Prepp.in

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Your Personal Exams Guide

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- SSC CGL
- CBSE UGC NET
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- CTET
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- CSIR UDC NET
- IBPS PO
- UP POLICE
- SSC MTS
- SBI PO
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- IBPS CLERK
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- RRB NTPC
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- RBI GRADE B
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RRB Group D 2018 Prev. Yr. Paper (19 Sept 2018) (Shift 1)

Total Time: 1 Hour : 30 Minute **Total Marks:** 100

Instructions

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

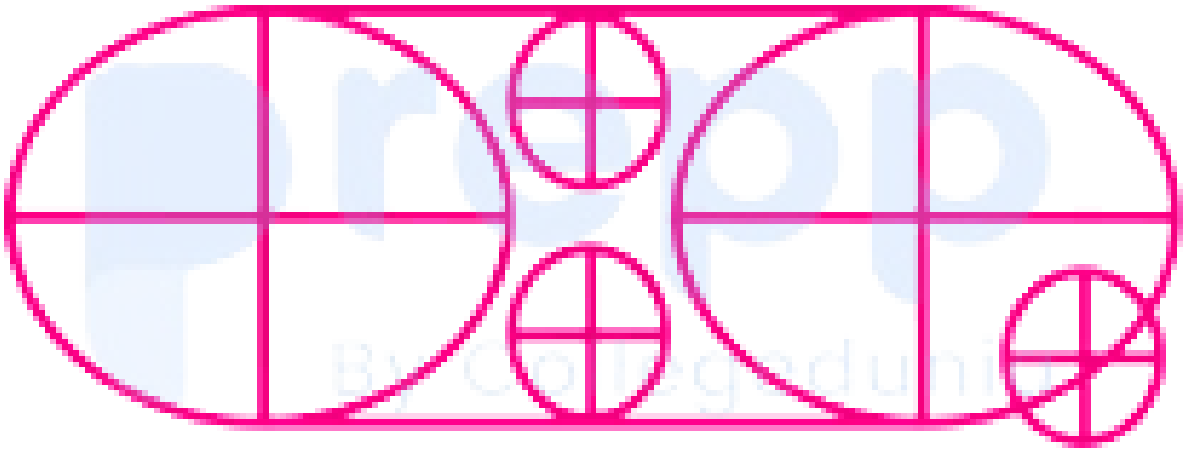
1.) A total of 90 minutes is allotted for the examination.

2.) The server will set your clock for you. In the top right corner of your screen, a countdown timer will display the remaining time for you to complete the exam. Once the timer reaches zero, the examination will end automatically. The paper need not be submitted when your timer reaches zero.

3.) There will, however, be sectional timing for this exam. You will have to complete each section within the specified time limit. Before moving on to the next section, you must complete the current one within the time limits.

CBT

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



a. 24

b. 20

c. 32

d. 40

---

2. Which party won the highest number of seats in the Manipur Legislative Assembly Elections held in 2017? **(+1, -0.33)**

a. Lok Jan Shakti Party

b. Bharatiya Janata Party

c. Aam Aadmi Party

d. Indian National Congress

---

3. Select the term that is related to the third term in the same way that the second term relates to the first term. **(+1, -0.33)**

Wrist : Watch :: Finger : ?

a. Ring

b. Joint

c. Nail

d. Thumb

---

4. Find the next term in the following series. **(+1, -0.33)**

33, 38, 48, 53, ?

a. 58

b. 54

c. 63

d. 60

---

5. The height and the slant height of a right circular cone are given as $3\sqrt{23}$ cm and 16 cm respectively. Approximating π by 22/7, find the curved surface area of the same cone. **(+1, -0.33)**

a. 328 cm^2

b. 339 cm^2

c. 352 cm^2

d. 372 cm^2

---

6. Which one of the below is **not true** about diffusion? **(+1, -0.33)**

a. Rate of diffusion of gases is higher than that of liquids or solids

b. Diffusion is possible only when particles of matter move continuously

c. Rate of diffusion of gases depends on their volume

d. Diffusion is a movement of particles from higher concentration to lower concentration

---

7. Name the process in which a metal is attacked by substances around it such as moisture and acids etc. **(+1, -0.33)**

a. Oxidation

b. Corrosion

c. Rancidity

d. Reduction

---

8. In December 2017, who was conferred with the National Design Award? **(+1, -0.33)**

a. G. Satheesh Reddy

b. G. Shanthi Reddy

c. G. Ganesh Reddy

d. G. Shankar Reddy

---

9. Power is defined as _____. **(+1, -0.33)**

a. Rate of doing work or rate of transfer of energy

b. Work done in one minute

c. Force applied to increase weight

d. Work done in the transfer of energy

---

10. Jallianwala Bagh Massacre event took place in the year _____. **(+1, -0.33)**

a. 1920

b. 1981

c. 1919

d. 1891

---

11. Which of the following Venn diagrams correctly represents the relationship between the given classes? **(+1, -0.33)**

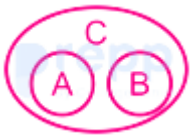
A. Carrots

B. Cabbages

C. Vegetables

a.

b.

c. 

d. 

---

12. On 2 nd December 2018, who was appointed as the Chief Election Commissioner of India? **(+1, -0.33)**

a. Ashok Lavasa

b. Om Prakash Rawat

c. Sunil Arora

d. Sunil Rawar

---

13. Consider the following question and statements and decide which of the statements is sufficient to answer the question. **(+1, -0.33)**

What is the total weight of six boxes? Each of them is equal in weight.

Statements:

A. One-third of each boxes' weight is 2 kg

B. The total weight of four boxes is 12 kg more than the total weight of two boxes.

a. Both Statements 1 and 2 alone are sufficient

b. Statement A alone is sufficient

c. Statement B alone is sufficient

d. Neither statement A or B are sufficient

---

14. In a ΔABC, D, E and F are the mid-points of the sides BC, CA and AB, respectively. BE and DF intersect at X. DE and CF intersect at Y. Find XY. **(+1, -0.33)**

a. BC/2

b. BC/4

c. 2BC/3

d. BC/3

---

15. How many atoms are present in one mole of copper? **(+1, -0.33)**

a. 6.022×10^{24}

b. 6.022×10^{25}

c. 6.022×10^{22}

d. 6.022×10^{23}

---

16. $119 \div [22 - \{90 \div (23 - 105 \div (7 \times 3))\}] = ?$ **(+1, -0.33)**

a. 4

b. 12

c. 3

d. 7

---

17. Who coined the word 'atom'? (+1, -0.33)

a. Democritus

b. Thomson

c. E Rutherford

d. John Dalton

---

18. Nina starts cycling early in the morning in the opposite direction to the sun. She then turns left, travels for 1 km and again turns left. Towards which direction is she moving? (+1, -0.33)

a. North

b. West

c. East

d. South

---

19. The substances whose odour changes in acidic or basic media are called _____. (+1, -0.33)

a. Olfactory indicators

b. Synthetic indicator

c. Acid-base indicators

d. natural indicators

---

20. Consider the following statement and conclusions and decide whether the conclusions logically follow from the statements. **(+1, -0.33)**

Statement:

1. All rocks are minerals

2. All minerals are ores

Conclusions:

1. All rocks are ores

2. All minerals are rocks

a. Only conclusion 2 follows

b. Only conclusion 1 follows

c. Both the conclusions follow

d. Neither of the conclusions follows

---

21. Calculate the momentum of a gun of mass 400 kg when it recoils with a velocity of 0.25 ms^{-1}. **(+1, -0.33)**

a. 100 $kg.ms^{2}$

b. 100 $kg.ms^{-1}$

c. 100 $kg.ms^{-3}$

d. 100 $kg.ms^{1}$

---

22. Sooraj is three times as old as his son Arjun. After 8 years, he would be two and a half times of Arjun's age. After another 8 years, he would be _____ times Arjun's age. **(+1, -0.33)**

a. 2

b. $2\frac{1}{2}$

c. 3

d. $2\frac{1}{5}$

---

23. In a certain code, TEAM is written as WHDP. How will COINS be written as in that code? **(+1, -0.33)**

a. QJPTU

b. FRLBZ

c. FRLQV

d. RVJQL

---

24. -15 - (-18 - 35 ÷ 5) = ? **(+1, -0.33)**

a. 10

b. -14

c. -2

d. 6

---

25. Which of the following does NOT oxidise (Burn) readily at high temperatures? **(+1, -0.33)**

a. Alloys

b. Insulators

c. Conductors

d. Semi-conductors

---

26. The LCM of 14, 42 and 77 is: **(+1, -0.33)**

a. 154

b. 462

c. 168

d. 308

---

27. Consider the given statement to be true even if it seems to be at variance with the commonly known facts and decide which of the given conclusions logically follow(s) from the statement. **(+1, -0.33)**

Statement:

Some Lemons are Red.

Some Beet are Lemons.

Conclusions:

1. Some Lemons are Jump.

2. Beet is a Red.

a. Only 2 follows

b. Neither 1 nor 2 follows

c. Either 1 or 2 follows

d. Only 1 follows.

---

28. The South Asian Sports Council (SASC) was formed in the year _____. **(+1, -0.33)**

a. 1975

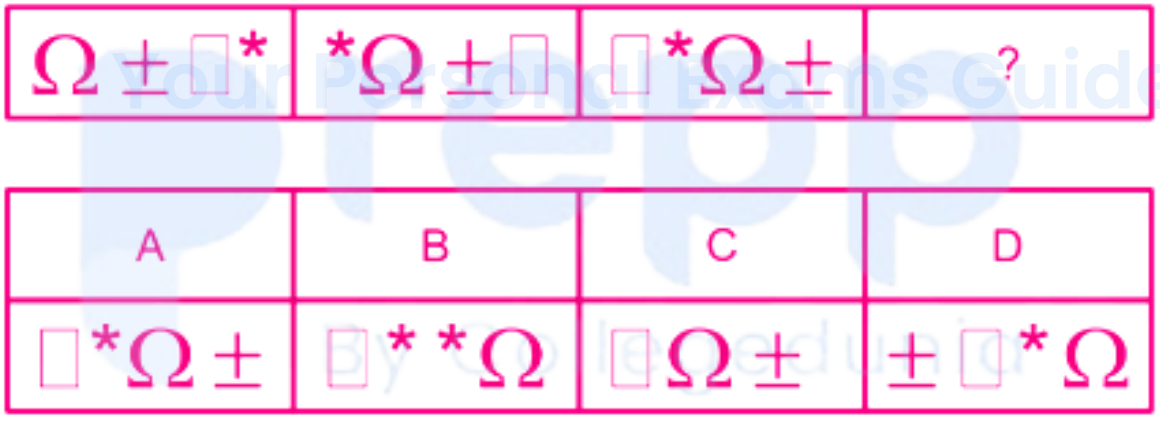
b. 1987

c. 1979

d. 1983

---

29. Which figure follows next? **(+1, -0.33)**



a. C

b. A

c. D

d. B

---

30. After spending 85% of his salary, Alok saves Rs. 1200 per month. What is his monthly salary? **(+1, -0.33)**

a. Rs. 8,000

b. Rs. 10,000

c. Rs. 8,500

d. Rs. 12,000

---

31. Who was the first British Viceroy of India? **(+1, -0.33)**

a. Lord Canning

b. Lord Wellesley

c. William Bentinck

d. Robert Clive

---

32. What is the difference between the compound interest and the simple interest on a sum of Rs. 4500 for 3 years at the rate of 8% per annum? **(+1, -0.33)**

a. Rs. 87.70

b. Rs. 87.50

c. Rs. 85.70

d. Rs. 88.70

---

33. A triangle with vertices (4, 1), (1, 1), (3, 5) is a/an: **(+1, -0.33)**

a. Isosceles and right-angled triangle

b. Scalene triangle

c. Isosceles but not right-angled triangle

d. Right-angled but not isosceles triangle

---

34. On 7th June 1984 it was a Thursday. What day was it on 7th June 1983? **(+1, -0.33)**

a. Tuesday

b. Sunday

c. Wednesday

d. Monday

---

35. Apple introduced the iPad as a multimedia device in the year _____. **(+1, -0.33)**

a. 2008

b. 2009

c. 2010

d. 2011

---

36. The product of force and displacement is called _____. **(+1, -0.33)**

a. Work

b. Weight

c. Acceleration

d. Momentum

---

37. Which of the below is **not** a part of 5-Kingdom classification by Whittaker? **(+1, -0.33)**

a. Animalia

b. Protista

c. Fungi

d. Protozoa

---

38. If '+' is denoted as '−' and '×' is denoted as '÷' then what is the value of ((25 + 30) × 5) × 10) **(+1, -0.33)**

a. 1

b. -0.1

c. 0.1

d. 0

---

39. Which of the fractions given below, when added to 5/16, gives 1? **(+1, -0.33)**

a. 6/8

b. 11/32

c. 22/32

d. 13/2

---

40. The first 'Persons of Indian Origin (PIO) Parliamentarian Conference' was held in _____. **(+1, -0.33)**

a. 2 April 2017

b. 19 January 2016

c. 9 January 2018

d. 11 July 2014

---

41. Himanshi bought a t-shirt at 20% discount on its marked price but sold it at the marked price. What is the gain or loss percent on the whole transaction? **(+1, -0.33)**

a. 15% gain

b. 15% loss

c. 25% gain

d. 25% loss

---

42. An object is placed in front on a concave mirror at a point between its focus and centre of curvature. The image formed will be _____. **(+1, -0.33)**

a. Real and inverted

b. Real and erect

c. Virtual and inverted

d. Virtual and erect

---

43. A 10-kg object is moving at a speed of 5 m/s. The kinetic energy of the object will be _____. **(+1, -0.33)**

a. 2 J

b. 25 J

c. 50 J

d. 125 J

---

44. Which of the following is NOT a simple permanent tissue? **(+1, -0.33)**

a. Apical meristem

b. Collenchyma

c. Cambium

d. Xylem

---

45. Viacom 18 Media PVT. Ltd. Launched its Hindi movie channel Rishtey Cineplex in _____. **(+1, -0.33)**

a. March 2017

b. May 2016

c. October 2015

d. April 2014

---

46. If α and β are the roots of the quadratic equation $(5 + \sqrt{2})x^2 - (4 + \sqrt{5})x + (8 + 2\sqrt{5}) = 0$, then the value of $2\alpha\beta/(\alpha + \beta)$ is: **(+1, -0.33)**

a. 7

b. 4

c. 2

d. 8

---

47. What was the real name of the Indian director 'Guru Dutt'? **(+1, -0.33)**

a. Vasant Padukone

b. Vasant Kumar Shivashankar Padukone

c. Prabhakar Padukone

d. Shambhunath Padukone

---

48. Consider the following statement and conclusions and decide which of the conclusions logically follows from the statement. **(+1, -0.33)**

Statement:

Of all the mobile brands, Samsung's sales are the highest.

Conclusions:

I. The market share of other mobile brands is known.

II. No other mobile brand is popular.

a. Both the conclusions follow

b. Conclusion II alone follows

c. Neither conclusion I nor II follows

d. Conclusion I alone follows

---

49. The melting point of tungsten is _____. **(+1, -0.33)**

a. 3,830 °C

b. 3,308 °C

c. 3,083 °C

d. 3,422 °C

---

50. A free fall in true sense occurs only _____. **(+1, -0.33)**

a. In the sea

b. In the atmosphere

c. In air

d. In vacuum

---

51. Which of the following is NOT required for photosynthesis? **(+1, -0.33)**

a. Sunlight

b. Oxygen

c. Carbon dioxide

d. Chlorophyll

---

52. Without any stoppage, Sunil travels a certain distance at an average speed of 80 km/hr. With stoppages, he covers the same distance at an average speed of 60 km/hr. How many minutes per hour does he stop for? **(+1, -0.33)**

a. 15 minutes

b. 25 minutes

c. 10 minutes

d. 20 minutes

---

53. If a workforce of 200 men can construct a building in 1024 days, how many men will be needed to construct the same building in 256 days? **(+1, -0.33)**

a. 1400

b. 650

c. 1200

d. 800

---

54. Find the next term in the following series. **(+1, -0.33)**

T, A, S, B, R, C, ?

a. Q

b. U

c. T

d. S

---

55. Who among the following was honored with the Cecil B. Demille Award at the 75 th Golden Globe Awards? **(+1, -0.33)**

a. Oprah Winfrey

b. Audrey Hepburn

c. Goldie Hawn

d. Mother Teresa

---

56. A tube can fill a tank in 15 hours. Due to a leak in the bottom, it is filled in 20 hours. If the tank is full, how much time will the leak alone take to empty it? **(+1, -0.33)**

a. 20 hours

b. 60 hours

c. 32 hours

d. 40 hours

---

57. If 10 $\sin^4\alpha + 15 \cos^4\alpha = 6$, then find the value of $27 \operatorname{cosec}^6\alpha + 8 \sec^6\alpha$. **(+1, -0.33)**

a. 75

b. 125

c. 250

d. 50

---

58. If the number x4738 is divisible by 9, what is the face value of x? **(+1, -0.33)**

a. 6

b. 4

c. 5

d. 7

---

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

A. Flower

B. Weed

C. Leaves

D. Stem

a. A

b. D

c. B

d. C

---

60. India is the largest producer, consumer, importer of _____. **(+1, -0.33)**

a. Pulses

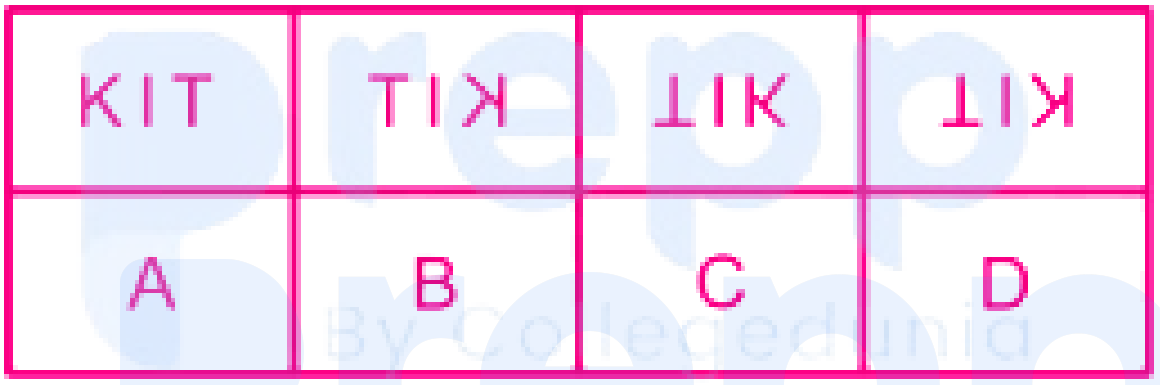
b. Jute

c. Sugar

d. Salt

---

61. What is the lateral mirror image of the word 'KIT'? **(+1, -0.33)**



a. B

b. A

c. D

d. C

---

62. What will come in the place of the question mark '?' in the following question? **(+1, -0.33)**

$66 \div [67 - \{43 - (17 - 117 \div 9 \times 4)\}] = ?$

a. -6

b. 11

c. 6

d. -11

---

63. Which of the following element could NOT find a fixed place in Mendeleev's periodic table? **(+1, -0.33)**

a. Sulphur

b. Hydrogen

c. Nitrogen

d. Oxygen

---

64. Find the next term in the following series. **(+1, -0.33)**

3B, 9F, 27J, ?

a. 80 L

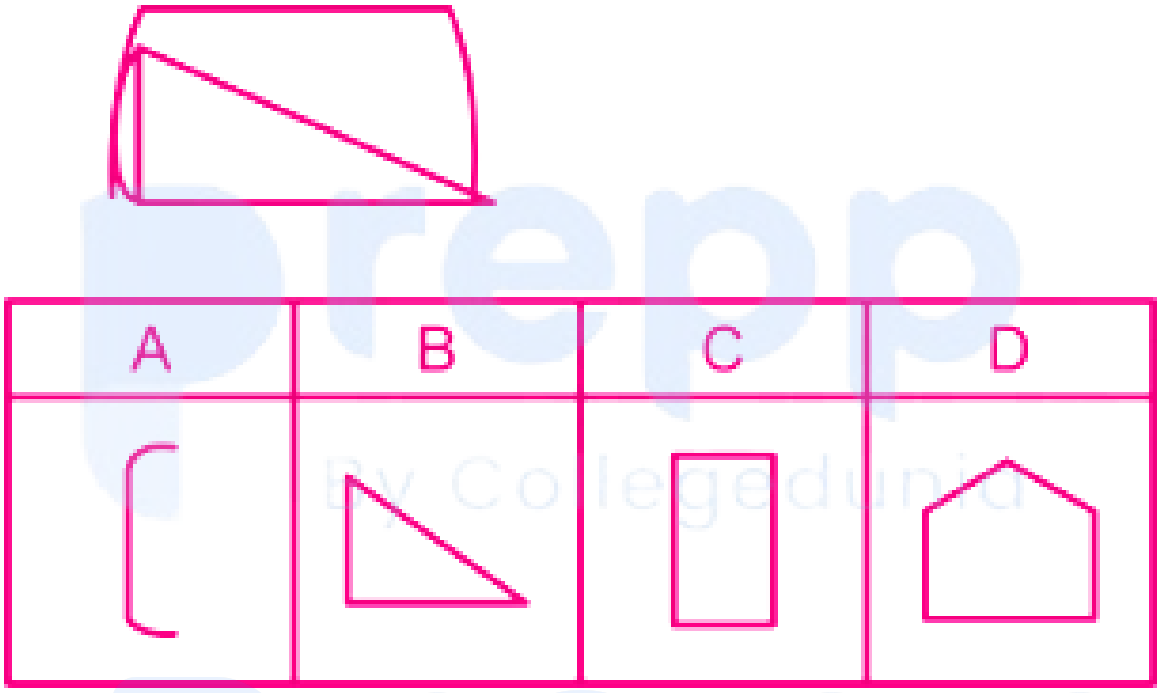
b. 81 L

c. 81 N

d. 80 N

---

65. Which of the following shapes can be found in the question figure? **(+1, -0.33)**



a. C and D

b. A and B

c. D and A

d. B and C

---

66. To which country does the personality Aung-san Sukyi belong? She is often seen in the news. **(+1, -0.33)**

a. Iran

b. Bhutan

c. Myanmar

d. Bangladesh

---

67. The headquarters of the World Bank is located in which country? **(+1, -0.33)**

a. England

b. USA

c. Japan

d. Russia

---

68. Which of the following arguments is strong with relation to the given question? **(+1, -0.33)**

Statement:

Should the government ban use of polythene bags in local vegetable markets?

Arguments:

I. Yes, they pose a high risk to the environment. People can bring along their own bags to buy vegetables.

II. No, it is convenient

a. Neither argument I and II are strong

b. Both arguments I and II are strong

c. Only arguments II is strong

d. Only argument I is strong

---

69. If the arithmetic mean of the observations $x_1, x_2, x_3, \ldots x_n$ is 1 then the arithmetic mean of $\frac{x_1}{k}, \frac{x_2}{k}, \frac{x_3}{k}, \ldots \frac{x_n}{k}\ (k > 0)$ is: **(+1, -0.33)**

a. k

b. 2k

c. 1/k

d. 2/k

---

70. Mechanical energy is _____. **(+1, -0.33)**

a. Equal to the rate of doing work

b. The sum of kinetic energy and the potential energy of an object

c. The energy released during mechanical work

d. The energy absorbed during movement of a body

---

71. C is the mother of E and F. F is married to Z. How is C related to Z? **(+1, -0.33)**

a. Mother

b. Mother-in-law

c. Daughter-in-law

d. Son-in-law

---

72. A 1-kg object falls from a height of 30 m to the ground. The work done by the force of gravity will be _____. (Take g = 10 m/s) **(+1, -0.33)**

a. 10 J

b. 300 J

c. 30 J

d. 0.33 J

---

73. If 'MAT' is coded as KYR in a certain language, how would 'HIS' be written in that language? **(+1, -0.33)**

a. FGT

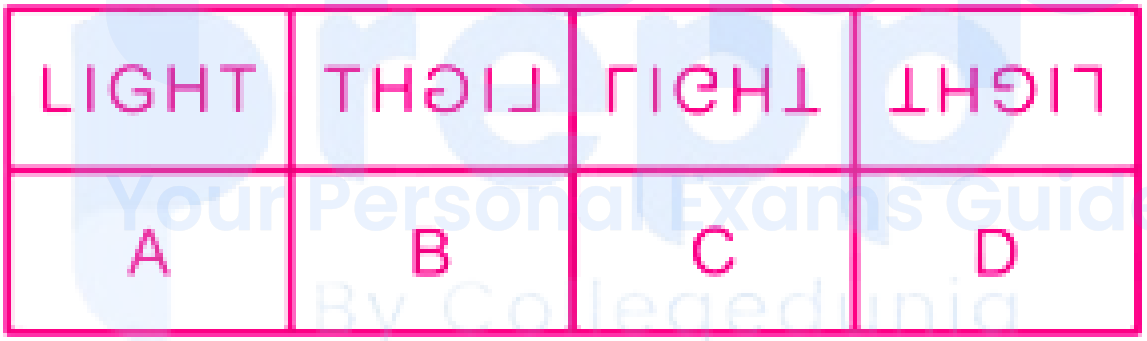
b. FGR

c. FGQ

d. FGH

---

74. Select the lateral mirror image of LIGHT from the given option figures. **(+1, -0.33)**



a. C

b. D

c. B

d. A

---

75. How many triangles are there in the given figure? **(+1, -0.33)**

a. 7

b. 6

c. 8

d. 4

---

76. Newlands's law of octaves was applicable only up to _____. **(+1, -0.33)**

a. Potassium

b. Calcium

c. Chlorine

d. Sulphur

---

77. Which of the following is the youngest mountain of India? **(+1, -0.33)**

a. Himalayas

b. Mount Abu

c. Satpura

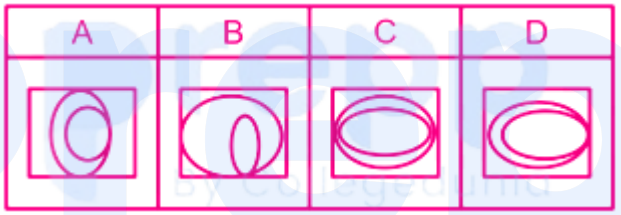
d. Anaimudi

---

78. Which pattern closely resembles the pattern in the following image? **(+1, -0.33)**

Question figure

Option figure



a. D

b. B

c. A

d. C

---

79. When two germ cells from two individuals combine during sexual reproduction, they form a _____. **(+1, -0.33)**

a. Bud

b. Spore

c. Zygote

d. Fruit

---

80. Two men Kuldeep and Agarkar working separately can mow a field in 8 and 12 hours respectively. If they both are working alternately, and Kuldeep starts the work at 9 a.m., when will the mowing be finished? **(+1, -0.33)**

a. 7.30 p.m.

b. 5.30 p.m.

c. 6.30 p.m.

d. 4.30 p.m.

---

81. Which of the following metals is a liquid at room temperature? **(+1, -0.33)**

a. Tungsten

b. Bromine

c. Lead

d. Mercury

---

82. Who is the present CEO of ICICI Bank? **(+1, -0.33)**

a. Arundhati Bhattacharya

b. Indra Nooyi

c. Sandeep Bakhshi

d. K. V. Kamat

---

83. Lalitha plans to start a fashion boutique and she sets aside Rs. 20,000 as starting capital. Based on the below table how much money would she be left with for the other expenses she would come across? **(+1, -0.33)**

Expenses	% of expenses
Unstitched materials	50
Stitching accessories	20

a. Rs. 3000

b. Rs. 12000

c. Rs. 6000

d. Rs. 4000

---

84. The Income Declaration Scheme was launched by the Income Tax Department of the Government of India in the year _____. **(+1, -0.33)**

a. 2015

b. 2014

c. 2016

d. 2013

---

85. According to the Constitution of India, which House of Parliament passes the Constitution Amendment Bill? (+1, -0.33)

a. Both, Upper and Lower House together

b. Lower House

c. Upper House

d. Both, Upper and Lower House separately

---

86. What is the square root of 108900? (+1, -0.33)

a. 230

b. 330

c. 270

d. 370

---

87. A company plans to arrange for an event. It divides its event's total expected expenditure into five broad segments. Here is the distribution: (+1, -0.33)

Expense segments	% of employees
1	30
2	20
3	10
4	20
5	20

If the company spends Rs. 5000 on segment 3, what will be its expense on segment 5?

a. Rs. 5,000

b. Rs. 1,000

c. Rs. 10,000

d. Rs. 15,000

---

88. Which gas is produced when a metal reacts with water? **(+1, -0.33)**

a. Oxygen

b. Chlorine

c. Hydrogen

d. Nitrogen

---

89. $x = \frac{\sqrt{6}-1}{\sqrt{6}+1}$ *and* $y = \frac{\sqrt{6}-1}{\sqrt{6}+1}$; Find $\frac{\left(3x^2+5xy+3y^2\right)}{\left(3x^2-5xy+3y^2\right)}$ **(+1, -0.33)**

a. 6

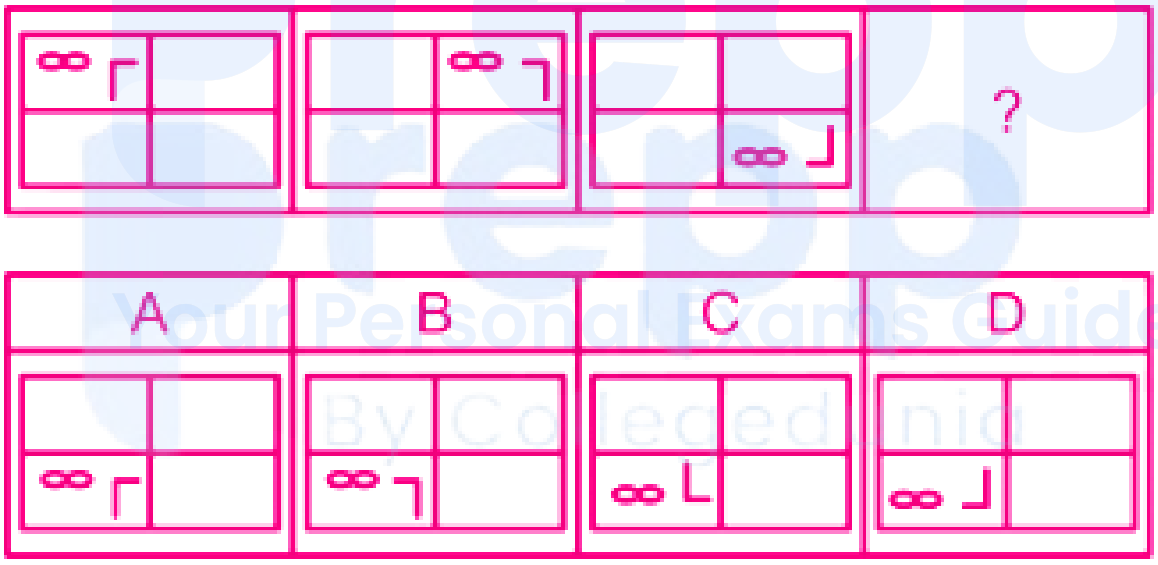
b. 5

c. 9

d. 11

---

90. Study the patterns in the below answer figures and decide which figure follows next. **(+1, -0.33)**



a. C

b. B

c. A

d. D

91. An object starts its motion from rest. It gains a speed of 5 m/s in 2s. Its acceleration will be _____. **(+1, -0.33)**

a. 2.5 m/s^2

b. 1 m/s^2

c. 2 m/s^2

d. 0.4 m/s^2

---

92. Which of the following assumptions is/are implied from the below statement? **(+1, -0.33)**

Statement:

"I am eagerly awaiting to present this year's report to the top management", said the area sales manager to his colleague.

Assumptions:

I. The company has some new acquisitions in that area.

II. The manager has vital information that would make an impression on the top management.

a. Only assumption II is implicit

b. Only assumption I is implicit

c. Both assumption I and II are implicit

d. Neither assumption I nor II is implicit

---

93. A basic event in protein synthesis is the creation of a/an _____. **(+1, -0.33)**

a. DNA copy

b. RNA copy

c. mRNA copy

d. DNA and RNA copy

---

94. Name the Indian woman cricketer who became the highest wicket-taker in Women's ODI as of 27 th June 2017? **(+1, -0.33)**

a. Jhulan Goswami

b. Devika Vaidya

c. Mansi Joshi

d. Soni Yadav

---

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

A	B	C	D
S18	U20	Y25	W22

a. C

b. D

c. A

d. B

96. Tarun, Manav, Nitu, Hema, and Priya are standing in a row according to their height. Which of the following statements is sufficient to answer the following question? **(+1, -0.33)**

Who among the five is standing in the middle?

Statements:

1. Nitu is the tallest

2. Tarun is taller than Manav

3. Hema is the shortest of them all

4. Manav is taller than Priya

a. Statements 1, 2, 3 and 4 together are sufficient

b. Statement 1 and 3 are sufficient

c. Statement 1, 2 and 3 alone are sufficient

d. None of the statements are sufficient

97. With a view to assisting outstanding sportspersons of yester years, living in indigent circumstances who has won glory for the country in sports _____ was set up in 1982. **(+1, -0.33)**

a. National Welfare Club for Sportsperson

b. National Promotion Scheme for Sportsperson

c. National Welfare Fund for Sportsperson

d. National Pension Scheme for Sportsperson

98. The ratio of the interior and the exterior of angles of a regular polygon is 4 : 1. What is the number of sides of the polygon? **(+1, -0.33)**

a. 8

b. 12

c. 6

d. 10

---

99. Consider the given statement and decide which of the following assumptions is/are implicit in the statement. **(+1, -0.33)**

Statement:

Laugher therapy is the best alternative therapy.

Assumptions:

I. Laughter is simple and universal.

II. Laughter generates happy hormones in our system that boosts immune system.

a. Neither I nor II is implicit.

b. Only I is implicit.

c. Both I and II are implicit.

d. Only II is implicit.

---

100. Kazipet, which has a population of 4000, requires 9 litres of water per person per day. It has a cuboidal tank measuring 15 m × 8 m × 6 m. If the **(+1, -0.33)**

tank is full of water then for how many days will the water of this tank last?

a. 25 days

b. 30 days

c. 10 days

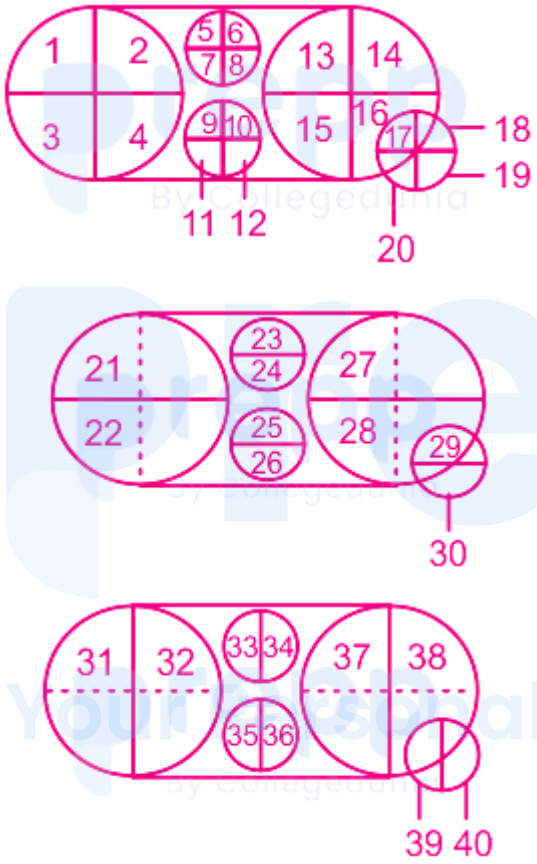
d. 20 days

Answers

1. **Answer: d**

Explanation:

We can count sectors as follows,



Hence, there are “40” sectors in the given figure.

---

2. **Answer: d**

Explanation:

- Indian National Congress won the highest number of seats in the Manipur Legislative Assembly Elections held in 2017.

- Indian National Congress won 28 seats and Bharatiya Janata Party won 21 seats.
- Chief Minister of Manipur is N. Biren Singh and he belongs to Bharatiya Janata Party.

---

3. **Answer: a**

Explanation:

On the wrist we wear watches thus following the same pattern on the finger we wear a ring.

Hence, “ring” is the correct answer.

---

4. **Answer: c**

Explanation:

The pattern followed here is as follows,

Hence, “63” is the correct answer.

---

5. **Answer: c**

Explanation:

⇒ Formula of curved surface area of a cone = πrl

where r is the radius and l is the slant height of cone.

⇒ $r = \sqrt{(l^2 - h^2)}$

⇒ r = √(256 – 207)

⇒ r = √49 = 7 cm

∴ Curved surface area of the cone = (22/7) × 7 × 16 = 352 cm^2

---

6. **Answer: c**

Explanation:

- The rate of diffusion of gases **do not** depend upon their volume.
- Diffusion is the process of particles moving from highly concentrated region to low concentrated region.
- Rate of diffusion of gases is higher when compared to liquids and solids as gases can move freely from one region to another.
- Diffusion is only possible if the matter moves continuously as diffusion meant that moving of particles from high concentration to low concentration region.

---

7. **Answer: b**

Explanation:

- Corrosion is a process in which a surface of metals such as Iron, copper etc. are corroded when they are exposed to moisture/ moist air or acids.
- Corrosion can be prevented by painting, oiling, greasing, Galvanizing, Chrome Plating or making alloys.

Process	Definition
Oxidation	It is a reaction in which either addition of Oxygen takes place or removal of Hydrogen takes place.
Reduction	It is a reaction in which either addition Hydrogen of takes place or removal of Oxygen takes place.
Rancidity	It is produced due to aerobic oxidation of fats present in food, oil etc. due to moisture or bacteria etc.

---

8. **Answer: a**

Explanation:

- G. Satheesh Reddy was conferred with the National Design Award in December 2017.
- He is the chief of Defense Research and Development Organization as of 2019.
- He was awarded the Missile System Award 2019 by the American Institute of Aeronautics and Astronautics.

---

9. **Answer: a**

Explanation:

- Power is defined as the rate of doing work or the rate of transfer of energy.
- It can also be said as the amount of work done in a given amount of time.
- SI unit of power is represented by Watt (W).

- Formulae for power is given by p = W /t.
- Where W is work done and t is time.

---

10. Answer: c

Explanation:

The correct answer is **1919.**

⭐ **Key Points**

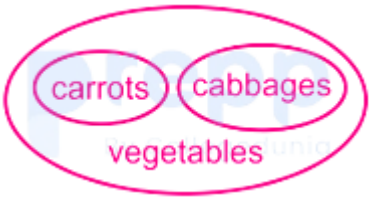
- The Jallianwala Bagh massacre, also known as the Amritsar massacre, took place on **April 13, 1919.**
- On this day, around **50 troops of the British Indian Army** , under the command of Colonel **Reginald Dyer** , fired on a **crowd of Baishakhi pilgrims, who had gathered in Jallianwala Bagh, Amritsar, Punjab.**
- After a public outcry, the British Government formed the **Hunter Commission to probe into the Jallianwala Bagh Massacre.**
- The Hunter Commission condemned the Massacre, but no action was recommended against General Dyer, who was responsible for the Massacre.
- **Rabindranath Tagore returned his Knighthood in response to the massacre.**
- **Lord Chelmsford (1916-1921) was the Governor-General/Viceroy** of India during the Jallianwala Bagh Massacre.
- General Dyer was assassinated by Udham Singh in London in 1940 as revenge against the massacre.

---

11. Answer: c

Explanation:

As we know that “carrots” and “cabbages” are “vegetables” but there is no relation between “carrots” and “cabbages”. Thus the best possible venn diagram representing above relation is as follows.



Hence, “option 3” is the correct answer.

---

12. Answer: c

Explanation:

- Sunil Arora is appointed as the chief election commissioner of India on 2 nd December 2018.
- He is the 23 rd chief election commissioner of India.
- He is a retired 1980 batch IAS officer.

---

13. Answer: a

Explanation:

Statement A:

⇒ One-third of each boxes’ weight is 2 kg

⇒ Weight of each box = 6 kg

⇒ So, the total weight of 6 boxes = 36 kg

Statement B:

The total weight of four boxes is 12 kg more than the total weight of two boxes

Let the weight of 1 box be x.

⇒ Given, 4x - 12 = 2x

⇒ x = 6 kg

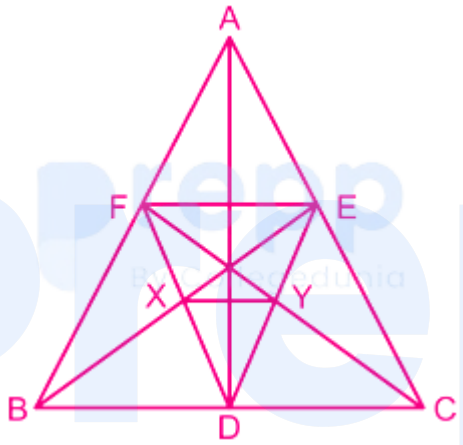
⇒ So, the total weight of 6 boxes = 36 kg

∴ Both Statements 1 and 2 alone are sufficient

---

14. Answer: b

Explanation:



In ΔABC,

F is the midpoint of AB and E is the midpoint of AC.

∴ By Midpoint Theorem,

EF || BC

∴ EF || BC ----(1)

⇒ EF = BC/2 ----(2)

Since D is the midpoint of BC,

⇒ EF = BD ----(3)

From equation 1 and 3,

⇒ BDEF is a Parallelogram.

BE and DF intersect at X.

Similarly, DCEF is a Parallelogram.

DE and CF intersect at Y.

∵ X and Y are the midpoints of sides DF and DE, respectively.

In ΔDEF,

X is the midpoint of DF and Y is the midpoint of DE.

∴ By Midpoint Theorem,

⇒ XY = EF/2 ----(4)

From equation 3 and 4

⇒ XY = BC/4

---

15. **Answer: d**

Explanation:

- The number of moles present in one mole of copper 6.022×10^{23} mol.
- Every compound contains same molecules in one mole.
- Mole can be defined as the amount of substance that contains as many particles as there in the 12 gm of 12C Carbon isotope.
- It is also known as Avogadro Constant and denoted by NA.
- SI unit of Mole is mol.

---

16. **Answer: d**

Explanation:

Using BODMAS rule,

⇒ 119 ÷ [22 - {90 ÷ (23 - 105 ÷ (7 × 3))}]

⇒ 119 ÷ [22 - {90 ÷ (23 - 105 ÷ 21)}]

⇒ 119 ÷ [22 - {90 ÷ (23 - 5)]

⇒ 119 ÷ [22 - {90 ÷ 18}]

⇒ 119 ÷ [22 - 5]

⇒ 119 ÷ 17 = 7

---

17. Answer: a

Explanation:

- The word 'atom' is coined by**Democritus**.
- He suggested that if we go on dividing matter at a certain point the atom becomes indivisible or cannot be divided further.
- He called these particles as atoms (Indivisible).

Scientist	Discovered
Thomson	Electron
E Rutherford	Discovered alpha and beta particles
John Dalton	Father of Atomic Theory

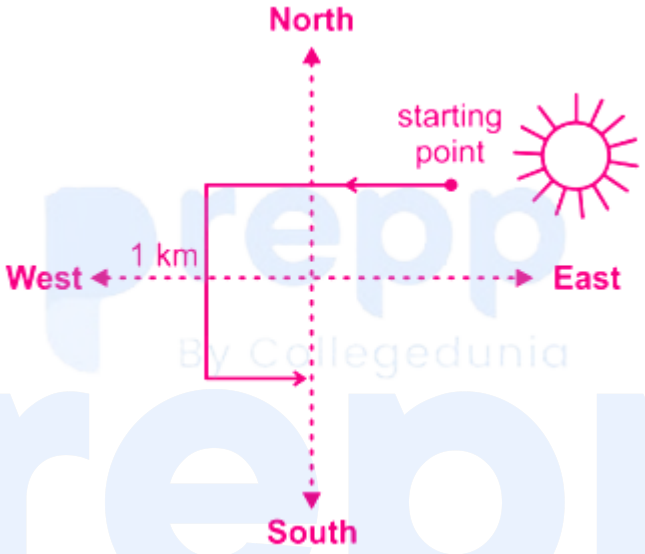
---

18. Answer: c

Explanation:

As we know in the morning, sun will be in east thus the opposite direction to the east is west.

Following figure shows the travelling path of Nina.



Clearly Nina turned towards the east direction at last.

Hence, “east” is the correct answer.

---

19. Answer: a

Explanation:

- The substances whose odour changes in acidic or basic media are called**Olfactory Indicators.**
- Onion, Clove, Vanilla etc. are some examples of Olfactory Indicators.
- These are the type of indicators are found naturally and used to test whether a given solution is an acid or a base.
- Some common examples are turmeric, grape juice etc.
- Synthetic indicators are different from natural indicators as the test for acids and bases is done with synthetic materials such as methyl orange and phenolphthalein.

- Any substance that indicates the presence of Acid or Base usually by changing colour is called Acid-Base indicators.
- Some common examples are red cabbage leaves, Turmeric etc.

---

20. Answer: b

Explanation:

The minimum possible Venn diagram of the given statements,

Conclusions:

1. All rocks are ores → True

2. All minerals are rocks → False (it is possible but not definite)

Hence, only conclusion 1 follows.

---

21. Answer: b

Explanation:

- Momentum is defined as the product of mass and velocity.
- Mass of the gun = 400 kg
- Its recoil velocity is 0.25 ms^{-1}
- We know that formula momentum (p) = mv
- Now by substituting the above values we get (p) = 400 × 0.25

= 100 kg.m/s.

- The momentum of a gun is 100 $kg.ms^{-1}$.

22. **Answer: d**

Explanation:

Let the age of Sooraj be x years and of Arjun be y years.

⇒ x = 3y ----(1)

After 8 years,

⇒ x + 8 = (5/2) (y + 8)

⇒ 2x + 16 = 5y + 40

⇒ 2 × 3y + 16 = 5y + 40

⇒ 6y + 16 = 5y + 40

⇒ y = 24 ----(2)

Solving Equation (1) and (2), we get:

⇒ x = 72 and y = 24

∴ After another 8 years, the age of Sooraj = (72 + 8 + 8) = 88 years

The age of Arjun = (24 + 8 + 8) = 40 years

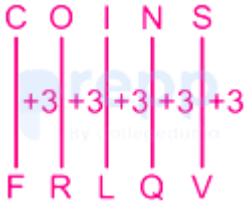
∴ After another 8 years, Sooraj would be $2\frac{1}{5}$ times Arjun's age.

23. **Answer: c**

Explanation:

The pattern followed here is as follows,

Similarly,



Hence, “FRLQV” is the correct answer.

---

24. Answer: a

Explanation:

Using BODMAS rule,

⇒ -15 - (-18 - 35 ÷ 5)

⇒ -15 - (-18 - 7)

⇒ -15 - (-25)

⇒ -15 + 25 = 10

---

25. Answer: a

Explanation:

- Alloysdo not oxidize readily at high temperatures.
- Alloy is a homogenous mixture of two or more metals; or a metal and a non-metal.

- It prepared by melting a primary metal and dissolving other elements in definite proportions and cooled at room temperature.
- Alloys are usually prepared to get desired properties such as high melting point, protection against corrosion etc.
- Hence alloys do not oxidize as alloying improve properties of pure metals as alloying of iron mixed with nickel and chromium, it will become resistance to oxidization.
- But there are some alloys are prepared to get low melting points like solder which is made up of lead and tin.

---

26. Answer: b

Explanation:

Factors of 14 = (2 × 7)

Factors of 42 = (2 × 3 × 7)

Factors of 77 = (7 × 11)

∴ LCM of 14, 42 and 77 = (2 × 3 × 7 × 11) = 462

---

27. Answer: b

Explanation:

The minimum possible Venn diagram of the given statements,

Conclusions:

1. Some Lemons are Jump → False **("Jump" is not mentioned in the statement, so we can't say about the relation between "lemon" and "jump")**

2. Beet is a Red → False (There is no direct relation given between beet and red so it is possible but not definite)

Hence, neither conclusion 1 nor conclusion 2 follows.

---

28. Answer: d

Explanation:

- The South Asian Sports Council (SASC) was formed in the year **1983** .
- South Asia Games are governed by SASC.
- **The first South Asia games hosted by Kathmandu, Nepal in 1984.**
- South Asian games are held once in every two years.

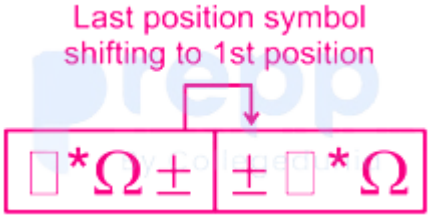
---

29. Answer: c

Explanation:

The pattern followed here is, every symbol in the next image is shifted to its next position and 4 th position symbol is replacing 1 st position symbol as follow,

Similarly,



Hence, “D” is the correct answer.

30. **Answer: a**

Explanation:

GIVEN:

Expenditure = 85%

Savings = 1200 per month

FORMULA USED:

Expenditure + Savings = Income

Let the salary of Alok be Rs. X.

⇒ Salary spend by Alok = 85% of x = 0.85x

According to the question

⇒ 0.85x + 1200 = x

⇒ x = Rs. 8000

∴ The salary of Alok is Rs. 8000.

---

31. **Answer: a**

Explanation:

Correct Answer **Lord Canning**

Key Points:

- **Lord Canning** (1856-1862) was the **first viceroy of India.**
- Viceroy is the British crown representative of the princely states of India.

- **Lord Canning** became first the Viceroy and governor-general of India through the government of India Act 1858.
- He was the **Governor-General of India** during the Indian Sepoy Mutiny in 1857.

---

32. Answer: d

Explanation:

Simple interest = (P × R × T)/100, where P is the principal, R is the rate of interest and T is the time period.

Compound interest = $[P (1 + R/100)^{n}] - P$, where P is the principal, R is the rate of interest and n is the time period.

⇒ SI = (4500 × 8 × 3)/100 = Rs. 1080

⇒ CI = $[4500 (1 + 8/100)^{3}]$ - 4500 = Rs. 5668.7 - 4500 = 1168.7

∴ Required difference = Rs. 88.70

---

33. Answer: b

Explanation:

A(4, 1), B(1, 1) and C(3, 5) are the vertices of a triangle. Then,

⇒ $AB^{2} = (1 - 1)^{2} + (1 - 4)^{2} = 9$

⇒ $BC^{2} = (5 - 1)^{2} + (3 - 1)^{2} = 20$

⇒ $AC^{2} = (5 - 1)^{2} + (3 - 4)^{2} = 17$

Since, all 3 sides have different lengths, so it is a scalene triangle.

---

34. **Answer: a**

Explanation:

Given that it was a Thursday on 7th June 1984.

From 7th June 1983 to 7th June 1984, the number of odd days = 2 as 1984 is a leap year.

Hence, the day on 7th June 1983 was Tuesday.

---

35. **Answer: c**

Explanation:

- Apple introduced the iPad as a multimedia device in the year 2010.
- Apple is introduced iWatch in the year 2015 and iPhone in 2007.
- It is the first company in the world to reach the market valuation of 1 Trillion Dollars.
- CEO of the company is Tim Cook.

---

36. **Answer: a**

Explanation:

CONCEPT:

- Work is said to be done by a force when the body is displaced actually through some distance in the direction of the applied force.
- Since the body is being displaced in the direction of F, therefore **work done by the force** in displacing the body through a distance s is given by:

$W = \vec{F} \cdot \vec{s}$

Or, $W = Fs \cos \theta$

- Thus work done by a force is equal to the scalar or dot product of the force and the displacement of the body .

EXPLANATION:

- The **product of Force and Displacement is called Work** . So option 1 is correct.

Quantity	Definition
Weight (W)	It is the product of mass and acceleration due to gravity
Acceleration (a)	Acceleration is defined as the rate of change of velocity
Momentum (p)	Momentum is defined as the product of mass and velocity

---

37. Answer: d

Explanation:

- The Protozoa is not a part of the 5-Kingdom classification by Whittaker.
- R.H. Whittaker proposed a Five Kingdom Classification in the year 1969.
- The 5 Kingdoms he classified are **Monera, Protista, Fungi, Plantae and Animalia.**
- He defined these five kingdoms based on cell structure, thallus organization, mode of nutrition, reproduction and phylogenetic relationships.

---

38. Answer: b

Explanation:

Symbols	+	×
Meaning	-	÷

Given expression: ((25 + 30) × 5) × 10)

After changing the symbols:

((25 - 30) ÷ 5) ÷ 10)

= ((-5) ÷ 5) ÷ 10

= -1 ÷ 10 = -0.1

Hence, "-0.1" is the correct answer.

---

39. Answer: c

Explanation:

⇒ 1 - 5/16 = 11/16 = 22/32

∴ When 22/32 is added to 5/16, it will give 1 as the result.

---

40. Answer: c

Explanation:

- The first 'Persons of Indian Origin (PIO) Parliamentarian Conference' was held on 9 January 2018.
- It was the first PIO-Parliamentarian Conference and it was held in New Delhi.

---

41. **Answer: c**

Explanation:

Let the marked price of T-shirt be Rs. X.

⇒ Discount = 20%

⇒ Cost price for Himanshi = Rs. 0.8x

⇒ Selling price for Himanshi = Rs. x

⇒ Gain = (x - 0.8x) = 0.2x

∴ Gain percentage = (0.2x/0.8x) × 100 = 25%

---

42. **Answer: a**

Explanation:

- An object is placed in front of a concave mirror at a point between its focus and centre of curvature. The image formed will be Real, Inverted and enlarged.
- The position of the image will be beyond the centre.

Type of Mirror	Position of the Object (O)	Position of the Image (I)	Nature of the Image Formed
Concave	At infinity	At Focus	Real, Inverted and diminished
	Beyond Centre	Between Focus and Centre	Real, Inverted and diminished
	At Centre	At Centre	Real, Inverted and same size
	Between Centre and Focus	Beyond Centre	Real, Inverted and enlarged
	At Focus	At Infinity	Real, Inverted and Highly enlarged
	Between Focus and pole	Behind the Mirror	Virtual, Erect and enlarged
Convex	All positions	Behind the Mirror	Virtual, Erect and diminished

43. **Answer: d**

Explanation:

- Weight of the object (m) = 10 kg
- Speed of the object (v) = 5 m/s
- We know that kinetic energy formulae (K.E) = ½ mv^2.
- Now by substituting the values in the formula we get

$K.E = ½ (10) (5)^2$

$= 125$ J

- The kinetic energy of the object is 125 J.

---

44. Answer: d

Explanation:

The correct answer is **Xylem** .

⭐ Key Points

- Xylemis not a **simple permanent tissue.**
- xylem along with phloem is a complex permanent tissue.
- Complex tissue is made up of more than one cell.
- The basic function of the xylem is to transport water from roots to shoots and leaves.

⭐ Additional Information

Tissue	Function
Apical meristem	The apical meristem is the growth region in plants found within the root tips and the tips of the new shoots and leaves. Apical meristem is one of three types of meristem, or tissue which can differentiate into different cell types. Meristem is the tissue in which growth occurs in plants.
Collenchyma	They are useful to provide mechanical support for leaves.
Cambium	It is a layer of narrow, thin-walled cells between the xylem on the inside and the phloem on the outside. The cells can divide, making more xylem and phloem tissue

---

45. **Answer: b**

Explanation:

- Viacom 18 Media PVT. Ltd. Launched its Hindi movie channel Rishtey Cineplex in May 2016.
- It is the company first foray in Hindi films.
- Viacom 18 operates channels like MTV, Colours etc.

---

46. **Answer: b**

Explanation:

Concept Used:

For quadratic equation, $ax^2 + bx + c = 0$,

$\alpha + \beta = -b/a$ and $\alpha\beta = c/a$

Calculation:

Given equation is $(5 + \sqrt{2})x^2 - (4 + \sqrt{5})x + (8 + 2\sqrt{5}) = 0$

On comparing this equation by $ax^2 + bx + c = 0$, we get

$a = (5 + \sqrt{2})$, $b = -(4 + \sqrt{5})$ and $c = (8 + 2\sqrt{5})$

Now, $\alpha\beta = (8 + 2\sqrt{5})/(5 + \sqrt{2})$ and $\alpha + \beta = (4 + \sqrt{5})/(5 + \sqrt{2})$

Now, We have to find the value of $2\alpha\beta/(\alpha + \beta)$

$\Rightarrow 2[(8 + 2\sqrt{5})/(5 + \sqrt{2})] / [(4 + \sqrt{5})/(5 + \sqrt{2})]$

$\Rightarrow 2[(8 + 2\sqrt{5})(4 - \sqrt{5})] / [(4 + \sqrt{5})/(4 - \sqrt{5})]$

$\Rightarrow 2(32 + 8\sqrt{5} - 8\sqrt{5} - 10)/11$

$\Rightarrow 44/11 = 4$

$\therefore$ The required value of $2\alpha\beta/(\alpha + \beta)$ is 4.

---

47. Answer: b

Explanation:

- The real name of the Indian director 'Guru Dutt' is Vasant Kumar Shivashankar Padukone (1925-1964).
- He was most famous for these films pyaasa and Kaagaz Ke Pool.
- He has been included in CNN top 25 actors of all time in the year 2010.

---

48. Answer: d

Explanation:

From the statement the "Of all the mobile brands, Samsung's sales are the highest", we can understand that there is a comparison taking place between Samsung mobile phones and all other mobile phones. Since the statement is comparing thus, we can make the conclusion that "The market share of other mobile brands is known" but there is no mention about the popularity of any other brands, thus, we cannot say that "No other mobile brand is popular". Hence, only conclusion I follow.

---

49. Answer: d

Explanation:

- The melting point of tungsten is3,422°C.
- It is represented by W and has an atomic number of 74.
- It belongs to transition elements.
- Due to its high melting point, tungsten is used as filament in an incandescent bulb.

---

50. Answer: d

Explanation:

A **free fall** in true sense occurs**only in a vacuum**.

- A fall is considered as a free fall if only force acting on it was gravity.
- As the vacuum contains no matter, there is no opposite force against the free fall due to gravity.
- In air and atmosphere, there is aerodynamic drag and in the sea, there is a buoyancy force of water to oppose the movement due to gravity.

---

51. **Answer: b**

Explanation:

- **Oxygen** is not required for photosynthesis.
- Oxygen is liberated during photosynthesis.
- Photosynthesis is the process through which green plants manufacture food by converting solar energy into chemical energy. In this process, water and carbon dioxide react in the presence of sunlight to give off oxygen and glucose molecules.
- Leaves of a plant contain green colour due to the presence of chloroplasts.
- Chloroplasts contain the green substance called chlorophyll.
- Chlorophyll absorbs sunlight for photosynthesis.

---

52. **Answer: a**

Explanation:

Given:

Speed without stoppage = 80 km/h

Speed with stoppage = 60 km/h

Formula used:

Speed = Distance/Time

Calculation:

Distance travel by Sunil with the speed of 80 km/h in one hour,

Distance = speed × Time

⇒ Distance = 80 × 1 = 80 km

Distance travel by Sunil with the speed of 60 km/h in one hour,

Distance = speed × Time

⇒ Distance = 60 × 1 = 60 km

Now, the time is taken to cover the extra 20 km with the speed of 80 km/h

Time = Distance/Speed

⇒ Time = 20/80

⇒ Time = 1/4 hour = (1/4) × 60

⇒ Time = 15 minutes

∴ Sunil stops on an average 15 minutes per hour.

⭐ Shortcut Trick

Given:

Speed excluding stoppages = 80 km/h

Speed including stoppages = 60 km/h

Formula used:

Minutes of stops per hour = [(Faster speed - Slower speed)/Faster speed] × 60

calculation:

Minutes of stoppages per hour = [(80 - 60)/80] × 60

= (20/80) × 60

= 15 min

∴ Sunil stops on an average 15 minutes per hour.

---

53. Answer: d

Explanation:

Here, $W_1D_1 = W_2D_2$

$\Rightarrow W_1 = 200$

$\Rightarrow D_1 = 1024$

$\Rightarrow W_2 = ?$

$\Rightarrow D_2 = 256$

$\Rightarrow$ So, $200 \times 1024 = ? \times 256$

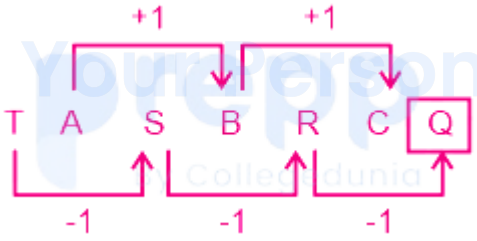
$\therefore$ Required number of men = 800

---

54. Answer: a

Explanation:

The pattern followed here is as follows,



Hence, "Q" is the correct answer.

---

55. Answer: a

Explanation:

- Oprah Winfrey was honoured with the Cecil B. Demille Award at the 75 th Golden Globe Awards.

- It was an award given to a person for his 'outstanding contributions to the world of entertainment'.
- It was presented by the Hollywood Foreign Press Association.
- This award in 2019 was given to Jeff Bridges.

---

56. Answer: b

Explanation:

Tank filled in 1 hour = 1/15

⇒ When there is a leak, the amount of tank filled in 1 hour = 1/20

⇒ Amount of tank emptied in 1 hour = 1/15 - 1/20 = (4 - 3)/60 = 1/60

∴ Time taken to empty the tank = 60 hours

---

57. Answer: c

Explanation:

$10 \sin^4\alpha + 15 \cos^4\alpha = 6$

$\Rightarrow 10 \sin^4\alpha + 15 \cos^4\alpha = 6(\sin^2\alpha + \cos^2\alpha)^2$

Dividing both sides by $\cos^4\alpha$

$\Rightarrow 10 \tan^4\alpha + 15 = 6 \tan^4\alpha + 6 + 12 \tan^2\alpha$

$\Rightarrow 4\tan^4\alpha + 9 - 12 \tan^2\alpha = 0$

$\Rightarrow (2\tan^2\alpha - 3)^2 = 0$

$\Rightarrow \tan^2\alpha = 3/2$

$27 \operatorname{cosec}^6\alpha + 8\sec^6\alpha = 27 (1 + \cot^2\alpha)^3 + 8 (1 + \tan^2\alpha)^3$

$\Rightarrow 27 [1 + 2/3]^3 + 8 [1 + 3/2]^3$

$\Rightarrow 125 + 125 = 250$

---

58. Answer: c

Explanation:

A number will be divisible by 9, if the sum of all the digits of a number is multiple of 9.

$\Rightarrow x + 4 + 7 + 3 + 8 = 22 + x$

$\Rightarrow$ Next nearest multiple of 9 = 27.

$\therefore$ Face value of x = 5

---

59. Answer: c

Explanation:

Here, except 'weed' all others are part of plants but 'weed' is a plant itself.

Hence, 'weed' is the correct answer.

---

60. Answer: a

Explanation:

- India is the largest producer, consumer, importer of Pulses.
- India mainly produces pulses like chickpea, black gram, green gram, and lentil etc.
- India is the largest producer of Jute.
- India is the second-largest producer of Sugar.

- Gujarat is the largest producer of salt in the country.

---

61. Answer: a

Explanation:

lateral mirror image of the word 'KIT' is as follows,

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

---

62. Answer: a

Explanation:

Calculation:

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

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

$66 \div [67 - \{43 - (17 - 117 \div 9 \times 4)\}] = ?$

$\Rightarrow 66 \div [67 - \{43 - (17 - 13 \times 4)\}] = ?$

$\Rightarrow 66 \div [67 - \{43 - (17 - 52)\}] = ?$

⇒ 66 ÷ [67 - {43 - (-35)}] = ?

⇒ 66 ÷ [67 - {43 + 35}] = ?

⇒ 66 ÷ [67 - 78] = ?

⇒ 66 ÷ -11 = ?

⇒ -6 = ?

∴ The value of ? is -6

---

63. Answer: b

Explanation:

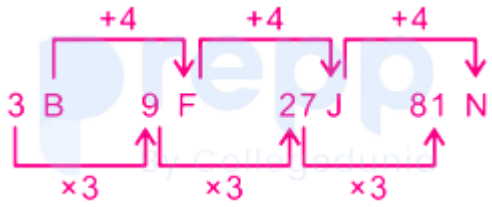
- Hydrogen is the element that could not find a fixed place in Mendeleev's periodic table.
- Mendeleev periodic law states that 'the properties of elements are the periodic function of their atomic masses'.
- Hydrogen has 1 electron in its outermost orbit hence it should be placed in s-group (Alkali metals) or group 1.
- But it behaved like a halogen (group 17) which gains one electron to reach the electronic configuration of a helium atom which is a noble gas.
- Hence hydrogen did not find a fixed place in Mendeleev periodic law.

---

64. Answer: c

Explanation:

The pattern followed here is as follows,



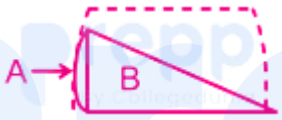
Hence, “81N” is the correct answer.

---

65. Answer: b

Explanation:

The following figure explains the hidden image,



Hence, “A and B” is the correct answer.

---

66. Answer: c

Explanation:

- Aung-san Sukyi belongs to the country of Myanmar (Formerly Burma).
- She was awarded the Noble Peace prize in the year 1991.
- She is currently the State Counsellor of Myanmar since 2016.
- Capital of Myanmar is Naypyidaw and its currency is Burmese Kyat.

---

67. Answer: b

Explanation:

- The headquarters of the World Bank is in the United States of America (USA).
- Its headquarters is in Washington D.C. USA.

- It has a total membership of 189 countries.
- Along with the International Monetary Fund (IMF), the World Bank was established in the year 1945.
- IMF also has its headquarters in Washington D.C.

---

68. Answer: d

Explanation:

Argument I give the solid reason that "they pose a high risk to the environment" and also provide with the solution that "People can bring along their own bags to buy vegetables". While the argument II is ambiguous and doesn't argues on any solid base. Hence, "Only argument I is strong".

---

69. Answer: c

Explanation:

The correct answer is **1/k.**

Given, $(x_1 + x_2 + x_3 + \ldots + x_n)/n = 1$

$\Rightarrow$ Arithmetic mean of $(x_1/k + x_2/k + x_3/k + \ldots + x_n/k)/n$

$\therefore 1/k\ [(x_1 + x_2 + x_3 + \ldots + x_n)/n] = 1/k$

---

70. Answer: b

Explanation:

- Mechanical energy is defined as the sum of kinetic energy and potential energy in an object that is utilized to do work.
- Mechanical energy is a combination of kinetic energy and potential energy.

- Mechanical energy is the form of energy that is related to the position and motion of an object.
- **Kinetic energy** : The energy possessed by an object has because of its motion.

  $K.E. = (½)\ mv^2$

- **Potential energy** : The energy stored in an object because of its specific state or position.

  $P.E. = mgh$

---

71. Answer: b

Explanation:

Symbol for family tree:

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

We can draw a family tree from the given information,

Hence, C is the "mother-in-law" of Z.

72. **Answer: b**

Explanation:

Concept:

- Work is done: The product of force and displacement is called work done
- Work was done against gravity: When an object is brought to some height going against gravity, work is said to be done against gravity.
  - This work done is converted into potential energy.
  - The potential energy is energy stored in a body when work is done against gravity . It is given as

$P = m \times g \times h$

- As for lifting or after lifting at height some work needs to be done, .for e.g A coolie lifting a weight in his weight, it is in the form of potential energy, so work done can also be written as,

$W = P = m \times g \times h$.

m is mass, g is the acceleration due to gravity, h is the height obtained.

Calculations:

- Mass of the object (m) is 1 kg.
- Height of the object (h) is 30m
- The gravity of the earth (g) is 10 m/s
- Now work done by the force of gravity = mgh
- Now substituting the above values, we get

$= (1)(30)(10)$

$= 300$ J

- **The work done by the force of gravity will be 300 J.**

73. **Answer: c**

Explanation:

The pattern followed here is as follows,

Similarly,

Hence, “FGQ” is the correct answer.

---

74. **Answer: c**

Explanation:

the lateral mirror image of ‘LIGHT’ is shown in the following figure,

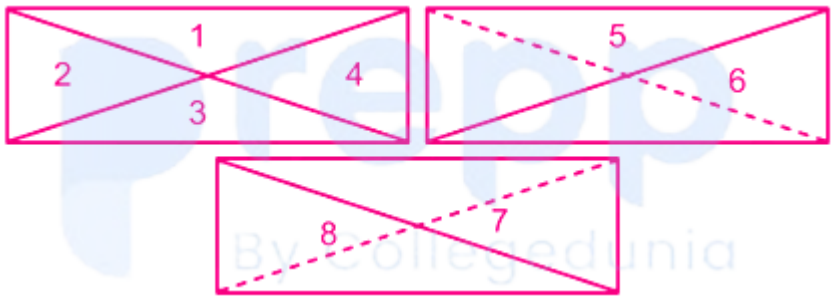
Hence, “option figure B” is the correct answer.

---

75. **Answer: c**

Explanation:

We can count triangle as follows,



Hence, there are “8” triangles in the given figure.

---

76. Answer: b

Explanation:

- Newlands’s law of octaves was applicable only up to**calcium**.
- Newland table was drawn by John Newlands in 1866 according to his Law of Octaves.
- In his theory, he purposed that when elements are arranged according to their increasing atomic weights then every eight elements have similar properties as the first element.
- After calcium, this law ceased to be valid as after calcium every eight elements do not have the same property of a first element.

---

77. Answer: a

Explanation:

Correct Answer **Himalayas**

Key Points:

- The**Himalayas**is the **youngest mountain (Fold Mountain)** in India.

- Due to **tectonic movement** , the **Gondwana land** collided with **Eurasian plate** resulting in the **formation of Himalayas** .
- The **Himalayas** acts as a source for many rivers like the **Ganges, the Yamuna, The Indus, The Brahmaputra** etc.
- **Mount Abu** is in the **Aravali mountain range** (it is **residual Mountain range**).
- **Satpura mountain range (Block Mountains)** is in central India.
- **Anaimudi** is the highest peak in the **Western Ghats** .

---

78. Answer: d

Explanation:

In only 'figure C' we observe that there are two ovals and are touching at two positions. Thus it closely resembles the question figure.

Hence, "C" is the correct answer.

---

79. Answer: c

Explanation:

- When two germ cells from two individuals combine during sexual reproduction, they form a **Zygote.**
- When male gametes (Sperm) feud with female gametes (Ovum) then a Zygote is formed.
- Zygote is moved down from the fallopian tubes and attached to wall of Uterus and its called embryo which further develops into Fetus.

Term	Definition
Bud	• It is a type of Asexual reproduction. • Several bulb type projections are found on organisms that follow this type of reproduction as these bulbs later develop into new Individuals and these bulges are called buds.
Spore	• Spore as asexual reproductive bodies found in plants.
Fruit	• After fertilization, the ovaries grow into a fruit.

80. **Answer: c**

Explanation:

⇒ Mowing completed by Kuldeep in 1 hour = 1/8

⇒ Mowing completed by Agarkar in 1 hour = 1/12

⇒ Mowing completed in the first two hours = 1/8 + 1/12 = 5/24

⇒ Mowing completed in the first eight hours = 20/24 = 5/6

⇒ Mowing completed in the next 1 hour i.e. in 9 th hour by Kuldeep = 1/8

⇒ Mowing completed in the first 9 hours = 5/6 + 1/8 = 23/24

⇒ Remaining mowing = 1 - 23/24 = 1/24

⇒ Time taken to complete the remaining 1/24 work of mowing = (1/24)/ (1/12) = ½ hour

⇒ So, the total time taken for mowing = 9.5 hours

∴ Mowing will be finished by 6.30 p.m.

---

81. Answer: d

Explanation:

- Mercury (Hg) is in the form of liquid at room temperature.
- Mercury is the only metal in liquid form at room temperature.
- As mercury is sensitive to temperature changes, it is used in the devices that are used to measure temperature.
- Bromine (Br) is also in liquid form at room temperature but is a non- metal.
- Both lead (Pb) and tungsten (W) is in solid form at room temperature.

---

82. Answer: c

Explanation:

- The CEO of ICCI bank is**Sandeep Bakhshi.**
- Chanda Kochhar stepped down for violation of ICCI Banks code of conduct.

---

83. Answer: c

Explanation:

Initial capital with Lalitha = Rs. 20000

⇒ Percentage of money left with her for other expenses = 100 - 50 - 20 = 30%

∴ Money left = (30/100) × 20000 = Rs. 6000

---

84. Answer: c

Explanation:

- The Income Declaration Scheme was launched by the Income Tax Department of the Government of India in the year **2016.**
- The Scheme provides an opportunity to the citizen who has not paid full taxes in the past to come forward and declare the undisclosed income and pay tax, surcharge and penalty totalling in all to forty-five per cent of such undisclosed income declared.
- The declaration must be made between 1 st June 2016 to 30 th September 2016.

---

85. Answer: d

Explanation:

- A constitution amendment bill must be passed by both lower house (Lok Sabha) and upper houses (Rajya Sabha) of Parliament separately.
- The article 368 (1) provides the Indian Parliament power to amend the Indian constitution.
- A constitutional amendment must be passed by both houses by a special majority (2/3 rd of members) of both houses.

---

86. Answer: b

Explanation:

Factors of 108900 = (2 × 2 × 3 × 3 × 5 × 5 × 11 × 11)

∴ Square root of 108900 = 2 × 3 × 5 × 11 = 330

---

87. Answer: c

Explanation:

Percentage of employees in segment 5 = 20%

Percentage of employees in segment 3 = 10%

⇒ Amount spend on segment 3 is Rs. 5000 i.e. on 10% employees

⇒ So, the expense on segment 5 i.e. on 20% employees = 2 × 5000 = Rs. 10000

∴ Expense on segment 5 = Rs. 10000

---

88. Answer: c

Explanation:

- When metals react with water. It liberates hydrogen gas.
- Metals react with water to form a metal oxide and liberated hydrogen gas.

Metal + Water → Metal oxide + Hydrogen (g)

- Metal oxides that are formed during these reactions, if soluble in water then they from metal hydroxides.

Metal oxide + Water → Metal hydroxide

- But not all metals react with water, metals like gold, silver, lead etc. do not react with water at all.

---

89. Answer: d

Explanation:

Given:

$x = y = \frac{\sqrt{6}-1}{\sqrt{6}+1}$

Concept used:

Here we need not to put the complex value of x and y,

Only put x = y

Calculation

$\frac{\left(3x^2+5xy+3y^2\right)}{\left(3x^2-5xy+3y^2\right)}$

$\Rightarrow \frac{\left(3x^2+5x^2+3x^2\right)}{\left(3x^2-5x^2+3x^2\right)}$

$\Rightarrow 11x^2/x^2$

$\Rightarrow 11$

---

90. Answer: a

Explanation:

The pattern followed here is "∞" is shifting to the next quadrant in a clockwise direction and the inverted L is undergoing mirror image and water image alternatively in each quadrant in a clockwise direction

---

91. Answer: a

Explanation:

- The speed gained by the object v is 5m/s
- Time = 2s
- Initial velocity u is 0
- We know that v = u + at
- Now by substituting the values, we get

5 = (2)(a)

a = 2.5

- The acceleration of the object is 2.5 m/s^2

---

92. **Answer: c**

Explanation:

Assumption 1 holds as if the sales manager of an area is happy with his work in the area, it can be assumed that he/she has made some progress, or some acquisitions in his/her area. The area sales manager stated that "he is eagerly awaiting to present this year's report to the top management", so we can assume that "The manager has vital information that would make an impression on the top management".

Hence, "Both assumption I and II are implicit".

---

93. **Answer: c**

Explanation:

- A basic event in protein synthesis is the creation of a/an mRNA (Messenger Ribonucleic Acid) copy.
- The mRNA provides the template for the Genetic Code.
- A gene is used to build a protein using the following two step process i.e. Transcription and Translation.
- **Transcription:** It is the process by which DNA is copied to mRNA, which carries the information needed for protein synthesis.
- **Translation:** It is the process that takes the information passed from DNA as messenger RNA and turns it into a series of amino acids.

---

94. **Answer: a**

Explanation:

- Jhulan Goswami, an Indian woman cricketer became the highest wicket-taker in Women's ODI in the year 2017.
- In the year 2018, she retired from T20 international Cricket.
- She was the first woman to cross 200 wickets in women's 50 overs ODi and she is also an Ex-Indian Team Captain.
- She has a postal stamp issued in her honor in the year 2018.

---

95. Answer: a

Explanation:

Here, accept Y25, every latter is followed by the number one less than the positon value of that letter,

Ex. S = 19 – 1 = 18 ⇒ S18

Hence, "Y25" is the correct answer.

---

96. Answer: a

Explanation:

Let us check every statement individualy,

1. Nitu is the tallest → Data in this statement is inadequate since, only 1 person is mentioned here. Therefore statement 1 alone is not sufficient.

2. Tarun is taller than Manav → Data in this statement is inadequate since, only 2 persons are mentioned here. Therefore statement 2 alone is not sufficient.

3. Hema is the shortest of them all → Data in this statement is inadequate since, only 1 persons is mentioned here. Therefore statement 3 alone is not sufficient.

4. Manav is taller than Priya → Data in this statement is inadequate since, only 2 persons are mentioned here. Therefore statement 4 alone is not sufficient.

Since, no statement alone is sufficient now we can go through the options given,

From 1 st option combining all 1, 2, 3, and 4 statement together we get,

Nitu > Tarun > Manav > Priya > Hema

Hence, "Statements 1, 2, 3 and 4 together are sufficient".

---

97. Answer: c

Explanation:

- National Welfare Fund for Sportsperson was set up in the year 1982 to help sportspersons in yesteryears and living in indigent circumstances.
- The annual income required to be eligible for getting financial assistance raised from 2 to 4 lakh.
- Financial assistance to sportsperson living in indigent raised to 5 lakhs and 10 lakhs for any injury sustained during training, 5 lakhs to family in case of death of sportsperson.

---

98. Answer: d

Explanation:

Let the interior angle be x.

So, exterior angle = x/4

Interior angle + Exterior angle = 180°

⇒ x + x/4 = 180°

⇒ x = 144°

⇒ Exterior angle = 36°

⇒ n = 360°/exterior angle, where n is the number of sides

∴ n = 360°/36° = 10

⭐ **Alternate Method**

Let the value of each exterior angle be x

Value of each interior angle = 4x

Number of sides of polygon = 360°/ x

360° / x = 2 × 180 ° / x

Sum of interior and Exterior angles = 180°

⇒ 2 × (x + 4x)/x = 2 × 5x/x = 10

---

99. Answer: c

Explanation:

Assumption 1 follows because laughter does not depend on area, family background, genetics, etc, and as therapy is 'simple' and 'universal'. Assumption 2 follows because it is a proven scientific fact.

Hence, "Both assumptions I and II are implicit".

---

100. Answer: d

Explanation:

⇒ Total water consumption of Kazipet of 1 day = 4000 × 9 = 36000 litres

⇒ Volume of cuboidal tank = 720 m^3 = 720 × 1000 litres = 720000 litres

∴ The number of days for which water is available = 720000/36000 = 20 days