



## 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 (28-Sep-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.

Your Personal Exams Guide

## CBT

1.  $\{20 - (25 - 33)\} \div \{-5 \times 4 - (-6)\} + 56 \div (-27 + 13) = ?$  (+1, -0.33)

- a. -4
- b. -2
- c. 4
- d. -6

2. Durga Puja is the main festival of \_\_\_\_\_ (+1, -0.33)

- a. Kashmir
- b. West Bengal
- c. Kerala
- d. Rajashtan

3. A statement is followed by two arguments. Decide which of the arguments is are strong with respect to statement. (+1, -0.33)

**Statement:**

There should be strict penalty for people using mobile phone while driving.

**Arguments:**

I. Yes, it will ensure that the number of accident due to mobile phone usage gets avoided.

II. No, it is difficult to implement as people are used to using cell phones anywhere.

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

4. Car is related to Tyre in the same way Chair is related to: (+1, -0.33)

- a. Back
- b. Sit
- c. Rest
- d. Legs

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

Question Figures



Option Figures



A

B

C

D

- a. A

b. B

c. C

d. D

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

**Statement:**

Mr. X says that he gets good thought in the morning.

**Conclusions:**

1. Thoughts come to Mr. X only in the morning.

2. Thoughts does not come to Mr. X in the evening.

a. Only conclusion 2 follows

b. Neither 1 nor 2 follows

c. Either 1 or 2 follows

d. Only conclusion 1 follows

- 
7. \_\_\_\_\_ is an alkali metal. (+1, -0.33)

a. Sodium

b. Manganese

c. Aluminium

d. Magnesium

---

8. If  $\sqrt{45} + \sqrt{20} = 11.180$  find the value of  $\sqrt{180} + 4\sqrt{5}$  (+1, -0.33)

- a. 22.360
- b. 24.595
- c. 20.124
- d. 17.888

---

9. If an object with a mass of 25 kg is moving with a uniform acceleration of  $8\text{ms}^{-2}$ , then the force exerted by the body is \_\_\_\_\_. (+1, -0.33)

- a. 200 N
- b. 200 J
- c.  $200\text{ms}^{-2}$
- d.  $200\text{ms}^2$

---

10. The LCM of 60 and 54 is (+1, -0.33)

- a.  $6 \times 5 \times 9$
- b.  $6 \times 10 \times 3$
- c.  $6 \times 10 \times 9$
- d.  $60 \times 54$

---

11. Based on the following table, what is the average number (in thousands) of screws manufactured in the unit over the given 6 months? (+1, -0.33)

| Months | No. of screws Manufactured, in Thousand |
|--------|-----------------------------------------|
| Jan    | 200                                     |
| Feb    | 300                                     |
| Mar    | 250                                     |
| Apr    | 250                                     |
| May    | 250                                     |
| Jun    | 250                                     |

- a. 200
- b. 250
- c. 300
- d. 150

Your Personal Exams Guide

12. Grey revolution is related to \_\_\_\_\_.

(+1, -0.33)

- a. leather
- b. silk

- c. fish
- d. fertilizers

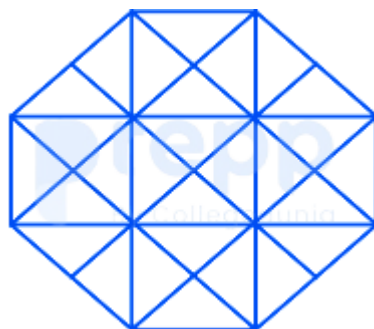
13. Convert  $0.\overline{6}$  into a fraction: (+1, -0.33)

- a.  $\frac{2}{3}$
- b.  $\frac{4}{3}$
- c.  $\frac{6}{3}$
- d.  $\frac{2}{6}$

14. In ethane, each carbon atom is bonded to \_\_\_\_\_ hydrogen atoms: (+1, -0.33)

- a. One
- b. Three
- c. Five
- d. Four

15. What is the minimum number of lines required to make the following figure? (+1, -0.33)



- a. 18
- b. 13
- c. 20
- d. 16

---

16. The formula of Lithium Nitride is (+1, -0.33)

- a.  $\text{Li}_2\text{N}$
- b.  $\text{LiN}$
- c.  $\text{Li}_3\text{N}_2$
- d.  $\text{Li}_3\text{N}$

---

17. Kautilya's Arthashastra given us information about the \_\_\_ administration. (+1, -0.33)

- a. Gupta
- b. Rashtrakuta
- c. Pratihara
- d. Maurya

---

18. When two equal force are acting on a body and opposite in direction, the net force acting on the body becomes \_\_\_\_\_. (+1, -0.33)

- a. three-times
- b. two-times

- c. zero
  - d. four-times
- 

19. \_\_\_\_\_ promote(s) cell division. (+1, -0.33)

- a. Absciscic acid
  - b. Cytokinins
  - c. Gibberellins
  - d. Auxin
- 

20. Which of the following lies on the reflecting surface of a spherical mirror? (+1, -0.33)

- a. Centre of curvature
  - b. Focus
  - c. Pole
  - d. Focal length
- 

21. White phosphorous is stored in: (+1, -0.33)

- a. Oxygen
  - b. Alcohol
  - c. Hydrogen
  - d. water
-

22. The mean of the 8 smallest numbers from a group is 17, while the mean of all the numbers of the group taken together is 20. If the mean of the numbers leaving the smallest eight out is 22, how many numbers were present in group in all? (+1, -0.33)

- a. 22
- b. 20
- c. 18
- d. 19

23. How many rectangles are there in this figure? (+1, -0.33)



- a. 9
- b. 14
- c. 17
- d. 16

24. A jeweller made a piece of uniquely designed diamond necklace and the selling price was fixed at Rs. 10,00,000. In making this piece, on the raw material, the jeweller had invested Rs. 3,00,000 and had paid a labour charge of Rs. 2,00,000. If 20% of the raw material cost was of gold, what is the actual amount the jeweller had spent in procuring the gold? (+1, -0.33)

- a. Rs. 1,60,000

- b.** Rs. 1,08,000
  - c.** Rs. 3,60,000
  - d.** Rs. 60,000
- 

**25.** Complete the number series by choosing the missing terms from the options. (+1, -0.33)

11, 20, 27, 36, 43, ?, ?, 68, 75

- a.** 50, 61
  - b.** 52, 61
  - c.** 50, 59
  - d.** 52, 59
- 

**26.** The sum of all interior angles of a polygon is  $1260^\circ$ . Find the number of sides of the polygon. (+1, -0.33)

- a.** 11
  - b.** 8
  - c.** 10
  - d.** 9
- 

**27.** As of May 2018, what is the portfolio held by the current Union Minister Smriti Irani? (+1, -0.33)

- a.** Information and Broadcasting

- b. Science and Technology
  - c. Health and Family Welfare
  - d. Women and Child Development
- 

28. A and B together can complete a task in 1.2 days. However, if A works alone, completes half the job and leaves and then B works alone and completes the rest of the work, it takes 2.5 days in all to complete the work. If B is more efficient than A, how days would it have taken it have taken B to do the work by herself? (+1, -0.33)

- a. 1.5
  - b. 1.8
  - c. 2.0
  - d. 2.2
- 

29. In a shopping mall, a handbag was sold for Rs. 2990 after giving a discount of P%, If the marked price of the handbag was Rs. 4600, find the value of P? (+1, -0.33)

- a. 40
  - b. 45
  - c. 35
  - d. 72
- 

30. In \_\_\_\_\_, cells are loosely packed so that large intercellular spaces are found. (+1, -0.33)

- a. Parenchyma
- b. Tracheids
- c. Sclerenchyma
- d. Collenchyma

---

31. Name the director of the blockbuster movie 'Baahubali' (+1, -0.33)

- a. Madhur Bhandarkar
- b. Prabhu Deva
- c. Karan Johar
- d. S. S. Rajamouli

---

32. Insert mathematical symbols in the place of To get the result. (+1, -0.33)

$$((10 \ ? \ 10) \ ? \ 25) \ ? \ 10 = 10$$

- a. -, ×, ÷
- b. ×, ×, +
- c. +, ÷, ÷
- d. -, ×, +

---

33. Which of the following correctly represents the relationship between? (+1, -0.33)

- A) Metal
- B) Glass

C) Vessels




---

34. Who was honoured with the prestigious 2018 Padma Bhushan award in the field of Sports-Billiards/Snooker? (+1, -0.33)

- a. Ashok Shandilya
- b. Geet Sethi
- c. Pankaj Advani
- d. Michael Ferreira

---

35. In an alloy of German silver, the ratio of copper to zinc was 21 : 16 while that of nickel to zinc was 7 : 24 What was the ratio of copper to zinc to nickel in the alloy? (+1, -0.33)

- a. 21 : 16 : 7
- b. 17 : 21 : 4

c. 63 : 48 : 14

d. 68 : 28 : 21

---

36. Ram swims in an 80 m long pool. He covers 160 m in one minute by swimming from one end to the other and back, along the same straight path. Find his average speed. (+1, -0.33)

a.  $2.07 \text{ ms}^{-1}$

b.  $2.60 \text{ ms}^{-1}$

c.  $3.67 \text{ ms}^{-1}$

d.  $2.67 \text{ ms}^{-1}$

---

37. The focal length of a lens is 50 centimetre. Its power is: (+1, -0.33)

a. 50 Diopter

b. 1 Diopter

c. 10 Diopter

d. 2 Diopter

---

38. The host city for the 8<sup>th</sup> annual Global Entrepreneurship Summit (GES – 2017) was: (+1, -0.33)

a. Mysore

b. Bangalore

c. Chennai

d. Hyderabad

---

39. The mass of the earth is \_\_\_\_\_. (+1, -0.33)

a.  $6 \times 10^{23}$  kg

b.  $6 \times 10^{24}$  kg

c.  $6 \times 10^{25}$  kg

d.  $6 \times 10^{22}$  kg

---

40. In a code language, FLUTE is written as 62105. What is the code for HARMONICA? (+1, -0.33)

a. 918354931

b. 818254931

c. 818354931

d. 818354932

---

41. If a bicycle of mass 10 kg moves at a speed of 20 m/s then the kinetic energy of the bicycle is: (+1, -0.33)

a. 2000 J

b. 400 J

c. 4000 J

d. 200 J

---

42. Variable valency is exhibited by \_\_\_\_\_. (+1, -0.33)

- a. Valence elements
- b. Transition element
- c. Group elements
- d. Alkaline elements

---

43. According to the World Bank, what is India's position among the world economies based on the year 2017? (+1, -0.33)

- a. 7
- b. 9
- c. 6
- d. 4

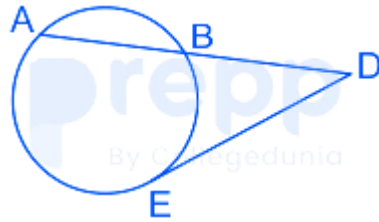
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44. The Chief Minister of Goa as of March 2018. Manohar Parrikar, belongs to: (+1, -0.33)

- a. Janta Dal Party
- b. Indian National Congress
- c. Bharatiya Janata Party
- d. CPI

---

45. In the circle below, chord  $\overline{AB}$  is extended to meet the tangent  $\overline{DE}$  at D. If  $\overline{AB} = 24$  cm  $\overline{DE} = 9$  cm, what is the length of  $\overline{BD}$  ? (+1, -0.33)



- a.  $4\sqrt{6}$  cm
- b. 3 cm
- c. 5 cm
- d. 4 cm

---

46. Vessels are the major water conducting cells in: (+1, -0.33)

- a. Fungi
- b. Angiosperms
- c. Bryophyta
- d. Thallophyta

---

47. If YELL is coded as 2551212, then what will be the code of LENT? (+1, -0.33)

- a. 1251421
- b. 1251420
- c. 1251620
- d. 1351420

48. Sarathi deposited Rs. 3,125 in a bank which promised 8% simple interest per annum. If Sarathi kept the money with the bank for 5 years, he will earn an interest of: (+1, -0.33)

- a. Rs. 1,280
- b. Rs. 1,290
- c. Rs. 1,250
- d. Rs. 1,240

49. Which of the following numbers is divisible by 12? (+1, -0.33)

- a. 73508
- b. 63508
- c. 83508
- d. 93508

50. Who among the following was appointed as the UN Environment's Goodwill Ambassador for India in November 2017? (+1, -0.33)

- a. Vidya Balan
- b. Dia Mirza
- c. Sonakshi Sinha
- d. Rekha

51. \_\_\_\_\_ is not the same as reproduction. (+1, -0.33)

- a. Budding
  - b. Fission
  - c. Multiple fission
  - d. Regeneration
- 

52. Who is the proponent and propagandist of the "Art of Living"? (+1, -0.33)

- a. Sri Sri Ravi Shankar
  - b. Swaminarayan
  - c. Sahajanand Swami
  - d. Pandit Ravi Shankar
- 

53. Where was the 48<sup>th</sup> International Film Festival of India held in 2017? (+1, -0.33)

- a. Delhi
  - b. Goa
  - c. Mumbai
  - d. Hyderabad
- 

54. Which of the following shapes are combined to form this shape? (+1, -0.33)

Question Figure



Option Figures



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

55. Who among the following won a gold medal at 2017 World Para Swimming Championship? (+1, -0.33)

- a. Curtis Lovejoy
- b. Tucker Dupree
- c. Jessica Long
- d. Kanchanmala Pande

56. Pipe A can fill an empty cistern in 5 hours while Pipe B takes 6.25 hours to fill it. The two pipes are opened simultaneously when the cistern is empty, but Pipe B is turned off after some time as a result of which the cistern is filled in 3.4 hours. For how many hours was Pipe B opened? (+1, -0.33)

- a. 1.5
- b. 1
- c. 2
- d. 2.5

57. A 112 ft tall Shiva statue (Adiyogi) was unveiled on 24th February 2017 in Tamil Nadu by (+1, -0.33)

- a. Ramvilas Paswan
- b. Ram Nath Kovind
- c. Rajnath Singh
- d. Narendra Modi

58. The \_\_\_\_\_ in India are generally known as 'Tidal Forests'. (+1, -0.33)

- a. desert forests
- b. mountain forests
- c. dry lands
- d. wetlands

59. The ratio of chairs to tables in an office is 9 : 7 If there are 42 more chairs than tables, find the number of chairs in the office. (+1, -0.33)

- a. 189
- b. 215
- c. 147
- d. 200

60. A ball thrown up vertically returns to ground after 12 seconds. Find the velocity with which it was thrown up. ( $g = 10\text{ms}^{-2}$ ) (+1, -0.33)

- a.  $10\text{ ms}^{-1}$
- b.  $125\text{ ms}^{-1}$
- c.  $12.5\text{ ms}^{-1}$
- d.  $60\text{ ms}^{-1}$

61. 'Alum' is an example of: (+1, -0.33)

- a. Flake salt
- b. Table salt
- c. Single salt
- d. Double salt

62. Sunny and Paula can complete a piece of work together in 12 hours. Paula takes 18 hours to complete work alone, another individual, Jane, takes 45 hours to complete the same piece of work alone. How many hours would it take sunny and Jane to complete the same work together? (+1, -0.33)

- a. 18
- b. 16
- c. 15
- d. 20

63. Who is the Director of the movie 'Padmavaat' released in 2018? (+1, -0.33)

- a. Rajkumar Hirani
- b. Sanjay Leela Bhansali
- c. Karan Johar
- d. S. S. Rajamouli

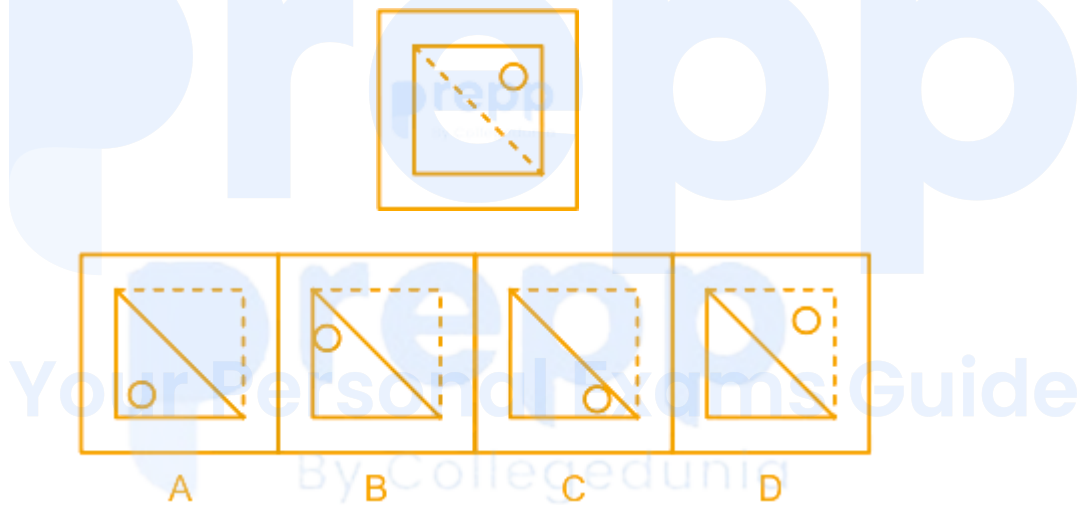
64. Who among the following is the Union Minister of Human Resource Development, Government of India, as of 1 March 2018? (+1, -0.33)

- a. Radha Mohan Singh
- b. Prakash Javadekar
- c. Harsha Vardhan
- d. Smriti Irani

65. Name the Indian sportsperson who won gold in the Girls Under 12 category at the World Cadets Chess Championship, in 2017 (+1, -0.33)

- a. Padmini Rout
- b. Divya Deshmukh
- c. Abhimanyu Puranik
- d. Aryan Chopra

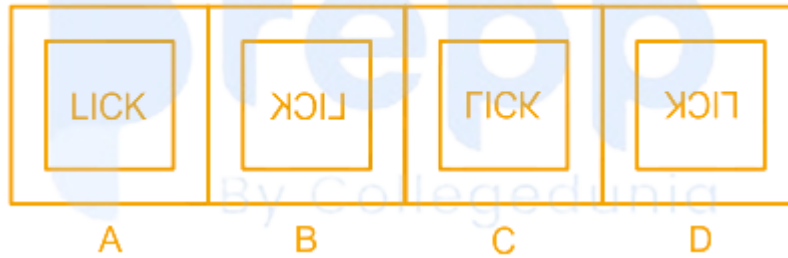
66. Which pattern will the given transparent sheet resemble when it is folded at the dotted line? (+1, -0.33)



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

67. Select the horizontal mirror image of LICK from option figures. (+1, -0.33)

Option Figures



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

68. The volume of right circular cone, whose radius of the base is one-third of its altitude, and the volume of a hemisphere are equal. The ratio of the radii of the cone and the hemisphere is; (+1, -0.33)

- a.  $\sqrt[3]{3} : \sqrt[3]{2}$
- b. 2 : 3
- c.  $\sqrt[3]{2} : 1$
- d.  $\sqrt[3]{2} : \sqrt[3]{3}$

69. Consider the statement(s) and decide which of the given assumption(s) is/are implicit in the statement. (+1, -0.33)

**Statement:**

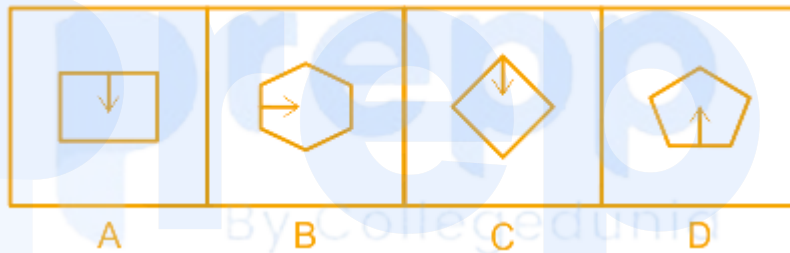
"Shortage in rainfall results in crop failure" said the meteorologist

**Assumptions:**

- I. Rainfall is a must for crop success.
- II. Irrigation is much dependent on Rainfall
- Neither I nor II is implicit
  - Both I and II are implicit
  - Only I is implicit
  - Only II is implicit

70. Find the odd one out.

(+1, -0.33)



- B
- D
- C
- A

71. Pipes A and B, when working together can fill an empty tank in 24 hours. They work together for 8 hours and then B is stopped but A continued to work. It took a total of 28 hours to fill the tank. How long would it take A to fill the empty tank alone?

(+1, -0.33)

- 30 hours

- b. 29 hours
- c. 28 hours
- d. 31 hours

---

72. Consider the given statement(s) and decide which of the given assumption(s) are implicit in the statement. (+1, -0.33)

**Statement:**

Earlier there were many birds in the bird sanctuary.

**Assumptions:**

I. Birds migrate and come to the sanctuary during a particular period of the year

II. There were good water bodies in that area

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

---

73. Vandana is the daughter of Vishal and Vanita. Amit is the son of Vanita's brother. Who is Vandana to Amit? (+1, -0.33)

- a. Brother
- b. Cousin
- c. Father

d. Nephew

---

74. Monika's father was 38 years of age when she was born while her mother was 36 years old when her sister four years younger to her was born. What is the difference between the ages of her parents? **(+1, -0.33)**

a. 8 years

b. 4 years

c. 6 years

d. 2 years

---

75. \_\_\_\_\_ Theory of Evolution tells us how life evolved from simple to more complex forms. **(+1, -0.33)**

a. Darwin's

b. Wallace

c. Mendel's

d. Lamarck's

---

76. A wooden crate 1.8 m long, 1.5 m wide and 1.2 m in height is filled with iron cubes that are 6 cm wide. Find the maximum number of iron cubes that can be fitted in the crate. **(+1, -0.33)**

a. 13,500

b. 15,000

c. 14,500

d. 14,000

---

77. What is the next term in the given series? (+1, -0.33)

22C, 42F, 62I, \_ \_ \_

- a. 82L
  - b. 82N
  - c. 82M
  - d. 82O
- 

78. A boy standing at the top of a 20-metre-high tower drops a stone. Assuming  $g = 10 \text{ m/s}^2$ , the velocity with which the stone hit the ground is: (+1, -0.33)

- a. 10 m/s
  - b. 20 m/s
  - c. 15 m/s
  - d. 25 m/s
- 

79. The Government of India has tied up with which of the following companies to support Skill India in the automobile industry? (+1, -0.33)

- a. Ashok Leyland
- b. Tata Motors
- c. Maruti Suzuki

d. Mahindra & Mahindra Ltd.

---

80. Which of the following effects is NOT produced by current? (+1, -0.33)

- a. Chemical effect
  - b. Contraction effect
  - c. Heating effect
  - d. Magnetic effect
- 

81. \_\_\_\_\_ element has two orbits that are completely filled. (+1, -0.33)

- a. He
  - b. Ar
  - c. Kr
  - d. Ne
- 

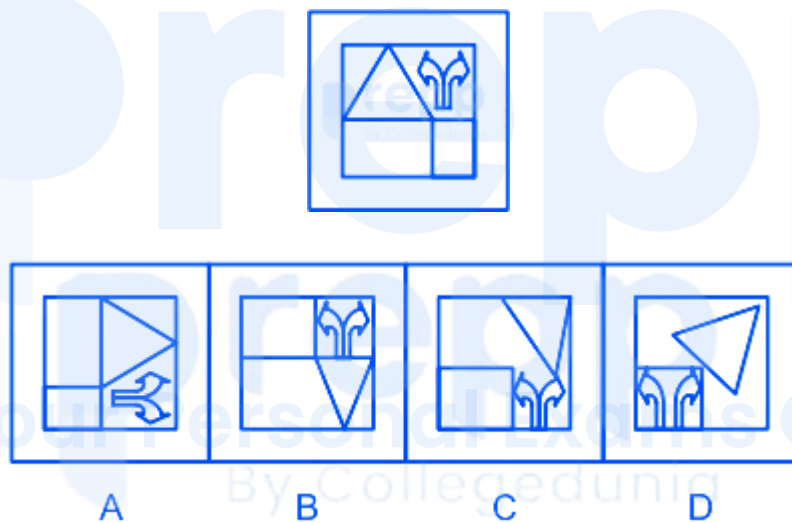
82. Mark had to travel 220 km in 4.5 hours, using a train that travels at the speed 60 km/h or a bus that travels at the speed of 40 km/h, or any combination of the two modes of transport. For how long did he travel by bus? (+1, -0.33)

- a. 1 hour
- b. 1 hour 30 minutes
- c. 2 hours 30 minutes
- d. 2 hours

83. In the modern periodic table, periods \_\_\_\_\_ and \_\_\_\_\_ contain Lanthanoides and actinoides (+1, -0.33)

- a. 3 and 4
- b. 6 and 7
- c. 4 and 5
- d. 5 and 6

84. Which pattern most closely resembles the following figure? (+1, -0.33)



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

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

- A. Circle
- B. Volume
- C. Square
- D. Rectangle

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

---

86. Meenu goes to the grocery shop just adjacent to her home on the right side. Her home's and shop's entrance faces East. After entering the shop she turns to her right to start walking towards an aisle that has fresh produce. Which direction is she walking? (+1, -0.33)

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

---

87. The square of a natural number (other than 1) is either a multiple of 3 or exceeds a multiple of 3 by: \_\_\_\_\_ (+1, -0.33)

- a. 3
- b. 2

c. 4

d. 1

---

88.  $3 + [32 \div 8 \times 52 \div (4 + 9)] = ?$  (+1, -0.33)

a. 19

b. 20

c. 21

d. 18

---

89. \_\_\_\_\_ reaction occurs when Sodium Sulphate reacts with Barium Chloride. (+1, -0.33)

a. Single combination

b. Single displacement

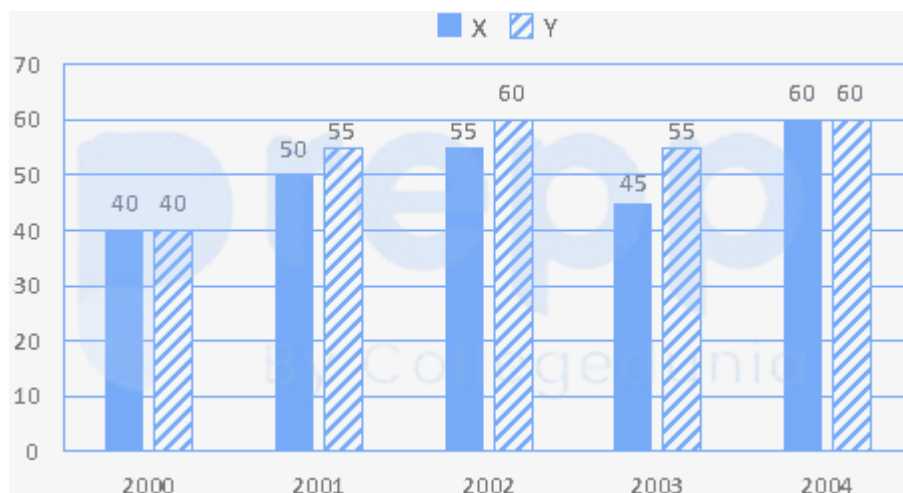
c. Double displacement

d. Double combination

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90. Below is the volume of production of sugar by company X and Y over 5 years. (+1, -0.33)

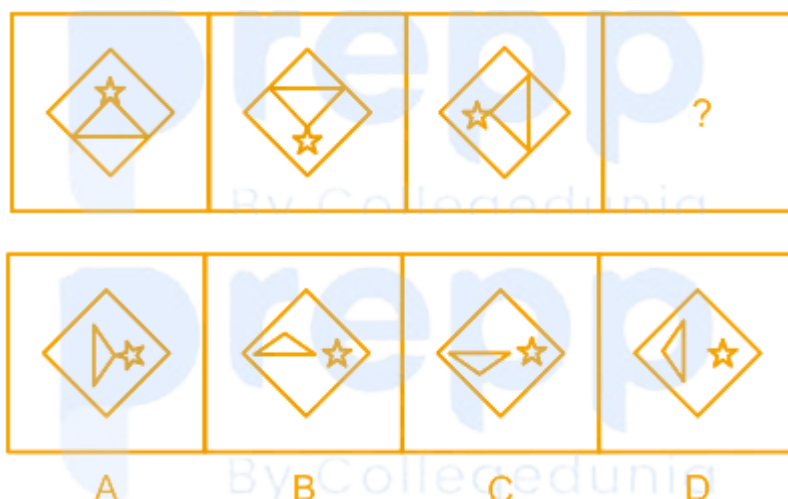
The production volume denoted in lakh tones



What is the difference in the total production of company X and Y together in the years 2000 and 2004?

- a. 20,000 tones
- b. 20,00,000 tones
- c. 40,00,000 tones
- d. 40,000 tones

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



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

92. The operating costs of a company are given below.

(+1, -0.33)

|               | 2016 | 2017 |
|---------------|------|------|
| Loan Interest | 25%  | 25%  |
| Salary        | 50%  | 55%  |
| Tax           | 25%  | 20%  |

The total money spent on operations in 2016 is Rs. 120 lakhs and the total money spent in 2017 is Rs. 150 lakhs. By how much was the salary in 2017 higher than that of 2016?

- a. Rs. 5 lakhs
- b. Rs. 10 lakhs
- c. Rs. 22.5 lakhs
- d. Rs. 20 lakhs

93. In a code language, VEIL is written as 2592. What is the code for MEET? (+1, -0.33)

- a. 4550
  - b. 3660
  - c. 3551
  - d. 3550
- 

94. Fatehpur Sikri or the 'City of Victory' was \_\_\_\_\_ capital for 12 years. (+1, -0.33)

- a. Bahadur Shah's
  - b. Babur's
  - c. Akbar's
  - d. Aurangzeb's
- 

95. \_\_\_\_\_ is the metal used for making filaments of electric bulbs. (+1, -0.33)

- a. Iron
  - b. Tungsten
  - c. Silver
  - d. Nickel
- 

96. A girl can cycle at 16 km/h and walk at 7 km/h. To cover a distance of 109 km, she takes 8.5 hours. How much distance did she cover on foot? (+1, -0.33)

- a. 17.5 km
- b. 24.5 km
- c. 21 km
- d. 28 km

97. A statement is followed by two arguments. Decide which of the arguments is are strong with respect to the statement. (+1, -0.33)

**Statement:**

Every week schools should allow a free, full day of physical activity and games

**Arguments:**

I. Yes, giving them freedom will help them to interact with others and explore new avenues

II. No, there wouldn't be discipline.

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

98.  $144 \div [40 - \{37 - (25 - 112 \div 7 \text{ of } 4)\}] = ?$  (+1, -0.33)

- a. 4
- b. 2

c. 8

d. 6

---

99. The mean of three numbers is 20. The range of this data set is 12 while the difference between the two smallest numbers is 3. The greatest of the three natural numbers is: (+1, -0.33)

a. 27

b. 28

c. 24

d. 25

---

100. If '+' indicates mathematical action '-' and 'x' indicates mathematical action '÷' then what is the value of  $((75 + 25) \times 5) \times 10$ ? (+1, -0.33)

a. 1

b. 0

c. 3

d. -1

## Answers

### 1. Answer: d

#### Explanation:

Simplify using BODMAS: Bracket – Of – Division – Multiplication – Addition – Subtraction

$$\{20 - (25 - 33)\} \div \{-5 \times 4 - (-6)\} + 56 \div (-27 + 13)$$

$$\Rightarrow \{20 - (-8)\} \div \{-5 \times 4 + 6\} + 56 \div (-14)$$

$$\Rightarrow \{20 + 8\} \div \{-20 + 6\} + 56 \div (-14)$$

$$\Rightarrow \{28\} \div \{-14\} + 56 \div (-14)$$

$$\Rightarrow -2 - 4$$

$$\Rightarrow -6$$

### 2. Answer: b

#### Explanation:

The Correct Answer is West Bengal.

| State       | Festival Name                                                                                                                                                                                                                                                                                                                          |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Kashmir     | <ul style="list-style-type: none"> <li>• <u>Lohri</u> is the main festival of Kashmir.</li> <li>• This occasion is celebrated on <b>13<sup>th</sup> of January</b> in the month of Magh, a day before Makar Sankranti.</li> <li>• It celebrates fertility and the spark of life.</li> </ul>                                            |
| West Bengal | <ul style="list-style-type: none"> <li>• <u>Durga Puja</u> is the main festival of West Bengal</li> <li>• This festival is celebrated in honour of Goddess Durga's triumph over the demon 'Mahisasura'.</li> <li>• This festival falls during the month of September/October every year.</li> </ul>                                    |
| Kerala      | <ul style="list-style-type: none"> <li>• <u>Onam</u> is the main state festival of Kerala.</li> <li>• It falls in the beginning of month of <b>Chingam</b>, the first month of Malayalam calendar.</li> <li>• It is mainly a harvest festival but it also celebrates the asura King Mahabali from Patala (the Underground).</li> </ul> |
| Rajasthan   | <ul style="list-style-type: none"> <li>• <u>Tej</u> is the main festival of Rajasthan.</li> <li>• It falls on third day of the month of <b>Shravan</b> (July/August).</li> <li>• It is celebrated for the women of the household who apply <b>mehendi or henna</b> on their hands and wear new clothes.</li> </ul>                     |

### 3. Answer: a

#### Explanation:

The first argument claims that the benefit of issuing penalty would be the reduced number of accidents caused by mobile phone usage while driving.

Thus, it is able to strongly support the given statement.

Therefore, argument I is strong.

Having a habit of using mobile phones everywhere does not justify the need to use it while driving. Therefore, this argument is not strong enough to reject the idea of penalising such offenders.

Therefore, argument II is not strong.

Hence, only argument I is strong.

---

#### 4. Answer: d

##### Explanation:

The logic followed here is:

Tyre is a part of Car.

Similarly,

Legs are a part of Chair.

Hence, 'legs' is the correct answer.

---

#### 5. Answer: d

##### Explanation:

The logic followed here is:

In each figure the complete central image turns 90 degrees in clockwise direction.

Answer Figure



Hence, the option figure D will complete the series.

## 6. Answer: b

### Explanation:

The statement does not imply that Mr. X fails to get thoughts at other periods of time besides morning.

Hence, neither conclusion I nor conclusion II follows.

## 7. Answer: a

### Explanation:

The Correct Answer is **Option 1** i.e Sodium.

|                       |                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Alkali Metal          | <ul style="list-style-type: none"> <li>• <u>Sodium</u> is a <b>Group 1 element</b> which is a member of Alkali Metal group.</li> <li>• Group 1 elements of Periodic table is called as <b>Alkali Metal</b>.</li> <li>• Sodium has its symbol called <math>_{11}\text{Na}</math> with Atomic number 11.</li> </ul>                                                        |
| Transition Metal      | <ul style="list-style-type: none"> <li>• <u>Manganese</u> is a Group 7 element which is a member of Transition Metal.</li> <li>• Group 7 elements of Periodic table is called as <b>Transition Metal</b></li> <li>• Manganese has its symbol called <math>_{25}\text{Mn}</math> with Atomic number 25.</li> </ul>                                                        |
| Post Transition Metal | <ul style="list-style-type: none"> <li>• <u>Aluminium</u> is a Group 13 element which is a member of Boron group.</li> <li>• The elements which are located right of transition metals and to the left of metalloids is called as <b>Post Transition Metal</b>.</li> <li>• Aluminium has its symbol called <math>_{13}\text{Al}</math> with Atomic number 13.</li> </ul> |
| Alkaline Earth Metal  | <ul style="list-style-type: none"> <li>• <u>Magnesium</u> is a Group 2 element which is member of Alkaline Earth Metal.</li> <li>• Group 2 elements of Periodic table is called as <b>Alkaline Earth Metal</b></li> <li>• Magnesium has its symbol called <math>_{12}\text{Mg}</math> with Atomic number 12.</li> </ul>                                                  |

8. Answer: a

Explanation:

According to the problem,

$$\sqrt{45} + \sqrt{20} = 11.180$$

$$\Rightarrow \sqrt{9 \times 5} + \sqrt{4 \times 5} = 11.180$$

$$\Rightarrow 3\sqrt{5} + 2\sqrt{5} = 11.180$$

$$\Rightarrow 5\sqrt{5} = 11.180$$

$$\Rightarrow \sqrt{5} = 11.180/5 = 2.236 \quad \dots i)$$

$$\therefore \text{The value of } \sqrt{180} + 4\sqrt{5} = \sqrt{9 \times 5 \times 4} + 4\sqrt{5}$$

$$\Rightarrow 6\sqrt{5} + 4\sqrt{5}$$

$$\Rightarrow 10\sqrt{5}$$

$$\Rightarrow 10 \times 2.236 \text{ [value of } \sqrt{5} = 2.236 \text{ we get from (i)]}$$

$$\Rightarrow 22.36$$

## 9. Answer: a

### Explanation:

The Correct Answer is **Option 1** i.e 200 N.

#### 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.

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

#### CALCULATION:

Given that:

Mass,  $m = 25 \text{ kg}$  and

Acceleration,  $a = 8 \text{ ms}^{-2}$

$$\text{Force (F)} = 25 \times 8$$

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

---

10. **Answer: c**

**Explanation:**

LCM = least common multiple, the least value which is exactly divisible by all the given numbers

$$60 = 2 \times 2 \times 3 \times 5$$

$$54 = 2 \times 3 \times 3 \times 3$$

$$\therefore \text{LCM of 60 and 54 is} = 2 \times 2 \times 3 \times 3 \times 3 \times 5 = 6 \times 10 \times 9$$

---

11. **Answer: b**

**Explanation:**

Total number of screws manufactured in the unit over the given 6 months,

$$\Rightarrow (200 + 300 + 250 + 250 + 250 + 250) \text{ thousand} = 1500 \text{ thousand}$$

$\therefore$  Average number of screws manufactured in the unit over the given 6 months,

$$\Rightarrow 1500 \text{ thousand} / 6 = 250 \text{ thousand}$$

---

12. **Answer: d**

**Explanation:**

The Correct Answer is **Option 4 i.e Fertilizers**.

★ Important Points

- Grey Revolution
  - Grey Revolution is associated with increased fertilizer production, which basically means it is related to the main effects of India's green revolution.
  - But only zeroing down to fertilizer won't be an appropriate thing.
  - Because the grey revolution includes everything that would take place due to the excessive green revolution.
  - It is actually a glimpse of what can happen if the new agricultural equipment turns things wrong.
- White Revolution
  - White Revolution in India also known as Operation Flood.
  - Operation Flood started in the year 1970 and was aimed to create a nationwide milk grid.
  - It was a rural development program initiated by NDDB – National Dairy Development Board of India.
  - White revolution period intended to make India a self-dependent nation in milk production.
  - Today, India is the world's largest producer of milk.
  - Dr. Verghese Kurien is known as the father of the White Revolution in India.
- Blue Revolution
  - The Blue Revolution in India was launched during the 7th Five Year Plan(1985-1990) during the sponsorship of the Fish Farmers Development Agency(FFDA) by the Central Government of India.
  - The main objective is to develop, manage, and promote fisheries to double the farmers' income.
  - Dr. Arun Krishnsan and Dr. Hiralal Chaudhari, are known as the fathers of the Blue Revolution.
- Green Revolution
  - Green Revolution is associated with agricultural production.
  - It is the period when agriculture of the country was converted into an industrial system due to the adoption of modern methods and techniques like the use of high-yielding variety seeds, tractors, irrigation facilities, pesticides, and fertilizers.
  - The term green revolution was first used by William Gaud and Norman Borlaug is the Father of the Green Revolution.

- In the year 1965, the government of India launched the Green Revolution with help of M.S. Swaminathan, now known as the father of the Green revolution( India).

### 13. Answer: a

#### Explanation:

Any number in the form of  $a/b$  is called fraction.

$$\text{Let, } x = 0.\bar{6} = 0.6666 \quad \text{---- (1)}$$

Multiplying above equation by 10, we get

$$10x = 6.6666 \quad \text{---- (2)}$$

Subtracting equation (1) from equation (2), we get

$$10x - x = 6.6666 - 0.6666$$

$$\Rightarrow 9x = 6$$

$$\Rightarrow x = 6/9$$

$$\therefore x = 2/3$$

### 14. Answer: b

#### Explanation:

The Correct Answer is **Option 2 i.e Three Atoms.**

- The chemical formula of ethane is  $C_2H_6$ .
- In Ethane, **each carbon atom is bonded to three hydrogen atoms** .
- In the structural formula, each dash (–) represents a single covalent bond, in which two atoms share one pair of valence electrons.

Some suffix says

Ane – Single bond

Ene – Double bond

Yne – Triple bond

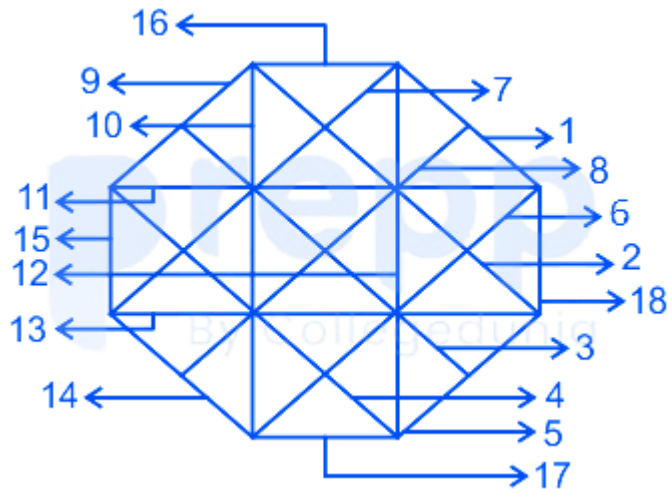
### ★ Additional Information

#### Hydrocarbons

- Compounds made of carbon and hydrogen atoms only are called hydrocarbons.
- Saturated hydrocarbons:
  - The hydrocarbons in which carbon atoms are singly bonded are called saturated hydrocarbons.
  - Saturated hydrocarbons are also called alkanes or paraffin .
    - The general formula of alkane–  $C_n H_{2n+2}$ .
- Unsaturated hydrocarbons:
  - The hydrocarbons in which carbon atoms are either doubly or triply bonded are called unsaturated hydrocarbons.
  - Doubly bonded (carbon atoms) hydrocarbons are called alkenes .
  - The general formula of alkene is  $C_n H_{2n}$ .
- Triply-bonded carbon:
  - Hydrocarbons containing at least one carbon-carbon triple bond between two carbon atoms are called alkynes .
  - The general formula of alkynes is  $C_n H_{2n-2}$ .

15. Answer: a

Explanation:



Hence, the minimum 18 lines are required to make the given figure.

16. Answer: d

Explanation:

The Correct Answer is Option 4 i.e  $\text{Li}_3\text{N}$ .

- The formula of Lithium Nitride is  $\text{Li}_3\text{N}$ .
- Lithium nitride is the **only stable alkali metal nitride**.
- It has high melting point of about  $813^\circ\text{C}$ .
- Other anions: Lithium oxide
- Solubility in water: reacts

17. Answer: d

Explanation:

The correct answer is Option 4, i.e Mauryan.

- The **Arthashastra** is an Indian treatise on politics, economics, military strategy, the function of the state, and social organization attributed to the philosopher Kautilya.

- The Arthashastra is thought to have been written by Kautilya as a kind of **handbook for Chandragupta** instructing him in how to reign over a kingdom and encouraging direct action in addressing political concerns without regard for ethical considerations.
  - Hence, the correct answer is Mauryan Administration.
- 

**18. Answer: c**

**Explanation:**

The Correct Answer is **Option 3** i.e Zero.

- When two equal force are acting on a body and opposite in direction, the net force acting on the body becomes zero.
  - A two forces of equal size, acting on body, in opposite direction is known as Balanced Force.
  - **Force** can be defined as the pull or push applied on an object.
- 

**19. Answer: b**

**Explanation:**

The Correct Answer is **Option 2** i.e Cytokinins.

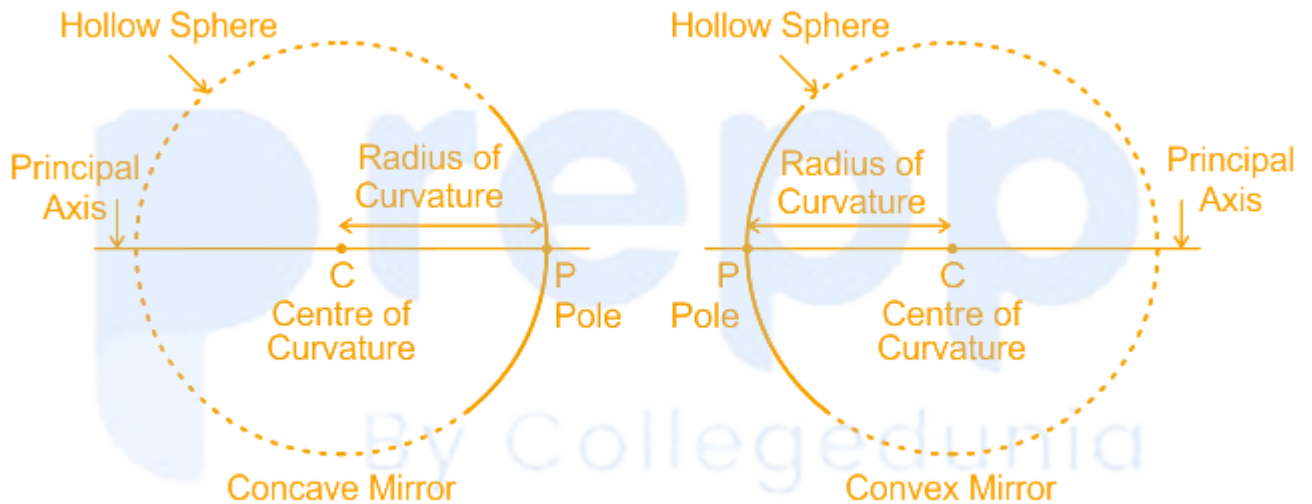
| Plant Hormones | Description                                                                                                                             |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Abscisic acid  | <ul style="list-style-type: none"> <li>• It is a plant hormone.</li> <li>• It promotes dormancy in seeds and buds in plants.</li> </ul> |
| Cytokinins     | <ul style="list-style-type: none"> <li>• It is a plant hormone.</li> <li>• It <b>promotes cell division in plants</b> .</li> </ul>      |
| Gibberellins   | <ul style="list-style-type: none"> <li>• It is a plant hormone.</li> <li>• It promotes stem elongation in plants.</li> </ul>            |
| Auxin          | <ul style="list-style-type: none"> <li>• It is a plant hormone.</li> <li>• It promotes cell elongation in plants.</li> </ul>            |

20. Answer: c

**Explanation:**

CONCEPT:

The systematic diagram of reflection through the **spherical mirror** is given by:

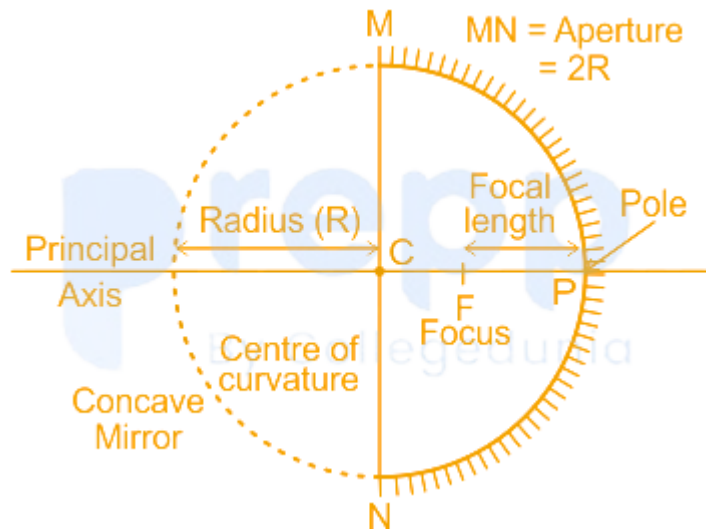


### Mirrors as a part of Sphere

- **Pole** : The center of the reflecting surface of a spherical mirror is called the pole.
- **Centre of curvature (C)** : The reflecting surface of the spherical mirror forms a part of the sphere. The center of this sphere is called the center of curvature of the mirror.
- **Focus (F)**: Rays which are coming parallel to the principal axis falling on spherical mirror intersect or meet at the point on the principal axis is called as the principal focus.
- **Focal length (f)** : The distance between pole and principal focus is called the principal focal length.

#### EXPLANATION:

- The distance between focal and pole is termed as **focal length, outside the mirror** .
- The **center of curvature** is not a part of the mirror and lies outside its reflecting surface.
- **Pole** lies on the reflecting surface of the mirror .



21. Answer: d

### Explanation:

The Correct Answer is **Option 4** i.e **Water**

- White phosphorous is stored in **water**.
- White phosphorous is **insoluble in water** so it is stored underwater to prevent oxidation.
- Also white phosphorous is **highly reactive, flammable** and igniting naturally in the air unless it is stored underwater.

22. Answer: b

### Explanation:

Let, there are x numbers present in the group

According to the question,

$$8 \times 17 + (x - 8) \times 22 = 20 \times x$$

$$\Rightarrow 136 + 22x - 176 = 20x$$

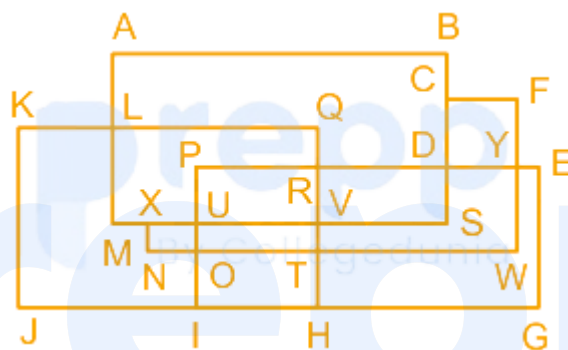
$$\Rightarrow 2x = 40$$

$$\Rightarrow x = 20$$

$\therefore$  There were 20 numbers in the group

### 23. Answer: c

**Explanation:**



The rectangles are XUON, UVTO, XVTN, PRVU, OTHI, PRHI, PDSU, RYWT, REGH, CFED, PEGI, LQVM, ABSM, KQHJ, PRTO, UVHI, RDVS.

Hence, 17 is the correct answer.

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### 24. Answer: d

**Explanation:**

Total cost of Raw material = Rs. 3,00,000

$\therefore$  The cost of procuring the gold is dependent upon only the raw material cost and no other cost.

$\therefore$  Amount spent by the jeweller in procuring the gold = Rs.  $(3,00,000 \times 20/100)$  = Rs. 60,000

**25. Answer: d**

**Explanation:**

$$11 + 9 = 20;$$

$$20 + 7 = 27;$$

$$27 + 9 = 36;$$

$$36 + 7 = 43;$$

$$43 + 9 = 52;$$

$$52 + 7 = 59;$$

$$59 + 9 = 68;$$

$$68 + 7 = 75;$$

Hence, 52 and 59 are the missing term in the given series.

**26. Answer: d**

**Explanation:**

Let, number of sides of the polygon be  $n$

Sum of all interior angles,

$$(n - 2) \times 180^\circ = 1260^\circ$$

$$\Rightarrow n - 2 = 7$$

$$\Rightarrow n = 9$$

$\therefore$  Number of sides in the polygon = 9

27. Answer: a

**Explanation:**

The correct answer is Option 1, i.e Information and Broadcasting Ministry.

- Smriti Irani held the portfolio of Information and Broadcasting Ministry till May 2018.
- The **Ministry of Information and Broadcasting (Ministry of I&B)** is responsible for the formulation and administration of rules, regulations and laws in the areas of information, broadcasting, the press and the Cinema of India.
- The Ministry is responsible for the administration of **Prasar Bharati**.
- The Central Board of Film Certification is the other important statutory body under this ministry being responsible for the regulation of motion pictures broadcast in India.

28. Answer: c

**Explanation:**

Suppose, A can complete the task in = x days,

B can complete the task in = y days

According to the question,

$$1/x + 1/y = 1/1.2$$

$$\Rightarrow x + y = xy/1.2 \quad \dots i)$$

A completes half the job in =  $x/2$  days and B completes half the job in =  $y/2$  days

$$\Rightarrow x/2 + y/2 = 2.5$$

$$\Rightarrow x + y = 5 \quad \dots ii)$$

From (i) and (ii), we get,

$$xy/1.2 = 5$$

$$\Rightarrow xy = 6$$

$$\Rightarrow x = 6/y \quad \dots \text{iii})$$

From (ii) and (iii) we get,

$$6/y + y = 5$$

$$\Rightarrow 6 + y^2 = 5y$$

$$\Rightarrow y^2 - 3y - 2y + 6 = 0$$

$$\Rightarrow y(y - 3) - 2(y - 3) = 0$$

$$\Rightarrow (y - 3)(y - 2) = 0$$

$$\Rightarrow y = 3 \text{ or } 2$$

$$\text{For } y = 3, x = 6/3 = 2$$

$$\text{For } y = 2, x = 6/2 = 3$$

$\therefore$  B is more efficient than A

$\therefore$  B take less days than A

$\therefore$  B would take 2 days to complete the task

---

## 29. Answer: c

### Explanation:

Marked price of the hand bag = Rs. 4600

Selling price of the hand bag = Rs. 2990

According to the question,

$$4600 - 4600 \times P/100 = 2990$$

$$\Rightarrow 46P = 1610$$

$$\Rightarrow P = 35$$

$$\therefore P = 35$$

★ Alternate Method

$$D\% = (MP - SP)/MP \times 100,$$

Where,

D% is discount %,

MP is marked price,

SP is selling price,

According to the question,

$$D\% = (4,600 - 2,990)/4,600 \times 100$$

$$\Rightarrow D\% = 1,610/4,600 \times 100$$

$$\Rightarrow D\% = 1,610/46 = 35$$

$\therefore$  Value of P is 35.

---

30. **Answer: a**

**Explanation:**

The Correct Answer is **Option 1** i.e. Parenchyma.

| Types of Cells | Description                                                                                                                                                                                                                                                               |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parenchyma     | <ul style="list-style-type: none"> <li>It is type of cell in plants.</li> <li>In this cells are <u>loosely packed</u> so that <b>large inter cellular spaces are found</b>.</li> <li>It helps in absorption of light and for regulating gas exchange in plant.</li> </ul> |
| Tracheids      | <ul style="list-style-type: none"> <li>It is type of conducting cell in plants.</li> <li>It transports water and minerals to all parts of plants.</li> </ul>                                                                                                              |
| Sclerenchyma   | <ul style="list-style-type: none"> <li>It is type of cell in plants.</li> <li>In this cells are <u>very closely packed</u>.</li> <li>It helps in anchoring of plants.</li> </ul>                                                                                          |
| Collenchyma    | <ul style="list-style-type: none"> <li>It is type of cell in plants.</li> <li>In this cells are <u>closely packed</u>.</li> <li>These cells are irregular in shape.</li> <li>It helps in elongation and growth of plants.</li> </ul>                                      |

31. Answer: d

### Explanation:

The Correct Answer is **Option 4** i.e **S. S. Rajamouli**.

- The **Director** of the blockbuster movie "Baahubali" is **S. S. Rajamouli**.
- It was written by K. V. Vijayendra Prasad.
- Screen Play was done by K. V. Vijayendra Prasad and S. S. Rajamouli.
- It was produced by Shoba Yarlagadda and Prasad Devineni.
- It was released on 10<sup>th</sup> July 2015.

- Baahubali was one of the highest grossing movie in India and 3<sup>rd</sup> highest grossing Indian film across the world.

32. Answer: d

Explanation:

We can observe that,

$$((10 - 10) \times 25) + 10$$

$$\Rightarrow (0 \times 25) + 10$$

$$\Rightarrow 0 + 10$$

$$\Rightarrow 10$$

Hence, LHS = RHS

∴ Option 4 is correct

33. Answer: d

Explanation:

Glass and Metal are not the only material used to make a vessel. Clay, plastic and other materials are also used to make vessels.



Hence, the figure given above is the correct diagram that represents the given relationship.

34. Answer: c

Explanation:

The Correct Answer is **Option 3** i.e Pankaj Advani.

- Pankaj Advani was honoured with the prestigious **2018 Padma Bhushan** award in the field of Sports-Billiards / Snooker.
- Padma Bhushan is an 4<sup>th</sup> highest civilian award which is awarded by Government of India.

| Awardee                                                                                                           | Award         | Category | Year |
|-------------------------------------------------------------------------------------------------------------------|---------------|----------|------|
| <b>Geet Sethi</b> is an professional player in the field of Billiards who was born in Delhi.                      | Padma Bhushan | Sports   | 1986 |
| <b>Pankaj Advani</b> is an professional player in the field of Billiards and Snooker who was born in Maharashtra. | Padma Bhushan | Sports   | 2009 |
| <b>Michael Joseph Ferreira</b> is an professional player in the field of Billiards who was born in Mumbai         | Padma Bhushan | Sports   | 1984 |

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35. Answer: c

Explanation:

Calculation:

Copper to Zinc = 21 : 16

Nickel to Zinc = 7 : 2

We therefore get the LCM of 16 and 24.

The LCM of 16 and 24 = 48

Multiplying the first ratio with 3 and the second ratio with 2, we get

$$\Rightarrow \text{Copper : Zinc} = 63 : 48$$

$$\Rightarrow \text{Nickel : Zinc} = 14 : 48$$

Thus, Copper : Zinc : Nickel = 63 : 48 : 14

---

**36. Answer: d**

**Explanation:**

Total distance covered = 160 m

Total time taken = 1 minute = 60 s

Average speed = Total distance/Total time taken

$$\therefore \text{His average speed} = 160/60 = 2.67 \text{ ms}^{-1}$$

---

**37. Answer: d**

**Explanation:**

The Correct Answer is **Option 4** i.e 2 Diopter.

The Focal length of a lens is 50 centimetre then its power is 2 Diopter.

**Formula for Power of Lens:**

$$P = 1 / f$$

where P is a power of lens measured in Diopters (D)

f is a focal length which is given in centimeter (m).

$$50 \text{ cm} = 50 \times 10^{-2} \text{ m}$$

Calculation:

$$P = 1 / f$$

$$P = 1 / (50 \times 10^{-2})$$

$$P = 10^2 / 50$$

$$P = 2$$

Power,  $P = 2$  Diopter.

**38. Answer: d**

**Explanation:**

The Correct Answer is **Option 4** i.e Hyderabad.

- The host city for the 8<sup>th</sup> annual Global Entrepreneurship Summit (GES – 2017) was **Hyderabad**.

| Global Entrepreneurship Summit                   | Year        | Host City               |
|--------------------------------------------------|-------------|-------------------------|
| 1st Annual Global Entrepreneurship Summit        | 2010        | Washington D.C          |
| 2nd Annual Global Entrepreneurship Summit        | 2011        | Istanbul, Turkey        |
| 3rd Annual Global Entrepreneurship Summit        | 2012        | Dubai, UAE              |
| 4th Annual Global Entrepreneurship Summit        | 2013        | Kuala Lumpur, Malaysia  |
| 5th Annual Global Entrepreneurship Summit        | 2014        | Marrakesh, Morocco      |
| 6th Annual Global Entrepreneurship Summit        | 2015        | Nairobi, Kenya          |
| 7th Annual Global Entrepreneurship Summit        | 2016        | Palo Alto, California   |
| <b>8th Annual Global Entrepreneurship Summit</b> | <b>2017</b> | <b>Hyderabad, India</b> |
| 9th Annual Global Entrepreneurship Summit        | 2019        | The Hague, Netherlands  |

39. Answer: b

Explanation:

The Correct Answer is **Option 2** i.e  $6 \times 10^{24}$  kg.

The Mass of the Earth is  $5.972 \times 10^{24}$  kg and it gets converted to  $6 \times 10^{24}$  kg because of decimal point greater than 5.

|                             |                             |
|-----------------------------|-----------------------------|
| Mass of the Earth           | $6 \times 10^{24}$ kg       |
| Radius of the Earth         | 6,371 km                    |
| Earth Distance from the Sun | 151.85 million km           |
| Surface Area of the Earth   | 510.1 million $\text{km}^2$ |
| Density of the Earth        | 5.51 g / $\text{cm}^3$      |

40. Answer: c

Explanation:

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

The logic followed here is that each alphabet is coded as second number of its positional value.

F (06)  $\rightarrow$  6;

L (12)  $\rightarrow$  2;

U (21)  $\rightarrow$  1;

T (20)  $\rightarrow$  0;

E (05)  $\rightarrow$  5;

Similarly,

H (08)  $\rightarrow$  8;

A (01)  $\rightarrow$  1;

R (18)  $\rightarrow$  8;

M (13)  $\rightarrow$  3;

O (15)  $\rightarrow$  5;

N (14)  $\rightarrow$  4;

I (09)  $\rightarrow$  9;

C (03)  $\rightarrow$  3;

A (013)  $\rightarrow$  1;

Hence, 'HARMONICA' is coded as '818354931'

**41. Answer: a**

**Explanation:**

The Correct Answer is **Option 1** i.e 2000 J

**Formula of Kinetic Energy:**

$$\text{Kinetic Energy} = \frac{1}{2} \times m \times v^2$$

**Calculation:**

Mass,  $m = 10 \text{ kg}$

Speed,  $v = 20 \text{ m/s}$

Kinetic Energy  $= \frac{1}{2} \times 10 \times (20)^2$

K.E  $= \frac{1}{2} \times 10 \times 400$

K.E  $= 5 \times 400$

**Kinetic Energy = 2000 J**

---

#### 42. Answer: b

##### Explanation:

The correct answer is Option 2, i.e Transition Elements.

##### ★ Important Points

- There are elements which differ in the capacity to combine with other elements.
- This depends on the nature of the reaction.
- The property of such kind of elements is called **variable valency**.
- For example, the iron in ferrous oxide exhibits a valency of +2, whereas in ferric oxide, it has a valency of +3.
- The **transition elements** are those elements having a **partially filled d or f subshell** in any common oxidation state.
- The term "transition elements" most commonly refers to the d-block transition elements.
- **Variable valency is thus exhibited by the Transition elements due to partially filled subshells.**

---

#### 43. Answer: c

### Explanation:

The correct answer is Option 3, i.e 6.

- In **2017**, India had emerged as the **sixth largest economy**, while France was pushed to the seventh place in the global GDP league table.
- India became the **fifth-largest economy in 2019**, overtaking the United Kingdom and France.
- India ranks third when GDP is compared in terms of purchasing power parity at \$11.33 trillion.

---

#### 44. Answer: c

### Explanation:

The Correct Answer is **Option 3 i.e Bharatiya Janta Party.**

- The Chief Minister of Goa as of March 2018. Manohar Parrikar, belongs to Bharatiya Janata Party.
- Here is the list of Chief Ministers of Goa with respective party and year of their administration.

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| Party                    | Chief Minister of Goa | Year                                                                                                                                                                 |
|--------------------------|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Indian National Congress | Pratapsingh Rane      | Jan 1980 – Jan 1985,<br>Jan 1985 – May 1987,<br>May 1987 – Jan 1990,<br>Jan 1990 – Mar 1990,<br>Dec 1994 – Jul 1998,<br>Feb 2005 – Mar 2005,<br>Jun 2005 – Jun 2007. |
|                          | Ravi S Naik           | Jan 1991 – May 1993,<br>Apr 1994 – Apr 1994                                                                                                                          |
|                          | Wilfred de Souza      | May 1993 – Apr 1994,<br>Apr 1994 – Dec 1994.                                                                                                                         |
|                          | Luizinho Faleiro      | Nov 1998 – Feb 1999,<br>Jun 1999 – Nov 1999.                                                                                                                         |
|                          | Digambar Kamat        | Jun 2007 – Mar 2012.                                                                                                                                                 |
| Bharatiya Janata Party   | Manohar Parrikar      | Oct 2000 – Jun 2002,<br>Jun 2002 – Feb 2005,<br>Mar 2012 – Nov 2014,                                                                                                 |

|  |                   |                      |
|--|-------------------|----------------------|
|  |                   | Mar 2017 – Mar 2019. |
|  | Laxikant Parsekar | Nov 2014 – Mar 2017. |
|  | Pramod Sawant     | Mar 2019 – Present   |

45. Answer: b

Explanation:

Let, length of BD be x cm

According to the question,

$$BD \times AD = DE^2$$

$$\Rightarrow BD \times (BD + AB) = DE^2$$

$$\Rightarrow x \times (x + 24) = 9^2$$

$$\Rightarrow x^2 + 24x - 81 = 0$$

$$\Rightarrow x^2 + 27x - 3x - 81 = 0$$

$$\Rightarrow x(x + 27) - 3(x + 27) = 0$$

$$\Rightarrow (x + 27)(x - 3) = 0$$

$$\Rightarrow x = 3 \text{ or } -27$$

$$\therefore \text{Length of BD} = 3 \text{ cm}$$

46. Answer: b

Explanation:

The Correct Answer is Option 2 i.e Angiosperms.

- Wood vessels are the chief water-conducting elements of **angiosperms**.
- In contrast to the tracheids the final walls of the single vessels are perforated or, much more so, completely resolved.

|             |                                                                                                                                                                                         |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Fungi       | <ul style="list-style-type: none"> <li>• It is a single cell or multicellular organism.</li> <li>• Example: Ascomycota.</li> </ul>                                                      |
| Angiosperms | <ul style="list-style-type: none"> <li>• It is a flowering plants.</li> <li>• <b>Vessels</b> are the major water conducting cells in Angiosperms.</li> <li>• Example: Maize.</li> </ul> |
| Bryophyta   | <ul style="list-style-type: none"> <li>• They are non - vascular land plants.</li> <li>• Vessels are absent in Bryophyta.</li> <li>• Example: Mosses.</li> </ul>                        |
| Thallophyta | <ul style="list-style-type: none"> <li>• They are undifferentiated algae.</li> <li>• Vessels are absent in Thallophyta.</li> <li>• Example: Spirogyra.</li> </ul>                       |

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47. 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  |

Y → 25;

$E \rightarrow 5;$

$L \rightarrow 12;$

$L \rightarrow 12;$

Similarly,

$L \rightarrow 12;$

$E \rightarrow 5;$

$N \rightarrow 14;$

$T \rightarrow 20$

Hence, 'LENT' will be coded as '1251420'.

---

**48. Answer: c**

**Explanation:**

Principal (p) = 3125

Rate of interest (r) = 8%

Time (t) = 5 years

$\therefore$  Interest earned by him =  $(p \times r \times t)/100$

$= (3125 \times 8 \times 5)/100 = 125000/100 = \text{Rs. } 1250$

---

**49. Answer: c**

**Explanation:**

Concept

Any number is divisible by 3 if the sum of all digits of the number is divisible by 3.

Any number is divisible by 4 if the last 2 digits of the number are divisible by 4.

### Solution

Here, last two digits of all given numbers are 08. Hence, all numbers are divisible by 4.

Now, we have to check divisibility by 3.

$$73508 = 7 + 3 + 5 + 0 + 8 = 23 \text{ (Not divisible by 3)}$$

$$63508 = 6 + 3 + 5 + 0 + 8 = 22 \text{ (Not divisible by 3)}$$

$$83508 = 8 + 3 + 5 + 0 + 8 = 24 \text{ (Divisible by 3)}$$

$$93508 = 9 + 3 + 5 + 0 + 8 = 25 \text{ (Not divisible by 3)}$$

Hence, 83508 is divisible by 12.

---

### 50. Answer: b

#### Explanation:

The Correct Answer is **Option 2** i.e Dia Mirza.

- **Dia Mirza** was appointed as the **UN Environment's Goodwill Ambassador for India in November 2017**.
- On 29<sup>th</sup> November 2017, Former Miss Asia Pacific, Actor, Producer, Entrepreneur and Environmentalist, Dia Mirza was appointed as UN Environment's Goodwill Ambassador for India.
- Dia has supported her efforts in the field of social change, conservation and environment.
- As a Goodwill Ambassador, Dia will work with the United Nations to expand areas including clean air, clean seas, wildlife protection and climate change.

51. Answer: d

Explanation:

The Correct Answer is **Option 4** i.e. Regeneration.

|                  |                                                                                                                                                                                                                                         |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Budding          | <ul style="list-style-type: none"> <li>A new organism developed from the mother plant or a bud due to cell division is called as Budding. <b>Example:</b> Hydra.</li> </ul>                                                             |
| Fission          | <ul style="list-style-type: none"> <li>Some cells in plants undergoes mitotic cell division to produce new organisms is called as Fission. <b>Example:</b> Bacteria.</li> </ul>                                                         |
| Multiple Fission | <ul style="list-style-type: none"> <li>Some cells in plants undergoes several mitotic cell division to produce new organisms is called as Fission. <b>Example:</b> Protozoa</li> </ul>                                                  |
| Regeneration     | <ul style="list-style-type: none"> <li>All parts of plant can be regenerated through cell division is called as Regeneration.</li> <li><b>Regeneration is not same as reproduction.</b></li> <li><b>Example:</b> Jelly Fish.</li> </ul> |

52. Answer: a

Explanation:

The Correct Answer is Option 1 i.e. Sri Sri Ravi Shankar.

Sri Sri Ravi Shankar is the proponent and propagandist of the "Art of Living".

|                                 |                                                                                                                                                                                                                                                                                                                    |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sri Sri Ravi Shankar            | <ul style="list-style-type: none"> <li>Gurudev Sri Sri Ravi Shankar founded the Art of Living as an international, non-profit, educational and humanitarian organization.</li> <li>Ravi Shankar co-funded the International Association for Human Values (IAHV) a sister organization of Art of Living.</li> </ul> |
| Swaminarayan / Sahajanand Swami | <ul style="list-style-type: none"> <li>Swaminarayan is also known as Sahajanand Swami.</li> <li>He was the founder of Swaminarayan Sampradav.</li> </ul>                                                                                                                                                           |
| Pandit Ravi Shankar             | <ul style="list-style-type: none"> <li>He was an Bengali Indian Musician and a composer of Hindustani Classical Music.</li> </ul>                                                                                                                                                                                  |

53. Answer: b

**Explanation:**

The Correct Answer is **Option 2** i.e Goa.

- The 48<sup>th</sup> International Film Festival of India held at Goa in 2017.

|           |                                                                                                                                                                                                                                                                                                                 |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Delhi     | <ul style="list-style-type: none"> <li>International Film Festival of India was held in New Delhi in <b>2<sup>nd</sup> to 12<sup>th</sup>, 24<sup>th</sup>, 27<sup>th</sup>, 29<sup>th</sup>, 31<sup>st</sup>, 33<sup>rd</sup> and 34<sup>th</sup></b> Year of International Film Festival of India.</li> </ul> |
| Goa       | <ul style="list-style-type: none"> <li>Since 2004, starting from the <b>35<sup>th</sup></b> edition of International Film Festival of India was held at Goa as permanent venue.</li> </ul>                                                                                                                      |
| Mumbai    | <ul style="list-style-type: none"> <li>International Film Festival of India was held in Mumbai in <b>1<sup>st</sup> and 26<sup>th</sup></b> Year of International Film Festival of India.</li> </ul>                                                                                                            |
| Hyderabad | <ul style="list-style-type: none"> <li>International Film Festival of India was held in Hyderabad in <b>30<sup>th</sup></b> Year of International Film Festival of India.</li> </ul>                                                                                                                            |

54. Answer: a

Explanation:



Hence, answer figure D is combined to form the given shape.

55. Answer: d

Explanation:

The correct answer is Option 4, i.e Kanchanmala Pande.

- Kanchanmala Pande, who hails from Amravati, won a gold medal at 2017 and thus became the first Indian to win gold at World Para Swimming Championship.
- **Curtis Lovejoy** was inducted into the Atlanta Sports Hall of Fame in the United States of America.
- **Tucker Dupree** is an American swimmer who has won three medals at the 2012 Paralympic Games and one at the 2016 Paralympic Games.
- **Jessica Long** has held multiple world records and has won multiple gold medals over four Summer Paralympics.

## 56. Answer: c

### Explanation:

Suppose, pipe B was open for x hours

According to the question,

$$3.4/5 + x/6.25 = 1$$

$$\Rightarrow \frac{3.4 \times 1.25 + x}{6.25} = 1$$

$$\Rightarrow 4.25 + x = 6.25$$

$$\Rightarrow x = 2$$

∴ Pipe B was open for 2 hours

### ★ Alternate Method

Formula Used:

Efficiency × Time taken = Total capacity of Cistern

Total capacity of Cistern = LCM of time taken

**Calculation:**

Capacity of a Cistern = LCM of 5 and 6.25

⇒ Capacity of a Cistern = 25 units

Efficiency of pipe A,

⇒  $25/5 = 5$  units/hour

Efficiency of pipe B,

⇒  $25/6.25 = 4$  units/hour

Pipe B is turned off after some, and cistern filled in 3.4 hours,

Which mean pipe A worked for total 3.4 hours,

Total units filled by pipe A,

⇒  $3.4 \times 5 = 17$  units

Remaining units to be filled by pipe B,

Remaining units,

⇒  $25 - 17 = 8$  units

Time taken by pipe B to fill 8 units,

⇒  $8/4 = 2$  hours.

∴ Pipe B was open for 2 hours

---

**57. Answer: d**

**Explanation:**

The Correct Answer is **Option 4** i.e **Narendra Modi**.

- A 112 ft tall Shiva statue (Adiyogi) was unveiled on 24th February 2017 in Tamil Nadu by **Narendra Modi**.
- It is funded by Isha Foundation and founded by popular yoga guru Jaggi Vasudev.
- The Main reason behind the statue for 112 feet tall because there are 112 chakras in the human system in which we work to explore 112 dimension of Life.

58. Answer: d

**Explanation:**

The correct answer is Option 4, i.e. **Wetlands**.

- The **mangrove forests or wetlands** are called by various names like tidal forests, coastal woodlands, walking forests in the sea, roots of the sea or oceanic rainforests.
- **Wetland**s occur where water meets land.
- They include **mangroves**, peatlands and marshes, rivers and lakes, deltas, floodplains and flooded forests, rice-fields, and even coral reefs.
- Wetlands exist in every country and in every climatic zone, from the polar regions to the tropics, and from high altitudes to dry regions.

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59. Answer: a

**Explanation:**

Let, number of chairs in office be  $9x$  and number of tables be  $7x$

According to the question,

$$9x - 7x = 42$$

$$\Rightarrow 2x = 42$$

$$\Rightarrow x = 21$$

$\therefore$  Number of chairs in the office =  $9 \times 21 = 189$

---

60. Answer: d

Explanation:

The correct answer is Option 4, i.e  $60 \text{ ms}^{-1}$

- Time to reach Maximum height =  $12/2 = 6 \text{ s}$
  - $v = 0$  (at the maximum height)
  - $a = 10 \text{ m s}^{-2}$
  - Using,  $v = u + at$ , we get
  - $0 = u - 10 \times 6 \text{ s}$
  - or,  $u = 60 \text{ ms}^{-1}$
- 

61. Answer: d

Explanation:

The Correct Answer is Option 4 i.e Double salt.

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Flake Salt               | <ul style="list-style-type: none"> <li>• Flake salt is also called as Flaked Sea Salt.</li> <li>• It has less minerals so that it has more salt flavour.</li> </ul>                                                                                                                                                                                                                                              |
| Single Salt / Table Salt | <ul style="list-style-type: none"> <li>• The salt which has only one cation or one anion is called as Single Salt.</li> </ul> <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>• Sodium Chloride is also called as Simple salt.</li> <li>• Chemical formula of Sodium Chloride is NaCl.</li> </ul>                                                                                                  |
| Double Salt              | <ul style="list-style-type: none"> <li>• The salt which has <u>more than one cation or anion</u> is called as Double Salt.</li> </ul> <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>• Alum is also called as Potash Alum.</li> <li>• Chemical formula of Potash Alum is <math>KAl(SO_4)_2 \cdot 12H_2O</math></li> <li>• It is mostly used in medicine and water treatment processes.</li> </ul> |

62. Answer: d

**Explanation:**

Suppose, Sunny alone can complete the task in x hours

According to the question,

$$1/x + 1/18 = 1/12$$

$$\Rightarrow 1/x = (3 - 2)/36$$

$$\Rightarrow x = 36 \text{ hours}$$

Sunny alone can complete the task in = 36 hours

Suppose, Sunny and Jane together can complete the task in k hours

According to the question,

$$1/k = 1/36 + 1/45$$

$$\Rightarrow 1/k = (5 + 4)/180$$

$$\Rightarrow 1/k = 9/180$$

$$\Rightarrow k = 20$$

$\therefore$  Sunny and Jane together can complete the task in 20 hours

---

**63. Answer: b**

**Explanation:**

The Correct Answer is **Option 2** i.e Sanjay Leela Bhansali.

- Sanjay Leela Bhansali is the Director of the movie 'Padmavaat' released in 2018.

| Director Name         | Movies released in 2018                                                                                                                                                                                        |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rajkumar Hirani       | <ul style="list-style-type: none"> <li>• <u>Sanju</u> is the movie which was directed by Rajkumar Hirani in 2018.</li> <li>• He was directed 5 movies from 2003 to present.</li> </ul>                         |
| Sanjay Leela Bhansali | <ul style="list-style-type: none"> <li>• <u>Padmaavat</u> is the movie which was directed by Sanjay Leela Bhansali in 2018.</li> <li>• He was directed 10 movies from 1996 to present.</li> </ul>              |
| Karan Johar           | <ul style="list-style-type: none"> <li>• <u>Lust Stories, Raazi, Dhadak, Simmba</u> are movies which was directed by Karan Johar in 2018.</li> <li>• He was directed 9 movies from 1998 to present.</li> </ul> |
| S. S. Rajamouli       | <ul style="list-style-type: none"> <li>• There is no movies was directed by S. S. Rajamouli in 2018.</li> <li>• He was directed 12 movies from 2001 to present.</li> </ul>                                     |

64. Answer: b

### Explanation:

The Correct Answer is **Option 2** i.e Prakash Javadekar.

Prakash Javadekar is the Union Minister of Human Resource Development, Government of India, as of 1 March 2018.

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Radha Mohan Singh | <ul style="list-style-type: none"> <li>Radha Mohan Singh was the Minister of Agriculture and Farmers Welfare from 2014 to 2019.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                          |
| Prakash Javadekar | <ul style="list-style-type: none"> <li>Prakash Javadekar was the Minister of State for Parliamentary Affairs in 2014.</li> <li>Prakash Javadekar was the Minister of Human Resource Development from 2016 to 2019.</li> <li>Prakash Javadekar is currently Minister of Information &amp; Broadcasting, Environment, Forest &amp; Climate Change and Heavy Industries &amp; Public Enterprises from 2019 to present.</li> <li>The current HRD minister is <b>Ramesh Pokhriyal</b>.</li> </ul>                                                        |
| Harsh Vardhan     | <ul style="list-style-type: none"> <li>Harsh Vardhan was the Minister of Environment, Forest and Climate Change from 2017 to 2019.</li> <li>Harsh Vardhan is currently serving in these following departments:               <ol style="list-style-type: none"> <li>Chairman of WHO Executive board from 2020 to present,</li> <li>Minister of Health and Family Welfare from 2019 to present,</li> <li>Minister of Science and Technology from 2014 to present and</li> <li>Minister of Earth Sciences from 2014 to present</li> </ol> </li> </ul> |
| Smriti Irani      | <ul style="list-style-type: none"> <li>Smriti Irani was the Minister of Human Resource Development from 2014 to 2016.</li> <li>Smriti Irani was the Minister of Information and Broadcasting from 2017 to 2018.</li> <li>Smriti Irani is currently serving as Minister of Women and Child Development from 2019 and Minister of Textiles from 2016 to present.</li> </ul>                                                                                                                                                                           |

65. Answer: b

Explanation:

The Correct Answer is Option 2 i.e Divya Deshmukh.

|                   |                                                                                                                                                                                                                                                                                                            |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Padmini Rout      | <ul style="list-style-type: none"> <li>• <u>Padmini Rout</u> is an Indian Chess player.</li> <li>• She won Gold in Girls <b>under 12</b> category at the <b>Asian</b> in 2006.</li> <li>• She won Gold in Girls <b>under 14</b> category at the <b>World Cadets Chess Championship</b> in 2008.</li> </ul> |
| Divya Deshmukh    | <ul style="list-style-type: none"> <li>• <u>Divya Deshmukh</u> is an Indian Chess player.</li> <li>• She won Gold in the Girls <b>under 12</b> and <b>under 10</b> category at the <b>World Cadets Chess Championship</b> in 2017 and 2014 respectively.</li> </ul>                                        |
| Abhimanyu Puranik | <ul style="list-style-type: none"> <li>• <u>Abhimanyu Puranik</u> is an Indian Chess player.</li> <li>• He won Silver in <b>under 20</b> category at the World Junior Boys and Girls in 2018.</li> </ul>                                                                                                   |
| Aryan Chopra      | <ul style="list-style-type: none"> <li>• <u>Aryan Chopra</u> is an Indian Chess player.</li> <li>• He is the India's <b>fifth</b> youngest Grandmaster.</li> <li>• He has won Abu Dhabi Chess Championship Masters Tournament.</li> </ul>                                                                  |

66. Answer: d

Explanation:



Hence, answer figure A is the pattern that the given transparent sheet will resemble when it is folded at the dotted line.

67. Answer: a

Explanation:

LICK  
TICK

Hence, answer figure C is the correct horizontal mirror image of LICK.

68. Answer: d

Explanation:

Let, radius of base of a right circular cone be  $r$

$\Rightarrow$  Height of the right circular cone =  $3r$

Let, radius of the hemisphere be  $R$

According to the question,

$$\frac{1}{3} \times \pi \times r^2 \times 3r = \frac{2}{3} \times \pi \times R^3$$

$$\Rightarrow r^3 = \frac{2R^3}{3}$$

$$\Rightarrow \left(\frac{r}{R}\right)^3 = \frac{2}{3}$$

$$\Rightarrow \frac{r}{R} = \left(\frac{2}{3}\right)^{1/3}$$

∴ Ratio of the radii of the cone and the hemisphere  $\sqrt[3]{2} : \sqrt[3]{3}$

69. Answer: c

### Explanation:

Since the meteorologist emphasizes that a shortage in rainfall would result in crop failure, it can be assumed that rainfall is a necessity to avoid the failure.

Therefore, assumption I is implicit.

However, nothing is mentioned or suggested about the relation between irrigation and rainfall.

Therefore, assumption II is not implicit.

Hence, only assumption I is implicit.

70. Answer: c

### Explanation:

In each figure the arrow is on one of the sides of the polygon whereas in figure C the arrow is on one of the corners of the polygon.



Hence, figure C is the odd one among the given figures.

71. Answer: a

### Explanation:

Given:

A and B can fill an empty tank = 24 hours

A and B worked together for 8 hours and then B is stopped but A continued to work and it took 28 hours to fill the tank

Formula used:

Total work = Time  $\times$  Efficiency

Calculations:

Suppose, A alone can fill the tank in  $x$  hours and B alone can fill the tank in  $y$  hours

According to the question,

$$1/x + 1/y = 1/24$$

$$\Rightarrow 8/x + 8/y = 8/24 = 1/3$$

Also,

$$28/x + 8/y = 1$$

From above equations, we get,

$$20/x = 1 - 1/3$$

$$\Rightarrow 20/x = 2/3$$

$$\Rightarrow x = 30$$

$\therefore$  A alone can fill the tank in 30 hours

### ★ Alternate Method

Let the efficiency of A be  $x$  and efficiency of B is  $y$

Total tank fill by A and B together in an hour =  $x + y$

The total capacity of the tank =  $24(x + y)$  ----(1)

∴ In the second condition when B is closed after 8 hours and the tank is filled in 28 hours.

Tank fill by A in 28 hours =  $28x$

Tank fill by B in 8 hours =  $8y$

Total capacity of the tank =  $28x + 8y$  ----(2)

From equation (1) and (2)

$$24(x + y) = 28x + 8y$$

$$\Rightarrow x/y = 4/1$$

Efficiency of A =  $x = 4$

Efficiency of B =  $y = 1$

Total capacity of the tank =  $24(x + y) = 120$

Time taken by A to fill the tank alone =  $120/4 = 30$  hours

∴ A alone can fill the tank in 30 hours

## 72. Answer: b

### Explanation:

Bird sanctuaries provide natural habitats to the birds who take shelter here.

Therefore, it is safe to assume that the birds are migratory and stay in the sanctuary during a particular period of the year

Therefore, assumption I is implicit.

However, since the statement does not talk about water bodies at all, assumption II is not implicit.

Hence, only assumption I is implicit.

73. Answer: b

Explanation:

Preparing the family tree using the following symbols:

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



Hence, Vandana is cousin of Amit.

74. Answer: c

Explanation:

Given:

Monika's father was 38 years of age when she was born while her mother was 36 years old when her sister four years younger to her was born.

**Concept used:**

We will be using the fundamental concept of ratio.

**Calculation:**

Let, the present age of Monika be  $x$  years

$\Rightarrow$  Present age of Monika's sister =  $(x - 4)$  years

Present age of Monika's father =  $(38 + x)$  years

Present age of Monika's mother =  $(36 + x - 4) = (32 + x)$  years

$\therefore$  Difference between the ages of her parents =  $(38 + x) - (32 + x) = 6$  years

---

**75. Answer: a**

**Explanation:**

The correct answer is option 1, i.e. Darwin's theory of evolution.

★ Key Points

**Darwin's theory of evolution** tells us how life evolved from simple to more complex form.

- Evolution is a process of change happening over generations.
- Darwin published his theory of evolution with evidence in his book '**On the Origin of Species**' in 1859 .
- The book introduced the scientific theory of evolution over the course of generations through the process of **Natural Selection**.

| Name                  | Discovery                                                                                                                                                           |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Alfred Russel Wallace | <p>He independently proposed the theory of evolution through natural selection.</p> <p>His theory was jointly published with Charles Darwin's writings in 1859.</p> |
| Gregor Johann Mendel  | Founder of the modern science of genetics.                                                                                                                          |
| Jean Baptiste Lamarck | Proposed the idea of natural laws in biological evolution.                                                                                                          |

76. Answer: b

Explanation:

Length of the wooden crate = 1.8 m = 180 cm

Width of the wooden crate = 1.5 m = 150 cm

Height of the wooden crate = 1.2 m = 120 cm

Let, number of iron cubes can be fitted in the crate be x

According to the question,

$$x \times 6^3 = 180 \times 150 \times 120$$

$$\Rightarrow x = 3240000/216$$

$$\Rightarrow x = 15000$$

$\therefore$  15000 iron cubes can be fitted in the crate

77. Answer: a

Explanation:

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

$$\begin{array}{rcl}
 22 & C & \\
 +20 & | & +3 \\
 \hline
 42 & F & \\
 +20 & | & +3 \\
 \hline
 62 & I & \\
 +20 & | & +3 \\
 \hline
 82 & L & 
 \end{array}$$

Hence, 82L is the next term in the given series.

78. Answer: b

Explanation:

The correct answer is option 2 i.e. 20 m/s.

A boy standing at the top of the tower drops a stone from the height 20 m.

Velocity at which it will hit the ground is calculated as,

Given:

Height of the tower  $h = 20 \text{ m}$

$g = 10 \text{ m/s}^2$

Initial Velocity  $u = 0$  (drops)

Final Velocity  $v = ?$

Using Equation of motion,

$$v^2 - u^2 = 2gh$$

$$v^2 = u^2 + 2gh$$

$$v^2 = (0)^2 + 2 \times 10 \times 20$$

$$v^2 = 400$$

$$v = 20 \text{ m/s}$$

The stone touches the ground at the velocity of  $20 \text{ m/s}$  when drops from the height of  $20 \text{ m}$ .

79. Answer: c

Explanation:

The Correct Answer is **Option 3** i.e Maruti Suzuki.

- The Government of India has tied up with Maruti Suzuki to support Skill India in the automobile industry.
- Ministry of Skill Development and Maruti Suzuki enters into an agreement to support Skill India in Automobile industry.
- This agreement objective is to provide a unique opportunity to the youth to acquire skills related to automobile and manufacturing industry through the "Learn and Earn" approach.
- On 18<sup>th</sup> December 2017, the flexi MoU was signed by Shri Vijay Kumar Dev, Director General, DGT (**Ministry of Development and Entrepreneurship**) and Shri

80. Answer: b

Explanation:

The correct answer is Option 2, i.e Contraction Effect.

- Contraction is a method in Chemistry. It is related to Lanthanoid.
  - Lanthanoid contraction: The gradual decrease in atomic and ionic radii of lanthanoids with the increase in atomic number is called lanthanoid contraction. It has a definite effect on the properties of lanthanoids.
  - **Chemical Effect, Heating Effect, Magnetic Effect** are all produced by current.
- 

81. Answer: d

Explanation:

The correct answer is Ne or Neon.

- The element which has two shells both of which are completely filled with electrons is **Neon** with **electronic configuration (2,8)**.
  - **Helium (He)** only has 2 electrons and therefore it has a configuration of  $1s^2$ .
  - **Argon (Ar)** electron configuration will be  $1s^2 2s^2 2p^6 3s^2 3p^6$ .
  - Electron configuration of **Krypton (Kr)** :  $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^2 4p^6$ .
- 

82. Answer: c

Explanation:

Suppose, Mark travelled for 'x' hours by bus.

According to the question,

$$x \times 40 + (4.5 - x) \times 60 = 220$$

$$\Rightarrow 40x + 270 - 60x = 220$$

$$\Rightarrow 20x = 50$$

$$\Rightarrow x = 50/20$$

$$\Rightarrow x = 2.5$$

$\therefore$  He traveled by bus for 2.5 hours = 2 hours 30 minutes

**83. Answer: b**

**Explanation:**

The Correct Answer is **Option 2 i.e 6 and 7**.

Your Personal Exams Guide

| Period | Elements                                                                                                                                                                                                                                                                         |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3      | <ul style="list-style-type: none"> <li>This period contains 8 elements.</li> <li>Elements starts from Sodium (Na) to Argon (Ar).</li> </ul>                                                                                                                                      |
| 4      | <ul style="list-style-type: none"> <li>This period contains 18 elements.</li> <li>Elements starts from Potassium (K) to Krypton (Kr).</li> </ul>                                                                                                                                 |
| 5      | <ul style="list-style-type: none"> <li>This period contains 18 elements.</li> <li>Elements starts from Rubidium (Rb) to Xenon (Xe).</li> </ul>                                                                                                                                   |
| 6      | <ul style="list-style-type: none"> <li>This period contains 32 elements which includes Lanthanides.</li> <li><u>Lanthanides will be in 6<sup>th</sup> period between Barium (Ba) and Hafnium(Hf).</u></li> <li>Elements starts from Caesium (Cs) to Radon (Rn).</li> </ul>       |
| 7      | <ul style="list-style-type: none"> <li>This period contains 32 elements which includes Actinides.</li> <li><u>Actinides will be in 7<sup>th</sup> period between Radium(Ra) and Rutherfordium (Rf).</u></li> <li>Elements starts from Francium (Fr) to Oganesson(Og).</li> </ul> |

84. Answer: b

### Explanation:

The question figure has a triangle which is at the left of two opposite facing arrows.

The triangle does not touch the arrows and the arrows are outside the rectangle.



Hence, the pattern given in answer figure A is the pattern that most closely resembles the question figure.

**85. Answer: b**

**Explanation:**

Circle, Square and Rectangle are figures whereas Volume is the quantity that represents the measure of space within a three-dimensional figure.

Hence, Volume does not belong to the group.

**86. Answer: b**

**Explanation:**

Drawing the diagram as per the directions given.

If the home entrance is east-facing, this means when someone enters he/she must be west-facing.

Now she went to the shop which is adjacent means while entering she must be facing west.

Now she takes a right turn means the final direction will be in the North.



### Explanation:

Example:

$$\Rightarrow 4^2 = 16 = 3 \times 5 + 1$$

$$\Rightarrow 6^2 = 36 = 3 \times 12$$



**Explanation:**

Simplify using BODMAS: Bracket – Of – Division – Multiplication – Addition – Subtraction

$$3 + [32 \div 8 \times 52 \div (4 + 9)]$$

$$\Rightarrow 3 + [32 \div 8 \times 52 \div 13]$$

$$\Rightarrow 3 + [4 \times 4]$$

$$\Rightarrow 3 + 16$$

$$\Rightarrow 19$$

---

**89. Answer: c**

**Explanation:**

The Correct Answer is **Option 3** i.e Double displacement.

Your Personal Exams Guide

|                              |                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Single Combination reaction  | <ul style="list-style-type: none"> <li>When two or more reactants which <b>combines</b> to form a single product is called as Combination reaction.</li> <li>Its form will be: <math>a + b \rightarrow ab</math>.</li> <li><b>Example:</b> <math>2\text{Na} + \text{Cl}_2 \rightarrow 2\text{NaCl}</math>.</li> </ul>                                                         |
| Single Displacement reaction | <ul style="list-style-type: none"> <li>When high reactive element <b>displaces</b> a less reactive element from its aqueous solution is called as Displacement reaction.</li> <li>Its form will be: <math>a + bc \rightarrow ac + b</math>.</li> <li><b>Example:</b> <math>\text{Zn} + \text{CuSO}_4 \rightarrow \text{ZnSO}_4 + \text{Cu}</math>.</li> </ul>                 |
| Double Displacement reaction | <ul style="list-style-type: none"> <li>When ions gets <b>exchanged</b> between two reactants which will form a new compound is called as Double Displacement reaction.</li> <li>Its form will be: <math>ab + ca \rightarrow ac + ba</math>.</li> <li><b>Example:</b> <math>\text{BaCl}_2 + \text{Na}_2\text{SO}_4 \rightarrow \text{BaSO}_4 + 2\text{NaCl}</math>.</li> </ul> |

90. Answer: c

**Explanation:**

Total production of X and Y in 2000 =  $(40 + 40)$  lakh tonnes = 80 lakh tonnes

Total production of X and Y in 2004 =  $(60 + 60)$  lakh tonnes = 120 lakh tonnes

$\therefore$  Required difference =  $(120 - 80)$  lakh tonnes = 40,00,000 tonnes

91. Answer: c

**Explanation:**

The logic followed here is:

In the question figure the second image is the mirror image of the first figure on axis which is in line with the base of triangle (horizontal axis) in figure 1.

Similarly,

In the question figure the fourth image will be the mirror image of the third figure on axis which is in line with the base of triangle (vertical axis) in figure 3.



Hence, answer figure A will be the next image in the given series.

92. Answer: c

**Explanation:**

Total operating cost in 2016 = Rs. 120 lakhs

⇒ Salary in 2016 = Rs.  $(120 \times 50/100)$  lakhs = Rs. 60 lakhs

Total operating cost in 2017 = Rs. 150 lakhs

⇒ Salary in 2017 = Rs.  $(150 \times 55/100)$  lakhs = Rs. 82.5 lakhs

∴ Salary in 2017 higher than that of 2016 by = Rs.  $(82.5 - 60)$  lakhs = Rs. 22.5 lakhs

93. Answer: d

**Explanation:**

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

The logic followed here is that each alphabet is coded as second number of its positional value.

V (22)  $\rightarrow$  2;

E (05)  $\rightarrow$  5;

I (09)  $\rightarrow$  9;

L (12)  $\rightarrow$  2;

Similarly,

M (13)  $\rightarrow$  3;

E (05)  $\rightarrow$  5;

E (05)  $\rightarrow$  5;

T(20)  $\rightarrow$  0;

Hence, 'MEET' is coded as '3550'.

94. Answer: c

Explanation:

The Correct Answer is Option 2 i.e Akbar's .

| Mughals        | Capitals                  |
|----------------|---------------------------|
| Bahadur Shah's | Old Delhi (Shahjahanabad) |
| Babur's        | Akhsikent                 |
| Akbar's        | Fatehpur Sikri            |
| Aurangzeb's    | Old Delhi (Shahjahanabad) |

- Fatehpur Sikri is a city in Agra, Uttar Pradesh and it was founded by Akbar.
- Fatehpur Sikri or the 'City of Victory' was Akbar's capital for 12 years.
- In 1986, Fatehpur Sikri becomes one of the UNESCO's **World Heritage Site** .

95. Answer: b

Explanation:

The Correct Answer is Option 2 i.e Tungsten.

Your Personal Exams Guide

| Metal    | Uses                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Iron     | <ul style="list-style-type: none"> <li>Iron (<math>_{26}\text{Fe}</math>) has its atomic number 26.</li> <li>Red colour in blood is from the iron in <b>haemoglobin</b>, which helps to carry oxygen from the lungs to cells</li> <li>Iron used to make electricity pylons, bicycle chains and rifle barrels.</li> </ul>                                                                             |
| Tungsten | <ul style="list-style-type: none"> <li>Tungsten (<math>_{74}\text{W}</math>) has its atomic number 74.</li> <li>Tungsten is used in <b>filaments</b> of incandescent <b>light bulbs</b>.</li> <li>Tungsten is used to make <b>counterfeit gold bars</b> because of its density which is similar to that of gold.</li> <li>Tungsten carbide is used in <b>drill bits</b> and mining tools.</li> </ul> |
| Silver   | <ul style="list-style-type: none"> <li>Silver (<math>_{47}\text{Ag}</math>) has its atomic number 47.</li> <li>Threads of Silver are used to operate <b>touch screen devices</b> because it is woven into gloves.</li> <li>Light sensitive silver halides are used in photochromic glasses and <b>photography</b>.</li> </ul>                                                                        |
| Nickel   | <ul style="list-style-type: none"> <li>Nickel (<math>_{28}\text{Ni}</math>) has its atomic number 28.</li> <li>Nickel-Chromium alloy is used in <b>heating elements</b> of toasters and electric ovens.</li> <li>Nickel is used in <b>making coins</b> of many countries.</li> <li>Nickel is one of the only four elements that will magnetic at 20 °C.</li> </ul>                                   |

96. Answer: c

Explanation:

Suppose, she walked for  $x$  hours

According to the question,

$$x \times 7 + (8.5 - x) \times 16 = 109$$

$$\Rightarrow 7x + 136 - 16x = 109$$

$$\Rightarrow 9x = 27$$

$$\Rightarrow x = 3 \text{ hours}$$

$$\therefore \text{Distance covered by foot} = (7 \times 3) = 21 \text{ km}$$

---

**97. Answer: c**

**Explanation:**

If the time table includes a free period of time in a day or a week would give sufficient time and the necessary permission to ensure students can interact with each other and explore new avenues freely. Therefore, argument I is strong.

However, it is not necessary that there would not be any discipline during this free period.

Therefore, argument II is not strong.

Hence, only argument I is strong.

---

**98. Answer: d**

**Explanation:**

The Correct Answer is **Option 4** i.e 6.

BODMAS (Bracket, Of, Division, Multiplication, Addition and Subtraction) is a rule used to perform mathematical expression. So priority is given first to bracket of division, multiplication, addition and subtraction.

**Calculation based on BODMAS:**

Step 1 :  $7 \text{ of } 4 = 7 \times 4 = 28$

Step 2 :  $112/28 = 4$

Step 3 :  $25 - 4 = 21$

Step 4 :  $37 - 21 = 16$

Step 5 :  $40 - 16 = 24$

Step 6 :  $144/24 = 6$

**Answer : 6**

---

**99. Answer: a**

**Explanation:**

Let, the smallest number be  $x$

$\Rightarrow$  The middle number  $= x + 3$

$\Rightarrow$  The greatest number  $= x + 12$

According to the question,

$$x + x + 3 + x + 12 = 3 \times 20$$

$$\Rightarrow 3x + 15 = 60$$

$$\Rightarrow 3x = 45$$

$$\Rightarrow x = 15$$

$\therefore$  The greatest of the three natural numbers =  $(15 + 12) = 27$

100. Answer: a

Explanation:

|         |   |   |
|---------|---|---|
| Symbol  | + | × |
| Meaning | - | ÷ |

Given:  $((75 + 25) \times 5) \times 10$

On decoding:  $((75 - 25) \div 5) \div 10$

$\rightarrow ((75 - 25) \div 5) \div 10$

$\rightarrow ((50) \div 5) \div 10$

$\rightarrow (10) \div 10$

$\rightarrow 1$

Hence, on decoding the value of  $((75 + 25) \times 5) \times 10$  is 1.