



ASIA R OPE O L Y M P I A D

Science National Round Category 4 MOCK TEST

1. You have ninety (90) minutes to finish the test.
2. This test covers **Life Science, Physical Science, and Earth Science.**
3. There are thirty (30) Multiple-Choice Questions in this test. Each correctly answered question shall be marked three (3) points. No points shall be deducted for incorrect answers.
4. You must shade properly the ovals that correspond to the letters of your answers on the **ANSWER SHEET.**
5. You may draw illustrations or write your solutions on the **TEST BOOKLET.**
6. You are **NOT ALLOWED** to use any communication gadget during the test proper.
7. Any form of cheating is a ground for **DISQUALIFICATION.**
8. After the test, you must **SUBMIT** to the proctor both the **TEST BOOKLET** and the **ANSWER SHEET.**



PART I - LIFE SCIENCE

1. Which of the following cell organelles is involved in the breakdown of organic matter?
 - A. Lysosomes
 - B. Cytoplasm
 - C. Golgi bodies
 - D. Mitochondria

2. Which of the following statements is true about chromosomes?
 - A. It is present within the nucleus
 - B. It carries genes and helps in inheritance
 - C. It is composed of DNA in the form of Chromatin and protein
 - D. All of the above

3. Radiocarbon dating can help find the age range of biological specimens no older than:
 - A. 50,000 years
 - B. 100,000 years
 - C. 500,000 years
 - D. 1,000,000 years

4. Which of the following statements is true?
 - A. Ground water percolation can hinder mineralization of bone
 - B. Bones usually contain organic as well as inorganic molecules.
 - C. Jellyfish can become fossils as their body contains hard parts
 - D. A mineralized burrow of an extinct animal can be fossilized.

5. Which of the following food items provides dietary fiber?
 - A. Wholegrain
 - B. Fruits and vegetables
 - C. Pulses
 - D. All of the above

6. Which of the following statements is false about milk?
 - A. Milk is a good source of calcium
 - B. Milk is a good source of protein
 - C. Milk is a good source of vitamin D
 - D. Milk is a good source of vitamin C

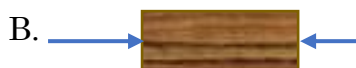
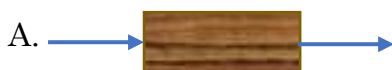




7. Which of the following essential mineral, is naturally present in many foods and available as a dietary supplement and is also a component of bones, teeth, DNA, and RNA?
- A. Chlorine
B. Phosphorus
C. Manganese
D. Molybdenum
8. Chlorosis is a yellowing of leaf tissue due to a lack of chlorophyll. What causes chlorosis in plants?
- A. Poor drainage
B. Damaged and compacted roots
C. High alkalinity and nutrient deficiencies
D. All of the above.
9. Which of the following tells about the ratio between energy flows measured at different points in a food-chain, usually expressed as a percentage.
- A. Ecological capacity
B. Ecological efficiency
C. Ecological assimilation
D. Ecological potential
10. This refers to the inherent capacity of an organism or species to reproduce or increase in number and survive.
- A. Natality
B. Carrying capacity
C. Biotic potential
D. Abiotic capacity

PART II - Physical Science

11. Which of the following is true about force?
- A. Force causes a stationary object to move.
B. Force causes a moving object to change direction.
C. Forces causes a moving object to change speed.
D. All of the above.
12. If the length of the arrow tells the magnitude of a force, which of the following shows a balances forces acting on a body?



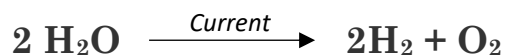


13. A machine does 30 kilojoules of work in 1 hour. What is the power of the machine?
- A. 500 W
B. 500 KW
C. 5000 W
D. 5000 KW
14. The electrical resistance of a conductor is proportional to its resistivity. It also depends on which of the following?
- A. Length of the conductor
B. Diameter of the conductor
C. Both A and B
D. Neither A nor B
15. A car moves at a constant speed along a straight road. The friction force between the car's tire and the pavement is 2 100 N, and the driving force equals 4 500 N. What air resistance is applied to the car?
- A. 6 600 N
B. 2 400 N
C. 2.143 N
D. 9 450 KN
16. Exposure of silver chloride (AgCl) to sunlight for a long time turns grey due to ____
- I. sublimation of silver chloride
II. the formation of silver by decomposition of silver chloride
III. decomposition of chlorine gas from silver chloride
IV. oxidation of silver chloride
- A. I only
B. II only
C. II and III
D. IV only
17. Which of the following statements about the given reaction are correct?
- $$3\text{Fe} + 4\text{H}_2\text{O} \rightarrow \text{Fe}_3\text{O}_4 + 4\text{H}_2$$
- I. Water is getting reduced
II. Iron metal is getting oxidized
III. Water is acting as reducing agent
IV. Water is acting as oxidizing agent
- A. I, II and III
B. III and IV
C. I, II, and IV
D. II and IV





18. What type of chemical reaction takes place when electricity is passed through water as shown below?



- A. Displacement
B. Decomposition
C. Combination
D. Double displacement

19. Which of the following is true about oxidation?

- I. A process that involves the addition of oxygen'
II. A process that involves the reduction of hydrogen
III. A process that involves the loss of electrons

- A. I and II only
B. I and III only
C. II and III only
D. I, II, and III

20. You put mud and water in a glass and stir it thoroughly. After a few days, you observed that the mud has settled to the bottom of the glass and the clear water is at the top. What type of mixture is this?

- A. Colloid
B. Suspension
C. Solution
D. None of these

PART III - Earth Science

21. Large amount of greenhouse gases in the atmosphere may block heat from escaping into space and trap heat close the surface of the Earth causing which phenomenon?

- A. Earthquake
B. Volcanic eruption
C. Global warming
D. Tsunami

22. The solar energy from the sun that warms the Earth and makes life possible includes which of the following?

- I. Visible light
II. Infrared
III. Gamma rays
IV. Ultraviolet radiation

- A. I, II and III
B. I, II and IV
C. II, III and IV
D. I, III and IV





23. Guyots, also called tablemount, are formed in which of the following?
- A. Oceans
B. Mountains
C. Desert
D. River Bed
24. What are the two most abundant elements in nebula (gas clouds) in the universe?
- A. Iron and Nickel
B. Hydrogen and Helium
C. Oxygen and Silicon
D. Nitrogen and Oxygen
25. Which of the following microorganisms are prokaryotic and are capable of photosynthesis. They also represent the earliest known form of life on the earth.
- A. green algae
B. virus
C. Cyanobacteria
D. Sponges
26. Earth has 365 days in a year. A Mercurian year is about how many days?
- A. 240 days
B. 125 days
C. 88 days
D. 72 days
27. Chemical weathering involves the erosion or disintegration of rocks, building materials, etc., caused by chemical reactions (chiefly with water and substances dissolved in it) rather than by mechanical processes. Which of the following is produced by chemical weathering of granite?
- A. Cobble
B. Sand
C. Silt
D. Clay
28. All planets, except Venus and Mercury, have natural satellites called moons. The Earth has one. What is the most important effect of the moon on Earth?
- A. Causes weather change
B. Cause ocean tides
C. Causes lunar eclipse
D. Causes earthquakes



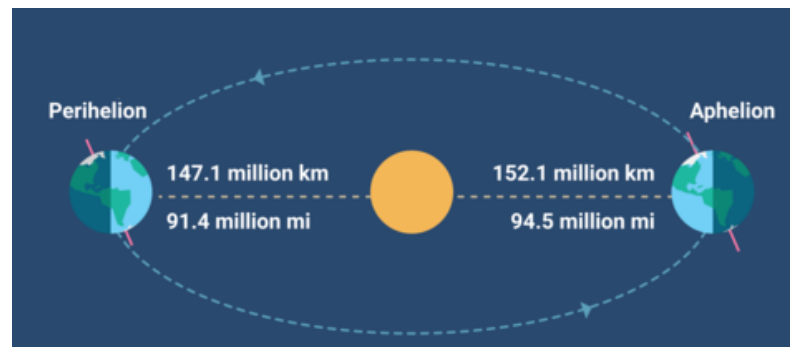


29. A black hole is a region of spacetime where gravity is so strong that nothing, including light or other electromagnetic waves, has enough energy to escape its event horizon. Which of the following statements refers to “black holes”?

- A. Holes occurring in heavenly bodies
- B. Bright spots on the sun
- C. Collapsing celestial object of high density
- D. Collapsing celestial object of low density



30. The Earth is closest to the Sun, at its perihelion, in _____ and farthest from the Sun, or at its aphelion, in _____.



- A. December - June
- B. January - July
- C. November - May
- D. February – August



You have reached the end of this challenge. Congratulations!

Science