



# QUESTION BOOKLET 2025



International  
**FSP**



# Science Contest Volume-19



**GRADE 9 & 10**

**VIBRANT YOUNGSTERS**

Time Allowed : 90 Minutes  
Maximum Marks : 90

**WRITTEN DIRECTIONS FOR THE CONTEST**

- 1) Wait till the invigilator gives the all-clear before beginning the contest.
- 2) Examine your name, father's name, school name, address, and other details one last time on the bubble sheet and answer page.
- 3) Only record your responses on the bubble sheet. Choose the best response from the four alternatives provided, and only one option should be marked per question.
- 4) Fill in the circles on the bubble sheet with blue or black ink; lead pencils are not permitted.
- 5) It is completely forbidden to use any kind of assistance, including cell phones and technological devices.
- 6) Three points are awarded for each right response. Negative marking would occur. A single point would be subtracted for each wrong response.
- 7) No justification may be given for an unaccompanied candidate to leave the examination room, including to use the restroom.
- 8) No objects, including electrical devices, are allowed within the room.
- 9) The competition is divided into the following five categories:
  - A) Vibrant youngsters Grade **1 & 2**
  - B) Vibrant youngsters Grade **3 & 4**
  - C) Vibrant youngsters Grade **5 & 6**
  - D) Vibrant youngsters Grade **7 & 8**
  - E) Vibrant youngsters Grade **9 & 10** / 0-levels
- 10) The contest is only open to enrolled students.
- 11) No candidate may remove any provided materials, including answer books, from the hall, even if they are partially filled in or utilized.
- 12) Neither the examiner nor the invigilator may respond if a participant does not understand a word or phrase on the exam paper.
- 13) Please visit [www.fspcompetitions.org](http://www.fspcompetitions.org) to learn about future competitions or to offer insightful comments.
- 14) Vibrant youngsters FSP must receive reports of any academic misconduct or malpractice at [info@fspcompetitions.org](mailto:info@fspcompetitions.org).

**Q 1.** Read the passage and answer the question below:

A team of environmental scientists studied the effects of deforestation in a tropical rainforest. Over five years, they observed an increase in soil erosion, changes in rainfall patterns, and a decline in biodiversity. Large mammals began migrating to other areas, while smaller species struggled to survive.

Which of the following is a likely long-term consequence of deforestation in this region?

- A** Loss of biodiversity and changes in local climate
- B** Increased rainfall and better soil fertility
- C** More land available for farming and urban development
- D** Decrease in carbon dioxide levels in the atmosphere

**Q 2.** A factory is built near a freshwater lake. Within a year, locals notice a decrease in fish populations. Tests reveal high levels of chemicals in the water.

What is the best course of action to restore the lake's ecosystem?

- A** Introduce more fish into the lake
- B** Relocate the factory to another location
- C** Implement wastewater treatment before releasing industrial waste
- D** Increase fishing regulations

**Q 3.** In an experiment, a scientist places a heated metal rod in a beaker of cold water. After a few minutes, the temperature of the rod decreases while the water warms up.

**What type of heat transfer is occurring?**

- A** Convection
- B** Conduction
- C** Radiation
- D** Evaporation

**Q 4.** A car moving at 60 km/h suddenly applies brakes and comes to a stop. Which of the following forces is responsible for stopping the car?

- A** Frictional force between the tires and the road
- B** Magnetic force from the engine
- C** Gravitational force pulling the car downward
- D** Air resistance pushing the car backward

**Q 5.** A group of students conduct an experiment to measure the speed of sound by clapping near a large wall and timing how long the echo takes to return.

**Which factor will most affect their results?**

- A** The color of the wall
- B** The temperature of the air
- C** The loudness of their clap
- D** The distance between them and the wall

**Q 6.** The ozone layer is important because it absorbs harmful ultraviolet (UV) radiation from the Sun.

**Which human activity has contributed the most to ozone depletion?**

- A** Increased use of solar panels
- B** Deforestation in tropical regions
- C** Release of chlorofluorocarbons (CFCs) from refrigerators and aerosols
- D** Burning fossil fuels for electricity

**Q 7.** The Moon's gravity is about one-sixth that of Earth's.

**What would happen to an astronaut's weight if they traveled to the Moon?**

- A** It would decrease
- B** It would increase
- C** It would remain the same
- D** It would disappear completely

**Q 8.** A student observes that when salt is added to water, it dissolves completely. However, when sand is added, it settles at the bottom.

**Which property is responsible for this difference?**

- A** Viscosity
- B** Density
- C** Conductivity
- D** Solubility

**Q 9.** A scientist measures the mass and volume of two objects. Object A has a mass of 50g and a volume of 10 cm<sup>3</sup>, while Object B has a mass of 100g and a volume of 50 cm<sup>3</sup>.

**Which object is denser?**

- A** Both have the same density
- B** Object B
- C** Object A
- D** Density cannot be determined

**Q 10.** Which of the following statements about nuclear energy is correct?

- A** It produces a large amount of energy from a small amount of fuel
- B** It does not produce any radiation
- C** It is the safest form of energy with no risks
- D** It does not require special storage or disposal methods

**Q 11.** A ball is dropped from a height of 10 meters. Ignoring air resistance, what happens to the speed of the ball as it falls?

- A** It remains constant throughout
- B** It increases due to acceleration from gravity
- C** It decreases as it falls
- D** It moves at the same speed as the air around it

**Q 12.** The process by which plants lose water through their leaves is called:

- A** Transpiration
- B** Photosynthesis
- C** Condensation
- D** Respiration

**Q 13.** A bottle of perfume is opened in one corner of a room, and within minutes, the scent spreads throughout the entire room.

**What causes this?**

- A** Chemical changes in the perfume
- B** Evaporation of perfume into the walls
- C** Air pressure pushing the perfume around
- D** Diffusion of perfume particles through air

**Q 14.** A lake remains unfrozen in winter even though the air temperature is below freezing.

**What property of water is responsible for this?**

- A** Water expands when cooled
- B** Water is a good conductor of heat
- C** Water has a high specific heat capacity
- D** Ice is denser than water

**Q 15.** Why does a person walking on soft sand sink deeper when barefoot but stays on the surface when wearing wide, flat shoes?

- A** Wide shoes distribute weight over a larger area, reducing pressure
- B** Wide shoes make the person lighter
- C** Sand becomes harder when pressed
- D** Bare feet absorb more heat

**Q 16.** Which factor is primarily responsible for the seasons on Earth?

- A** The distance between Earth and the Sun
- B** The tilt of Earth's axis
- C** Changes in the Moon's orbit
- D** The speed of Earth's rotation

**Q 17.** A doctor advises a patient to eat foods rich in iron. Which function does iron perform in the human body?

- A** Helps in oxygen transport through hemoglobin
- B** Strengthens bones and teeth
- C** Aids digestion of food
- D** Produces antibodies to fight infections

**Q 18.** What is the pH of a neutral substance like pure water?

- A** 14
- B** 0
- C** 7
- D** 3

**Q 19.** Why do astronauts wear specially designed space suits?

- A** To provide oxygen and maintain body temperature
- B** To make them lighter in space
- C** To reduce gravity's effect on their bodies
- D** To help them move faster

**Q 20.** A scientist drops an iron nail and a piece of wood into water. The nail sinks, but the wood floats.

Why does the wood float?

- A** It absorbs air
- B** It is waterproof
- C** It repels water
- D** It is less dense than water

**Q 21.** Which of the following best explains why metals are good conductors of electricity?

- A** They contain magnetic fields
- B** Their atoms are arranged in a flexible pattern
- C** They have free-moving electrons that allow electricity to flow
- D** They absorb light energy to conduct electricity

**Q 22.** During a thunderstorm, Ahsan sees a flash of lightning before hearing the thunder.

Why does this happen?

- A** Lightning produces sound much later
- B** Sound waves reach the ground before light waves
- C** The air absorbs more sound than light
- D** Light travels faster than sound

**Q 23.** A satellite is orbiting Earth in a circular path.

**Which force is responsible for keeping it in orbit?**

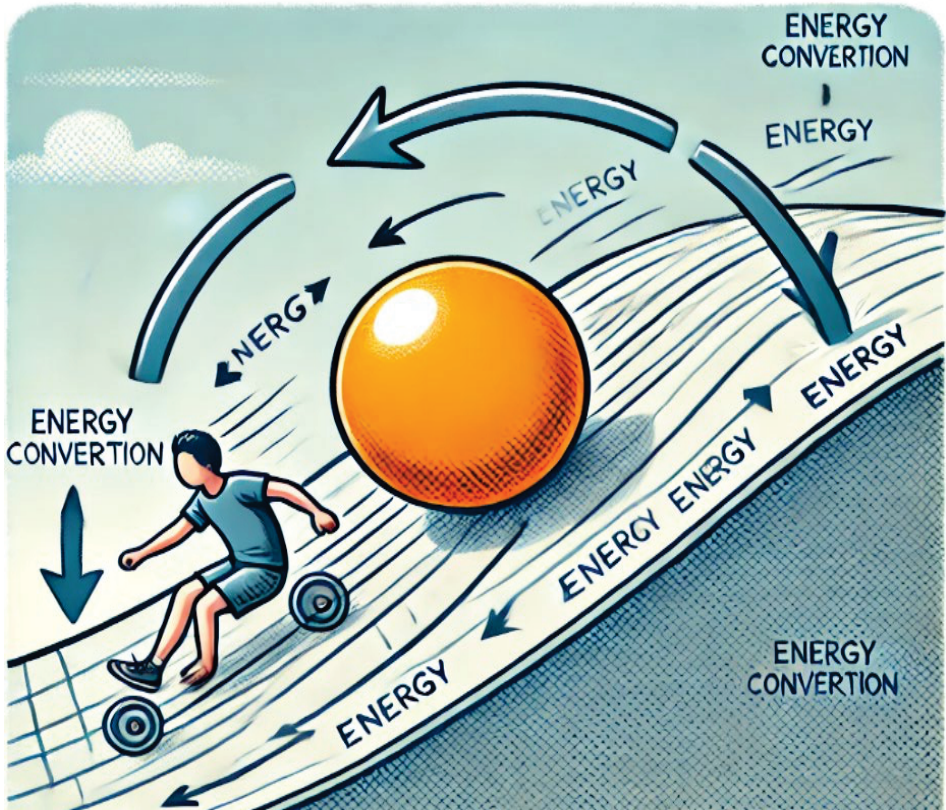
- A** Magnetic force from Earth's core
- B** Gravitational force between the satellite and Earth
- C** The force of air resistance in space
- D** The satellite's own energy

**Q 24.** A student places a small toy on a block of ice. After some time, the toy starts sinking into the ice.

**What is the most likely reason for this?**

- A** The heat from the toy melts the ice beneath it
- B** The ice expands, pulling the toy downward
- C** The ice absorbs the toy's weight
- D** The toy gains energy and moves through the ice

**Q 25.** The diagram below shows a ball rolling down a hill. As it moves, its energy is changing.



**Which statement best describes this energy conversion?**

- A** Thermal energy is converted into kinetic energy
- B** Kinetic energy decreases, potential energy increases
- C** Potential energy decreases, kinetic energy increases
- D** Chemical energy is stored in the ball

**Q 26.** In a food web, what is the role of decomposers?

- A** They break down dead organisms and recycle nutrients
- B** They only consume plant material
- C** They act as primary consumers
- D** They produce energy through photosynthesis

**Q 27.** A person is sitting inside a parked car. Suddenly, the car starts moving forward, and the person feels like they are pushed back into their seat.

Which law of motion explains this?

- A** Newton's Third Law of Motion
- B** Newton's Second Law of Motion
- C** Newton's First Law of Motion
- D** The Law of Universal Gravitation

**Q 28.** A chemist dissolves sugar into water. The sugar disappears, and the liquid remains clear.

What type of mixture is this?

- A** A solution
- B** A suspension
- C** A colloid
- D** A compound

**Q 29.** A lake has become polluted with fertilizers from nearby farms. What is the most likely effect on the lake's ecosystem?

- A** The fish population will increase due to more food
- B** The lake water will become clearer
- C** Algae will grow rapidly, reducing oxygen levels and harming fish
- D** The water will become colder, preserving marine life

**Q 30.** An engineer is designing a bridge that needs to withstand strong winds and heavy loads.

Which feature will make the bridge more stable?

- A** Making the bridge as long as possible without extra supports
- B** Using lightweight materials only
- C** Making the bridge completely flat with no supports
- D** Using cross-bracing to distribute forces evenly

# ANSWER SHEET

## GRADE 9 & 10

### Q.NO ANSWER

- |    |     |     |     |     |
|----|-----|-----|-----|-----|
| 1  | ●   | (B) | (C) | (D) |
| 2  | (A) | (B) | ●   | (D) |
| 3  | (A) | ●   | (C) | (D) |
| 4  | ●   | (B) | (C) | (D) |
| 5  | (A) | (B) | (C) | ●   |
| 6  | (A) | (B) | ●   | (D) |
| 7  | ●   | (B) | (C) | (D) |
| 8  | (A) | (B) | (C) | ●   |
| 9  | (A) | (B) | ●   | (D) |
| 10 | ●   | (B) | (C) | (D) |
| 11 | (A) | ●   | (C) | (D) |
| 12 | ●   | (B) | (C) | (D) |
| 13 | (A) | (B) | (C) | ●   |
| 14 | (A) | (B) | ●   | (D) |
| 15 | ●   | (B) | (C) | (D) |

### Q.NO ANSWER

- |    |     |     |     |     |
|----|-----|-----|-----|-----|
| 16 | (A) | ●   | (C) | (D) |
| 17 | ●   | (B) | (C) | (D) |
| 18 | (A) | (B) | ●   | (D) |
| 19 | ●   | (B) | (C) | (D) |
| 20 | (A) | (B) | (C) | ●   |
| 21 | (A) | (B) | ●   | (D) |
| 22 | (A) | (B) | (C) | ●   |
| 23 | (A) | ●   | (C) | (D) |
| 24 | ●   | (B) | (C) | (D) |
| 25 | (A) | (B) | ●   | (D) |
| 26 | ●   | (B) | (C) | (D) |
| 27 | (A) | (B) | ●   | (D) |
| 28 | ●   | (B) | (C) | (D) |
| 29 | (A) | (B) | ●   | (D) |
| 30 | (A) | (B) | (C) | ●   |



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