



School Level Examination  
SLE 2022

GRADE  
10

SCIENCE

Subject Code: 

3	0	1
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Total Questions: 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 PEN** only.
- You **MUST** record your answers on the **ANSWER SHEET** only.
- There are **50 MULTIPLE CHOICE QUESTIONS**.  
Use the information provided to choose the **BEST** answer among the four possible options. On your **ANSWER SHEET** fill in the circle that matches your answer.
- Marks are **NOT** deducted for incorrect answers.
- 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.

SCIENCE

Section A (Logical Reasoning)

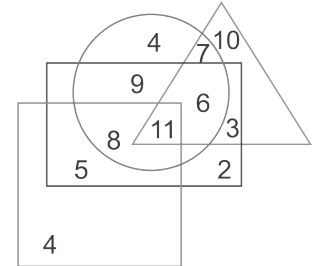
(This section contains 10 multiple choice questions. Each question has four choices (A), (B), (C) and (D), out of which only ONE is correct.)

1. Planet : Orbit :: Projectile: ?

- (A) Trajectory (B) Track  
(C) Milky way (D) Path

2. In the given figure:

- Rectangle represents males.
- Circle represents the urbans.
- Square represents the educated.
- Triangle represents the civil servants.



Then, the number of educated males who are urban civil servants is \_\_\_\_\_.

- (A) 19 (B) 11  
(C) 8 (D) 5

3. In a family there are husband, wife, two sons and two daughters. All the men were out to a party. Mother went out for shopping with a daughter. Who was at home?

- (A) Only wife was at home. (B) All ladies were at home.  
(C) All sons were at home. (D) Out of two, one daughter was at home.

4. Find the odd one out.

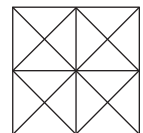
- (A) Voltmeter : Voltage (B) Protractor : Angle  
(C) Thermostat : Thermal energy (D) Tachometer : Speed of motor boats

5. ?

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

6. How many squares do you see in the given image?

- (A) 9 (B) 10  
(C) 11 (D) 12



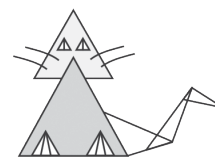
7. Last weekend, I went to play in the nearby park. It was real fun! I rode my new bicycle that Mom had gifted me on my birthday.

On reaching the park, I saw that there were total 12 bicycles and tricycles. If the total number of wheels was 29, how many tricycles were there?

- (A) 7 (B) 6  
(C) 5 (D) 8

8. How many triangles can you count in this cat?

- (A) 24 (B) 27  
(C) 28 (D) 21



9. Here are some words translated from an artificial language.

- 'Titi poi' means deep sleep.
- 'Kuha rosa' means start jumping.
- 'Poi koi' means deep sea.
- Which word could mean "sleep start"?

- (A) Titi rosa (B) Poi kuha  
(C) Choch titi (D) Poi poi

10. Which number can replace the question mark?

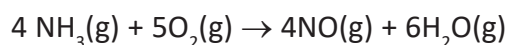
2	3	17
11	13	?
7	19	5

- (A) 21 (B) 23  
(C) 25 (D) 1

### Section B (Subject Specific)

(This section contains 25 multiple choice questions. Each question has four choices (A), (B), (C) and (D), out of which only ONE is correct.)

11. The following reaction is an example of \_\_\_\_\_.



- I. displacement reaction II. exothermic reaction  
III. redox reaction IV. neutralization reaction  
(A) I and II (B) II and III  
(C) I and III (D) III and IV

12. What is the ionic equation for the neutralization reaction of aqueous sodium hydroxide and dilute nitric acid?

- (A)  $\text{HNO}_3 + \text{NaOH} \longrightarrow \text{NaNO}_3 + \text{H}_2\text{O}$  (B)  $\text{HNO}_3 + \text{OH}^- \longrightarrow \text{H}_2\text{O} + \text{NO}_3^-$   
(C)  $\text{NaOH} + \text{H}^+ \longrightarrow \text{Na}^+ + \text{H}_2\text{O}$  (D)  $\text{Na}^+ + \text{HNO}_3 \longrightarrow \text{NaNO}_3 + \text{H}^+$

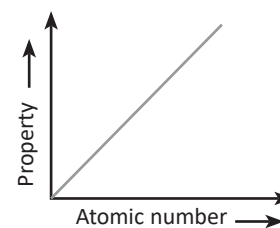
13. Which of the following is correct general formula of saturated carboxylic acids?

- (A)  $\text{C}_n\text{H}_{2n-1}\text{COOH}$  (B)  $\text{C}_n\text{H}_{2n}\text{COOH}$   
(C)  $\text{C}_n\text{H}_{2n+1}\text{COOH}$  (D)  $\text{C}_n\text{H}_{2n-2}\text{COOH}$

14. Which of the following furnaces are used for producing very high temperatures?

- (A) Blast furnace (B) Reverberatory furnace  
(C) Regeneration furnace (D) Electric furnace

15. Here given is a graph of property plotted against atomic number for the elements in a group of the periodic table. Which of the following properties CANNOT be represented by the graph?



- (A) Size of the ion
- (B) Size of atom
- (C) Charge on the ion
- (D) Number of electron shells

16. The human digestive system consists of \_\_\_\_\_ .

- I. mouth, small intestine, large intestine
  - II. gullet, stomach, anus
  - III. heart, lung, kidney
  - IV. liver
- (A) I and II
  - (B) II and III
  - (C) I and III
  - (D) I, II and IV

17. Hormone which suspends ovulation during pregnancy and prepares the uterine endometrium for the implantation of the embryo is \_\_\_\_\_ .

- (A) oestrogen
- (B) progesterone
- (C) oxytocin
- (D) All of these

18. Which of the following is not a STD (Sexually Transmitted Disease)?

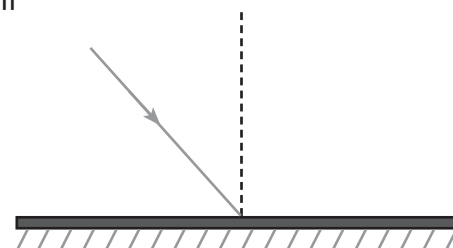
- (A) Gonorrhoea
- (B) Syphilis
- (C) AIDS
- (D) Hepatitis

19. Select the statements that describe the characteristics of genes.

- I. Genes are specific sequence of bases in a DNA molecule.
- II. A gene codes for a protein.
- III. In individuals of a given species, a specific gene is located on a particular chromosome.
- IV. Each chromosome has only one gene.

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

20. The diagram given below represents a ray of light striking a plane mirror. What is the angle of incidence if the total angle between incident and reflected rays is  $80^\circ$ ?



- (A)  $40^\circ$
- (B)  $50^\circ$
- (C)  $80^\circ$
- (D)  $60^\circ$

21. The physics teacher uses bifocal cylindrical lens in his spectacles. He is suffering from \_\_\_\_\_ .

- (A) myopia and astigmatism
- (B) astigmatism and hypermetropia
- (C) myopia and hypermetropia
- (D) myopia, hypermetropia and astigmatism

22. A thin fuse wire of 3A fuse is connected to a plug which is connected to a table lamp. The fuse is needed to \_\_\_\_\_ .

- (A) increase resistance of the circuit
- (B) decrease resistance
- (C) protect the wire from overheating
- (D) reduce voltage across the lamp

23. Choose the correct statements.
- Fleming's right hand thumb rule is used to know the direction of induced current.
  - The right hand thumb rule is used to find the direction of magnetic field.
  - DC flows in one direction, AC reverses its direction.
  - In India, the AC changes its direction 50 times per second.
- (A) I and II (B) II and III  
(C) III and IV (D) I, II and III
24. The gas released from the supersonic jet aeroplane which depletes ozone layer is \_\_\_\_\_ .
- (A) CFC (B) NO  
(C) NO<sub>2</sub> (D) SO<sub>2</sub>
25. If the tertiary consumer has 10kJ of energy, what will be energy of producer?
- (A) 1000 kJ (B) 100 kJ  
(C) 10000 kJ (D) 100,000 kJ
26. Environment can be protected by using integrated pest management (without or minimum use of pesticide).
- Improved sanitation practice
  - Crop rotation
  - Soil conditioning
  - Biological control
- (A) I and II (B) II and III  
(C) I and III (D) I, II, III and IV
27. Which is the best suitable reason for choosing below mentioned sources of water?
- (A) Ground water: clean and easily usable  
(B) Underground water: does not evaporate, recharges well and clean  
(C) Ground water: contaminated  
(D) Underground water: does contain bleaching agents such as chlorine
28. When we heat some water on a stone, its temperature increases. In this case, \_\_\_\_\_ .
- (A) heat energy is converted into thermal energy  
(B) thermal energy is converted into heat energy  
(C) mechanical energy is converted into thermal energy  
(D) thermal energy is converted into mechanical energy
29. The process of depositing molten Zn layer on iron articles is called \_\_\_\_\_ .
- (A) Anodising (B) Electroplating  
(C) Galvanisation (D) Annealing
30. Ethanol on oxidation gives \_\_\_\_\_ .
- (A) Ethane (B) Formalin  
(C) Ethanoic acid (D) Methane
31. Arrange the following elements in the order of their decreasing metallic character.
- (A) Cl > Si > Al > Mg > Na (B) Na > Mg > Al > Si > Cl  
(C) Na > Al > Mg > Cl > Si (D) Al > Na > Si > Ca > Mg

32. Flowers like tulip, crocus open at high temperature, but close with fall of temperature. Which of the following movements does it involve?
- (A) Photonasty (B) Nyctinasty  
(C) Seismonasty (D) Thermonasty
33. Which one of the given fruits develops without fertilisation?
- (I) Apple (II) Mango  
(III) Banana (IV) Strawberry  
(A) (I) and (III) (B) Only (I)  
(C) (II) and (IV) (D) Only (III)
34. Some dinosaurs had feathers although they could not fly but birds have feathers that help them to fly. In the context of evolution, this means that \_\_\_\_\_.
- (A) reptiles have evolved from birds  
(B) there is no evolutionary connection between reptiles and birds  
(C) feathers are homologous structures in both birds and organisms  
(D) birds have evolved from reptiles
35. "A body having large mass only shows its particle nature". Choose the correct option regarding this statement.
- (A) According to de Broglie relation, wavelength is inversely proportional to mass of the body.  
(B) A wavelength is directly proportional to Planck's constant.  
(C) Planck's constant is independent variable.  
(D) Statement is incorrect.

### Section C (Competency Based)

(This section contains 15 multiple choice questions. Each question has four choices (A), (B), (C) and (D), out of which TWO are correct.)

36. Formalin is an aqueous solution of \_\_\_\_\_.
- (A) Formic acid (B) Formaldehyde  
(C) Methanal (D) Acetaldehyde
37. Sodium carbonate is \_\_\_\_\_.
- (A) acidic (B) basic  
(C) neutral (D) salt of strong base and weak acid
38. What happens when a solution of an acid is mixed with a solution of base in a test tube?
- (A) The temperature of the solution increases. (B) The temperature of the solution decreases.  
(C) The temperature of the solution remains same. (D) Salt formation takes place.
39. Aqua regia can dissolve \_\_\_\_\_.
- (A) Ag (B) Pb  
(C) Pt (D) Au
40. In which of the following examples is a convex mirror used?
- (A) Solar furnace (B) Rear view mirror in vehicles  
(C) Street lamps (D) Headlight of a car

41. Common salt besides being used in kitchen can also be used as the raw material for making \_\_\_\_\_ .
- (A) washing soda (B) bleaching powder  
(C) baking soda (D) slaked lime
42. Which of the following are enzymes used in digestion?
- (A) Pepsin (B) Trypsin  
(C) Lysozyme (D) Urease
43. Which of the following are NOT true for biogas?
- (A) Biogas contains up to 75% methane.  
(B) Biogas burns with minimal smoke leaving residues like ash in wood, etc.  
(C) Biogas is used for lighting.  
(D) The slurry left behind is a waste and discarded after biogas is obtained.
44. Which of the following phenomenon occurs when a small amount of acid is added to water?
- (A) Ionisation (B) Neutralisation  
(C) Dilution (D) Salt formation
45. Which of the following statements are correct?
- (A) Red light has highest wavelength. (B) Red light moves fastest.  
(C) All colours of white light move with same speed. (D) Yellow light moves slowest.
46. Which of the following regions of our country are known for their rich biodiversity?
- (A) Western Ghats (B) Eastern Himalayas  
(C) Deccan Plateau (D) Gangetic plain
47. Solid Calcium oxide reacts vigorously with water forming calcium hydroxide. Which of the following are true about it?
- (A) It is an exothermic reaction. (B) It is an endothermic reaction.  
(C) The pH of resulting solution is more than 7. (D) The pH of resulting solution is less than 7.
48. Which of the following substances can be added to denature ethanol?
- (A) Methanol (B) Pyridine  
(C) Butanoic acid (D) Ethanoic acid
49. Which are advantages of nuclear reactor?
- (A) Waste disposal is easy.  
(B) A small amount of nuclear fuel releases large amount of energy.  
(C) Once the nuclear fuel is loaded, nuclear reactor can operate for 2 to 3 years.  
(D) It does not pollute environment and is cost effective.
50. Which of the statements are true regarding eye donation?
- (A) Eye donors can belong to any age group or sex.  
(B) Eye must be removed within one hour after death.  
(C) The removal of eye takes one hour.  
(D) Persons died because of infections or communicable diseases such as AIDS, rabies, etc. cannot donate eyes.

