SCIENCE
Grade 10

National Level Examination
NLE 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

- All questions are compulsory.
- Read the instructions on the **ANSWER SHEET** and fill in your **NAME**, **CLASS** and **OTHER INFORMATION**.
- To mark your choice of answer by darkening the circles in the **ANSWER SHEET**, use a **BLUE/BLACK BALL-POINT PEN** only.
- You **MUST** record your answers on the **ANSWER SHEET** only.
- There are **50 MULTIPLE CHOICE QUESTIONS**. Each question carries one mark. Use the information provided to choose the **BEST** possible answer among the four options. On your **ANSWER SHEET** darken the circle that matches your answer.
- $\frac{1}{2}$ **MARK** will be deducted for every **WRONG ANSWER**.
- Return the **ANSWER SHEET** to the invigilator at the end of the examination.
- You are **NOT** allowed to use a calculator. You may use a ruler and spare paper for rough work.

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

Read the instructions carefully before attempting these questions.

Section A (Logical Reasoning)

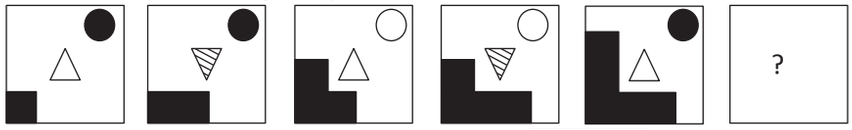
1. Choose the correct alternative that will continue the same pattern and replace the question mark in the given series.
   125, 80, 45, 20, ?
   (A) 5 (B) 8
   (C) 10 (D) 12

2. Complete the given pattern.
   POQ, SRT, VUW, ?
   (A) XYZ (B) XZY
   (C) YXZ (D) YZX

3. If 16th September of an year is a Tuesday, then which day of the week will the 17th October of the same year be?
   (A) Tuesday (B) Wednesday
   (C) Thursday (D) Friday

4. In a queue of children, Ramesh is fifth from the left and Sonu is sixth from the right. When they interchange their places among themselves, Ramesh becomes thirteenth from the left. Then, what will be Sonu's position from the right?
   (A) 4th (B) 8th
   (C) 14th (D) 15th

5. Select the image that will complete the given pattern.

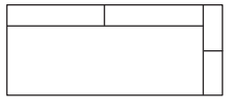


   (A) 
   (B) 
   (C) 
   (D) 

6. If × means ÷, – means ×, ÷ means + and + means –, then
   (3 – 15 ÷ 19) × 8 + 6 = _____
   (A) 8 (B) 4
   (C) 2 (D) –1

7. Airplanes P, Q, R and S all started their flights heading east. After flying 125 km, planes P and S turned right, while planes Q and R turned left. After flying another 115 km, planes Q and R turned left again, and planes P and S also turned left. What are the current directions of airplanes P, Q, R and S respectively?
   (A) North, South, East, West (B) East, West, West, East
   (C) East, West, East, West (D) South, North, North, South

8. The total number of rectangles in the given figure is



   (A) 7 (B) 8
   (C) 9 (D) 10

9. R is the brother of X. Q is the sister of P. Y is the sister of Z. P is the son of Z. X is the father of Q. How is P related to R?
   (A) Wife
   (B) Brother's daughter
   (C) Brother's son
   (D) Sister's husband

10. Which of the following options will replace the question mark (?) in the given series?

    HKOE, KNOE, ?, QTOE, TWOE
    (A) NQEO
    (B) NOQE
    (C) QNOE
    (D) NQOE

Section B (Subject Specific)

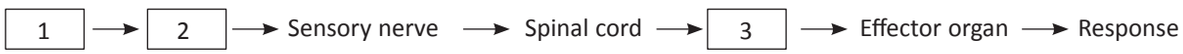
11. Rahul mixed equal volumes of hydrochloric acid and sodium hydroxide solutions of the same concentration in a beaker. To test the pH of the resulting solution, he took a drop of it and placed it on a strip of universal indicator using a dropper. What colour would Rahul have observed on the strip?
    (A) Red
    (B) Green
    (C) Blue
    (D) Magenta

12. If an object is placed at a distance of 10 cm from a concave mirror of focal length 20 cm then the image distance is
    (A) –10 cm
    (B) 10 cm
    (C) –20 cm
    (D) 20 cm

13. Ethene on treating with hydrogen in the presence of palladium or nickel catalyst forms ethane. This is an example of _____.
    (A) Addition reaction
    (B) Substitution reaction
    (C) Displacement reaction
    (D) Oxidation reaction

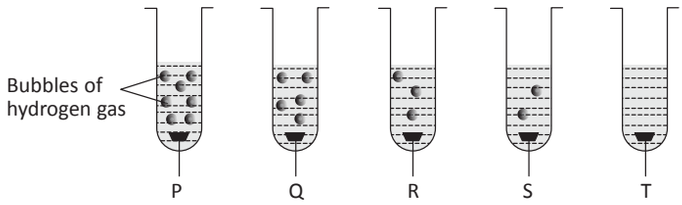
14. Organic acids, such as acetic acid, are generally weaker acids as compared to mineral acids like hydrochloric acid because
    (A) Organic acids are polar in nature
    (B) Mineral acids are completely ionised in solution
    (C) Organic acids are highly reactive
    (D) Mineral acids are less reactive.

15. Identify 1, 2 and 3 for the given flowchart.

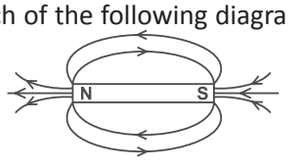
    (A) 1-Brain, 2-Motor nerve, 3-Receptor organ
    (B) 1-Stimulus, 2-Receptor organ, 3-Motor nerve
    (C) 1-Motor nerve, 2-Stimulus, 3-Receptor organ
    (D) 1-Motor nerve, 2-Receptor organ, 3-Stimulus

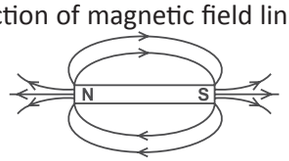
16. Observe the rate of evolution of hydrogen gas with five metals P, Q, R, S and T in dilute HCl solution at room temperature. What could be the metals P, Q, R, S and T?

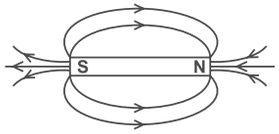
    

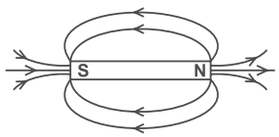
    (A) P-Zn, Q-Al, R-Mg, S-Cu, T-Fe
    (B) P-Mg, Q-Al, R-Zn, S-Fe, T-Cu
    (C) P-Al, Q-Zn, R-Mg, S-Fe, T-Cu
    (D) P-Fe, Q-Zn, R-Mg, S-Al, T-Cu

17. Which of the following diagrams correctly represents the direction of magnetic field lines around a bar magnet?

    (A) 

    (B) 

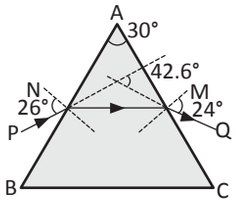
    (C) 

    (D) 

18. Which statement is not true about thyroxin?
(A) Iodine is essential for the synthesis of thyroxin.
(B) Oversecretion of thyroxin causes myxoedema.
(C) It regulates the growth.
(D) It is called thyroid hormone.

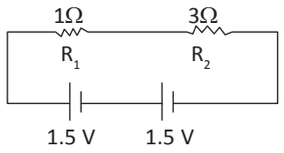
19. An underwater swimmer is trying to view a girl standing on the bank of the lake. The girl will appear _____.
(A) Taller than she actually is
(B) Shorter than she actually is
(C) Of the same height as she actually is
(D) Girl will not be visible

20. Observe the given figure carefully. The angle of deviation and angle of prism are _____ and _____ respectively.
(A) 30°, 42.6°
(B) 24°, 30°
(C) 42.6°, 30°
(D) 42.6°, 24°



21. What is the value of $x + y$ in the given reaction?
$6CO_2 + xH_2O \xrightarrow[\text{Chlorophyll}]{\text{Sunlight}} C_6H_{12}O_6 + yO_2 + 6H_2O$
(A) 16
(B) 20
(C) 18
(D) 14

22. In the given circuit diagram, there are two resistance R_1 = 1 Ω and R_2 = 3 Ω connected in series. The total resistance, total current and amount of charge passing through the battery in 10 min for the given circuit diagram will be
(A) 4 Ω, 1 A, 950 C
(B) 4 Ω, 0.75 A, 95 C
(C) 4 Ω, 0.75 A, 450 C
(D) 2 Ω, 0.75 A, 450 C

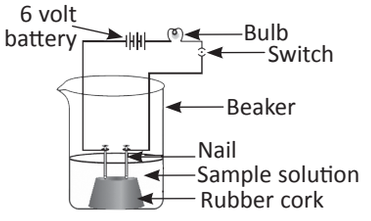


23. Match the column I with column II and select the correct option.

Column I	Column II
(P) Binary fission	(i) *Rhizopus*
(Q) Spore formation	(ii) *Amoeba*
(R) Vegetative propagation	(iii) *Hydra*
(S) Budding	(iv) Potato tuber

(A) P-(ii), Q-(i), R-(iv), S-(iii)
(B) P-(i), Q-(ii), R-(iii), S-(iv)
(C) P-(iii), Q-(iv), R-(i), S-(ii)
(D) P-(iv), Q-(iii), R-(ii), S-(i)

24. Rajesh sets up an experiment as shown in the given figure to test the conductivity of a few solutions. He replaced the test solutions one-by-one and recorded his observations for each. Which of the following observations of Rajesh are incorrect?
(A) When glucose solution is added, the bulb does not glow.
(B) When ethanol solution is added, the bulb does not glow.
(C) When dilute hydrochloric acid is added, the bulb glows.
(D) When sodium hydroxide solution is added, the bulb does not glow.



25. Which of the following statements correctly describes asexual reproduction?
(i) Asexual reproduction involves only one parent.
(ii) It is a complex process requiring meiosis.
(iii) Offspring are generally not identical to the parent.
(iv) It involves a relatively simple cellular mechanism compared to sexual reproduction.
(A) (i) and (iv)
(B) (ii) and (iii)
(C) (i) and (ii)
(D) (iii) and (iv)

26. Consider the following food chain.

Grass → Rabbit → Snake → Peacock

If in this food chain, 2000 J of energy is available at the producer level, then calculate the energy transferred to peacock.

(A) 2000 J (B) 20 J

(C) 2 J (D) 200 J

27. Which of the following pairs of chemicals can be used to produce a colourless and odourless gas that makes a 'pop' sound on burning?

(A) Zinc and dil. HCl (B) $NaHCO_3$ and dil. HCl

(C) Na_2CO_3 and dil. NaOH (D) $Ca(OH)_2$ and chlorine gas

28. Identify the mismatched pairs.

	System		Function
(A)	Digestive	-	Transmits signals between the brain and the rest of the body
(B)	Respiratory	-	To obtain energy by oxidation-reduction reactions in cells
(C)	Circulatory	-	Transports blood throughout the body
(D)	Excretory	-	To remove metabolic wastes from the body

29. An electric fan rated 150 W operates for 20 hours a day. The cost of energy to operate two such fans for 30 days at the cost of ₹2 per kWh is

(A) ₹ 360 (B) ₹ 180

(C) ₹ 150 (D) ₹ 300

30. Select the incorrect match.

(A) Methanal – Aldehyde (B) Methanoic acid – Ester

(C) Propanone – Ketone (D) Methanol – Alcohol

31. What should be the position of the bulb in torches, search lights and headlights of vehicles?

(A) At the centre of curvature of the reflector

(B) Between the focus and centre of curvature of the reflector

(C) Very near to the focus of the reflector

(D) Between the pole and the focus of the reflector

32. In certain species of plants, pollination occurs *via* wind or insects, and fertilisation takes place inside the ovary after pollen reaches the stigma. What is the immediate result of successful fertilisation in these plants?

(A) The ovule becomes the seed, and the ovary transforms into the fruit.

(B) The pollen grain forms a new flower within the ovary.

(C) The ovary develops into embryo.

(D) The ovary produces multiple flowers without seed formation.

33. Two heterozygous plants are crossed. What is the ratio of homozygous genotype to heterozygous genotype among the offspring?

(A) 1 : 1 (B) 1 : 2

(C) 1 : 3 (D) 3 : 1

34. When white light passes through a prism, it splits into different colours. Which of the following statements is incorrect?

(A) The band of coloured components of a white light is called its spectrum.

(B) The wavelength of light decreases as we move from violet to red.

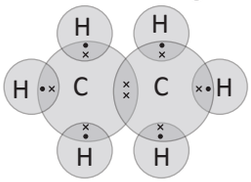
(C) Different colours of light bend through different angles with respect to incident ray.

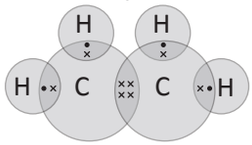
(D) Red light bends the least, whereas violet light bends the most.

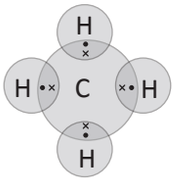
35. Read the following statements and select the correct option.
Statement 1: Iodine is a lustrous non-metal.
Statement 2: Generally, all non-metals are lustrous.
(A) Both statements 1 and 2 are correct. (B) Both statements 1 and 2 are incorrect.
(C) Statement 1 is correct but statement 2 is incorrect. (D) Statement 1 is incorrect but statement 2 is correct.

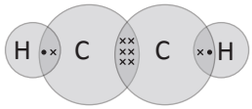
Instruction: Q.36 to 40 are two-key based questions having four options A, B , C and D out of which TWO are correct.

36. Which of the following are the components of pancreatic juice?
(A) Trypsin (B) Pepsin
(C) Bile (D) Lipase

37. Which of the following electronic dot structures represent saturated compounds?
(A) 

(B) 

(C) 

(D) 

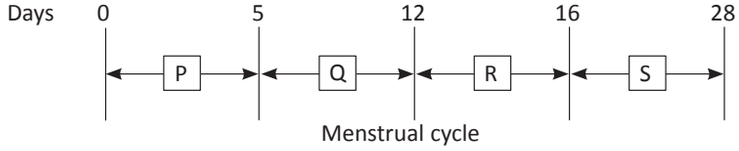
38. Read the given statements carefully and select the correct ones.
(A) In case of a rectangular glass slab, the refraction takes place at both air-glass interface and glass-air interface.
(B) Refractive index is the ratio of sine of angle of refraction to the sine of angle of incidence.
(C) In air-glass interface, the ray of light bends towards the normal and in glass-air interface, it bends away from the normal.
(D) In air-glass interface, the ray of light bends away from the normal and in glass-air interface, it bends towards the normal.

39. Ram's father has been diagnosed with myopia. Which of the following are the causes of this condition?
(A) Too small eyeball (B) Excessive curvature of the eye lens
(C) Weakening of the ciliary muscles (D) Elongated eyeball

40. Barium chloride on reaction with sodium sulphate forms barium sulphate and sodium chloride. Which of the following correctly represent the types of reaction involved?
(A) Displacement reaction (B) Precipitation reaction
(C) Combination reaction (D) Double displacement reaction

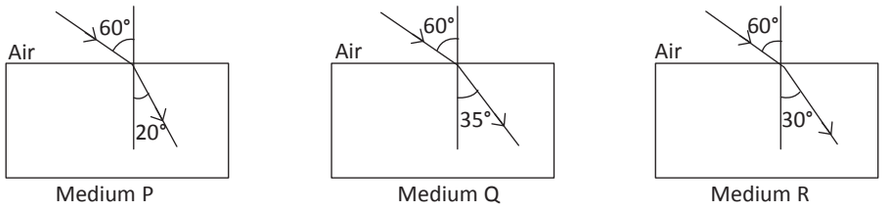
Section C (Competency Enhancement)

41. P, Q, R and S represent the stages of the menstrual cycle. At which stage can fertilisation take place?
(A) P
(B) Q
(C) R
(D) S



42. Soap micelles are effective in cleaning because
(A) They neutralise dirt through chemical reactions. (B) They disperse dirt evenly throughout the solution.
(C) They trap oily dirt in the centre and keep it suspended. (D) All of these.

43. Three light rays of the same wavelength in air strike three different media at the same angle of incidence. Which of the following media is the least dense?



(A) Medium P (B) Medium Q
(C) Medium R (D) All media are equally dense

44. A wire having X Ω resistance is cut into four equal parts such that all the parts have equal resistance. Then, these four wires are arranged in parallel connection giving resultant resistance Y Ω. What is the ratio of resistance of X and Y?

(A) 1 : 4 (B) 4 : 1
(C) 1 : 16 (D) 16 : 1

45. Metal 'X' is found in earth's crust. This metal forms a reddish-brown coating (called rust) when exposed to moist air. When a blue coloured solution of 'Y' is stored in a container made of 'X', the solution turns green and a reddish-brown metal 'Z' is deposited on the container. Identify X, Y and Z respectively.

(A) Cu, Ag, Au (B) Zn, $ZnSO_4$, Fe
(C) Fe, $CuSO_4$, Cu (D) Cu, $FeSO_4$, Fe

46. Which of the following descriptions accurately represents that roots are positively geotropic and shoots are negatively geotropic?

(A) Roots grow downward and shoots grow upward. (B) Roots grow upward and shoots grow downward.
(C) Both roots and shoots grow sideways. (D) Roots grow upward and shoots grow sideways.

47. Which of the following is an example of combination reaction?

(A) $2KClO_3 \xrightarrow{heat} 2KCl + 3O_2$ (B) $MgO + H_2O \longrightarrow Mg(OH)_2$
(C) $NaOH + HCl \longrightarrow NaCl + H_2O$ (D) $Zn + FeSO_4 \longrightarrow ZnSO_4 + Fe$

48. Identify the options in which the chambers of the heart are incorrectly matched with the parts they pump blood to.

	Heart chambers		**Pumps**
1.	Right atrium	—	Oxygenated blood to right ventricles
2.	Right ventricle	—	Deoxygenated blood to lungs
3.	Left atrium	—	Deoxygenated blood to left ventricle
4.	Left ventricle	—	Oxygenated blood to different parts of the body

(A) 1 only (B) 3 only
(C) Both 1 and 3 (D) Both 2 and 4

49. Divya observed that the stain of curry on a white dress becomes reddish-brown when soap is scrubbed on it, but it turns yellow again when the white dress is rinsed with plenty of water. Which of the following might be the best reason for her observation?

(A) Soap is acidic in nature.
(B) Soap is basic in nature.
(C) Turmeric is a natural indicator that gives a reddish colour in acids.
(D) Turmeric is a natural indicator that gives a greenish colour in acids.

50. When using Fleming's Left Hand Rule, the index finger is aligned with the magnetic field and the middle finger with the current. What does the thumb represent in this rule?

(A) Direction of the magnetic field (B) Direction of the motion
(C) Direction of the electric current (D) Direction of the voltage