ORANGE GLOBAL OLYMPIAD

GRADE 9

SCIENCE

School Level Examination (SLE) 2025

SUBJECT CODE | 3 | 0 | 1 |

Total Questions: 50 **Total Marks:** 50 **Time:** 1 Hour

DO NOT OPEN THIS BOOKLET UNTIL INSTRUCTED TO DO SO

- Carefully fill in your **Name, Class, Roll Number,** and other required details on the **OMR Answer Sheet.**
- Use **only an HB pencil** to fill the OMR Answer Sheet.
- All questions are **compulsory** and carry **one mark** each.
- Only **OMR Answer Sheets** will be evaluated.
- There is **no negative marking** for incorrect answers.
- You may use the **last page** of the question paper for **rough work.**
- **Digital devices** like calculators, smart watches, or mobile phones are **not allowed.**
- After the exam, **submit** both the **OMR Answer Sheet** and the **Question Paper** to the invigilator.

This question paper contains a total of 50 questions, divided into three sections: A, B, and C.

Section A (Logical Reasoning)

1. Find the alternative that can be member of the given group or class.

Pathology, Cardiology, Radiology, Ophthalmology

(A) Biology
(B) Hematology
(C) Zoology
(D) Geology

2. Choose the correct alternative that will continue the same pattern and replace the question mark in the given series.

589654237, 89654237, 8965423, 965423, ?

(A) 58965
(B) 65423
(C) 89654
(D) 96542

3. A student got twice as many sums wrong as he got right. If he attempted 48 sums in all, how many did he solve correctly?

(A) 12
(B) 16
(C) 18
(D) 24

4. The following equations have been solved according to a certain rule. Find the rule and choose the correct answer.

4 – 4 = 15, 6 – 6 = 35, 2 – 2 = 3, 5 – 5 = ?

(A) 27
(B) 26
(C) 20
(D) 24

5. 'RELATIONS' is written as 246913587, then the NEST is written as

(A) 7148
(B) 8471
(C) 9786
(D) 2943

6. A, P, R, X, S and Z are sitting in a row. S and Z are in the centre. A and P are at the ends. R is sitting to the left of A. Who is to the right of P?

(A) A
(B) X
(C) S
(D) Z

7. Complete the series by filling in the blank.

CMM, EOO, GQQ, _____, KUU

(A) GRR
(B) GSS
(C) ISS
(D) ITT

8. Heavier coins are costlier. Neha's coin is heavier than Rashi's coin and costlier than Divya's coin. Kajal's coin is costlier than Neha's coin, but lighter than Mehek's coin. Divya's coin is costlier than Rashi's coin. So, who is the owner of the costliest coin?

(A) Neha
(B) Divya
(C) Mehek
(D) Kajal

9. In a test, each question was either 2 marks or 5 marks. Arjun attempted 14 questions in total and got them all correct. If he answered 8 questions of 2 marks, how many marks did he get in the test?

(A) 46 (B) 42

(C) 45 (D) 41

10. Identify the sequence and choose the option that can replace the question mark.

22, 24, 28, ?, 52, 84

(A) 46 (B) 36

(C) 38 (D) 42

Section B (Subject Specific)

11. Match the following and select the correct option.

Column I (Crop)	Column II (Disease)
a. Rice	(i) White rust
b. Wheat	(ii) Wilt
c. Chickpea	(iii) Rust
d. Mustard	(iv) Blast

(A) a-(iv), b-(iii), c-(ii), d-(i) (B) a-(i), b-(ii), c-(iii), d-(iv)

(C) a-(iii), b-(iv), c-(ii), d-(i) (D) a-(iv), b-(iii), c-(i), d-(ii)

12. I contain a variety of organic molecules and organelles that carry out special functions. I act as a medium for many biochemical reactions to take place. Who am I?

(A) Vacuole (B) Cytoplasm

(C) Cell membrane (D) Cell wall

13. You weigh 50 kg on Earth. If the moon's gravity is $1/6^{th}$ that of Earth's, what would be your weight on the Moon?

(A) 50 kg (B) 8.33 kg

(C) 300 kg (D) 25 kg

14. Which of the following statements is true about the atomic structure?

(A) Electrons are located in the nucleus of an atom.

(B) Protons have a negative charge.

(C) Neutrons have no charge and are located in the nucleus.

(D) The nucleus of an atom contains only electrons.

15. Which of the following water conducting tissues is generally present in gymnosperms?

(A) Vessel (B) Sieve tube

(C) Tracheid (D) Xylem fibre

16. Xanthophyll is chiefly responsible for _____ colour in leaves.

(A) Green (B) Yellow

(C) Red (D) White

17. Boron has two isotopes $^{10}_{5}B$ and $^{11}_{5}B$. If average atomic mass of B is 10.81, then what % of B is $^{10}_{5}B$?

(A) 19% (B) 81% (C) 75% (D) 25%

18. Calculate the pressure (in Pa) if a thrust of 1000 N is applied to an area of 5 m^2.

(A) 200 (B) 50

(C) 100 (D) 25

19. Which of the following represents an anion?

(A) p = 12, n = 12 and e = 12 (B) p = 8, n = 8 and e = 10

(C) p = 11, n = 12 and e = 10 (D) p = 17, n = 18 and e = 17

20. A body is said to have uniform velocity, if _____.

(A) It has equal displacement in equal interval of time

(B) It has unequal displacement in equal interval of time

(C) It has equal displacement in unequal interval of time

(D) It has no displacement

21. An iron sphere of 2 kg is dropped from a height of 10 m. If the acceleration due to gravity is 9.8 m s^{-2}, then the momentum transferred to the ground by ball is _____.

(A) 14 kg m s^{-1} (B) 28 kg m s^{-1} (C) 2.8 kg m s^{-1} (D) 1.4 kg m s^{-1}

22. How many carbon atoms are there in 0.5 mol of calcium carbonate ($CaCO_3$)?
(Atomic masses: Ca = 40 u, C = 12 u, O = 16 u)

(A) 1.51×10^{23} atoms (B) 3.01×10^{23} atoms

(C) 6.02×10^{23} atoms (D) 9.03×10^{23} atoms

23. You are given a clear solution of salt in water and want to obtain both salt and water back. What method would you choose?

(A) Crystallisation (B) Distillation (C) Sublimation (D) Filtration

24. A car is accelerated on a leveled road and attains a maximum velocity 2 times. What will happens to the kinetic energy of the car?

(A) Remains same (B) Becomes 2 times

(C) Becomes 4 times (D) Becomes 8 times

25. Which of the following statements about a mixture is incorrect?

(A) Mixtures can have variable composition.

(B) Components in mixtures retain their properties.

(C) Mixtures can be separated only by chemical methods.

(D) Air is a mixture.

26. Which type of muscles work voluntarily?

(A) Striated and smooth muscles (B) Smooth and cardiac muscles

(C) Cardiac and skeletal muscles (D) Striated/skeletal muscles

27. Which tissue in plants allows easy bending of stems without breaking and provides flexibility?

(A) Parenchyma (B) Collenchyma (C) Sclerenchyma (D) Xylem

28. The acceleration of free fall on the moon is 1.6 m s^{-2} whereas on the earth is 10 m s^{-2}. A rock has mass of 10 kg on the earth. Which statement about the rock is correct?

(A) Its mass on the moon is 1.6 kg.

(B) Its mass on the moon is 10 kg.

(C) Its weight on the moon is 0.

(D) Its mass on the earth is 10 N.

29. Which of the following units is used to measure work?

(A) Newton (N)

(B) Joule (J)

(C) Watt (W)

(D) Metre per second squared (m/s^2)

30. A ball is thrown up with a speed of 5 m s^{-1}. How high will it go before it begins to fall? (g = 10 m s^{-2})

(A) 1.00 m (B) 1.25 m (C) 2.50 m (D) 0.625 m

31. During an experiment, a student places a red blood cell in a concentrated salt solution. What will most likely happen to the cell?

(A) It will swell and burst.

(B) It will remain unchanged.

(C) It will shrink due to water loss.

(D) It will divide rapidly.

32. The loudness of sound is measured in _____.

(A) Decibel (B) Hertz (C) Timbre (D) Tone

33. A student places a wet handkerchief on a clothesline on a cold, windy day. It dries faster than expected. Which combination of factors best explains this observation?

(A) High temperature and high humidity

(B) Low humidity and high wind speed

(C) High pressure and low wind speed

(D) Low temperature and high humidity

34. 100 mL of solution contains 2.5 g of NaOH. How many moles of NaOH is present in 1 litre of such solution? (Na = 23 u, O = 16 u and H = 1 u)

(A) 0.0625 mol (B) 6.25 mol (C) 0.625 mol (D) 62.5 mol

35. Match the following and select the correct option.

Column I	Column II
1. Lining of blood vessels	(i) Ciliated columnar epithelium
2. Lining of small intestine	(ii) Cuboidal epithelium
3. Lining of kidney tubules	(iii) Columnar epithelium
4. Respiratory tract	(iv) Squamous epithelium

(A) 1-(i), 2-(ii), 3-(iii), 4-(iv)

(B) 1-(iv), 2-(iii), 3-(ii), 4-(i)

(C) 1-(ii), 2-(iii), 3-(iv), 4-(i)

(D) 1-(iii), 2-(iv), 3-(ii), 4-(i)

Instruction: Q. 36 to 40 are two-key based questions having four options A, B, C and D out of which TWO are correct.

36. Which of the following correctly describes isotopes?

(A) Isotopes have the same number of protons but different number of neutrons.

(B) Isotopes of an element have different atomic numbers.

(C) Isotopes have the same chemical properties.

(D) Isotopes have different numbers of electrons.

37. Which of the following statements about velocity and acceleration are incorrect?

(A) Velocity is a vector quantity that includes both speed and direction.

(B) Acceleration is the rate of change of velocity over time.

(C) Velocity is always positive when an object is moving.

(D) Acceleration is always positive when an object slows down.

38. During an experiment, a student observes two types of connective tissue:
Tissue A: Connects muscles to bones
Tissue B: Connects bones to bones

Which tissues and characteristics are correct?

(A) Tissue A is ligament, rich in collagen

(B) Tissue B is tendon, highly elastic

(C) Tissue A is tendon, strong but not very elastic

(D) Tissue B is ligament, slightly elastic and strong

39. An object is placed in water and it floats. Which statements correctly explain this observation?

(A) The object's weight is less than the buoyant force.

(B) The density of the object is greater than that of water.

(C) The density of the object is less than the density of water.

(D) Water exerts no force on the object; it floats due to its shape.

40. 8 g of oxygen has the same number of molecules as are present in _____.

(A) 22 g of CO_2 (B) 14 g of CO (C) 11 g of CO_2 (D) 7 g of CO

Section C (Competency Enhancement)

41. Calcium chloride when dissolved in water dissociates into Ca^{2+} and Cl^- as follows:

$CaCl_2(aq) \longrightarrow Ca^{2+}(aq) + 2Cl^-(aq)$

What will be the total number of ions obtained by dissolving 222 g of it in water?

(Atomic mass of Ca = 40 u and Cl = 35.5 u)

(A) 6.023×10^{23} ions

(B) 6.023×10^{24} ions

(C) $3 \times 6.023 \times 10^{23}$ ions

(D) $6 \times 6.023 \times 10^{23}$ ions

42. Two tied bricks and a single brick are allowed to fall freely from the same height. Which of the following statements is correct?

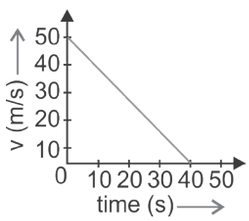
(A) Two tied bricks will reach the ground faster.

(B) Single brick will reach the ground faster.

(C) Both will reach the ground at the same time.

(D) Single brick will reach the ground slowly.

43. Observe the graph and find the correct inference out of the following.



(A) Velocity is increasing uniformly.

(B) Initial velocity is 50 m s^{-1} and final velocity is 0 m s^{-1}.

(C) Initial velocity is 0 m s^{-1} and final velocity is 50 m s^{-1}.

(D) Acceleration is uniform.

44. Read the following statements and select the correct option.

Statement 1: J.J. Thomson discovered the nucleus of the atom.

Statement 2: Rutherford proved that the positive charge of the atom is concentrated in a very small region.

(A) Both statements 1 and 2 are correct.

(B) Both statements 1 and 2 are incorrect.

(C) Statement 1 is correct but statement 2 is incorrect.

(D) Statement 1 is incorrect but statement 2 is correct.

45. Which of the following statements are correct?

I. The value of `g' increases as we go at higher altitudes.

II. The value of `g' at the centre of the earth is zero.

III. The value of `G' at the centre of the earth is zero.

IV. The value of 'g' decreases as we go at higher altitude.

(A) I and II (B) II and III (C) III and IV (D) II and IV

46. A dust particle is removed from a hanging blanket by beating it. This is due to

(A) Newton's Third Law of Motion (B) Newton's First Law of Motion

(C) Newton's Second Law of Motion (D) Law of Conservation of Energy

47. If the tip of sugarcane plant is removed from the field even then it keeps growing in length. It is due to the presence of

(A) Cambium (B) Apical meristem

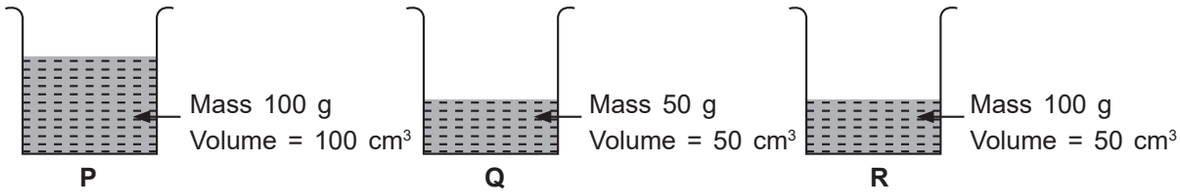
(C) Lateral meristem (D) Intercalary meristem.

48. What mass of $CaCO_3$ is needed to produce 84 kg of CaO for the given equation?
[Atomic mass of Ca = 40 u, C = 12 u and O = 16 u]

$CaCO_3 \longrightarrow CaO + CO_2$

(A) 150 kg (B) 1000 kg (C) 840 kg (D) 1500 kg

49. The beakers in the given diagrams contain three different liquids.



Which statement about the density of the liquid is correct?

(A) Density of liquid P is twice of R (B) Density of liquid R is twice of Q

(C) All liquids have different densities (D) All liquids have same density

50. Read the given merits of Italian bee variety *A. mellifera* and select the correct option.

I. It stings less.

II. It has high collection capacity.

III. It stays in beehive for long periods and breeds very well.

(A) I (B) II (C) I and II (D) I, II and III

SPACE FOR ROUGH WORK