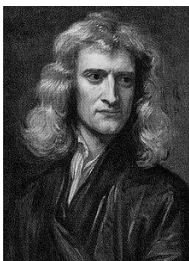


Science and Technology

1. A chemical formula is a set of chemical symbols showing the elements present in a compound and their relative proportions. Which of the following formulae is correct?
 - (a) NaSO_4
 - (b) Ca_2CO_3
 - (c) BiPO_4
 - (d) HeO
2. Tianyan is the world's largest filled aperture radio telescope. It consists of a fixed 500 m dish constructed in a natural depression in the landscape. Where is it located?
 - (a) Zeienchuskaya, Russia
 - (b) Guizhou, China
 - (c) Arecibo, Puerto Rico
 - (d) Sriharikota, India
3. Physical changes are changes affecting the form of a chemical substance, but not its chemical composition. Which of the following can bring about a change in the physical state of matter?
 - (a) When energy is taken out of the system
 - (b) When energy is added to the system
 - (c) Both A and B
 - (d) Energy change is not required.
4. Four new elements, all super-heavy residing near the bottom of the periodic table, have been given proper names at last. One of these elements is Moscovium (Mc). What is its atomic number?
 - (a) 118
 - (b) 112
 - (c) 115
 - (d) 113
5. Neglecting the rotation of earth, if suddenly the attractive power of the earth drops to zero, a man standing on the earth will
 - (a) Fly up
 - (b) Slide along the surface
 - (c) Move out tangentially
 - (d) Stand unaffected.
6. Atoms are the smallest particles of a chemical element that can exist. Which of the following statements is not true about atoms?
 - (a) Atoms are the basic units from which molecules and ions are formed.
 - (b) Atoms are always neutral in nature.
 - (c) Atoms cannot exist independently.
 - (d) Atoms combine in large numbers to form the matter that we can see, touch and feel.
7. Leh in Ladakh is at a higher altitude than Delhi in the plains. Which of the following statements is true about boiling water in Leh as compared to boiling it in Delhi?
 - (a) Water boils at a lower temperature in Leh
 - (b) Water boils at a higher temperature in Delhi
 - (c) Both A and B.
 - (d) Water boils at a higher temperature in Leh
8. Vibration that travel through the air or another medium and can be heard when they reach a person's or animal's ear is called sound. The loudness of sound is determined by what property of sound?
 - (a) Frequency
 - (b) Velocity
 - (c) Amplitude
 - (d) Wavelength
9. Plastics have been around since 1860s. But the first plastic made wholly of artificial materials was not patented till the 20th century. It was named Bakelite after its inventor Leo Hendrik Bakeland. In which year was it patented?
 - (a) 1909
 - (b) 1911
 - (c) 1935
 - (d) 1954

10. A geodesic dome is a structure based on a network of intersecting triangular elements called geodesies on the surface of a sphere or a hemisphere. Who invented the geodesic dome?



(a)

Isaac Newton



(b)

buckminster fuller



(c)

bruce ismay



(d)

charles correa

11. It is common knowledge that matter exists in 3 states - solid, liquid and gas. Each of these can change into the other depending on temperature and pressure. Science has identified a fourth state of matter not common on earth, which is found in the stars. Name it.

- (a) Plasma
(b) Vacuole
(c) Magma
(d) None of these

12. Airliners generally cruise between about Mach 0.8 and Mach 0.9, at cruising altitudes of 30,000 to 40,000 feet. Which of these commercial airliners is/was capable of supersonic flight (more than the speed of sound)?

- (a) McDonnell Douglas MD80
(b) Airbus A380
(c) Concorde
(d) Boeing 777

13. Speed and velocity are often wrongly used interchangeably. What is the one factor that differentiates velocity from speed?

- (a) Time
(b) Distance
(c) Direction
(d) All of these

14. This gaseous chemical which consists of three atoms is poisonous yet vital to human beings, as it protects us from harmful ultra-violet radiation from the sun. Name this gas.

- (a) Nitrous oxide
(b) Ozone
(c) Carbon dioxide
(d) Water vapour

15. A mole is defined as the mass of substance containing the same number of fundamental units as there are atoms in exactly 12.000 g of ^{12}C . Which of these would you expect to weigh the most?

- (a) 10 moles of water
(b) 0.2 moles of sucrose ($\text{C}_{12}\text{H}_{22}\text{O}_{11}$)
(c) 2 moles of CO_2
(d) 2 moles of CaCO_3

16. The classical Rutherford scattering of alpha particles against the nuclei of this element is an example of 'elastic scattering' because the energy and velocity of the outgoing scattered particle is the same as that with which it began. What element did Rutherford use in his experiment?

- (a) Copper
- (b) Helium
- (c) Gold
- (d) Plutonium

17. Noble gases or inert gases are so named because they are highly unreactive and do not form compounds under normal conditions. Which of these is not an inert gas?

- (a) Xenon
- (b) Radon
- (c) Oganesson
- (d) Zirconium

18. India added a feather to its space programme's cap by putting 20 satellites in orbit with a single launch in June 2016. These include 13 foreign satellites, 2 micro satellites created by Indian students. What was the name of the rocket that launched the satellites successfully?

- (a) PSLV
- (b) NAVIC
- (c) INSAT-3DR

(d) GSAT-15

19. Which company rolled out the first driverless commercial cabs in Singapore in 2016?



(a) U B E R



(b) T E S L A



(c) nuTonomy



(d)

20. The Android operating system for phones has over 80% market share globally. What is the latest version of Android 7.0 called?

- (a) Lollipop
- (b) Jellybean
- (c) Nougat
- (d) Fruit loops

Answer – Key

1. C	2. B	3. C	4. C	5. C
6. C	7. C	8. C	9. A	10. B
11. A	12. C	13. C	14. B	15. D
16. C	17. D	18. A	19. C	20. C