

Grade 8 PECTAA Science Model Paper 2026-27

- English Medium

1. Animals contribute to the oxygen and carbon cycles in an ecosystem through

- A. Reproduction
- B. Digestion
- C. Respiration
- D. Plantation

Correct answer: C — Respiration

2. Which gas is required for aerobic respiration in most animals?

- A. Methane
- B. Nitrogen
- C. Oxygen
- D. Evaporation

Correct answer: C — Oxygen

3. The main reason for species to become endangered is

- A. Ozone depletion
- B. Plantation
- C. Habitat destruction
- D. Evaporation

Correct answer: C — Habitat destruction

4. The reason for the increase in carbon dioxide in the air is

- A. Evaporation
- B. Transpiration
- C. Deforestation
- D. Plantation

Correct answer: C — Deforestation

5. The biological process that converts atmospheric nitrogen into a usable form is

- A. Nitrification
- B. Denitrification
- C. Nitrogen fixation
- D. Evaporation

Correct answer: C — Nitrogen fixation

6. Which structure in a plant cell is responsible for photosynthesis?

- A. Mitochondria
- B. Chloroplast
- C. Nucleus
- D. Ribosome

Correct answer: B — Chloroplast

7. The process by which water moves through a plant and evaporates from leaves is called:

- A. Respiration
- B. Transpiration
- C. Osmosis
- D. Diffusion

Correct answer: B — Transpiration

8. Which hormone lowers blood glucose by helping cells take up glucose?

- A. Insulin
- B. Adrenaline
- C. Thyroxine
- D. Estrogen

Correct answer: A — Insulin

9. The main function of red blood cells (RBCs) is to:

- A. Fight infection
- B. Transport oxygen
- C. Clot blood
- D. Produce hormones

Correct answer: B — Transport oxygen

10. Which part of the brain controls voluntary muscle movements?

- A. Cerebellum
- B. Medulla oblongata
- C. Cerebrum
- D. Hypothalamus

Correct answer: C — Cerebrum

11. Which statement best defines a mutation?

- A. Gene duplication
- B. Change in DNA sequence
- C. Cell division
- D. Protein synthesis

Correct answer: B — Change in DNA sequence

12. Which organelle is known as the “powerhouse” of the cell?

- A. Golgi apparatus
- B. Lysosome
- C. Mitochondria
- D. Endoplasmic reticulum

Correct answer: C — Mitochondria

13. Which type of nuclear division produces two genetically identical nuclei in a typical body cell?

- A. Meiosis
- B. Mitosis
- C. Binary fission
- D. Budding

Correct answer: B — Mitosis

14. Which microorganism is used to produce ethanol by fermentation of sugars?

- A. yeast
- B. bacteria
- C. algae
- D. protozoa

Correct answer: A — yeast

15. Which enzyme is used in PCR (Polymerase Chain Reaction) to amplify DNA?

- A. DNA polymerase
- B. ligase
- C. restriction enzyme
- D. helicase

Correct answer: A — DNA polymerase

16. Which genetically engineered food contains beta-carotene, a precursor of vitamin A?

- A. Golden Rice
- B. Vitamin C wheat
- C. Vitamin D maize
- D. Vitamin B corn

Correct answer: A — Golden Rice

17. Which element belongs to Group 1 (alkali metals) in the periodic table?

- A. sodium
- B. magnesium
- C. aluminum
- D. chlorine

Correct answer: A — sodium

18. In genetic engineering, which vector is commonly used to transfer genes into plants?

- A. Ti plasmid
- B. bacteriophage
- C. cosmid
- D. retrovirus

Correct answer: A — Ti plasmid

19. The property of elements in the same period of the periodic table is that they have the same:

- A. number of electron shells
- B. atomic number
- C. valence electrons
- D. chemical reactivity

Correct answer: A — number of electron shells

20. Which metalloid is widely used as a semiconductor in electronic devices?

- A. silicon
- B. carbon
- C. sulfur
- D. phosphorus

Correct answer: A — silicon

21. Which of the following is a balanced chemical equation for the combustion of propane?

- A. $\text{C}_3\text{H}_8 + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$
- B. $\text{C}_3\text{H}_8 + 5\text{O}_2 \rightarrow 3\text{CO}_2 + 4\text{H}_2\text{O}$
- C. $\text{C}_3\text{H}_8 + 3\text{O}_2 \rightarrow 3\text{CO}_2 + \text{H}_2\text{O}$
- D. $2\text{C}_3\text{H}_8 + 7\text{O}_2 \rightarrow 6\text{CO}_2 + 8\text{H}_2\text{O}$

Correct answer: B — $\text{C}_3\text{H}_8 + 5\text{O}_2 \rightarrow 3\text{CO}_2 + 4\text{H}_2\text{O}$

22. In electrolysis of water, which gas is produced at the anode?

- A. hydrogen
- B. oxygen
- C. nitrogen
- D. carbon dioxide

Correct answer: B — oxygen

23. Which element belongs to Group 17 (halogens) in the periodic table?

- A. fluorine
- B. sodium
- C. magnesium
- D. neon

Correct answer: A — fluorine

24. The reactants in a chemical equation are written on which side of the arrow?

- A. right
- B. left
- C. top
- D. bottom

Correct answer: B — left

25. Which law states that mass is neither created nor destroyed in a chemical reaction?

- A. Law of definite proportions
- B. Law of conservation of mass
- C. Law of multiple proportions
- D. Avogadro's law

Correct answer: B — Law of conservation of mass

26. In alkaline batteries, which electrolyte is commonly used?

- A. sulfuric acid
- B. potassium hydroxide
- C. hydrochloric acid
- D. acetic acid

Correct answer: B — potassium hydroxide

27. Which substance is commonly used to treat iron-deficiency anemia?

- A. Iron salts
- B. Calcium salts
- C. Potassium salts
- D. Iodine salts

Correct answer: A — Iron salts

28. A block is initially at rest. Which pair of horizontal forces gives zero resultant force?

- A. 15 N left; 15 N right
- B. 10 N left; 20 N right
- C. 25 N left; 20 N right
- D. 30 N left; 10 N right

Correct answer: A — 15 N left; 15 N right

29. For a constant force parallel to motion, work equals force multiplied by:

- A. Displacement in the direction of the force
- B. time
- C. mass
- D. velocity

Correct answer: A — Displacement in the direction of the force

30. Which structure contains most of the genetic material in a typical animal cell?

- A. Cytoplasm
- B. Nucleus
- C. Mitochondria
- D. Nitrification

Correct answer: B — Nucleus

31. A white light passing through a prism splits into colors due to:

- A. Reflection
- B. Refraction
- C. Dispersion
- D. Diffraction

Correct answer: C — Dispersion

32. Which vision problem is corrected using a concave lens?

- A. Hyperopia
- B. Myopia
- C. Cataract
- D. Colour blindness

Correct answer: B — Myopia

33. Among typical solids, liquids and gases, sound generally travels fastest in which state?

- A. Solid
- B. Liquid
- C. Gas
- D. Vacuum

Correct answer: A — Solid

34. Which formula is used to calculate power in an electrical circuit?

- A. Voltage $\times$ Current
- B. Current $\times$ Resistance
- C. Voltage / Current
- D. Resistance / Voltage

Correct answer: A — Voltage $\times$ Current

35. Which of the following materials is an insulator?

- A. Copper
- B. Aluminium
- C. Rubber
- D. Iron

Correct answer: C — Rubber

36. Identify the component that protects a circuit from overload.

- A. Resistor
- B. Capacitor
- C. Fuse
- D. Diode

Correct answer: C — Fuse

37. The flow of electric charge per unit time is called:

- A. Voltage
- B. Resistance
- C. Electric current
- D. Power

Correct answer: C — Electric current

38. Soap consists mainly of sodium or potassium salts of which type of substance?

- A. Common salt
- B. Baking soda
- C. Fatty acids
- D. Sugar

Correct answer: C — Fatty acids

39. Which type of galaxy has no definite shape?

- A. Spiral galaxy
- B. Elliptical galaxy
- C. Irregular galaxy
- D. Lenticular galaxy

Correct answer: C — Irregular galaxy

40. The force that keeps planets in orbit around the Sun is due to:

- A. Magnetic force
- B. Gravitational force
- C. Electric force
- D. Frictional force

Correct answer: B — Gravitational force
