



RAMAGYA SCHOOL, NOIDA
XI/SCIENCE/2017-18
OLYMPIAD PRACTICE WORKSHEET

Tick the correct options :

1. Three ladies have each brought a child for admission to a school. The head of the school wishes to interview the six people one by one, taking care that no child is interviewed before its mother. The number of ways of doing this is
(A) 6 (B) 36 (C) 72 (D) 90

2. Anaerobic respiration releases less energy than aerobic respiration because
(A) Energy from oxygen is not made available (B) Ethyl alcohol is a source of energy
(C) Carbon dioxide is released (D) Less energy is required by fermenting organisms

3. Three bean seedlings were grown in three culture solutions. After six weeks, X had yellow leaves and short internodes, Y has red patches on the stem and Z had green leaves and stem. It can be deduced that
(A) X lacked magnesium, Y lacked calcium and Z lacked molybdenum
(B) X lacked calcium, Y lacked nitrogen and Z lacks chlorine
(C) X lacked calcium, Y lacked nitrogen and Z had all nutrients
(D) X lacked magnesium, Y lacked nitrogen and Z had all nutrients

4. In the life cycle of a fern the meiosis occurs during the
(A) Formation of spores (B) Formation of gametes (C) Germination of a spore (D) Development of a zygote

5. Hydrogen sulphide (H_2S) contains 94.11% sulphur, water (H_2O) contains 11.11% hydrogen and sulphur dioxide (SO_2) contains 50% oxygen. Find the ratio of all given elements. After your calculations which law has been verified?
(A) Law of multiple proportion (B) Law of reciprocal proportion
(C) Law of constant components (D) Law of combining volumes

6. An astronaut in the space shuttle orbiting the earth performs a trick for a television audience. She inflates a helium filled balloon within the shuttle's controlled atmosphere and lets go of it. To the astonishment of all watching, the balloon
(A) Hovers in place where it was released.
(B) Rises noticeably away from the earth.
(C) Falls noticeably towards the earth.
(D) Drifts backwards opposite to the direction of the shuttle's velocity.

7. A boy throws a table tennis ball of mass 20 g upwards with a velocity of $u_0 = 10 \text{ m/s}$ at an angle θ_0 with the vertical. The wind imparts a horizontal force of 0.08 N, so that the ball returns to the starting point. Then, the angle θ_0 must be such that, $\tan \theta_0$ is
 (A) 0.2 (B) 0.4 (C) 2.5 (D) 1.2
8. A projectile is thrown such that its range should be 1000 metres, but at highest point it breaks into two equal masses, one of whom falls vertically downwards. The other mass will fall at a distance
 (A) 1500 metres from launching point (B) 2000 metres from launching point
 (C) 3000 metres from launching point (D) 2500 metres from launching point
9. The fourth state of matter is
 (A) Super fluid (B) Plasma (C) Liquid crystals (D) Small particles suspended in the gas
10. The use of ^{12}C scale has superseded the older scale at atomic mass based on ^{16}O isotope, one important advantage of the former being
 (A) The atomic masses on ^{12}C scale became whole number
 (B) ^{12}C is more abundant in earth crust than ^{16}O
 (C) The difference between the physical and chemical atomic masses got narrowed down significantly
 (D) ^{12}C is situated midway between metals and non-metals in the periodic table.
11. Electric cookers have a coating that protects them against fire. The coating is made of
 (A) Magnesium oxide (B) Heavy lead (C) Chromium oxide (D) Nickel
12. Atom may be regarded as comprising of protons, neutrons and electrons. If the mass attributed to a neutron were halved and that attributed to the electron were doubled, the atomic mass of ^{12}C would
 (A) Remain approximately the same (B) Be approximately doubled
 (C) Be approximately halved (D) Be reduced approximately by 25%
13. The chemistry of lithium is very much similar to that of magnesium even though they are placed in different groups. The reason is (A) Both have nearly the same size
 (B) The ratio of their charge to size is nearly the same
 (C) Both have similar electronic configuration
 (D) Both are found together in nature

14. A bottle of dry ammonia and a bottle of dry hydrogen chloride connected through a long tube are opened simultaneously at both ends, the white ammonium chloride ring first formed will be
 (A) At the centre of the tube (B) Near the hydrogen chloride bottle
 (C) Near the ammonium bottle (D) Throughout the length of the tube
15. 'P + Q' means 'P is brother of Q'; 'P - Q' means 'P is mother of Q' and 'P × Q' means 'P is sister of Q'. Which of the following means 'M is maternal uncle of R'?
 (A) M - R + K (B) M + K - R (C) M + K × Q (D) There is no such symbol
16. If 1 is coded as Y, 2 is coded as M, 3 as D, 4 as H, 5 as T, 6 as L, 7 as P, 8 as V and 9 as N, which of the following is the coded form of 3972465?
 (A) DNPMHLP (B) DNPMHNT (C) DNPMHLT (D) DNPMNLT
17. Which letter will be the sixth to the left of the nineteenth letter from the right end of the following alphabets? A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
 (A) N (B) M (C) Y (D) F
18. Bablu ranked sixteenth from the top and twenty-ninth from the bottom among those who passed an examination. Six boys did not participate in the competition and five failed in the examination. How many boys were there in that class?
 (A) 44 (B) 50 (C) 55 (D) 40
19. Which alternative applies to the assumptions of the statement?
 STATEMENT : Most people who stop smoking gain weight.
 ASSUMPTIONS : I. If one stops smoking one will gain weight II.
 If one does not stop smoking one will not gain weight
 (A) Only assumption I is implicit (B) Only assumption II is implicit
 (C) Both assumptions I and II are implicit (D) Neither assumption I nor II is implicit
20. Which alternative is sufficient for answering the following question based on the information given in the two statements?
 QUESTION : Does drinking coffee lead to headache?
 STATEMENTS : I. Overstimulation of pancreas leads to headache? II.
 Coffee contains caffeine which when excessive, stimulates pancreas.
 (A) Statement I alone is sufficient to answer the question
 (B) Statement II alone provides answer to the question
 (C) Both statements I and II provide answer to the question
 (D) Neither statement I nor statement II provide answer to the question

