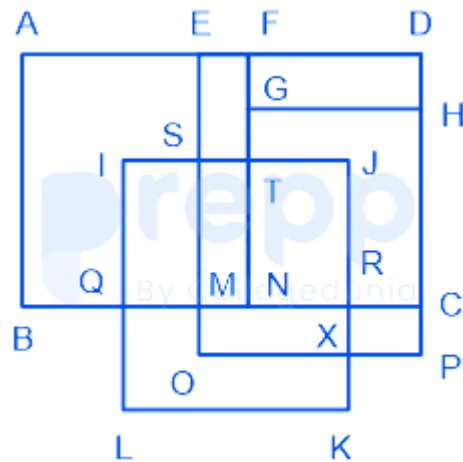
⇒ 2,212

∴ Selling price of an item is Rs. 2,212.

16. Answer: d

Explanation:

We can count the rectangles as follows,



AEMB, EMNF, FDCN, FDHG, GHEN, IJKL, IJRQ, EFST, STNM, MCPO, RCPX, MRXO, QRKL, SJXO, TJRN, SJRM, AFNB, EDCM, EDPO, ISMQ.

Hence, there are "20" rectangles.

★ Confusion Points

All squares are considered to be rectangles but all rectangles are not necessarily squares.

17. Answer: a

Explanation:

- Vibrations inside the ear are amplified by the three bones, namely **the hammer, anvil and stirrup** in the middle ear.
- Ear in the human body performs two functions, namely: Hearing and maintaining the balance of the body.

- An Ear consists of three major sections namely: Outer Ear, middle ear and Inner Ear.

Part of Ear	Parts	Function
Outer Ear	Pinna	It directs the sound wave to travel through the ear canal to reach the eardrum.
middle ear	hammer, anvil and stirrup	These three bones are utilised to amplify the sound waves in the middle ear.
Inner Ear	Cochlea	It transforms the waves into an electrical signal and sends it to the brain.

18. Answer: c

Explanation:

Statement 1:

⇒ Current age of Nina = 10

Statement 2:

⇒ Nina's sister age = $\frac{1}{5}$ of Nina's age = 2 years

⇒ So, Nina's age after 10 years will be 20 and Nina's sister's age will be 12 years

∴ Statements 1 and 2 together are necessary

19. Answer: c

Explanation:

As we know that trinket is a small ornament or item of jewellery that is of little value. Thus, it can't be made of silver because of little value. Silver will make the ornament of higher value. Whereas vessels can be made from silver. Thus, the venn diagram that represents the given information is as follows,



Hence, "option figure C" is the correct answer.

20. Answer: c

Explanation:

Formula used:

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

Calculation:

$$\Rightarrow x^{2/3} + x^{1/3} = 2$$

$$\Rightarrow (x^{2/3} + x^{1/3})^3 = 2^3$$

$$\Rightarrow x^2 + x + 3x(x^{2/3} + x^{1/3}) = 8$$

$$\Rightarrow x^2 + 7x - 8 = 0$$

$$\Rightarrow x^2 + 8x - x - 8 = 0$$

$$\Rightarrow x(x + 8) - 1(x + 8) = 0$$

$$\Rightarrow x = -8 \text{ or } x = 1$$

$$\therefore \text{Sum of values of } x = -8 + 1 = -7.$$

21. Answer: a

Explanation:

$$0^{\circ}\text{Celsius (C)} = \underline{32 \text{ Fahrenheit (F)}}.$$

CONCEPT:

- Temperature: It is the measure of the degree of hotness and coldness of a body.
 - The SI unit of temperature is Kelvin (K).
- The various temperature scales commonly used are Celsius (C), Kelvin (K), Fahrenheit (F), and Rankine (Ra).
- Celsius: It has 100 degrees between the freezing and boiling points of water.
 - Here 0° represents the freezing point and 100° represents the boiling point. In many countries, celsius is used to communicate day to day temperatures.
- Fahrenheit: The Fahrenheit scale was proposed by physicist Daniel Gabriel Fahrenheit in 1724.
 - This scale is primarily used in the United States and some Caribbean countries to communicate day to day temperatures.

The temperature T in degrees Fahrenheit ($^{\circ}\text{F}$) is equal to the temperature T in degrees Celsius ($^{\circ}\text{C}$) times $9/5$ plus 32:

$$^{\circ}\text{F} = \frac{9}{5}^{\circ}\text{C} + 32$$

CALCULATION:

Given that,

Temperature in degree celsius, $C = 0^{\circ}\text{C}$

We know the formula for conversion $(C \times 9/5) = F$.

$$F = \frac{9}{5} \times 0 + 32 = 32^{\circ} F$$

22. Answer: b

Explanation:

⇒ Work completed by P and Q in 1 day = $1/6$

⇒ Work completed by Q alone in 1 day = $1/10$

⇒ Work completed by P alone in 1 day = $1/6 - 1/10 = 1/15$

Therefore, P alone completes the task in 15 days.

23. Answer: c

Explanation:

- **Anupam Kher** was the Bollywood actor that received Kala Ratan Award in March 2017.
 - He resigned as the chairman of the film and television institute of India (FTII) in 2018.
 - Anupam Kher was awarded the Padma Shri award in 2004 and the Padma Bhushan award in 2016
-

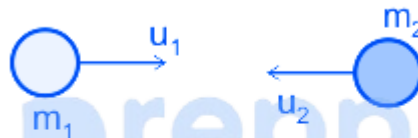
24. Answer: b

Explanation:

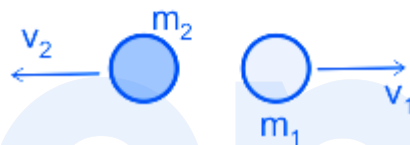
CONCEPT:

- The type of collision in which the total kinetic energy of the system remains constant before and after the collision is called elastic collision or perfectly elastic collision.
- As there is no net external force on the system, so momentum before the collision and after the collision will remain same.

Before Collision



After Collision



Linear Momentum before collision (P1) = Linear Momentum after the collision (P2)

$$P1 = m1u1 + m2u2$$

$$P2 = m1v1 + m2v2$$

$$m1u1 + m2u2 = m1v1 + m2v2$$

- The kinetic energy of the system before the collision is equal to kinetic energy of the system after the collision.

KE1 = Kinetic energy before the collision and KE2 = Kinetic energy after the collision

$$KE_1 = \frac{1}{2}m_1u_1^2 + \frac{1}{2}m_2u_2^2 = KE_2 = \frac{1}{2}m_1v_1^2 + \frac{1}{2}m_2v_2^2$$

EXPLANATION:

Given that,

Mass of the truck (m_1) = 2000 kg

Velocity of the truck (v_1) = 10 m/s

Mass of the car = m_2

Velocity of car before collision $v_2 = 0 \text{ m/s}$

The final velocity of car and truck after collision (v_f) = 8 m/s .

If the total kinetic energy and momentum in the system remain constant in a collision, then such collision is called Elastic collision.

By conservation of momentum i.e. final momentum is equal to initial momentum.

Initial momentum will be $p_1 = m_1 v_1 + m_2 v_2$

$$\Rightarrow (2000 \times 10) + (m_2 \times 0)$$

$$\Rightarrow 20000$$

As initial momentum is equal to final momentum

We get $p_1 = p_2$

Where $p_2 = (m_1 + m_2) \times v_f$

$$\Rightarrow 20000 = (2000 + m_2) \times 8$$

$$\Rightarrow 2500 = 2000 + m_2$$

$$\Rightarrow m_2 = 500$$

The mass of the car is **500 kg**

25. Answer: b

Explanation:

- **Pankaj Jain** took charge as the Managing Director of India Infrastructure Finance Company Ltd in January 2018.

- He will be holding additional charge of IIFCL along with his present position as Joint Secretary at DFS
 - He belongs to 1990 batch IAS officer of Assam–Meghalaya Cadre.
-

26. Answer: b

Explanation:

The pattern followed here is 1st figure consist of 2 squares on shifting to 2nd figure 1 square becomes concentric with other square, similarly 3rd figure consisting 2 circles thus on shifting to 4th figure "one circle will become concentric with another circle". Only in option figure A the pattern is following.

Hence, "option figure A" is the correct answer.

27. Answer: d

Explanation:

- **Fibrous roots** are **not** the characteristic feature of dicotyledonous plants.
- Dicotyledonous plants are also called knowns are dicot and they are angiosperms (Flowering plants)
- Its roots develop from the radicle and the seed has two cotyledons or embryonic leaves.
- Their leaves have reticulate venation and have a pentamerous and tetramerous flower.

Examples: mustard, bitter gourd, watermelon, brinjal, apple, mango, tamarind etc.

★ **Important Points**

- Basic differences between monocot and dicot plants are:

Monocots	Dicots
Have single cotyledon	Have two cotyledons
Have fibrous root system	Have tap root system
Leaves have parallel venation	Leaves have reticulate venation
Eg. wheat, corn, bamboo, and banana	Eg. apples and pear, Congress grass (parthenium)

★ Additional Information

- Leaf venation is the design made by veins in a leaf
- If the designs made by the veins of a leaf are parallel to each other, then that is known as parallel venation. For example, maize, grass, wheat, etc.
- Reticulate Venation is the kind of venation design that is net-like on both sides of the mid-rib. For example, rose, coriander, oak, etc.



Parallel venation



Reticulate venation

28. Answer: d

Explanation:

- Arvind Kejriwal was the chief minister of Delhi as of August 2018.
- He belongs to the Aam Aadmi Party and he is also the president of the party.
- His party election Symbol is **Broom**.

29. Answer: c

Explanation:

Given:

Principle is Rs. 5,000

Rate of interest is 4% for the first year,

Rate of interest is 3% for the second year,

Rate of interest is 2% for the third year.

Concept Used:

$$SI = (P \times N \times R)/100,$$

Where,

P is principle,

SI is simple interest,

N is total number of years,

R is rate

Calculation:

$$\text{Amount} = \text{Principal} \times (1 + r_1/100) \times (1 + r_2/100) \times (1 + r_3/100)$$

$$\Rightarrow \text{Amount} = 5000 \times (1 + 4/100) \times (1 + 3/100) \times (1 + 2/100) = 5463.12$$

$\therefore$ Jatin will get Rs. 5463.12 after 3 years.

30. Answer: b

Explanation:

CONCEPT:

- Electric power (P) is the rate at which work is done by the e.m.f. a source in maintaining current in the circuit.

$$P = VI = \frac{V^2}{R} = I^2 R$$

- Electric Energy is the total work done by an e.m.f. a source in maintaining current in the circuit for a given time.
- Its SI unit is the joule (J) or (kWh).
- That is given by, Electrical energy consumed = Electrical power $\times$ time

CALCULATION:

Given that,

Rated power of electric washing machine $P_1 = 750 \text{ W}$

Amount of time spent = 4 hr

Energy consumed (E_1) = power $\times$ time $\Rightarrow 750 \times 4$

= 3 kWh.

We know that 1 kWh = 1 unit

Hence, energy consumed by the machine in one day is **3 units**.

31. Answer: b

Explanation:

Here, except figure 'C' in all the other figures quarter portion i.e., $1/4^{\text{th}}$ is shaded. whereas in figure 'C' $3/4^{\text{th}}$ portion is shaded.

Hence, "figure C" is the odd one out.

32. Answer: b

Explanation:

The pattern followed here is 1st is the 5th multiple of second term i.e., $7 \times 5 = 35$. Thus, 125 is the 5th multiple of 25 i.e., $25 \times 5 = 125$.

Hence, "25" is the correct answer.

33. Answer: d**Explanation:**

⇒ Amount of cistern filled by Pipe A in 1 hour = $1/14$

⇒ Amount of cistern filled by Pipe A and Pipe B together in 1 hour = $1/12$

⇒ Amount of cistern filled by Pipe B in 1 hour = $1/12 - 1/14 = 1/84$

Therefore, Pipe B can fill the empty cistern alone in 84 hours.

34. Answer: c**Explanation:**

⇒ Tank filled by Pipe P in 1 minute = $1/32$

⇒ Tank filled by Pipe Q in 1 minute = $1/36$

⇒ Tank emptied by Pipe R in 1 minute = $1/20$

⇒ Tank filled in 1 minutes when all the three pipes are opened = $1/32 + 1/36 - 1/20$

⇒ $13/1440$

∴ Half tank will be filled in $720/13$ minutes or $55\frac{5}{13}$ minutes

35. Answer: b

Explanation:

From the statement, Milan is asking for his teammate's bike. So, we can assume that "Milan's teammate has a bike".

We can also assume that "Milan needs a bike in the evening" as it is clearly mentioned in the given statement. Hence, both the assumptions I and II are implicit.

36. Answer: a

Explanation:

- Sodium metal is stored in Kerosene.
- Metals such as sodium, Potassium are highly reactive and they catch fire if they kept in open, hence these metals are immersed in kerosene to prevent their oxidation.
- Reactive elements displace the less reactive elements in a chemical reaction.
- The reactive element loose electrons readily to attain stable electronic configuration and thus reduce another element and oxidize themselves.
- Reactive metals are found on top of the reactivity series.
- The order of reactivity of metals is given below.

Element	Reactivity	Atomic Number
Potassium (K)	Most Reactive	19
Sodium (Na)		11
Calcium (Ca)		20
Magnesium (Mg)		12
Aluminium (Al)		13
Zinc (Zn)		30
Iron (Fe)		26
Lead (Pb)		82
Hydrogen (H)		1
Copper (Cu)		29
Mercury (Hg)		80

Silver (Ag)		47
Gold (Au)	Least Reactive	79

37. Answer: a

Explanation:

The correct answer is Option 1, i.e Pituitary.

- The **Pituitary gland**, also known as 'master gland', is an endocrine gland.
- A gland is called **endocrine gland** when it secretes hormones directly into the bloodstream.
- The pituitary gland is called master gland as **most of its hormones control the activity of other endocrine glands**.
- It produces growth hormones, prolactin, TSH (Thyroid-stimulating hormone), etc.

Glands	Hormones
Adrenal	Adrenaline, noradrenaline, Cortisol
Pancreas	Glucagon, insulin
Hypothalamus	Gonadotrophin

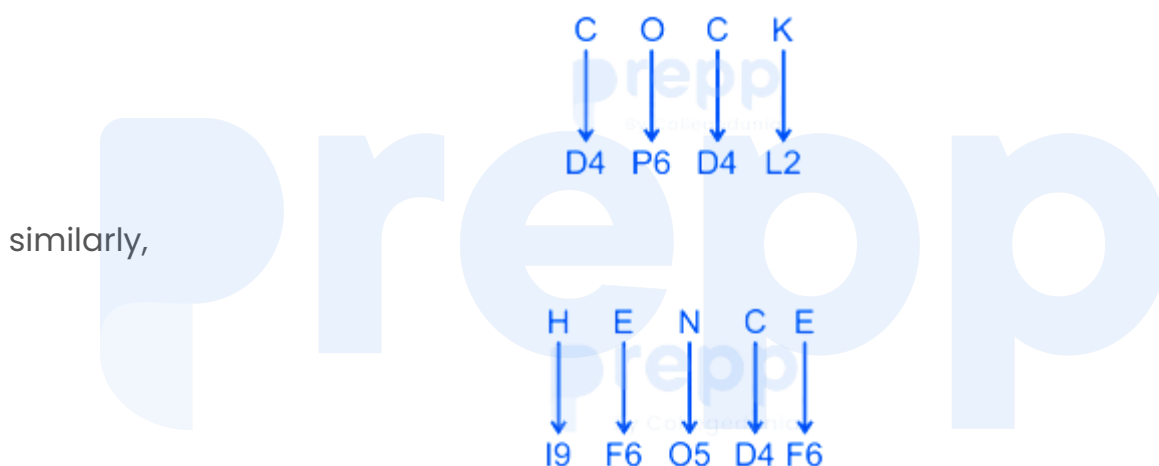
38. Answer: b

Explanation:

The pattern followed here is

- 1) The first letter of the code is the letter next to the first letter of the word as per the English alphabetical order. eg. C $\Rightarrow$ D
- 2) The number following the first letter is the unit digit number of the positional of letter preceding it. eg. D $\Rightarrow$ 04 $\Rightarrow$ 4

And this process is repeated till the last letter of the given word as shown in the figure,



Hence, "I9F6O5D4F6" is the correct answer.

39. Answer: c

Explanation:

- The hierarchy of animal classification is Phylum, Class, Order, Family, Genus, Species.
- Carolus Linnaeus gave the scientific system for naming the species and hence has called as the Father of Taxonomy.
- This basis of this classification is to sperate the organisms based on their characteristics to separate the larger groups to smaller units i.e. species.

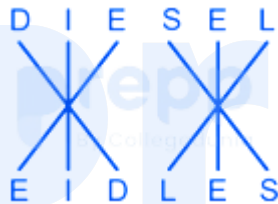
40. Answer: b

Explanation:

The pattern followed here is as follows,



similarly,



Hence, "EIDLES" is the correct answer.

41. Answer: d

Explanation:

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

Using BODMAS rule:

$$\Rightarrow 63 - (-3)(-2 - 8 - 4) \div [3 \{5 + (-2)(-1)\}]$$

$$\Rightarrow 63 - (-3)(-2 - 8 - 4) \div [3 \{5 + 2\}]$$

$$\Rightarrow 63 - (42) \div 21$$

$$\Rightarrow 61$$

42. Answer: c

Explanation:

Here, all are naturally obtained products except "sugar" which is a processed product.

Hence, "sugar" is the correct answer.

43. Answer: a

Explanation:

CONCEPT:

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

There are three equations of motion:

$$V = u + at$$

$$V^2 = u^2 + 2 a S$$

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

EXPLANATION:

From the above explanation, we can see that,

- The second equation of motion gives the position-time relation,
 - i.e. $s = ut + (1/2) at^2$.
 - Here, v is the final velocity, u is the initial velocity, a is the acceleration and t is the time.
- The first equation of motion gives the relation between "velocity and time"
 - i.e. $v = u + at$.
- The position-velocity relation gives the third equation of motion,
 - i.e. $2as = v^2 - u^2$.

44. Answer: c

Explanation:

- SAMPADA Scheme was launched by the union government for the Food processing industry.
- SAMPADA (Scheme for Agro-Marine Processing and Development of Agro Processing Industry) was launched in the year 2017.
- Its objectives are to supplement agriculture, modernize processing and decrease agri-waste.

45. Answer: a

Explanation:

- Bromine is the non-metal which is liquid at room temperature.

- It has an atomic number of 35 and its symbol is Br.
- Mercury (Hg) is the only metal in the form of liquid at room temperature.
- Sulphur (S) is a non-metal and Calcium (Ca) is metal and they are in the solid-state at room temperature.

46. Answer: d

Explanation:

$$\Rightarrow \tan \theta = 4/3$$

$$\Rightarrow \text{or } \sin \theta / \cos \theta = 4/3$$

$$\Rightarrow 3 \sin \theta = 4 \cos \theta$$

$$\Rightarrow 9 \sin^2 \theta = 16 \cos^2 \theta$$

$$\Rightarrow 9(1 - \cos^2 \theta) = 16 \cos^2 \theta$$

$$\Rightarrow 25 \cos^2 \theta = 9$$

$$\Rightarrow \cos \theta = 3/5$$

$$\Rightarrow \sin \theta = 4/5$$

$$\Rightarrow \sin \theta + \cos \theta = 4/5 + 3/5 = 7/5$$

★ Alternate Method

$$\tan \theta = \text{Perpendicular/Base}$$

$$\cos \theta = \text{Base/ Hypotenuse}$$

$$\sin \theta = \text{Perpendicular/Hypotenuse}$$

$$\text{Pythagorean triplet used} = 3,4,5$$

$$\sin \theta + \cos \theta = 4/5 + 3/5 = 7/5$$

47. Answer: a

Explanation:

- Sunil Bharti Mittal is an Indian billionaire entrepreneur, philanthropist and the Founder and Chairman of **Bharti Enterprises**.
 - He is most famous for his ownership of telecommunication company 'Airtel'.
 - Arcelor Mittal is chaired by Lakshmi Mittal, HCL Technologies is chaired by Shiv Nadar and Wipro Limited is founded by Azim Premji.
-

48. Answer: c

Explanation:

- Indian Railways earn the maximum revenue from **freight**.
 - Indian Railways is one of the largest employers on earth.
 - Indian Railways android app IRCTC won National Award for E-Governance for the year 2018 in special jury award.
 - Indian railways have four UNESCO world heritage sites and they are Darjeeling Himalayan Railway enlisted in the year 1999, Mumbai CSMT Building enlisted in the year 2004, Nigiri Mountain Railways enlisted in the year 2005 and Kalka-Shimla Railways enlisted in the year 2008.
-

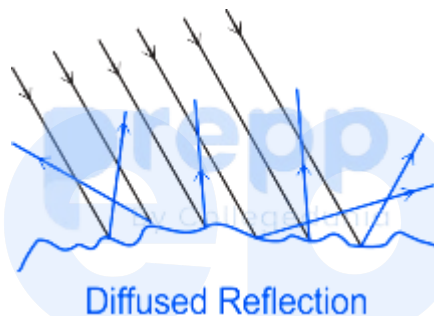
49. Answer: a

Explanation:

CONCEPT:

- Laws of reflection: The angle of reflection equals the angle of incidence.
- The incident ray, the reflected ray and the normal lie in the same plane.

- When light rays strike on a smooth plane surface then the reflection is called regular reflection.
- When light reflects at many angles after the incidence on the surface, such a reflection is called as diffuse reflection.
- Light rays are not parallel to each other after irregular reflection, but they obey laws of reflection at each point of reflection.



EXPLANATION:

- When light is incident on a polished surface, regular reflection takes place.
- Reflection is a phenomenon in which the direction of the incident ray changes when it falls on a smooth, reflecting surface.
- The light ray that was reflected is called reflected ray.
- In the case of a plane mirror, the angle of reflection and angle of incidence is the same.

50. Answer: a

Explanation:

$$\Rightarrow 0.3/1000 = 3/10000 = 3 \times 10^{-4}$$

51. Answer: a

Explanation:

- Lithium (Li), Sodium (Na), and Potassium (K) has **one electron** in their outermost orbits.
- They belong to group 1 and hence they are **Alkali Metals and not alkali earth metal**.
- Lithium can form lithium oxide, Sodium forms Sodium oxide and Potassium can form Potassium peroxide in the presence of oxygen.
- They are not Inert elements as they react with other compounds.

Table: Modern Periodic table

Legend:

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

The zig zag line separates the metals from the non metals

GROUP NUMBER

PERIODS

Transition Metals

GROUP NUMBER

1	2																	13	14	15	16	17	18
1	H																				2	He	
2	3	4											5	6	7	8	9	10	Ne				
3	11	12	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Ar				
4	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Kr				
5	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	Xe				
6	55	56	57	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	Rn				
7	87	88	89	104	105	106	107	108	109	110	111	112	113	115	116	117	118	119	Uuo				

*Lanthanoides 6

58	59	60	61	62	63	64	65	66	67	68	69	70	71
Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu

**Actinoides 7

90	91	92	93	94	95	96	97	98	99	100	101	102	103
Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr

52. Answer: b

Explanation:

- India hosted the 2018 Men's Hockey World Cup.

- It was held in the city of Bhubaneswar, the capital of Odisha state.
 - The 2018 Men's Hockey World Cup was won by Belgium.
-

53. Answer: d

Explanation:

$$\Rightarrow P = \frac{3}{5} + \frac{2}{7} = \frac{31}{35}$$

$$\Rightarrow Q = \frac{15}{31}$$

$$\therefore P \times Q = \left(\frac{31}{35}\right) \times \left(\frac{15}{31}\right) = \frac{3}{7}$$

54. Answer: c

Explanation:

- The power plant at Manikaran is based on geothermal energy, is in Himachal Pradesh.
 - It is in Parvathi valley on the banks of Parvathi river.
 - Geothermal Energy plants work by utilising heat from the interior of the earth.
 - The Geothermal plants are a renewable and non-polluting source of energy.
 - They are utilised for providing hot water, generating electricity etc.
-

55. Answer: b

Explanation:

- **Luka Modric** won the Golden Ball Award at the 2018 FIFA World Cup.
- He plays for Croatian National football team and for Spanish football club Real Madrid.
- England national football captain Harry Kane was awarded the Golden Boot for scoring most goals (6) in FIFA World Cup 2018.

- Belgium's Thibaut Courtois won the Golden Glove as the best goalkeeper of FIFA World Cup 2018.
-

56. Answer: c

Explanation:

- IMF stands for '**International Monetary Fund**'.
 - IMF was established in the year 1945, has a membership of 190 countries and has its headquarters in Washington D.C, USA.
 - Its primary purpose is to uphold global financial stability and to ensure the stability of the international monetary system i.e. the system of exchange rates and international payments that enables countries and their citizens to transact with each other.
-

57. Answer: d

Explanation:

From the statement, Ram wants to "reach on time", so he wants to travel as fast as he can and he mentions that he will "catch the flight". Thus, we can assume that "travelling by plane is the fast way to reach a destination".

There is no mention of "trains and buses" so we cannot say anything about them.

Hence, "Only assumption I is implicit".

58. Answer: c

Explanation:

Let the current age of Cyrus be x and age of Nikhil be y .

18 years ago,

$$\Rightarrow x - 18 = 2.5 (y - 18)$$

$$\Rightarrow x - 18 = 2.5y - 45$$

$$\Rightarrow x - 2.5y = -27 \quad \text{-----(1)}$$

$$\Rightarrow x + y = 92 \quad \text{-----(2)}$$

Subtract equation 1 from 2, we get

$$\Rightarrow 3.5y = 119$$

$\therefore$ Age of Nikhil is 34 years.

59. Answer: d

Explanation:



Additional Information

Hour hand covers 360° in 12 hours

Angular distance covered in 1 hour = $360/12 = 30^\circ$

Angular distance covered in 60 minutes = 30°

Angular distance covered in 1 minutes = $1/2^\circ$

CALCULATION:

Minute hand covers 360 in 60 minutes

60 minutes = 360°

1 minute = $360/60$

1 minute = 6°

Here minute = 45

Angle covered by minute hand = $45 \times 6 = 270^\circ$

Angle covered by hour hand = $6 \times 30 + 45 \times \frac{1}{2} = 180 + 22.5 = 202.5^\circ$

Angle between hour and minute hands = $270 - 202.5 = 67.5^\circ$

Hence, angle between hour and minute hands is 67.5°



Formula to calculate angle (N) between Minute hand and hour hand is:

$$N = 11/2 \times M - 30 \times H$$

$$N = 11/2 \times 45 - 30 \times 6$$

$$N = 495/2 - 180$$

$$N = 67.5^\circ$$

hence, the correct answer is 67.5°

60. Answer: d

Explanation:

- Vikram Singh, the 1997 batch officer of the Indian Railway Traffic Service (IRTS) is the private secretary of the **President of India, Ram Nath Kovind**.
- Ram Nath Kovind is the 14th president of India.
- He serving as a president since 2017.

61. Answer: a

Explanation:

- From **May 8th – 12th** in the year 2017, India organized the Cultural Festival in Egypt to mark the 156th birth anniversary of Rabindranath Tagore.
- It was organised by the cultural wing Indian Embassy in Egypt.
- Rabindranath Tagore was the first Asian to win a noble prize and he won the noble prize for literature in the year 1913 for his poem Gitanjali.

62. Answer: d

Explanation:

In the question figure triangle, star, and a small Δ with its mirror image is inscribed in a rectangular shape.

Only in the option figure D all the figure in the question figure can be observed and closely resembles the question figure.

Hence, "option figure D" is the correct answer.

63. Answer: c

Explanation:

- Aluminium Ion (Al^{3+}) has the smallest size among the given elements.
- As we move from left to right in the periodic table the atomic radius decreases.
- In the given options, in Aluminium (Al) the number of electrons is decreased in outermost orbit or valency shell by 3 hence the attraction between the outermost orbit and nucleus increases thereby shrinking the atomic radii.
- Hence Aluminium ion has the smallest size.

64. Answer: b

Explanation:

- **Kunwar Bai Yadav**, a 106-year-old woman from Chhattisgarh who was chosen as the mascot for the 'Swachh Bharat Abhiyan' died on 23rd February 2018.
- Swachh Bharat Abhiyan was launched on 2nd October 2014 the birthday of Mahatma Gandhi to promote cleanliness.
- The programme plans to make India free from open defecation by October 2019.

65. Answer: a

Explanation:

⇒ Pond dug by 4 skilled workers in 1 day = $\frac{1}{8}$

⇒ Pond dug by 1 skilled worker in 1 day = $\frac{1}{32}$

⇒ Pond dug by 8 unskilled workers in 1 day = $\frac{1}{12}$

⇒ Pond dug by 1 unskilled worker in 1 day = $\frac{1}{96}$

⇒ Pond dug by 3 skilled and 15 unskilled workers in 1 day = $\frac{3}{32} + \frac{15}{96} = \frac{24}{96}$

∴ Time taken by 3 skilled and 15 unskilled workers to dig a pond is 4 days.

66. Answer: b

Explanation:

Let the speed of stream be x km/hr.

⇒ Speed of boat in still water = 20 km/hr

⇒ Speed of boat in upstream = $\frac{20}{4} = 5$ km/hr

Also, speed of boat in upstream = speed of boat in still water - speed of stream

$$\Rightarrow 5 = 20 - x$$

$\therefore$ The speed of stream is 15 km/hr.

67. Answer: c

Explanation:

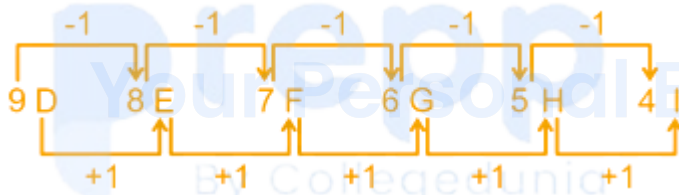
In the question figure a 'star' is inscribed in 'a square' and both 'pentagon' and 'the square' are enclosed in another square. This orientation can only be seen in the option figure "B" with 180° clockwise rotation.

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

68. Answer: b

Explanation:

The pattern followed here is as follows,



Hence, "4I" is the correct answer.

69. Answer: d

Explanation:

- The hormone released from testes is Testosterone.
- Testosterone is the male sex hormone.

- It plays a key role in the development of male reproductive tissues such as the testis and prostate.
- It also increases the growth of body hair.

Hormone	Function	Gland
Thyroxin	It helps in maintaining the body's metabolism.	Thyroid
Insulin	It helps in regulating sugar levels in the body.	Pancreas
Adrenaline	It increases the heart rate, blood pressure etc during emergency situations.	Adrenal Gland

70. Answer: b

Explanation:

- The carbon bond length depends on some factors
 - Bond length is **indirectly proportional** to the No. of Bonds. The more the number of bonds less the bond length
1. C—C only a single bond, so the bond length is the longest
 2. C=C, double bonds means 2 bonds, so the bond length is shorter than the single bond length
 3. C≡C triple bond length means 3 bonds, so the bond length is shortest among all.
 4. The Compounds in the Increasing order of their carbon length are Ethyne, Ethene, Ethane.
 5. **Ethyne < Ethene < Ethane** (C₂H₂ < C₂H₄ < C₂H₆) .
- Bond Length is directly proportional to Atomic Size and % P character

1. Eg. For atomic size
2. H-F, H-Cl, H-Br, H-I, here down the group, atomic size increases so the bond length increases with an increase in atomic size.
3. So, $H-F < H-Cl < H-Br < H-I$, H-I has the longest bond length and H-F shortest bond length

Compound	Description	Chemical formula
Ethyne	it has a triple bond between two carbon atoms	C_2H_2 It is Alkyne and its general formula is C_nH_{2n-2} .
Ethene	it has two carbon atoms that are double-bonded to each other	C_2H_4 . It is Alkenes and its general formula is C_nH_{2n}
Ethane	It has its two carbon atoms have a single bond between them	C_2H_6 . It is an Alkane and its general formula is C_nH_{2n+2} .

71. Answer: c

Explanation:

- The Union Government has constituted a ministerial panel headed by Arun Jaitley to oversee the merger proposals of state-owned banks.
- It is known Alternative Mechanism and it will oversee the proposal coming from the board of PSB for consolidation.
- Apart from Arun Jaitley, other members are Piyush Goyal and Nirmala Sitharaman.

72. Answer: c

Explanation:

- Ohm's law states the relationship between the current flowing through a metallic wire and the potential difference across its terminals.
- Ohm's law states that "At a constant physical Conditions (such as temperature, pressure etc) the amount of current flowing in a circuit is directly proportional to voltage (Potential difference) in the circuit.
- Mathematically it can be written as $V \propto I$
- Here proportional can be replaced by constant 'R'.
- Hence Ohm's Law can be written as $V = IR$.

73. Answer: c

Explanation:

- The ancient treatise 'Natyashastra' of India was written by Bharatamuni.
- In his book, he purposed a dance of two types they are Tandava and Lasya.
- Where Tandava denotes power and strength while Lasya describes the dance of happiness.
- In his book, he describes the classical dances.
- There are 8 classical dances In India, they are

Dance Form	State it belongs
Bharatanatyam	Tamil Nadu
Kuchipudi	Andhra Pradesh
Odissi	Odisha
Mohiniyattam	Kerala
Kathak	Uttar Pradesh
Kathakali	Kerala
Sattriya	Assam
Manipuri	Manipur

74. Answer: c

Explanation:

Statement 1:

⇒ Average size of the ball can be obtained as the radii of all the balls is available

Statement 2:

⇒ Colour of the balls will not help in finding the average size.

Therefore, only statement 1 is sufficient.

75. Answer: d

Explanation:

- The number of water molecules present is 'washing soda' is 10.
- We know the molecular formula for Washing Soda is $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$.
- Recrystallisation of Sodium Carbonate (Na_2CO_3) gives washing soda.
- In a Washing soda, water is present in the form of crystals.

76. Answer: a

Explanation:

$$\Rightarrow AD/DB = AE/EC$$

$$\Rightarrow AC = AD + DB = 4 \text{ cm}$$

Also,

$$\Rightarrow \angle A = \angle A$$

⇒ Applying SAS similarity theorem, we can conclude that $\triangle ADE \sim \triangle ABC$

$$\text{Area of } \triangle ADE : \text{Area of } \triangle ABC = AD^2 : AC^2 = 1 : 16$$

77. Answer: c

Explanation:

First, let us calculate what day was on 1 st December 2017.

2000 years = 0 odd days.

From 2001 to 2016, the number of odd days is $1 + 1 + 1 + 2 + 1 + 1 + 1 + 2 + 1 + 1 + 1 + 2 + 1 + 1 + 1 + 2 = 20$ or **6** odd days.

From January to December, the number of odd days is $31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + 30 + 31 + 30 + 1$ (1st day of December) = 335 or just **6** odd days.

Total odd days is **12 or 5** which is Friday.

1st December is Friday, So 6th December will be the first Wednesday of December 2017.

6, 13, 20, and 27 are Wednesdays in December 2017.

Hence, **13** is the correct answer.

78. Answer: b

Explanation:

From the statement, “during peak hours it is better to travel by a two-wheeler”, as we know that during peak hours there a lot of traffic jam and there is very little space to move and a two-wheeler require less space. Thus, we can assume that “a two-wheeler is easier to navigate in the traffic”.

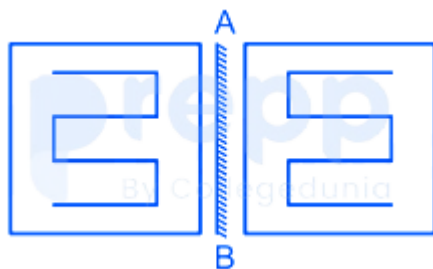
Since in the statement it is not mentioned about “separate lane for two-wheelers” and separate lanes for two-wheels are not present in all cities.

Hence, “only assumption I is implicit”.

79. Answer: a

Explanation:

The mirror image can be shown in the following figure,



Hence, "option figure A" is the correct answer.

80. Answer: b

Explanation:

CONCEPT:

- **Velocity:** The rate of change of displacement with time is called velocity.
 - The SI Unit of velocity is m/s.

EXPLANATION:

- The **rate of change of displacement is called velocity**. So option 2 is correct.

★ Key Points

Speed	It is defined as the total distance travelled with respect to time.
Acceleration	It is defined as the rate of change of velocity.
Force	It can be defined as a push or a pull that tends to change the state of an object or changes the direction or shape of an object.

81. Answer: d

Explanation:

⇒ A composite number is a positive integer which is **not** prime (i.e., which has factors other than 1 and itself).

⇒ Prime Factors of 943 = 23×41

⇒ Prime Factors of 323 = 17×19

⇒ Prime factors of 713 = 23×31

⇒ Prime factors of 409 = 1×409

∴ 409 is not composite as it does not have factors other than 1 and itself.

82. Answer: d

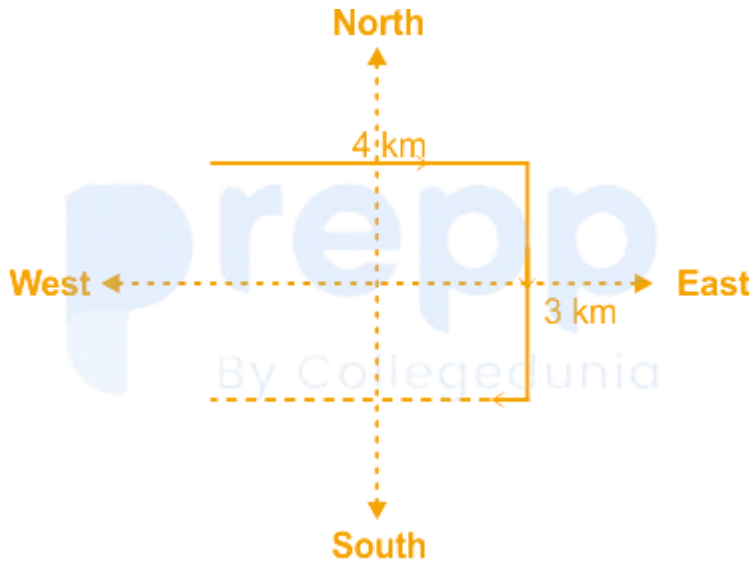
Explanation:

- The number of water molecules in Copper Sulphate solution is 5.
- The chemical formula for Copper Sulphate in its hydrated form is $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$.
- Water is present in the form of crystals in Copper Sulphate.
- Its IUPAC name is Copper Sulphate Pentahydrate.
- Another name for Copper sulphate is **Blue Vitriol**.

83. Answer: c

Explanation:

The diagram is as follows:



Hence, he is walking in the West direction.

84. Answer: a

Explanation:

⇒ Mass of the boy (m) = 50 kg

⇒ Time taken by the boy (t) = 9s

⇒ Total number of steps = 45 steps

⇒ Height of each step = 15 cm

⇒ Total height = $45 \times 15 \Rightarrow 675$ cm

⇒ Total height (h) = 6.75 m

⇒ Gravity is taken here (g) = 10m/s^2

We know that ,

Potential Energy (P.E) = $mgh \Rightarrow (50) \times (10) \times (6.75)$.

= 3375 J.

We know that ,

$$\text{Power (p)} = \text{Energy/time}$$

$$= 3375/9$$

$$= 375 \text{ W}$$

Power of the boy is **375 W**.

85. Answer: a

Explanation:

In the question figure, a triangle (Δ) is inscribed in a rectangular paper touching two sides and a corner of that rectangular paper, and one of the corners which is adjacent to the base of the triangle is slightly folded around the corner. The head vertex of the triangle touches the other side of the rectangle. All the correct figures and the correct orientation can only be seen in figure D.

Hence, "option figure D" is the correct answer.

86. Answer: b

Explanation:

⇒ The equations have no solution when their slopes are same

$$\Rightarrow \text{Slope of equation 1} = -14/8 = -7/4$$

$$\Rightarrow \text{Slope of equation 2} = 21/k$$

$$\Rightarrow \text{So, } 21/k = -7/4$$

∴ The value of k is - 12.

87. Answer: b

Explanation:

★ Key Points

- **Chatrapati Shivaji Maharaj** (1630–1680) was born in the fort of Shivneri on the 19th February 1630.
- His father was Shahji Bhonsle and mother Jija Bhai.
- He established the Maratha Empire and he assumed the title 'Chatrapati' in the year 1674.
- Chauth and Sardeshmuki were the taxes collected by the Marathas in their neighbouring countries.

88. Answer: b

Explanation:

⇒ Number of possible two-digit numbers which can be formed by using the digits 3, 5 and 7 = 3×3 .

∴ 9 possible two-digit numbers can be formed.

The 9 possible two-digit numbers are:

33, 35, 37, 53, 55, 57, 73, 75, 77

89. Answer: a

Explanation:

CONCEPT:

- The rate of flow of electric charge is called an electric current.
- Due to the flow of electric current in resistance, there is some heat generated in that resistance. This phenomenon is called the heating effect of current.
- The electric heater generates heat by using the electric current flowing in it.

$$\Rightarrow \text{Heat generated (H)} = I^2 R t = \text{power (P)} \times \text{time taken (t)}$$

Where I is current, R is resistance and t is the time taken

CALCULATION:

Given: Rated power of bulb (P) = 50 W and Energy consumed by the bulb (E) = 1000 J

- We know that power

$$\Rightarrow E = Pt$$

$$\Rightarrow t = E/P = 1000/50 = 20 \text{ Sec}$$

- The total time (t) the bulb glows is 20 sec.

90. Answer: c

Explanation:

Concept Used:

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

Calculation:

$$[\{2\frac{1}{3} - (5 + (2 - 3))\} + 3\frac{1}{2}] = ?$$

$$[\{2\frac{1}{3} - (5 - 1)\} + 3\frac{1}{2}] = ?$$

$$\Rightarrow [\{7/3 - 4\} + 7/2] = ?$$

$$\Rightarrow [-5/3 + 7/2] = ?$$

$$\Rightarrow ? = (-10 + 21) / 6 = 11/6$$

91. **Answer: d**

Explanation:

$$\Rightarrow \text{Prime factors of } 16 = 2^4$$

$$\Rightarrow \text{Prime factors of } 48 = 2^4 \times 3$$

$$\Rightarrow \text{Prime factors of } 104 = 2^3 \times 13$$

$$\text{Therefore, highest common factor} = 2^3 = 8$$

92. **Answer: b**

Explanation:

$\Rightarrow$ Here, $k_1/k_2 = k_3/k_4$, where k_1 is the initial number of red balls, k_2 is the initial number of blue balls, k_3 is the new number of red balls and k_4 is the new number of blue balls

$$\Rightarrow 68/36 = k_3/63$$

$$\Rightarrow k_3 = 119$$

$\therefore$ There should be 119 red balls in the bag.

93. Answer: a

Explanation:

Symbol	+	×
Meaning	-	÷

Given expression: $((175 + 160) \times 50) \times 10$

After changing the symbols:

$$((175 - 160) \div 50) \div 10$$

$$= (15 \div 50) \div 10$$

$$= (0.3) \div 10$$

$$= 0.03$$

Hence, "0.03" is the correct answer

94. Answer: a

Explanation:

- The time for the ball returning to the ground after being thrown up (t) = 12.5s
- As we know that Time of ascent is equal to the time of descent.
- Time to taken for ascent (t_1) = $12.5/2 \Rightarrow 6.25$.
- We know that final velocity of ball at its maximum height (v) = 0
- Acceleration against gravity (g) = -9.81 m/s^2
- We know that formula $v = u + at$

$$0 = u + (-9.81) (6.25).$$

$$u = 61.31 \text{ m/s}.$$

The velocity with which the ball was thrown up = 61 m/s.

95. Answer: b

Explanation:

$\Rightarrow$ Section formula for internal division = $\{[(mx_2 + nx_1)/(m + n)], [(my_2 + ny_1)/(m + n)]\}$

$\Rightarrow$ Here, $x_1, y_1 = (-1, 0)$ and $x_2, y_2 = (2, 6)$. $m : n = 2 : 1$

$$\Rightarrow [(2 \times 2) + (1 \times -1)]/(2 + 1), [(2 \times 6) + (1 \times 0)]/(2 + 1) = (1, 4)$$

$\therefore$ The line segment joined by the points $(-1, 0)$ and $(2, 6)$ is divided internally in the ratio $2 : 1$ at the point $(1, 4)$.

96. Answer: c

Explanation:

The statement says that, 100 people work at Ravi's own company so it can be concluded that Ravi is an entrepreneur. The statement does not say anything about the character of Ravi whether he is a good person or not, so conclusion II is not valid.

Hence, only conclusion I follows.

97. Answer: b

Explanation:

The pattern followed here is as follows,

Z $\xrightarrow{-2}$ X $\xrightarrow{-2}$ V $\xrightarrow{-2}$ T $\xrightarrow{-2}$ R $\xrightarrow{-2}$ P $\xrightarrow{-2}$ N

Hence, "N" is the correct answer.

98. Answer: c

Explanation:

- The First War of Indian Independence was fought in the year **1857**.
- It is also known as Indian Sepoy Mutiny of 1857.
- It was called The First War of Indian Independence by V.D Savarkar.
- He authored a book called 'The History of the War of Indian Independence' in which he stated his views and announced the mutiny as the First War of Indian Independence.
- Lord Canning (1856-1862) was the Governor-General of India/ Viceroy of India during this revolt.

99. Answer: c

Explanation:

We know that a table is a kind of furniture, but we cannot relate 'camera' with either table or furniture.

Thus, the following Venn diagram is best suitable for the given information:



Hence, the figure in **option 3** is the correct answer.

100. **Answer: c**

Explanation:

⇒ Cost price of the shirt = Rs. 1600

⇒ Selling Price = Cost Price $\times$ (1 - Discount%)

Therefore, selling price of the shirt = 90% of 1600 = Rs. 1440

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