'Knowledge- A poor man's help and a Rich man's Guide'

This section tests your familiarity with everyday science and basic stuff you learn in your high-school. Feel free to guess the answers and if you find something is amiss, write back to us at satvik@intellify.in
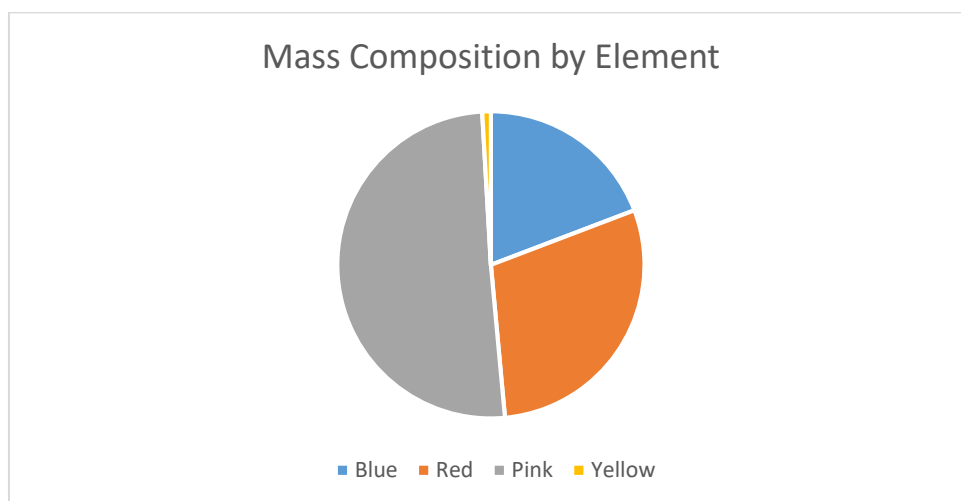
Happy Quizzing

Read the following passage

dolomite + silica + water → XXXX + calcite + carbon dioxide
i.e $3\ CaMg(CO_3)_2 + 4\ SiO_2 + H_2O \rightarrow Mg_3Si_4O_{10}(OH)_2 + 3\ CaCO_3 + 3\ CO_2$
(or)
serpentine + carbon dioxide → XXXX + magnesite + water
$2\ Mg_3Si_2O_5(OH)_4 + 3CO_2 \rightarrow Mg_3Si_4O_{10}(OH)_2 + 3\ MgCO_3 + 3\ H_2O$

Note. You can simply find the element's atomic weight by multiplying its atomic number by 2. For your information, Magnesium has 12 protons while Silicon has 2 more and Oxygen has 4 less. The periodic table starts with Hydrogen.

The above chart was obtained for the compound XXXX based on its composition. Now answer the following.

1. Which element depicts the red region?
   A. Magnesium
   B. Silicon
   C. Oxygen
   D. Hydrogen
2. Which of the following numbers best depicts the blue percentage?

A. 19
B. 24
C. 29
D. 22

3. This is a straight forward question for Biology Enthusiasts. The name literally translates in Greek to Joint Legs. Which phylum am I talking about?
    A. Annelida
    B. Arthropoda
    C. Echinodermata
    D. Annelida

4. A question to reduce your tension. Fill the blank.
    The epitaph of a famous scientist reads thus.

Here lies ----------------, Knight, who by a vigour of mind almost supernatural, first demonstrated, the motions and Figures of the Planets, the Paths of the comets, and the Tides of the Oceans ... Let Mortals rejoice that there has existed such and so great an ornament of Nature.

    A. Galileo
    B. Isaac Newton
    C. Johannes Kepler
    D. Nicholas Copernicus

Read the following passage.
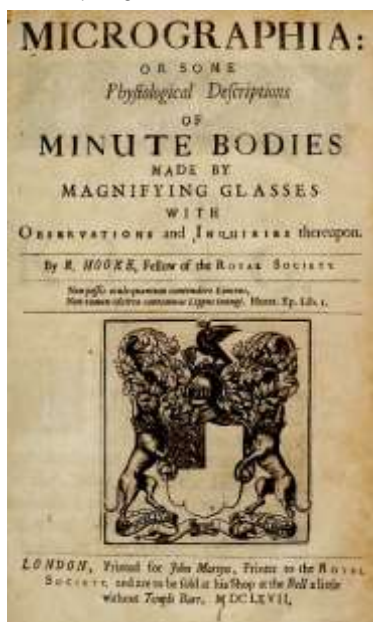
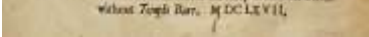Cooper, an ace programmer had the following output for his code.

0, 1, 1, 2, 3, 5, 8, 3, 1, 4, ……………..

He observed that in the output, the numbers started repeating at an interval of 60. i.e. the 61st number is also zero.

Answer the following straight forward questions. (Hint: Think Da-Vinci Code)

5. What is the next number in the sequence?
    A. 5
    B. 9
    C. 3
    D. 7

6. What is the 2477th number in the sequence?
    A. 5
    B. 9
    C. 3
    D. 7

7. 'Le merchand de la mort est mort'. This French line once appeared on the headline of a newspaper which was actually false but inspired the creation of a prestigious award. The person who created this award also has an element named after him. Its electron Configuration reads [Rn] $5f^{14}7s^{2.}$ What is the atomic number of this element?
    A. 92
    B. 112
    C. 82

D. 102

8. This book had the first ever description of this biological word. The clue's in the author. What is the second letter in the word?

    A. A
    B. E
    C. I
    D. O

9. The element with the lowest melting point is helium while carbon has the highest. Which element has the 2nd highest melting point, a feature that is put into everyday use? (Hint. You are probably sitting under it right now). Indicate the second letter in your answer.

    A. A
    B. I
    C. O
    D. U

10. X: God does not play dice with the universe.

  Y: You can't tell God what to do.

Both X and Y are world renowned physicists. Both have won Nobel Prizes for their work. Both have elements named after them. X gave the world a famous theory and also an equation whose left hand term represents the first letter of his last name. Y gave the world its first ever true atomic model.

What is the amalgamation of X's first name's first letter and Y's first name's first letter?

    A. An
    B. En
    C. Ia
    D. Aj

11. Suppose you take a long ribbon and wrap it tightly around the earth at its equator. For this, you require 40,070 km lengthy ribbon. Now you raise the ribbon from the surface of the earth by another 1 meter. How much more ribbon you require?

    A. Less than 1000 km

B. More than 1000km but less than 10,000km

C. Greater than 10,000km but less than 40,070 km

D. Greater than 40,070 km

12. A magnet will lose its magnetism if heated above X Temperature. X is the last name of a famous couple who won the Nobel Prize together. What's the second letter in X?

    A. A

    B. E

    C. O

    D. U

13. A famous American, during the Civil War used his own very special code when sending messages. He used the signature "ALE INN CANN" instead of his usual signature which was of course A. Lincoln. Try decoding the following based on the same logic.

    K. wee Nell is a bath

Indicate the second letter in the second word.

    A. L

    B. I

    C. E

    D. U

14. What is the value of $(X-A)(X-B)........(X-Z)$?

    A. 1

    B. 0

    C. $X^{26}-(A+B+.....Z)X^{25}+.......$

    D. Can't say

15. If

    824 relates to 8

    4812 relates to 8

    2424 relates to 8

What does 1441 relate to?

  A. 8

  B. 4

  C. 16

  D. 12

16. Satvik is a whimsical guy. His girlfriend asked him what he was buying her for her birthday and never liking to give straightforward answers, he replied:

'Three straight lines joined together so that they are rotated symmetric, four straight lines of three different lengths joined together so that they are vertically symmetric and then repeated later on, a semi-circle repeated later on, three straight lines joined together so that they are vertically symmetric, two straight lines joined together to form a right angle and three straight lines joined together so that they are laterally symmetric.'

What is Satvik's gift? Indicate the third letter in the answer.

    A. C

    B. A

    C. E

    D. K

17. To the code breaker in you, decode the following.

   C18V2C9C9 C3V4C11V2 !
      Hint: Think English Alphabet

 If you cracked the code, indicate the third letter in the second word.

A. N
B. E
C. L
D. R

18. What is the answer to this seemingly simple problem?
      1+1+2+1
      1+1+1+1
      1+1*0+2 =?
       A. 12
       B. 15
       C. 30
       D. 0
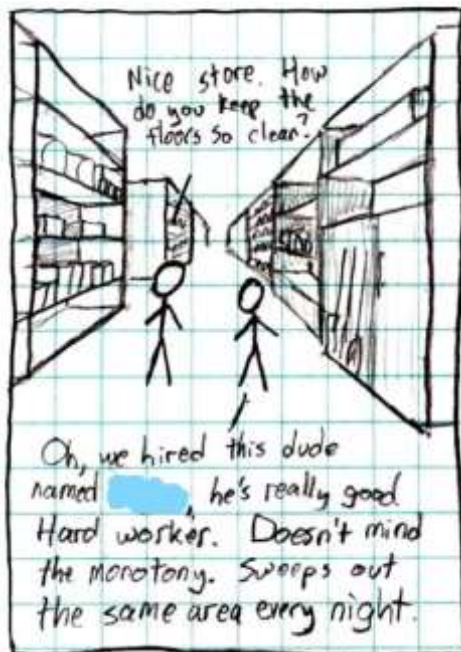19. If
      Sirius – Neptune
      Asia – France
      Texas - ?
    What best fills the ?
       A. Area
       B. Sweden
       C. China
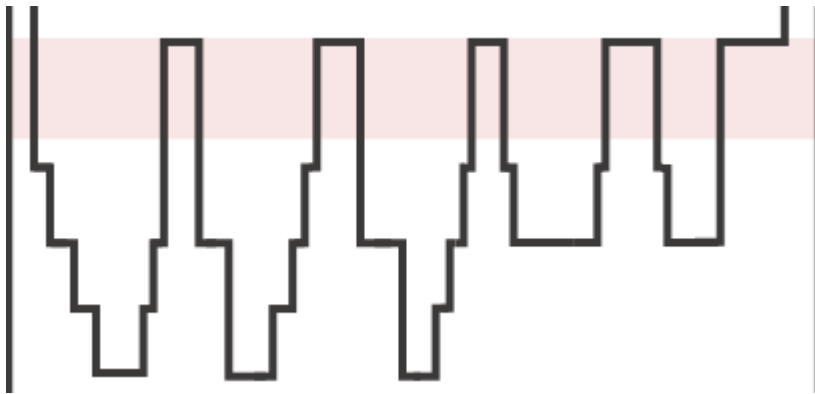   D. Dublin (Capital of Ireland)

20.

One word is scratched in this satirical meme. As you probably would have guessed, it's is the name of a person. Indicate the second letter of his surname.

A. A
B. E
C. O
D. I

21. A Question to induce some fun. Not a tough one. Feel free to guess.

What does this Graph show? Hint: The X-axis depicts hours while the Y-axis depicts the various stages. (PS. Think of REM!!!). There is one significant word in the answer. Indicate its second letter.

A. A
B. E
C. L
D. R

22. A beggar collects 8 cigarette stubs and makes one artificial cigarette from them. Once he gets 64 stubs. How many cigarettes can he smoke in total?
A. 8
B. 9
C. 10
D. 64

23. Divide 30 by ½ and add 5. What is the answer?
A. 20
B. 65
C. 35
D. 50

24.

See the top part in this picture (Ignore the Geologic Periods and the stuff below it), the Big and Small are actually a mnemonic to remember something. If you guessed it, what does K in Karl stand for? Indicate the second letter

- A. I
- B. A
- C. E
- D. O

25. You must have seen a speedometer in your Dad's car which gives an instantaneous measure of the speed at which you are zooming away on the highway but, have you noticed the small black digital display below it which carries huge numbers of the order of thousands which goes on increasing as you go on more and more rides ? Just a straightforward question, what is this instrument called ?

- A. Odometer
- B. Motometer
- C. Manometer
- D. Rotometer

Read the following passage.

Frequency is an objective, scientific attribute that can be measured. Pitch is each person's *subjective perception* of a sound wave, which cannot be directly measured.

26. Which of the following statements is true ?

- A. A man has a lower pitch and higher frequency.
- B. A woman has a higher pitch and lower frequency.
- C. A man has a lower pitch and lower frequency.
- D. A man's pitch is a quantifiable quantity.

27. The Hummingbird beats its wings at a rate of 10-15 flaps/second. The sound is produced at an average rate of 400 vibrations per second. What is the time period of the vibration?

- A. 0.002
- B. 0.0025

C. 0.003

D. 0.0028

28. For the space enthusiasts!!! It is best described as an interstellar cloud of dust, hydrogen, helium and other ionized gases. Originally, this was a name given to any diffuse astronomical object including galaxies. What am I talking about? Indicate the first letter.

A. N

B. G

C. P

D. R

29. Another one for the spacey hues. What is the nearest star to earth? Indicate the first letter.

A. A

B. P

C. S

D. C

30. When the numerator of the fraction is increased by 4, the fraction increases by ⅔. The denominator of the fraction is

A. 2

B. 4

C. 3

D. 6

31. What comes next in the following sequence?

1, 4, 5, 6, 7, 9, 11…

Hint: Think English

A. 14

B. 26

C. 74

D. 100

32. The square of the first composite number multiplied by the square of this number 'a' is equal to 32 times the second whole number. Is 'a' whole number?

A. Yes

B. No

C. It's a rational number

D. Need more information

In mathematics, an **arithmetic progression** (AP) or **arithmetic sequence** is a sequence of numbers such that the difference between the consecutive terms is constant. For instance, the sequence 5, 7, 9, 11, 13, 15 . . . is an arithmetic progression with *common difference* of 2.

33. Now, if I give you an AP with 35th term 15 and a common difference of 2, what is the 32nd term?
    A. 9
    B. 13
    C. 11
    D. 7
34. If a given AP has 30 terms with the first term being 3 and the 30th term being 87, what is the sum of all the 30 terms in this AP?
    A. 1150
    B. 1000
    C. 1350
    D. 1300
35. If p+2, 4p-6, 3p-2 are three consecutive terms of an AP, find p^2+2?
    A. 3
    B. 11
    C. 6
    D. 18
36. In a right angled triangle ABC with the hypotenuse being the side BC, what is sin (B+C)*cos (B+C)?
    A. 0
    B. 1
    C. ½
    D. Sqrt(3)/4
37. Suppose instead of atomic weight, say Doberiner based his law of triads on the number of protons present (in other words, atomic number). Now if Calcium (At No. 20), X and Y form a Doberiner triad according to this new principle, where could X possibly be if Y's atomic number is 50?
    A. S block
    B. P block
    C. D block
    D. F block
38. The little master Sachin once wanted to see the force with which he hits the ball. So, an accelerometer was inserted into the cricket ball which is made of a material of density 3*10^4kg/m^3 and a volume of 2*10^-4 m^3. He observed that the accelerometer recorded an acceleration of 4m/s^2. What do you think is the force that the little master applied?
    (in Newtons)
    A. 12
    B. 20
    C. 24
    D. 18

39. Let the 'factorial' of a natural no. 'n' (denoted by n!) be defined as the product of all natural equal to or smaller than 'n'. Now this definition of factorial can be extended to whole numbers by the definition for natural numbers and a standard property of factorials which is as follows :
    (n-1)! = n!/n

Now, find the sum of all prime factors of (25!*27!)/(24!*26!).
   A. 4
   B. 8
   C. 15
   D. 20

40. Its IUPAC name is 2-Oxo-L-threo-hexono-1,4-lactone-2,3-enediol. It is also known as ascorbic acid. James Lind, a British Royal Navy surgeon who, in 1747, identified that a quality in fruit prevented a recurrent disease and the fruit actually contained this substance. What are we referring to?
   A. Vitamin A
   B. Vitamin B1
   C. Vitamin C
   D. Vitamin D

41. A twisted question to start with. 14th March every year is celebrated for some specific thing. This actually came into prominence because of the American way of writing the date. They generally write the month before the day and this made 14th March a very important day. What is this day celebrated as? Indicate the second letter of your answer.
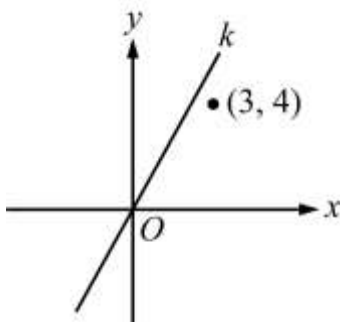   A. A
   B. E
   C. I
   D. R

42. For the math enthusiast, 10^100 is known by a very particular name. This name actually sounds like the name of a famous company who incidentally were confused and put a wrong name when they actually wanted to name their company after 10^100. What is this name? Indicate the 5th letter of your answer.
A. O
B. L
C. G
D. E

43. A straightforward question. R={(x,y);x-y is an integer}. This relation is
   A. Symmetric
   B. Transitive
   C. Reflexive
   D. All of the above

44. Refer to the figure.

Quantity A: The slope of the line

Quantity B: 1

A. Quantity A is greater.
B. Quantity B is greater.
C. The two quantities are equal.
D. The relationship cannot be determined from the information given.

45. A young boy has strange type of whimsy. He eats 4 chocolates during months with an "r" in it and twice the number in all other months. How many chocolates does he eat during a year?

A. 60
B. 32
C. 64
D. 128
E. None of the above

46. This is about the same boy in the question. He fell ill one month and so couldn't eat chocolates at all. The month which the boy fell ill coincides with the month in which Summer Solstice occurs in the Northern Hemisphere. How many chocolates did he then eat during the year?

A. 56
B. 64
C. 60
D. 50
E. None of the above

47. This too is about the same boy in Question. He is now in Class 11 and so decided that he would eat 2 chocolates every month except those months whose number of letters equal the atomic number of Oxygen. What is the probability that he eats chocolates in a month with an "r"?

A. 1/2
B. 5/8
C. 3/8
D. 3/4
E. None of the above

48. An interesting question. What is calculated using this formula?
    X=100*(mental age)/ (chronological age). It's actually an acronym. Indicate the second letter.
    A. M
    B. Q
    C. P
    D. R

49. Microbial fuel cells are considered a source of sustainable energy. Why?
    1. They use living organisms as catalysts to generate electricity from certain substrates.
    2. They use a variety of inorganic materials as substrates.
    3. They can be installed in waste water treatment plants to cleanse water and produce electricity.
    Which of the statements given above is/are correct?

A. 1 only
B. 2 and 3 only
C. 1 and 3 only
D. 1,2 and 3
E.

50. Satellites used for telecommunication relay are kept in a geostationary orbit. A satellite is said to be in such an orbit when:
1. the orbit is geosynchronous.
2. The orbit is circular.
3. The orbit lies in the plane of the Earth's equator.
4. The orbit is at an altitude of 22,236 km.
Select the correct answer using the codes given below:
   A. 1,2 and 3
   B. 1, 3 and 4
   C. 2 and 4
   D. 1,2,3 and 4

Answers

1. B
2. A
3. B
4. B
5. A
6. D
7. D
8. B
9. D
10. A
11. A
12. D
13. A
14. B
15. B
16. C
17. A
18. C
19. D
20. B
21. C
22. B
23. B
24. A
25. A
26. C
27. B

28. A
29. C
30. D
31. D
32. A
33. A
34. C
35. B
36. A
37. C
38. C
39. B
40. C
41. C
42. A
43. D
44. A
45. C
46. A
47. B
48. B
49. D
50. A